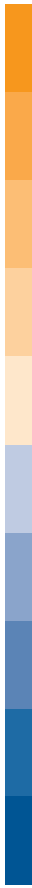


PROCESS CATALOGUE 2020



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COMPANY PROFILE

Ascon Tecnologica is an Italian company that develops, manufactures and commercializes a complete range of products for the regulation and automation of machinery and systems in the manufacturing and processing sectors as well as that of industrial and commercial refrigeration.

The group Ascon Tecnologica has more than 200 employees and, in its productive plants, realizes every year over a million of instruments.

Ascon Tecnologica operates in over 50 countries with 6 branches, its own agents and a distribution network, offering clients sales and after-sales assistance.

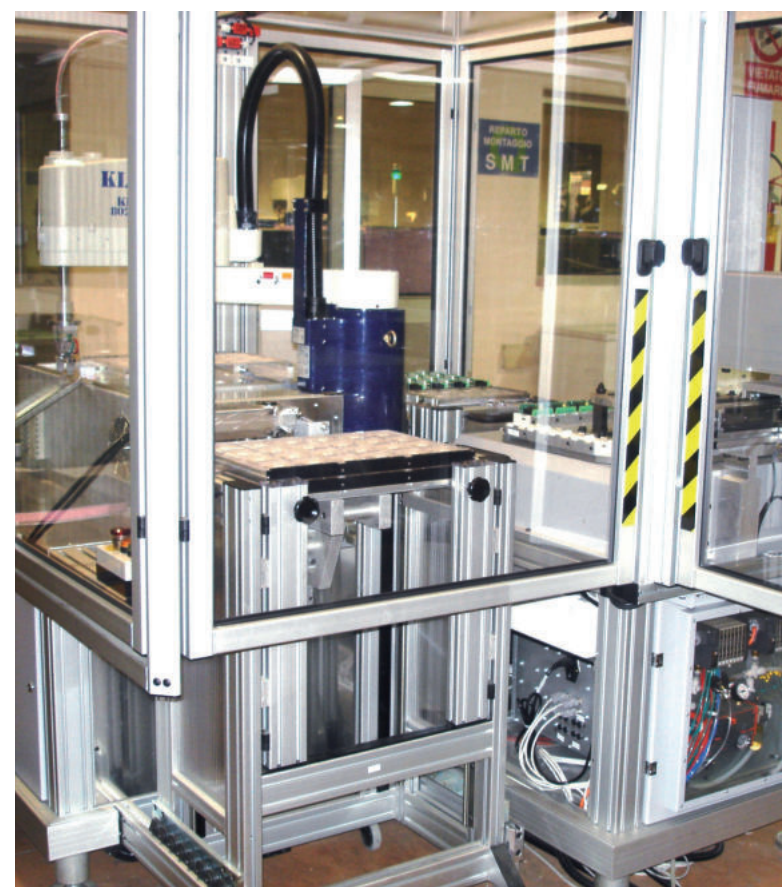


Manufacturing unit, Manaus (Brazil).



Headquarters, offices, R&D, Manufacturing unit, Vigevano (Italy).

QUALITY CERTIFICATION / SAFETY AND APPROVALS



Ascon Tecnologica S.r.l. has obtained:

- the certification of "Quality System" in conformity to UNI EN ISO 9001:2008 released by the corporate certifier DNV GL Business Assurance Italia S.r.l.
- the "Management System Certificate" in conformity to OHSAS 18001:2007 released by the corporate certifier DNV GL Business Assurance Italia S.r.l.

The instruments are developed for the use in conformity to the actual compliance, as concern the CE mark according to Directives 2006/95/CE (Low Voltage) and 2004/108/CE (EMC).
The applicable rules, according to the model, are:

SAFETY

- EN61010-1
- EN60730-1
- UL873 for use conforming as foreseen by Underwriters Laboratory Inc. (only for approved instruments).

EMC

EN61326-1

Remarks: please make reference to the documentation and the individual certifications for details of the applicable norms.



INDUSTRIAL AUTOMATION



FLEXIBLE
control

INDUSTRIAL CONTROLLERS



Evolution...cubed !

Experience and innovation are at the base of this range of products, able to answer to any demand of performances.

From the "entry level" controller with innovative "Sensitive-Touch" keyboard to the more sophisticated microprocessor based controllers with PID algorithm, in different sizes, standard and not.

New KUBE line: more and more in less space!

Pocket size, energy saving functions and advanced features.

INDUSTRIAL CONTROLLERS

| FEATURES | | KM1-KM1W | KX1 | KR1-KR1W | R38 | TLK43 | TLK72 | TLK96 | TLK94 | C1 | M1 | M2 | M3 | M4 | X1 | X3 | Q1 | Q3 |
|--|--------------------|----------|-----|----------|-----|-------|-------|-------|-------|----|----|----|----|----|----|----|----|----|
| Dimensions (mm) | 78 x 35 | | | • | • | | | | | • | | | | | | | | |
| | 24 x 48 | | | | | | | | | | | | | | | | | |
| | 48 x 48 | • | | | | • | | | | | • | • | • | • | | | | |
| | 48 x 96 | | • | | | | | | • | | | | | | • | • | | |
| | 72 x 72 | | | | | | • | | | | | | | | | | • | • |
| | 96 x 96 | | | | | | | | | | | | | | | | | • |
| 3 dynamic colour dual LED display | | • | • | • | | | | | | | | | | | | | | |
| White+amber LED display | | • | | • | | | | | | | | | | | | | | |
| Single display | | | | | • | | • | • | | • | • | | | | | | | |
| Dual display | | | | | | • | | | • | | | • | • | • | • | • | • | • |
| Digit | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| "Sensitive Touch" keyboard | | | | | • | | | | | | | | | | | | | |
| Input | Universal input | | | | | • | | | • | • | • | • | • | • | • | • | • | • |
| | PTC-NTC | | | | • | | • | • | | | | | | | | | | |
| | J-K | • | • | • | • | | • | • | | | | | | | | | | |
| | S | | | | | | • | • | | | | | | | | | | |
| | S-R-T | • | • | • | | | | | | | | | | | | | | |
| | Pt100 | • | • | • | • | | • | • | | | | | | | | | | |
| | ΔT Pt100 | | | | | | | | | • | • | • | • | • | • | • | • | • |
| | Pt1000 | • | • | • | • | • | | | | | | | | | | | | |
| | IR sensors | | | | | | | | • | • | • | • | • | • | • | • | • | • |
| Digital | 2 | 2 | 2 | | 1 | | | 2 | | | 1 | | 1 | | 3 | | 3 | |
| For CT | | | | | • | | | • | | | • | • | • | • | • | • | • | |
| Relay or voltage for SSR drive outputs | | 4 | 4 | 4 | 2 | 4 | 3 | 2 | 5 | 3 | 4 | 3 | 3 | 4 | 4 | 4 | 4 | 4 |
| Analogue current or voltage outputs | | | | | | 2 | | | 2 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 |
| Measuring or Set Point retransmission | | | | | | | | | • | • | • | | • | • | • | • | • | • |
| Power supply | 12 Vac/Vdc | | | | • | | | | | | | | | | | | | |
| | 24 Vac/Vdc | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| | 100... 240 Vac | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| | ON/OFF and PID | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Control | Servomotor control | | | | | | | • | | | | | | | | | • | |
| RS485 | | • | • | • | | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Timer on board | | • | • | • | | | | | | | | | • | • | • | • | • | • |
| Programmer | | | | | | | | | | | | | | | | | | • |
| CE certification | | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| UL approval | | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |

- INDUSTRIAL CONTROLLERS
- ADVANCED PROGRAMMER CONTROLLERS
- DIN RAIL MOUNTING CONTROLLERS
- THERMOSTATS ANALOGUE CONTROLLERS
- SPECIAL CONTROLLERS AND "CUSTOM"
- PAC SYSTEMS
- PRE-PROGRAMMED SYSTEMS
- PLC AND OPERATOR PANELS
- TIMERS COUNTERS POWER LIMITERS
- INDICATORS
- I/O MODULES
- SUPERVISION
- COMBUSTION CONTROL
- ACCESSORIES

KM1

- 3 DYNAMIC COLOUR LED DISPLAY
- INDEPENDENT TIMER
- WORKING HOURS COUNTER
- WATTMETER FUNCTION

evolution



FEATURES

| DISPLAY | |
|---------------------------------|--|
| Dual LED | Main display: 4 digit h 15.5 mm. 3 colours: red, green and amber Secondary display: 4 green digit, h 7 mm |
| INPUTS | |
| Universal | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermistors: PTC KTY81-121 (-55... +150°C/-67... 302°F), NTC 103 AT2 (-50... +110°C/-58... 230°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Accuracy | ± 0.5% span ± 1 digit, (± 1% span ± 1 digit for T/c S type) |
| Digital inputs | 1 or 2 according to instrument's part number (the 2nd digital input is alternative to OUT 4) |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPST-NO 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% |
| | OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% |
| | OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% |
| | OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Selftuning algorithms, Overshoot control |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Timer (optional) | Independent with 5 function modes |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max. |
| Dimensions / Weight | 48 x 48 mm (1/16 DIN) - depth 63 mm / 125 g |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH%, without condensation |
| Conformity | EN 61010-1, EN 61326 |



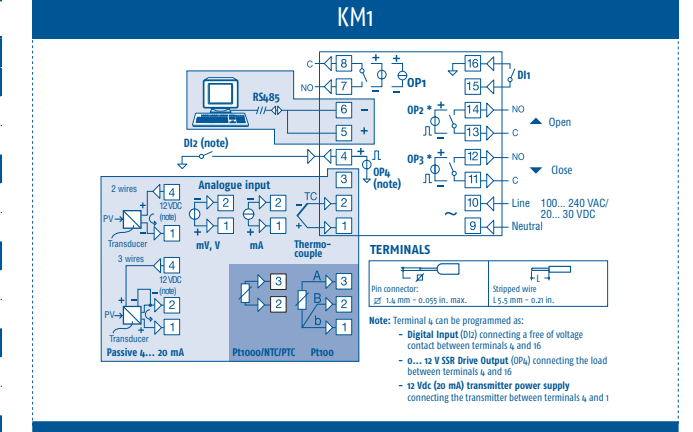
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

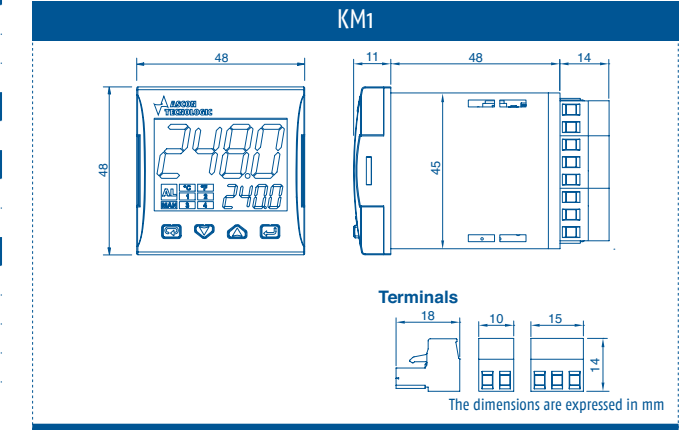
| KM1 | CODE |
|---|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV + digital input 1 | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E |
| OUT 1 | |
| Relay SPST 4A | R |
| Vdc for SSR driving | O |
| OUT 2 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 3 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| IN/OUT 4 | |
| Digital input 2 or digital output or transmitter supply | D |
| RS485 | |
| Available | S |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS

ADVANCED PROGRAMMERS CONTROLLERS

DIN RAIL MOUNTING CONTROLLERS

THERMOSTATS ANALOGUE CONTROLLERS

SPECIAL CONTROLLERS AND "CUSTOM"

PAC SYSTEMS

PRE-PROGRAMMED SYSTEMS

PLC AND OPERATOR PANELS

TIMERS COUNTERS POWER LIMITERS

INDICATORS

I/O MODULES

SUPERVISION

COMBUSTION CONTROL

ACCESSORIES

KM1W

- WHITE AND AMBER LED DISPLAY
- INDEPENDENT TIMER
- WORKING HOURS COUNTER
- WATTMETER FUNCTION

evolution



FEATURES

| DISPLAY | |
|---------------------------------|---|
| Dual LED | Main display: 4 digit h 15.5 mm. white colour Secondary display: 4 amber digit, h 7 mm |
| INPUTS | |
| Universal | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K |
| | Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Accuracy | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K |
| | Thermistors: PTC KTY81-121 (-55... +150°C/-67... 302°F), NTC 103 AT2 (-50... +110°C/-58... 230°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Digital inputs | ± 0.5% span ±1 digit, (±1% span ±1 digit for T/c S type) |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPST-NO 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% |
| | OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% |
| | OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% |
| | OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Selftuning algorithms, Overshoot control |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Timer (optional) | Independent with 5 function modes |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max. |
| Dimensions / Weight | 48 x 48 mm (1/16 DIN) - depth 63 mm / 125 g |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH%, without condensation |
| Conformity | EN 61010-1, EN 61326 |



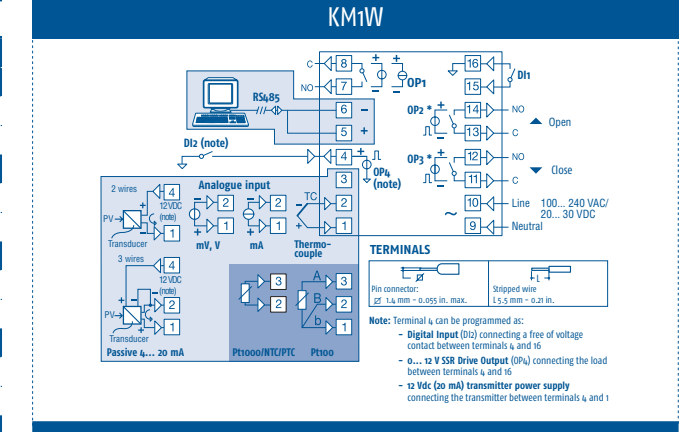
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

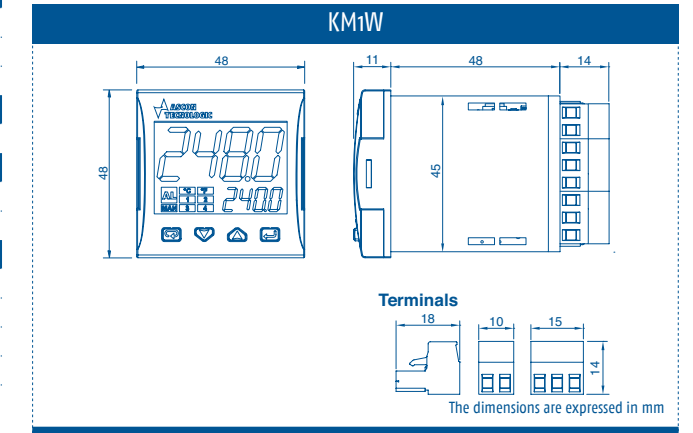
| KM1W | CODE |
|---|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV + digital input 1 | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E |
| OUT 1 | |
| Relay SPST 4A | R |
| Vdc for SSR driving | O |
| OUT 2 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 3 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| IN/OUT 4 | |
| Digital input 2 or digital output or transmitter supply | D |
| RS485 | |
| Available | S |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMERS CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

KX1

- 3 DYNAMIC COLOUR LED DISPLAY
- INDEPENDENT TIMER
- WORKING HOURS COUNTER
- WATTMETER FUNCTION

evolution



FEATURES

| DISPLAY | |
|---------------------------------|---|
| Dual LED | Main display: 4 digit h 15.5 mm. 3 colours: red, green and amber Secondary display: 4 green digit, h 10 mm + 20 segments Bargraph |
| INPUTS | |
| Universal | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Accuracy | ± 0.5% span ± 1 digit, (± 1% span ± 1 digit for T/c S type) |
| Digital inputs | 1 or 2 according to instrument's part number (the 2nd digital input is alternative to OUT 4) |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPST-NO 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Selftuning algorithms, Overshoot control |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Timer (optional) | Independent with 5 function modes |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max. |
| Dimensions / Weight | 48 x 96 mm (1/8 DIN) - depth 76 mm / 260 g |
| Mounting | Flush in panel in 45 x 93 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH%, without condensation |
| Conformity | EN 61010-1, EN 61326 |



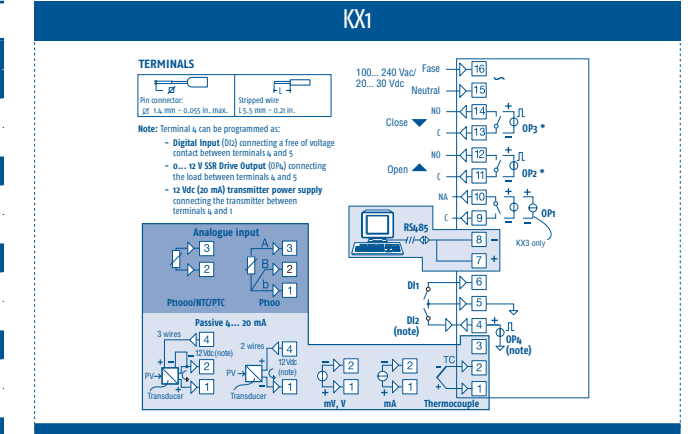
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

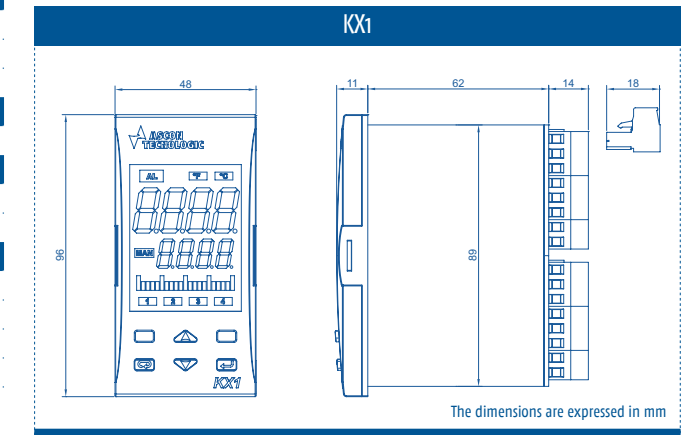
| KX1 | CODE |
|---|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV + digital input 1 | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E |
| OUT 1 | |
| Relay SPST 4A | R |
| Vdc for SSR driving | O |
| OUT 2 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 3 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| IN/OUT 4 | |
| Digital input 2 or digital output or transmitter supply | D |
| RS485 | |
| Available | S |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMABLE CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

KR1

- 3 DYNAMIC COLOUR LED DISPLAY
- INDEPENDENT TIMER
- WORKING HOURS COUNTER
- WATTMETER FUNCTION

evolution



FEATURES

| DISPLAY | |
|---------------------------------|--|
| Dual LED | <p>KR1</p> <p>Main display: 4 digit h 11.7 mm. 3 colours: red, green and amber</p> <p>Secondary display: 4 green digit, h 7 mm</p> |
| INPUTS | |
| Universal | <p>Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F)</p> <p>Infrared sensors: J or K</p> <p>Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F)</p> <p>Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V</p> <p>Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F)</p> <p>Infrared sensors: J or K</p> <p>Thermistors: PTC KTY81-121 (-55... +150°C/-67... 302°F), NTC 103 AT2 (-50... +110°C/-58... 230°F)</p> <p>Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V</p> |
| Accuracy | ± 0.5% span ± 1 digit, (± 1% span ± 1 digit for T/c S type) |
| Digital inputs | 1 or 2 according to instrument's part number (the 2nd digital input is alternative to OUT 4) |
| OUTPUTS | |
| Up to 4 | <p>OUT 1: Relay SPDT 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10%</p> <p>OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10%</p> <p>OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10%</p> <p>OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input</p> |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Selftuning algorithms, Overshoot control |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Timer (optional) | Independent with 5 function modes |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max. |
| Dimensions / Weight | 78 x 35 mm - depth 78 mm + 14 mm (plug-in terminals) / 200 g |
| Mounting | Flush in panel in 69 x 28 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH%, without condensation |
| Conformity | EN 61010-1, EN 61326 |



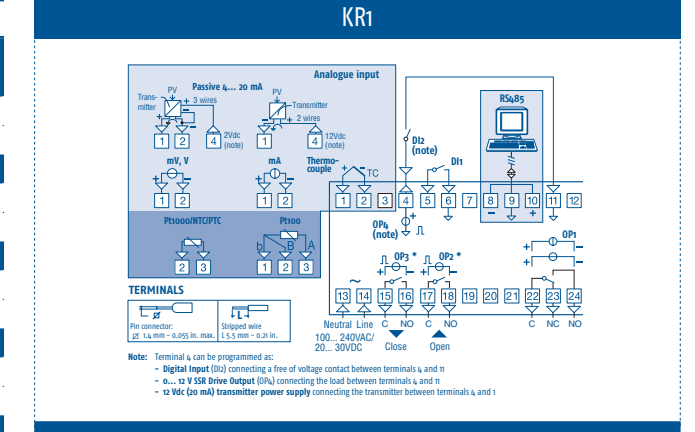
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

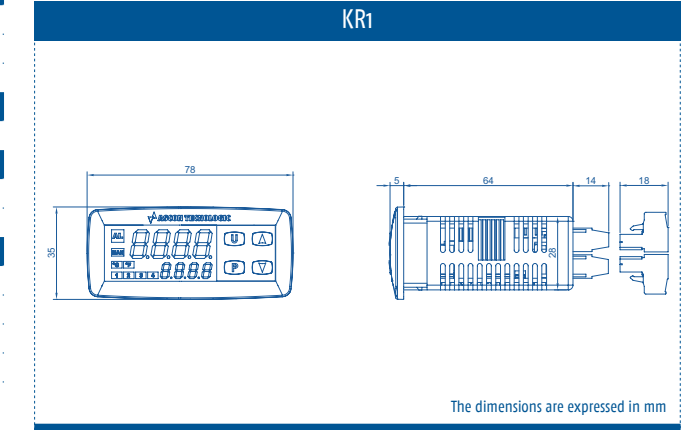
| KR1 | VERSION | CODE |
|---|---------|------|
| Controller | - | - |
| Controller + Timer | T | T |
| POWER SUPPLY | | |
| 24 Vac/Vdc | L | L |
| 100... 240 Vac | H | H |
| INPUT | | |
| TC, RTD, mA, V, mV + digital input 1 | C | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E | E |
| OUT 1 | | |
| Relay SPDT 4A | R | R |
| Vdc for SSR driving | O | O |
| OUT 2 | | |
| Relay SPST 2A | R | R |
| Vdc for SSR driving | O | O |
| Not available | - | - |
| OUT 3 | | |
| Relay SPST 2A | R | R |
| Vdc for SSR driving | O | O |
| Not available | - | - |
| OUT 4 | | |
| Digital input 2 or digital output or transmitter supply | D | D |
| RS485 | | |
| Available | S | S |
| Not available | - | - |
| CONNECTION | | |
| Plug-in screw type | E | E |
| Plug-in screw type, fix part only | N | N |
| Clamp type | M | M |
| Fix screw type (standard) | - | - |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMABLE CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
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 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

KR1W

- WHITE AND AMBER LED DISPLAY
- INDEPENDENT TIMER
- WORKING HOURS COUNTER
- WATTMETER FUNCTION

evolution



FEATURES

| DISPLAY | KR1W |
|---------------------------------|--|
| Dual LED | Main display: 4 digit h 11.7 mm white colour Secondary display: 4 amber digit, h 7 mm |
| INPUTS | |
| Universal | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Accuracy | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermistors: PTC KTY81-121 (-55... +150°C/-67... 302°F), NTC 103 AT2 (-50... +110°C/-58... 230°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Digital inputs | ± 0.5% span ± 1 digit, (± 1% span ± 1 digit for T/c S type) |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPDT 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Selftuning algorithms, Overshoot control |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Timer (optional) | Independent with 5 function modes |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max. |
| Dimensions / Weight | 78 x 35 mm - depth 78 mm + 14 mm (plug-in terminals) / 200 g |
| Mounting | Flush in panel in 69 x 28 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH%, without condensation |
| Conformity | EN 61010-1, EN 61326 |



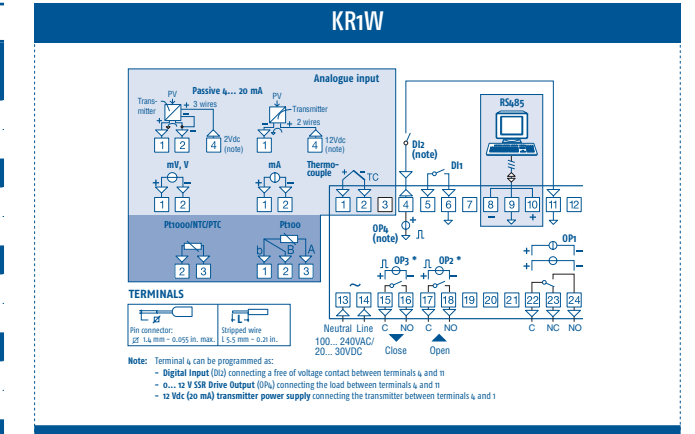
EVERYTHING UNDER CONTROL

HOW TO ORDER

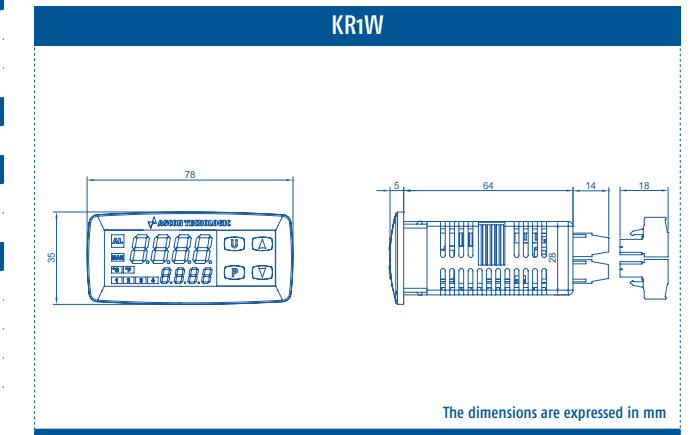
To compose the part number, pls. choose one of the option for each variable

| KR1W VERSION | CODE |
|---|------|
| Controller | - |
| Controller + Timer | T |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV + digital input 1 | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E |
| OUT 1 | |
| Relay SPDT 4A | R |
| Vdc for SSR driving | O |
| OUT 2 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 3 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 4 | |
| Digital input 2 or digital output or transmitter supply | D |
| RS485 | |
| Available | S |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

CONNECTIONS



DIMENSIONS



R38

- "SENSITIVE TOUCH" KEYBOARD
- EASY PROGRAMMING



FEATURES

| | |
|---------------------------------|---|
| DISPLAY | R38 |
| Single | 4 red or blue digit, h 12 mm |
| INPUTS | Thermocouples J, K (-40... +999°C / -40... +999°F) or Infrared sensors: J or K |
| 3 different configurations | Thermoresistances Pt 100 2 wires (-50.0... +850°C / -58... +999°F) autoranging |
| | Thermoresistances Pt 1000 2 wires (-50.0... +850°C / -58... +999°F) autoranging + Thermistors PTC KTY 81-121 (990Ω at 25°C) (-50.0... +150°C / -58.0 a 302°F) autoranging e |
| | Thermistors NTC 103AT-2 (10kΩ at 25°C) (-50.0... +109°C / -58.0... +228°F) |
| Accuracy | ± 0.5% span ± 1 digit@ 25°C |
| OUTPUTS | Up to 2 |
| Auxiliary power supply | OUT 1 and OUT 2: Relay SPDT (8A-AC1, 3A-AC3/250 Vac) or voltage to drive SSR 20mA/12 Vdc ±20% 20 mA max. 12 Vdc/20 mA max. |
| FUNCTIONAL | Control |
| PID functions | ON/OFF single and double action, Neutral Zone, PID, programmable |
| Autotuning | Autotuning |
| Sampling rate | 1 sec |
| Serial communication | TTL ModBus |
| Baud rate | 9600 baud |
| GENERAL | Power supply |
| Power consumption | 12 Vac/Vdc, 24 Vac, 100... 240 Vac/Vdc ±10% (50/60 Hz) |
| Dimensions / Weight | 6 VA approx. |
| Keyboard | 78 x 35 mm - depth 64 mm / 180 g approx. |
| Connections | Mechanical or "Sensitive Touch" |
| Mounting | Screw terminal block 2 x 1 mm ² plug-in connector or fix type |
| Front protection degree | Flush in panel in 71 x 29 mm hole |
| Operating / storage temperature | IP 65, mounted on panel with gasket |
| Operating humidity | 0... +50°C (32... 122°F) / -30... +70°C (-22... +158°F) |
| Conformity | 20... 85 RH%, without condensation |
| | Directive EMC 2004/108/CE (EN 61326-1), Directive BT 2006/95/CE (EN 61010-1) |



EVERYTHING UNDER CONTROL

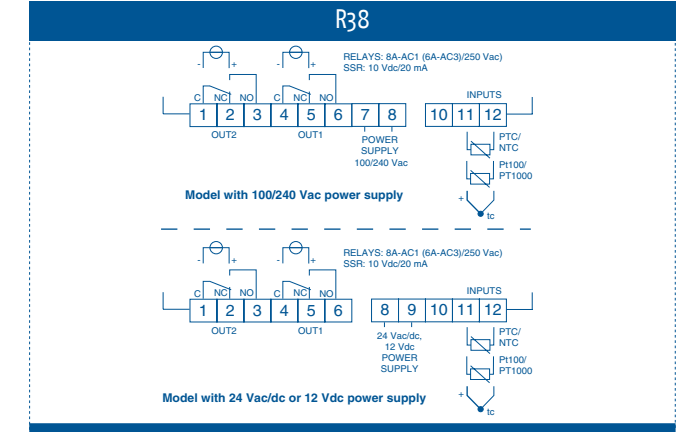
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

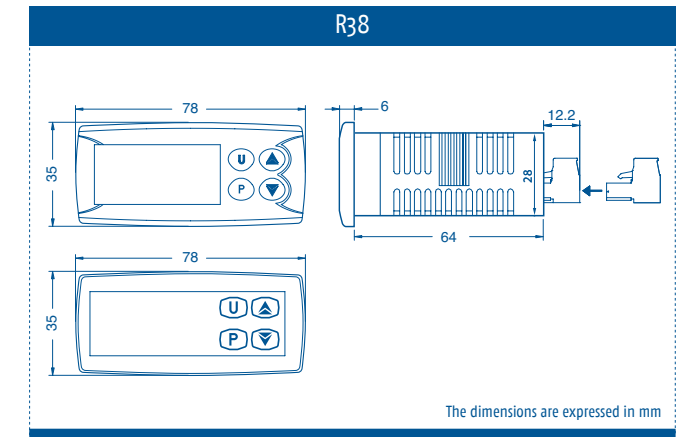
| R38 | CODE |
|-----------------------------------|------|
| KEYBOARD | |
| Mechanical | - |
| Sensitive-Touch (*) | S |
| POWER SUPPLY | |
| 12 Vac/Vdc | F |
| 24 Vac/Vdc | L |
| 100... 240 Vac/Vdc | H |
| INPUT | |
| TC (J,K) | F |
| PT100 (2 wires only) | A |
| PTC/NTC/PT1000 | T |
| OUT 1 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | O |
| OUT 2 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | O |
| Not available | - |
| BUZZER (INTERNAL) | |
| Available | B |
| TIPO COLLEGAMENTO | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Fix screw type (standard) | - |

(*) Capacitive Touch screen keyboard

CONNECTIONS



DIMENSIONS



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 COMBUSTION CONTROL
 ACCESSORIES

TLK 43

- UNIVERSAL INPUT
- RS485
- UP TO 4 OUTPUTS
- CT INPUT



FEATURES

| DISPLAY | |
|--|--|
| Display | Dual display: 4 red and green digit, h 7mm |
| INPUTS | |
| Universal | Thermocouples: J, K, S, B, C, E, L, N, R, T (see table next page for temperature ranges) |
| | Infrared sensors: J or K |
| | Thermoresistances: Pt100 and Pt1000 3 wires (see table next page for temperature ranges) |
| | Thermistors PTC KTY 81-121 (990 kΩ at 25°C) (-55... +150°C/-67... +302°F or -55.0... +150.0°C -67.0... +302.0°F) and NTC 103AT-2 (10kΩ at 25°C) (-50... +110°C/-58... +230°F or -50.0... +110.0°C/-58.0... +230.0°F) |
| Accuracy | ±0.15% fs |
| Current transformer (CT) input | CT 50 mA max. |
| Digital input | optoisolated |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPST-NO (5 A-AC1, 2 A-AC3/250 Vac) or 7 mA/14 Vdc 20 mA max. to drive SSR OUT 2, OUT 3 and OUT 4: Relay SPST-NO (3 A-AC1, 1.5 A-AC3/250 Vac) or 7 mA/14 Vdc 20 mA max. to drive SSR |
| Auxiliary power supply | 12 Vdc/20 mA max. |
| Current (as alternative to Relay output) | OUT 1 and OUT 2: 0/4... 20 mA. |
| Voltage (as alternative to Relay output) | OUT 1 and OUT 2: 0/2... 10 V |
| FUNCTIONAL | |
| Control | ON/OFF, Neutral Zone, PID single and double action |
| PID functions | AUTOTUNING, FAST TUNING, Seltuning |
| Multi Set Point | Up to 4 pre-programmable Set Point |
| Servomotor control | 3 points |
| Signal retransmission | On analogue output |
| Serial communication | RS485 with ModBus-RTU (JBUS) protocol |
| Baud rate | 1200... 38400 baud, programmable |
| GENERAL | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc ±10% (50/60 Hz) |
| Power consumption | 10 VA approx. |
| Dimensions / Weight | 48 x 48 mm (1/16 DIN) - depth 98 mm / 190 g approx. |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Connections | Screw terminal block 2 x 1 mm ² |
| Front protection degree | IP 65, mounted on panel with gasket |
| Operating / storage temperature | 0... +50°C (32... +122°F) / -25... +60°C (-13... +140°F) |
| Operating humidity | 30... 95 RH% without condensation |
| Conformity | Directive CEE EMC 2004/108/CE (EN 61326), Directive CEE BT 2006/95/CE (EN 61010-1) |



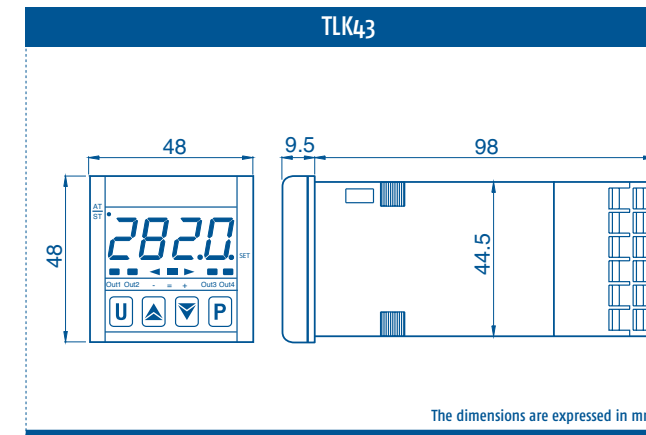
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

| TLK41 / TLK42 / TLK43 | CODE |
|---|------|
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| OUT 1 | |
| Relay | R |
| Voltage for SSR driving | O |
| 0/4... 20mA | C |
| 0/2... 10V | V |
| OUT 2 | |
| Relay | R |
| Voltage for SSR driving | O |
| 0/4... 20mA | C |
| 0/2... 10V | V |
| Not available | - |
| OUT 3 | |
| Relay | R |
| Voltage for SSR driving | O |
| Not available | - |
| OUT 4 | |
| Relay | R |
| Voltage for SSR driving | O |
| Not available | - |
| SERIAL COMMUNICATION AND DIGITAL INPUT | |
| RS485 | S |
| RS485 and digital input | I |
| Not available | - |
| CURRENT TRANSFORMER INPUT | |
| Available | H |
| Not available | - |

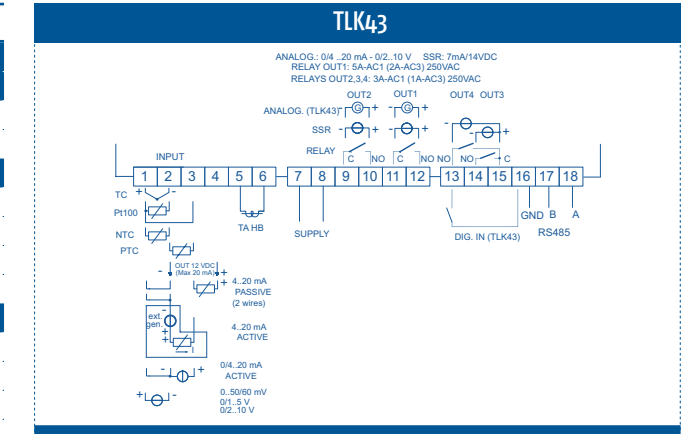
Notes:
 OUT 3 and OUT 4 have to be of the same type (both R or O).
 CT INPUT: this function has to be always associated to an output (R or O).
 Analogue output and CT function are mutually exclusive.
 Digital input is always available when RS485 option is provided.
 RS485 and OUT 4 are mutually exclusive.

DIMENSIONS



EVERYTHING UNDER CONTROL

CONNECTIONS



TEMPERATURE RANGES

| TLK43 TEMPERATURE RANGES | | |
|--------------------------|---------------------------------------|--|
| INPUT | WITHOUT D.P. | WITH D.P. |
| tc J | -160 ... 1000 °C - 256 ... 1832 °F | -160.0 ... 999.9 °C -199.9 ... 999.9 °F |
| tc K | -100 ... 1370 °C - 148 ... 2498 °F | -100.0 ... 999.9 °C -148.0 ... 999.9 °F |
| tc S | 0 ... 1760 °C 32 ... 3200 °F | 0.0 ... 999.9 °C 32.0 ... 999.9 °F |
| tc B | 72 ... 1820 °C 162 ... 3308 °F | 72.0 ... 999.9 °C 162.0 ... 999.9 °F |
| tc E | -150 ... 750 °C -252 ... 1382 °F | -150.0 ... 750.0 °C -199.9 ... 999.9 °F |
| tc L | -150 ... 900 °C -252 ... 1652 °F | -150.0 ... 900.0 °C -199.9 ... 999.9 °F |
| tc N | -250 ... 1300 °C -418 ... 2372 °F | -199.9 ... 999.9 °C -199.9 ... 999.9 °F |
| tc R | -50 ... 1760 °C -58 ... 3200 °F | -50.0 ... 999.9 °C -58.0 ... 999.9 °F |
| tc T | -250 ... 400 °C -418 ... 752 °F | -199.9 ... 400.0 °C -199.9 ... 752.0 °F |
| tc C | 0 ... 2320 °C 32 ... 4208 °F | 0.0 ... 999.9 °C 32.0 ... 999.9 °F |
| Infrared sensors (ZIS) | -46 ... 785 °C -50 ... 1445 °F | -46.0 ... 785.0 °C -50.8 ... 999.9 °F |
| Pt1000 (IEC) | -200 ... 500 °C -328 ... 932 °F | -199.9 ... 500.0 °C -199.9 ... 932.0 °F |
| Pt100 (IEC) | -200 ... 850 °C -328 ... 1562 °F | -199.9 ... 850.0 °C -199.9 ... 999.9 °F |
| PTC (KTY81-121) | -55 ... 150 °C -67 ... 302 °F | -55.0 ... 150.0 °C -67.0 ... 302.0 °F |
| NTC (103-AT2) | -50 ... 110 °C -58 ... 230 °F | -50.0 ... 110.0 °C -58.0 ... 230.0 °F |

INDUSTRIAL CONTROLLERS
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 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

TLK72

- ON/OFF AND PID CONTROLLER
- RS485
- UP TO 3 RELAY OUTPUTS



FEATURES

| DISPLAY | |
|---------------------------------|--|
| Single | TLK72 4 red digit, h 12 mm + 3 LED Bargraph |
| INPUTS | |
| 4 different configurations | Thermocouples J (0... 1000 °C/ 32... 1832°F), K (0... 1370°C/32... 2498°F), S (0... 1760°C/32... 3200°F) and Infrared sensors J or K + Thermoresistances Pt 100 3 wires (-200... 850 °C/-328... 1562 °F) + Linear signals 0/10... 50mV, 0/12... 60mV |
| | Thermocouples J (0... 1000 °C/ 32... 1832°F), K (0... 1370°C/32... 2498°F), S (0... 1760°C/32... 3200°F) and Infrared sensors J or K + Thermistors PTC KTY 81-121 (990Ω at 25°C) (-55... 150 °C/-67... 302 °F) and Thermistors NTC 103AT-2 (10 kΩ at 25°C) (-50... 110 °C/-58... 230 °F) + Linear signals 0/10... 50mV, 0/12... 60mV |
| | Linear signals 0/4... 20mA |
| | Linear signals 0/1... 5V, 0/2... 10V |
| Accuracy | ±0.5 % fs (tc S: ± 1% fs) |
| OUTPUTS | |
| Up to 3 | OUT 1 : Relay SPDT (8 A-AC1, 3 A-AC3 / 250 V AC) or voltage to drive SSR 8Vdc/8 mA OUT 2 e OUT 3: Relay SPST-NO (8 A-AC1 3A-AC3/250 Vdc) or voltage to drive SSR 8Vdc/8 mA |
| Auxiliary power supply | 12 Vdc/20 mA max. |
| FUNCTIONAL | |
| Control | ON/OFF, Neutral Zone, PID |
| PID functions | AUTOTUNING, FAST TUNING, Selftuning |
| Multi Set Point | Up to 4 pre-programmable Set Point |
| Serial communication | RS485 with ModBus-RTU (JBUS) protocol |
| Baud rate | 1200... 38400 baud, programmable |
| GENERAL | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc ± 10% (50/60 Hz) |
| Power consumption | 10 VA approx. |
| Dimensions / Weight | 72 x 72 mm - depth 97 mm / 325 g approx. |
| Mounting | Flush in panel in 67 x 67 mm hole |
| Connections | Screw terminal block 2 x 1 mm ² |
| Front protection degree | IP 54, mounted on panel with gasket |
| Operating / storage temperature | 0... +50°C (+32... +122°F) / -10... +60°C (+14... +140°F) |
| Operating humidity | 30... 95 RH% without condensation |
| Conformity | Directive CEE EMC 89/336 (EN 61326), Directive CEE BT 73/23 and 93/68 (EN 61010-1) |



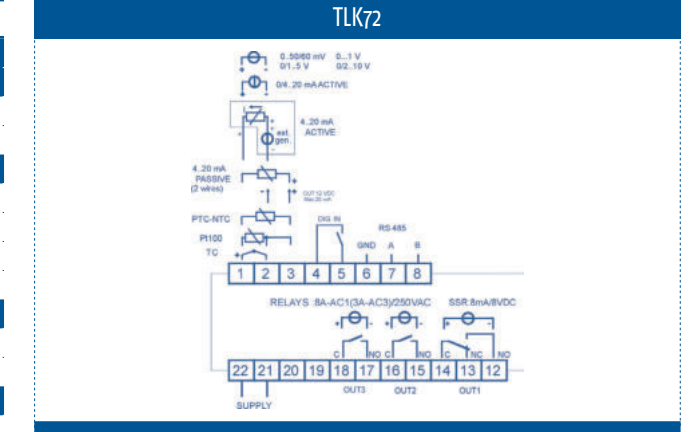
EVERYTHING UNDER CONTROL

HOW TO ORDER

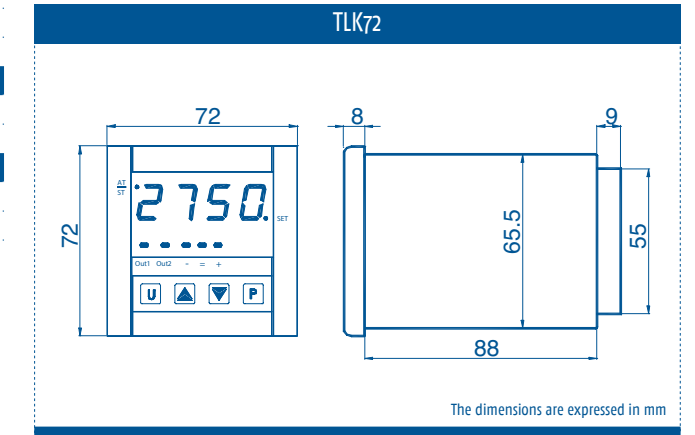
To compose the part number, pls. choose one of the option for each variable

| | |
|-----------------------------|---|
| TLK72 | |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC (J,K,S,IRS)+PT100,mV | C |
| TC (J,K,S,IRS)+PTC,NTC,mV | E |
| 0/4... 20mA | I |
| 0/1... 5V, 0/2... 10V | V |
| OUT 1 | |
| Relay | R |
| Voltage for SSR driving | 0 |
| OUT 2 | |
| Relay | R |
| Voltage for SSR driving | 0 |
| Not available | - |
| OUT 3 | |
| Relay | R |
| Voltage for SSR driving | 0 |
| Not available | - |
| SERIAL COMMUNICATION | |
| RS485 | S |
| Not available | - |
| DIGITAL INPUT | |
| Available | I |
| Not available | - |

CONNECTIONS



DIMENSIONS



The dimensions are expressed in mm

INDUSTRIAL CONTROLLERS

ADVANCED PROGRAMMER CONTROLLERS

DIN RAIL MOUNTING CONTROLLERS

THERMOSTATS ANALOGUE CONTROLLERS

SPECIAL CONTROLLERS AND "CUSTOM"

PAC SYSTEMS

PRE-PROGRAMMED SYSTEMS

PLC AND OPERATOR PANELS

TIMERS COUNTERS POWER LIMITERS

INDICATORS

I/O MODULES

SUPERVISION

COMBUSTION CONTROL

ACCESSORIES

TLK96

- ON/OFF AND PID CONTROLLER
- UP TO 2 RELAY OUTPUTS



FEATURES

| DISPLAY | |
|---------------------------------|--|
| Single | TLK96 4 red digit, h 14 mm |
| INPUTS | |
| 4 different configurations | Thermocouples J (0... 1000 °C/ 32... 1832°F), K (0... 1370°C/32... 2498°F), S (0... 1760°C/32... 3200°F) and Infrared sensors J or K + Thermoresistances Pt 100 3 wires (-200... 850 °C/-328... 1562 °F) + Linear signals 0/10... 50mV, 0/12... 60mV |
| | Thermocouples J (0... 1000 °C/ 32... 1832°F), K (0... 1370°C/32... 2498°F), S (0... 1760°C/32... 3200°F) and Infrared sensors J or K + Thermistors PTC KTY 81-121 (990Ω at 25°C) (-55... 150 °C/-67... 302 °F) and Thermistors NTC 103AT-2 (10 kΩ at 25°C) (-50... 110 °C/-58... 230 °F) + Linear signals 0/10... 50mV, 0/12... 60mV |
| | Linear signals 0/4... 20mA |
| | Linear signals 0/1... 5V, 0/2... 10V |
| Accuracy | ±0.5 % fs (tc S: ± 1% fs) |
| OUTPUTS | |
| Up to 2 | OUT 1 and OUT 2: Relay SPDT (8 A-AC1, 3 A-AC3 / 250 V AC) or voltage to drive SSR 8Vdc/8 mA |
| Auxiliary power supply | 12 Vdc/20 mA max. |
| FUNCTIONAL | |
| Control | ON/OFF, Neutral Zone, PID |
| PID functions | AUTOTUNING |
| GENERAL | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc ± 10% (50/60 Hz) |
| Power consumption | 10 VA approx. |
| Dimensions / Weight | 96 x 96 mm (1/4 DIN) - depth 73 mm / 250 g approx. |
| Mounting | Flush in panel in 90 x 90 mm hole |
| Connections | Screw terminal block 2 x 1 mm ² |
| Front protection degree | IP 54, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -10 ... 60 °C (14... 140°F) |
| Operating humidity | 30... 95 RH% without condensation |
| Conformity | Directive CEE EMC 89/336 (EN 61326), Directive CEE BT 73/23 and 93/68 (EN 61010-1) |



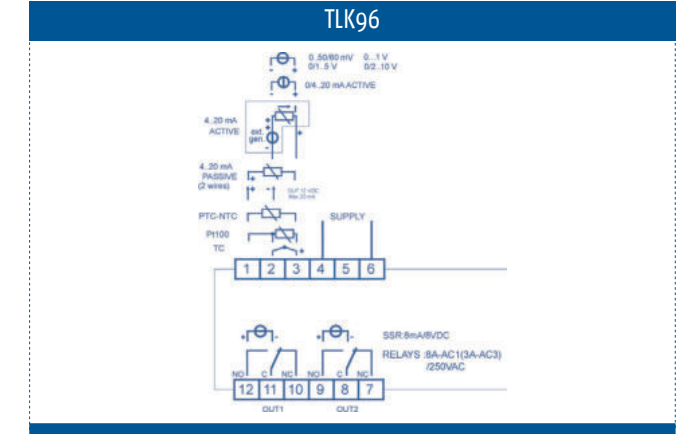
EVERYTHING UNDER CONTROL

HOW TO ORDER

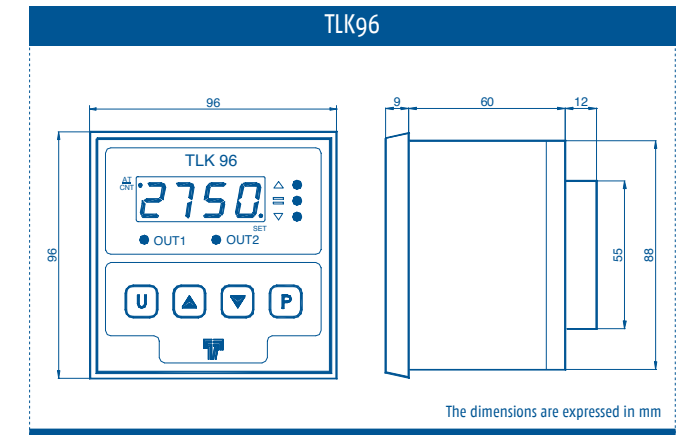
To compose the part number, pls. choose one of the option for each variable

| TLK96 | |
|---------------------------|---|
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC (J,K,S,IRS)+PT100,mV | C |
| TC (J,K,S,IRS)+PTC,NTC,mV | E |
| 0/4... 20mA | I |
| 0/1... 5V, 0/2... 10V | V |
| OUT 1 | |
| Relay | R |
| Voltage for SSR driving | 0 |
| OUT 2 | |
| Relay | R |
| Voltage for SSR driving | 0 |
| Not available | - |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS

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ACCESSORIES

TLK94

- UNIVERSAL INPUT
- RS485
- UP TO 5 OUTPUTS
- SERVOMOTOR CONTROL



FEATURES

| DISPLAY | |
|---------------------------------|---|
| Dual display | TLK94 Main display: 4 red digit, h 10 mm Secondary display: 4 green digit, h 7.5 mm |
| INPUTS | |
| Universal | Thermocouples J, K, S, B, C, E, L, N, R, T and Infrared sensors J or K + Thermoresistances Pt 100 and Pt1000 3 wires + Linear signals 0/10... 50mV, 0/4... 20mA, 0/12... 60mV, 0/1... 5V, 0/2... 10V (see table next page for temperature ranges) |
| Accuracy | ± 0.2 % fs + 1 digit; PTC/NTC: ± 0.5 % fs + 1 digit |
| Current transformer (CT) input | CT 50 mA max. optoisolated |
| Digital inputs | 2 for free voltage contacts |
| OUTPUTS | |
| Up to 6 | OUT 1 : Relay SPST-NO (6 A-AC1, 3 A-AC3 / 250 V AC) or 12Vdc/20 mA to drive SSR or 0/4... 20 mA or 0/2... 10 V OUT 2 : Relay SPST-NO (4 A-AC1, 2 A-AC3 / 250 V AC) or 12Vdc/20 mA to drive SSR or 0/4... 20 mA or 0/2... 10 V OUT 3, OUT 4, OUT 5 : Relay SPST-NO (4 A-AC1, 2 A-AC3 / 250 V AC) or 12Vdc/20 mA to drive SSR OUT6: 12Vdc/20 mA to drive SSR |
| Up to 4 | 12 Vdc/20 mA max. |
| FUNCTIONAL | |
| Control | ON/OFF, PID single and double action, PID for servomotor control |
| PID functions | AUTOTUNING, FAST TUNING, Seltuning |
| Multi Set Point | Up to 4 pre-programmable Set Point |
| Servomotor control | 3 points |
| Signal retransmission | On analogue output |
| Serial communication | RS485 with ModBus-RTU (JBUS) protocol |
| Baud rate | 1200... 38400 baud, programmable |
| GENERAL | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc ± 10% (50/60 Hz) |
| Power consumption | 10 VA approx. |
| Dimensions / Weight | 48 x 96 mm (1/8 DIN) - depth 98 mm / 260 g approx. |
| Mounting | Flush in panel in 45 x 92 mm hole |
| Connections | Screw terminal block 2 x 1 mm ² |
| Front protection degree | IP 54, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -10 ... 60 °C (14... 140°F) |
| Operating humidity | 30... 95 RH% without condensation |
| Conformity | Directive CEE EMC 2004/108/CE (EN 61326), Directive CEE BT 2006/95/CE (EN 61010-1) |



EVERYTHING UNDER CONTROL

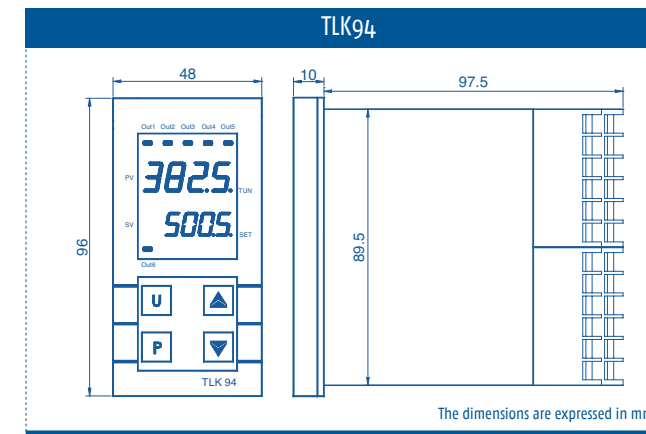
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

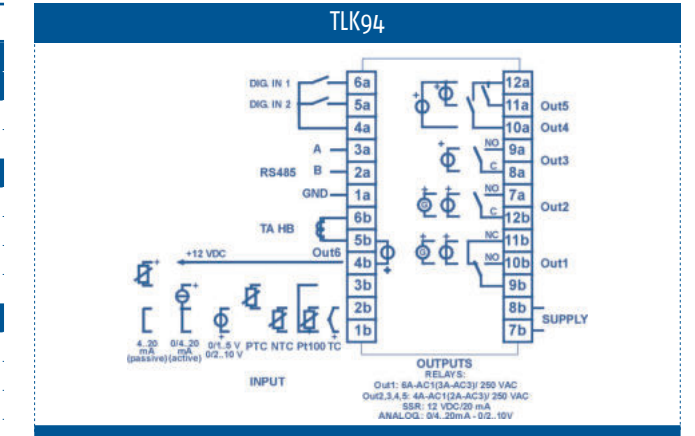
| TLK94 | |
|--|---|
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac/Vdc | H |
| OUT 1 | |
| Relay SPDT 6 A-AC1 | R |
| Voltage for SSR driving | O |
| 0/4... 20 mA | I |
| 0/2... 10 V | V |
| OUT 2 | |
| Relay SPST-NO 4 A-AC1 | R |
| Voltage for SSR driving | O |
| 0/4... 20 mA | I |
| 0/2... 10 V | V |
| Not available | - |
| OUT 3 | |
| Relay SPST-NO 4 A-AC1 | R |
| Voltage for SSR driving | O |
| Not available | - |
| OUT 4 | |
| Relay SPST-NO 4 A-AC1 | R |
| Voltage for SSR driving | O |
| Not available | - |
| OUT 5 | |
| Relay SPST-NO 4 A-AC1 | R |
| Voltage for SSR driving | O |
| Not available | - |
| SERIAL COMMUNICATION AND DIGITAL INPUT | |
| RS485 | S |
| CT input | H |
| RS485 and CT input | T |
| Not available | - |

Note : When selected OUT 3, OUT 4 and OUT 5 must be identical. (ALL Relay or ALL voltage for SSR driving).

DIMENSIONS



CONNECTIONS



TEMPERATURE RANGES

| TLK94 TEMPERATURE RANGES | | |
|--------------------------|---------------------------------------|--|
| INPUT | WITHOUT DP | WITH DP |
| tc J | -160 ... 1000 °C - 256 ... 1832 °F | -160.0 ... 999.9 °C -199.9 ... 999.9 °F |
| tc K | -100 ... 1370 °C - 148 ... 2498 °F | -100.0 ... 999.9 °C -148.0 ... 999.9 °F |
| tc S | 0 ... 1760 °C 32 ... 3200 °F | 0.0 ... 999.9 °C 32.0 ... 999.9 °F |
| tc B | 72 ... 1820 °C 162 ... 3308 °F | 72.0 ... 999.9 °C 162.0 ... 999.9 °F |
| tc E | -150 ... 750 °C -252 ... 1382 °F | -150.0 ... 750.0 °C -199.9 ... 999.9 °F |
| tc L | -150 ... 900 °C -252 ... 1652 °F | -150.0 ... 900.0 °C -199.9 ... 999.9 °F |
| tc N | -250 ... 1300 °C -418 ... 2372 °F | -199.9 ... 999.9 °C -199.9 ... 999.9 °F |
| tc R | -50 ... 1760 °C -58 ... 3200 °F | -50.0 ... 999.9 °C -58.0 ... 999.9 °F |
| tc T | -250 ... 400 °C -418 ... 752 °F | -199.9 ... 400.0 °C -199.9 ... 752.0 °F |
| tc C | 0 ... 2320 °C 32 ... 4208 °F | 0.0 ... 999.9 °C 32.0 ... 999.9 °F |
| Infrared sensors | -46 ... 785 °C -50 ... 1445 °F | -46.0 ... 785.0 °C -50.8 ... 999.9 °F |
| Pt100 (IEC) | -200 ... 850 °C -50 ... 1445 °F | -199.9 ... 850.0 °C -199.9 ... 999.9 °F |
| PTC (KTY81-121) | -55 ... 150 °C -67 ... 302 °F | -55.0 ... 150.0 °C -67.0 ... 302.0 °F |
| NTC (103-AT2) | -50 ... 110 °C -58 ... 230 °F | -50.0 ... 110.0 °C -58.0 ... 230.0 °F |
| Pt1000 (IEC) | -200 ... 500 °C -328 ... 932 °F | -199.9 ... 500.0 °C -199.9 ... 932.0 °F |

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 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

C1

- CONTROLLER / INDICATOR
- WITH 1 OR 2 ALARMS



FEATURES

| DISPLAY | |
|--|---|
| Single | C1 4 green digit, h 9 mm + 3 LEDs |
| INPUTS | |
| Universal | Thermocouples: L, J (0... 600°C/32... 1112°F), T (-200... 400/-328... 752°F), K (0...1200°C/32... 2192°F), S (0... 1600°C/32... 2912°F) + Thermoresistances PT100 (-200... 600°C/-328... 1112°F or -99.9... 300.0°C/-99.9... 572.9°F) connection with 2 or 3 wires + Linear signals: 0/10... 50 mV; 0/4...20 mA + Infrared sensors or special ranges (custom) |
| Accuracy | 0.25% ±1 digit (for thermoelements); 0.1% ±1 digit (for mA and mV) |
| OUTPUTS | |
| Up to 3 | OUT 1: Relay SPST-NO 2A/250Vac-AC1 / Triac 1A/250Vac-AC1 OUT 2: 5Vdc 30mA max., ± 10% (not isolated) to drive SSR OUT 3 (opt.): Measuring retransmission, current: 0/4... 20mA 750Ω/15V max. (as alternative to RS485) +18Vdc ±20%, 30mA max. for external transmitter |
| Auxiliary power supply | |
| FUNCTIONAL | |
| Control | ON/OFF or PID single action |
| PID functions | PID control with cycle time and overshoot control, 2 Autotuning algorithms |
| Signal retransmission | Measuring retransmission |
| Serial communication (as alternative to retransmission output) | Isolated RS485 with ModBus-RTU (JBUS) protocol, with 2 wires |
| Baud rate | 1200... 9600 baud, programmable |
| GENERAL | |
| Power supply | 100... 240 Vac/Vdc (-15...+10%), 24Vac(-25...+12%) and 24Vdc (-15...+25%) (50/60Hz) |
| Power consumption | 3 VA max. |
| Dimensions / Weight | 48 x 24 - depth 120 mm / 100 g approx. |
| Mounting | Flush in panel in 45 x 22.2 mm hole |
| Connections | Screw terminal block M3 for cables with section 1 mm ² (18AWG) |
| Front protection degree | IP65 |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20...+70°C (-4... 158°F) |
| Operating humidity | 5... 95% RH% without condensation |
| Conformity | EN 61000-6-3:2001, EN 61000-6-4:2001, EN 61000-6-2:2001 |



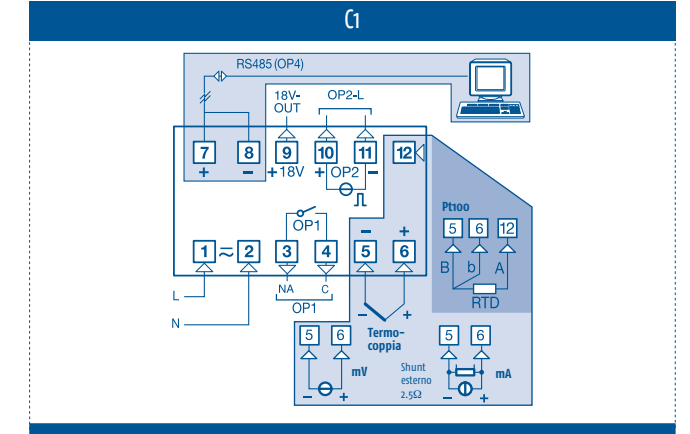
EVERYTHING UNDER CONTROL

HOW TO ORDER

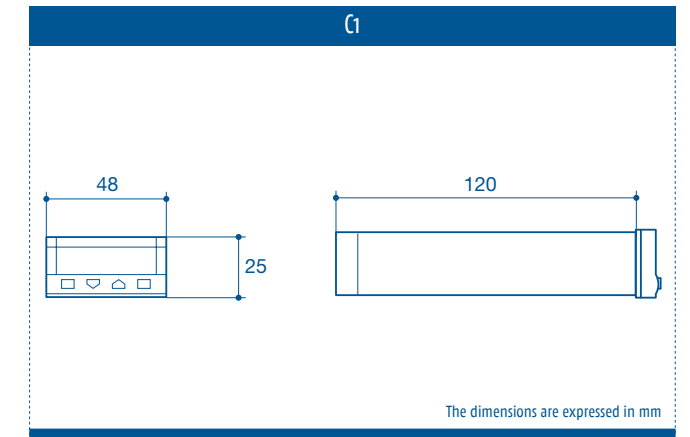
To compose the part number, pls. choose one of the option for each variable

| C1 | CODE | |
|-----------------------------|---|----|
| POWER SUPPLY | | |
| 100... 240 Vac/Vdc | 3 | |
| 24 Vac/Vdc | 5 | |
| OUTPUTS | | |
| Relay | 0 | |
| Triac | 3 | |
| Voltage for SSR driving | 6 | |
| SERIAL COMMUNICATION | | |
| OPTIONS | | |
| Not available | Not available | 00 |
| | Transmitter | 06 |
| | Power supply | |
| | Transmitter Power supply + retransmission | 07 |
| RS485 | Not available | 50 |
| | Transmitter Power supply | 56 |
| SPECIAL FUNCTIONS | | |
| Limit switch version | 9 | |
| Not available | 0 | |
| INSTRUCTION MANUAL | | |
| Italian/English | 0 | |
| Not available | 9 | |
| FRONT FRAME COLOUR | | |
| Dark grey | 0 | |
| Dark grey + shunt 0.1% | 2 | |
| SPECIAL EXECUTION | | |
| Not available | 0 | |
| On DIN rail | 1 | |
| On DIN rail no display | 2 | |
| Tropicalized | 3 | |

CONNECTIONS



DIMENSIONS



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INDICATORS

I/O MODULES

SUPERVISION

COMBUSTION CONTROL

ACCESSORIES

M1

- CONTROLLER / INDICATOR / TRANSMITTER
- WITH 1 OR 2 ALARMS



FEATURES

| DISPLAY | |
|--|---|
| Single | M1 4 green digit, h 10 mm + 6 LEDs |
| INPUTS | |
| Universal | Thermocouples: L, J (0... 600°C/32... 1112°F), T (-200... 400/-328... 752°F), K (0...1200°C/32... 2192°F), S (0... 1600°C/32... 2912°F) + Thermoresistances PT100 (-200... 600°C/-328... 1112°F or -99.9... 300.0°C/-99.9... 572.9°F) connection with 2 or 3 wires + Linear signals: 0/10... 50 mV; 0/4...20 mA + Infrared sensors or special ranges (custom) |
| Accuracy | 0.25% ±1 digit (for thermoelements); 0.1% ±1 digit (for mA and mV) |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPST-NO 2A/250Vac-AC1 / Triac 1A/250Vac-AC1 OUT 2 + OUT 3: 5Vdc 30mA max., ± 10% (not isolated) to drive SSR / Relay SPST-NO (2A/250Vac-AC1) OUT 4 (opt.): Measuring or Set Point retransmission, current: 0/4... 20mA 750Ω/15V max. (as alternative to RS485) |
| Auxiliary power supply | +18Vdc ±20%, 30mA max. for external transmitter |
| FUNCTIONAL | |
| Control | ON/OFF or PID single action |
| PID functions | PID control with cycle time and overshoot control, 2 Autotuning algorithms |
| Signal retransmission | Measuring or Set Point retransmission |
| Serial communication (as alternative to retransmission output) | Isolated RS485 with ModBus-RTU (JBUS) protocol, with 2 wires |
| Baud rate | 1200... 9600 baud, programmable |
| GENERAL | |
| Power supply | 100... 240 Vac/Vdc (-15...+10%), 24Vac(-25...+12%) and 24Vdc (-15...+25%) (50/60Hz) |
| Power consumption | 3.5 VA max. |
| Dimensions / Weight | 48 x 48 - depth 120 mm / 130 g approx. |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Connections | Screw terminal block M3 for cables with section 1 mm ² (18AWG) |
| Front protection degree | IP65 |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20...+70°C (-4... 158°F) |
| Operating humidity | 5... 95% RH% without condensation |
| Conformity | EN 61000-6-3:2001, EN 61000-6-4:2001, EN 61000-6-2:2001 |



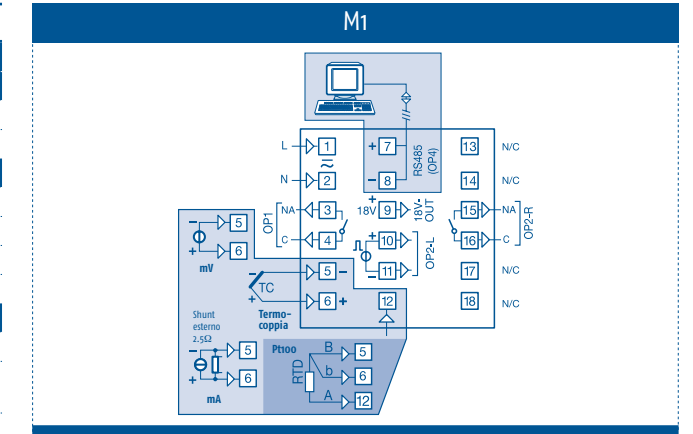
EVERYTHING UNDER CONTROL

HOW TO ORDER

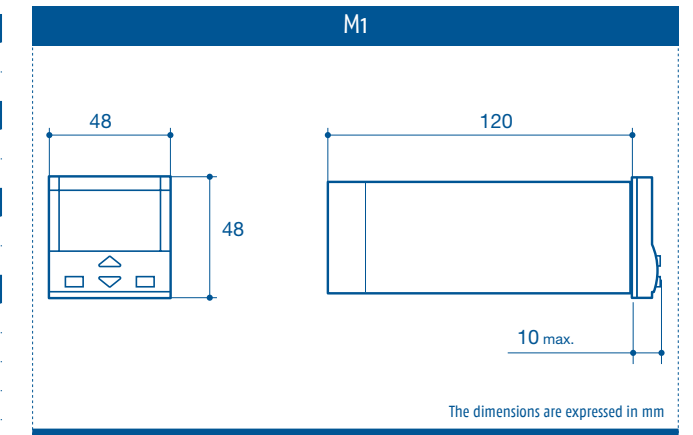
To compose the part number, pls. choose one of the option for each variable

| M1 | CODE | |
|-------------------------------|---|----|
| POWER SUPPLY | | |
| 100... 240 Vac/Vdc | 3 | |
| 24 Vac/Vdc | 5 | |
| OUTPUTS | | |
| Relay/Relay | 0 | |
| Triac/Relay | 3 | |
| Relay/Voltage for SSR driving | 6 | |
| Relay/triac | 7 | |
| SERIAL COMMUNICATION | | |
| OPTIONS | | |
| Not available | Not available | 00 |
| | Transmitter Power supply | 06 |
| | Transmitter Power supply + retransmission | 07 |
| | Not available | 50 |
| RS485 | Transmitter Power supply | 56 |
| SPECIAL FUNCTIONS | | |
| Limit switch version | | 9 |
| Not available | | 0 |
| INSTRUCTION MANUAL | | |
| Italian/English | | 0 |
| Not available | | 9 |
| FRONT FRAME COLOUR | | |
| Dark grey | | 0 |
| Dark grey + shunt 0.1% | | 2 |
| SPECIAL EXECUTION | | |
| Not available | | 0 |
| On DIN rail | | 1 |
| On DIN rail no display | | 2 |
| Tropicalized | | 3 |

CONNECTIONS



DIMENSIONS



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 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

M2

• TEMPERATURE CONTROLLER FOR HOT RUNNERS



FEATURES

| DISPLAY | |
|---------------------------------|--|
| Dual | M2 Main display: 4 green digit, h 10 mm Secondary display: 4 green digit, h 8 mm + 6 LEDs |
| INPUTS | |
| Universal | Thermocouples: I/J (0... +600°C / 32... +112°F), T (-200... +400°C / -328... +752°F), K (0... +1200°C / 32... +2192°F), S (0... +1600°C / 32... +2912°F) Thermoresistances: PT100 connection with 2 or 3 wires (-200... +600°C / -328... +112°F) Linear signals: 0/10... 50 mV; 0/4...20 mA Infrared sensors or special ranges (custom) |
| Accuracy | 0.25% ±1 digit (for thermoelements); 0.1% ±1 digit (for mA and mV) |
| Auxiliary input | Current Transformer for Heater Break function |
| Digital inputs | 1 digital input for free voltage contacts |
| OUTPUTS | |
| Up to 3 | OUT 1: Relay SPST-NO 2A/250Vac-AC1 OUT 2: 5Vdc, ±10%, 30mA max. (not isolated) to drive SSR / Relay SPST-NO, 2A/250Vac-AC1 OUT 3: Relay SPST-NO 2A/250Vac-AC1 |
| Auxiliary power supply | +18Vdc ±20%, 30mA max. for external transmitter |
| FUNCTIONAL | |
| Control | ON/OFF, PID a singola/doppia azione |
| PID functions | Dead band, relative cooling gain, cooling sampling time, overshoot control, higher limit |
| Serial communication | Isolated RS485 with ModBus-RTU (JBUS) protocol, with 2 wires |
| Baud rate | 1200... 9600 baud, programmable |
| GENERAL | |
| Power supply | 100... 240Vac (-15... +10%) o 24Vdc (-25... +12%) e 24Vdc (-15... +25%) (50/60Hz) |
| Power consumption | 2.6 VA max. |
| Dimensions / Weight | 48 x 48 - depth 120 mm / 130 g |
| Mounting | Flush in panel in 45 x 45 hole |
| Connections | Screw terminal block M3 for cables with section 1 mm² (18AWG) |
| Front protection degree | IP65 |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... +70°C (-4... 158°F) |
| Operating humidity | 5... 95% RH without condensation |
| Conformity | EN 61010-1 |



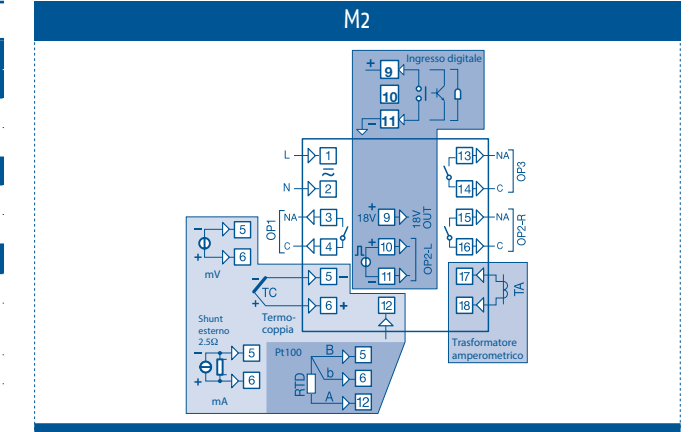
EVERYTHING UNDER CONTROL

HOW TO ORDER

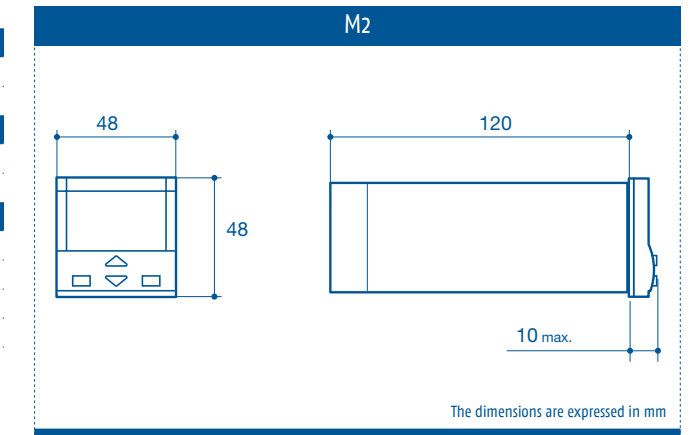
To compose the part number, pls. choose one of the option for each variable

| M2 | CODE | |
|--|--------------------------------|----|
| POWER SUPPLY | | |
| 100... 240 Vac/Vdc | 3 | |
| 24 Vac/Vdc | 5 | |
| OUT 2 | | |
| Relay/Voltage for SSR driving | 1 | |
| Voltage for SSR driving | 6 | |
| INPUT DIGITALE | | |
| OPTIONS | | |
| Not available | Not available | 00 |
| | Current Transformer input (CT) | 03 |
| | Not available | 90 |
| | Current Transformer input (CT) | 93 |
| SPECIAL FUNCTIONS | | |
| Not available | | 0 |
| SP modification from digital input | | 6 |
| Average Safety Output | | 7 |
| SP modification from digital input + Average Safety Output | | 8 |
| INSTRUCTION MANUAL | | |
| Italian/English | | 0 |
| Not available | | 9 |
| FRONT FRAME COLOUR | | |
| Dark grey | | 0 |
| Dark grey + shunt 0.1% | | 2 |
| SPECIAL EXECUTION | | |
| Not available | | 0 |
| On DIN rail | | 1 |
| On DIN rail no display | | 2 |
| Tropicalized | | 3 |

CONNECTIONS



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 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

M3/M4

- HEAT/COOL TEMPERATURE CONTROLLER
- HEAT/COOL TEMPERATURE CONTROLLER WITH ANALOGUE OUTPUT



FEATURES

| | M3 | M4 |
|---------------------------------|--|--|
| DISPLAY | | |
| Dual | Main display: 4 green digit, h 10 mm Secondary display: 4 green digit, h 6.75 mm + 5 LEDs | |
| INPUTS | | |
| Universal | Thermocouples: I/J (0... +600°C / 32... +112°F), T (-200... +400°C / -328... +752°F), K (0... +1200°C / 32... +2192°F), S (0... +1600°C / 32... +2912°F) Thermoresistances: PT100 connection with 2 or 3 wires (-200... +600°C / -328... +112°F) Linear signals: 0/10... 50 mV; 0/4...20 mA Infrared sensors or special ranges (custom) | |
| Accuracy | 0.25% ±1 digit (for thermoelements); 0.1% ±1 digit (for mA and mV) | |
| Digital inputs | -- | Auto/man switching, stand-by/Set Point switching, keyboard lock, timer |
| Auxiliary input (optional) | Current Transformer for Heater Break function | |
| OUTPUTS | | |
| Up to 4 | OUT 1: Relay SPST-NO 2A/250Vac-AC1 / Triac OUT 2: 5Vdc, ±10%, 30mA max. (not isolated) to drive SSR / Relay SPST-NO, 2A/250Vac-AC1 OUT 3: Relay SPST-NO 2A/250Vac-AC1 / Triac OUT 4 (opt.): Measuring or Set Point retransmission, current: 0/4... 20mA 750Ω/15V max. (as alternative to RS485) OUT 4: (Opt.) control output, current: 0/4... 20mA 750Ω/15V max. | |
| Auxiliary power supply | +18Vdc ±20%, 30mA max. for external transmitter | |
| Outputs configurations | 1 loop PID or ON/OFF double action with 1 or 2 alarms | |
| FUNCTIONAL | | |
| Control | ON/OFF or PID single/double action | |
| Alarms | 2 alarms programmable as high/low or band alarm Hysteresis 0.1... 10.0% e.s. | |
| PID functions | Dead band, relative cooling gain, cooling sampling time, overshoot control, higher limit | |
| Special functions | Sensor Break, Heater Break, Latching/Blocking and loop break | |
| Signal retransmission | Measuring or Set Point retransmission | |
| Serial communication (opt.) | Isolated RS485 with ModBus-RTU (JBUS) protocol, with 2 wires | |
| Baud rate | 1200... 9600 baud, programmable | |
| GENERAL | | |
| Power supply | 100... 240 Vac (-15... +10%) 0 24Vac (-25... +12%) and 24Vdc (-15... +25%) (50/60Hz) | |
| Power consumption | 6 VA max. | |
| Dimensions / Weight | 48 x 48 - depth 120 mm / 130 g | |
| Mounting | Flush in panel in 45 x 45 mm hole | |
| Connections | Screw terminal block M3 for cables with section 1 mm² (18AWG) | |
| Front protection degree | IP65 | |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20... +70°C (-4... 158°F) | |
| Operating humidity | 5... 95% RH without condensation | |
| Conformity | EN 61010-1 | |



EVERYTHING UNDER CONTROL

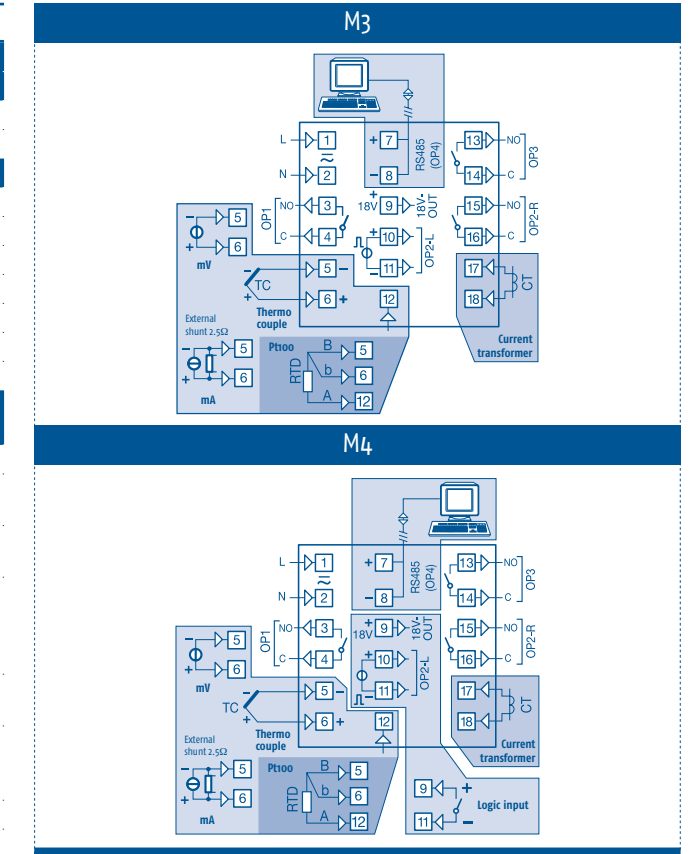
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

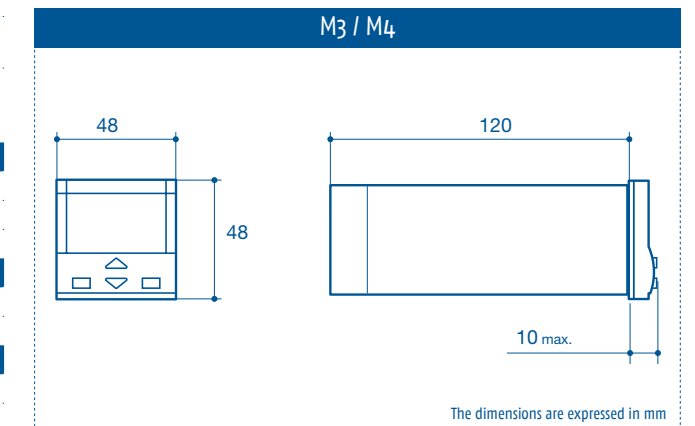
| M3 / M4 | CODE |
|---|------|
| POWER SUPPLY | |
| 100... 240 Vac/Vdc | 3 |
| 24 Vac/Vdc | 5 |
| OUT 1, 2 E 3 | |
| Relay/Relay/Voltage for SSR driving | 0 |
| Relay/Relay/Voltage for SSR driving + Relay | 1 |
| Relay/Relay/Voltage for SSR driving + triac | 2 |
| Triac/Relay/Voltage for SSR driving + Relay | 4 |
| Triac/Relay/Voltage for SSR driving + triac | 5 |
| Relay + triac/Voltage for SSR driving + Relay (M3 only) | 7 |
| Relay + Voltage for SSR driving (M3 only) | 8 |
| SERIAL COMMUNICATION + DIGITAL INPUT | |
| Not available | 00 |
| Current Transformer input (CT) | 03 |
| Transmitter supply 18V | 06 |
| Transmitter supply 18V + Retransmission (*) + CT input | 07 |
| Transmitter supply 18V+ CT input | 08 |
| Transmitter supply 18V + CT input + Retransmission (*) | 09 |
| Not available | 50 |
| Transmitter supply 18V | 56 |
| Transmitter supply 18V + CT input | 58 |
| Not available | 90 |
| CT input | 93 |
| Analogue Control Output | 97 |
| Analogue Control Output + CT input | 99 |
| SPECIAL FUNCTIONS | |
| Not available | 0 |
| Start-up + Timer | 2 |
| Limit switch version | 9 |
| INSTRUCTION MANUAL | |
| Italian/English | 0 |
| Not available | 9 |
| FRONT FRAME COLOUR | |
| Dark grey | 0 |
| Dark grey + shunt 0,1% | 2 |
| SPECIAL EXECUTION | |
| Not available | 0 |
| On DIN rail | 1 |
| Mounting B/DIN, No display | 2 |
| Tropicalized | 3 |

(*) With code 07 and code 09, the analogue output can be used also as control output.

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

X1/X3

- HEAT-COOL TEMPERATURE CONTROLLERS
- DOUBLE ACTION CONTROLLER WITH ANALOGUE OUTPUT



FEATURES

| DISPLAY | X1 | X3 |
|---|---|---|
| Dual | Main display: 4 green digit, h 10 mm Secondary display: 4 green digit, h 9 mm + 11 LEDs | Main display: 4 green digit, h 10 mm Secondary display: 4 green digit, h 9 mm + 16 LEDs, |
| INPUTS | | |
| Universal | Thermocouples: I/J (0... +600°C / 32... +112°F), T (-200... +400°C / -328... +752°F), K (0... +1200°C / 32... +2192°F), S/R (0... +1600°C / 32... 2912°F) Thermoresistances: PT100 connection with 2 or 3 wires (-200... +600°C / -328... +112°F) Linear signals: 0/10... 50 mV; 0/4...20 mA Infrared sensors or special ranges (custom) | |
| Accuracy | 0.25% ±1 digit (for thermoelements); 0.1% ±1 digit (for mA and mV) | |
| Auxiliary input | Non isolated remote Set Point: current 0/4... 20mA or voltage 1... 5/ 0... 5/ 0... 10V Current Transformer for Heater Break function | |
| Digital inputs | -- | 3 |
| OUTPUTS | | |
| Up to 5 | OUT 1: Relay, NO, 2A/250Vac (4A/120Vac) or TRIAC 1A/250Vac OUT 2: Relay, NO, 2A/250Vac (4A/120Vac) or TRIAC 1A/250Vac OUT 3: Relay,SPDT, 2A/250Vac (4A/120Vac) OUT 4: Relay, SPDT, 2A/250Vac (4A/120Vac) or Logic not isolated: 0/5Vdc, ±10% 30mA max. OUT 5: Analogue for Measuring or Set Point retransmission, current: 0/4... 20mA max. 750Ω/10V max. | |
| Analogue control output | Measuring or Set Point retransmission, current: 0/4... 20mA 750Ω/15V max. or voltage: 0... 1/5/10V 500Ω/20mA max. | |
| Auxiliary power supply | +18Vdc ±20%, 30mA max. for external transmitter (2, 3 or 4 wires) | |
| FUNCTIONAL | | |
| Control | PID with overshoot control or ON/OFF single/double action with 1, 2 or 3 alarms | PID with overshoot control or ON/OFF single/double action with 1, 2 or 3 alarms PID for Servomotor control |
| Alarms | Up to 3 | |
| PID functions | Error dead band, overshoot control, manual reset, cycle time, Control output high limit, Soft-start output valve, output safety value | |
| Double action (Heat-Cool) with overlap | Dead band, Relative cool gain, cycle time (time proportional output), Cool output high limit For X3 only: Cool output hysteresis | |
| Servomotor control (without position potentiometer) | -- | Motor travel time, motor minimum step |
| Pre-programmed Set Point | -- | 1 program, 8 segments 1 initial and 1 end, from 1 to 9999 cycles/continuous cycling |
| Special functions | Timer (1... 9999s/min), Stand-by Set Point, Start-up, Start-up Set Point | |
| Tuning | One Shot Tuning | Fuzzy Tuning One Shot |
| Auto/Man Station | -- | Standard with Bumpless function, by keypad digital input or serial communication |
| Signal retransmission | Measuring or Set Point retransmission | |
| Serial communication | Isolated RS485 with ModBus-RTU (JBUS) protocol, with 2 wires | |
| Baud rate | 1200, 2400, 4800, 9600 bit/sec, 2 wires | |
| GENERAL | | |
| Power supply | 100... 240Vac (-15... +10%) or 24Vac (-25... +12%) and 24Vdc (-15... +25%) / 50/60Hz | |
| Power consumption | 6VA max. | |
| Dimensions / Weight | 48 x 96 mm - depth 110 mm / 250 g approx. | |
| Mounting | Flush in panel in 45 x 92 mm hole | |
| Connections | Screw terminal block M3 for cables with section 1 mm ² (18AWG) | |
| Front protection degree | IP65 | |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20...+70°C (-4... 158°F) | |
| Operating humidity | 5... 95% RH without condensation | |
| Conformity | EN 61010-1 | |



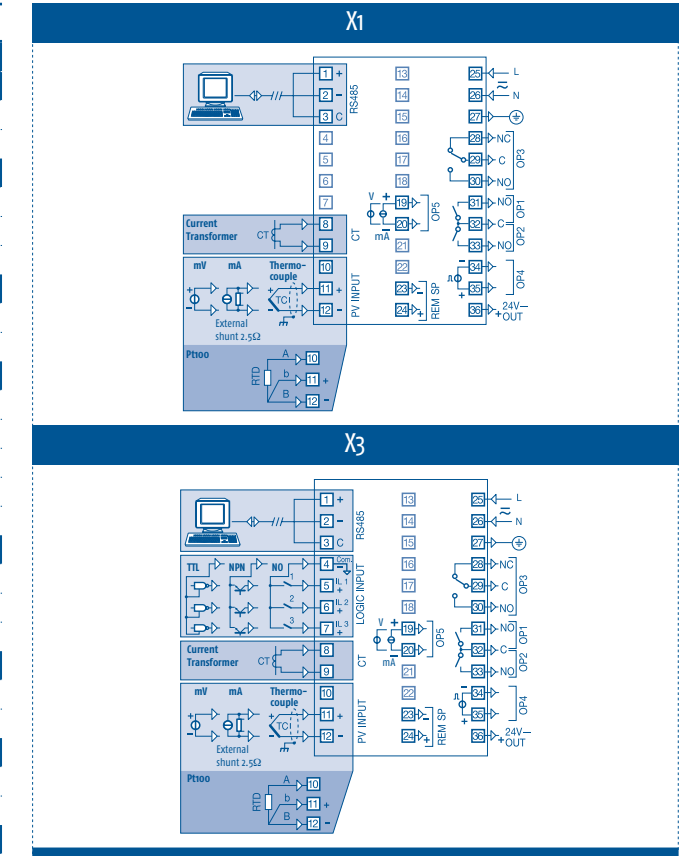
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

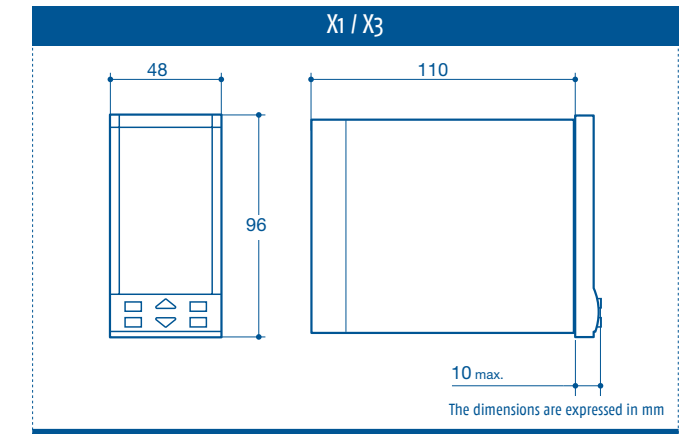
| X1 / X3 | CODE |
|---|------|
| POWER SUPPLY | |
| 100... 240 Vac/Vdc | 3 |
| 24 Vac/Vdc | 5 |
| OUT 1, OUT 2, OUT 3 AND OUT 4 | |
| Relay-Relay-Relay-Voltage for SSR driving | 1 |
| Triac-triac-Relay-Voltage for SSR driving | 5 |
| Relay-Relay-Relay-Relay | 9 |
| SERIAL COMMUNICATION | |
| Not available | 0 |
| RS485 | 5 |
| OPTIONS | |
| Not available | 0 |
| Servomotor (X3 only) | 2 |
| Retransmission + Remote Set Point (X1 only) | 5 |
| Analogue Output + Remote Set Point (X3 only) | 5 |
| Servomotor + Analogue Output + Remote Set Point (X3 only) | 7 |
| SPECIAL FUNCTIONS | |
| Not available | 0 |
| Start-up + Timer | 2 |
| 1 Program 8 segments (X3 only) | 3 |
| INSTRUCTION MANUAL | |
| Italian/English | 0 |
| Not available | 9 |
| FRONT FRAME COLOUR | |
| Dark grey | 0 |
| Dark grey + shunt 0.1% | 2 |
| SPECIAL EXECUTION | |
| Not available | 0 |
| Tropicalized | 3 |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMABLE CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
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 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

Q1/Q3

- HEAT-COOL TEMPERATURE CONTROLLERS
- DOUBLE ACTION CONTROLLER WITH ANALOGUE OUTPUT



FEATURES

| DISPLAY | Q1 | Q3 |
|---|---|---|
| Dual | Main display: 4 green digit, h 15 mm Secondary display: 4 green digit, h 12 mm + 11 LEDs | Main display: 4 green digit, h 15 mm Secondary display: 4 green digit, h 12 mm + 16 LEDs |
| INPUTS | Thermocouples: LJ (0... +600°C / 32... +1112°F), T (-200... +400°C / -328... +752°F), K (0... +1200°C / 32... +2192°F), S (0... +1600°C / 32... +2912°F) Thermoresistances: PT100 connection with 2 or 3 wires (-200... +600°C / -328... +1112°F) Linear signals: 0/10... 50 mV; 0/4... 20 mA Infrared sensors or special ranges (custom) | |
| Accuracy | 0.25% ±1 digit (for thermoelements); 0.1% ±1 digit (for mA and mV) | |
| Auxiliary input | Non isolated remote Set Point: current 0/4... 20mA or voltage 1... 5/ 0... 5/ 0... 10V Current Transformer for Heater Break function | |
| Digital inputs | -- | 3 |
| OUTPUTS | OUT 1: Relay, NO, 2A/250Vac (4A/120Vac) or TRIAC 1A/250Vac OUT 2: Relay, NO, 2A/250Vac (4A/120Vac) or TRIAC 1A/250Vac OUT 3: Relay, SPDT, 2A/250Vac (4A/120Vac) OUT 4: Logic not isolated: 0/5Vdc, ±10% 30mA max. for retransmission OUT 5: Analogue for Measuring or Set Point retransmission, current: 0/4... 20mA max. 750Ω/10V max. | |
| Up to 5 | | |
| Auxiliary power supply | +18Vdc ±20%, 30mA max. for external transmitter (2, 3 or 4 wires) | |
| FUNCTIONAL | | |
| Control | PID with overshoot control or ON/OFF single/double action with 1, 2 or 3 alarms | |
| Alarms | Up to 3 | |
| PID functions | Error dead band, overshoot control, manual reset, cycle time, Control output high limit, Soft-start output valve, output safety value | |
| Double action (Heat-Cool) with overlap | Dead band, Relative cool gain, cycle time (time proportional output), Cool output high limit For Q3 only: Cool output hysteresis | |
| Servomotor control (without position potentiometer) | -- | Motor travel time, motor minimum step |
| Pre-programmed Set Point | -- | 1 program, 8 segments 1 initial and 1 end, from 1 to 9999 cycles/continuous cycling |
| Special functions | Timer (1... 9999s/min), Stand-by Set Point, Start-up, Start-up Set Point | |
| Tuning | One Shot Tuning | Fuzzy Tuning One Shot |
| Auto/Man Station | -- | Standard with Bumpless function, by keypad digital input or serial communication |
| Signal retransmission | Measuring or Set Point retransmission | |
| Serial communication | Isolated RS485 with ModBus-RTU (JBUS) protocol, with 2 wires | |
| Baud rate | 1200, 2400, 4800, 9600 bit/sec, 2 wires | |
| GENERAL | | |
| Power supply | 100... 240Vac (-15... +10%) or 24Vac (-25... +12%) and 24Vdc (-15... +25%) / 50/60Hz | |
| Power consumption | 6 VA max. | |
| Dimensions / Weight | 96 x 96 mm - depth 110 mm / 470 g approx. | |
| Mounting | Flush in panel in 92 x 92 mm hole | |
| Connections | Screw terminal block M3 for cables with section 1 mm² (18AWG) | |
| Front protection degree | IP65 | |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... +70°C (-4... 158°F) | |
| Operating humidity | 5... 95% RH without condensation | |
| Conformity | EN 61010-1 | |



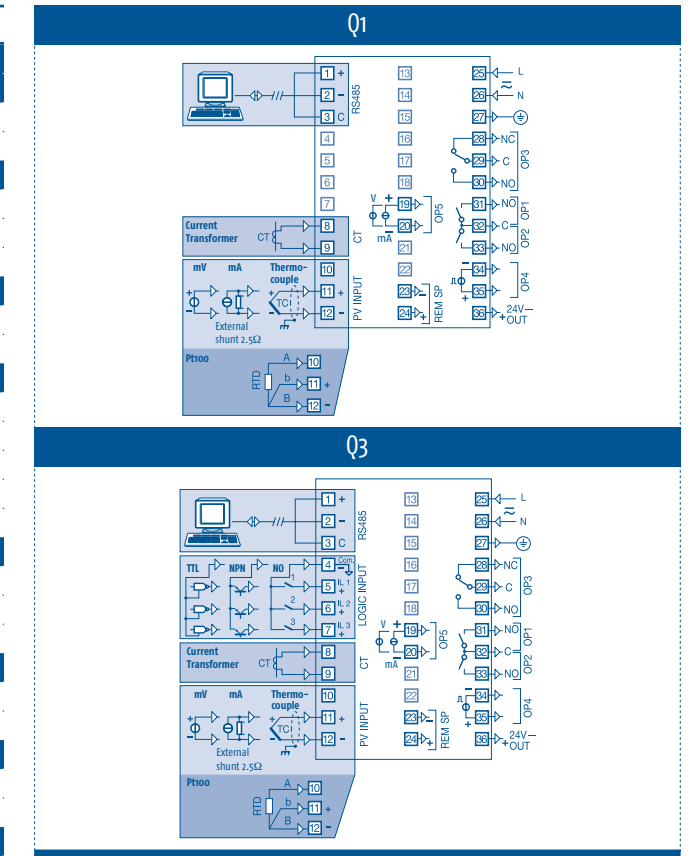
HOW TO ORDER

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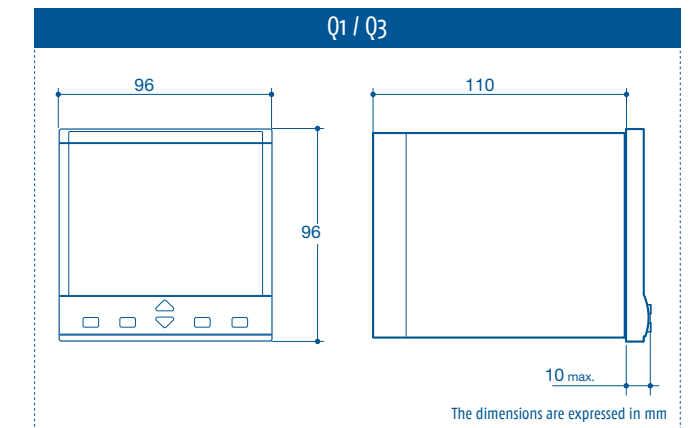
| Q1 / Q3 | CODE |
|---|------|
| POWER SUPPLY | |
| 100... 240 Vac/Vdc | 3 |
| 24 Vac/Vdc | 5 |
| OUT 1, OUT 2, OUT 3 AND OUT 4 | |
| Relay-Relay-Relay-Voltage for SSR driving | 1 |
| Triac-triac-Relay-Voltage for SSR driving | 5 |
| Relay-Relay-Relay-Relay | 9 |
| SERIAL COMMUNICATION | |
| Not available | 0 |
| RS485 | 5 |
| OPTIONS | |
| Not available | 0 |
| Servomotor (Q3 only) | 2 |
| Retransmission + Remote Set Point (Q1 only) | 5 |
| Analogue Output + Remote Set Point (Q3 only) | 5 |
| Servomotor + Analogue Output + Remote Set Point (Q3 only) | 7 |
| SPECIAL FUNCTIONS | |
| Not available | 0 |
| Start-up + Timer | 2 |
| 1 Program 8 segments (Q3 only) | 3 |
| INSTRUCTION MANUAL | |
| Italian/English | 0 |
| Not available | 9 |
| FRONT FRAME COLOUR | |
| Dark grey | 0 |
| Dark grey + shunt 0.1% | 2 |
| SPECIAL EXECUTION | |
| Not available | 0 |
| Tropicalized | 3 |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMERS
 DIN RAIL MOUNTING CONTROLLERS
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 SPECIAL CONTROLLERS AND "CUSTOM"
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 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

ADVANCED PROGRAMMER CONTROLLERS



The most complete range you may wish!

Single and multiloop controllers and advanced programmers, multifunction and with incorporated and independent timer, in all sizes.

New KUBE line: more and more in less space!
Pocket size, energy saving functions and advanced features.

ADVANCED PROGRAMMER CONTROLLERS

| FEATURES | | KM3-KM3W | KM5-KM5PW | KX3 | KX5P | KX6 | KR3-KR3W | KRD3 | KR5P | K31 | K32 | K38 | K39 | K48 | K49 | K85 | K30 | M5 | X5 | Q5 | |
|--|-------------------------------|----------|-----------|-----|------|-----|----------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|---|
| Dimensions (mm) | 78x35 | | | | | | | | | | | | | | | | | | | | |
| | 48x48 | • | • | | | | • | • | • | • | • | • | • | • | • | | | • | | | |
| | 48x96 | | | • | • | • | | | | | | | | | | | | | • | | |
| | 70 x 84 4 DIN Modules | | | | | | | | | | | | | | | • | • | | | | |
| | 96x96 | | | | | | | | | | | | | | | | | | | • | |
| Without display | | | | | | | | • | | | | | | | | | | | | | |
| 3 dynamic colour triple LED display | | | | | | • | | | • | | | | | | | | | | | | |
| 3 dynamic colour dual LED display | | • | • | • | • | | • | | | | | | | | | | | | | | |
| White+amber LED display | | • | • | | | | | | | | | | | | | | | | | | |
| 4 digit Single display | | | | | | | | | | • | | • | | | • | • | | | | | |
| 4 digit Dual display | | | | | | | | | | | • | | • | • | • | • | | • | | | |
| 4 digit Triple display | | | | | | | | | | | | | | | | | | | • | • | |
| "Sensitive Touch" keyboard | | | | | | | | | | | • | | | | | | | | | • | |
| Input | Universal | • | • | • | • | | • | • | • | | | | | | | | | • | • | • | |
| | J-K-S-R-T + IR + PTC-NTC | | | | | | | | | • | • | • | • | • | • | • | • | | | | |
| | J-K-S-R-T + IR + Pt100 | | | | | | | | | • | • | • | • | • | • | • | • | | | | |
| | J-K-S-R-T + IR + 0/4... 20 mA | | | | | • | | | | | | | | | | | | | | | |
| | ΔT PT100 | | | | | | | | | | | | | | | | | | • | • | • |
| | Digital | 2 | | 2 | | | | 2 | | | 2 | 2 | | | 2 | 2 | 2 | | 2 | 3 | 3 |
| | Frequency | | | | | | | | | | | | | | | | | | | • | • |
| Potentiometer | | | | | | | | | | | | | | | | | | | • | • | • |
| For CT | | | | | | | | | | | | | | | | | | | • | • | • |
| Relay or voltage for SSR drive outputs | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 2 | 2 | 3 | 3 | 3 | 5 | 3 | 4 | 4 | |
| Analogue current or voltage outputs | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | | | | | | | 1 | 2 | 2 | |
| Measuring or Set Point retransmission | | • | • | • | • | • | • | • | • | | | | | | | | | • | • | • | |
| Power supply | 12 Vac/Vdc | | | | | | | | | • | • | • | • | | | | | | | | |
| | 24 Vac/Vdc | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | |
| | 100... 240 Vac | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | |
| Control | ON/OFF and PID | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | |
| | Servomotor control | | • | | • | • | | • | • | | | | | | | | | • | • | • | |
| RS485 ModBus Slave | | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | |
| RS485 ModBus Master | | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | |
| Profibus DP | | | | | | | | | | | | | | | | | | | | • | • |
| Mathematical package | | | | | | | | | | | | | | | | | | | | • | • |
| Timer on board | | • | | • | | | • | | | • | • | • | • | • | • | • | • | | • | • | |
| Programmer | | • | | • | | | • | | | • | • | • | • | • | • | • | • | • | • | • | |
| CE certification | | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | |
| UL approval | | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | |
| ENEC approval | | | | | | | | | | | • | | | | | | | | | • | |

INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
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 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

KM3

- 3 DYNAMIC COLOUR LED DISPLAY
- ANALOGUE CONTROL OUTPUT
- 8 SEGMENTS PROGRAMMER / TIMER
- WORKING HOURS COUNTER

evolution



FEATURES

| DISPLAY | |
|---------------------------------|---|
| Dual LED | Main display: 4 digit h 15.5 mm. 3 colours: red, green and amber Secondary display: 4 green digit, h 7 mm |
| INPUTS | |
| Universal | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Accuracy | ± 0.5% span ± 1 digit, (± 1% span ± 1 digit for T/c S type) |
| Digital inputs | 1 or 2 according to instrument's part number (the 2nd digital input is alternative to OUT 4) |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPST-NO 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% or analogue galvanically isolated 0/4... 20 mA, 0/2... 10V (optional) OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Seltuning algorithms, Overshoot control |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Signal retransmission | Measuring or Set Point retransmission |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Programmer (optional) | Up to 8 segments with guaranteed soak |
| Timer (optional) | Independent with 5 function modes |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max |
| Dimensions / Weight | 48 x 48 mm (1/6 DIN) - depth 63 mm / 125 g |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH% without condensation |
| Conformity | EN 61010-1, EN 61326 |



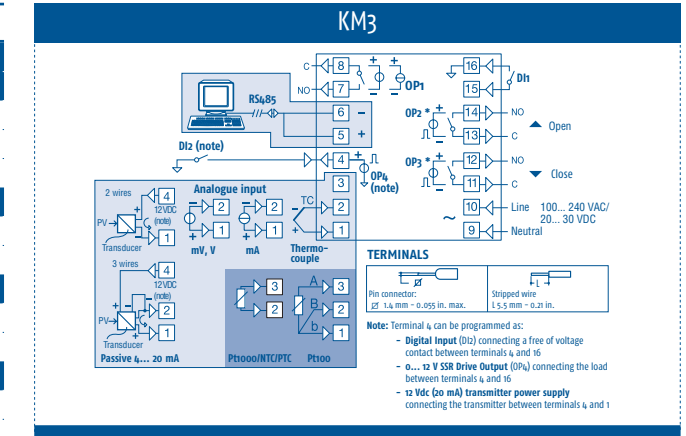
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

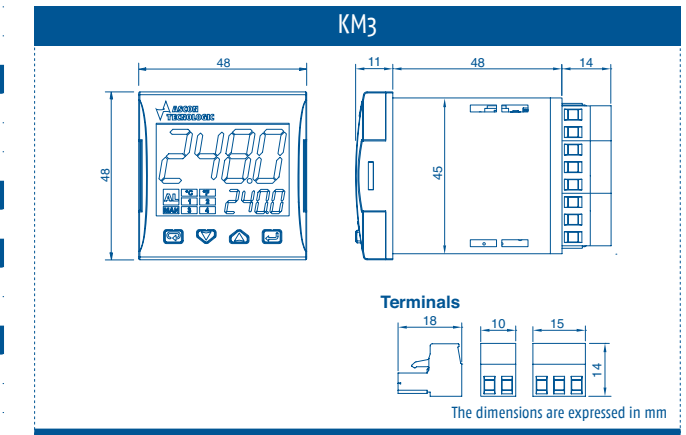
| KM3 | CODE |
|---|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV + digital input 1 | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E |
| OUT 1 | |
| Relay SPST 4A | R |
| Vdc for SSR driving | O |
| 0/4... 20 mA, 0/2... 10V galvanically isolated (control and retransmission) | I |
| OUT 2 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 3 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 4 | |
| Digital input 2 or digital output or transmitter supply | D |
| RS485 | |
| Available | S |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
ADVANCED PROGRAMMER CONTROLLERS
DIN RAIL MOUNTING CONTROLLERS
THERMOSTATS ANALOGUE CONTROLLERS
SPECIAL CONTROLLERS AND "CUSTOM"
PAC SYSTEMS
PRE-PROGRAMMED SYSTEMS
PLC AND OPERATOR PANELS
TIMERS COUNTERS POWER LIMITERS
INDICATORS
I/O MODULES
SUPERVISION
COMBUSTION CONTROL
ACCESSORIES

KM3W

- 3 DYNAMIC COLOUR LED DISPLAY
- ANALOGUE CONTROL OUTPUT
- 8 SEGMENTS PROGRAMMER / TIMER
- WORKING HOURS COUNTER

evolution



FEATURES

| DISPLAY | |
|---------------------------------|---|
| Dual LED | Main display: 4 digit h 15.5 mm white colour Secondary display: 4 amber digit, h 7 mm |
| INPUTS | |
| Universal | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Accuracy | ± 0.5% span ± 1 digit, (± 1% span ± 1 digit for T/c S type) |
| Digital inputs | 1 or 2 according to instrument's part number (the 2nd digital input is alternative to OUT 4) |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPST-NO 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% or analogue galvanically isolated 0/4... 20 mA, 0/2... 10V (optional) OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Seltuning algorithms, Overshoot control |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Signal retransmission | Measuring or Set Point retransmission |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Programmer (optional) | Up to 8 segments with guaranteed soak |
| Timer (optional) | Independent with 5 function modes |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max |
| Dimensions / Weight | 48 x 48 mm (1/6 DIN) - depth 63 mm / 125 g |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH% without condensation |
| Conformity | EN 61010-1, EN 61326 |



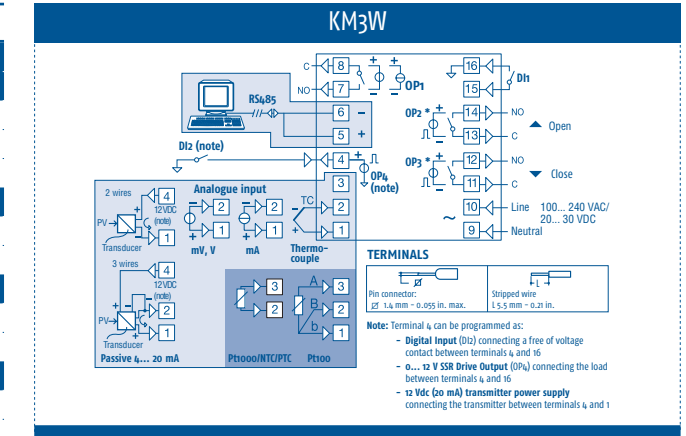
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

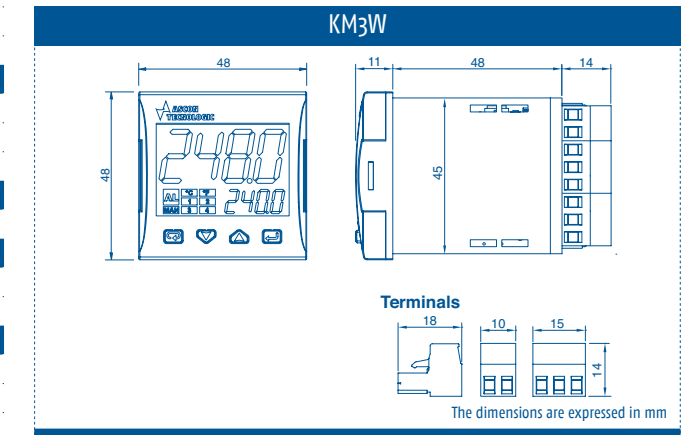
| KM3W VERSION | CODE |
|---|------|
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV + digital input 1 | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E |
| OUT 1 | |
| Relay SPST 4A | R |
| Vdc for SSR driving | O |
| 0/4... 20 mA, 0/2... 10V galvanically isolated (control and retransmission) | I |
| OUT 2 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 3 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 4 | |
| Digital input 2 or digital output or transmitter supply | D |
| RS485 | |
| Available | S |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
ADVANCED PROGRAMMER CONTROLLERS
DIN RAIL MOUNTING CONTROLLERS
THERMOSTATS ANALOGUE CONTROLLERS
SPECIAL CONTROLLERS AND "CUSTOM"
PAC SYSTEMS
PRE-PROGRAMMED SYSTEMS
PLC AND OPERATOR PANELS
TIMERS COUNTERS POWER LIMITERS
INDICATORS
I/O MODULES
SUPERVISION
COMBUSTION CONTROL
ACCESSORIES

KM5P

- 3 DYNAMIC COLOUR LED DISPLAY
- 8 PROGRAMS AND 96 SEGMENTS
- "SEGMENT RECOVERY" + "ELAPSED TIME RECOVERY" (RESOLUTION 1 MIN)

evolution



FEATURES

| DISPLAY | |
|---------------------------------|---|
| Dual LED | Main display: 4 digit h 15.5 mm. 3 colours: red, green and amber Secondary display: 4 green digit, h 7 mm |
| INPUTS | |
| Universal | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K |
| | Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Accuracy | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K |
| | Thermistors: PTC KTY81-121 (-55... +150°C/-67... 302°F), NTC 103 AT2 (-50... +110°C/-58... 230°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Digital inputs | ± 0.5% span ±1 digit, (±1% span ±1 digit for T/c S type) |
| Digital inputs | 1 or 2 according to instrument's part number (the 2nd digital input is alternative to OUT 4) |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPST-NO 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% or analogue galvanically isolated 0/4... 20 mA, 0/2... 10V (optional) |
| | OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% |
| | OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 110.5V min. @ 15mA ±10% |
| | OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Self-tuning algorithms, Overshoot control |
| Servomotor control | Available |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Signal retransmission | Measuring or Set Point retransmission |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Programmer (optional) | Up to 12 segments with guaranteed soak |
| Programs storage (optional) | Up to 8 programs |
| Program sequence | Possibility to manage sequences up to 4 programmes with different time base (h.min - min.s) |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max |
| Dimensions / Weight | 48 x 48 mm (1/16 DIN) - depth 63 mm / 125 g |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH% without condensation |
| Conformity | EN 61010-1, EN 61326 |



HOW TO ORDER

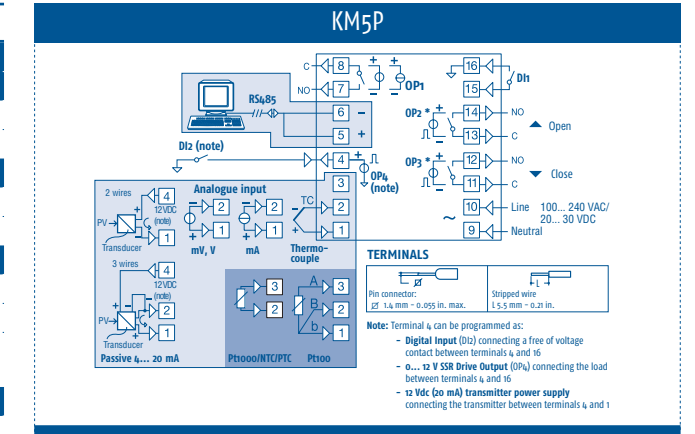
To compose the part number, pls. choose one of the option for each variable

| KM5P | CODE |
|---|------|
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV + digital input 1 | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E |
| OUT 1 | |
| Relay SPST 4A | R |
| Vdc for SSR driving | O |
| 0/4... 20 mA, 0/2... 10V galvanically isolated (control and retransmission) | I |
| OUT 2 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Relay SPST 2A for Servomotor driving | M |
| Not available | - |
| OUT 3 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Relay SPST 2A for Servomotor driving | M |
| Not available | - |
| OUT 4 | |
| Digital input 2 or digital output or transmitter supply | D |
| RS485 | |
| Available | S |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

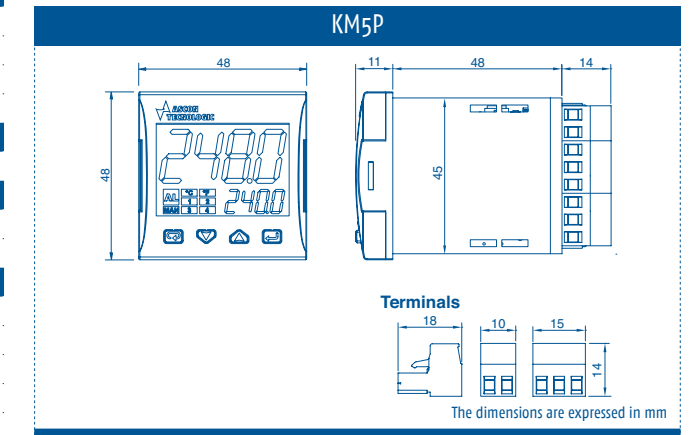
(*) To obtain the Servomotor control, OUT2 and OUT3 have to be selected as M.

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

KM5PW

- 3 DYNAMIC COLOUR LED DISPLAY
- 8 PROGRAMS AND 96 SEGMENTS
- "SEGMENT RECOVERY" + "ELAPSED TIME RECOVERY" (RESOLUTION 1 MIN)

evolution



FEATURES

| DISPLAY | |
|---------------------------------|---|
| KM5PW | |
| Dual LED | Main display: 4 digit h 15.5 mm. 3 colours: red, green and amber Secondary display: 4 green digit, h 7 mm |
| INPUTS | |
| Universal | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K |
| | Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K |
| Accuracy | Thermistors: PTC KTY81-121 (-55... +150°C/-67... 302°F), NTC 103 AT2 (-50... +110°C/-58... 230°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| | ± 0.5% span ± 1 digit, (± 1% span ± 1 digit for T/c S type) |
| Digital inputs | 1 or 2 according to instrument's part number (the 2nd digital input is alternative to OUT 4) |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPST-NO 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% or analogue galvanically isolated 0/4... 20 mA, 0/2... 10V (optional) |
| | OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% |
| | OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 110.5V min. @ 15mA ±10% |
| | OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Selftuning algorithms, Overshoot control |
| Servomotor control | Available |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Signal retransmission | Measuring or Set Point retransmission |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Programmer (optional) | Up to 12 segments with guaranteed soak |
| Programs storage (optional) | Up to 8 programs |
| Program sequence | Possibility to manage sequences up to 4 programmes with different time base (h.min - min.s) |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max |
| Dimensions / Weight | 48 x 48 mm (1/16 DIN) - depth 63 mm / 125 g |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH% without condensation |
| Conformity | EN 61010-1, EN 61326 |



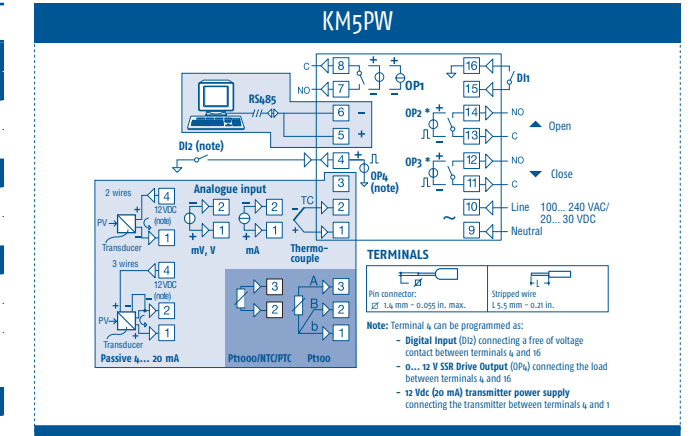
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

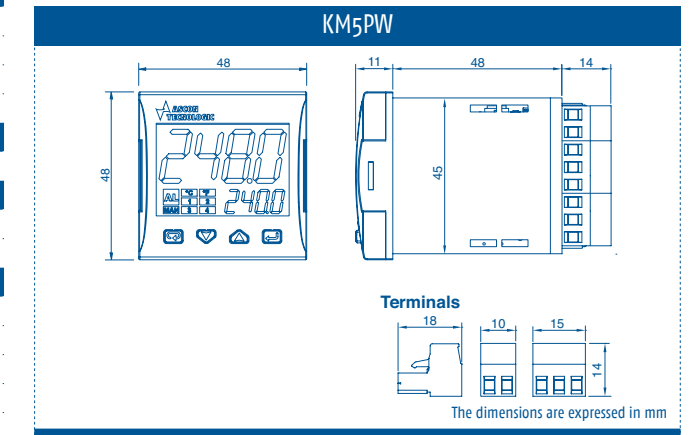
| KM5PW | CODE |
|---|------|
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV + digital input 1 | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E |
| OUT 1 | |
| Relay SPST 4A | R |
| Vdc for SSR driving | O |
| 0/4... 20 mA, 0/2... 10V galvanically isolated (control and retransmission) | I |
| OUT 2 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Relay SPST 2A for Servomotor driving | M |
| Not available | - |
| OUT 3 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Relay SPST 2A for Servomotor driving | M |
| Not available | - |
| OUT 4 | |
| Digital input 2 or digital output or transmitter supply | D |
| RS485 | |
| Available | S |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

(*) To obtain the Servomotor control, OUT2 and OUT3 have to be selected as M.

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
ADVANCED PROGRAMMER CONTROLLERS
DIN RAIL MOUNTING CONTROLLERS
THERMOSTATS ANALOGUE CONTROLLERS
SPECIAL CONTROLLERS AND "CUSTOM"
PAC SYSTEMS
PRE-PROGRAMMED SYSTEMS
PLC AND OPERATOR PANELS
TIMERS COUNTERS POWER LIMITERS
INDICATORS
I/O MODULES
SUPERVISION
COMBUSTION CONTROL
ACCESSORIES

KX3

- 3 DYNAMIC COLOUR LED DISPLAY
- ANALOGUE CONTROL OUTPUT
- 8 SEGMENTS PROGRAMMER / TIMER
- WORKING HOURS COUNTER

evolution



FEATURES

| DISPLAY | |
|---------------------------------|---|
| Dual LED | Main display: 4 digit h 15.5 mm. 3 colours: red, green and amber Secondary display: 4 green digit, h 10 mm 20 segments Bargraph |
| INPUTS | |
| Universal | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermistors: PTC KTY81-121 (-55... +150°C/-67... 302°F), NTC 103 AT2 (-50... +110°C/-58... 230°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Accuracy | ± 0.5% span ±1 digit, (±1% span ±1 digit for T/c S type) |
| Digital inputs | 1 or 2 according to instrument's part number (the 2nd digital input is alternative to OUT 4) |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPST-NO 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% or analogue galvanically isolated 0/4... 20 mA, 0/2... 10V (optional) OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Selftuning algorithms, Overshoot control |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Signal retransmission | Measuring or Set Point retransmission |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Programmer (optional) | Up to 8 segments with guaranteed soak |
| Timer (optional) | Independent with 5 function modes |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max |
| Dimensions / Weight | 48 x 96 mm (1/8 DIN) - depth 76 mm / 160 g |
| Mounting | Flush in panel in 45 x 93 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65 mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH% without condensation |
| Conformity | EN 61010-1, EN 61326 |



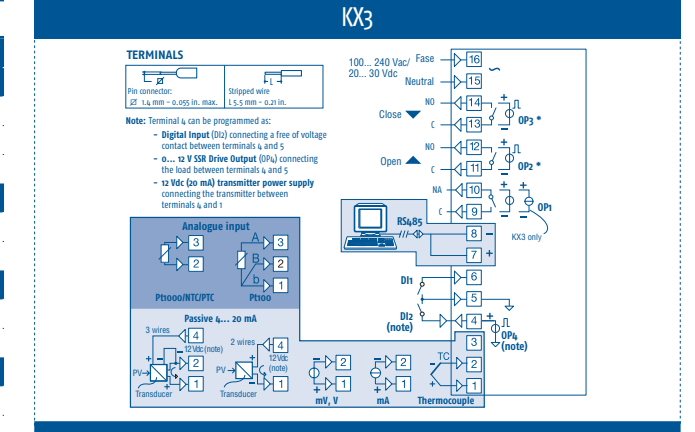
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

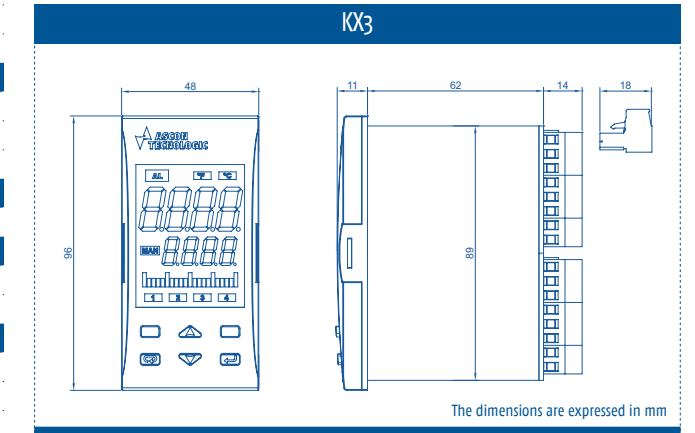
| KX3 | CODE |
|---|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV + digital input 1 | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E |
| OUT 1 | |
| Relay SPST 4A | R |
| Vdc for SSR driving | O |
| 0/4... 20 mA, 0/2... 10V galvanically isolated (control and retransmission) | I |
| OUT 2 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 3 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 4 | |
| Digital input 2 or digital output or transmitter supply | D |
| RS485 | |
| Available | S |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

KX5P

- 3 DYNAMIC COLOUR LED DISPLAY
- 8 PROGRAMS AND 96 SEGMENTS
- "SEGMENT RECOVERY" + "ELAPSED TIME RECOVERY" (RESOLUTION 1 MIN)

evolution



FEATURES

| DISPLAY | |
|---------------------------------|--|
| | KX5P |
| | Main display: 4 digit h 15.5 mm. 3 colours: red, green and amber |
| Dual LED | Secondary display: 4 green digit, h 10 mm 20 segments Bargraph |
| INPUTS | |
| Universal | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) |
| | Infrared sensors: J or K |
| | Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) |
| | Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) |
| | Infrared sensors: J or K |
| | Thermistors: PTC KTY81-121 (-55... +150°C/-67... 302°F), NTC 103 AT2 (-50... +110°C/-58... 230°F) |
| | Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Accuracy | ± 0.5% span ±1 digit, (±1% span ±1 digit for T/c S type) |
| Digital inputs | 1 or 2 according to instrument's part number (the 2nd digital input is alternative to OUT 4) |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPST-NO 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% or analogue galvanically isolated 0/4... 20 mA, 0/2... 10V (optional) |
| | OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% |
| | OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% |
| | OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Selftuning algorithms, Overshoot control |
| Servomotor control | Available |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Signal retransmission | Measuring or Set Point retransmission |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Programmer (optional) | Up to 12 segments with guaranteed soak |
| Programs storage (optional) | Up to 8 programs |
| Program sequence | Possibility to manage sequences up to 4 programmes with different time base (h.min - min.s) |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max |
| Dimensions / Weight | 48 x 96 mm (1/8 DIN) - depth 76 mm / 160 g |
| Mounting | Flush in panel in 45 x 93 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65 mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH% without condensation |
| Conformity | EN 61010-1, EN 61326 |



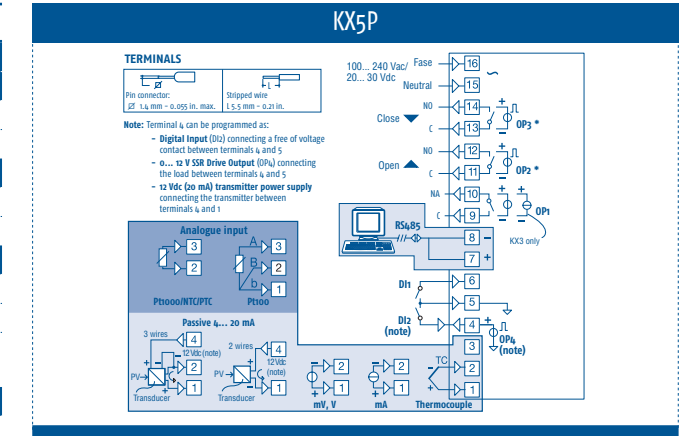
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

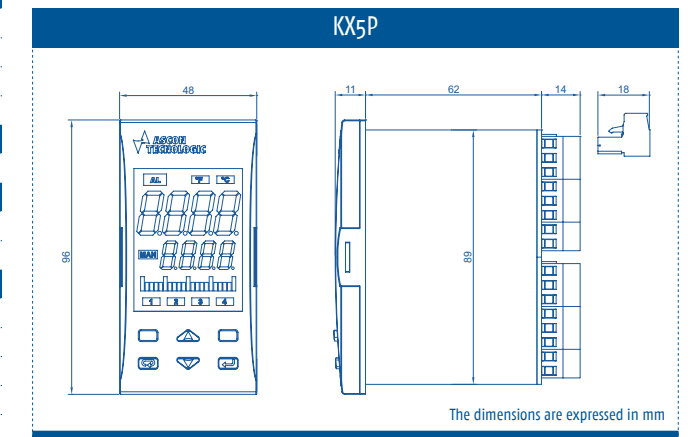
| KX5P | CODE |
|---|------|
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV + digital input 1 | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E |
| OUT 1 | |
| Relay SPST 4A | R |
| Vdc for SSR driving | O |
| 0/4... 20 mA, 0/2... 10V galvanically isolated (control and retransmission) | I |
| OUT 2 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Relay SPST 2A for Servomotor driving | M |
| Not available | - |
| OUT 3 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Relay SPST 2A for Servomotor driving | M |
| Not available | - |
| OUT 4 | |
| Digital input 2 or digital output or transmitter supply | D |
| RS485 | |
| Available | S |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

(*) To obtain the Servomotor control, OUT2 and OUT3 have to be selected as M.

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

KX6

- 3 DYNAMIC COLOUR LED DISPLAY
- INPUT FROM POTENTIOMETER
- SELF-CALIBRATION POTENTIOMETER
- SELF-PACED RUNNING TIME SERVOMOTOR

evolution



| FEATURES | |
|--|--|
| DISPLAY | |
| KX6 | |
| Upper (main) display: 15.5 dynamic three colours red, green and amber or 1 fixed selectable colour | |
| Central display: 4 digit height 10 mm (green colour) | |
| Lower display: 2 1/2 digit height 10 mm (green colour) | |
| INPUTS | |
| Input 1 (configurable) | Thermocouples: J (-50... +1000°C/-58... +1832°F), K (-50... +1370°C/-58... +2498°F), S/R (-50... +1760°C/-58... +3200°F), T (-70... +400°C/-94... +752°F) Linear signals: 0/4... 20mA |
| Measurement accuracy | ±0.5% span ±1 digit, (±1% span ±1 digit for T/c type S) |
| Input 2 | Potentiometer 100 Ω... 10 kΩ (option) DI: 1 contact input |
| Digital inputs | DI2: Isolated voltage input (24 VAC/DC or 110/230 VAC) (option) |
| OUTPUTS | |
| Up to four | OUT1: Relay SPST-NO 2A/240 VAC or analogue 0/4... 20 mA, 0/2... 10 V galvanically isolated OUT2: Relay SPST-NO 2A/240 VAC OUT3 and OUT4: Relay SPST-NO 2A/240 VAC (for resistive loads) |
| FUNCTIONAL | |
| Control | PID single action (direct or reverse) for servomotor control or linear output (mA/V), PID Heating or Heating/Cooling action. On/Off, On/Off with Neutral Zone, Autotune, Seltune and evoTune. Overshoot control |
| Alarms | 2 alarms (configurable as absolute, deviation and band alarm) |
| Set Point | 4 Set points selectable |
| Serial communications | TTL (standard) + RS485 (optional), protocol: MODBUS RTU |
| Communications speed | 1200... 38400 baud selectable (8 bit + 1 stop bit, no parity) |
| Evogreen | Time based Display switch-off, selectable |
| Other functions | Self-calibration potentiometer Auto learning servomotor stroke time |
| GENERAL | |
| Power supply | 100... 240 VAC/DC (-15... +10%), 50/60 Hz, power consumption 7 VA max. |
| Temperature | Operating: 0... 50°C (32... 122°F); Storage: -20... +70°C (-4... +158°F); |
| Relative humidity | 20... 95 RH% with no condensation |
| Front removable | Instrument removable from the case without unwiring or opening the cabinet |
| Conformity | EN 61010-1, EN 61326 |



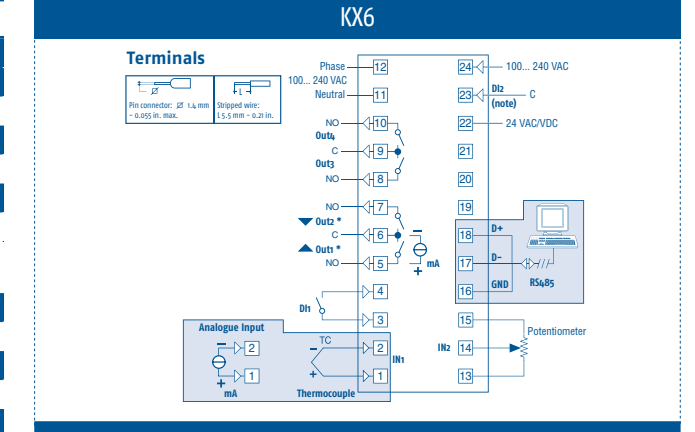
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

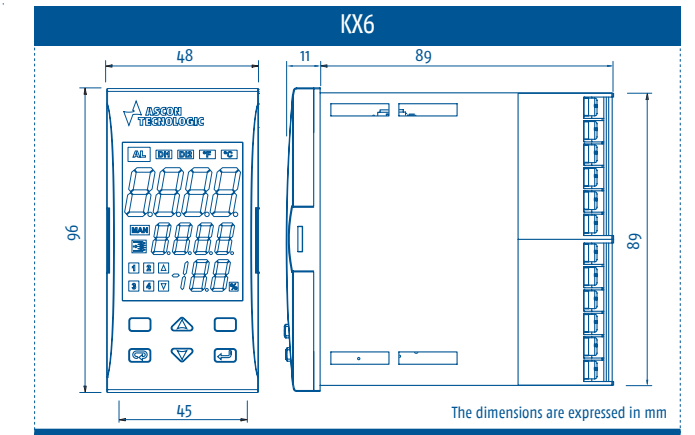
| KX6 | CODE |
|---|------|
| POWER SUPPLY | |
| 100... 240 Vac | H |
| INPUT | |
| TC, mA, mV + digital input 1 (*) | B |
| OUT 1 + OUT 2 | |
| OUT1 + OUT2: Relay SPST-NO 2A for Servomotor driving | MM |
| OUT1: 0/4... 20 mA, 0/2... 10V galvanically isolated | |
| OUT2: Not available | I- |
| OUT 3 | |
| Relay SPST-NO 2A | R |
| OUT 4 | |
| Relay SPST-NO 2A | R |
| OPTIONS (TTL MODBUS IS ALWAYS AVAILABLE) | |
| Potentiometer input + Digital Input 2 + RS 485 Modbus | C |
| Potentiometer input + Digital Input 2 | P |
| RS485 Modubus | S |
| None | - |

(*) It's possible to obtain an input 0... 10V or 0... 5V, ordering the following part no, respectively:
AP ADPINMV-KX-V10
AD ADPINMV-KX-V5

CONNECTIONS



DIMENSIONS



KR3

- 3 DYNAMIC COLOUR LED DISPLAY
- ANALOGUE CONTROL OUTPUT
- 8 SEGMENTS PROGRAMMER / TIMER
- WORKING HOURS COUNTER

evolution



FEATURES

| DISPLAY | |
|---------------------------------|--|
| Dual LED | <p>KR3</p> <p>Main display: 4 digit h 11.7 mm. 3 colours: red, green and amber</p> <p>Secondary display: 4 green digit, h 7 mm</p> |
| INPUTS | |
| Universal | <p>Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F)</p> <p>Infrared sensors: J or K</p> <p>Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F)</p> <p>Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V</p> <p>Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F)</p> <p>Infrared sensors: J or K</p> <p>Thermistors: PTC KTY81-121 (-55... +150°C/-67... 302°F), NTC 103 AT2 (-50... +110°C/-58... 230°F)</p> <p>Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V</p> |
| Accuracy | ± 0.5% span ± 1 digit, (± 1% span ± 1 digit for T/c S type) |
| Digital inputs | 1 or 2 according to instrument's part number (the 2nd digital input is alternative to OUT 4) |
| OUTPUTS | |
| Up to 4 | <p>OUT 1: Relay SPDT 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% or analogue galvanically isolated 0/4... 20 mA, 0/2... 10V (optional)</p> <p>OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10%</p> <p>OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10%</p> <p>OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input</p> |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Seltuning algorithms, Overshoot control |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Signal retransmission | Measuring or Set Point retransmission |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Programmer (optional) | Up to 8 segments with guaranteed soak |
| Timer (optional) | Independent with 5 function modes |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max |
| Dimensions / Weight | 78 x 35 mm (1/16 DIN) - depth 63 mm / 125 g |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH% without condensation |
| Conformity | EN 61010-1, EN 61326 |



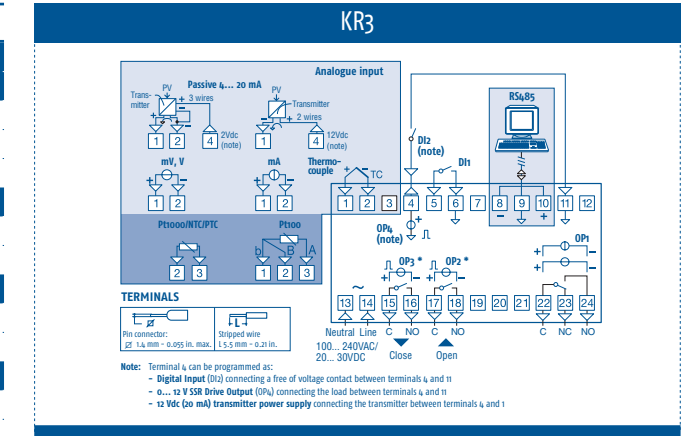
EVERYTHING UNDER CONTROL

HOW TO ORDER

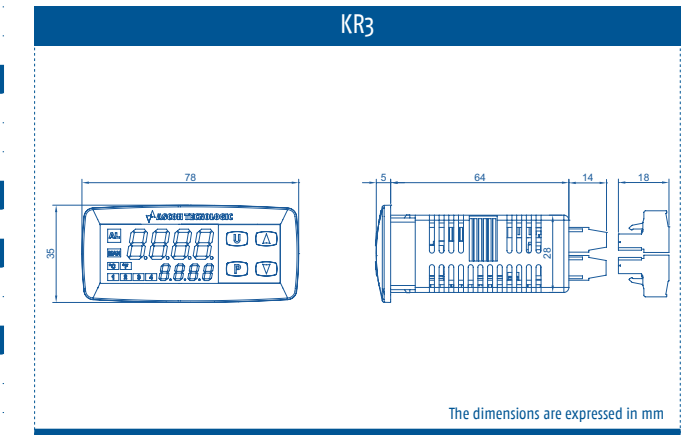
To compose the part number, pls. choose one of the option for each variable

| KR3 | CODE |
|---|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV + digital input 1 | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E |
| OUT 1 | |
| Relay SPDT 4A | R |
| Vdc for SSR driving | O |
| 0/4... 20 mA, 0/2... 10V galvanically isolated (control and retransmission) | I |
| OUT 2 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 3 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 4 | |
| Digital input 2 or digital output or transmitter supply | D |
| RS485 | |
| Available | S |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

KRD3

- ANALOGUE CONTROL OUTPUT
- 8 SEGMENTS PROGRAMMER
- INDEPENDENT TIMER
- WORKING HOURS COUNTER

evolution



FEATURES

| KRD3 | |
|---------------------------------|--|
| INPUTS | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Accuracy | ± 0.5% span ± 1 digit, (± 1% span ± 1 digit for T/c S type) |
| Digital input | 1, always on board |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPDT 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% or analogue galvanically isolated 0/4... 20 mA, 0/2... 10V (optional) OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 4: programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Selftuning algorithms, Overshoot control |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Signal retransmission | Measuring or Set Point retransmission |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Programmer (optional) | Up to 8 segments with guaranteed soak |
| Timer (optional) | Independent with 5 function modes |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max |
| Dimensions / Weight | 78 x 35 mm - 200 g |
| Mounting | On OMEGA DIN A rail or on wall |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 20 |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH% without condensation |
| Conformity | EN 61010-1, EN 61326 |



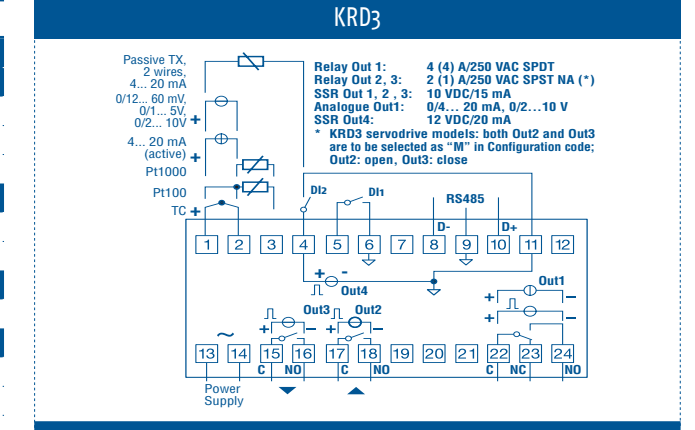
EVERYTHING UNDER CONTROL

HOW TO ORDER

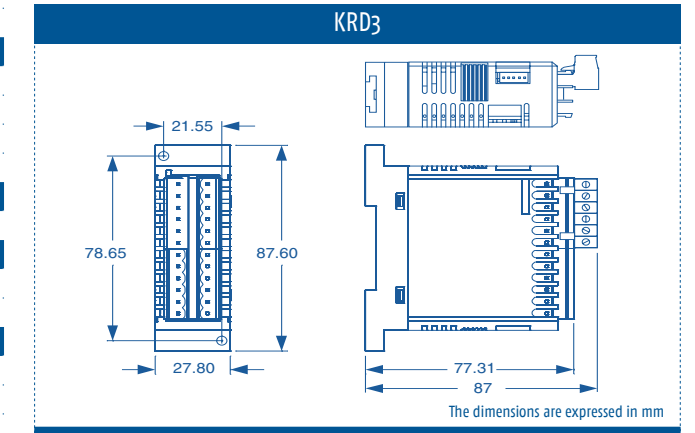
To compose the part number, pls. choose one of the option for each variable

| KRD3 | CODE |
|---|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV/digital input | C |
| OUT 1 | |
| Relay SPDT 4A | R |
| Vdc for SSR driving | O |
| 0/4... 20 mA, 0/2... 10V galvanically isolated | I |
| OUT 2 | |
| Relay SPST-NO 2A | R |
| Vdc for SSR driving | O |
| Relay SPST-NO 2A for Servomotor | M |
| Not available | - |
| OUT 3 | |
| Relay SPST-NO 2A | R |
| Vdc for SSR driving | O |
| Relay SPST-NO 2A for Servomotor | M |
| Not available | - |
| OUT 4 | |
| Digital input or digital output or transmitter supply | D |
| RS485 | |
| Available (Standard) | S |
| Not available (Optional) | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
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 COMBUSTION CONTROL
 ACCESSORIES

KR5P

- 3 DYNAMIC COLOUR LED DISPLAY
- 8 PROGRAMS AND 96 SEGMENTS
- "SEGMENT RECOVERY" + "ELAPSED TIME RECOVERY" (RESOLUTION 1 MIN)

evolution



| FEATURES | |
|---------------------------------|---|
| DISPLAY | KR5P |
| Dual LED | Main display: 4 digit h 11.7 mm. 3 colours: red, green and amber Secondary display: 4 green digit, h 7 mm |
| INPUTS | |
| Universal | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V |
| Accuracy | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermistors: PTC KTY81-121 (-55... +150°C/-67... 302°F), NTC 103 AT2 (-50... +110°C/-58... 230°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V ± 0.5% span ± 1 digit, (± 1% span ± 1 digit for T/c S type) |
| Digital inputs | 1 or 2 according to instrument's part number (the 2nd digital input is alternative to OUT 4) |
| OUTPUTS | |
| Up to 4 | OUT 1: Relay SPDT 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% or analogue galvanically isolated 0/4... 20 mA, 0/2... 10V (optional) OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 110.5V min. @ 15mA ±10% OUT 4 programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply or 2nd digital input |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Selftuning algorithms, Overshoot control |
| Servomotor control | Available |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Signal retransmission | Measuring or Set Point retransmission |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Programmer (optional) | Up to 12 segments with guaranteed soak |
| Programs storage (optional) | Up to 8 programs |
| Program sequence | Possibility to manage sequences up to 4 programmes with different time base (h.min - min.s) |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max |
| Dimensions / Weight | 78 x 35 mm (1/16 DIN) - depth 63 mm / 125 g |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 65, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH% without condensation |
| Conformity | EN 61010-1, EN 61326 |



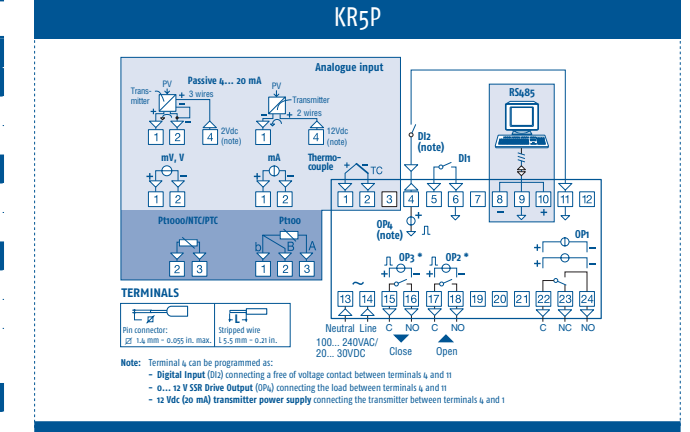
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

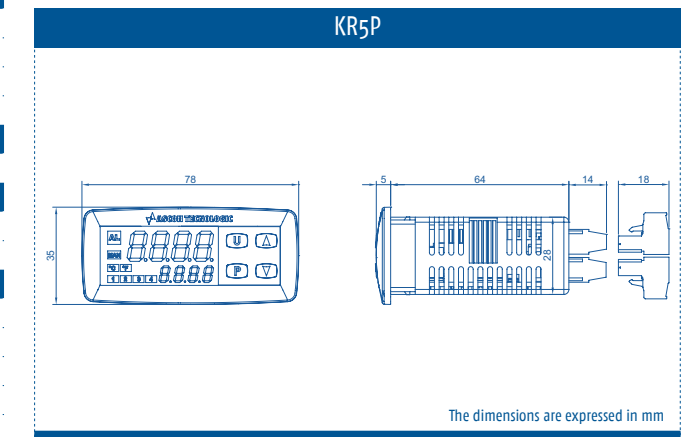
| KR5P | CODE |
|---|------|
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV + digital input 1 | C |
| TC, NTC, PTC, mA, V, mV + digital input 1 | E |
| OUT 1 | |
| Relay SPDT 4A | R |
| Vdc for SSR driving | O |
| 0/4... 20 mA, 0/2... 10V galvanically isolated (control and retransmission) | I |
| OUT 2 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Relay SPST 2A for Servomotor driving | M |
| Not available | - |
| OUT 3 | |
| Relay SPST 2A | R |
| Vdc for SSR driving | O |
| Relay SPST 2A for Servomotor driving | M |
| Not available | - |
| OUT 4 | |
| Digital input 2 or digital output or transmitter supply | D |
| RS485 | |
| Available | S |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

(*) To obtain the Servomotor control, OUT2 and OUT3 have to be selected as M.

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

K 31/32/38/39

- CONTROLLER WITH INDEPENDENT TIMER
- 8 SEGMENTS PROGRAMMER
- WATTMETER FUNCTION



FEATURES

| DISPLAY | K31 | K32 | K38 | K39 |
|--|--|--|--|--|
| Display | Single: 4 red digit, h 12 mm + 3 LEDs Bargraph | Dual: 4 red and 4 green digit, h 7mm | Single: 4 red digit, h 12 mm + 3 LEDs Bargraph | Dual: 4 red and 4 green digit, h 7mm |
| INPUTS | Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F), T (0... 400°C / 32... 752°F) and Infrared sensors J or K + Thermoresistances: 3 wires Pt 100 (-200... 850°C / -328... 1562°F) | | | |
| 4 different configurations | Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F), T (0... 400°C / 32... 752°F) and Infrared sensors J or K + Thermistors: PTC KTY 81-121 (990Ω at 25°C) (-55... 150°C / -67... 302°F) and Thermistors: NTC 103AT-2 (10kΩ at 25°C) (-50... 110°C / -58... 230°F) | | | |
| Accuracy | Linear signals 0/4... 20mA | | | |
| Digital inputs | Linear signals 0/10... 50mV, 0/12... 60mV, 0/1... 5V, 0/2... 10V | | | |
| OUTPUTS | ±0.5% fs + 1 digit; tc S ±1% fs + 1 digit | | | |
| Up to 4 (K31 and K32) Up to 2 (K38 and K39) | OUT 1 and OUT 2: Relay SPDT (8A-AC1, 3A-AC3/250 Vac) or 12V ±20% 20 mA max. to drive SSR | | OUT 1 and OUT 2: Relay SPDT (8A-AC1, 3A-AC3/250 Vac) or 12V ±20% 20 mA max. to drive SSR | |
| Auxiliary power supply | OUT 3 and OUT 4: Relay SPST-NO (5A-AC1, 3A-AC3/250 Vac) or 12V ±20% 20 mA max. to drive SSR | | | |
| FUNCTIONAL | 12 Vdc/20 mA max. | | | |
| Control | ON/OFF, Neutral Zone, PID single and double action | | | |
| PID functions | PID H/C control with overshoot control, Selftuning and 2 Autotuning algorithms | | | |
| Multi Set Point | Up to 4 pre-programmable Set Point | | | |
| Program | Up to 8 segments with guaranteed soak | | | |
| Timer | Independent with 4 function modes | | | |
| Signal retransmission | Set Point | | -- | |
| Serial communication | RS485 with ModBus-RTU (JBUS) protocol | | TTL ModBus | |
| Baud rate | 1200... 38400 baud, programmable | | -- | |
| GENERAL | | | | |
| Power supply | 12 Vac/Vdc, 24 Vac/Vdc, 100... 240 Vac/Vdc ±10% (50/60 Hz) | | | |
| Power consumption | 6 VA approx. | | | |
| Dimensions / Weight | 78 x 35 mm - depth 64 mm or 78.5 mm with plug-in terminals / 180 g approx. | | 78 x 35 mm - depth 64 mm / 180 g approx. | |
| Keyboard | Mechanical | Mechanical or "Sensitive Touch" | Mechanical | |
| Mounting | Flush in panel in 71 x 29 mm hole | | | |
| Connections | Plug-in terminals or Screw terminal block 2 x 1 mm ² | | Screw terminal block 2 x 1 mm ² | |
| Front protection degree | IP 65, mounted on panel with gasket | | | |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -30... 70°C (-22... 158°F) | | | |
| Operating humidity | 20... 85 RH% without condensation | | | |
| Conformity | Directive EMC 2004/108/CE (EN 61326-1), Directive BT 2006/95/CE (EN 61010-1) | | | |



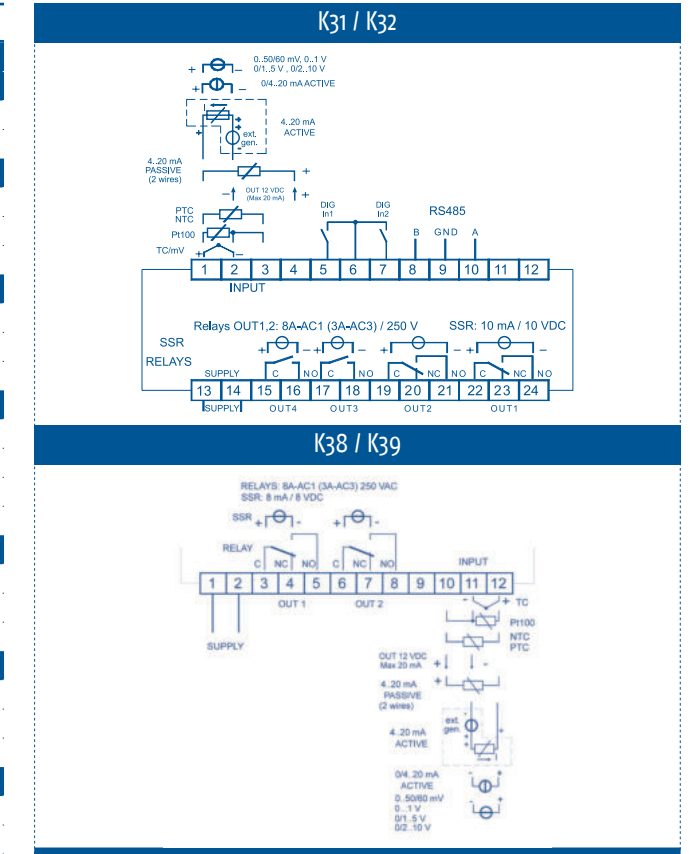
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

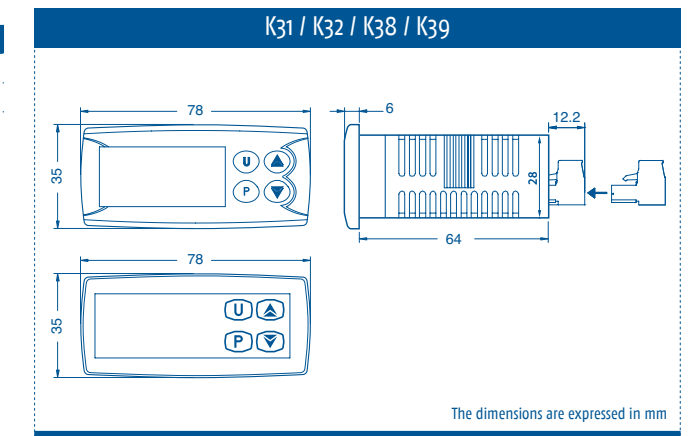
| K31 / K32 / K38 / K39 | CODE |
|------------------------------------|------|
| KEYBOARD | |
| Mechanical | - |
| Sensitive-Touch (*) - K32 only | S |
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 12 Vac/Vdc | F |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC,PT100,mV | C |
| TC,PTC,NTC,mV | E |
| 0/4... 20mA | I |
| 0... 1V, 0/1... 5V, 0/2... 10V | V |
| OUT 1 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | O |
| Mosfet output (K31 only) | M |
| OUT 2 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 3 (SOLO K31 E K32) | |
| Relay SPST-NO 5A-AC1 | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 4 (SOLO K31 E K32) | |
| Relay SPST-NO 5A-AC1 | R |
| Vdc for SSR driving | O |
| Not available | - |
| SERIAL COMMUNICATION (K31 AND K32) | |
| RS485 | S |
| TTL ModBus | - |

(*) K32: Capacitive Touch screen keyboard

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

K 48/49

- CONTROLLER WITH INDEPENDENT TIMER
- 8 SEGMENTS PROGRAMMER
- WATTMETER FUNCTION



FEATURES

| DISPLAY | K48 | K49 |
|---------------------------------|--|--------------------------------------|
| Display | Single: 4 red digit, h 12 mm + 3 LEDs Bargraph | Dual: 4 red and 4 green digit, h 7mm |
| INPUTS | | |
| 4 different configurations | Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F), T (0... 400°C / 32... 752°F) and Infrared sensors J or K + Thermoresistances: 3 wires Pt 100 (-200... 850°C / -328... 1562°F) | |
| | Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F), T (0... 400°C / 32... 752°F) and Infrared sensors J or K + Thermistors: PTC KTY 81-121 (990Ω at 25°C) (-55... 150°C / -67... 302°F) and Thermistors: NTC 103AT-2 (10kΩ at 25°C) (-50... 110°C / -58... 230°F) | |
| | Linear signals 0/4... 20mA | |
| | Linear signals 0/10... 50mV, 0/12... 60mV, 0/1... 5V, 0/2... 10V | |
| Accuracy | ± 0.5 % fs + 1 digit; tc S ± 1% fs + 1 digit | |
| Digital inputs | 2 for free voltage contacts, as alternative to OUT 3 | |
| OUTPUTS | | |
| Up to 3 | OUT 1 and OUT 2: Relay SPST-NO (8 A-AC1, 3 A-AC3 / 250 Vac) or 12V ± 20% 20 mA max. to drive SSR OUT 3: Relay SPST-NO (5 A-AC1, 3 A-AC3 / 250 Vac) or 12V ± 20% 20 mA max. to drive SSR | |
| Auxiliary power supply | 12 Vdc/20 mA max. | |
| FUNCTIONAL | | |
| Control | ON/OFF, Neutral Zone, PID single and double action | |
| PID functions | PID H/C control with overshoot control, Selftuning and 2 Autotuning algorithms | |
| Multi Set Point | Up to 4 pre-programmable Set Point | |
| Program | Up to 8 segments with guaranteed soak | |
| Timer | Independent with 4 function modes | |
| Serial communication | TTL ModBus | |
| GENERAL | | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc ± 10% (50/60 Hz) | |
| Power consumption | 6 VA approx. | |
| Dimensions / Weight | 48 x 48 mm (1/16 DIN) - depth 98 mm / 180 g approx. | |
| Mounting | Flush in panel in 45 x 45 mm hole | |
| Connections | Screw terminal block 2 x 1 mm ² | |
| Front protection degree | IP 65, mounted on panel with gasket | |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-30... 70°C (-22... 158°F) | |
| Operating humidity | 20... 85 RH% without condensation | |
| Conformity | Directive EMC 2004/108/CE (EN 61326-1), Directive BT 2006/95/CE (EN 61010-1) | |



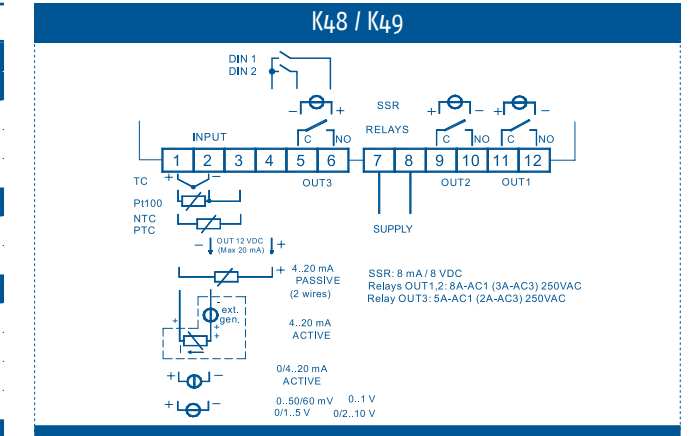
EVERYTHING UNDER CONTROL

HOW TO ORDER

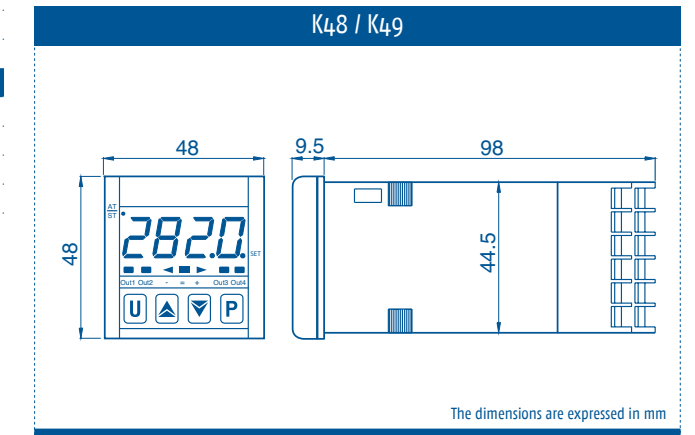
To compose the part number, pls. choose one of the option for each variable

| K48/K49 | CODE |
|---------------------------------|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC,PT100,mV | C |
| TC,PTC,NTC,mV | E |
| 0/4... 20mA | I |
| 0... 1V, 0/1... 5V, 0/2... 10V | V |
| OUT 1 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| OUT 2 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| OUT 3/ DIGITAL INPUTS | |
| Relay SPST-NO 5A-AC1 | R |
| Vdc for SSR driving | 0 |
| 2 digital inputs | D |
| Not available | - |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
ADVANCED PROGRAMMER CONTROLLERS
DIN RAIL MOUNTING CONTROLLERS
THERMOSTATS ANALOGUE CONTROLLERS
SPECIAL CONTROLLERS AND "CUSTOM"
PAC SYSTEMS
PRE-PROGRAMMED SYSTEMS
PLC AND OPERATOR PANELS
TIMERS COUNTERS POWER LIMITERS
INDICATORS
I/O MODULES
SUPERVISION
COMBUSTION CONTROL
ACCESSORIES

K85

- CONTROLLER WITH INDEPENDENT TIMER
- 8 SEGMENTS PROGRAMMER
- WATTMETER FUNCTION



FEATURES

| DISPLAY | |
|---------------------------------|--|
| Single | K85 4 red digit, h 12 mm + 3 LEDs Bargraph |
| INPUTS | |
| 4 different configurations | Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F), T (0... 400°C / 32... 752°F) and Infrared sensors J or K + Thermoresistances: 3 wires Pt 100 (-200... 850°C / -328... 1562°F) |
| | Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F), T (0... 400°C / 32... 752°F) and Infrared sensors J or K + Thermistors: PTC KTY 81-121 (990Ω at 25°C) (-55... 150°C / -67... 302°F) and Thermistors: NTC 103AT-2 (10kΩ at 25°C) (-50... 110°C / -58... 230°F) |
| | Linear signals 0/4... 20mA |
| Accuracy | Linear signals 0/10... 50mV, 0/12... 60mV, 0/1... 5V, 0/2... 10V ± 0.5 % fs + 1 digit; tc S ± 1% fs + 1 digit |
| Digital inputs | 2 for free voltage contacts |
| OUTPUTS | |
| Up to 3 | OUT 1 and OUT 2: Relay SPDT (8 A-AC1, 3 A-AC3 / 250 Vac) or 12V ± 20% 20 mA max. to drive SSR OUT 3: Relay SPST-NO (5 A-AC1, 3 A-AC3 / 250 Vac) or 12V ± 20% 20 mA max. to drive SSR |
| Auxiliary power supply | 12 Vdc/20 mA max. |
| FUNCTIONAL | |
| Control | ON/OFF, Neutral Zone, PID single and double action |
| PID functions | PID H/C control with overshoot control, Selftuning and 2 Autotuning algorithms |
| Multi Set Point | Up to 4 pre-programmable Set Point |
| Program | Up to 8 segments with guaranteed soak |
| Timer | Independent with 4 function modes |
| Signal retransmission | Set Point |
| Serial communication | RS485 with ModBus-RTU (JBUS) protocol |
| Baud rate | 1200... 38400 baud, programmable |
| GENERAL | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc ± 10% (50/60 Hz) |
| Power consumption | 6 VA approx. |
| Dimensions / Weight | 4 DIN rail module, 70 x 84 mm - depth 60 mm / 230 g approx. |
| Mounting | On OMEGA DIN A rail |
| Connections | Screw terminal block 2 x 1 mm ² |
| Front protection degree | IP 40 |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-30... 70°C (-22... 158°F) |
| Operating humidity | 20... 85 RH% without condensation |
| Conformity | Directive EMC 2004/108/CE (EN 61326-1), Directive BT 2006/95/CE (EN 61010-1) |



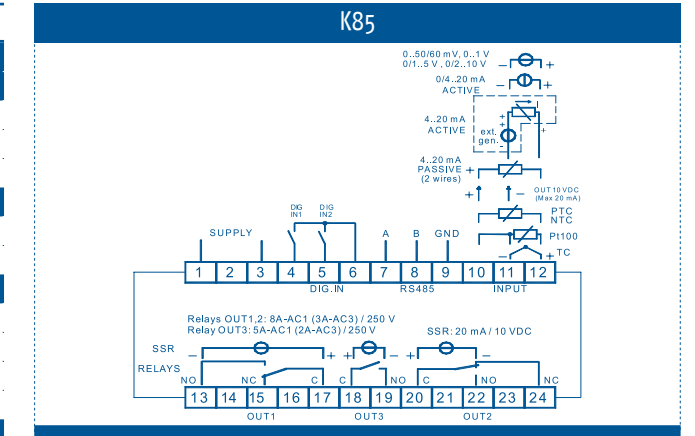
EVERYTHING UNDER CONTROL

HOW TO ORDER

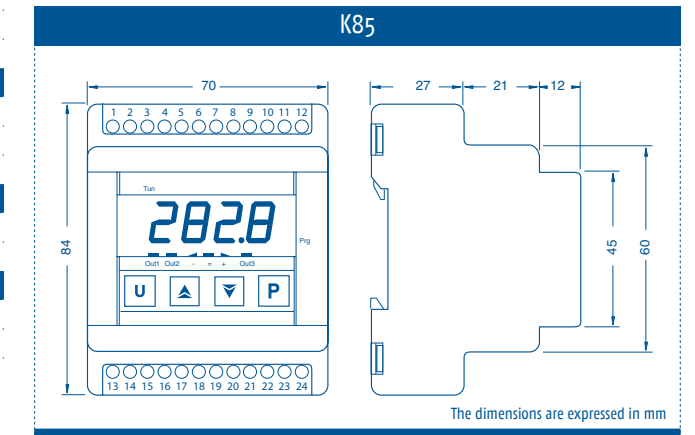
To compose the part number, pls. choose one of the option for each variable

| K85 | CODE |
|---------------------------------|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, PTC100, mV | C |
| TC, PTC, NTC, mV | E |
| 0/4... 20mA | I |
| 0... 1V, 0/1... 5V, 0/2... 10V | V |
| OUT 1 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| OUT 2 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| OUT 3/ DIGITAL INPUTS | |
| Relay SPST-NO 5A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| SERIAL COMMUNICATION | |
| RS485 | S |
| TTL ModBus | - |
| DIGITAL INPUT | |
| 2 digital inputs | D |
| Not available | - |

CONNECTIONS



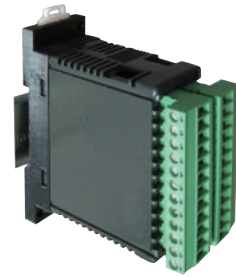
DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

K30

- CONTROLLER WITH INDEPENDENT TIMER
- 8 SEGMENTS PROGRAMMER
- WATTMETER FUNCTION



FEATURES

| K30 | |
|---------------------------------|--|
| INPUTS | Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F), T (0... 400°C / 32... 752°F) and Infrared sensors J or K + Thermoresistances: 3 wires Pt 100 (-200... 850°C / -328... 1562°F) |
| 4 different configurations | Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F), T (0... 400°C / 32... 752°F) and Infrared sensors J or K + Thermistors: PTC KTY 81-121 (990Ω at 25°C) (-55... 150°C / -67... 302°F) and Thermistors: NTC 103AT-2 (10kΩ at 25°C) (-50... 110°C / -58... 230°F) |
| Accuracy | Linear signals 0/4... 20mA Linear signals 0/10... 50mV, 0/12... 60mV, 0/1... 5V, 0/2... 10V ±0.5% fs + 1 digit; tc S ± 1% fs + 1 digit |
| Digital inputs | 2 for free voltage contacts |
| OUTPUTS | |
| Up to 5 | OUT 1 and OUT 2: Relay SPDT (8A-AC1, 3A-AC3/250 Vac) or 12V ±20% 20 mA max. to drive SSR OUT 3 and OUT 4: Relay SPST-NO (5A-AC1, 3A-AC3/250 Vac) or 12V ±20% 20 mA max. to drive SSR OUT 5: 12V ±20% 20 mA max. to drive SSR (always available on board) |
| Auxiliary power supply | 12 Vdc/20 mA max. |
| FUNCTIONAL | |
| Control | ON/OFF, Neutral Zone, PID single and double action |
| PID functions | PID H/C control with overshoot control, Selftuning and 2 Autotuning algorithms |
| Multi Set Point | Up to 4 pre-programmable Set Point |
| Program | Up to 8 segments with guaranteed soak |
| Timer | Independent with 4 function modes |
| Signal retransmission | Set Point |
| Serial communication | RS485 with ModBus-RTU (JBUS) protocol |
| Baud rate | 1200... 38400 baud, programmable |
| GENERAL | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc ±10% (50/60 Hz) |
| Power consumption | 6 VA approx. |
| Dimensions / Weight | 78 x 35 mm - depth 75.5 mm or 78.5 mm with plug-in terminals / 180 g approx. |
| Mounting | On OMEGA DIN A rail |
| Connections | Plug-in terminals or Screw terminal block 2 x 1 mm ² |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -30... 70°C (-22... 158°F) |
| Operating humidity | 20... 85 RH% without condensation |
| Conformity | Directive EMC 2004/108/CE (EN 61326-1), Directive BT 2006/95/CE (EN 61010-1) |

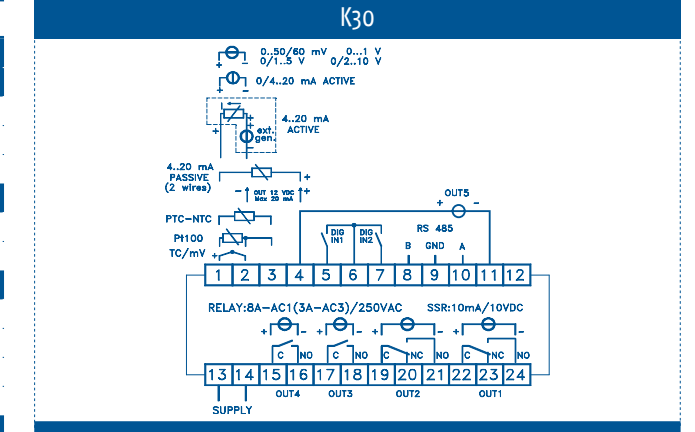


HOW TO ORDER

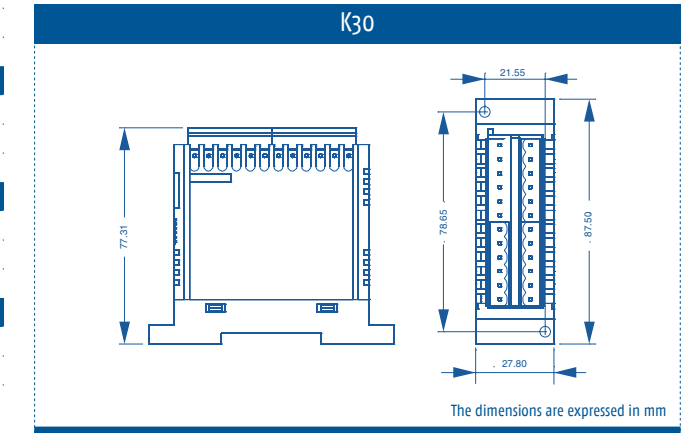
To compose the part number, pls. choose one of the option for each variable

| K30 | CODE |
|--|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, PT100, mV | C |
| TC, PTC, NTC, mV | E |
| 0/4... 20mA | I |
| 0... 1V, 0/1... 5V, 0/2... 10V | V |
| OUT 1 / OUT 5 SSR (ALWAYS ON BOARD) | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| OUT 2 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| OUT 3 | |
| Relay SPST-NO 5A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| OUT 4 | |
| Relay SPST-NO 5A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| SERIAL COMMUNICATION | |
| RS485 | S |
| TTL ModBus | - |

CONNECTIONS



DIMENSIONS



M5

- PROCESS CONTROLLER
- ANALOGUE CONTROL OUTPUT OR SERVO MOTOR OUTPUT
- 16 SEGMENTS PROGRAMMER



FEATURES

| DISPLAY | |
|---------------------------------|---|
| Double | M5 Main display: 4 green digit, h 10 mm Secondary display: 4 green digit, h 8 mm + 8 LEDs |
| INPUTS | |
| Universal | Thermocouples: L/J/E (0... +600°C / 32... +1112°F), T (-200... +400°C / -328... +752°F), K/N (0... +1200°C / 32... +2192°F), S/R (0... +1600°C / 32... 2912°F), B (0... 1800°C / 32... 3272°F), W3/W5 (0... 2000°C / 32... 3632°F) Thermoresistances: PT100 connection with 2 or 3 wires (-200... +600°C / -328... +1112°F) Linear signals: 0/4...20 mA, 0... 50mV/0... 300mV, 0/1... 5V/0... 10V - Engineering units with or without decimal and square root extraction Infrared sensors or special ranges (custom) |
| Accuracy | 0.25% ±1 digit (thermoelements) 0 0.1% ±1 digit (for mA and mV) Non isolated remote Set Point: current 0/4... 20mA or voltage 1...5/ 0...5/ 0...10V |
| Auxiliary inputs (opt.) | Current Transformer for Heater Break function Potentiometer position feedback measurement |
| Digital inputs | 2 |
| OUTPUTS | |
| Up to 4 | OUT 1 and OUT 2: Relay NO, 2A/250Vac for resistive loads or Triac 1A/250Vac for resistive loads OUT 3: Relay NO, 2A/250Vac for resistive loads OUT 4: Analogue in current: 0/4...20mA max. 750Ω/10V max./ voltage: 0...15/10V 500Ω / 20mA max. (galvanically isolated) or 0...18Vdc, 20mA max. to drive SSR |
| Auxiliary power supply | +18Vdc ±20%, 30mA max. for external transmitter (2, 3 or 4 wires) |
| FUNCTIONAL | |
| Control | PID, ON/OFF |
| PID functions | PID H/C control, Dead band, overshoot control, manual reset, cycle time, high and low limits, max. control output speed rate, Soft-start, safety output, forcing output, Fuzzy Tuning, Adaptive Tuning |
| Operating modes | 1 Loop with single/double action with or without programmer |
| Set Point | Local + 2 stored Set points, only Remote, Local and Remote, Local with trim, Remote with trim, Time programmable |
| Program | 1 program, 16 segments, 1... 9999 cycles or continuous cycling (OFF) |
| Auto/Man station | Integrated, Bumpless operated from keyboard, digital inputs and serial communication |
| Servomotor control | Motor travel time, motor minimum step |
| Signal retransmission | Measuring or Set Point retransmission |
| Serial communication | Isolated RS485 with ModBus-RTU (JBUS) protocol, with 2 wires |
| Baud rate | 1200, 2400, 4800, 9600, 19200 bit/s, a 3 wires |
| GENERAL | |
| Power supply | 100... 240 Vac (-15... +10%) 0 24Vac (-25... +12%) e 24Vdc (-15... +25%) (50/60Hz) |
| Power consumption | 3VA max. |
| Dimensions / Weight | 48 x 48 mm (1/16 DIN), depth 150 mm / 230 g approx. |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Connections | Screw terminal block M3 for cables with section 1 mm ² (18AWG) |
| Front protection degree | IP65 |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20... +70°C (-4... 158°F) |
| Operating humidity | 5... 95% RH without condensation |
| Conformity | EN 61010-1 |

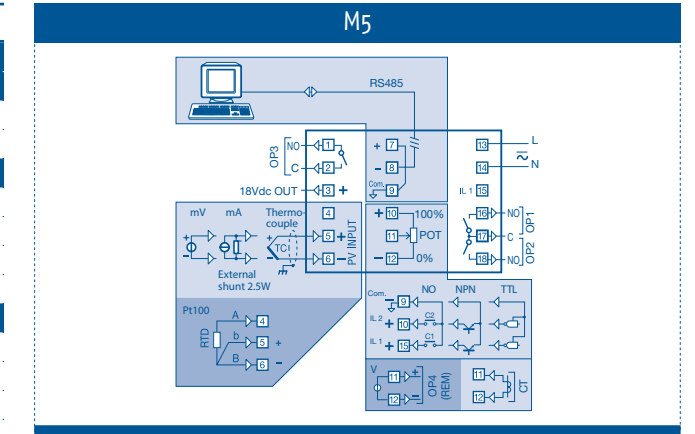


HOW TO ORDER

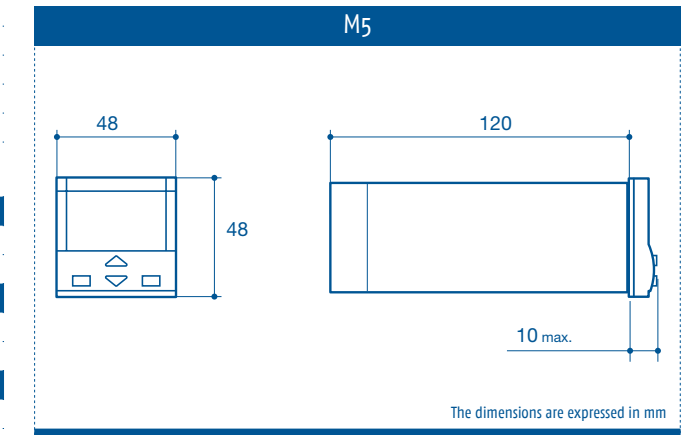
To compose the part number, pls. choose one of the option for each variable

| M5 | CODE |
|--|------|
| POWER SUPPLY | |
| 100... 240 Vac | 3 |
| 24 VacVdc | 5 |
| OUT 1 AND OUT 2 | |
| Relay/Relay | 1 |
| Relay/triac | 2 |
| Triac/Relay | 4 |
| Triac/triac | 5 |
| SERIAL COMMUNICATION | |
| OPTIONS | |
| Not available | 00 |
| Potentiometer | 01 |
| Remote Set Point | 02 |
| CT input | 03 |
| Voltage for SSR driving/ Analogue output | 04 |
| Voltage for SSR driving/ Analogue output+ Remote Set point | 05 |
| Not available | 50 |
| Potentiometer | 51 |
| Remote Set Point | 52 |
| CT input | 53 |
| Voltage for SSR driving/ Analogue output | 54 |
| RS485 | |
| SPECIAL FUNCTIONS | |
| Not available | 0 |
| Programmer | 1 |
| INSTRUCTION MANUAL | |
| Italian/English | 0 |
| Not available | 9 |
| FRONT FRAME COLOUR | |
| Dark grey (std) | 0 |
| Dark grey shunt 0.1% | 2 |
| SPECIAL EXECUTION | |
| Not available | 0 |
| On DIN rail | 1 |
| On DIN rail without display | 2 |
| Tropicalized | 3 |

CONNECTIONS



DIMENSIONS



- INDUSTRIAL CONTROLLERS
- ADVANCED PROGRAMMER CONTROLLERS
- DIN RAIL MOUNTING CONTROLLERS
- THERMOSTATS ANALOGUE CONTROLLERS
- SPECIAL CONTROLLERS AND "CUSTOM"
- PAC SYSTEMS
- PRE-PROGRAMMED SYSTEMS
- PLC AND OPERATOR PANELS
- TIMERS COUNTERS POWER LIMITERS
- INDICATORS
- I/O MODULES
- SUPERVISION
- COMBUSTION CONTROL
- ACCESSORIES

X5/Q5

- CONTROLLER WITH PROFIBUS DP
- UP TO 6 OUTPUTS: 2 ANALOGUE OUTPUTS AND 4 SET POINTS
- PROGRAMMER AND MATHEMATICAL PACKAGE



FEATURES

| DISPLAY | X5 | Q5 |
|------------------------|--|---|
| Triple | Main display (PV): 4 green digit, h 12 mm Secondary display (SP): 4 green digit, h 7 mm Third display (OUT): 4 green digit, h 7 mm | Main display (PV): 4 green digit, h 15 mm Secondary display (SP): 4 green digit, h 12 mm Third display (OUT): 4 green digit, h 9 mm |
| INPUTS | Thermocouples: I/J/E (0... +600°C / 32... +1112°F), T (-200...+400°C / -328...+752°F), K/N (0...+1200°C / 32...+2192°F), S/R (0... +1600°C / 32...2912°F), B (0... 1800°C / 32...3272°F), W3/W5 (0... 2000°C / 32... 3632°F) Thermoresistances: PT100 connection with 2 or 3 wires (-200... +600°C / -328... +1112°F) Linear signals: 0/4...20 mA, 0... 50mV/0... 300mV, 0/1... 5V/0... 10V - Engineering units with or without decimal and square root extraction Infrared sensors or special ranges (custom) | |
| Frequency | 0...2000 Hz, 0...20000 Hz; | |
| Auxiliary inputs | Remote Set Point not isolated (accuracy 0.1%) Current 0/4...20 mA Voltage 0/1... 5V/0... 10V | |
| Digital inputs | Potentiometer position feedback measurement 3 for voltage contacts | |
| OUTPUTS | OUT 1 and OUT 2: Relay NO, 2A/250Vac or Triac, 1A/250Vac, for resistive loads OUT 3: Relay SPDT, 2A/250Vac for resistive loads OUT 4: Relay NO, 2A/250Vac for resistive loads OUT 5 and OUT6: current: 0/4...20mA max. 750Ω/10V max. / voltage: 0...1/5/10V 500Ω / 20mA max. or 0/24Vdc ±10% - 30mA max. to drive SSR | |
| Auxiliary power supply | +24DC ±20% 30mA max. - for external transmitter | |
| Alarms | Up to 4 alarms programmable as high/low, band alarm, deviation, Loop Break, Sensor Break | |
| FUNCTIONAL | Control: PID, ON/OFF single or double action, Split range PID functions: PID H/C control, Dead band, overshoot control, manual reset, cycle time, high and low limits, max. control output speed rate, Soft-start, safety output, forcing output, Fuzzy Tuning, Adaptive Tuning Servomotor control: PID algorithm for 3 position Servomotor: Increase/Stop/Decrease according to: motor travel time, motor minimum step, Potentiometer Set Point: Local + 3 stored Set points, only Remote, Local and Remote, Local with trim, Remote with trim, programmable (Remote Set Point mutually exclusive with frequency input) Program: 4 programs, 16 segments, 1... 9999 cycles or continuous cycling (OFF) Auto/Man station: Integrated, Bumpless operated from keyboard, digital inputs and serial communication Signal retransmission: Measuring or Set Point retransmission Serial communication: Isolated RS485 with ModBus-RTU (JBUS) protocol MASTER and SLAVE - RS 485 asynchronous/isolated, PROFIBUS DP protocol Baud rate: RS 485 (MASTER or SLAVE) Up to 19.200 bit/s; PROFIBUS DP Up to 12Mb/s max. distance 100m (12Mb/s) | |
| GENERAL | Power supply: 100... 240 Vac (-15...+10%) or 24Vac (-25...+12%) and 24Vdc (-15...+25%) (50/60Hz) Power consumption: 5VA max. Dimensions / Weight: 48 x 96 mm (1/8 DIN), depth 110 mm / 250 g approx. 96 x 96 mm (1/4 DIN), depth 110 mm / 500 g approx. Mounting: Flush in panel in 45 x 92 mm hole Flush in panel in 92 x 92 mm hole Connections: Screw terminal block M3 for cables with section 1 mm ² (18AWG) Front protection degree: IP65 Operating / storage temperature: 0... 50°C (32... 122°F) / -20...+70°C (-4... 158°F) Operating humidity: 5... 95% RH without condensation Conformity: EN 61010-1 | |



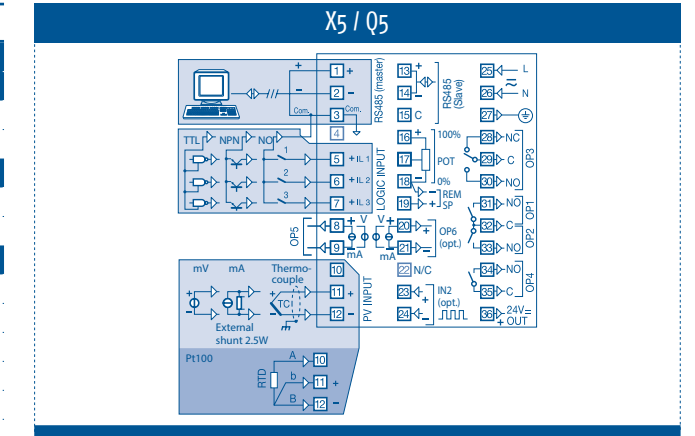
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

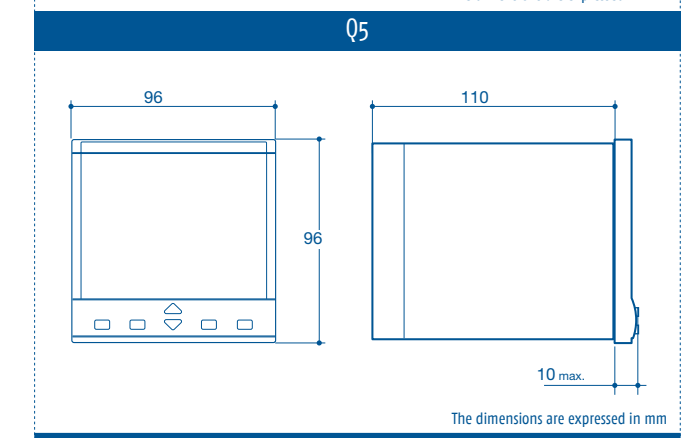
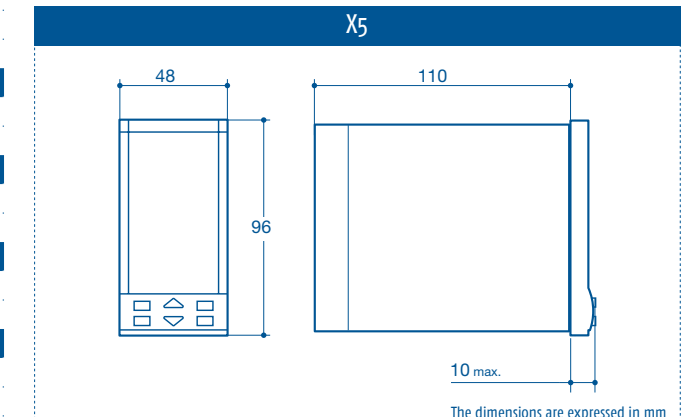
| X5 / Q5 | CODE |
|---|------|
| POWER SUPPLY | |
| 100... 240 Vac | 3 |
| 24 VacVdc | 5 |
| OUT 1, OUT 2, OUT 3, OUT 4 AND OUT 5 | |
| Relay-Relay-Relay-Relay-logic/analogue | 1 |
| Triac-triac-Relay-Relay-logic/analogue | 5 |
| SERIAL COMMUNICATION | |
| Not available | 0 |
| Mathematical package (MP) | 1 |
| RS485 + MP | 5 |
| RS485 Slave+Master+MP | 6 |
| Profibus DP+MP | 7 |
| RS485 + Profibus DP+MP | 8 |
| OPTIONS | |
| Not available | 0 |
| Hz input | 1 |
| OUT 6 analogue | 4 |
| OUT 6 analogue + Hz | 6 |
| OUT 6 analogue + 300Hz input - (X5 only) | 7 |
| SPECIAL FUNCTIONS | |
| Not available | 0 |
| 4 Programs 16 segments | 4 |
| INSTRUCTION MANUAL | |
| Italian/English | 0 |
| Not available | 9 |
| FRONT FRAME COLOUR | |
| Dark grey | 0 |
| Dark grey + shunt 0.1% | 2 |
| SPECIAL EXECUTION | |
| Not available | 0 |
| Tropicalized | 3 |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

DIN RAIL MOUNTING CONTROLLERS



Versatile and compact

A complete range of modules, which are open to the outside world with "Manager/Gateway" and with a wide range of operator interfaces.

Modules plug and play for the control and the acquisition of analog and digital signals.

DIN RAIL MOUNTING CONTROLLERS

| FEATURES | | D1 | D3 | D2 | K30 | KRD3 | K85 | TLZ35 |
|--|--------------------------|----|----|-----|-----|------|-----|-------|
| Dimensions (mm) | 78 x 35 | | | | | | | |
| | 22.5 x 99 | • | • | • | | | | |
| | 70 x 85 4 DIN Modules | | | | | | • | • |
| Single display 4 digit | | | | | | | • | • |
| Input | Number of inputs | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| | Universal | • | • | • | | | | |
| | J-K-S-R-T + IR + PTC-NTC | | | | • | • | • | • |
| | J-K-S-R-T + IR + Pt100 | | | | • | • | • | • |
| Relay or voltage for SSR drive outputs | Digital | 1 | 1 | 1+2 | 2 | 2 | 2 | |
| | For CT | • | | | | | | |
| Analogue current or voltage outputs | | 4 | 4 | 2+2 | 5 | 4 | 4 | 2 |
| Measuring or Set Point retransmission | | | • | | | • | | |
| Power supply | 12 Vac/Vdc | | | | | | | • |
| | 24 Vac/Vdc | • | • | • | • | • | • | • |
| | 100... 240 Vac | | | | • | • | • | • |
| Control Loops | | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| Control | ON/OFF and PID | • | • | • | • | • | • | |
| | ON/OFF | | | | | | | • |
| | Servomotor control | | • | | | | | |
| RS485 ModBus Slave | • | • | • | • | • | • | • | |
| Timer on board | • | • | • | | • | • | • | |
| Start up | • | • | • | | | | | |
| Programmer | | | | | • | • | • | |
| CE certification | • | • | • | • | • | • | • | • |
| UL approval | • | • | • | • | • | • | • | • |

- INDUSTRIAL CONTROLLERS
- ADVANCED PROGRAMMER CONTROLLERS
- DIN RAIL MOUNTING CONTROLLERS
- THERMOSTATS ANALOGUE CONTROLLERS
- SPECIAL CONTROLLERS AND "CUSTOM"
- PAC SYSTEMS
- PRE-PROGRAMMED SYSTEMS
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- TIMERS COUNTERS POWER LIMITERS
- INDICATORS
- I/O MODULES
- SUPERVISION
- COMBUSTION CONTROL
- ACCESSORIES

D1/D2/D3

- 1 OR 2 LOOP CONTROLLERS
- SINGLE OR DOUBLE ACTION
- UP TO 3 ALARMS + RS485 + CT INPUT



FEATURES

| INPUTS | D1 | D3 | D2 |
|--|---|--|---|
| Number of inputs | 1 | 3 | 2 |
| Universal | Thermocouples: L/J/E (0... +600°C / 32... +1112°F), T (-200...+400°C / -328...+752°F), K/N (0...+1200°C/32...+2192°F), S/R (0... +1600°C / 32...2912°F), B (0... 1800°C / 32... 3272°F), Ni-NiMo (0... 1100°C / 32... 2012°F), W3, W5 (0... 2000°C / 32... 3632°F) Thermoresistances: PT100 (-99.9... 300.0°C / -99.9... 572.0°F and -200... 600°C / -328... 1112°F) Linear signals: 0/10...50 mV; 0/4...20 mA (shunt) Infrared sensors or special ranges (custom) | | |
| Auxiliary input | Current transformer | -- | -- |
| Digital inputs | 1 voltage digital input | | 1 voltage digital input (+ 2 programmable) |
| OUTPUTS | | | |
| Up to 4 (D1) Up to 5 (D3) Up to 3 (D2) | OUT 1 and OUT 2: Relay NO, 2A res./250Vac (4A res./120Vac)/SSR, 1A res./250Vac OUT 3: Relay NO, 2A res./150Vac OUT 4: Logic not isolated: 0...5 Vdc OUT 5: (D3 only) 0/4... 20 mA, 15V max. | | OUT 1 and OUT 2: Relay NO, 2A res./250Vac (4A res./120Vac) / SSR, 1A res./250Vac, logic not isolated 0/5 Vdc OUT 3: Logic not isolated 0/5 Vdc |
| Outputs function | -- | -- | NOT |
| Auxiliary power supply | +24dc, ±20%, 30 mA max. - for external transmitter | | -- |
| FUNCTIONAL | | | |
| Control | 1 Loop PID with overshoot control, ON/OFF single and double action (Heat-Cool) | | Double acquirer, 2 loops PID with overshoot control or ON/OFF single action |
| PID functions | Dead band, overshoot control, manual reset, cycle time, max. control output speed rate, Soft-start, safety output | | |
| PID algorithm for Servomotor | -- | Optional | -- |
| Set Point | Local, Local + 2 stored, with tracking, Stand-by | | Local, Local + 2 stored Stand-by |
| Special functions | Timer, Start-up | | |
| Alarms | Up to 3 | | Up to 4 |
| Alarm functions | Sensor break, Latching/Blocking, Loop break, Heater break associated to the timer (if available) | | |
| Tuning | Fuzzy Tuning One shot or Natural Frequency | | |
| Auto/Man station | Integrated, Bumpless operated from digital input and serial communication | | |
| Signal retransmission | -- | Measuring or setpoint retransmission (reference value) | -- |
| Serial communication | Isolated RS485 with Modbus RTU protocol | | |
| Baud rate | RS 485 (MASTER or SLAVE) 1200, 2400, 4800, 9600 bit/s 3 wires | | |
| GENERAL | | | |
| Power supply | 24Vac (-25... +12%), 24Vdc (-15... +25%) / 50/60Hz | | |
| Power consumption | 4VA max. | | |
| Front indications | 3 red LEDs for DO + 1 green LED for PWR/COM | | 4 red LED for DO + 1 green LED for PWR/COM |
| Dimensions / Weight | 22.5 x 99 mm, depth 114.5 mm / 159 g approx. | | |
| Mounting | On DIN A rail | | |
| Connections | Power supply and comms: 0.08... 1.5 mm ² (AWG28-AWG16) Inputs/Outputs: 0.2... 2.5 mm ² (AWG24-AWG12) | | |
| Protection degree | IP20 (terminal block) | | |
| Parameters access | Tramite linea seriale e software di supervisione | | |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... 70°C (-4... 158°F) | | |
| Operating humidity | 5... 95 RH% without condensation | | |
| Conformity | EN61010-1 (IEC1010-1) | | |

Note: these modules can be inserted into Profibus DP and DeviceNet nets, together with a DX module, with the possibility of automatic reconfiguration.

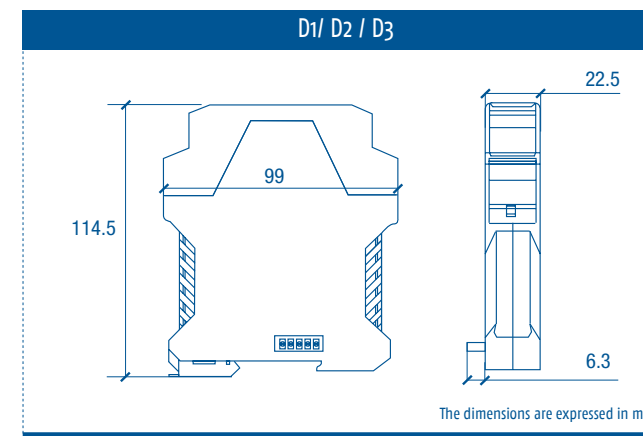


HOW TO ORDER

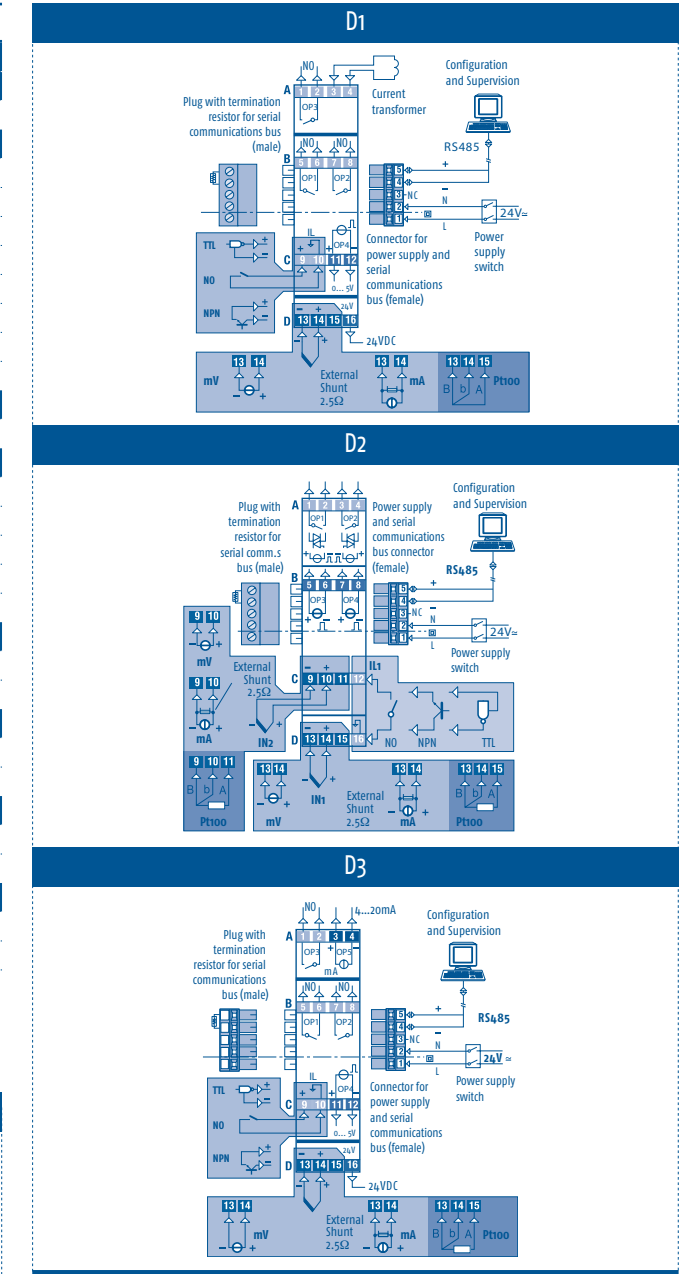
To compose the part number, pls. choose one of the option for each variable

| D1 / D2 / D3 | CODE |
|---|------|
| POWER SUPPLY | |
| 24 Vac/Vdc | 5 |
| OUT 1 E 2 | |
| Relay (D1 only) | 0 |
| Relay-Relay | 1 |
| Relay-Vdc for SSR driving (D2 only) | 2 |
| Triac (D1 only) | 3 |
| Vdc for SSR driving-Vdc for SSR driving (Solo D2) | 3 |
| Triac-triac (D2 only) | 4 |
| Triac-triac (D1 and D3 only) | 5 |
| Triac-Vdc for SSR driving (D2 only) | 5 |
| SERIAL COMMUNICATION | |
| RS485 | 5 |
| OPTIONS 1 | |
| Not available | 0 |
| Servomotor (D3 only) | 2 |
| Current transformer (D1 only) | 3 |
| Analogue Out (D3 only) | 5 |
| Servomotor + Analogue Out (D3 only) | 7 |
| SPECIAL FUNCTIONS (D1 AND D3 ONLY) | |
| Not available | 0 |
| Start-up + Timer | 2 |
| INSTRUCTION MANUAL | |
| Italian/English | 0 |
| Not available | 9 |
| OPTIONS 2 | |
| Shunt 1% | 0 |
| Shunt 0.1% | 2 |
| OPTIONS 3 | |
| Not available | 0 |
| Tropicalization | 3 |

DIMENSIONS



CONNECTIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PARAMETER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

K30

- CONTROLLER WITH INDEPENDENT TIMER
- 8 SEGMENTS PROGRAMMER
- WATTMETER FUNCTION



FEATURES

| K30 | |
|---------------------------------|--|
| INPUTS | Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F), T (0... 400°C / 32... 752°F) and Infrared sensors J or K + Thermoresistances: 3 wires Pt 100 (-200... 850°C / -328... 1562°F) |
| 4 different configurations | Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F), T (0... 400°C / 32... 752°F) and Infrared sensors J or K + Thermistors: PTC KTY 81-121 (990Ω at 25°C) (-55... 150°C / -67... 302°F) and Thermistors: NTC 103AT-2 (10kΩ at 25°C) (-50... 110°C / -58... 230°F) |
| Accuracy | Linear signals 0/4... 20mA Linear signals 0/10... 50mV, 0/12... 60mV, 0/1... 5V, 0/2... 10V ±0.5% fs + 1 digit; tc S ± 1% fs + 1 digit |
| Digital inputs | 2 for free voltage contacts |
| OUTPUTS | |
| Up to 5 | OUT 1 and OUT 2: Relay SPDT (8A-AC1, 3A-AC3/250 Vac) or 12V ±20% 20 mA max. to drive SSR OUT 3 and OUT 4: Relay SPST-NO (5A-AC1, 3A-AC3/250 Vac) or 12V ±20% 20 mA max. to drive SSR OUT 5: 12V ±20% 20 mA max. to drive SSR (always available on board) |
| Auxiliary power supply | 12 Vdc/20 mA max. |
| FUNCTIONAL | |
| Control | ON/OFF, Neutral Zone, PID single and double action |
| PID functions | PID H/C control with overshoot control, Selftuning and 2 Autotuning algorithms |
| Multi Set Point | Up to 4 pre-programmable Set Point |
| Program | Up to 8 segments with guaranteed soak |
| Timer | Independent with 4 function modes |
| Signal retransmission | Set Point |
| Serial communication | RS485 with ModBus-RTU (JBUS) protocol |
| Baud rate | 1200... 38400 baud, programmable |
| GENERAL | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc ±10% (50/60 Hz) |
| Power consumption | 6 VA approx. |
| Dimensions / Weight | 78 x 35 mm - depth 75.5 mm or 78.5 mm with plug-in terminals / 180 g approx. |
| Mounting | On OMEGA DIN A rail |
| Connections | Plug-in terminals or Screw terminal block 2 x 1 mm ² |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -30... 70°C (-22... 158°F) |
| Operating humidity | 20... 85 RH% without condensation |
| Conformity | Directive EMC 2004/108/CE (EN 61326-1), Directive BT 2006/95/CE (EN 61010-1) |

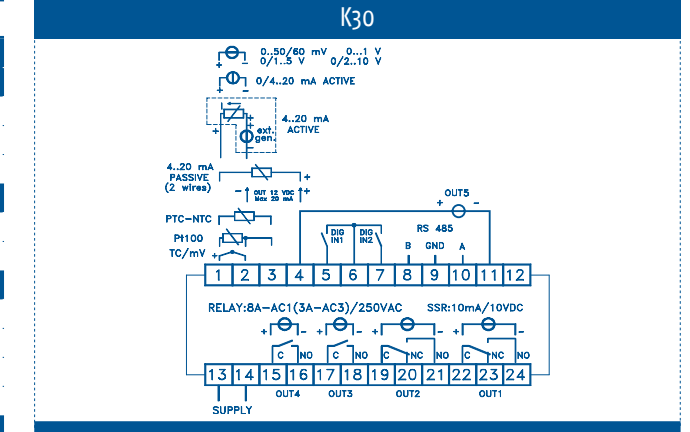


HOW TO ORDER

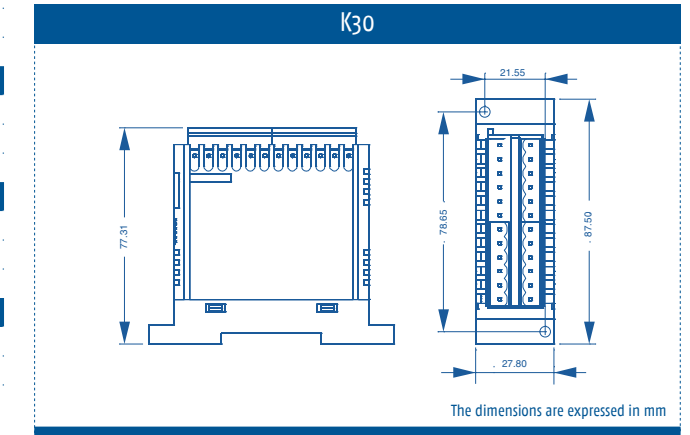
To compose the part number, pls. choose one of the option for each variable

| K30 | CODE |
|--|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, PT100, mV | C |
| TC, PTC, NTC, mV | E |
| 0/4... 20mA | I |
| 0... 1V, 0/1... 5V, 0/2... 10V | V |
| OUT 1 / OUT 5 SSR (ALWAYS ON BOARD) | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| OUT 2 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| OUT 3 | |
| Relay SPST-NO 5A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| OUT 4 | |
| Relay SPST-NO 5A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| SERIAL COMMUNICATION | |
| RS485 | S |
| TTL ModBus | - |

CONNECTIONS



DIMENSIONS



KRD3

- ANALOGUE CONTROL OUTPUT
- 8 SEGMENTS PROGRAMMER
- INDEPENDENT TIMER
- WORKING HOURS COUNTER

evolution



FEATURES

| INPUTS | |
|---------------------------------|---|
| Input | <p>Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F)</p> <p>Infrared sensors: J or K</p> <p>Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F)</p> <p>Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2... 10V</p> |
| Accuracy | ± 0.5% span ± 1 digit, (± 1% span ± 1 digit for T/c S type) |
| Digital input | 1, always on board |
| OUTPUTS | |
| Up to 4 | <p>OUT 1: Relay SPDT 4A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10% or analogue galvanically isolated 0/4... 20 mA, 0/2... 10V (optional)</p> <p>OUT 2: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10%</p> <p>OUT 3: Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±10%</p> <p>OUT 4: programmable: voltage output to drive SSR 13V max. @ 1mA, 10.5V min. @ 22mA ±10% or transmitter supply</p> |
| FUNCTIONAL | |
| Control | PID single or double action, ON/OFF, ON/OFF with Neutral Zone Autotuning and Selftuning algorithms, Overshoot control |
| Alarms | 3 alarms programmable as absolute, deviation, band |
| Set Point | 4 programmable Set Points |
| Signal retransmission | Measuring or Set Point retransmission |
| Serial communication | TTL (standard) + RS485 (optional), ModBus RTU protocol |
| Baud rate | 1200... 38400 baud |
| Working hours counters | A cumulative non-erasable counter and a second one resettable with alarm |
| Wattmeter function | Instantaneous power, time consumption |
| EVOogreen | Stand-by mode of display, selectable |
| Programmer (optional) | Up to 8 segments with guaranteed soak |
| Timer (optional) | Independent with 5 function modes |
| GENERAL | |
| Power supply | 24 Vac/Vdc ± 10%, 100... 240 Vac/Vdc -15%/+ 10% (50/60 Hz) |
| Power consumption | 7 VA max |
| Dimensions / Weight | 78 x 35 mm - 200 g |
| Mounting | On OMEGA DIN A rail or on wall |
| Connections | 16 screw terminals 2.5 mm ² (AWG22... AWG14) fix, plug-in or clamp type |
| Front protection degree | IP 20 |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH% without condensation |
| Conformity | EN 61010-1, EN 61326 |



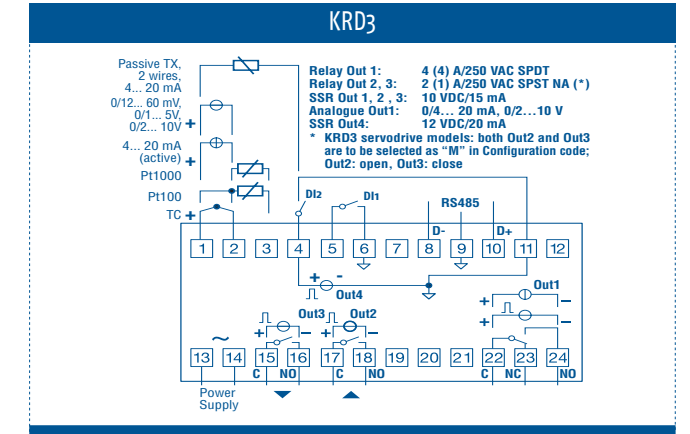
EVERYTHING UNDER CONTROL

HOW TO ORDER

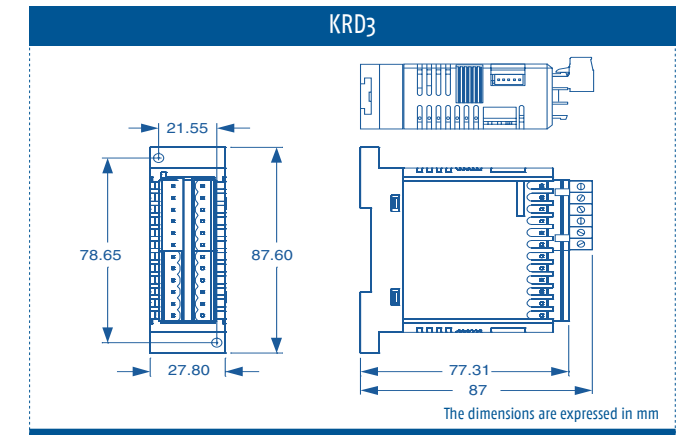
To compose the part number, pls. choose one of the option for each variable

| KRD3 | CODE |
|---|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, RTD, mA, V, mV/digital input | C |
| OUT 1 | |
| Relay SPDT 4A | R |
| Vdc for SSR driving | O |
| 0/4... 20 mA, 0/2... 10V galvanically isolated | I |
| OUT 2 | |
| Relay SPST-NO 2A | R |
| Vdc for SSR driving | O |
| Relay SPST-NO 2A for Servomotor | M |
| Not available | - |
| OUT 3 | |
| Relay SPST-NO 2A | R |
| Vdc for SSR driving | O |
| Relay SPST-NO 2A for Servomotor | M |
| Not available | - |
| OUT 4 | |
| Digital input or digital output or transmitter supply | D |
| RS485 | |
| Available (Standard) | S |
| Not available (Optional) | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

K85

- CONTROLLER WITH INDEPENDENT TIMER
- 8 SEGMENTS PROGRAMMER
- WATTMETER FUNCTION



FEATURES

| DISPLAY | |
|---------------------------------|--|
| Single | K85 4 red digit, h 12 mm + 3 LEDs Bargraph |
| INPUTS | |
| 4 different configurations | Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F), T (0... 400°C / 32... 752°F) and Infrared sensors J or K + Thermoresistances: 3 wires Pt 100 (-200... 850°C / -328... 1562°F) |
| | Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F), T (0... 400°C / 32... 752°F) and Infrared sensors J or K + Thermistors: PTC KTY 81-121 (990Ω at 25°C) (-55... 150°C / -67... 302°F) and Thermistors: NTC 103AT-2 (10kΩ at 25°C) (-50... 110°C / -58... 230°F) |
| | Linear signals 0/4... 20mA |
| | Linear signals 0/10... 50mV, 0/12... 60mV, 0/1... 5V, 0/2... 10V |
| Accuracy | ± 0.5 % fs + 1 digit; tc S ± 1% fs + 1 digit |
| Digital inputs | 2 for free voltage contacts |
| OUTPUTS | |
| Up to 3 | OUT 1 and OUT 2: Relay SPDT (8 A-AC1, 3 A-AC3 / 250 Vac) or 12V ± 20% 20 mA max. to drive SSR OUT 3: Relay SPST-NO (5 A-AC1, 3 A-AC3 / 250 Vac) or 12V ± 20% 20 mA max. to drive SSR |
| Auxiliary power supply | 12 Vdc/20 mA max. |
| FUNCTIONAL | |
| Control | ON/OFF, Neutral Zone, PID single and double action |
| PID functions | PID H/C control with overshoot control, Selftuning and 2 Autotuning algorithms |
| Multi Set Point | Up to 4 pre-programmable Set Point |
| Program | Up to 8 segments with guaranteed soak |
| Timer | Independent with 4 function modes |
| Signal retransmission | Set Point |
| Serial communication | RS485 with ModBus-RTU (JBUS) protocol |
| Baud rate | 1200... 38400 baud, programmable |
| GENERAL | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc ± 10% (50/60 Hz) |
| Power consumption | 6 VA approx. |
| Dimensions / Weight | 4 DIN rail module, 70 x 84 mm - depth 60 mm / 230 g approx. |
| Mounting | On OMEGA DIN A rail |
| Connections | Screw terminal block 2 x 1 mm ² |
| Front protection degree | IP 40 |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-30... 70°C (-22... 158°F) |
| Operating humidity | 20... 85 RH% without condensation |
| Conformity | Directive EMC 2004/108/CE (EN 61326-1), Directive BT 2006/95/CE (EN 61010-1) |



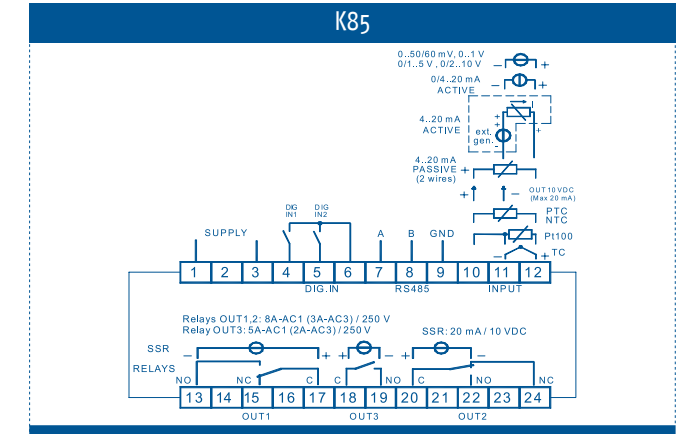
EVERYTHING UNDER CONTROL

HOW TO ORDER

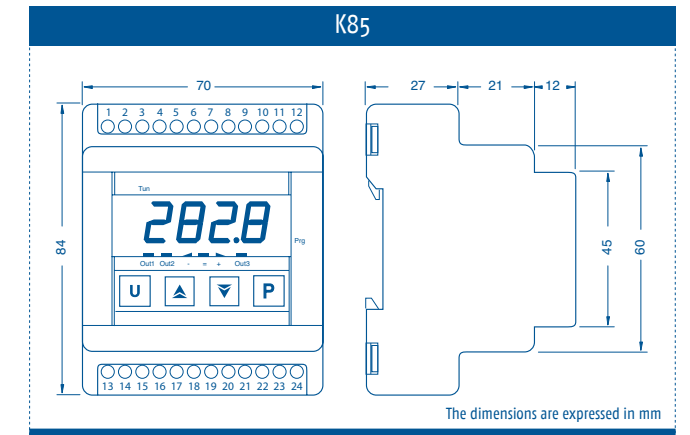
To compose the part number, pls. choose one of the option for each variable

| K85 | CODE |
|---------------------------------|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, PTC, NTC, mV | C |
| TC, PTC, NTC, mV | E |
| 0/4... 20mA | I |
| 0... 1V, 0/1... 5V, 0/2... 10V | V |
| OUT 1 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| OUT 2 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| OUT 3/ DIGITAL INPUTS | |
| Relay SPST-NO 5A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| SERIAL COMMUNICATION | |
| RS485 | S |
| TTL ModBus | - |
| DIGITAL INPUT | |
| 2 digital inputs | D |
| Not available | - |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

TLZ35

- THERMOSTAT
- 1 INPUT AND UP TO 2 OUTPUTS



FEATURES

| TLZ35 | |
|---------------------------------|---|
| DISPLAY | Single 4 red digit, 0 blu, h 12 mm |
| INPUT | One Termistori PTC KTY 81-121 (990Ω a 25°C) -50... +150°C (-58... +302°F) oppure Termistori NTC 103AT-2 (10kΩ a 25°C) -50... +109°C (-58... +228°F) |
| Digital input | 1 digital input for free voltage contacts |
| Accuracy | ± 0.5 % fs |
| OUTPUTS | Up to 2 OUT 1: Relay SPST-NO 16A -AC1(6A-AC3)/250 Vac or SPDT 16A- AC1(6A-AC3)/250 Vac OUT2: Relay SPDT 8A-AC1 (3A-AC3)/ 250 Vac |
| Relay operations | 100000 operations for relay SPST-NO 16A and SPDT 8A - 50000 operations for relay SPDT 16A |
| FUNCTIONAL | Control ON/OFF |
| Acoustic alarm | Internal buzzer (optional) |
| Defrosting control | At intervals time by stopping compressor |
| GENERAL | Power supply 12, 24 Vac/Vdc, 100... 240 Vac ± 10% (50/60 Hz) |
| Power consumption | 3 VA approx. |
| Dimensions / Weight | 4 DIN rail modules - 70 x 84 x 60 mm / 150 g approx. |
| Connections | Screw terminal block 2.5 mm ² |
| Mounting | On OMEGA DIN A rail |
| Front protection degree | IP40, for internal use |
| Operating / storage temperature | 0... +50°C (32... +122°F) / -25... +60°C (-13... +140°F) |
| Operating humidity | 30... 95 RH% without condensation |
| Conformity | Directive CEE EMC 2004/108/CE (EN 61326), Directive CEE BT 2006/95/CE (EN 61010-1) |

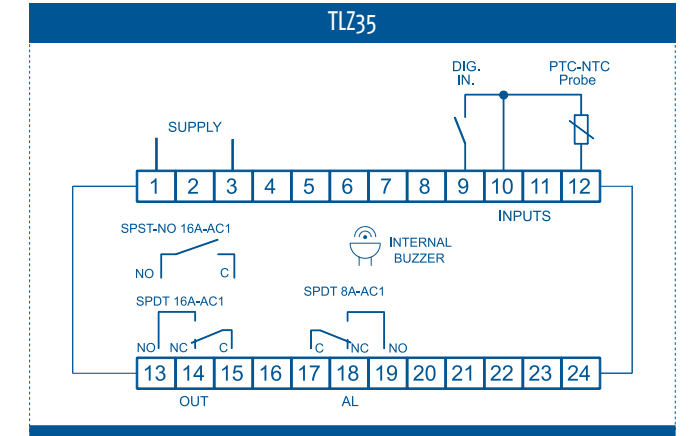


HOW TO ORDER

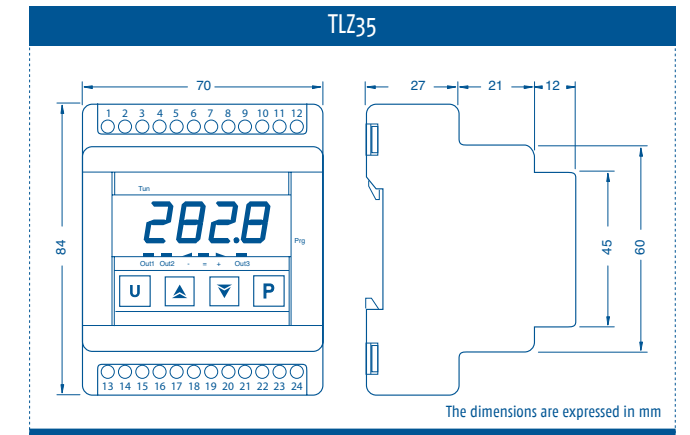
To compose the part number, pls. choose one of the option for each variable

| TLZ35 | CODE |
|-----------------------|------|
| POWER SUPPLY | |
| 12 Vac/Vdc | F |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| OUT 1 | |
| Relay SPDT 16A-AC1 | S |
| Relay SPST NO-16A-AC1 | R |
| OUT 2 | |
| Relay | R |
| Not available | - |
| BUZZER (INTERNAL) | |
| Available | B |
| Not available | - |

CONNECTIONS



DIMENSIONS



THERMOSTATS – ANALOGUE CONTROLLERS



Simple, reliable and cost effective !

Digital thermostats in different sizes for every application and analog controllers in the 1/16 DIN - 48 x 48 mm case.

THERMOSTATS - ANALOGUE CONTROLLERS

| FEATURES | | Z31A | TLZ10 | TLZ11 | TLZ35 | E51A | W09 | TCPDE |
|--|------------------------------|------|-------|-------|-------|------|-----|-------|
| Dimensions (mm) | 78 x 35 | • | • | | • | | | |
| | 68 X 35 | | | | | • | | |
| | 48 x 48 | | | | | | | • |
| | 75 x 122 | | | | | | • | |
| | 70 x 84 4 DIN rail module | | | | • | | | |
| Single display | | • | • | • | • | • | • | |
| Digit | | 3 | 4 | 4 | 4 | 3 | 3 | |
| "Sensitive Touch" keyboard | | • | | | | | | |
| Input | PTC-NTC | • | • | • | • | • | • | |
| | J-K | | | | | | | • |
| | Pt100 | | | | | | | • |
| | Digital | | | • | • | | | |
| Relay or voltage for SSR drive outputs | | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| | | • | • | • | • | • | | |
| Power supply | 12 Vac/Vdc | • | • | • | • | • | | |
| | 12... 24 Vac/Vdc | • | | | | | | |
| | 24 Vac/Vdc | | • | • | • | | | |
| | 115 Vac | | | | | • | | |
| | 230 Vac | | | | | • | | |
| Control | 24... 240 Vac | | | | | | | • |
| | 100... 240 Vac | • | • | • | • | • | • | • |
| | ON/OFF | • | • | • | • | • | • | • |
| | PD | | | | | | | • |
| CE certification | | • | • | • | • | • | • | • |
| UL approval | | • | • | • | • | | | |
| ENEC approval (with "Sensitive Touch" keyboard only) | | • | | | | | | |

INDUSTRIAL CONTROLLERS

ADVANCED PROGRAMMER CONTROLLERS

DIN RAIL MOUNTING CONTROLLERS

THERMOSTATS ANALOGUE CONTROLLERS

SPECIAL CONTROLLERS AND "CUSTOM"

PAC SYSTEMS

PRE-PROGRAMMED SYSTEMS

PLC AND OPERATOR PANELS

TIMERS COUNTERS POWER LIMITERS

INDICATORS

I/O MODULES

SUPERVISION

COMBUSTION CONTROL

ACCESSORIES

Z31A

- THERMOSTAT 1 INPUT AND 1 OUTPUT
- "SENSITIVE TOUCH" KEYBOARD



FEATURES

| Z31A | |
|---------------------------------|--|
| DISPLAY | Single 3 red or blue digit, h 15.5 mm |
| INPUTS | One PTC KTY 81-121 (990Ω at 25°C) -50... +150°C (-58... +302°F) or NTC 103AT-2 (10kΩ at 25°C) -50... +109°C (-58... +228°F) |
| Accuracy | ±0.5% fs + 1 digit |
| OUTPUTS | One OUT 1: Relay SPDT or SPST-NO (16A - 1HP 250V, 1/2HP 125 Vac); EN 61810: 16 (9) A - EN 60730: 10 (4) A UL 60730: 12 A Res., 30 LRA, 5 FLA 12 A max. for plug-in version |
| Relay electrical life | 100000 operations for SPST-NO 16A and SPDT 8A relays 50000 operations for SPDT 16A relay |
| FUNCTIONAL | |
| Control | ON/OFF |
| Acoustic alarm | Internal Buzzer (optional) |
| GENERAL | |
| Power supply | 12 Vac/Vdc, 12...24 Vac/Vdc, 100...240 Vac ±10% (50/60 Hz) |
| Power consumption | 4 VA approx. |
| Dimensions / Weight | 78 x 35 mm - depth 64 mm or 75.5 mm with plug-in terminals / 120 g approx. |
| Keyboard | Mechanical or "Sensitive Touch" |
| Connections | Screw terminal block 2.5 mm ² or plu-in connector with screw terminals 2.5 mm ² |
| Mounting | Flush in panel in 71 x 29 mm hole |
| Front protection degree | IP65, mounted in panel with gasket |
| Operating / storage temperature | 0... +50°C (32... +122°F) / -25... +60°C (-13... +140°F) |
| Operating humidity | 30... 95 RH% without condensation |
| Conformity | Directive 2004/108/CE (EN55022: class B; EN61000-4-2: 8KV air, 4KV cont.; EN61000-4-3: 10V/m; EN61000-4-4: 2KV supply, inputs, outputs; EN61000-4-5: supply 2KV com. mode, 1 KV diff. mode; EN61000-4-6: 3V), 2006/95/CE (EN 60730-1, EN 60730-2-7, EN 60730-2-9). Regulation 37/2005/CE (EN13485 air, S, A, 2, - 50°C +90°C wheter used with NTC 103AT11 probe). |



EVERYTHING UNDER CONTROL

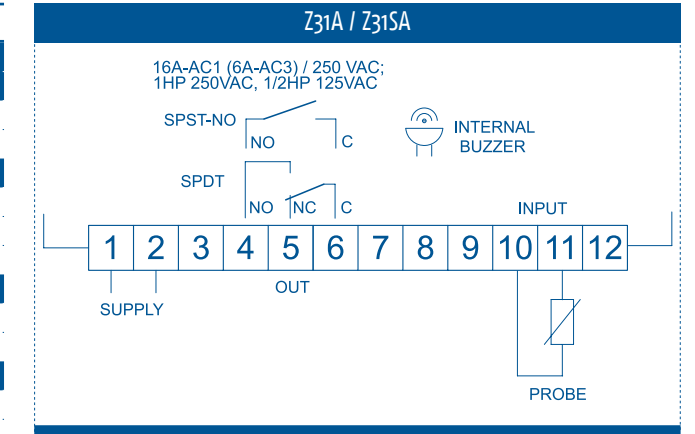
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

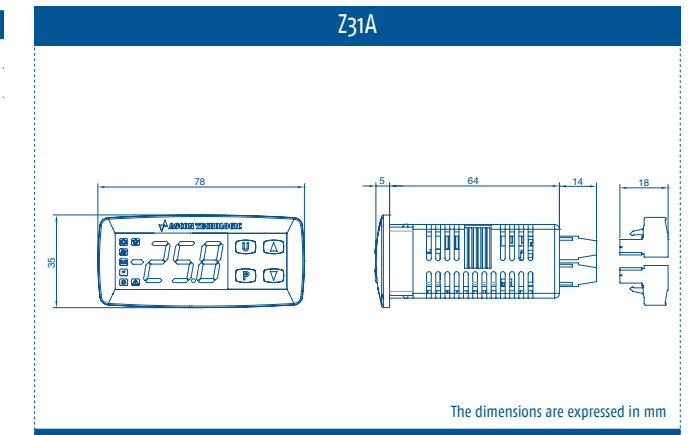
| Z31A | CODE |
|-----------------------------------|------|
| KEYBOARD | |
| Mechanical | - |
| Sensitive-Touch (*) | S |
| POWER SUPPLY | |
| 12 Vac/Vdc | F |
| 12... 24 Vac/Vdc | G |
| 100... 240 Vac | H |
| OUT 1 | |
| Relay SPDT 16A-AC1 | S |
| Relay SPST NO-16A-AC1 | R |
| BUZZER (INTERNAL) | |
| Available | B |
| Not available | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Fix screw type (standard) | - |
| DISPLAY | |
| Blue | B |
| Red (standard) | - |

(*) Capacitive Touch screen keyboard

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS

ADVANCED PROGRAMMER CONTROLLERS

DIN RAIL MOUNTING CONTROLLERS

THERMOSTATS ANALOGUE CONTROLLERS

SPECIAL CONTROLLERS AND "CUSTOM"

PAC SYSTEMS

PRE-PROGRAMMED SYSTEMS

PLC AND OPERATOR PANELS

TIMERS COUNTERS POWER LIMITERS

INDICATORS

I/O MODULES

SUPERVISION

COMBUSTION CONTROL

ACCESSORIES

TLZ35

- THERMOSTAT
- 1 INPUT AND UP TO 2 OUTPUTS



FEATURES

| TLZ35 | |
|---------------------------------|---|
| DISPLAY | Single 4 red digit, 0 blu, h 12 mm |
| INPUT | One Thermistors PTC KTY 81-121 (990Ω at 25°C) -50... +150°C (-58... +302°F) or Thermistors NTC 103AT-2 (10kΩ at 25°C) -50... +109°C (-58... +228°F) |
| Digital input | 1 digital input for free voltage contacts |
| Accuracy | ± 0.5 % fs |
| OUTPUTS | Up to 2 OUT 1: Relay SPST-NO 16A -AC1(6A-AC3)/250 Vac or SPDT 16A- AC1(6A-AC3)/250 Vac OUT 2: Relay SPDT 8A-AC1 (3A-AC3)/ 250 Vac |
| Relay electrical life | 100000 operations for relay SPST-NO 16A and SPDT 8A - 50000 operations for relay SPDT 16A |
| FUNCTIONAL | |
| Regolazione | ON/OFF |
| Allarme acustico | Internal buzzer (optional) |
| Controllo sbrinamento | At intervals time by stopping compressor |
| GENERAL | |
| Power supply | 12, 24 Vac/Vdc, 100... 240 Vac ± 10% (50/60 Hz) |
| Power consumption | 3 VA approx. |
| Dimensions / Weight | 4 DIN rail modules - 70 x 84 x 60 mm / 150 g approx. |
| Connections | Screw terminal block 2.5 mm ² |
| Mounting | On OMEGA DIN A rail |
| Front protection degree | IP40, for internal use |
| Operating / storage temperature | 0... +50°C (32... +122°F) / -25... +60°C (-13... +140°F) |
| Operating humidity | 30... 95 RH% without condensation |
| Conformity | Directive CEE EMC 2004/108/CE (EN 61326), Directive CEE BT 2006/95/CE (EN 61010-1) |

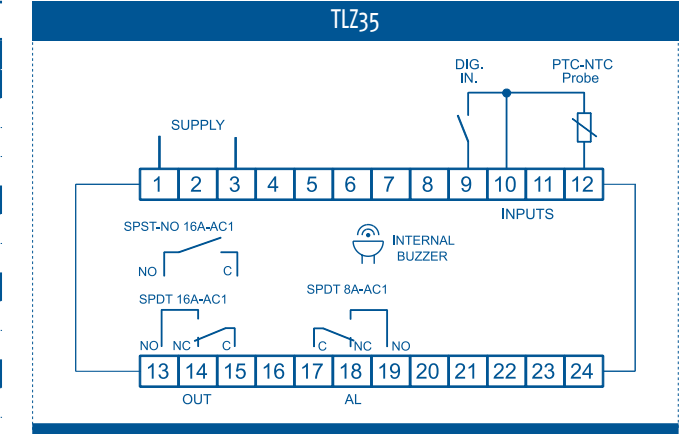


HOW TO ORDER

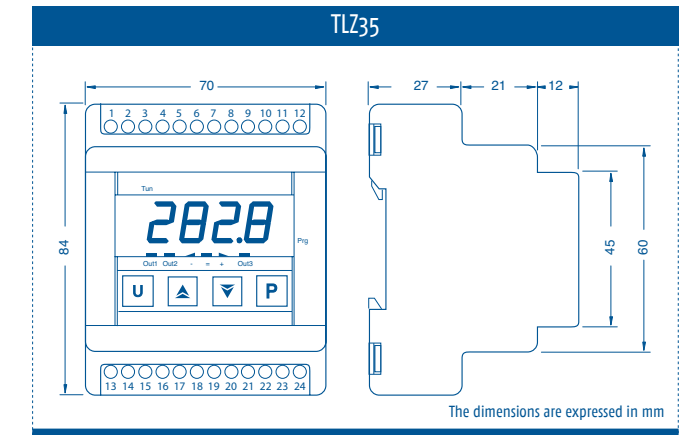
To compose the part number, pls. choose one of the option for each variable

| TLZ35 | CODE |
|--------------------------|------|
| POWER SUPPLY | |
| 12 Vac/Vdc | F |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| OUT 1 | |
| Relay SPDT 16A-AC1 | S |
| Relay SPST NO-16A-AC1 | R |
| OUT 2 | |
| Relay | R |
| Not available | - |
| BUZZER (INTERNAL) | |
| Available | B |
| Not available | - |

CONNECTIONS



DIMENSIONS



E51A

- THERMOSTAT
- 1 INPUT AND 1 OUTPUT
- SMALL DIMENSIONS



FEATURES

| DISPLAY | |
|---------------------------------|---|
| Display | 3 red or blue digit, h 14 mm |
| INPUT | |
| One | PTC KTY 81-121 (990Ω at 25°C) -50... +150°C (-58... +302°F) or NTC 103AT-2 (10kΩ at 25°C) -50... +109°C (-58... +228°F) |
| Accuracy | ±0.5% fs + 1 digit |
| OUTPUT | |
| One | OUT 1: Relay SPDT or SPST-NO (16A-AC1, 6A-AC3 250 Vac, 1 HP 250 Vac, 1/2HP 125 Vac); 12 A max. for plug-in version |
| Relay electrical life | 100000 operations for relay SPST-NO 16A and SPDT 8A, 50000 operations for relay SPDT 16A |
| FUNCTIONAL | |
| Control | ON/OFF |
| GENERAL | |
| Power supply | 12 Vac/Vdc, 115, 230 Vac ±10% (50/60 Hz) |
| Power consumption | 3 VA approx. |
| Dimensions / Weight | 68 x 35 mm - depth 50 mm / 105 g approx. |
| Connections | Screw terminal block 2.5 mm ² |
| Mounting | Flush in panel in 58 x 25 mm hole |
| Front protection degree | IP65, mounted in panel with gasket |
| Operating / storage temperature | 0... +50°C (32... +122°F) / -25... +60°C (-13... +140°F) |
| Operating humidity | 30... 95 RH% without condensation |
| Conformity | Directive 2004/108/CE (EN55022: class B; EN61000-4-2: 8KV air, 4KV cont.; EN61000-4-3: 10V/m; EN61000-4-4: 2KV supply, inputs, outputs; EN61000-4-5: supply 2KV com. mode, 1 KV diff. mode; EN61000-4-6: 3V), 2006/95/CE (EN 60730-1, EN 60730-2-7, EN 60730-2-9) |



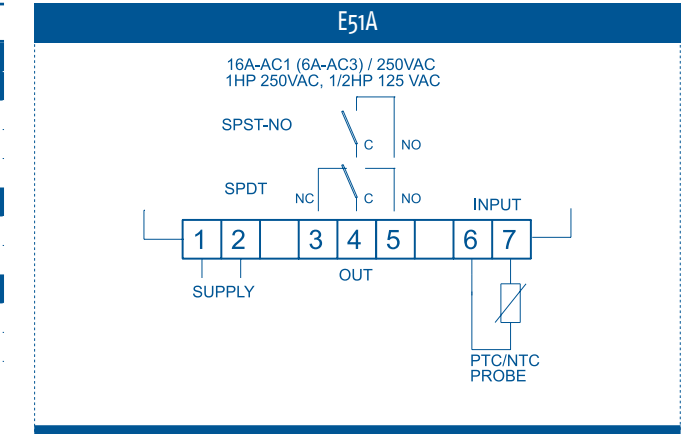
EVERYTHING UNDER CONTROL

HOW TO ORDER

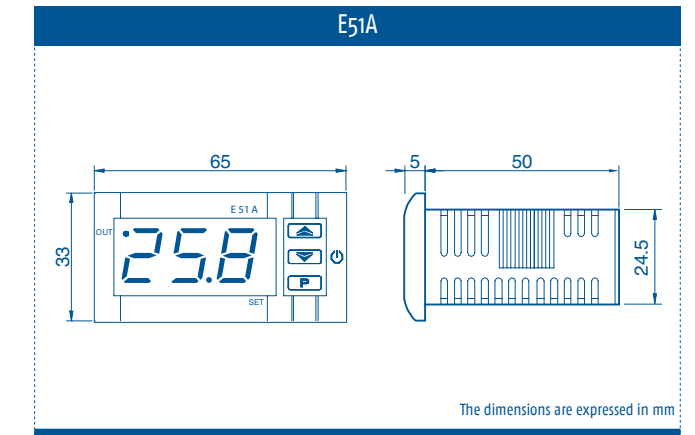
To compose the part number, pls. choose one of the option for each variable

| E51A | CODE |
|-----------------------|------|
| POWER SUPPLY | |
| 12 Vac/Vdc | F |
| 115 Vac | C |
| 230 Vac | D |
| INPUT | |
| PTC | P |
| NTC | N |
| OUT 1 | |
| Relay SPDT 16A-AC1 | S |
| Relay SPST-NO-16A-AC1 | R |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

W09

- THERMOSTAT 1 INPUT AND 1 OUTPUT
- WALL MOUNTING



FEATURES

| DISPLAY | |
|---------------------------------|---|
| Single | W09 3 red or blue digit, h 15.5 mm |
| INPUTS | |
| One | Thermistors PTC KTY 81-121 (990Ω at 25°C) -50... +150°C (-58... +302°F) or Thermistors NTC 103AT-2 (10kΩ at 25°C) -50... +109°C (-58... +228°F) |
| Accuracy | ±0.5% fs + 1 digit |
| OUTPUTS | |
| One | OUT1: Relay SPDT 8A, 1/2HP 250V, 1/3 HP 125 Vac - EN 61810: 8 (3) A - EN 60730: 8 (4) A - UL 60730: 10A Res., 12 LRA, 2 FLA |
| FUNCTIONAL | |
| Control | ON/OFF |
| Defrosting control | At intervals time by stopping compressor |
| Acoustic alarm | Internal Buzzer (optional) |
| GENERAL | |
| Power supply | 100...240 Vac ±10% (50/60 Hz) |
| Power consumption | 3 VA approx. |
| Dimensions / Weight | 75 x 122 mm - depth 34 mm / 120 g approx. |
| Connections | Screw terminal block for cables 0.2...1.5 mm ² / AWG 24...16 |
| Mounting | On wall. Cables outlet: on the back side or lateral side by PG9 cable gland |
| Front protection degree | IP40 |
| Operating / storage temperature | 0... +50°C (32... +122°F) / -25... +60°C (-13... +140°F) |
| Operating humidity | 30... 95 RH% without condensation |
| Conformity | Directive 2004/108/CE (EN55022: class B; EN61000-4-2: 8KV air, 4KV cont.; EN61000-4-3: 10V/m; EN61000-4-4: 2KV supply and relay outputs, 1KV inputs; EN61000-4-5: supply 2KV com. mode, 1 KV diff. mode; EN61000-4-6: 3V); Directive 2006/95/CE (EN 60730-1, EN 60730-2-9). Regulation 37/2005/CE (EN13485 air, S, A, 2, - 50°C +90°C wheter used with NTC 103AT11 probe). Regulation 37/2005/CE (EN13485 air, S, A, 2, - 50°C +90°C wheter used with NTC 103AT11 probe). |

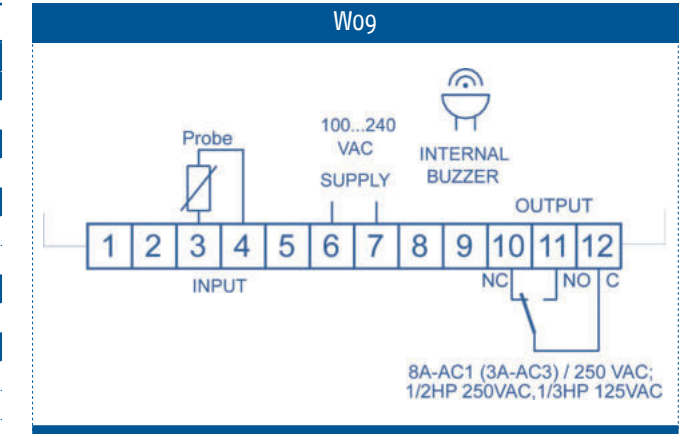


HOW TO ORDER

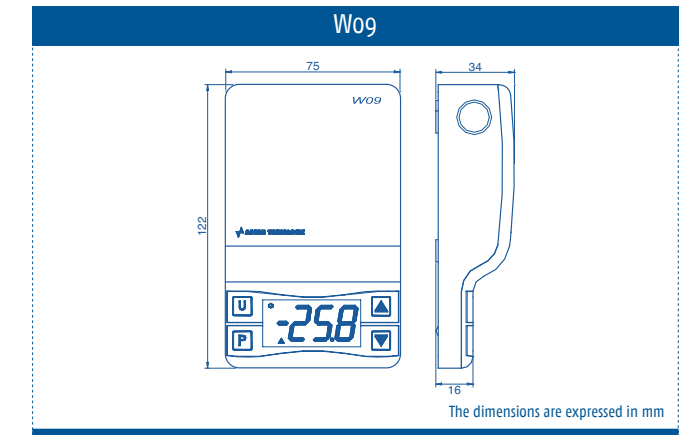
To compose the part number, pls. choose one of the option for each variable

| W09 | CODE |
|-------------------|------|
| POWER SUPPLY | |
| 100... 240Vac | H |
| OUT 1 | |
| Relay SPDT-8A-AC1 | R |
| BUZZER (INTERNAL) | |
| Available | B |
| Not available | - |
| CONNECTION | |
| Screw type | - |
| DISPLAY | |
| Blue | B |
| Red (standard) | - |

CONNECTIONS



DIMENSIONS



TCPDE M

- ANALOGUE CONTROLLER
- ON/OFF AND PD CONTROL
- RANGES FROM 100 TO 1200°C



FEATURES

| INPUTS | | TCPDE M |
|---------------------------------|--|--|
| 2 different configurations | | Thermocouples J, K Thermoresistances Pt 100 IEC |
| Accuracy | | ±5% f.s. |
| OUTPUT | | |
| One | | OUT 1: Relay 8A-AC1 (3A-AC3)/250Vac or 20 mA/12 Vdc to drive SSR |
| FUNCTIONAL | | |
| Control | | ON/OFF, PD Ranges available from 100 to 1200°C: |
| | | 0... 100°C (Pt100 only) |
| | | 0... 200°C |
| | | 0... 250°C |
| | | 0... 350°C |
| | | 0... 600°C |
| | | 0... 1000°C |
| | | 0... 1100°C |
| | | 0... 1200°C |
| GENERAL | | |
| Power supply | | 24... 240 Vac ±10% (50/60 Hz) |
| Power consumption | | 3 VA approx. |
| Dimensions / Weight | | 48 x 48 mm (1/16 DIN) - depth 89 mm / 200 g approx. |
| Connections | | Faston 6.3 mm terminals or Octal socket |
| Mounting | | Flush in panel in 45.5 x 45.5 mm hole |
| Front protection degree | | IP 54, mounted on panel with gasket |
| Operating / storage temperature | | 0... +50°C (32... +122°F) / -25... +60°C (-13... +140°F) |
| Operating humidity | | 30... 95 RH% without condensation |
| Conformity | | Directive EMC 2004/108/CE (EN 61326), Directive BT 2006/95/CE (EN 61010-1) |



HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

| TCPDE M | CODE |
|---------------------------|------|
| RANGES | |
| 0... 100°C (Pt100 only) | 1 |
| 0... 200°C | 2 |
| 0... 350°C | 3 |
| 0... 600°C | 4 |
| 0... 1000°C | 6 |
| 0... 1200°C | 7 |
| 0... 250°C | 8 |
| 0... 1100°C | 9 |
| POWER SUPPLY | |
| 24... 240 Vac | U |
| INPUT | |
| J | J |
| K | K |
| Pt100 | P |
| OUTPUT | |
| Relay | R |
| 0... 12 V for SSR driving | T |
| WIRING DIAGRAM | |
| Thermocouples | 31 |
| Thermoresistances (*) | 32 |
| Thermocouples | 33 |
| Thermocouples | 34 |
| Thermocouples | 35 |
| CONNECTIONS | |
| Faston | F |
| Octal | O |
| CONTROL | |
| ON/OFF | 0 |
| PD | P |

(*) max. range for Pt100 input: 350°C

CONNECTIONS

TCPDE M - TC INPUT

OUTPUT: SSR: 12 V DC/20 mA
RELAY: 8A-AC1 (3A-AC3) 250 VAC

Terminal connections for TC input: 7 6 8 3 4 5 1 2 31, 2 1 3 7 8 4 5 33, 4 5 6 7 8 1 2 34, 4 2 3 1 8 6 5 35

TCPDE M - PT100 INPUT

SSR: 12 VDC; 20 mA

Relay: 8A - AC1 (3A - AC3) 250 VAC

Terminal connections for Pt100 input: 7 6 8 4 5 1 2 3 32, 4 5 6 7 8 3 2 1 37

DIMENSIONS

TCPDE M

The dimensions are expressed in mm

SPECIAL CONTROLLERS AND "CUSTOM"



The only limit is your imagination...

Our production program includes many models that can be used in specific applications such as controllers for Peltier cells, differential controllers, controllers dedicated to the bakery sector and also "custom" products to meet specific customer requirements.

SPECIAL CONTROLLERS AND "CUSTOM"

| CARATTERISTICHE | | KR7 | KM7 | | KX7 | KRD7 | TC030 | TLK33 |
|--|--|-----|-----|--|-----|-----------------|-------|-------|
| Dimensions (mm) | 78 x 35 | • | | | | • (on DIN rail) | | • |
| | 48 x 48 | | • | | | | | |
| | 48 x 96 | | | | • | | | |
| | 72 x 144 | | | | | | • | |
| Single display | | | | | | | • | |
| 3 dynamic colour double Display | | • | • | | • | | | |
| Triple Display | | | | | | | • | |
| Digit | | 4 | 4 | | 4 | | 3+3+4 | 4 |
| Inputs | J-K | | | | | | • | |
| | Universal | • | • | | • | | • | |
| | TC J,K,S, IR + PT100 | | | | | | | • |
| | TC J,K,S, IR + PTC, NTC | | | | | | | • |
| | 0/4... 20mA 0/10... 50mV, 0/12... 60mV, 0/1... 5V, 0/2... 10V | | | | | | | |
| Relay outputs | | 4 | 4 | | 4 | 4 | 7 | |
| Voltage output 12... 24 Vdc and Vdc for SSR driving (10mA/Vdc) | | 4 | 4 | | 4 | 4 | | 2 |
| Counter-reacted PWM output for 24 Vdc motor speed control | | • | • | | • | • | | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc | • | • | | • | • | | |
| | 24, 115, 230 Vac | | | | | | • | |
| | 12... 24 Vdc | | | | | | | • |
| Control | PID single and double action, ON / OFF, Neutral Zone, Autotuning, Selftuning, evoTune, Overshoot control | • | • | | • | • | | |
| | ON/OFF | | | | | | • | |
| | Peltier cells: double action PID, Autotuning algorithms FAST, Selftuning, Fuzzy overshoot control | | | | | | | • |
| RS485 | | • | | | | • | • | • |
| 8 programs | | | | | | | • | |
| CE certification | | • | • | | • | • | • | • |

KR7/M7/X7/RD7

- 7 SPEED SERIES
- TEMPERATURE CONTROLLERS/ PROGRAMMERS WITH CONVEYOR SPEED FEEDBACK CONTROL



| FEATURES | KR7 | KM7 | KX7 | KRD7 |
|--|---|---|---------------------------------------|--|
| DISPLAY | | | | |
| Main display: | 4 digit h 10.9 mm | 4 digit h 15.5 mm | 4 digit h 15.5 mm | -- |
| Dual LED | | | | |
| 3 dynamic colours: red, green and amber or 1 fix colour (programmable) | | | | |
| Secondary display: | 4 green digit h 6 mm | 4 green digit h 7.6 mm | 4 green digit h 10 mm | |
| Bargraph | -- | -- | 21 segments Bargraph | |
| INPUTS | | | | |
| Universal (in 2 different configurations) | Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermoresistances: 3 wires Pt 100 and 2 wires Pt 1000 (-200... 850°C/-328... 1562°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2...10V Thermocouples: J (-50... +1000°C/-58... 1832°F), K (-50... +1370°C/-58... 2498°F), S/R (-50... +1760°C/-58... 3200°F), T (-70... +400°C/-94... 752°F) Infrared sensors: J or K Thermistors: PTC KTY81-121 (-55... +150°C/-67... 302°F), NTC 103 AT2 (-50... +110°C/-58... 230°F) Linear signals: 0/12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2...10V | | | |
| Accuracy | ± 0.5% span ±1 digit, (±1% span ±1 digit for T/c S type) | | | |
| Digital inputs | 1 free voltage contact + 1 (available when I/O 4 = DI2) programmable as tension (24 Vdc) or as free voltage contact | | | |
| OUTPUTS | | | | |
| 1 PWM output + 3 control output | OUT PWM: with feedback control for motor speed. 24 VDC max 4 A. OUT1 and Out2: Relay SPST-NO 2 A/240 VAC ; voltage output for SSR driving SSR 13 V max. @ 1 mA, 10.5 V min. @ 15 mA ±10% or relay SPST-NO 2 A/ 240 VAC (for servomotor control) OUT3 programmable: Voltage output for SSR driving SSR 13 V max. @ 1 mA, 10.5 V min. @ 22 mA ±10% or transmitter power supply or 2nd Digital Input 12 Vdc/20 mA max. | | | |
| Auxiliary supply | 12 Vdc/20 mA max. | | | |
| FUNCTIONAL | | | | |
| Control | PID single or double action, On/Off, On/Off with Neutral Zone | | | |
| Alarms | 3 alarms configurable as absolute, deviation, band | | | |
| PID functions | PID control with overshoot control. Autotune, Selftune and evoTune | | | |
| Multi Set point and Programmer (optional) | 4 Set Points selectable + 4 speed selectable individually or as a recipe Up to 8 segments with "guaranteed soak" | | | |
| Timer (optional) | Independent with 5 operating modes | | | |
| Working hours counters | With 2 simultaneous functions: cumulative non-erasable and resettable with alarm | | | |
| Evogreen | Time based Display switch-off, selectable | | | |
| Serial communication | RS485 with ModBus-RTU (JBUS) protocol | TTL ModBus | RS485 with ModBus-RTU (JBUS) protocol | |
| Baud rate | 1200... 38400 baud, programmable | -- | 1200... 38400 baud, programmable | |
| GENERAL | | | | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc ±10% (50/60 Hz) | | | |
| Power consumption | 7 VA approx. | | | |
| Dimensions / Weight | 78 x 35 mm - depth 64 mm or 78.5 mm with plug in terminals/ 180g | 48 x 48 mm - depth 63 mm / 125g | 48 x 96 mm - depth 76 mm / 260g | 78 x 35 mm - depth 64 mm or 78.5 mm with plug in terminals/ 180g |
| Keyboard | Flush in panel in 71 x 29 mm hole | Mechanical Flush in panel in 45 x 45 mm hole | Flush in panel in 45 x 93 mm hole | On OMEGA DIN rail |
| Connections | Extractable terminals (optional) or fix with screws 2 x 1 mm ² | | | |
| Front protection degree | IP 65, mounted on panel with gasket | | | |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -30... 70°C (-22... 158°F) | | | |
| Operating humidity | 20... 85 RH% without condensation | | | |
| Conformity | Directive EMC 2004/108/CE (EN 61326-1), Directive LT 2006/95/CE (EN 61010-1) | | | |



EVERYTHING UNDER CONTROL

HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

| KR7 / KM7 / KX7 / KRD7 | CODE |
|---|------|
| VERSION | |
| Controller | - |
| Controller + Timer | T |
| Controller + Timer + Programmer | P |
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac | H |
| INPUT | |
| TC, IR sensors, PT100, PT1000, mA, V, mV + DI1 | C |
| TC, IR sensors, PTC, NTC, mA, V, mV + DI1 | E |
| PWM OUT | |
| PWM output with feedback control for motor speed 24 VDC max 4 A | S |
| OUT 1 | |
| Relay SPST-NO 2A for Servomotor driving | M |
| Relay SPST-NO 2A AC1 | R |
| Vdc x SSR | O |
| OUT 2 | |
| Relay SPST-NO 2A for Servomotor driving | M |
| Relay SPST-NO 5A-AC1 | R |
| Vdc x SSR | O |
| Not available | - |
| OUT 3/ DIGITAL INPUT | |
| Vdc x SSR/ Transmitter supply/ Digital input DI2 | D |
| SERIAL COMMUNICATION | |
| RS485 + TTL Modbus (KR7 and KRD7 only) | S |
| TTL ModBus | - |
| CONNECTION | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |
| Clamp type | M |
| Fix screw type (standard) | - |

DIMENSIONS

See KUBE series: pages 49, 53 and 59.

CONNECTIONS

KR7/ KRD7

Passive TX, 2 wires, 4...20 mA
DI2... 60 mV, 0/1... 5V, 0/2... 10V
4... 20 mA (active)
PT1000
TC
RS485
D- GND D+
DI1
DI2
Out1
Out2
Out Speed
In+ In-
24 Vdc External PWS
Fuse
24 Vdc External PWS

Out Speed: 24Vdc 4 A max.
Relay Out 1, 2: 2 (1) A/250 VAC (*)
SSR Out 1, 2: 10 Vdc/15 mA
SSR Out 4: 12 Vdc/20 mA
* Servodrive models: both Out 1 and Out 2 are to be selected as "M" in Configuration code; Out 1: open, Out 2: close

KM7

24 Vdc External PWS
Fuse
12 Vdc/20 mA max.
DI2
PT100
TC
Out Speed
In+ In-
Out1
Out2
Power Supply
9

Out Speed: 24Vdc 4 A max.
Relay Out 1, 2: 2 (1) A/250 VAC (*)
SSR Out 1, 2: 10 Vdc/15 mA
SSR Out 3: 12 Vdc/20 mA
* Servodrive models: both Out 1 and Out 2 are to be selected as "M" in Configuration code; Out 1: open, Out 2: close

KX7

24 Vdc External PWS
Fuse
12 Vdc/20 mA max.
DI2
PT100
TC
Out Speed
In+ In-
Out1
Out2
Power Supply
9

Out Speed: 24Vdc 4 A max.
Relay Out 1, 2: 2 (1) A/250 VAC (*)
SSR Out 1, 2: 10 Vdc/15 mA
SSR Out 3: 12 Vdc/20 mA
* Servodrive models: both Out 1 and Out 2 are to be selected as "M" in Configuration code; Out 1: open, Out 2: close

INDUSTRIAL CONTROLLERS
ADVANCED PROGRAMMERS
DIN RAIL MOUNTING CONTROLLERS
THERMOSTATS ANALOGUE CONTROLLERS
SPECIAL CONTROLLERS AND "CUSTOM"
PAC SYSTEMS
PRE-PROGRAMMED SYSTEMS
PLC AND OPERATOR PANELS
TIMERS COUNTERS POWER LIMITERS
INDICATORS
I/O MODULES
SUPERVISION
COMBUSTION CONTROL
ACCESSORIES

TC030

- CONTROLLER FOR COOKING OVENS
- UP TO 8 PROGRAMS
- UP TO 4 INPUTS FOR TOP, FLOOR STEAMER AND AUXILIARY PROBE



FEATURES

| TC030 | |
|---|--|
| DISPLAY | Triple |
| | 2 temperature indications: 3 red digit, h 14 mm 1 time indication: 4 red digit, h 7 mm |
| INPUTS | |
| Up to 4: | Thermocouples: J/K (-50 ... +999 °C / -58 ... +999 °F) |
| Digital inputs | 3, for free voltage contacts |
| OUTPUTS | |
| Up to 7 | OUT STEAM: 1 Relay SPST-NO (16 A-AC1, 6 A-AC3 / 250 Vac) Other OUTS: Relay SPST-NO (8 A-AC1, 3 A-AC3 / 250 Vac) |
| FUNCTIONAL | |
| Control | ON/OFF |
| Programs | 8 cooking programs |
| Internal clock lifetime memory without power supply | Approx. 7 years by means of internal battery |
| Serial communication | RS485 isolated, ModBus RTU |
| Baud rate | 2400... 38400 baud |
| GENERAL | |
| Power supply | 230 Vac ± 10% (50/60 Hz) |
| Power consumption | 9 VA approx. |
| Dimensions / Weight | 72 x 144 mm, depth 77 mm / 600 g approx. |
| Mounting | Flush in panel in 68 x 139 mm hole |
| Connections | Screw terminal block 2.5 mm ² |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... +70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH% without condensation |



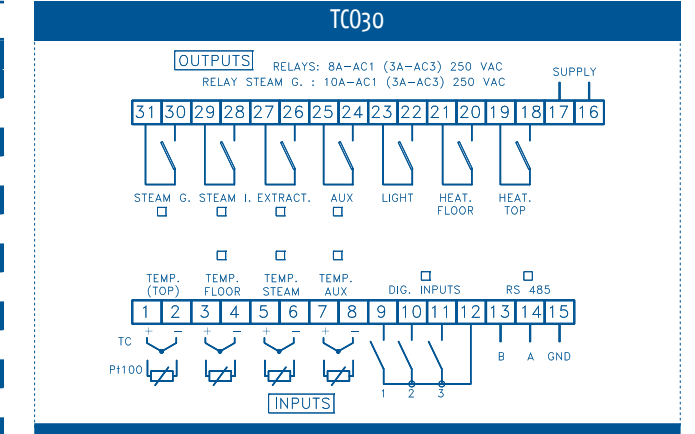
EVERYTHING UNDER CONTROL

HOW TO ORDER

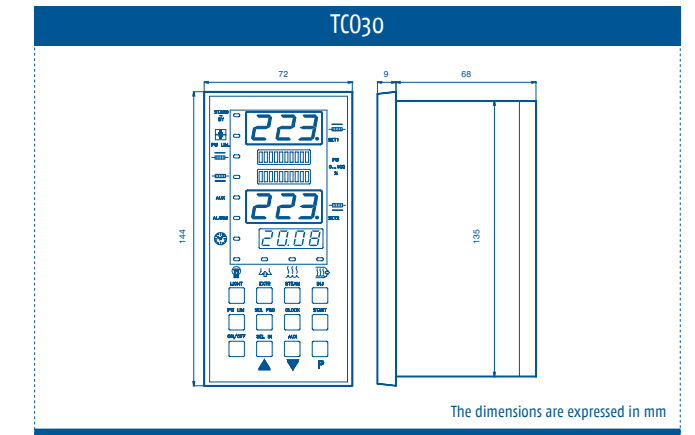
To compose the part number, pls. choose one of the option for each variable

| TC030 | CODE |
|------------------------------|------|
| INPUT | |
| J-K | C |
| POWER SUPPLY | |
| 230 Vac | D |
| AUXILIARY PROBE INPUT | |
| Available | A |
| AUXILIARY OUTPUT | |
| Relay | R |
| STEAM PROBE INPUT | |
| Available | V |
| SERIAL COMMUNICATION | |
| RS485 | S |
| 3 DIGITAL INPUTS | |
| Available | I |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

TLK33

- PELTIER CELLS CONTROLLER
- PID CONTROL
- UP TO 2 OUTPUTS
- RS485



FEATURES

| DISPLAY | |
|---|--|
| Single | TLK33 4 red digit, h 12 mm |
| INPUTS | |
| 4 different configurations | Thermocouples (0... 1000°C/32... 1832°F), K (0... 1370°C/32... 2498°F), S,R (0... 1760°C/32... 3200°F), T (0... 400°C/32... 752°F) and Infrared sensors J or K type + Thermoresistances Pt 100 3 wires (-200... 850°C/-328... 1562°F) |
| | Thermocouples J (0... 1000°C/32... 1832°F), K (0... 1370°C/32... 2498°F), S,R (0... 1760°C/32... 3200°F), T (0... 400°C/32... 752°F) and Infrared sensors J or K type + Thermistors PTC KTY 81-121 (990Ω at 25°C) (-55... 150°C/-67... 302°F) and Thermistors NTC 103AT-2 (10kΩ at 25°C) (-50... 110°C/-58... 230°F) |
| | Linear signals 0/4... 20mA |
| | Linear signals 0/10... 50mV, 0/12... 60mV, 0/1... 5V, 0/2... 10V |
| Digital inputs | 2 digital inputs for free voltage contacts |
| Accuracy | ± 0,5% span ±1 digit, Tc S :±1% span ±1 digit |
| OUTPUTS | |
| Up to 2, in voltage to direct drive Peltier cells | 12... 24 Vdc (equal to power supply) to direct drive Peltier cells max. 7A; up to 2 alarm outputs in voltage for SSR driving (10mA/ 10Vdc) |
| Auxiliary supply | 12 Vdc / 20 mA max. |
| FUNCTIONAL | |
| Control | PID dual action, Autotuning FAST, Selftuning algorithms, Fuzzy overshoot control |
| Set Point | 4 Set Points programmable |
| Serial communication | RS485 with Modbus RTU protocol |
| Baud rate | 1200... 38400 baud, programmable |
| GENERAL | |
| Power supply | 12... 24 Vdc ±10% |
| Power consumption | 4 VA approx. |
| Dimensions / Weight | 78 x 35 mm - depth 75.5 mm / 130 g approx. |
| Connections | Screw terminal block 2.5 mm ² |
| Mounting | Flush in panel in 71 x 29 mm hole |
| Front protection degree | IP65, mounted in panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -30... 70°C (-22... 158°F) |
| Operating humidity | 20... 85 RH% without condensation |
| Conformity | Directive EMC 2004/108/CE (EN 61326-1), Directive BT 2006/95/CE (EN 61010-1) |



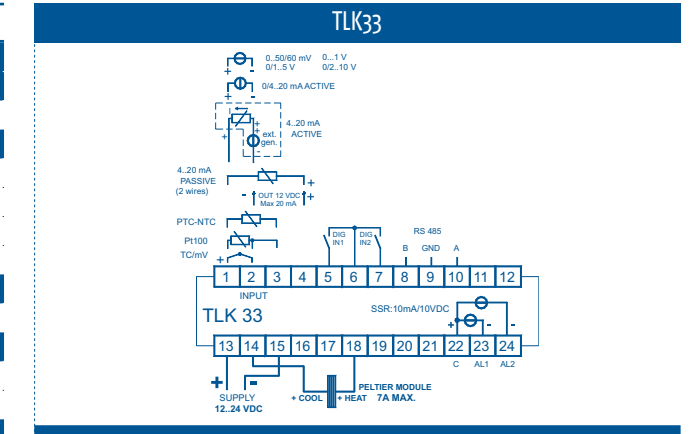
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

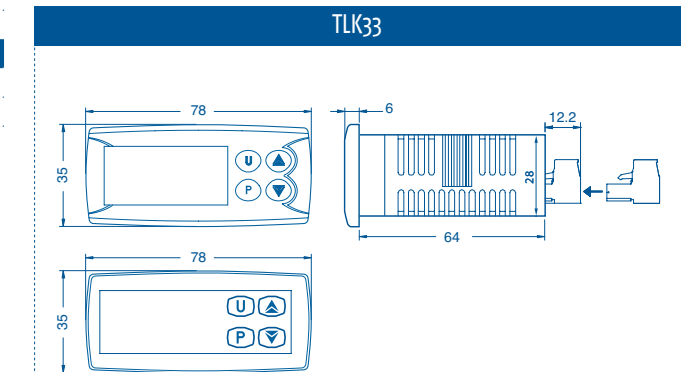
| TLK33 | CODE |
|---|------|
| POWER SUPPLY | |
| 12... 24 Vdc | G |
| INPUT | |
| PT100 + TC (J,K,S,IRS), mV | D |
| PTC,NTC,mV + TC (J,K,S,IRS) | E |
| 0/4... 20mA | I |
| 0/1... 5V, 0/2... 10V | V |
| CONTROL OUTPUTS (≥ FOR SSR) | |
| 12... 24 Vdc for Peltier cells (7A max) | 0 |
| OUT AL1 | |
| Vdc for SSR driving | 0 |
| Not available | - |
| OUT AL2 | |
| Vdc for SSR driving | 0 |
| Not available | - |
| SERIAL COMMUNICATION | |
| RS485 + 2 digital inputs | S |
| Not available | - |
| DIGITAL INPUT | |
| Available | I |
| Not available | - |

TLK33 : When the RS485 is required, 2 digital inputs are always on board too.

CONNECTIONS



DIMENSIONS



The dimensions are expressed in mm

PAC SYSTEMS



The right solution for every application!

New generation of programmable controllers (PAC – Programmable Automation Controller) able to manage control, PLC functions, acquisition, monitoring, integration and remote control of machines and small industrial plants.

A single solution available in a compact, modular and distributed version.

PAC SYSTEMS

| FEATURES | | NP4 | AC3NP |
|--|--|-------------|----------------|
| Dimensions (mm) | 6 DIN module (105 x 110 mm) | • | |
| | 8 DIN module(152 x 110 mm) | | |
| Inputs (16 bit) | 83 x 159 | | • |
| | Universal (mA, V, TC, RTD, NTC, Potentiometer) | 4 | 2 (optional) |
| | Hi level (mA, V) | | 6+2 (optional) |
| | Digital | 18+36 (*) | 8 + 32 (**) |
| Outputs | Relay outputs / for SSR driving | 4+8 (*) | 8+32 (**) |
| | Analog outputs current or voltage | 4+8 (*) | 4 |
| | Digital outputs | 18+36 (*) | |
| Power supply | 24 Vdc | • | • |
| Control | ON / OFF, PID with advanced Autotuning | • | • |
| | Servomotor control | • | • |
| Processor 32 bit | | • | • |
| 16 MB RAM, 2MB program and 64 KB flash | | | • |
| 16 MB Flash, 32 MB SDRAM, 128 kB MRAM | | • | |
| Micro USB | | • (AB type) | • |
| Real Time Clock | | • | • |
| Ethernet port (communication, programming, configuration) | | • | • |
| RS485 port | | • | • |
| RS232 port | | 1 | 1 |
| Modbus RTU (Master/Slave) protocol, Modbus TCP Server, ASCII | | • | • |
| Profibus DP | | | |
| Programming languages : IL, ST, FBD, LD, SFC, CFC | | • | • |
| Advanced libraries dedicated to process control | | • | • |
| CE certification | | • | • |
| UL approval (listed) | | | |

(*) expandable with modules of the exPAC family
 (**) expandable with modules of the MP-D family

NP4 NANOPAC

- COMPACT PROGRAMMABLE CONTROLLER (NANOPAC)
- ON BOARD I/O
- EXPANSION CAPABILITIES



FEATURES

| INPUTS | |
|--------------------------------|--|
| | NP4 Configurable between: 0/1... 5 V, 0/2... 10 V, 0/4... 20 mA, TC (J, K, L, N, R, S, T), PT100 (2 wires), PT1000, NTC (103AT-2), Potentiometer, 5 V Ratiometric 16 bit resolution |
| 4 Universal Analogue | Accuracy 0,1% of span (linear), 0,2% (temperature) Input Impedance >100 kΩ, <200 Ω (mA) Insulation 800 V between analogue channels and power supply, digital I/Os and serial comms ports (insulated version) |
| 8/16 + 2 Digital | 8 (16 I/O mix) sink type IEC61131-2 type 3 2 input sink type IEC61131-2 type 3 for counters and frequency (5 kHz max) Protection: reverse polarity and overvoltage Insulation 800 V between digital channels, power supply, analogue I/Os and serial comms ports (isolated version) |
| OUTPUTS | |
| 0/2/4 Analogue | Configurable 0/1... 5 V, 0/2... 10 V, 0/4... 20 mA 12 bit resolution Accuracy 0.1 % full scale Insulation 800 V between analogue outputs and power supply, analogue inputs, digital I/Os and serial comms ports (isolated version) |
| 8/16 Digital | 8 (16 I/O mix) high-side output 0.7 A each Insulation 800 V between digitals and power supply, analogue I/Os and serial comms ports (isolated version) Relay 2 A, 240 Vac, or SSR Drive max 20 mA, 12V |
| 4 Relay/SSR Drive | Protection: Overvoltage Insulation 2500V (Relay), 800V SSR Drive with respect power supply, analogue & digital I/Os and serial comms ports (isolated version) |
| SERIAL PORTS AND COMMUNICATION | |
| Ethernet | Ethernet port 10/100 MB |
| 0/1/2 Serial | 1 RS232/485 + 1 RS485 (optional/ insulated) |
| USB | Micro USB AB type (HOST) |
| Protocol | Modbus TCP Server, Modbus RTU (Master e Slave), ASCII |
| FUNCTIONAL | |
| Processor | ARM Cortex M7 32 bit, 216 MHz |
| Memory | 16 MB Flash, 32 MB SDRAM, 128 kB MRAM |
| Programming | Standard languages IEC 61131-3 compliant: IL, ST, FBD, LD, SFC, CFC |
| Real Time Clock | Back-up battery on board (rechargeable) |
| GENERALS | |
| Power Supply | 24 Vdc (-15... +25%) |
| Power consumption | 12 W |
| Dimensions / Weight | 105 x 110 x 60 mm (WxHxD) 6 DIN module / 512 g |
| Mounting | On Omega DIN A rail |
| Protection | IP 20 |
| Operating/storage temperature | -20... 50 °C (-4... 122 °F) / -40... 70 °C (-40... 158 °F) |
| Operating Humidity | 5... 95 RH% without condensation |



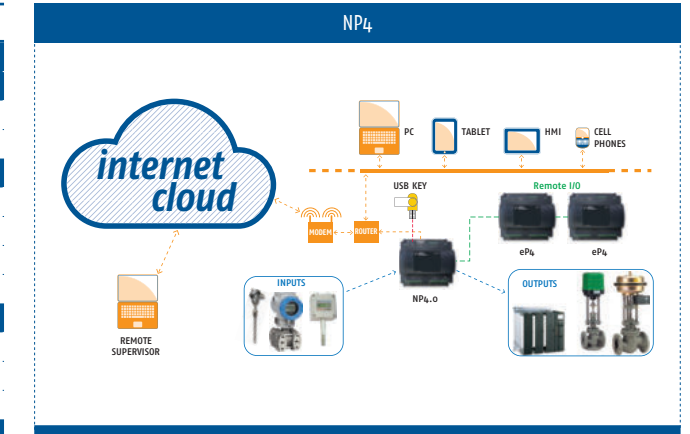
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

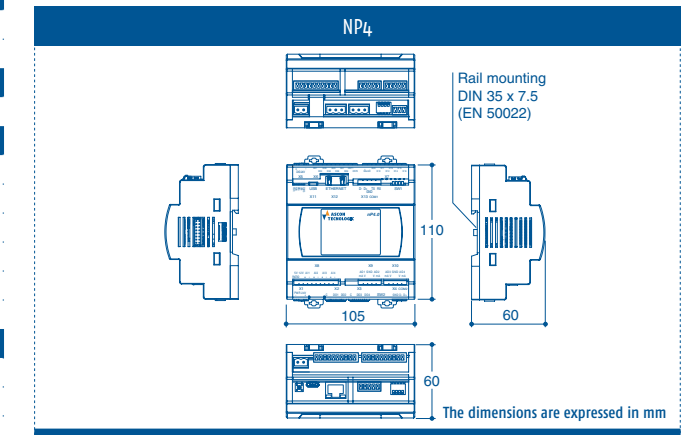
| NP4 | CODE |
|---|------|
| DISPLAY | |
| Without display | - |
| Display LCD 128 x 64 dot (not available yet) | D |
| DIGITAL OUTPUTS | |
| Not provided | - |
| 2 Relay DO + 2 SSR drive DO | M |
| 4 Relay DO | R |
| 4 SSR drive DO | S |
| ANALOGUE INPUTS | |
| Not provided | - |
| 4 universal inputs | 4 |
| 4 universal & ratiometric inputs | 5 |
| ANALOGUE OUTPUTS | |
| Not provided | - |
| 2 ch. not isolated | 2 |
| 2 isolated modules with 2 analogue ch. each | 4 |
| DIGITAL INPUTS | |
| 8DI + 8DO + 2 DI for counter and Frequency | 88 |
| 16 Digitals (config. as IN or OUT) + 2 DI counter/Frequency | 16 |
| FIELDBUS | |
| Ethernet | E |
| COMMUNICATION PORTS | |
| Not available | -- |
| RS232/485 | 1S |
| RS232/485 isolated | 1I |
| RS232/485 + RS485 isolated | 2S |
| RS232/485 isolated + RS485 isolated | 2I |
| RS485 isolated | 4I |
| CASE COLOUR | |
| Grey | G |
| White | W |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

EP4 EXPAC

• EXPANSION UNITS FOR SIGMAPAC CONTROLLERS



FEATURES

| INPUTS | |
|--------------------------------|--|
| | Configurable between: 0/1... 5 V, 0/2... 10 V, 0/4... 20 mA, TC (J, K, L, N, R, S, T), PT100 (2 wires), PT1000, NTC (103AT-2), Potentiometer, 5 V Ratiometric 16 bit resolution |
| 0/4 Universal Analogue | Accuracy 0,1% of span (linear), 0,2% (temperature) Input Impedance >100 kΩ, <200 Ω (mA) Insulation 800 V between analogue channels and power supply, digital I/Os and serial comms ports (insulated version) |
| 8/16 + 2 Digital | 8 (16 I/O mix) sink type IEC61131-2 type 3 2 input sink type IEC61131-2 type 3 for counters and frequency (5 kHz max) Protection: reverse polarity and overvoltage Insulation 800 V between digital channels, power supply, analogue I/Os and serial comms ports (isolated version) |
| OUTPUTS | |
| | Configurable 0/1... 5 V, 0/2... 10 V, 0/4... 20 mA 12 bit resolution Accuracy 0.1 % full scale Insulation 800 V between analogue outputs and power supply, analogue inputs, digital I/Os and serial comms ports (isolated version) |
| 0/2/4 Analogue | 8 (16 I/O mix) high-side output 0.7 A each Insulation 800 V between digitals and power supply, analogue I/Os and serial comms ports (isolated version) |
| 8/16 Digital | Relay 2 A, 240 Vac, or SSR Drive max 20 mA, 12V Protection: Overvoltage |
| 4 Relay/SSR Drive | Insulation 2500V (Relay), 800V SSR Drive with respect power supply, analogue & digital I/Os and serial comms ports (isolated version) |
| SERIAL PORTS AND COMMUNICATION | |
| Communication port | RS485 (optional/isolated) |
| Protocol | Proprietary protocol for local expansion, Modbus RTU (Slave) |
| FUNCTIONAL | |
| Processor | ARM Cortex 32 bit |
| GENERALS | |
| Power Supply | 24 Vdc (-15... +25%) |
| Power consumption | 12 W |
| Dimensions / Weight | WxHxD. 108 x 110 x 60 mm (6 DIN module) / 512 g |
| Mounting | On Omega DIN A rail |
| Protection | IP 20 |
| Operating/storage temperature | -20... 50 °C (-4... 122 °F) / -40... 70 °C (-40... 158 °F) |
| Operating Humidity | 5... 95 RH% without condensation |



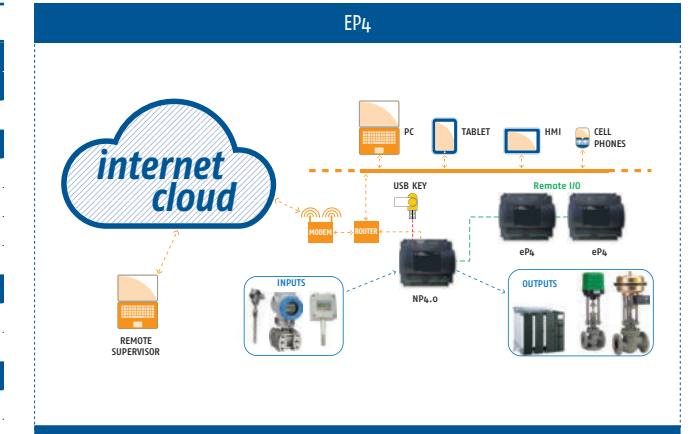
EVERYTHING UNDER CONTROL

HOW TO ORDER

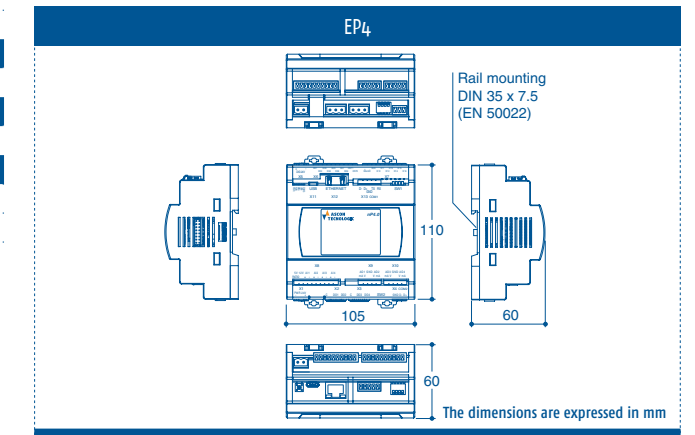
To compose the part number, pls. choose one of the option for each variable

| SIGMA2 - EP4 | CODE |
|---|------|
| DISPLAY | |
| Without display | - |
| DIGITAL OUTPUTS | |
| Not provided | - |
| 2 Relay DO + 2 SSR drive DO | M |
| 4 Relay DO | R |
| 4 SSR drive DO | S |
| ANALOGUE INPUTS | |
| Not provided | - |
| 4 universal inputs & ratiometric | 5 |
| ANALOGUE OUTPUTS | |
| Not provided | - |
| 2 ch. not isolated | 2 |
| 4 ch (2 off 2 ch. modules isolated from each other) | 4 |
| DIGITAL INPUTS | |
| Not provided | -- |
| 8DI + 8DO + 2 DI for counter and Frequency | 88 |
| 16 Digitals (config. as IN or OUT) + 2 DI counter/Frequency | 16 |
| FIELDBUS | |
| Ethernet | E |
| COMMUNICATION PORTS | |
| RS485 isolated with Modbus RTU Slave | 4I |
| CASE COLOUR | |
| Grey | G |
| White | W |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
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 ACCESSORIES

XP4 EXPAC

• REMOTE EXPANSION UNITS FOR SIGMAPAC CONTROLLERS



FEATURES

| INPUTS | |
|--------------------------------|---|
| | Configurable between: 0... 5 V, 0... 10 V, 0/4... 20 mA |
| 0/4 High Level Analogue | 12 bit resolution Accuracy: 0.1% |
| | Input Impedance >100 kΩ; < 50 Ω (mA) |
| | Configurable PT1000, NTC 103AT-2 |
| 0/8 Temperature Analogue | 0.1°C resolution Accuracy: 0.3 % PT1000 0.5% NTC |
| | Free voltage contacts or 12... 48 Vac/ Vdc or 90... 240 Vac |
| | Protection: reverse polarity and overvoltage |
| 4/8 Digital | Insulation for voltage signals only |
| OUTPUTS | |
| | 0... 10 V |
| 0/2 Analogue | 11 bit resolution Accuracy 0.3 % full scale (V) |
| 0/2 Relay/ SSR Drive/ SSR Vac | Relay 8 A SPDT, SSR Drive 12 Vdc or SSR 1A Vac |
| 0/6 Relay | Relay 2 A SPST-NO |
| SERIAL PORTS AND COMMUNICATION | |
| Communication port | RS485 (isolated) |
| Protocol | Modbus RTU (Slave) |
| FUNCTIONAL | |
| Processor | ARM Cortex M3 32 bit |
| GENERAL | |
| Power Supply | 24 Vac/ Vdc (± 10%) 50 Hz |
| Power consumption | 400 mA (Vdc) |
| Dimensions / Weight | WxHxD. 108 x 110 x 60 mm (6 DIN module) / 512 g |
| Mounting | On Omega DIN A rail |
| Protection | IP 20 |
| Operating/storage temperature | 0... 55 °C (32... 131 °F) / -20... 60 °C (-4... 140 °F) |
| Operating Humidity | 5... 85 RH% without condensation |

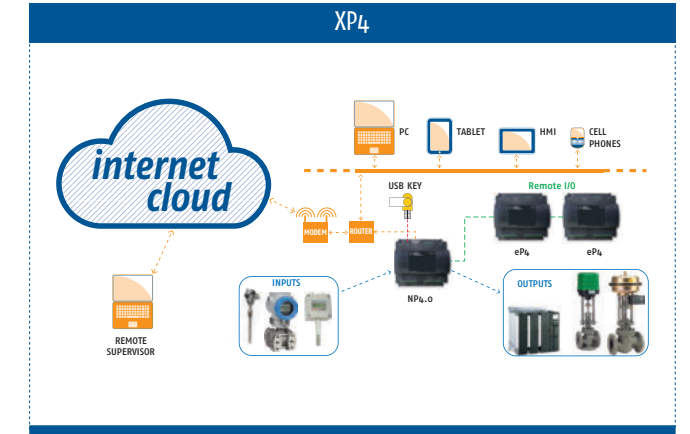


HOW TO ORDER

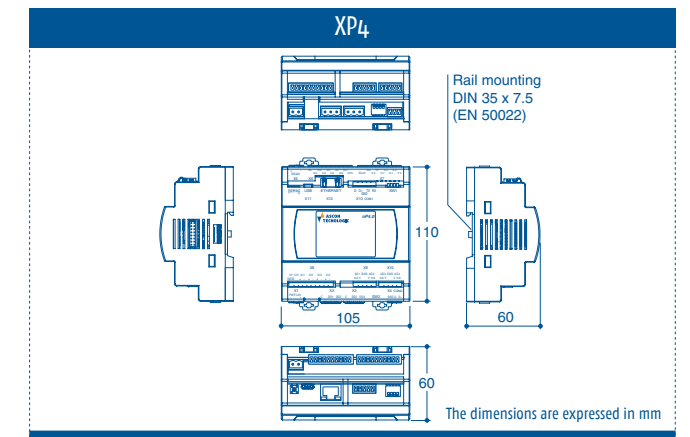
To compose the part number, pls. choose one of the option for each variable

| SIGMA2 - XP4 | CODE |
|---|------|
| DISPLAY | |
| Without display | - |
| DIGITAL OUTPUTS | |
| Not provided | - |
| 6 relè SPST-NO 2A + 2 relè SPDT-NO 8A | R |
| ANALOGUE INPUTS | |
| Not provided | - |
| 4 HL analogue inputs | 4 |
| 8 temperature analogue inputs: PT1000, NTC | 8 |
| 4 HL analogue inputs + 8 temperature analogue inputs: PT1000, NTC | F |
| ANALOGUE OUTPUTS | |
| Not provided | - |
| 2 analogue channels 0... 10 V (not isolated) | 2 |
| DIGITAL INPUTS | |
| Not provided | -- |
| 8 free voltage DI | 8- |
| 4 free voltage DI + 4 DI 12... 48 Vac/Vdc | 8L |
| FIELDBUS | |
| RS485 - Modbus RTU Slave | M |
| COMMUNICATION PORTS | |
| RS485 isolated with Modbus RTU Slave | 4I |
| CASE COLOUR | |
| Grey | G |
| White | W |

CONNECTIONS



DIMENSIONS



AC3NP

- MULTIFUNCTION PROGRAMMABLE CONTROL SYSTEM
- MULTI LOOP
- PRE-PROGRAMMED HMI



FEATURES

| INPUTS | |
|---------------------------------|---|
| AC3NP | |
| 6 Analogue | 6 programmable, 0...10V, 0/1...5V, 0...1V, 0/4...20mA 2 programmable, ±10V, ±5V, ±1V, 0/4...20mA |
| | Resolution: 16 bit - Accuracy: 0.1% of span - Input impedance >100k (V); 300 (mA) |
| | Isolamento: 800 V rispetto alimentazione e logica |
| 2 Analogue, universal | 2 configurabili: ±15mV, ±35mV, ±50mV, ±100mV, ±300mV, ±1.25 V ad alta impedenza, TC (L, J, T, K, S, R, N), Pt100, Pt1000 e potenziometro (0.1... 10kΩ) |
| | Risoluzione: 16 bit - Accuratezza: 0.1% dello span - Impedenza di ingresso >10MΩ (V) |
| | Insulation 800 V between power supply and logic 40 Vpp between two channels (differential inputs) |
| 8+32 Digital | 8 + 32 (with expansion units) 24 VDC (ON: 5...30V, OFF: 0..3V) or 8 + 8/16 max.at 120 VAC |
| | Max. input frequency 80 Hz for counter input |
| | Sink type |
| | Reverse polarity protection, overvoltage Insulation 800 V between power supply and logic |
| OUTPUTS | |
| 0/2/4 Analogue | 0/2/4 programmable (option) ±10 V (±25 mA max.), 0/4... 20 mA |
| | Resolution 13 bit |
| | Accuracy: 0.1% of span |
| 8+32 Digital | Insulation 800 V between power supply and logic |
| | 8 + 32 (with expansion units) 24VDC, 0.5 A or 8 + 8/16 relays (2A, 240 VAC, NA) |
| | Source type (PNP) |
| | Overvoltage and short circuit protection Insulation 800V channels - power supply |
| HMI: P04 | |
| Processor | ARM 9 at 32 bit |
| LCD | TFT resistive type, 4.3", 16/9, back lighted LED |
| Resolution | 480 x 272 |
| Colours | 262.000 |
| Interfaces | Ethernet 10/100-T, USB 2.0 |
| FUNCTIONAL | |
| Processore | ARM 32 bit |
| Memory | 16 MB of RAM system, application memory max. 2 MB internal 64 kB redundant FLASH memory |
| Programming languages | IL, ST, FBD, LD, SFC, CFC |
| Standard | IEC61131-3 |
| Real time clock | on board |
| Minimum time of cycle execution | ≥5ms (10ms typical) |
| Serial ports | Ethernet + RS485 + RS232/485 |
| Protocols | Modbus RTU (Master/Slave), Modbus TCP Server, ASCII |
| GENERAL | |
| Power supply | 24 VDC (-15... +25%) / 50/60 Hz |
| Power consumption | 13 VA (+3.5 VA with both expansion units) + 10 VA (for P04) |
| Dimensions / Weight | MP02: 152 x 110 mm, depth 66 mm / 460 g approx. P04: 83 x 159 mm, depth 28 mm / 200 g approx. |
| Mounting | MP02: OMEGA DIN rail - P04: flush in panel 68 x 127 (panel only) or 68 x 138 (with adapter) |
| Front protection degree | MP02: IP20 - P04: IP65 |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -40...+70°C (-40... 158°F) |
| Operating humidity | 5... 95 RH% without condensation |

Notes: The basic module can be extended by 1 or 2 expansion modules connected directly to the CPU.
To obtain more expansions it's possible to connect I/O modules both analogue and digital to an RS485 port.

Digital Signal expansion units:
MPD10808 (8 inputs 24 VDC + 8 outputs 24 VDC, 0.5A)
MPD11616 (16 inputs 24 VDC + 16 outputs 24 VDC, 0.5A)
MPD20808 (8 inputs 24 VDC + 8 outputs 2A relay)
MPD40808 (8 inputs 120 VAC + 8 outputs 2A relay)



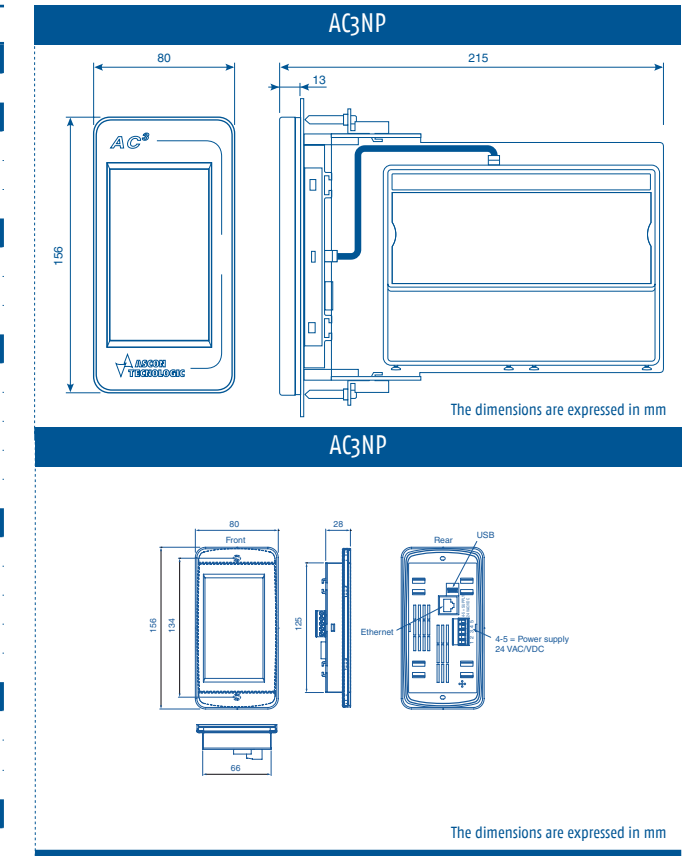
EVERYTHING UNDER CONTROL

HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

| HARDWARE MODULE | CODE |
|---|-------|
| With hardware module nP4 | AC3NP |
| ANALOG INPUTS | |
| 6 ch - 0/4... 20mA, Volt | 0 |
| 8 ch - 0/4... 20mA, Volt | 1 |
| 6 ch - 0/4... 20mA, Volt + 2 Universal channels | 2 |
| ANALOG OUTPUTS | |
| Not available | - |
| 2 outputs 0/4... 20mA, Volt | 1 |
| 4 outputs 0/4... 20mA, Volt | 2 |
| EXPANSION UNIT 1 | |
| Not available | - |
| 8 DI (24 VDC) + 8 DO (24 VDC) | 1 |
| 8 DI (24 VDC) + 8 relay outputs | 2 |
| 16 DI (24 VDC) + 16 DO (24 VDC) | 3 |
| 8 inputs (120 VAC) + 8 relay outputs | 4 |
| EXPANSION UNIT 2 | |
| Not available | - |
| 8 DI (24 VDC) + 8 DO (24 VDC) | 1 |
| 8 DI (24 VDC) + 8 relay outputs | 2 |
| 16 DI (24 VDC) + 16 DO (24 VDC) | 3 |
| 8 inputs (120 VAC) + 8 relay outputs | 4 |
| OPERATOR PANEL MODULE | |
| Not available | -- |
| Operator panel P04 with adapter | P4 |
| Adapter | PA |
| USB PORT | |
| Not available | - |
| USB port | U |
| CABLES AND ACCESSORIES | |
| Not available | -- |
| Short plate + cable 0.15 m | P1 |
| Long plate + cable 0.15 m | P2 |
| Cable 0.15 m | C0 |
| Cable 1 m | C1 |
| Cable 2 m | C2 |
| Cable 5 m | C5 |
| HW/SW CUSTOMIZATION | |
| Not available | ---- |
| Ascon Technologic customization | ATA3 |
| SW VERSION | |
| Not available | - |
| Release 0 | 0 |

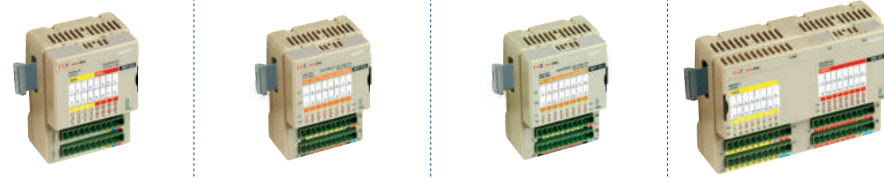
DIMENSIONS



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MP-D 1/2/4

• EXPANSION UNITS FOR MICROPAC MP02



FEATURES

| | MP-D1/08-08/Mo | MP-D2/08-08/Mo | MP-D4/08-08/Mo | MP-D1/16-16/Mo |
|---------------------------------|--|------------------------|-----------------------------------|---------------------------|
| INPUTS | | | | |
| Digital | 8 inputs (24 Vdc) | | 8 inputs (120 Vac) | 16 inputs (24 Vdc) |
| OUTPUTS | | | | |
| Digital | 8 outputs (24 Vdc, 0.5A) | 8 relay outputs 2A, NO | | 16 outputs (24 Vdc, 0.5A) |
| GENERAL | | | | |
| Power supply | 24 Vdc (-15... +25%) (50/60 Hz) | | | |
| Power consumption | 4 VA | | | |
| Dimensions / Weight | 76 x 110 mm, depth 66 mm / 220 g | | 152 x 110 mm, depth 66 mm / 350 g | |
| Mounting | On OMEGA DIN A rail | | | |
| Front protection degree | IP 20 | | | |
| Connections | Terminal block with CLAMP connectors | | | |
| Operating / storage temperature | 0... +50°C (32... +122°F) / -20...+85°C (-4... +185°F) | | | |
| Operating humidity | 5... 95 RH% without condensation | | | |



EVERYTHING UNDER CONTROL

HOW TO ORDER

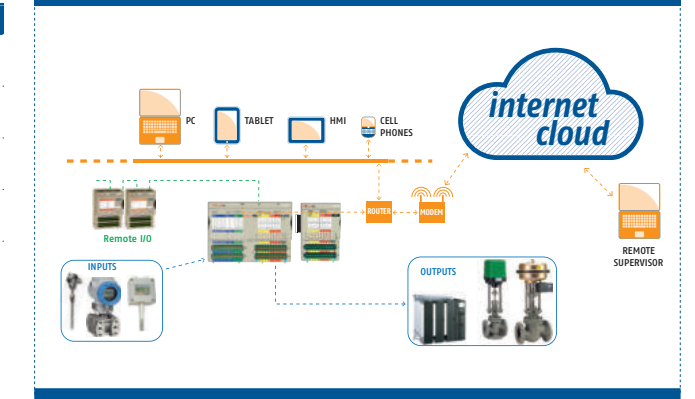
To compose the part number, pls. choose one of the option for each variable

EXPANSION UNITS - SIGMA2 MICROPAC

| | |
|----------------|---|
| MP-D1/08-08/Mo | 8 digital inputs 24Vdc optoisolated + 8 digital outputs 24V 0.5V optoisolated |
| MP-D1/16-16/Mo | 16 digital inputs 24Vdc optoisolated + 16 digital outputs 24V 0.5V optoisolated |
| MP-D2/08-08/Mo | 8 digital inputs 24Vdc + 8 digital outputs 230Vac/2A relay SPST-NO |
| MP-D4/08-08/Mo | 8 digital inputs 120Vac + 8 digital outputs 230Vac/2A relay SPST-NO |

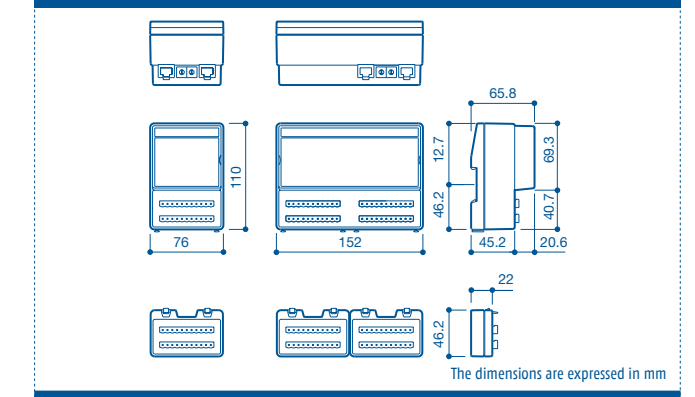
CONNECTIONS

MP-D1 / MP-D2 / MP-D4



DIMENSIONS

MP-D1 / MP-D2 / MP-D4



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OPENPCS

- PROGRAMMING SOFTWARE COMPLIANT TO STANDARD IEC 61131-3
- 6 PROGRAMMING LANGUAGES
- WIDE RANGE OF LIBRARIES TO SIMPLIFY THE PROGRAMMING



FEATURES

| FUNCTIONAL | SOFTWARE OPENPCS |
|-----------------------|---|
| Standard | IEC 61131-3 |
| Programming languages | Instruction List Structured Text Function Block Diagram Ladder Diagram Sequential Function Chart Continuous Function Chart |
| Programming | Application project developing structured and simplified by the variable declaration method and keywords auto-recognition. Integrated online debug and simulation tools. Projects management "easy to use" through the dedicated browser. |
| Libraries | AT_Generic_Advanced_Lib: includes advanced calculation and process functions such as Averages, Characterizations/Linearizations, A/D conversions, A/D Selectors, Totalizers, Limiters |
| | AT_Process_Generic_Lib: includes advanced calculation and process functions such as Alarms, Signal's conditioning, Dew point, Relative Humidity, Bacteria load reduction (Fo), Compensated flow, Carbon potential calculation |
| | AT_IO_Modules_Basic_Lib: specifically designed to configure and manage the I/O modules |
| | AT_Process_Control_Lib: includes all the advanced PID functions dedicated to the process control such as single or double action controllers, within different Autotuning and Feed Forward modes |
| | AT_CUo2_Cpu_Lib: specifically designed to manage the whole communication and diagnostic operations of the onboard I/Os and remote modules |
| | AT_Communications_Lib: includes a complete set of function blocks dedicated to the Modbus Master, Slave and Profibus agents communication activities plus Modems management. |

HOW TO ORDER

| SOFTWARE OPENPCS | |
|------------------|----------------------------------|
| APS2 SWOPCS00 | IEC 61131-3 programming software |

SCREENSHOTS

The screenshots illustrate the software's capabilities: the top image shows a project tree and a ladder logic diagram; the middle image shows a data table and a configuration dialog box; the bottom image shows a detailed view of a function block or data point configuration.

- INDUSTRIAL CONTROLLERS
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PRE-PROGRAMMED SYSTEMS



Solutions ready to be used!

Flexible systems able to suit to all plants, through a simple configuration and programming by means of touch screens.

CLIMA PAC

- "TURN KEY" SOLUTION FOR BOILER ROOMS
- COMPLETE CONTROL SOLUTION WITH HIGH CONNECTIVITY



FEATURES

| CLIMAPAC | |
|-------------------------|--|
| Functions | The control system climaPAC is able to perform : boiler control in power or temperature the cascade of condensing modules |
| | adjustment of 3 independent heating outlets each with temperature curve and weekly programmable thermostat with 8 slots for attenuation |
| | adjustment of domestic hot water in the boiler |
| | the management of the recirculation circuit with programmable time bands the function against legionella management of solar panels reading counts calories in the central |
| | the remote management climaPAC allows to monitor online the system, to examine continuous recording of process data, to work on the operative parameters (programmable thermostats, curves weather, etc.) |
| PRE-PROGRAMMED SOLUTION | access to facilities and functionality is regulated by password for each plant the interventions carried out by the various operators can be recorded and it is possible to upload electronic documents so that it is always available via the Internet |
| | System elements |
| | Electric panel code CPS 02 |
| | Kit external operator panel |
| | Supervision via Web ClimaVEM |
| | PT1000 probe with thermowell and PT1000 probe for external mounting |

HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

| CPS02 | CODE |
|--|------|
| OPERATOR PANEL | |
| Without Operator panel | - |
| With Operator panel integrated in the system | P |
| MODEM | |
| Without Modem | - |
| With UMTS Modem for remote management | P |
| INPUTS EXPANSION MODULES | |
| Without modules | - |
| With 4 PT1000 inputs modules (for transfer of solar thermal) | 4 |
| With 6 PT1000 inputs modules | 6 |
| With 8 PT1000 inputs modules | 8 |
| OUTPUTS EXPANSION MODULES | |
| Without modules | - |
| With 8 0...10V control outputs modules | 8 |

COMPONENTS

ACCESSORIES

- OPKIT - Kit made of 7" Touch screen operator panel with connection cables
- R2IA46P015NPSCO - PT1000 6X40 mm probe in ABS case
- R2IB126P15NPS - PT1000 6X120 mm probe with 1.5 m PVC cable
- 9TUDR102 - Thermowell for immersion probes 1/4 gas thread, pipe 7.5x60 mm under-thread 60 mm with PG7 connector

EVERYTHING UNDER CONTROL

OPERATOR PANELS



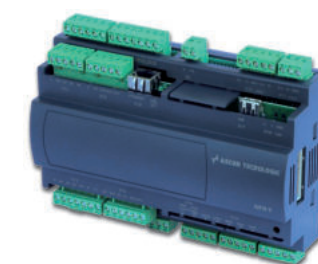
OPERATOR PANELS



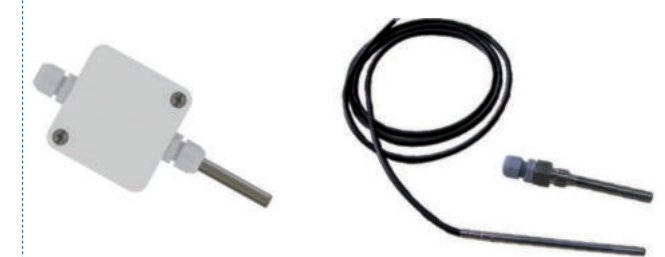
ELECTRIC PANEL



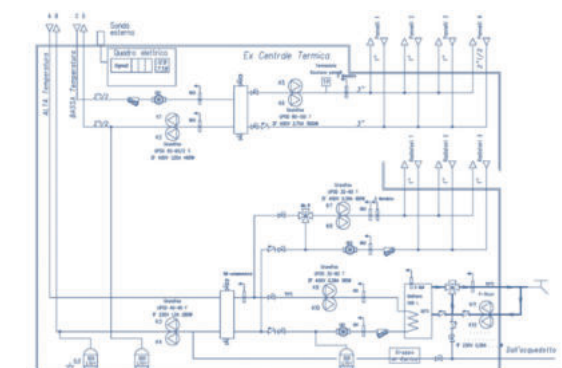
M81



PROBES AND THERMOWELL



HYDRAULIC DIAGRAM



BREWERY PAC

• PRE-PROGRAMMED SYSTEM TO MANAGE BREWERY PLANTS



FEATURES

| BREWERYPAC | |
|---|--|
| Functions | Solution that allows to control the temperature in the fermenter for beer production. Enabling is done through the touch screen and allows both control and supervision of individual fermenters. The modularity of the system is 8. |
| | Temperature control of the fermentors |
| | Temperature real time trend with time base of 1, 3, 6, 12 hours |
| | Daily historical trend |
| | Alarm management |
| | Alarm history recording |
| Remote Management via Ethernet (also via the Web, via tablet or PC) | |
| PRE-PROGRAMMED SOLUTION | |
| System components | Operator panel OPMT3105/N Modular solution: 1 to 32 controllers mod. K31 or 1 to 4 M81 controllers (each controlling 8 zones) |

HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

BP01 XX-YY

OPMT3105/N pre-programmed with BreweryPAC interface on board

no. 1... 8 Controllers mod. M81 pre-programmed with BreweryPAC applicative

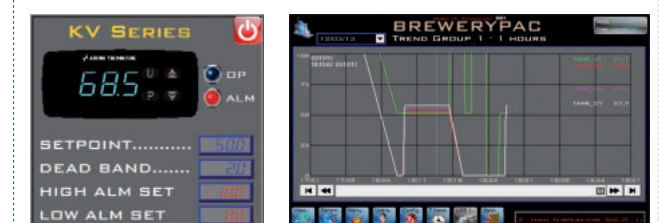
no. 1... 32 Controllers mod. K31

COMPONENTS

M81



SCREENSHOTS



INDUSTRIAL CONTROLLERS

ADVANCED PROGRAMMERS

DIN RAIL MOUNTING CONTROLLERS

THERMOSTATS ANALOGUE CONTROLLERS

SPECIAL CONTROLLERS AND "CUSTOM"

PAC SYSTEMS

PRE-PROGRAMMED SYSTEMS

PLC AND OPERATOR PANELS

TIMERS COUNTERS POWER LIMITERS

INDICATORS

I/O MODULES

SUPERVISION

COMBUSTION CONTROL

ACCESSORIES

PLC AND OPERATOR PANELS



Solutions for every demand of space!

PLC and operator panels with bright TFT display widescreen high resolutionre back lighted LED and up to 256 MB of memory.

For every application where power and control have to be separate from the HMI, we offer operator panels, both for front panel mounting and with custom dimensions.

PLC AND OPERATOR PANELS

| FEATURES | | P04 | OPMT 8050IE | OPMT 8071IE | | OPMT 8073IE | OPMT 8090XE | OPMT 8092XE | OPMT 8121XE | OPMT 8150XE/N |
|---------------------------------|------------|-----|-------------|-------------|--|-------------|-------------|-------------|-------------|---------------|
| Dimensions (inches) | 4.3" | • | • | | | • | | | | |
| | 7" | | | • | | | | | | |
| | 9.7" | | | | | | • | • | | |
| | 12.1" | | | | | | | | • | |
| | 15" | | | | | | | | | • |
| Flash MB memory | | | 128 | 128 | | 128 | 512 | 512 | 256 | 256 |
| RAM MB memory | | | 128 | 128 | | 128 | 256 | 256 | 256 | 256 |
| Colours | | | 16.7M | 16.7M | | 16.7M | 262k | 262k | 16.2M | 16.2M |
| Slot SD/SDHC card | | • | | | | | | | • | • |
| USB Host | | • | • | • | | • | • | • | • | • |
| USB Client | | | | | | | | | • | • |
| Ethernet | | • | • | • | | 2 | • | X2 | • | • |
| RTC | | • | • | • | | • | | | | |
| Power supply | 24 Vac/Vdc | • | • | • | | • | • | • | • | • |
| COM1 RS232/485 2/4 wires | | | • | | | | | | • | • |
| COM1 RS232 | | | | • | | • | • | • | | |
| COM2 RS485 2/4 wires | | | | • | | • | • | • | | |
| COM3 RS485 2 wires | | • | • | • | | • | • | | • | • |
| COM3 RS485 2w/ RS232 | | | | | | | | • | | |
| CAN bus | | | | | | | | • | | • |
| Programming Software (optional) | | • | • | • | | • | • | • | • | • |
| CE certification + UL approval | | | • | • | | • | • | • | • | • |

| FEATURES | | P01 | | P30 | P32 |
|--------------------------------|------------|-----|--|-----|-----|
| Dimensions (mm) | 78 x 35 | | | • | • |
| | on request | • | | | |
| Single display | | • | | | |
| Double display | | | | • | • |
| Power supply | 12 Vdc | • | | | |
| (from the controller) | 9 Vdc | | | • | • |
| TTL Modbus not isolated | | • | | • | • |
| CE certification + UL approval | | • | | • | • |

- INDUSTRIAL CONTROLLERS
- ADVANCED PROGRAMMER CONTROLLERS
- DIN RAIL MOUNTING CONTROLLERS
- THERMOSTATS ANALOGUE CONTROLLERS
- SPECIAL CONTROLLERS AND "CUSTOM"
- PAC SYSTEMS
- PRE-PROGRAMMED SYSTEMS
- PLC AND OPERATOR PANELS
- TIMERS COUNTERS POWER LIMITERS
- INDICATORS
- I/O MODULES
- SUPERVISION
- COMBUSTION CONTROL
- ACCESSORIES

P04

- PLC WITH TOUCH SCREEN MONITOR
- TFT WIDESCREEN HIGH RESOLUTION BACKLIGHTED LED DISPLAY
- 4.3"



FEATURES

| DISPLAY | |
|---------------------------------|---|
| Display | P04 |
| Resolution (pixel) | 4.3" TFT |
| Brightness (cd/m ²) | 480 x 272 |
| Back Light type | 280 |
| Colours | LED |
| Touch panel | 262 K |
| | 4 wire Resistive Type |
| MEMORY | |
| Flash (MB) | 128 |
| RAM (MB) | 128 |
| FUNCTIONAL | |
| CPU | ARM9 26 32 Bits 4545 MHz processor |
| PLC | programmable with standard languages IEC61131-3, simulator and application monitor for debugger |
| Slot SD card | 4 GB Micro SD |
| USB Host | 2.0 X 1 |
| Ethernet | 10/100 base-T |
| COM port | COM1 RS485 2w |
| Fieldbuses | Modbus RTU, ASCII, TPC, CANOpen |
| RTC | Available |
| POWER SUPPLY | |
| Power supply | 24 Vdc/Vac ±20% |
| Power consumption (mA @24V) | 250 |
| MECHANICAL | |
| Case | UL V04 Autoextinguishing plastic |
| Dimensions | 83 x 159 x 28 mm |
| Weight | 200 g |
| Protection degree | IP65 |
| Operating temperature / Storage | 0... +50°C (32°... +122°F) / -20... +60°C (-4... +140°F) |
| Operating humidity | 10...90% RH without condensation |
| SOFTWARE | |
| Graphic interface | QT programming tool |



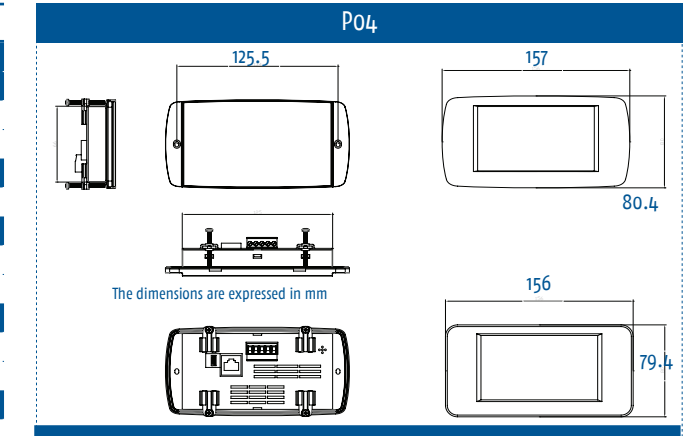
EVERYTHING UNDER CONTROL

HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

| P04 | CODE |
|---|------|
| MODEL | |
| Touch screen 4.3" operator panel | - |
| Touch screen 4.3" operator panel with PLC function on board | P |
| APPLICATIVE ON BOARD | |
| Code that defines the applicative | XX |
| ETHERNET PORT | |
| Not available | - |
| Ethernet | E |
| USB PORT | |
| Not available | - |
| USB | U |
| COM PORT | |
| Not available | - |
| RS485 | S |
| AT LIN | L |
| CAN | C |
| SD CARD | |
| Not available | - |
| SD card memory | M |
| CLOCK | |
| Not available | - |
| Real Time Clock | C |
| CONNECTIONS | |
| Plug-in screw type with connectors included | E |
| No connectors | N |
| CASE - COLOUR AND SHAPE | |
| Black, rectangular | B |
| Black, rounded | R |
| White, rectangular | S |
| White, rounded | W |

DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

OPMT

- TOUCH SCREEN OPERATOR PANELS
- TFT WIDESCREEN HIGH RESOLUTION BACKLIGHTED LED DISPLAY
- 4.3" E7"



FEATURES

| DISPLAY | OPMT | | |
|---------------------------------|--|--|--|
| | 8050 IE | 8071 IE | 8073 IE |
| Display | 4.3" TFT | 7" TFT | |
| Resolution (pixel) | 480 x 272 | 800 x 480 | |
| Brightness (cd/m ²) | 400 | | |
| Contrast ratio | 500:1 | | 800:1 |
| Back Light type | LED | | |
| Colours | 16.7 M | | |
| Touch panel | 4 wire Resistive Type | | |
| MEMORY | | | |
| Flash (MB) | 128 MB | | |
| RAM (MB) | 128 MB | | |
| I/O PORTS | | | |
| USB Host | 2.0 x 1 | | |
| Ethernet | 10/100 base-T x 1 | | 10/100/1000 base-T x 2 |
| COM port | COM1 (RS232/485 2 e 4w) COM3 (RS485 2w) | COM1 (RS232) COM2 (RS485 2 e 4w) COM3 (RS485 2w) | COM1 (RS232) COM2 (RS485 2 e 4w) COM3 (RS232/RS485 2w) |
| RTC (on board) | Available | | |
| POWER SUPPLY | | | |
| Power supply | 24 VDC ±20% | | |
| Power supply isolation | Built-in | | |
| Power consumption (mA@24V) | 300 | 450 | 600 |
| MECHANICAL | | | |
| Case | Plastic | | |
| Dimensions WxHxD | 128 x 102 x 32 mm | 200.3 x 143.3 x 34 mm | |
| Panel cut-out | 119 x 93 mm | 192 x 138 mm | |
| Weight | 250 g | 600 g | |
| Protection degree | NEMA4/IP65 | | |
| Mounting | On panel | | |
| Storage temperature | -20°... 60°C (-4°...140°F) | | |
| Operating temperature | 0°... 50°C (32°...122°F) | | |
| Operating humidity | 10...90% RH without condensation | | |
| SOFTWARE | | | |
| Software (optional) | Programmable with EasyBuilderPro | | |
| COMPLIANCE | | | |
| Compliance | CE, UL type 4X (indoor use) | CE, ATEX Zone 2/22 Cat. 3 G/D | CE, ATEX Zone 2/22 Cat. 3 G/D, UL listed |



EVERYTHING UNDER CONTROL

HOW TO ORDER

| OPMT | |
|---------|--|
| 8050 IE | 4.3" TFT, 16.7M colours, 480x272 p., 2 COM |
| 8071 IE | 7" TFT, 16.7M colours, 800x480 p., 3 COM |
| 8073 IE | 7" TFT, 16.7M colours, 800x480 p., 3 COM |

DIMENSIONS

OPMT 8050 IE

128mm [5.039"]

102mm [4.016"]

Front View

118mm [4.646"]

92mm [3.622"]

Rear View

32mm [1.260"]

Bottom View

Dimensions are expressed in mm

OPMT 8071 IE/ OPMT 8073 IE

200.3mm [7.89"]

146.3mm [5.76"]

Front View

189.6mm [7.46"]

135.6mm [5.34"]

Rear View

4mm [1.56"]

Bottom View

Dimensions are expressed in mm

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- ACCESSORIES

OPMT

- TOUCH SCREEN OPERATOR PANELS
- TFT WIDESCREEN HIGH RESOLUTION BACKLIGHTED LED DISPLAY
- 9.7", 12.1" E 15"



FEATURES

| DISPLAY | OPMT | | | |
|---------------------------------|--|---|---------------------------------------|--|
| | 8092 XE | 8090 XE | 8121 XE | 8150 XE/N |
| Display | 9.7" TFT | | 12.1" TFT | 15" IPS |
| Resolution (pixel) | 1024 x 768 | | | |
| Brightness (cd/m ²) | 350 | | 500 | 400 |
| Contrast ratio | 500:1 | | 700:1 | 1000:1 |
| Back Light type | LED | | | |
| Colours | 262K | | | 16.2 M |
| Touch panel | 4 wire Resistive Type | | | |
| MEMORY | | | | |
| Flash (MB) | 512 | | | 256 |
| RAM (MB) | 256 | | | |
| I/O PORTS | | | | |
| Slot SD card | Not available | | | SD/SDHC |
| USB Host | 2.0 X 1 | | | |
| USB Client | Not available | | | 2.0 X 1 |
| Ethernet | 10/100/1000 Base-T x 2 | 10/100 Base-T x 1 | | 10/100 Base-T x 1 |
| CAN bus | Available | Not available | | |
| COM port | COM1 RS232 COM2 RS485 2w/4w COM3 RS232 or RS485 2w | COM1 RS232 COM2 RS485 2w/4w COM3 RS485 2w/RS232 | | COM1 RS232/RS485 2w/4w COM3 RS485 2w |
| RS485 dual isolation | Not available | | | Available |
| RTC | Available | | | |
| POWER SUPPLY | | | | |
| Power supply | 24 VDC ±20% | | | |
| Power consumption (mA @24V) | 650 | 500 | 800 | 1.2A |
| MECHANICAL | | | | |
| Case | Plastic | | Aluminium | |
| Dimensions WxHxD | 260.6 x 203.1 x 36.5 mm | | 317 x 244 x 46 mm | 366 x 293 x 57 mm |
| Panel cut-out | 250 x 192 mm | | 305 x 231 mm | 352 x 279 mm |
| Weight | 850 g | | 2.100 g | 2.750 g |
| Protection degree | NEMA4/IP65 | | IP66/NEMA4 | NEMA4/IP65 |
| Mounting | On panel | | | |
| Storage temperature | -20°... 60°C (-4°...140°F) | | | |
| Operating temperature | 0°... 50°C (32°...122°F) | | | |
| Operating humidity | 10...90% RH without condensation | | | |
| SOFTWARE | | | | |
| Software (optional) | Programmable with EasyBuilderPro | | | |
| COMPLIANCE | | | | |
| Compliance | CE, ATEX Zone 2/22 Cat. 3 G/D, UL listed UL type 4X (indoor use) | CE, ATEX Zone 2/22 Cat. 3 G/D | CE, UL listed UL type 4X (indoor use) | CE, ATEX Zone 2/22 Cat. 3 G/D, UL listed UL type 4X (indoor use) |



EVERYTHING UNDER CONTROL

HOW TO ORDER

| OPMT | |
|-----------|--|
| 8092 XE | 9.7" TFT, 262k colours, 1024 x 768 p., 3 COM |
| 8090 XE | 9.7" TFT, 262k colours, 1024 x 768 p., 3 COM |
| 8121 XE | 12.1" TFT, 16.2M colours, 1024 x 768 p., 2 COM |
| 8150 XE/N | 15" IPS, 16.2M colours, 1024 x 768 p., 2 COM |

DIMENSIONS

OPMT 8090 XE/ OPMT 8092 XE

260.6mm [10.26"]

203.1mm [8.00"]

Front View

247.7mm [9.75"]

190.2mm [7.49"]

Rear View

5.5mm [1.44"]

Bottom View

Dimensions are expressed in mm

OPMT 8121 XE

317mm [12.49"]

244mm [9.61"]

Front View

303mm [11.93"]

229mm [9.01"]

Rear View

46mm [1.82"]

Bottom View

Dimensions are expressed in mm

OPMT 8150 XE/N

366mm [14.41"]

293mm [11.54"]

Front View

350mm [13.78"]

277mm [10.91"]

75mm [2.95"]

75mm [2.95"]

Rear View

57mm [2.24"]

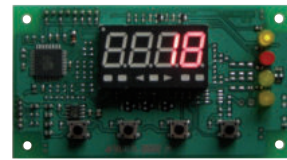
Bottom View

Dimensions are expressed in mm

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- ACCESSORIES

P 01/30/32

- REMOTE OPERATOR PANELS
- EXTERNAL POWER SUPPLY (BY A SEPARATED CONTROL UNIT)
- 78 X 35 MM OR ON REQUEST



FEATURES

| DISPLAY | P01 | P30 | P32 |
|---------------------------------|---|---|--|
| Display | Single: 4 red digit, h 15.5 mm + Bargraph 3 LED | Single: 4 red digit, h 12 mm + Bargraph 3 LED | Dual: Main: 4 red digit, h 7 mm Secondary: 4 red digit, h 7 mm |
| FUNCTIONAL | | | |
| Sampling rate | | 500 ms | |
| Acoustic alarm | -- | Internal buzzer (optional) | |
| Serial communication | TTL Modbus not isolated | | |
| Protocol | ModBus-RTU (JBUS) | | |
| Baud rate | 38400 baud | | |
| GENERAL | | | |
| Power supply | 12 Vdc supplied by the controller | 9 Vdc supplied by the controller | |
| Power consumption | | 50 mA | |
| Dimensions / Weight | On request / 115 g approx. | 78 x 35 mm - depth 64 mm / 120 g approx. | |
| Mounting | Behind layout | Flush in panel in 71 x 29 mm hole | |
| Front protection degree | -- | IP65, mounted on panel with gasket | |
| Connections | Screw terminals | Screw terminal block 2.5 mm ² | |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... 70°C (-4... 158°F) | | |
| Operating humidity | 20... 95 RH% without condensation | | |
| Conformity | Directive EMC 2004/108/CE (EN 61326) - Directive LV 2006/95/CE (EN 61010-1) | | |



EVERYTHING UNDER CONTROL

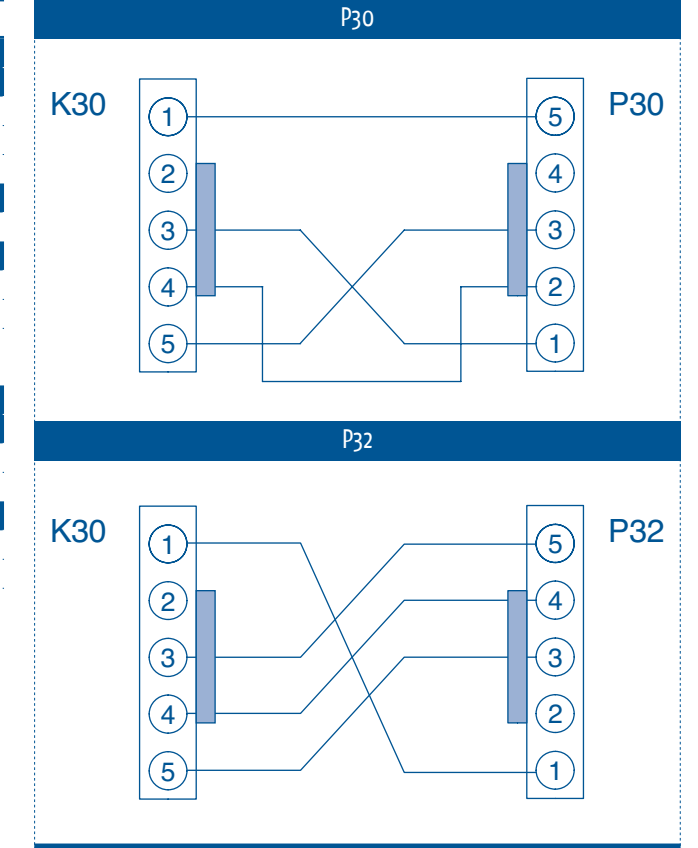
HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

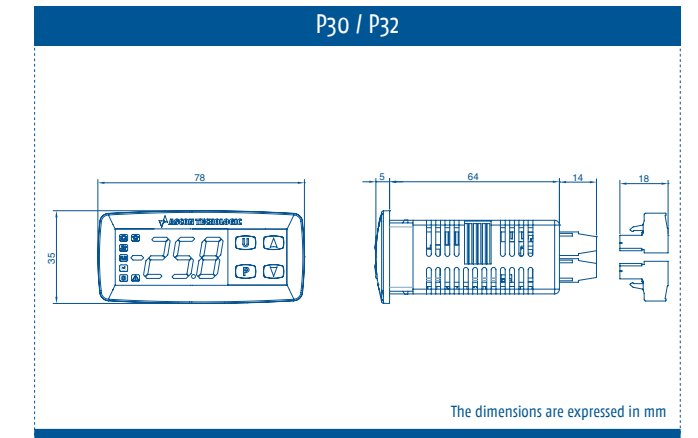
| P01 | CODE |
|-------------------------------|------|
| DISPLAY | |
| Red | - |
| Amber | A |
| Blue | U |
| INPUT | |
| From the connected controller | - |
| OUTPUT | |
| Out 8 Vdc | W |
| Not available | - |

| P30 / P32 | CODE |
|--------------------------|------|
| DISPLAY | |
| Red | - |
| Blue | U |
| BUZZER (INTERNAL) | |
| Available | B |
| Not available | - |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
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TIMERS – COUNTERS – POWER LIMITERS



Multi-scale and multi-function

Microprocessor based timers, counters and power limiters with 4 digits single display, equipped with double outputs and screw terminal block. Some models are also available with buffer battery for time counting also in lack of supply.

TIMERS - COUNTERS - POWER LIMITERS

| FEATURES | TIMERS | | | | | COUNTERS | | | POWER LIMITERS | |
|---|-----------------------------|------|------|------|------|----------|------|------|----------------|---|
| | BWT40 | TT34 | TT49 | TT73 | TC34 | TC49 | TC73 | TP34 | TP49 | |
| Dimensions (mm) | 78 x 35 | • | | | | • | | | • | |
| | 48 x 48 | | | • | | | | | | • |
| | 72 x 72 | | | | • | | | | | |
| | 35.8 x 90 4 DIN Modules | • | | | | | | | | |
| 4 digit single display | | • | • | | • | • | • | • | • | |
| 6 digit single display | • | | | | | | | | | |
| Input | 2 for free voltage contacts | | • | • | • | • | • | • | • | • |
| | 2 for voltage contacts | | • | • | • | • | • | • | • | • |
| Relay or voltage for SSR drive outputs | | 2 | 2 | | 2 | 2 | 2 | 2 | 2 | |
| Relay outputs | 2 | | | | | | | | | |
| Power supply | 12 Vac/Vdc | | • | • | • | • | • | • | • | • |
| | 24 Vac/Vdc | | • | • | • | • | • | • | • | • |
| | 100... 240 Vac | • | • | • | • | • | • | • | • | • |
| Multi-scale, Multi-function | • | • | • | | | | | • | • | |
| Multi-frequency, Multi-function | | | | | • | • | • | | | |
| 40 daily and/or weekly programs | • | | | | | | | | | |
| Manual output driving, Daylight saving time function, Random function | • | | | | | | | | | |
| CE certification | | • | • | | • | • | • | • | • | |

- INDUSTRIAL CONTROLLERS
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- COMBUSTION CONTROL
- ACCESSORIES

BWT40

- MULTIFUNCTION TIMER PROGRAMMER
- UP TO 2 OUTPUTS
- UP TO 40 DAILY AND WEEKLY PROGRAMS



FEATURES

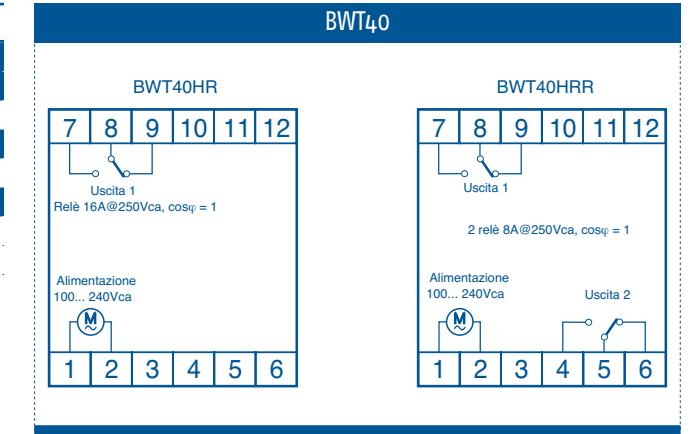
| BWT40 | |
|------------|---|
| DISPLAY | Multi-indication, 6 digit |
| OUTPUTS | Up to 2 OUT 1: Relay SPDT 16 A at 250 VCA or OUT 1 and OUT 2: Relay SPDT 8 A at 250 VCA |
| FUNCTIONAL | Programmable functions Pulses programming: adjustable from 0 to 59 sec Manual outputs driving Daylight Saving Time Random Function 40 daily/weekly programs LED for status indication of the relay outputs LED indication of the instrument powered |
| GENERAL | Power supply: 100... 240 Vac ±10% (48...63 Hz) Power consumption: 4.4 VA approx. Battery: Internal 4 years approx. Accuracy: (at 20 ° C): ± 2.0 Dimensions / Weight: 35.8 x 90 mm, depth 73 mm / 110 g approx. Mounting: On OMEGA DIN A rail Operating / storage temperature: 0... 50°C (32... 122°F) / -20... 70°C (-4... 158°F) Operating humidity: 30...95% RH without condensation |

HOW TO ORDER

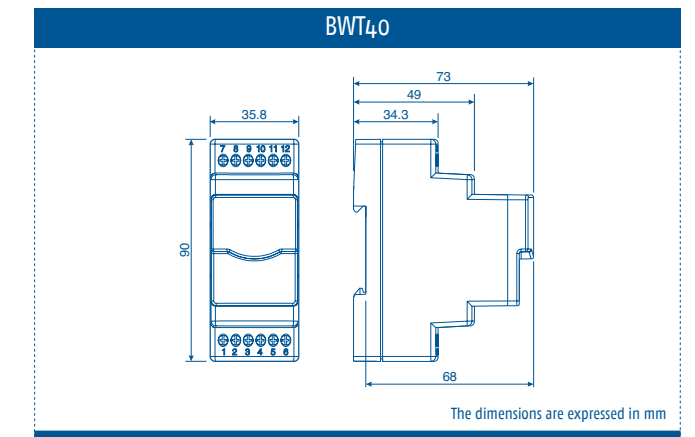
To compose the part number, pls. choose one of the option for each variable

| BWT40 | CODE |
|--------------------|------|
| POWER SUPPLY | |
| 100... 240 Vac/Vdc | H |
| OUT 1 | |
| Relay | R |
| OUT 2 | |
| Relay | R |
| Not available | - |

CONNECTIONS



DIMENSIONS



T31

- MULTISCALE AND MULTIFUNCTION TIMER
- UP TO 2 OUTPUTS
- NFC PROGRAMMING



FEATURES

| DISPLAY | |
|---------------------------------|--|
| Single display | T31 4 red or blue digit, h 12 mm |
| INPUT | |
| Digital input | 2 for free voltage contacts |
| Delay time inputs | 15 msec max. |
| OUTPUTS | |
| Up to 2 | OUT1: Relay SPDT 16A EN61810: 16 (9) A, 1HP 250V, 1/2HP 125VAC UL 60730: 12A Res., 30 LRA, 5 FLA or 12 Vdc/15 mA for SSR driving (12A max for plug-in terminal version) OUT2: Relay SPST-NO 5A EN61810: 5 (1) A, 1HP 250V, 1/2HP 125VAC UL 60730: 2A Gen.use or 12 Vdc/15 mA for SSR driving (12A max for plug-in terminal version) |
| Relay electrical life | 100.000 operations |
| FUNCTIONAL | |
| Functioning mode | Up to 3 set point 5 functioning mode for OUT1 5 functioning mode for OUT2 6 counting enabling modes 2 counting modes (UP or DOWN) |
| Time scale | 9999 hrs - 99 hrs 59 min - 99 min 59 sec - 99 sec 99 hundredths of a second |
| Display resolution | According to the scale used: Hours - Minutes - Seconds - Hundredths of a second |
| Overall accuracy | ± 0.1% f.s. |
| GENERAL | |
| Power supply | 12 Vac/Vdc, 24 Vac/Vdc, 90... 240 Vac/Vdc ±10% (50/60 Hz) |
| Power consumption | 3 VA approx. |
| Dimensions / Weight | 78 x 35 mm - depth 64 mm / 125 g approx. |
| Connections | Power supply and outputs: screw terminal block 2x1 mm ² or plug-in or Faston Inputs: 2x1 mm ² screw terminal block or plug-in |
| Mounting | Flush in panel in 29 x 71 mm hole |
| Front protection degree | IP 65, mounted on panel with gasket and screw brackets |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -25... 60°C (-13... 140°F) |
| Operating humidity | Lower than 95 RH% without condensation / 30... 95 RH% without condensation |
| Conformity | Directive CEE BT 2006/95/CE (EN61812-1); Directive EMC 2014/108/UN (EN55022: class B; EN61000-4-2: 8 kV air, 4 kV cont.; EN61000-4-3: 10V/m; EN61000-4-4: 2 kV supply and relay outputs, 1kV inputs; EN61000-4-5: supply 2 kV com. mode, 1 kV diff. mode; EN61000-4-6: 3V). |

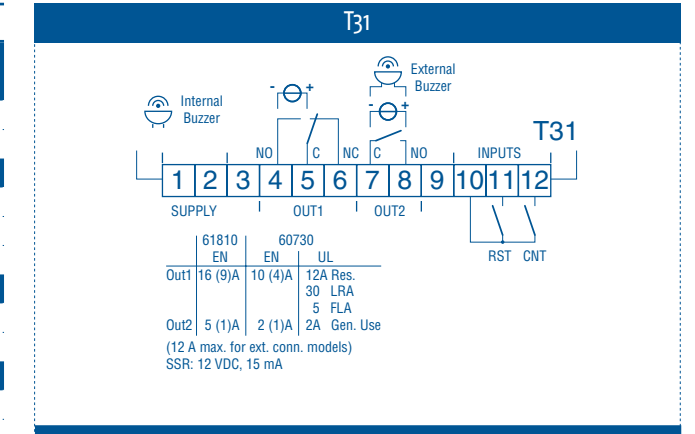


HOW TO ORDER

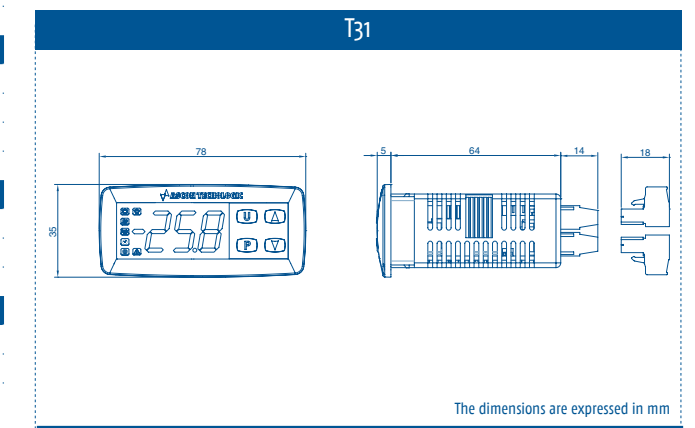
To compose the part number, pls. choose one of the option for each variable

| T31 | CODE |
|---|------|
| NFC PROGRAMMING | |
| Available | N |
| Not available | - |
| POWER SUPPLY | |
| 12 Vac/Vdc | F |
| 100... 240 Vac/Vdc | H |
| 24 Vac/Vdc | L |
| OUT 1 | |
| Relay SPDT 16A-AC1 | S |
| 12 Vdc for SSR driving | O |
| OUT 2 | |
| Relay SPST-NO 5A | R |
| 12 Vdc for SSR driving or external Buzzer | O |
| Non presente | - |
| INTERNAL BUZZER | |
| Available | B |
| Not available | - |
| POWER SUPPLY AND OUTPUT TERMINALS | |
| Screw terminal block (standard) | V |
| Plug-in screw type p. 5.00 | E |
| Plug-in screw type, fix part only p. 5.00 | N |
| Faston 6.3 | F |
| INPUT TERMINALS | |
| Screw terminal block (standard) | V |
| Plug-in screw type 5.00 | E |
| Plug-in screw type, fix part only p. 5.00 | N |
| DISPLAY | |
| Red | R |
| Blue | U |

CONNECTIONS



DIMENSIONS



TT 49/73

- MULTISCALE AND MULTIFUNCTION TIMERS
- UP TO 2 OUTPUTS
- WITH BACK UP BATTERY



| FEATURES | TT49 | TT73 |
|--|--|--|
| DISPLAY | | |
| Single | 4 red digit, h 12 mm | 4 red digit, h 14 mm |
| INPUTS | | |
| Digital inputs | 2 for free voltage contacts or 2 for voltage contacts (the same of the power supply) | |
| Delay time inputs | 15 msec max. | |
| OUTPUTS | | |
| Up to 2 | OUT 1 and OUT 2: Relay SPDT (8A-AC1, 3A-AC3/250 Vac) or 12 Vdc/15 mA to drive SSR | |
| FUNCTIONAL | | |
| Programmable functions | OUT 1: Delayed, Feedthrough, oscillator (start/stop) with asymmetric times start ON, or start OFF, One cycle asymmetric oscillator (start/stop) with start OFF, OUT 2: as OUT 1, as instant contact, as OUT 1 but with another independent time, as OUT 1 but with another relative time | |
| Programmable time scales | 9999 hrs - 99 hrs 59 min - 99 min 59 sec - 99 sec 99 cent. sec | |
| Counting mode | UP or DOWN | |
| Display resolution | According to the used scale : hrs - min - sec - Cent sec | |
| Counting autonomy without power supply | Approx. 10 hrs with full load battery | |
| GENERAL | | |
| Power supply | 12 Vac/Vdc, 24 Vac/Vdc, 90... 240 Vac/Vdc ±10% (50/60 Hz) | |
| Power consumption | 2 VA approx. | |
| Power consumption with battery supply | 4.5 mA approx. | |
| Battery (*) | Internal 3.6 V - rechargeable | |
| Power consumption voltage inputs | 1 mA max. | |
| Dimensions / Weight | 48 x 48 mm (1/16 DIN) - depth 98 mm / 200 g approx. | 72 x 72 mm - depth 96 mm / 270 g approx. |
| Connections | Screw terminal block 2x1 mm ² | |
| Mounting | Flush in panel in 45 x 45 mm hole | Flush in panel in 66.5 x 66.5 mm hole |
| Front protection degree | IP 54, mounted on panel with gasket | |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... 70°C (-4... 158°F) | |
| Operating humidity | 30... 95 RH% without condensation | |
| Conformity | Directive CEE EMC 2004/108/CE (EN 61326), Directive CEE BT 2006/95/CE (EN 61010-1) | |

(*) Note: The battery is used to keep counting even in the absence of supply.



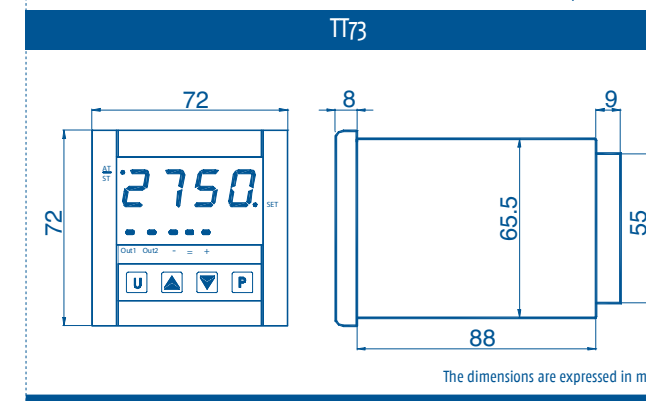
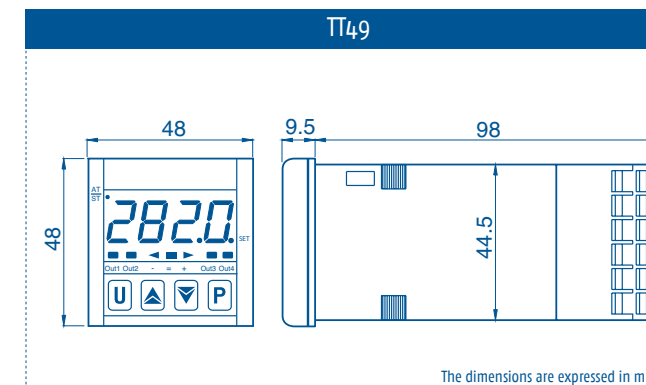
EVERYTHING UNDER CONTROL

HOW TO ORDER

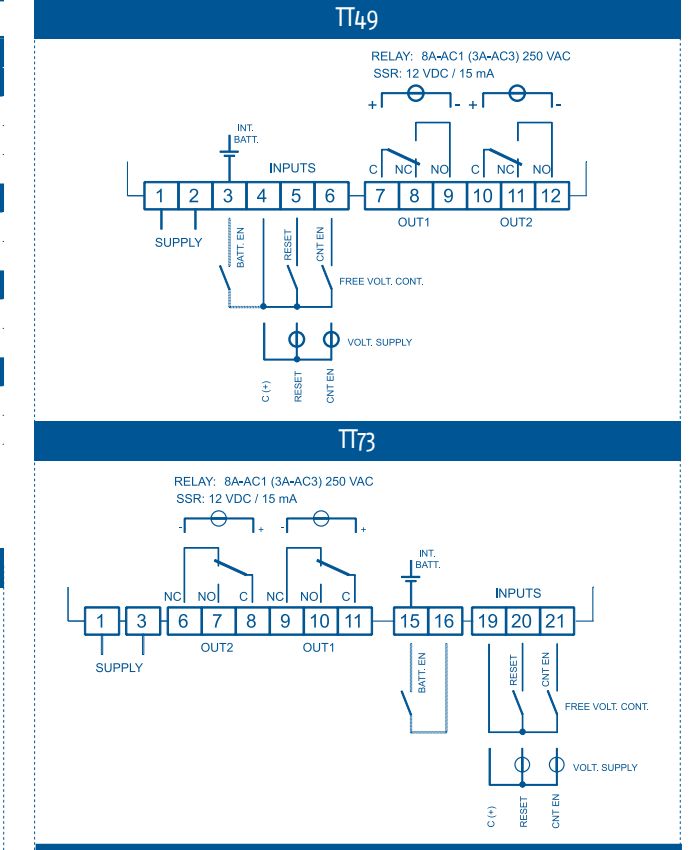
To compose the part number, pls. choose one of the option for each variable

| TT49 / TT73 | CODE |
|----------------------|------|
| POWER SUPPLY | |
| 12 Vac/Vdc | F |
| 100... 240 Vac/Vdc | H |
| 24 Vac/Vdc | L |
| INPUT | |
| Voltage | V |
| Free voltage | C |
| OUT 1 + OUT 2 | |
| Relay | RR |
| Vdc for SSR driving | 00 |
| BATTERY | |
| Internal | B |
| No battery | - |

DIMENSIONS



CONNECTIONS



TC 34/49/73

- MULTIFUNCTION AND MULTIFREQUENCY COUNTERS
- UP TO 2 OUTPUTS



FEATURES

| | TC34 | TC49 | TC73 |
|----------------------------------|--|---|--|
| DISPLAY | 4 red digit, h 12 mm | | 4 red digit, h 14 mm |
| INPUTS | 2 for free voltage contacts or 2 for voltage contacts (the same of the power supply) | | |
| Digital inputs | 15 msec max. | | |
| Delay time inputs | 15 msec max. | | |
| OUTPUTS | Up to 2 | | |
| Up to 2 | OUT 1 and OUT 2: Relay SPDT (8A-AC1, 3A-AC3/250 Vac) or 12 Vdc/15 mA to drive SSR | | |
| FUNCTIONAL | Restart - Restart/Lap - Count | | |
| Programmable functions | Restart - Restart/Lap - Count | | |
| Frequenza di conteggio | 2 - 10 - 40 - 125 - 1000 Hz. Programmable | | |
| Counting mode | UP or DOWN | | |
| Display resolution | 9999 | | |
| Back up memory | Programmable Back-up function in case of power supply failure | | |
| GENERAL | Power supply | | |
| Power supply | 12 Vac/Vdc, 24 Vac/Vdc, 90... 240 Vac/Vdc ±10% (50/60 Hz) | | |
| Power consumption | 3 VA approx. | | |
| Power consumption voltage inputs | 1 mA max. | | |
| Dimensions / Weight | 33 x 75 mm - depth 64 mm / 175 g approx. | 48 x 48 mm (1/16 DIN) - depth 98 mm / 200 g approx. | 72 x 72 mm - depth 96 mm / 270 g approx. |
| Connections | Screw terminal block 2x1 mm ² | | |
| Mounting | Flush in panel in 29 x 71 mm hole | Flush in panel in 45 x 45 mm hole | Flush in panel in 66.5 x 66.5 mm hole |
| Front protection degree | IP 65, mounted on panel with gasket | IP 54, mounted on panel with gasket | |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... 70°C (-4... 158°F) | | |
| Operating humidity | 30... 95 RH% without condensation | | |
| Conformity | Directive CEE EMC 2004/108/CE (EN 61326), Directive CEE BT 2006/95/CE (EN 61010-1) | | |



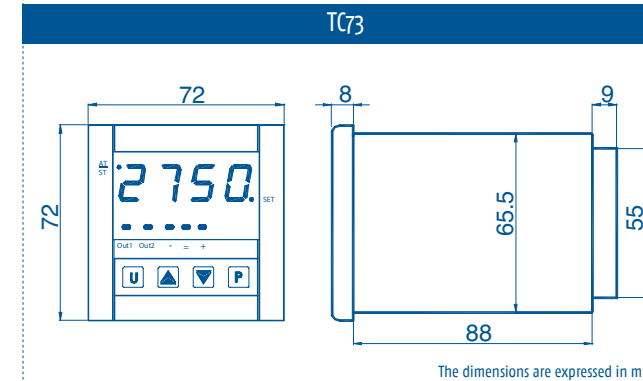
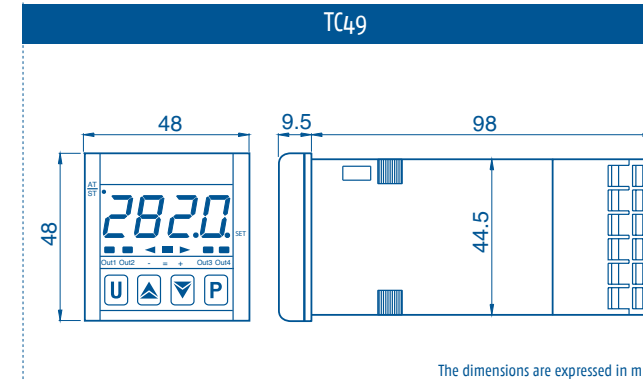
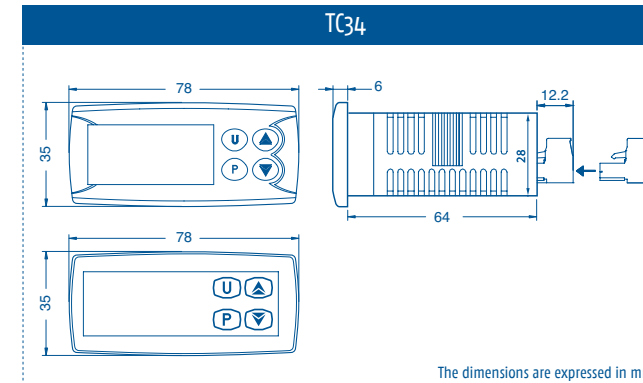
EVERYTHING UNDER CONTROL

HOW TO ORDER

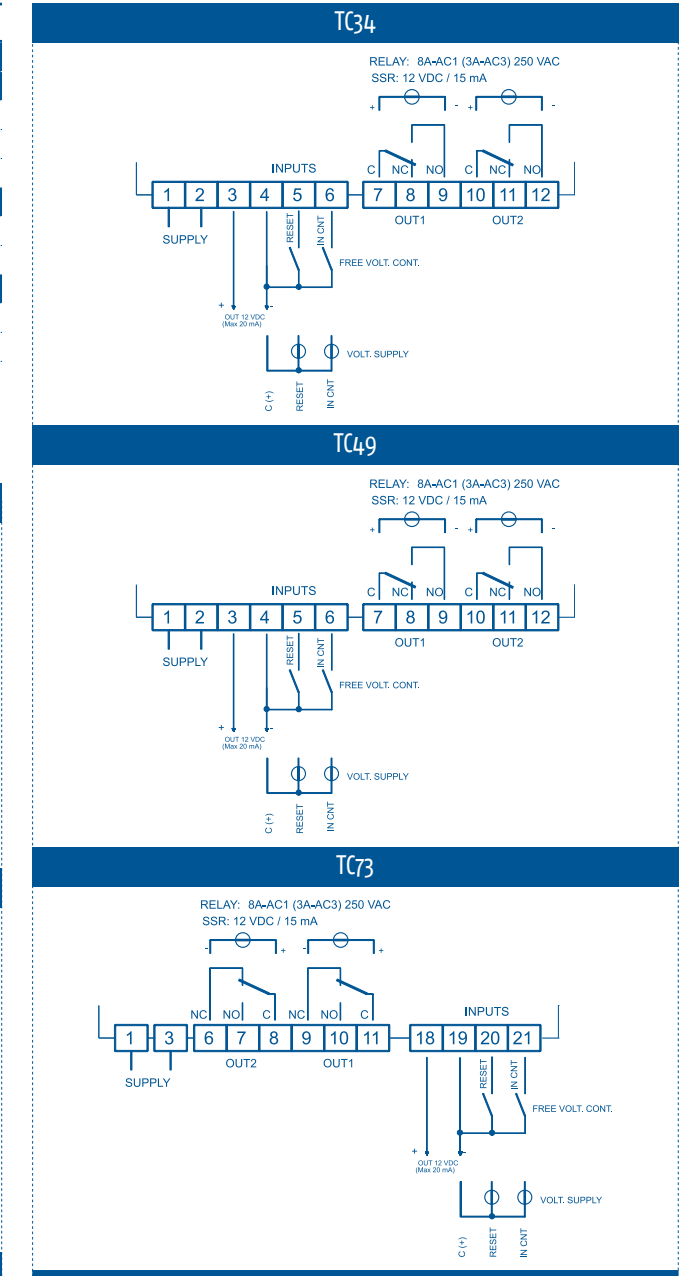
To compose the part number, pls. choose one of the option for each variable

| TC34 / TC49 / TC73 | CODE |
|----------------------|------|
| POWER SUPPLY | |
| 12 Vac/Vdc | F |
| 100... 240 Vac/Vdc | H |
| 24 Vac/Vdc | L |
| INPUT | |
| Voltage | V |
| Free voltage | C |
| OUT 1 + OUT 2 | |
| Relay | RR |
| Vdc for SSR driving | 00 |

DIMENSIONS



CONNECTIONS



INDUSTRIAL CONTROLLERS
ADVANCED PROGRAMMABLE CONTROLLERS
DIN RAIL MOUNTING CONTROLLERS
THERMOSTATS ANALOGUE CONTROLLERS
SPECIAL CONTROLLERS AND "CUSTOM"
PAC SYSTEMS
PRE-PROGRAMMED SYSTEMS
PLC AND OPERATOR PANELS
TIMERS COUNTERS POWER LIMITERS
INDICATORS
I/O MODULES
SUPERVISION
COMBUSTION CONTROL
ACCESSORIES

TP 34/49

- POWER LIMITERS
- UP TO 2 OUTPUTS



FEATURES

| | TP34 | TP49 |
|----------------------------------|--|---|
| DISPLAY | Single 4 red digit, h 12 mm | |
| INPUTS | 2 for free voltage contacts or 2 for voltage contacts (the same of the power supply) | |
| Digital inputs | 15 msec max. | |
| Delay time inputs | 15 msec max. | |
| OUTPUTS | Up to 2 | |
| OUT 1 and OUT 2 | Relay SPDT (8A-AC1, 3A-AC3/250 Vac) or 12 Vdc/15 mA to drive SSR | |
| GENERAL | | |
| Power supply | 12 Vac/Vdc, 24 Vac/Vdc, 90... 240 Vac/Vdc ±10% / 50/60 Hz | |
| Power consumption | 2 VA approx. | |
| Power consumption voltage inputs | 1 mA max. | |
| FUNCTIONAL | | |
| Application | Asymmetric oscillator timer (start/stop) with power limiter function | |
| Programmable functions | OUT 1: oscillator (start/stop) with asymmetric times start ON, or start OFF OUT 2: as OUT 1, as OUT 1 but in opposite way, as OUT 1 but in opposite way with power limiter function | |
| Outputs cycle time | From 1 to 900 sec | |
| Dimensions / Weight | 33 x 75 mm - depth 64 mm / 175 g approx. | 48 x 48 mm (1/16 DIN) - depth 98 mm / 200 g approx. |
| Connections | Screw terminal block 2x1 mm ² | |
| Mounting | Flush in panel in 29 x 71 mm hole | Flush in panel in 45 x 45 mm hole |
| Front protection degree | IP 65, mounted on panel with gasket | IP 54, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... 70°C (-4... 158°F) | |
| Operating humidity | 30... 95 RH% without condensation | |
| Conformity | Directive CEE EMC 2004/108/CE (EN 61326), Directive CEE BT 2006/95/CE (EN 61010-1) | |



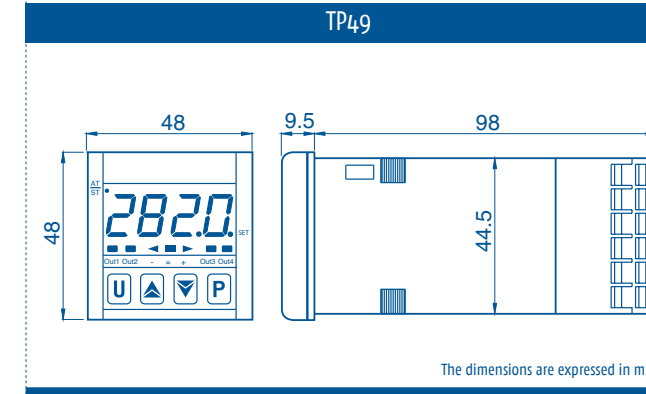
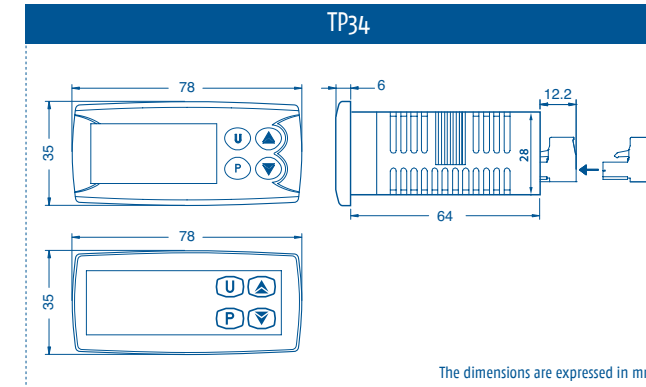
EVERYTHING UNDER CONTROL

HOW TO ORDER

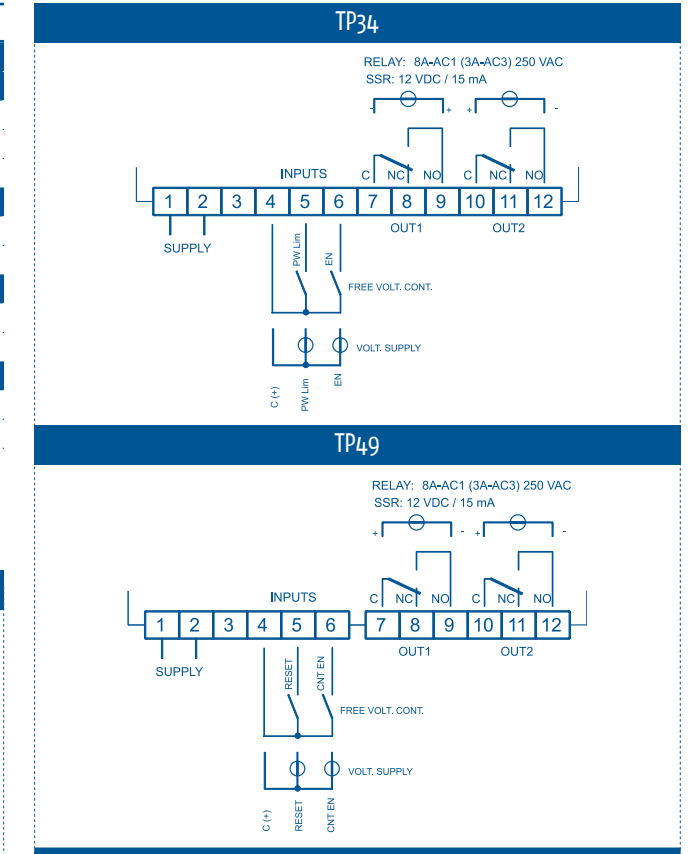
To compose the part number, pls. choose one of the option for each variable

| TP34 / TP49 | CODE |
|---------------------|------|
| POWER SUPPLY | |
| 12 Vac/VDC | F |
| 100... 240 Vac/Vdc | H |
| 24 Vac/Vdc | L |
| INPUT | |
| Voltage | V |
| Free voltage | C |
| OUT 1 | |
| Relay | R |
| Vdc/SSR | O |
| OUT 2 | |
| Relay | R |
| Vdc for SSR driving | O |

DIMENSIONS



CONNECTIONS



- INDUSTRIAL CONTROLLERS
- ADVANCED PROGRAMMER CONTROLLERS
- DIN RAIL MOUNTING CONTROLLERS
- THERMOSTATS ANALOGUE CONTROLLERS
- SPECIAL CONTROLLERS AND "CUSTOM"
- PAC SYSTEMS
- PRE-PROGRAMMED SYSTEMS
- PLC AND OPERATOR PANELS
- TIMERS COUNTERS POWER LIMITERS
- INDICATORS
- I/O MODULES
- SUPERVISION
- COMBUSTION CONTROL
- ACCESSORIES

INDICATORS



Much more than simple indicators!

Digital indicators with one or more universal inputs and potentiometer or with configurable input. Also available with a dedicated input version strain gauge for melt pressure transducer and load cell.

INDICATORS

| FEATURES | | TLI40 | K31V | K38V | K48V | K85V | C1 | J1 | J3 | J5 |
|--|---|-------|------|------|------|------|----|----|----|----|
| Dimensions (mm) | 78 x 35 | | • | • | | | | | | |
| | 48 x 24 | | | | | | • | | | |
| | 48 x 48 | • | | | • | | | | | |
| | 70 x 84 4 DIN Modules | | | | | • | | | | |
| | 96 x 48 | | | | | | | • | • | • |
| 4 digit single display | | • | • | • | • | • | • | • | • | • |
| 5 digit single display | | | | | | | | • | • | • |
| Main input | Universal input | • | | | | | • | • | • | • |
| | J-K-S-R-T + IR + PTC-NTC | | • | • | • | • | | | | |
| | J-K-S-R-T + IR + Pt100 | | • | • | • | • | | | | |
| | 0/4... 20 mA o 0/1... 5 V o 0... 10V | | • | • | • | • | | | | |
| | Δ T Pt100 | | | | | | • | • | • | |
| | Digital | | | 2 | | 2 | 2 | | 3 | 3 |
| Auxiliary input | Strain gauge (5V/10V) 0/4... 20 mA or 0/1... 5 V or 0... 10V | | | | | | | | • | • |
| Relay or voltage for SSR drive outputs | | 4 | 4 | 2 | 3 | 3 | 2 | 4 | 4 | 4 |
| Analogue current or voltage outputs | | 1 | | | | | 1 | 1 | 1 | 1 |
| Measuring retransmission | | | | | | | • | | • | • |
| Power supply | 12 Vac/Vdc | | • | | | | | | | |
| | 20... 30 Vac/Vdc | • | | | | | | | | |
| | 24 Vac/Vdc | | • | • | • | • | • | • | • | • |
| | 100... 240 Vac | • | • | • | • | • | • | • | • | • |
| RS485 ModBus | | • | • | | | | | | | |
| Mathematical Functions | | | | | | | | | | • |
| MIN, MAX, HOLD PV, HOLD PICCO, MEDIA functions | | | | | | | | | • | • |
| CE certification + UL approval | | • | • | • | • | • | • | • | • | • |

- INDUSTRIAL CONTROLLERS
- ADVANCED PROGRAMMER CONTROLLERS
- DIN RAIL MOUNTING CONTROLLERS
- THERMOSTATS ANALOGUE CONTROLLERS
- SPECIAL CONTROLLERS AND "CUSTOM"
- PAC SYSTEMS
- PRE-PROGRAMMED SYSTEMS
- PLC AND OPERATOR PANELS
- TIMERS COUNTERS POWER LIMITERS
- INDICATORS
- I/O MODULES
- SUPERVISION
- COMBUSTION CONTROL
- ACCESSORIES

TLI40

- UNIVERSAL AND POTENTIOMETER INPUT
- UP TO 4 OUTPUTS
- RS485



FEATURES

| DISPLAY | |
|--|---|
| Single | TLI40 4 red digit, h 12 mm |
| INPUTS | |
| Universal | Thermocouples J, K, S, B, C, E, L, N, R, T and Infrared sensors J or K + Thermoresistances Pt 100 3 wires + Thermistors PTC KTY 81-121 (990 Ω a 25°C) e Thermistors NTC 103AT-2 (10 kΩ a 25°C) + Linear signals 0... 50mV, 0... 60mV, 12... 60mV, 0/4... 20mA, 0/1... 5V, 0/2...10V + Linear Potentiometers (see next page for temperature ranges) |
| Accuracy | ±0.15% fs |
| OUTPUTS | |
| Up to 4 | OUT 1, OUT 2, OUT 3 and OUT 4: Relay SPST-NO (5A-AC1, 2A-AC3/250 Vac) or 7mA/14 Vdc to drive SSR |
| Current or voltage (as alternative to OUT 1) | OUT 1: 0/4...20mA or 0/2...10V |
| Auxiliary power supply | 12 Vdc/20 mA max 2.5 Vdc/2.5 mA for Linear Potentiometers |
| FUNCTIONAL | |
| Sampling rate | Selectable from 8 to 64 samples per second for analogue signals or potentiometer inputs |
| Resolution | 8 samples/sec = 32000 points 16 samples/sec = 16000 points 32 samples/sec = 8000 points 64 samples/sec = 4000 points |
| Accuracy | ±0.15% fs |
| Serial communication | RS485 with ModBus-RTU (JBUS) protocol |
| Baud rate | 1200... 38400 baud, programmable |
| GENERAL | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac ±10% / 50/60 Hz |
| Power consumption | 8 VA approx. |
| Dimensions / Weight | 48 x 48 mm - depth 98 mm / 190 g approx. |
| Connections | Screw terminal block 2 x 1 mm ² |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Front protection degree | IP 54, mounted on panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -30... 70°C (-22... 158°F) |
| Operating humidity | 30... 95 RH% without condensation |
| Conformity | Directive CEE EMC 2004/108/CE (EN 61326), Directive CEE BT 2006/95/CE (EN 61010-1) |



EVERYTHING UNDER CONTROL

HOW TO ORDER

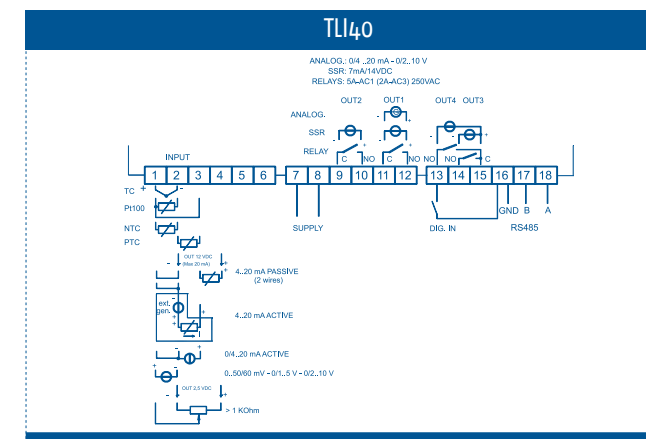
To compose the part number, pls. choose one of the option for each variable

| TLI40 | CODE |
|--|------|
| POWER SUPPLY | |
| 20... 30 Vac/Vdc | L |
| 90... 240 Vac | H |
| OUT 1 | |
| Relay | R |
| 20 mA/14 Vdc for SSR driving | O |
| 0/4... 20mA | C |
| 0/2... 10V | V |
| Not available | - |
| OUT 2 | |
| Relay | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 3 | |
| Relay | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 4 | |
| Relay | R |
| Vdc for SSR driving | O |
| Not available | - |
| SERIAL COMMUNICATION AND DIGITAL INPUT | |
| RS485 | S |
| RS485 + Digital input | I |
| Not available | - |
| SENSOR POWER SUPPLY | |
| 2.5 Vdc | B |
| 12 Vdc for analogue input | A |
| INPUT FROM POTENTIOMETER | |
| Available | -p |
| Not available | -- |

TEMPERATURE RANGES

| INPUT | WITHOUT "DP" (DECIMAL POINT) | WITH "DP" = 1, 2, 3 |
|-------------------------|--------------------------------------|--|
| tc J | -160 ... 1000 °C -256 ... 1832 °F | -160.0 ... 999.9 °C -199.9 ... 999.9 °F |
| tc K | -270 ... 1370 °C -454 ... 2498 °F | -199.9 ... 999.9 °C -199.9 ... 999.9 °F |
| tc S | -50 ... 1760 °C -58 ... 3200 °F | -50.0 ... 999.9 °C -58.0 ... 999.9 °F |
| tc B | 72 ... 1820 °C 162 ... 3308 °F | 72.0 ... 999.9 °C 162.0 ... 999.9 °F |
| tc E | -150 ... 750 °C -252 ... 1382 °F | -150.0 ... 999.9 °C -199.9 ... 999.9 °F |
| tc L | -150 ... 900 °C -252 ... 1652 °F | -150.0 ... 999.9 °C -199.9 ... 999.9 °F |
| tc N | -270 ... 1300 °C -454 ... 2372 °F | -199.9 ... 999.9 °C -199.9 ... 999.9 °F |
| tc R | -50 ... 1760 °C -58 ... 3200 °F | -50.0 ... 999.9 °C -58.0 ... 999.9 °F |
| tc T | -270 ... 400 °C -454 ... 752 °F | -199.9 ... 400.0 °C -199.9 ... 752.0 °F |
| tc C | 0 ... 2320 °C 32 ... 4208 °F | 0.0 ... 999.9 °C 32.0 ... 999.9 °F |
| IR sensors (ZIS) | -46 ... 785 °C -50 ... 1445 °F | -46.0 ... 785.0 °C -50.8 ... 999.9 °F |
| Pt100 (IEC) | -200 ... 850 °C -328 ... 1562 °F | -99.9 ... 850.0 °C -99.9 ... 999.9 °F |
| PTC (KTY81-121) | -55 ... 150 °C -67 ... 302 °F | -55.0 ... 150.0 °C -67.0 ... 302.0 °F |
| NTC (103-AT2) | -50 ... 110 °C -58 ... 230 °F | -50.0 ... 110.0 °C -58.0 ... 230.0 °F |
| 0... 20 mA | -1999 ... 9999 | -199.9 ... 999.9 -19.99 ... 99.99 |
| 4... 20 mA | -1999 ... 9999 | -199.9 ... 999.9 -19.99 ... 99.99 -1.999 ... 9.999 |
| 0... 50 mV | -1999 ... 9999 | -199.9 ... 999.9 -19.99 ... 99.99 -1.999 ... 9.999 |
| 0... 60 mV | -1999 ... 9999 | -199.9 ... 999.9 -19.99 ... 99.99 -1.999 ... 9.999 |
| 12... 60 mV | -1999 ... 9999 | -199.9 ... 999.9 -19.99 ... 99.99 -1.999 ... 9.999 |
| 0... 5 V | -1999 ... 9999 | -199.9 ... 999.9 -19.99 ... 99.99 -1.999 ... 9.999 |
| 1... 5 V | -1999 ... 9999 | -199.9 ... 999.9 -19.99 ... 99.99 -1.999 ... 9.999 |
| 0... 10 V | -1999 ... 9999 | -199.9 ... 999.9 -19.99 ... 99.99 -1.999 ... 9.999 |
| 2... 10 V | -1999 ... 9999 | -199.9 ... 999.9 -19.99 ... 99.99 -1.999 ... 9.999 |
| Potentiometers (> 1 KΩ) | -1999 ... 9999 | -199.9 ... 999.9 -19.99 ... 99.99 -1.999 ... 9.999 |

CONNECTIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PARAMETER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
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 PAC SYSTEMS
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 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

K 31V/38V

- PROGRAMMABLE INDICATORS
- UP TO 4 OUTPUTS FOR ALARMS MANAGEMENT
- SERIAL COMMUNICATION RS485 OR TTL MODBUS



FEATURES

| | K31V | K38V |
|----------------------------------|---|------|
| DISPLAY | 4 red digit, h 12 mm + 3 LEDs Bargraph | |
| INPUTS | Thermocouples J (0... 1000°C/32... 1832°F), K (0... 1370°C/32... 2498°F), S,R (0... 1760°C/32... 3200°F), T (0... 400°C/32... 752°F) e Infrared sensors J or K + Thermoresistances Pt 100 3 wires (-200... 850°C/-328... 1562°F) Thermocouples: J (0... 1000°C / 32... 1832°F), K (0... 1370°C / 32... 2498°F), S,R (0... 1760°C / 32... 3200°F) and Infrared sensors J or K + Thermistors: PTC KTY 81-121 (990Ω at 25°C) (-55... 150°C / -67... 302°F) and Thermistors: NTC 103AT-2 (10kΩ at 25°C) (-50... 110°C / -58... 230°F) Linear signals 0/4... 20mA Linear signals 0/10... 50mV, 0/12... 60mV, 0/1... 5V, 0/2... 10V | |
| 4 different configurations | | |
| Digital inputs | 2 for free voltage contacts | |
| OUTPUTS | OUT 1 and OUT 2: Relay SPDT (8A-AC1, 3A-AC3/250 Vac) or 12V ±20% 20 mA max. to drive SSR OUT 3 and OUT 4: Relay SPST-NO (5A-AC1, 3A-AC3/250 Vac) or 12V ±20% 20 mA max. to drive SSR | |
| Up to 4 (K31V) Up to 2 (K38V) | | |
| Auxiliary power supply | 12 Vdc/20 mA max. | |
| FUNCTIONAL | | |
| Signal retransmission | Set Point | |
| Serial communication | RS485 with ModBus-RTU (JBUS) protocol | |
| Baud rate | 1200... 38400 baud, programmable | |
| GENERAL | | |
| Power supply | 12 Vac/Vdc, 24 Vac/Vdc, 100... 240 Vac/Vdc ± 10% (50/60 Hz) | |
| Power consumption | 6 VA approx. | |
| Dimensions / Weight | 78 x 35 mm - depth 64 mm or 78.5 mm with plug-in terminals / 180 g approx. | |
| Connections | Plug-in terminals or Screw terminal block 2 x 1 mm ² | |
| Mounting | Flush in panel in 71 x 29 mm hole | |
| Front protection degree | IP 65, mounted on panel with gasket | |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-30... 70°C (-22... 158°F) | |
| Operating humidity | 20... 85 RH% without condensation | |
| Conformity | Direttive EMC 2004/108/CE (EN 61326-1), Direttive BT 2006/95/CE (EN 61010-1) | |



HOW TO ORDER

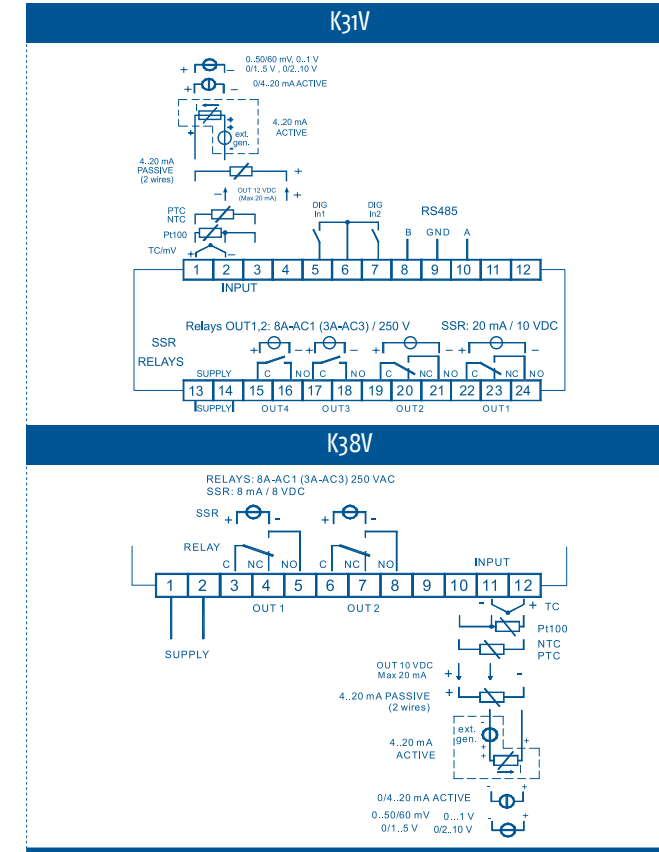
To compose the part number, pls. choose one of the option for each variable

| K31V | CODE |
|--------------------------------|------|
| POWER SUPPLY | |
| 12 Vac/Vdc | F |
| 24 Vac/Vdc | L |
| 100... 240 Vac/Vdc | H |
| INPUT | |
| TC,PT100,mV | C |
| TC,PTC,NTC,mV | E |
| 0/4... 20mA | I |
| 0... 1V, 0/1... 5V, 0/2... 10V | V |
| OUT 1 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| OUT 2 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| OUT 3 | |
| Relay SPST-NO 5A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| OUT 4 | |
| Relay SPST-NO 5A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |
| SERIAL COMMUNICATION | |
| RS485 | S |
| TTL ModBus | - |

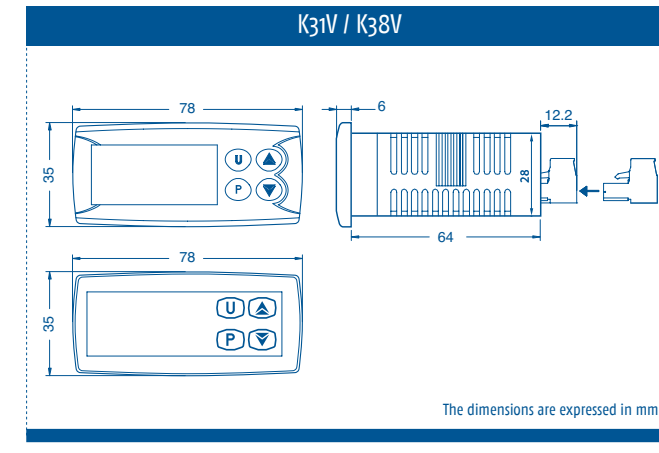
| K38V | CODE |
|--------------------------------|------|
| POWER SUPPLY | |
| 12 Vac/Vdc | F |
| 24 Vac/Vdc | L |
| 100... 240 Vac/Vdc | H |
| INPUT | |
| TC,PT100,mV | C |
| TC,PTC,NTC,mV | E |
| 0/4... 20mA | I |
| 0... 1V, 0/1... 5V, 0/2... 10V | V |
| OUT 1 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| OUT 2 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | 0 |
| Not available | - |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
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 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

K48V

- INDICATOR
- UP TO 3 OUTPUTS FOR ALARM INDICATION
- TTL SERIAL COMMUNICATION



FEATURES

| | |
|---------------------------------|--|
| DISPLAY | K48V |
| Single | 4 red digit, h 7mm |
| INPUTS | |
| 4 different configurations | Thermocouples (0... 1000°C/32... 1832°F), K (0... 1370°C/32... 2498°F), S,R (0... 1760°C/32... 3200°F), T (0... 400°C/32... 752°F) and Infrared sensors J or K type + Thermoresistances Pt 100 3 wires (-200... 850°C/-328... 1562°F) |
| | Thermocouples J (0... 1000°C/32... 1832°F), K (0... 1370°C/32... 2498°F), S,R (0... 1760°C/32... 3200°F), T (0... 400°C/32... 752°F) and Infrared sensors J or K type + Thermistors PTC KTY 81-121 (990Ω at 25°C) (-55... 150°C/-67... 302°F) and Thermistors NTC 103AT-2 (10kΩ at 25°C) (-50... 110°C/-58... 230°F) |
| | Linear signals 0/4... 20mA |
| | Linear signals 0/10... 50mV, 0/12... 60mV, 0/1... 5V, 0/2... 10V |
| Digital inputs | 2 digital inputs for free voltage contacts, as alternative to Out 3 |
| OUTPUTS | |
| Up to 3 | OUT1 and OUT2: Relay SPST-NO (8A-AC1, 3A-AC3/250 Vac) or 12V ± 20% 20 mA max. for SSR driving OUT3: Relay SPST-NO (5A-AC1, 3A-AC3/250 Vac) or 12V ± 20% 20 mA max. for SSR driving |
| Auxiliary supply | 12 Vdc/20 mA max. |
| FUNCTIONAL | |
| Serial communication | TTL ModBus |
| GENERAL | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc ± 10% (50/60 Hz) |
| Power consumption | 6 VA approx. |
| Dimensions | 48 x 48 mm (1/16 DIN) - depth 98 mm |
| Weight | 180 g approx. |
| Connections | Screw terminal block 2.5 mm ² |
| Mounting | Flush in panel in 45 x 45 mm hole |
| Front protection degree | IP65, mounted in panel with gasket |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-30... 70°C (-22... 158°F) |
| Operating humidity | 30... 95 RH% without condensation |
| Conformity | Directive EMC 2004/108/CE (EN 61326-1), Directive BT 2006/95/CE (EN 61010-1) |



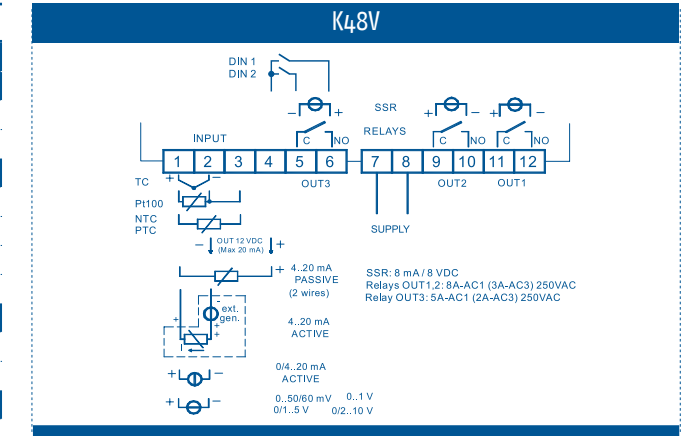
EVERYTHING UNDER CONTROL

HOW TO ORDER

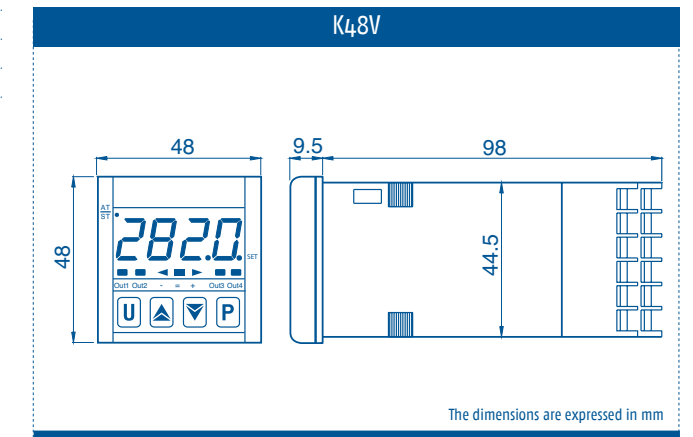
To compose the part number, pls. choose one of the option for each variable

| K48V | CODE |
|--------------------------------|------|
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac/Vdc | H |
| INPUT | |
| TC,PT100,mV | C |
| TC,PTC,NTC,mV | E |
| 0/4... 20mA | I |
| 0... 1V, 0/1... 5V, 0/2... 10V | V |
| OUT 1 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | O |
| OUT 2 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 3 | |
| 2 digital inputs | D |
| Relay SPST 5A-AC1 | R |
| Vdc for SSR driving | O |
| Not available | - |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

K85V

- INDICATOR
- UP TO 3 OUTPUTS FOR ALARM INDICATION
- RS485 SERIAL COMMUNICATION



FEATURES

| DISPLAY | |
|---------------------------------|--|
| Single | K85V 4 red digit, h 12 mm + 3 LEDs bargraph |
| INPUTS | |
| 4 different configurations | Thermocouples (0... 1000°C/32... 1832°F), K (0... 1370°C/32... 2498°F), S,R (0... 1760°C/32... 3200°F), T (0... 400°C/32... 752°F) and Infrared sensors J or K type + Thermoresistances Pt 100 3 wires (-200... 850°C/-328... 1562°F) |
| | Thermocouples J (0... 1000°C/32... 1832°F), K (0... 1370°C/32... 2498°F), S,R (0... 1760°C/32... 3200°F), T (0... 400°C/32... 752°F) and Infrared sensors J or K type + Thermistors PTC KTY 81-121 (990Ω at 25°C) (-55... 150°C/-67... 302°F) and Thermistors NTC 103AT-2 (10kΩ at 25°C) (-50... 110°C/-58... 230°F) |
| | Linear signals 0/4... 20mA |
| | Linear signals 0/10... 50mV, 0/12... 60mV, 0/1... 5V, 0/2... 10V |
| Digital inputs | 2 digital inputs for free voltage contacts |
| OUTPUTS | |
| Up to 3 | OUT1 and OUT2: Relay SPDT (8A-AC1, 3A-AC3/250 Vac) or 12V ± 20% 20 mA max. for SSR driving OUT3: Relay SPST-NO (5A-AC1, 3A-AC3/250 Vac) or 12V ± 20% 20 mA max. for SSR driving |
| Auxiliary supply | 12 Vdc/20 mA max. |
| FUNCTIONAL | |
| Signal retransmission | Set point |
| Serial communication | RS485 with Modbus RTU protocol |
| Baud rate | 1200... 38400 baud, programmable |
| GENERAL | |
| Power supply | 24 Vac/Vdc, 100... 240 Vac/Vdc ± 10% (50/60 Hz) |
| Power consumption | 6 VA approx. |
| Dimensions | 4 DIN rail modules, 70 x 84 mm - depth 60 mm |
| Weight | 230 g approx. |
| Connections | Screw terminal block 2.5 mm ² |
| Mounting | On OMEGA DIN A rail |
| Front protection degree | IP 40, for internal use |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-30... 70°C (-22... 158°F) |
| Operating humidity | 30... 95 RH% without condensation |
| Conformity | Directive EMC 2004/108/CE (EN 61326-1), Directive BT 2006/95/CE (EN 61010-1) |



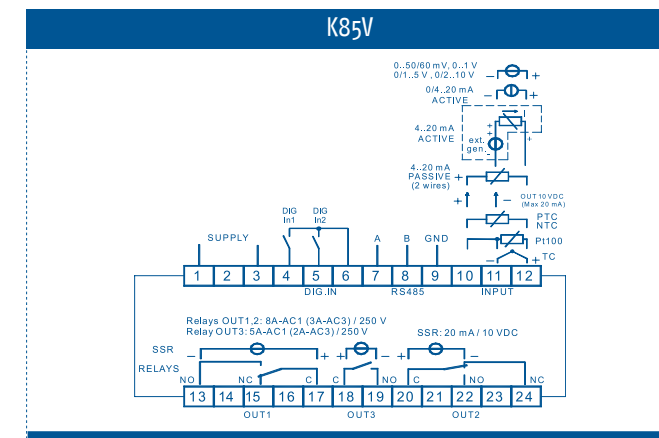
EVERYTHING UNDER CONTROL

HOW TO ORDER

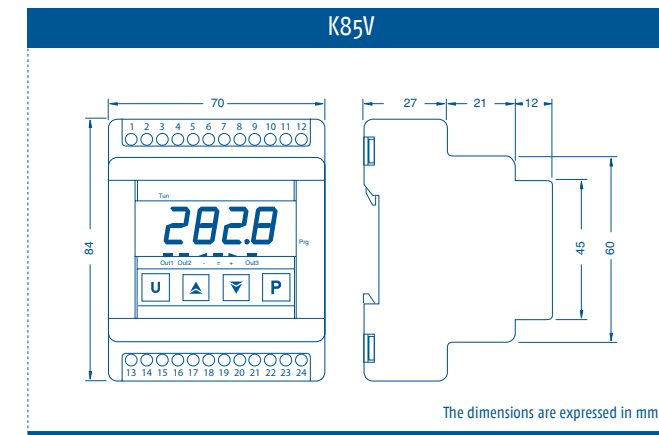
To compose the part number, pls. choose one of the option for each variable

| K85V | CODE |
|--------------------------------|------|
| POWER SUPPLY | |
| 24 Vac/Vdc | L |
| 100... 240 Vac/Vdc | H |
| INPUT | |
| TC, PT100, mV | C |
| TC, PTC, NTC, mV | E |
| 0/4... 20mA | I |
| 0... 1V, 0/1... 5V, 0/2... 10V | V |
| OUT 1 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 2 | |
| Relay SPDT 8A-AC1 | R |
| Vdc for SSR driving | O |
| Not available | - |
| OUT 3 | |
| Relay SPST 5A-AC1 | R |
| Vdc for SSR driving | O |
| Not available | - |
| SERIAL COMMUNICATION | |
| RS485 | S |
| TTL Modbus | - |
| DIGITAL INPUTS | |
| 2 digital inputs | D |
| Not available | - |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

J1 / J3

- J1: 5 DIGIT INDICATOR WITH 2 ALARMS
- J3: 5 DIGIT INDICATOR WITH 2 INPUTS AND 4 ALARMS



FEATURES

| | J1 | J3 |
|---------------------------------|---|--|
| DISPLAY | 5 digit programmable as red or green, h 15.5 mm | |
| INPUTS | Thermocouples: LJ (0... +600°C / 32... +1112°F), T (-200...+400°C / -328...+752°F), K (0...+1200°C / 32...+2192°F), S/R (0... +1600°C / 32...2912°F) B (0... +1800°C / 32... 3272°F), N (0... +1200°C / 32... 2192°F), E (0... +600°C / 32... +1112°F), Ni-NiMo (0... +1100°C / 32... +2012°F), W3/W5 (0... +2000°C / 32... 3632°F) Thermoresistances: PT100 (-200... +600°C / -328... +1112°F) Linear signals: 0/10... 50 mV; 0/4...20 mA (shunt) Infrared sensors or special ranges (custom) | |
| Main input (IN1) | | |
| Auxiliary input (IN2) | -- | 0/4...20 mA 0/1...5 V, 0...10 V |
| Digital inputs | 3, logic type not isolated | |
| Accuracy | 0.25% ±1 digit (thermoelements) or 0.1% ±1 digit (for mA and mV) | |
| OUTPUTS | | |
| Up to 2 (J1) Up to 5 (J3) | OUT 1: Relay SPDT 2A/250Vac (4A/120Vac) for resistive loads OUT 2: Relay NO 2A/250Vac (4A/120Vac) for resistive loads | OUT 1: Relay SPDT 2A/250Vac (4A/120Vac) for resistive loads OUT 2 and OUT 3: Relay NO 2A/250Vac (4A/120Vac) for resistive loads OUT 4: Logic not isolated 0/5 Vdc ±10% 30mA max. or Relay NO, 2A/250Vac (4A/120Vac) for resistive loads OUT 5: 0/4...20 mA for inputs retransmission |
| Auxiliary power supply | 24 Vdc (±20%)/30 mA max. for external transmitter | |
| Outputs configuration | 2, programmable as alarm | 4, programmable as alarm |
| FUNCTIONAL | | |
| Special functions | Quick Setup using numerical code, "ISA A" Alarm acknowledge sequence, Displaying max. and min. values, Display locked / timed, Peaks and valleys, Dedicated key for alarms recognition, Sensor break, Alarms acknowledgement (latching), Inhibition at power-on, OR function | Quick Setup using numerical code, "ISA A" Alarm acknowledge sequence, Displaying IN1, IN2, CIN (conditioned input), Displaying max. and min. values, Display locked / timed, Peaks and valleys, Dedicated key for alarms recognition, Sensor break, Alarms acknowledgement (latching), Inhibition at power-on, OR function |
| Update measurement time | 0.7 sec | |
| Sampling rate | 1.5 sec | |
| Signal retransmission | -- | Measurement |
| Serial communication | RS485 with Modbus RTU protocol | |
| Baud rate | 1200, 2400, 4800, 9600 baud | |
| GENERAL | | |
| Power supply | 100...240Vac (-15...+10%) or 24Vac (-25...+12%) or 24Vdc (-15...+25%) (50/60 Hz) | |
| Power consumption | 5 VA approx. | |
| Dimensions / Weight | 96 x 48 mm (1/8 DIN), depth 110 mm / 250 g approx. | |
| Mounting | Flush in panel in 92 x 45 mm hole | |
| Connections | Screw terminal block M3 for cables with section 1 mm ² (18AWG) | |
| Front protection degree | IP65 | |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -30... 70°C (-22... 158°F) | |
| Operating humidity | 5... 95% RH without condensation | |
| Conformity | EN61010-1 (IEC1010-1) | |

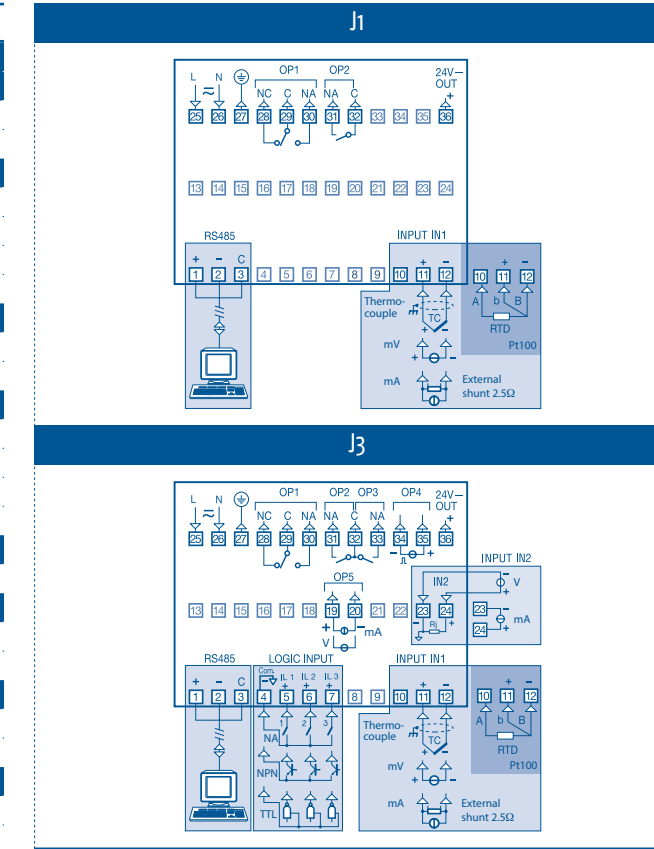


HOW TO ORDER

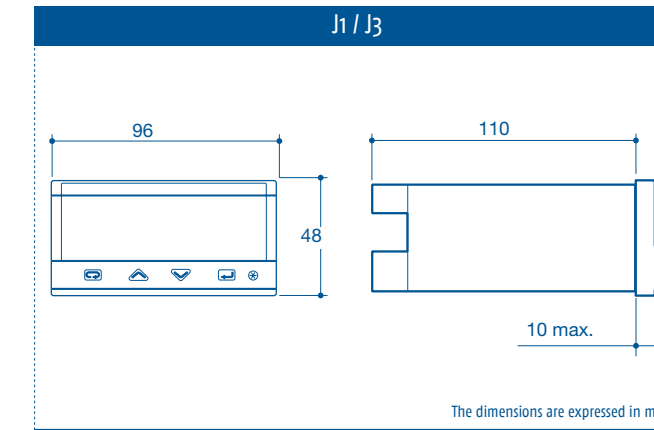
To compose the part number, pls. choose one of the option for each variable

| J1/J3 | CODE |
|--------------------------------------|------|
| POWER SUPPLY | |
| 100... 240 Vac | 3 |
| 24 VacVdc | 5 |
| OUT 1, OUT 2, OUT 3 AND OUT 4 | |
| Not available | 0 |
| Relay-Relay-Relay-SSR (J3 only) | 1 |
| Relay-Relay | 7 |
| Relé-relé-relé-relé (J3 only) | 9 |
| SERIAL COMMUNICATION | |
| Not available | 0 |
| RS485 | 5 |
| SPECIAL FUNCTIONS | |
| Not available | 0 |
| OUT 5 retransmission (J3 only) | 1 |
| Input IN2 (J3 only) | 2 |
| OUT 5 retransmission + IN2 (Solo J3) | 5 |
| SPECIAL FUNCTIONS | |
| Not available | 0 |
| INSTRUCTION MANUAL | |
| Italian/English | 0 |
| Not available | 9 |
| FRONT FRAME COLOUR | |
| Dark grey (std) | 0 |
| Dark grey shunt 0.1% | 2 |
| SPECIAL EXECUTION | |
| Not available | 0 |
| Conformal coating | 3 |

CONNECTIONS



DIMENSIONS



J5

- INDICATOR-TRANSMITTER
- STRAIN GAUGE INPUT FOR MELT PRESSURE AND LOAD CELLS



FEATURES

| | | |
|---------------------------------|---|----|
| DISPLAY | | J5 |
| Single | 5 digit programmable as red or green, h 15.5 mm | |
| INPUTS | | |
| Main input (IN1) | 0...20/50/100 mV, 0...1/5/10 V, 0/4...20 mA, strain gauge: from 350 Ω, with bridge excitation 5 V or 10 V | |
| Auxiliary input (IN2) | 0/4...20 mA or 0/1...5 V, 0...10 V | |
| Digital inputs | 3, logic type not isolated | |
| Accuracy | 0.1% ±1 digit (for mA and mV) | |
| OUTPUTS | | |
| Up to 5 | OUT 1: Relay SPDT, 2A/250Vac (4A/120Vac) for resistive loads OUT 2: Relay NO, 2A/250Vac (4A/120Vac) for resistive loads OUT 3: Relay NO, 2A/250Vac (4A/120Vac) for resistive loads OUT 4: Relay NO, 2A/250Vac (4A/120Vac) for resistive loads OUT 5: 0/4...20 mA for inputs retransmission | |
| Auxiliary power supply | 24 Vdc (±20%)/30 mA max. for external transmitter | |
| Outputs configuration | 4, programmable as alarm | |
| FUNCTIONAL | | |
| Special functions | Quick Setup using numerical code, "ISA A" Alarm acknowledge sequence, Displaying IN1, IN2, CIN (conditioned input), Displaying max. and min. values, Display locked / timed, Peaks and valleys, Dedicated key for alarms recognition, Sensor break, Alarms acknowledgement (latching), Inhibition at power-on, OR function | |
| Update measurement time | 20 ms | |
| Sampling rate | 0.5 sec | |
| Signal retransmission | Measurement | |
| Serial communication | RS485 with Modbus RTU protocol | |
| Baud rate | 1200, 2400, 4800, 9600, 19200, 36400, 56800 baud | |
| GENERAL | | |
| Power supply | 100...240Vac (-15...+10%) or 24Vac (-25...+12%) or 24Vdc (-15...+25%) (50/60 Hz) | |
| Power consumption | 5 VA approx. | |
| Dimensions / Weight | 96 x 48 mm (1/8 DIN), depth 110 mm / 250g approx. | |
| Mounting | Flush in panel in 92 x 45 mm hole | |
| Connections | Screw terminal block M3 for cables with section 1 mm ² (18AWG) | |
| Front protection degree | IP65 | |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -30... 70°C (-22... 158°F) | |
| Operating humidity | 5... 95% RH without condensation | |
| Conformity | EN61010-1 (IEC1010-1) | |

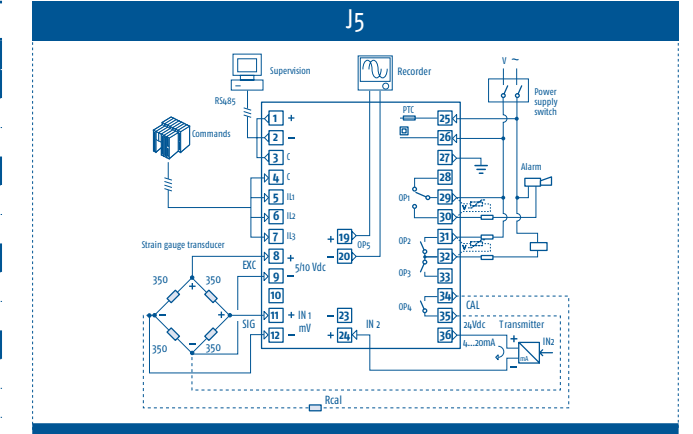


HOW TO ORDER

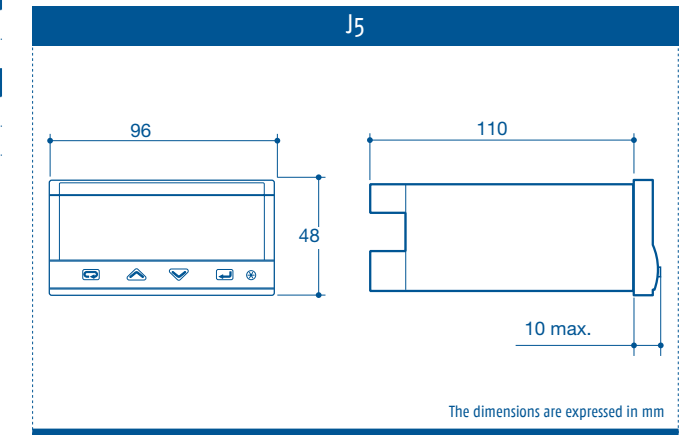
To compose the part number, pls. choose one of the option for each variable

| J5 | CODE |
|-----------------------------|------|
| POWER SUPPLY | |
| 100... 240 Vac | 3 |
| 24 VacVdc | 5 |
| OUT 1, 2, 3 E 4 | |
| Relay-Relay | 7 |
| Relay-Relay-Relay-Relay | 9 |
| SERIAL COMMUNICATION | |
| Not available | 0 |
| RS485 | 5 |
| SPECIAL FUNCTIONS | |
| Not available | 0 |
| OUT 5 retransmission | 1 |
| Input IN2 | 2 |
| OUT 5 retransmission+ IN2 | 5 |
| SPECIAL FUNCTIONS | |
| Not available | 0 |
| INSTRUCTION MANUAL | |
| English | 8 |
| Not available | 9 |
| SPECIAL EXECUTION | |
| Not available | 0 |
| Conformal coating | 3 |

CONNECTIONS



DIMENSIONS



ACQUISITION AND DATA RECORDING



Nothing is so
EASY

I/O MODULES



Data acquisition modules in Modbus RTU and CANOpen

Many typologies of digital and analogue inputs and outputs.

I/O MODULES

| FEATURES | | AI | | | AI | | AO | |
|---|--------------------------------|------|------|------|------|------|------|------|
| | | 02UI | 04RT | 08TC | 08HL | 08DP | 08HL | 08DP |
| Dimensions (mm) | Single module (76 x 110 mm) | • | • | • | • | • | • | • |
| Input channels | | 2 | 4 | 8 | 8 | 8 | | |
| Output channels | | | | | | | 8 | 8 |
| Type of inputs | Thermocouples J, K, N, S, R, T | • | • | • | | | | |
| | RTD Pt100 and Pt1000 | • | • | | | | | |
| | Current (mA) | | | | • | • | • | |
| | Voltage (mV) | • | • | • | | | | |
| | Voltage (V) | • | | | • | • | • | • |
| | Potentiometer | • | | | | | | |
| | Dual polarity | • | | | | • | | • |
| Resolution 16 bit | | • | • | • | • | • | • | • |
| Accuracy 0.1% | | • | • | • | • | • | • | • |
| Power supply 24 Vdc | | • | • | • | • | • | • | • |
| Fast acquisition | | • | | | • | • | • | • |
| CANOpen protocol | | • | • | • | • | • | • | • |
| Modbus RTU protocol | | | • | • | • | | • | • |
| CE certification + UL approval (listed) | | • | • | • | • | • | • | • |

| FEATURES | | DI | | | | DM | | | | DO | | | | |
|---|---|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | 16LV | 16HV | 32LV | 08TS | 16TS | 32TS | 16TS | 16TP | 32TR | 32TS | 04RL | 04TX | 08RL |
| Dimensions (mm) | Single module (76 x 110 mm) Dual module (152 x 110 mm) | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Input channels | | 16 | 16 | 32 | 8 | 8 | 16 | | | | | | | |
| Output channels | | | | | | 8 | 16 | 16 | 16 | 32 | 32 | 4 | 4 | 8 |
| Inputs | 24 Vdc | • | | • | • | • | • | • | • | | | | | |
| | 120 Vac | | • | | | | | | | | | | | |
| Outputs | 24 Vdc | | | | • | • | • | • | • | | | | • | • |
| | 250 Vac | | | | | | | | | | | | | |
| | Relay | | | | | | | | | • | | • | • | • |
| Outputs 2A | | | | | | | | | • | | | • | | • |
| Outputs 6A | | | | | | | | | | | | | • | |
| Power supply 24 Vdc | | • | • | • | • | • | • | • | • | • | • | • | • | • |
| CANOpen protocol | | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Modbus RTU protocol | | • | | | • | | | • | | | | | | |
| CE certification + UL approval (listed) | | • | • | • | • | • | • | • | • | • | • | • | • | • |

| FEATURES | | TDA | |
|-------------------------------|----------------------------|-----|----|
| | | 04 | 08 |
| Dimensions (mm) | 4 Din modules (70 x 85 mm) | • | • |
| Input channels | | 4 | 8 |
| Inputs | PTC, NTC or Pt1000 | | • |
| | 4...20 mA | • | |
| | 0... 10 V | • | |
| | Digital | • | • |
| Power supply 24, 110, 230 Vac | | • | • |
| CE certification | | • | • |

- INDUSTRIAL CONTROLLERS
- ADVANCED PROGRAMMER CONTROLLERS
- DIN RAIL MOUNTING CONTROLLERS
- THERMOSTATS ANALOGUE CONTROLLERS
- SPECIAL CONTROLLERS AND "CUSTOM"
- PAC SYSTEMS
- PRE-PROGRAMMED SYSTEMS
- PLC AND OPERATOR PANELS
- TIMERS COUNTERS POWER LIMITERS
- INDICATORS
- I/O MODULES
- SUPERVISION
- COMBUSTION CONTROL
- ACCESSORIES

D7/D8/D9

- ANALOGUE AND DIGITAL ACQUISITION MODULES
- ANALOGUE UNIVERSAL TRANSMITTER WITH ALARMS
- RS485

FEATURES

| INPUTS | D7 | D9 | D8 |
|---------------------------------|--|--|--|
| Number of inputs | 1 | 2 | -- |
| Input configuration | Thermocouples: L/J/E (0... +600°C / 32... +1112°F), T (-200...+400°C / -328...+752°F), K/N (0...+1200°C / 32...+2192°F), S/R (0... +1600°C / 32...2912°F), B (0... 1800°C / 32... 3272°F), Ni-NiMo (0... 1100°C / 32... 2012°F), W3, W5 (0... 2000°C / 32... 3632°F) Thermoresistances: Pt100 (-99.9... 300.0°C / -99.9... 572.0°F and -200... 600°C / -328... 1112°F) Linear signals: 0/10...50 mV; 0/4...20 mA (shunt) Infrared sensors or programmable on special ranges (custom) | | |
| Accuracy | 0.25% ±1 digit (thermoelements); 0.1% ±1 digit (mA and mV) | | -- |
| Digital inputs | 1 voltage digital input | 1 voltage digital input (+ 2 configurables) | 6 digital inputs in voltage or for free voltage contacts, in 2 groups optoisolated (1 and 2 in Hz) |
| OUTPUTS | | | |
| Outputs OUT1-OUT2 | OUT1 and OUT2: Relay NO, 2A res./250Vac (4A res./120Vac) / SSR, 1A res./250Vac | OUT1 and OUT2: Relay NO, 2A res./250Vac (4A res./120Vac)/SSR, 1A res./250Vac, logic 0/5 Vdc, not insulated | |
| Outputs OUT3-OUT4 | -- | OUT3 and OUT4: logic 0/5 Vdc, not insulated | -- |
| Output OUT5 | OUT5: 0/4... 20 mA, 15V max. | -- | -- |
| Outputs functions | -- | NOT | NOT, PWM, Hold |
| Auxiliary supply | +24dc, ±20%, 30 mA max. - to supply an external transmitter | -- | -- |
| Outputs configuration | Up to 3 alarms | Up to 4 alarms | -- |
| Alarm functions | Sensor break, Latching/Blocking, Loop break, Heater break associated to the timer (if available) | | -- |
| FUNCTIONAL | | | |
| Setpoint | Reference value | Reference value | -- |
| Special functions (optionals) | -- | -- | NOT, Toggle, Flip-Flop |
| Front indication LEDs | 3 red (DO) + 1 green (PWR/COM) | 4 red (DO) + 1 green (PWR/COM) | 6 yellow (DI), 2 red (DO), 1 green (PWR/COM) |
| Unit of measurement | °C/°F or engineering units (-999... 9999) | | -- |
| Signal retransmission | Measure or setpoint retransmission (reference value) | -- | -- |
| Serial communication | Isolated RS485 with Modbus RTU protocol | | |
| Baud rate | RS 485 (MASTER or SLAVE) 1200, 2400, 4800, 9600 bit/s 3 wires | | |
| Parameters access | Through serial line and supervision software | | |
| GENERAL | | | |
| Power supply | 24Vac (-25...+12%), 24Vdc (-15...+25%) (50/60Hz) | | |
| Power consumption | 4 VA max. | 5 VA max. | 4 VA max. |
| Dimensions | 22.5 x 99, depth 114.5 mm | | |
| Weight | 155 g approx. | 156 g approx. | 152 g approx. |
| Connections | PWS and COM: 0.08... 1.5 mm ² (AWG28-AWG16) Inputs/Outputs: 0.2... 2.5 mm ² (AWG24 - AWG12) | | |
| Mounting | On OMEGA DIN A rail | | |
| Protection degree | IP20 (terminal block) | | |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-30... 70°C (-22... 158°F) | | |
| Operating humidity | 5... 95 RH% without condensation | | |
| Conformity | EN61010-1 (IEC1010-1) | | |

Note: these modules can be inserted into Profibus DP and DeviceNet nets, together with a DX module, with the possibility of automatic reconfiguration.



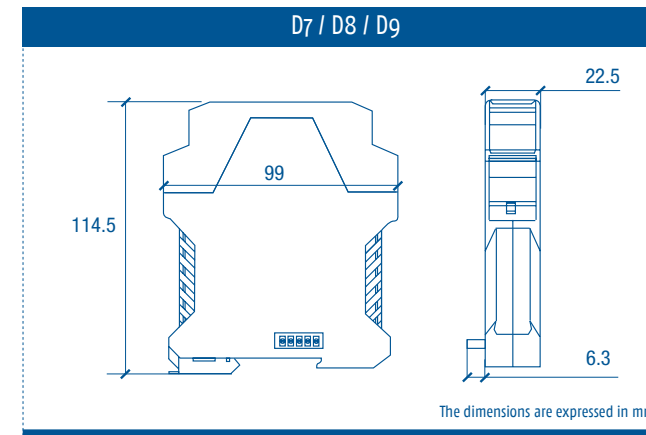
EVERYTHING UNDER CONTROL

HOW TO ORDER

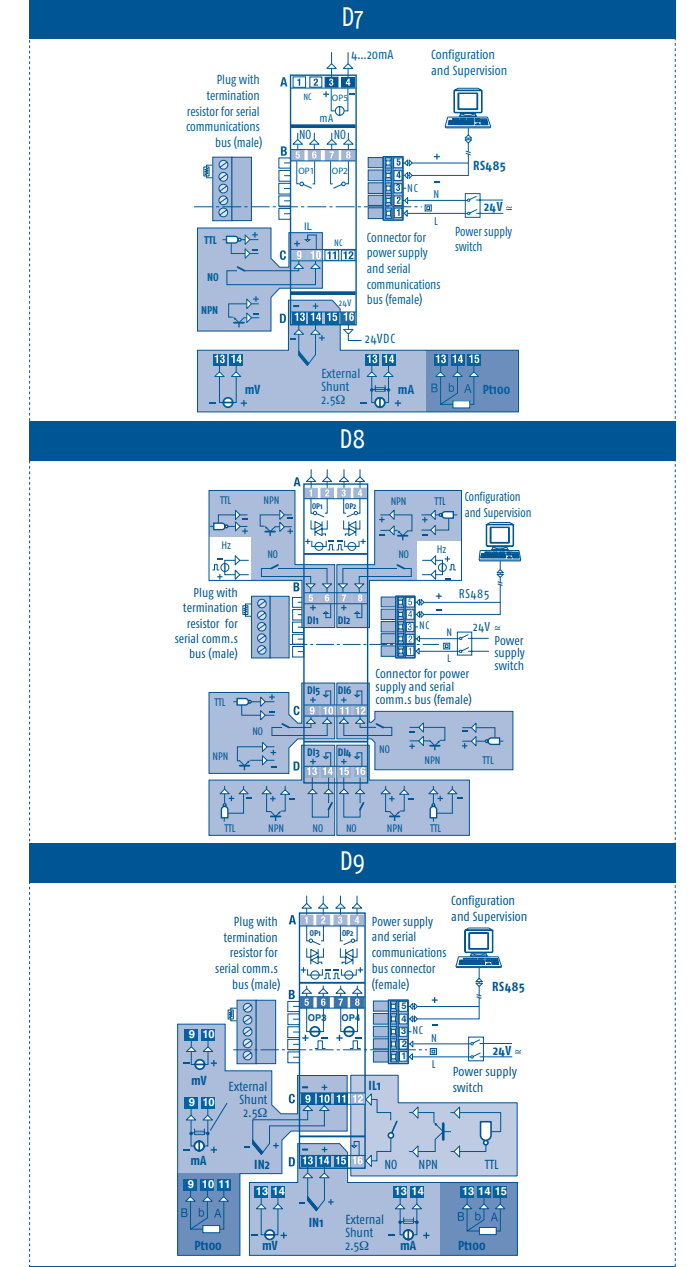
To compose the part number, pls. choose one of the option for each variable

| D7/D8/D9 | CODE |
|------------------------------|------|
| POWER SUPPLY | |
| 24 Vac/Vdc | 5 |
| OUT 1 AND OUT 2 | |
| Relay (D7 only) | 0 |
| Relay-Relay | 1 |
| Relay-Logic (D8 and D9 only) | 2 |
| Logic-Logic (D8 and D9 only) | 3 |
| Triac-triac (D8 and D9 only) | 4 |
| Triac-Logic (D8 and D9 only) | 5 |
| SERIAL COMMUNICATION | |
| RS485 | 5 |
| OPTION 1 | |
| Not available | 0 |
| Continuous output (D7 only) | 5 |
| SPECIAL FUNCTIONS | |
| Not available | 0 |
| INSTRUCTION MANUAL | |
| Italian / English | 0 |
| Not available | 9 |
| OPTION 2 | |
| Shunt 1% (D7 and D9 only) | 0 |
| Shunt 0.1% (D7 and D9 only) | 2 |
| OPTION 3 | |
| Not available | 0 |
| Conformal coating | 3 |

DIMENSIONS



CONNECTIONS



INDUSTRIAL CONTROLLERS

ADVANCED PROGRAMMER CONTROLLERS

DIN RAIL MOUNTING CONTROLLERS

THERMOSTATS ANALOGUE CONTROLLERS

SPECIAL CONTROLLERS AND "CUSTOM"

PAC SYSTEMS

PRE-PROGRAMMED SYSTEMS

PLC AND OPERATOR PANELS

TIMERS COUNTERS POWER LIMITERS

INDICATORS

I/O MODULES

SUPERVISION

COMBUSTION CONTROL

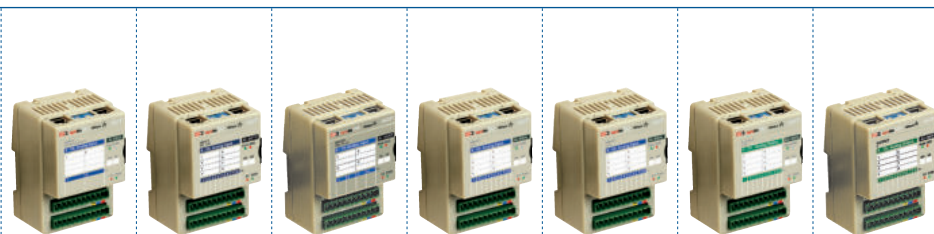
ACCESSORIES

ACCESSORIES

193

ANALOGUE I/O

- ANALOGUE ACQUISITION MODULES
- UP TO 8 INPUTS AND 8 OUTPUTS



FEATURES

| INPUTS | AI-02UI | AI-08TC | AI-04RT | AI-08HL | AI-08DP | AO-08HL | AO-08DP |
|---|---|-----------|-------------|---------|------------------------|-----------|--------------------|
| Number of inputs | 2 | 8 | 4 | | 8 | | |
| Type of inputs (see table on next page for input ranges) | Universal: RTD, TC, mA, mV, V, potentiometer | TC, mV | RTD, TC, mV | mA, V | mA, V dual polarity | | -- |
| Accuracy | 0.1% | | | | | | |
| OUTPUTS | | | | | | | |
| Number of outputs | | | | | | 8 | |
| Type of outputs | | | | | | mA, V | V dual polarity |
| FUNCTIONAL | | | | | | | |
| Modbus protocol | -- | Available | | | -- | Available | -- |
| CANOpen protocol | Available | | | | | | |
| Serial communication | RS 485, with dual connector RJ45 | | | | | | |
| Resolution | 16 bit | | | | | | |
| Isolation class | 2500 V | | | | 800V | | |
| Aquisition time | 20 ms | 60 ms | 120 ms | 10 ms | 20 ms | | |
| GENERAL | | | | | | | |
| Power supply | 24Vdc (-15...+25%) (50/60Hz) | | | | | | |
| Power consumption | 4 VA max. | | | | | | |
| Dimensions / Weight | 110 x 66 mm, depth 76 mm / 220 g approx. | | | | | | |
| Mounting | On OMEGA DIN A rail | | | | | | |
| Connections | 2 terminal blocks with 11 poles 5.0mm, with screws or CLAMP terminals | | | | | | |
| Protection degree | IP20 (terminal block) | | | | | | |
| Operating / storage temperature | 0... 55°C / -20... 85°C (32... 131°F / -4... 185°F) | | | | | | |
| Operating humidity | 5... 95% RH% without condensation | | | | | | |
| Conformity | EN 50081-2, EN 50082-2, EN 61010 | | | | | | |



HOW TO ORDER

| CODE | PROTOCOL | DESCRIPTION | CHANNELS | |
|------------------|----------|--------------------------------------|----------|---|
| | | | I | O |
| ANALOGUE INPUTS | | | | |
| IO-CBAIo2UI | CANOpen | RTD, TC, mA, mV, V, potentiometer | 2 | |
| IO-CBAIo4RT | CANOpen | RTD, TC, mV | 4 | |
| IO-MBAIo4RT | Modbus | RTD, TC, mV | 4 | |
| IO-CBAIo8TC | CANOpen | TC, mV | 8 | |
| IO-MBAIo8TC | Modbus | TC, mV | 8 | |
| IO-CBAIo8HL | CANOpen | mA, V unipolar | 8 | |
| IO-MBAIo8HL | Modbus | mA, V unipolar | 8 | |
| IO-CBAIo8DP | CANOpen | V dual polarity | 8 | |
| IO-MBAIo8HLTo- | Modbus | mA, V unipolar, Conformal coating | 8 | |
| ANALOGUE OUTPUTS | | | | |
| IO-CBAOo8HL | CANOpen | mA, V unipolar | | 8 |
| IO-MBAOo8HL | Modbus | mA, V unipolar | | 8 |
| IO-CBAOo8DP | CANOpen | V dual polarity | | 8 |

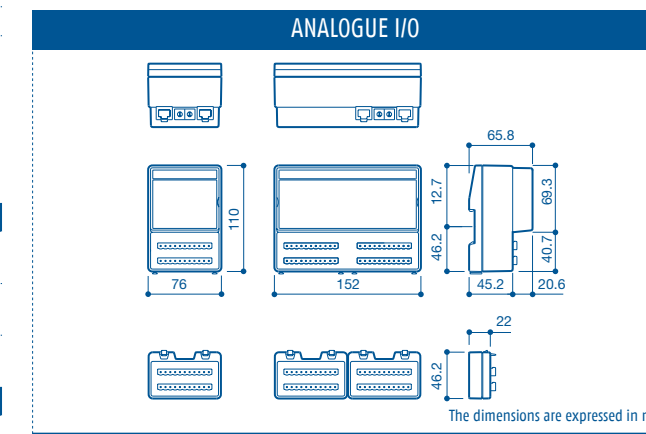
ACCESSORIES

| CABLES | |
|--------------------------|--|
| APS2 LOCALBUS76 | CABLE WITH CONNECTOR RJ45 L=14 CM FOR RS485 |
| APS2 LOCALBUS152 | CABLE WITH CONNECTOR RJ45 L=22 CM FOR RS485 |
| APS2 LOCALBUS500 | CABLE WITH CONNECTOR RJ45 L=50 CM FOR RS485 |
| POWER ADAPTORS | |
| APS2 ALDR75-24 | POWER ADAPTOR 3.2 A |
| APS2 ALDR12024 | POWER ADAPTOR 5 A |
| PLUGS | |
| APS2 SPINAM11 | PLUG WITH 11 POLE CLAMP TERMINALS |
| APS2 SPINAV11 | PLUG WITH 11 POLE SCREW TERMINALS |
| TERMINALS AND CONNECTORS | |
| APS2 TB2111 | TERMINAL BLOCK |
| APS2 TERMCAN | CONNECTOR RJ45 WITH CAN TERMINAL |

INPUT RANGE

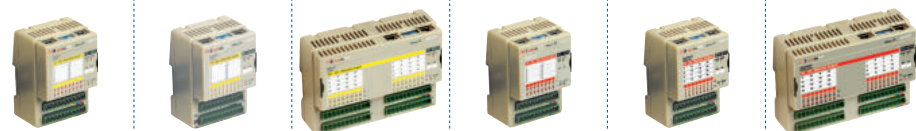
| RANGE | |
|-------------------|--|
| Thermocouples | L/J (-200... +600°C / -328... +1112°F), T (-200... +400°C / -328... +752°F), K (-200... +1370°C / 328... +2498°F), N (0... +1300°C / 32... 2372°F), S (0... +1760°C / 32... +3200°F), R (0... +1600°C / 32... 2912°F) |
| Thermoresistances | PT100/PT1000 (-200... +600°C / -328... +1112°F) |
| Linear signals | 0...100 mV, 0...1000 mV, ±100mV, ±1000mV ±50 mV, ±300, ±1.0 V mA, (0,4... 20 mA), V (0...10V) |
| Potentiometer | 100...10K Ω |

DIMENSIONS



DIGITAL I/O

- DIGITAL ACQUISITION MODULES
- UP TO 32 INPUTS AND 32 OUTPUTS
- RS485



FEATURES

| INPUTS | DI-16LV | DI-16HV | DI-32LV | DO-16TS | DO-16TP | DO-32TS |
|---------------------------------|---|---|----------------------------------|---|---------|---|
| Number of inputs | 16 | | 32 | | | |
| Type of inputs | 24 Vdc | 115 Vac | 24 Vdc | | | |
| OUTPUTS | | | | | | |
| Number of outputs | | | | 16 | | 32 |
| Voltage | | -- | | 24 Vdc | | |
| Current | | | | 500 mA | 2 A | 500 mA |
| FUNCTIONAL | | | | | | |
| Modbus protocol | Available | -- | | Available | | -- |
| CANOpen protocol | | | Available | | | |
| Serial communication | | | RS 485, with dual connector RJ45 | | | |
| Isolation class | 800 V | 2500 V | | 800 V | | |
| GENERAL | | | | | | |
| Power supply | 24Vdc (-15...+25%) (50/60Hz) | | | | | |
| Power consumption | 4 VA max. | | | | | |
| Dimensions | 76 x 110 mm, depth 66 mm | 152 x 110 mm, depth 66 mm | | 76 x 110 mm, depth 66 mm | | 152 x 110 mm, depth 66 mm |
| Weight | 220 g | 360 g | | 220 g | | 360 g |
| Mounting | On OMEGA DIN A rail | | | | | |
| Connections | 2 terminal blocks with 11 poles 5.0mm, with screws or CLAMP terminals | 4 terminal blocks with 11 poles 5.0mm, with screws or CLAMP terminals | | 2 terminal blocks with 11 poles 5.0mm, with screws or CLAMP terminals | | 4 terminal blocks with 11 poles 5.0mm, with screws or CLAMP terminals |
| Protection degree | IP20 | | | | | |
| Operating / storage temperature | 0... 55°C / -20... 85°C (32... 131°F / -4... 185°F) | | | | | |
| Operating humidity | 5... 95% RH% without condensation | | | | | |
| Conformity | EN 50081-2, EN 50082-2, EN 61010 | | | | | |

Note: through modules DX and DY, these instruments can be interfaced on Profibus, CANOpen and DeviceNet nets.

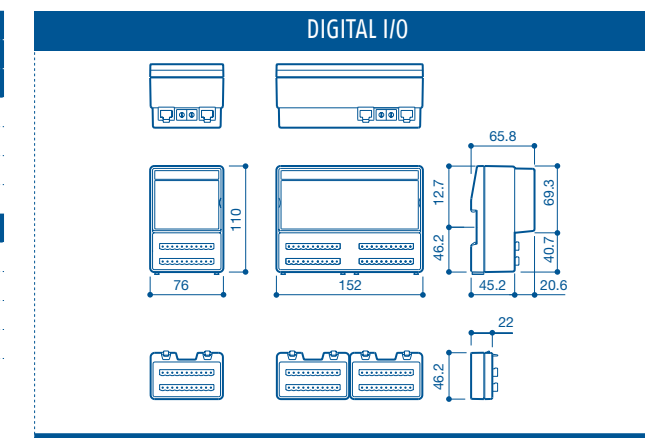


EVERYTHING UNDER CONTROL

HOW TO ORDER

| CODE | PROTOCOL | DESCRIPTION | CHANNELS | |
|------------------------|----------|--------------|----------|----|
| | | | I | O |
| DIGITAL INPUTS | | | | |
| IO-CBD16LV | CANOpen | 24 Vdc PNP | 16 | |
| IO-MBD16LV | Modbus | 24 Vdc PNP | 16 | |
| IO-CBD16HV | CANOpen | 24 Vdc PNP | 16 | |
| IO-CBD32LV | CANOpen | 24 Vdc PNP | 32 | |
| DIGITAL OUTPUTS | | | | |
| IO-CBD016TS | CANOpen | 24 Vdc 0.5 A | | 16 |
| IO-MBD016TS | Modbus | 24 Vdc 0.5 A | | 16 |
| IO-CBD016TP | CANOpen | 24 Vdc 2 A | | 16 |
| IO-CBD032TS | CANOpen | 24 Vdc 0.5 A | | 32 |

DIMENSIONS

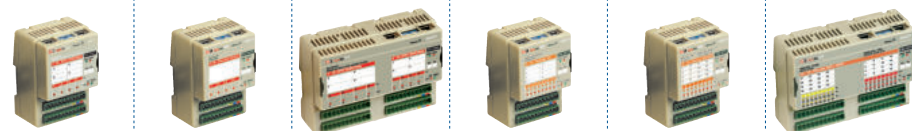


ACCESSORIES

| CABLES | |
|--------------------------|--|
| APS2 LOCALBUS76 | CABLE WITH CONNECTOR RJ45 L=14 CM FOR RS485 |
| APS2 LOCALBUS152 | CABLE WITH CONNECTOR RJ45 L=22 CM FOR RS485 |
| APS2 LOCALBUS500 | CABLE WITH CONNECTOR RJ45 L=50 CM FOR RS485 |
| POWER ADAPTORS | |
| APS2 ALDR75-24 | POWER ADAPTOR 3.2 A |
| APS2 ALDR12024 | POWER ADAPTOR 5 A |
| PLUGS | |
| APS2 SPINAM11 | PLUG WITH 11 POLE CLAMP TERMINALS |
| APS2 SPINAV11 | PLUG WITH 11 POLE SCREW TERMINALS |
| TERMINALS AND CONNECTORS | |
| APS2 TB2111 | TERMINAL BLOCK |
| APS2 TERMCAN | CONNECTOR RJ45 WITH CAN TERMINAL |

DIGITAL I/O

- DIGITAL ACQUISITION MODULES
- UP TO 16 INPUTS AND 16 OUTPUTS
- RS485



FEATURES

| INPUTS | DO-04RL | DO-04TX | DO-08RL | DM-08TS | DM-16TS | DM-32TS |
|---------------------------------|---|--------------|---|---|---------|---|
| Number of inputs | | | | 8 | | 16 |
| Type of inputs | | -- | | | 24 Vdc | |
| OUTPUTS | | | | | | |
| Number of outputs | | 4 | | 8 | | 16 |
| Relay | 250 Vdc Relay | 24 Vdc Relay | 250 Vac Relay | | -- | |
| Voltage | -- | -- | -- | | 24 Vdc | |
| Current | 2 A (SPST) 1 A (SSR) | 6 A | 2 A (SPST) 1 A (SSR) | | 500 mA | |
| FUNCTIONAL | | | | | | |
| Modbus protocol | | -- | | Available | | -- |
| CANOpen protocol | | | | Available | | |
| Serial communication | | | | RS 485, with dual connector RJ45 | | |
| Isolation class | 4000 V | 800 V | 4000 V | | 800 V | |
| GENERAL | | | | | | |
| Power supply | | | | 24 Vdc (-15...+25%) (50/60 Hz) | | |
| Power consumption | | | | 4 VA max. | | |
| Dimensions | 76 x 110 mm, depth 66 mm | | 152 x 110 mm, depth 66 mm | 110 x 76 mm, depth 76 mm | | 152 x 110 mm, depth 66 mm |
| Weight | 220 g | | 360 g | 220 g | | 360 g |
| Mounting | | | | | | |
| Connections | 2 terminal blocks with 11 poles 5.0mm, with screws or CLAMP terminals | | 4 terminal blocks with 11 poles 5.0mm, with screws or CLAMP terminals | 2 terminal blocks with 11 poles 5.0mm, with screws or CLAMP terminals | | 4 terminal blocks with 11 poles 5.0mm, with screws or CLAMP terminals |
| Protection degree | | | | IP20 | | |
| Operating / storage temperature | | | | 0... 55°C / -20... 85°C (32... 131°F / -4... 185°F) | | |
| Operating humidity | | | | 5... 95% RH% without condensation | | |
| Conformity | | | | EN 50081-2, EN 50082-2, EN 61010 | | |

Note: through modules DX and DY, these instruments can be interfaced on Profibus, CANOpen and DeviceNet nets.

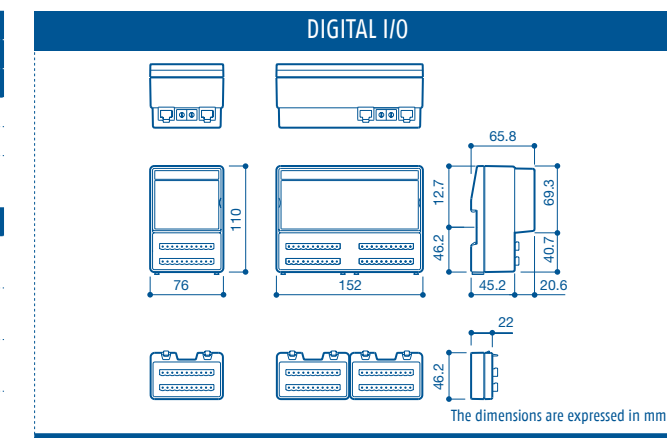


EVERYTHING UNDER CONTROL

HOW TO ORDER

| CODE | PROTOCOL | DESCRIPTION | CHANNELS | |
|----------------------|----------|-------------------------------|----------|----|
| | | | I | O |
| RELAY OUTPUTS | | | | |
| IO-CBD004RL | CANOpen | SPST-NO 2 A | | 4 |
| IO-CBD004TX | CANOpen | SPST-NO 6 A | | 4 |
| IO-CBD008RL | CANOpen | 4 SPST-NO 2 A + 4 SPDT 2 A | | 8 |
| DIGITAL I/O | | | | |
| IO-CBDM08TS | CANOpen | 24 Vdc PNP - 24 Vdc 0.5 A | | 8 |
| IO-MBDM08TS | Modbus | 24 Vdc PNP - 24 Vdc 0.5 A | | 8 |
| IO-CBDM16TS | CANOpen | 25 Vdc PNP - 24 Vdc 0.5 A | 8 | 8 |
| IO-CBDM32TS | CANOpen | 26 Vdc PNP - 24 Vdc 0.5 A | 16 | 16 |

DIMENSIONS



ACCESSORIES

| CABLES | |
|--------------------------|--|
| APS2 LOCALBUS76 | CABLE WITH CONNECTOR RJ45 L=14 CM FOR RS485 |
| APS2 LOCALBUS152 | CABLE WITH CONNECTOR RJ45 L=22 CM FOR RS485 |
| APS2 LOCALBUS500 | CABLE WITH CONNECTOR RJ45 L=50 CM FOR RS485 |
| POWER ADAPTORS | |
| APS2 ALDR75-24 | POWER ADAPTOR 3.2 A |
| APS2 ALDR12024 | POWER ADAPTOR 5 A |
| PLUGS | |
| APS2 SPINAM11 | PLUG WITH 11 POLE CLAMP TERMINALS |
| APS2 SPINAV11 | PLUG WITH 11 POLE SCREW TERMINALS |
| TERMINALS AND CONNECTORS | |
| APS2 TB2111 | TERMINAL BLOCK |
| APS2 TERMCAN | CONNECTOR RJ45 WITH CAN TERMINAL |

SUPERVISION



AutoLink, DX and DY Gateways

SCADA Software for the centralized management and the supervision of plants.
Protocol converters for the integration of the Modbus RTU instrumentation with other field bus.

SUPERVISION

| | | DX | DY | DY5121 |
|---|--------------------------------|----|----|--------|
| Dimensions (mm) | Deltadue module (22.5 x 99 mm) | • | • | |
| | 4 DIN rail module (70 x 85 mm) | | | • |
| Protocol | Modbus RTU | • | | |
| | CANOpen | | • | |
| | Profibus DP slave | • | | |
| | DeviceNet | • | | |
| | Modbus TCP | | • | • |
| Functions | Multi master | 2 | 8 | 4 |
| | Backup instruments (max.32) | • | | |
| | Data transfer (binding) | • | | • |
| | E-mail and SMS | | | • |
| | Websaver | | | • |
| Power supply 24 Vac/Vdc | | • | • | • |
| CE certification + UL approval (listed) | • | | | • |

INDUSTRIAL
CONTROLLERSADVANCED
PROGRAMMER
CONTROLLERSDIN RAIL
MOUNTING
CONTROLLERSTHERMOSTATS
ANALOGUE
CONTROLLERSSPECIAL
CONTROLLERS
AND "CUSTOM"

PAC SYSTEMS

PRE-
PROGRAMMED
SYSTEMSPLC AND
OPERATOR
PANELSTIMERS
COUNTERS
POWER LIMITERS

INDICATORS

I/O MODULES

SUPERVISION

COMBUSTION
CONTROL

ACCESSORIES

AUTOLINK

• SUPERVISION AND DATA ACQUISITION SOFTWARE



FEATURES

| HARDWARE AND SOFTWARE | |
|------------------------------|--|
| Hardware | Pentium II, 512 MB RAM, CD rom, resolution 800x600 |
| Supported OS | Windows 95, 98, 2000, NT, XP, Vista, 7 |
| COMMUNICATIONS | |
| Interfaces | Serial lines, USB (with adapters), Ethernet |
| Drivers | Modbus RTU/ASCII, Modbus TCP, RTU Remote /ASCII Remote - Allen-Bradley Dfi Full Duplex Protocol For (Plc 3 and Plc 5), SLC 500 - AVEBus - Data Stream - Decom Contrex - Eurotherm Bisyndh ASCII - Gefran - Cencal - Idec Izumi - Klockner Moeller Sucom - (A and A for Ps4) - Mitsubishi Fr-Cuo3 - ODBC Client - Omron (Fins, Fins in Host Link, Sysmac) - OPC Client - Red Lion PAX-1/8 DIN Counter/Rate Meter - Saia (P800 and S-Bus) - Siemens MPI, Prodrive MPI Mini, Plc Simatic S5 - S7EV2001, Profibus Mater DP - (Tecmint HTE), Profibus MPI and S7 (Applicom), Profibus PPI S7 200 (Applicom), PPI S7 200 (Adapter) - Interconnections TCP/IP (Master/Slave) - Raw ASCII Output - Other available drivers |
| UNIQUE FUNCTIONALITIES | |
| Gammadue, Deltadue, Sigmadue | Device autorecognition and project automatic creation (Autolink QuickDIN) |
| TLK, K, R, Z, Y, X, KM, W | Device autorecognition and project automatic creation (W-Tec) |
| DATABASE AND FUNCTIONALITIES | |
| Number of variables | 128, 256, 2048, 62536 |
| Type of variables | Numerics, digitals, strings, composites |
| Alarms | Unlimited |
| Trend | Binary, DBF and CSV file types |
| Access levels | 32 |
| Synoptic pages | Unlimited |
| Alarm pages | Unlimited |
| Trend pages | Unlimited, max 10 traces per window |
| Recipes | Unlimited and customizables |
| Report | Up to 999 |
| Auxiliary functions | Events schedulings, remote control, macros, multilanguages, SMS |



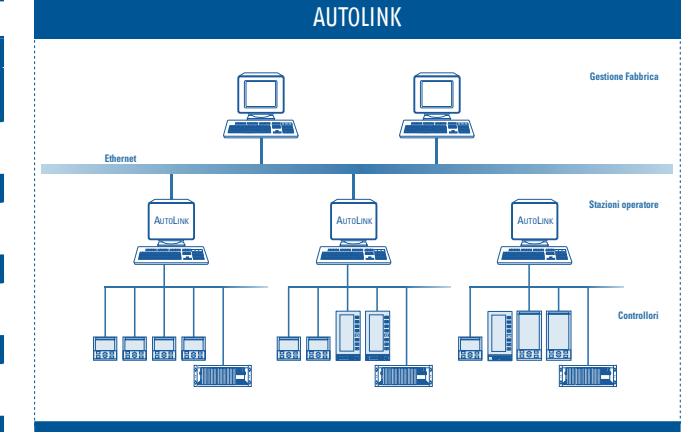
EVERYTHING UNDER CONTROL

HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

| DEVELOPMENT AND RUNTIME SOFTWARE | |
|---|--|
| FOR DELTADUE, GAMMADUE AND SIGMADUE I/O MODBUS INSTRUMENTS ONLY | |
| MAX 32 INSTRUMENTS | |
| LSALINKDIN/USB | DEVELOPMENT/RUNTIME KEY MAX. 32 INSTRUMENTS DIN W-L |
| DEVELOPMENT AND RUNTIME SOFTWARE MAX. 128 VARIABLES | |
| LSALINKDVS/USB | DEVELOPMENT/RUNTIME KEY MAX. 128 VARIABLES DVS-W-ES |
| DEVELOPMENT AND RUNTIME SOFTWARE MAX. 2048 VARIABLES | |
| LSALINKDVM/USB | DEVELOPMENT/RUNTIME KEY MAX. 2048 VARIABLES DVM-W-EM |
| DEVELOPMENT AND RUNTIME SOFTWARE MAX. 65536 VARIABLES | |
| LSALINKDVX/USB | DEVELOPMENT/RUNTIME KEY MAX. 65536 VARIABLES DVX W-EX |
| RUNTIME SOFTWARE | |
| LSALINKRNT/USB | RUNTIME KEY MAX. 65536 VARIABLES RNT W-R |

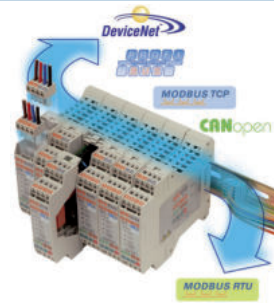
CONNECTIONS



INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

DX/DY

• PROTOCOL GATEWAYS



FEATURES

| FUNCTIONAL | DX | DY |
|---------------------------------|---|--|
| Manager functions | Connected modules (max. 32) configuration and parameters data backup Hot swapping, automatic configuration and setup of the replaced modules. | -- |
| Gateway functions | RS232/485 converter Protocol converter between Profibus DP SPC3, DeviceNet and Modbus RTU | Binding (data transfer) Protocol converter between CANOpen or Modbus TCP to Modbus RTU |
| WebSCADA functions | -- | Instruments template 30 pages of 20 variables 64 alarms (e-mail and SMS with external modem, GSM or GPRS). A 64 variables log file (CSV), can be periodically send by e-mail Trend graphics (if JAVA is installed) |
| Communications ports | RS485 Modbus RTU master protocol (max.19200 baud) RS485, RS232 Modbus RTU slave protocol, insulated (max.38400 baud) RS485 Modbus RTU slave protocol, insulated (max. 57600 baud) RS485 Profibus DP slave (max. 12 Mb/s) | RS232 standard (for instrument configuration only) Ethernet 10/100 Mbaud, RJ45 female connector RS485 Modbus RTU (max. 115 K baud) RS485 CANOpen (max. 1 Mb/s) |
| GENERAL | | |
| Power supply | 24Vac (-25...+12%), 24Vdc (-15...+25%) (50/60Hz) | |
| Power consumption | 4VA max. | |
| Dimensions / Weight | 22.5 x 99 mm, depth 114.5 mm / 200 g approx. | |
| Mounting | On OMEGA DIN A rail | |
| Connections | PWS and COM: 0.08... 1.5 mm ² (AWG28-AWG16) Inputs/Outputs: 0.2... 2.5 mm ² (AWG24 - AWG12) | |
| Protection degree | IP20 (terminal block) | |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20... 70°C (-4... 158°F) | |
| Operating humidity | 5... 95% RH% without condensation | |
| Conformity | CE, UL, CSA, EN61010-1 (IEC1010-1) | CE, EN61010-1 (IEC1010-1) |



HOW TO ORDER

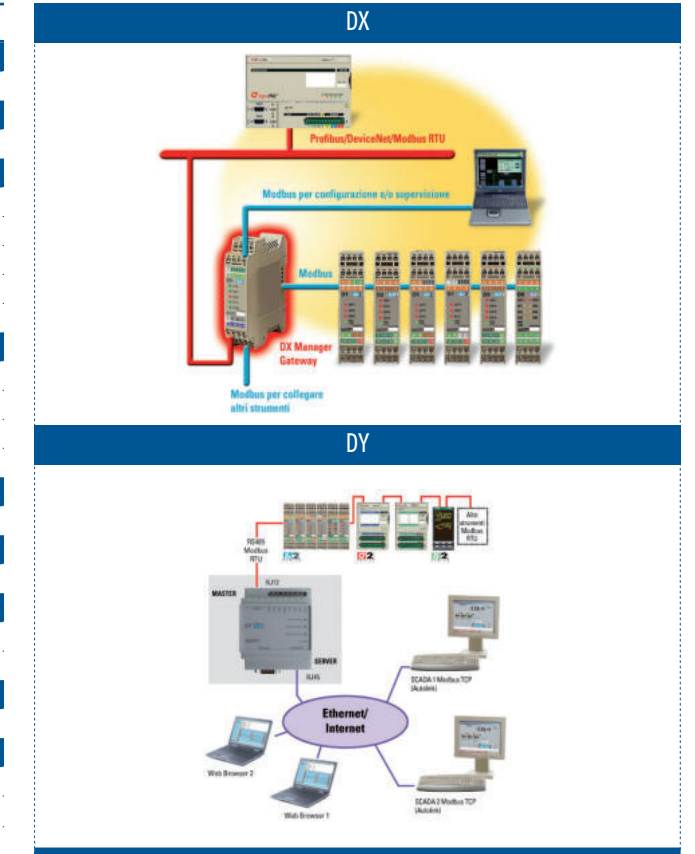
To compose the part number, pls. choose one of the option for each variable

| DX | CODE |
|--|------|
| Gateway/Manager for Delta2/Gamma2 series | |
| POWER SUPPLY | |
| 24 Vac/Vdc | 5 |
| NUMBER OF INSTRUMENTS IN BACKUP | |
| 0 Instruments | 0 |
| 4 Instruments | 1 |
| 8 Instruments | 2 |
| 16 Instruments | 3 |
| 32 Instruments | 4 |
| FIELDBUS COMMUNICATION | |
| No fieldbus | 0 |
| DeviceNet | 1 |
| Modbus | 5 |
| Profibus DP | 7 |
| OPTION 1 | |
| Not available | 0 |
| SPECIAL FUNCTIONS | |
| Not available | 0 |
| INSTRUCTION MANUAL | |
| Italian / English | 0 |
| Not available | 9 |
| OPTION 2 | |
| Not available | 0 |
| OPTION 3 | |
| Not available | 0 |
| Conformal coating | 3 |

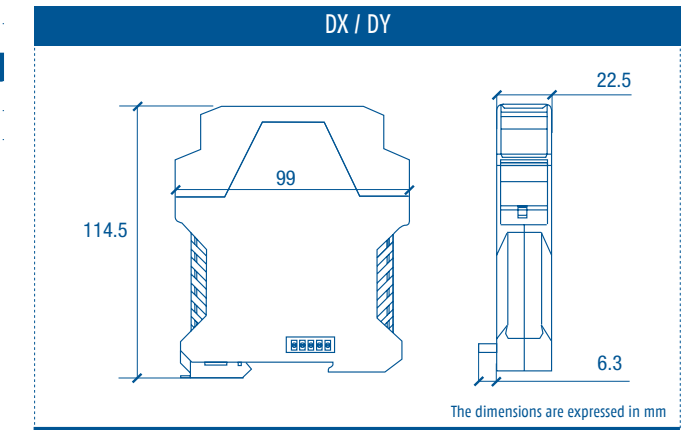
| DY | CODE |
|--|--------|
| PROTOCOL CONVERTER | |
| CAN Open/Modbus RTU - Delta2 Case | DY5030 |
| WEB+Modbus TCP/RTU - 4 DIN Case | DY5121 |
| TCP/RTU Modbus multiple connection - Delta2 Case | DY5220 |
| INSTRUCTION MANUAL | |
| Italian / English | 0 |
| English | 8 |

EVERYTHING UNDER CONTROL

CONNECTIONS



DIMENSIONS



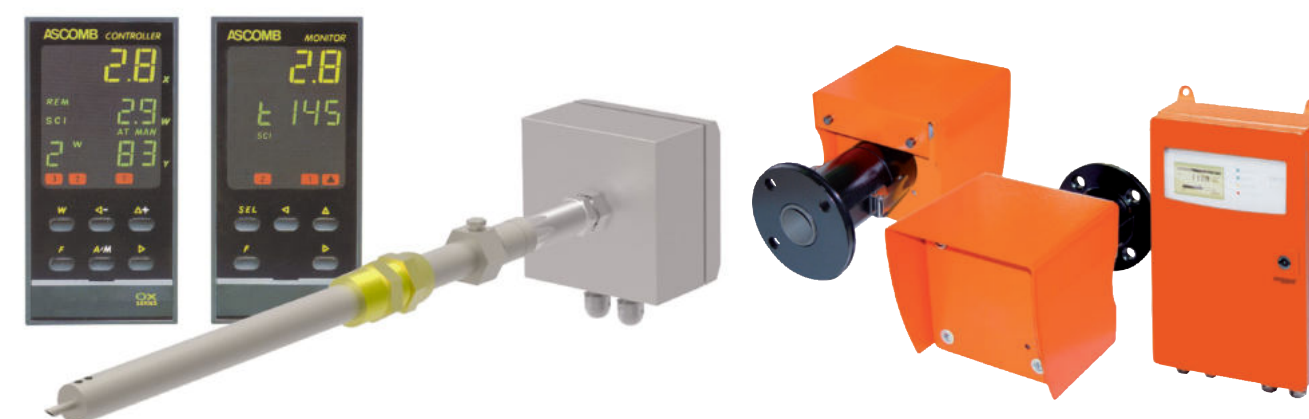
INDUSTRIAL CONTROLLERS
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I/O MODULES
SUPERVISION
COMBUSTION CONTROL
ACCESSORIES

EMISSION ANALYSIS AND COMBUSTION CONTROL



ENERGY SAVING
solutions

COMBUSTION CONTROL SYSTEMS



Combustion and monitoring systems in-situ for civil and industrial power plants composed of single or multiple boilers.

In-situ probes and analyzer for continuous measurement of oxygen, smoke/air temperature and carbon monoxide in the flue gases.

ZO2-3

• ZIRCONIUM OXIDE PROBE FOR O₂ MEASUREMENT



FEATURES

| GENERAL | | ZO2-3/E |
|---|--|---------|
| Measurement type | Direct and continuous oxygen content measurement in wet flue gas | |
| Sensor | Heated zirconium oxide ZrO ₂ | |
| Max. Flue gases temperature | 600°C | |
| Probe material | Stainless Steel AISI 316 | |
| Process connection | 1" NPT with 1" NPT sliding nipple | |
| Head protection | IP 66 | |
| Ambient temperature | -20°C... +55°C | |
| Weight | 2-3 Kg | |
| Power supply | 24 Vdc ±5% | |
| Power consumption | 1.2 A max. | |
| Output | 4... 20 mA active or passive output, not isolated Adjustable via jumpers | |
| O ₂ Measuring range | 0.3% ... 25% | |
| Accuracy | ±1% | |
| Output range 4... 20mA | 0... 20.96% , 0... 25% Adjustable with keys | |
| Response time | < 5 sec. | |
| Heating up time | 15 min. | |
| Calibration | 1%... 20.9% | |
| Calibration interval | Trimmer calibration in ambient air 12 months | |
| Error indicator | Relay DPST, NC+NO and red led on card | |
| | Red LED on card in case of: | |
| | 0 ₂ < 0.3% | |
| | probe disconnection probe failure heater failure supply voltage failure | |
| Sensor heating up time | <15s Automatic temperature control Power supply 0... 24V | |
| Pluggable screw connectors | Output 4... 20mA | |
| | Fault signal contacts | |
| | Probe cabling (5 wires) | |
| Operation interface | Red led, green led and 3 keys | |
| Remote probe connection for extractive models | With supplied cable (3 m) | |

HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

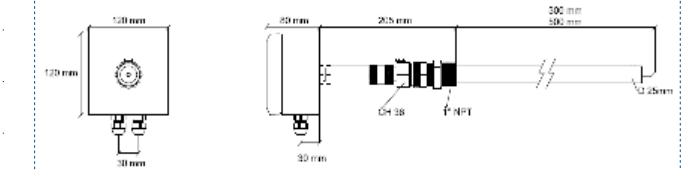
| MODEL | DESCRIPTION |
|-------------|---|
| ZO2-3I-300 | IN-SITU ZIRCONIUM OXIDE PROBE WITH INTEGRATED ELECTRONIC L=300 MM |
| ZO2-3I-500 | IN-SITU ZIRCONIUM OXIDE PROBE WITH INTEGRATED ELECTRONIC L=500 MM |
| ZO2-3E-300 | IN-SITU ZIRCONIUM OXIDE PROBE WITH EXTERNAL ELECTRONIC L=300 MM |
| ZO2-3E-500 | IN-SITU ZIRCONIUM OXIDE PROBE WITH EXTERNAL ELECTRONIC L=500 MM |
| ZO2-3E-C100 | IN-SITU ZIRCONIUM OXIDE PROBE WITH EXTERNAL ELECTRONIC L=100 MM |

ACCESSORIES

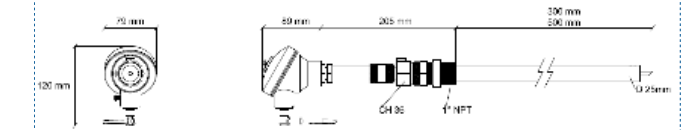
| POWER ADAPTORS | |
|-----------------|---------------------|
| APS2 ALNDR75-24 | POWER ADAPTOR 3.2 A |
| APS2 ALEDR12024 | POWER ADAPTOR 5 A |

DIMENSIONS

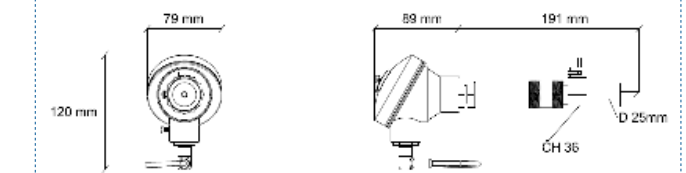
ZO2-3I 300/500



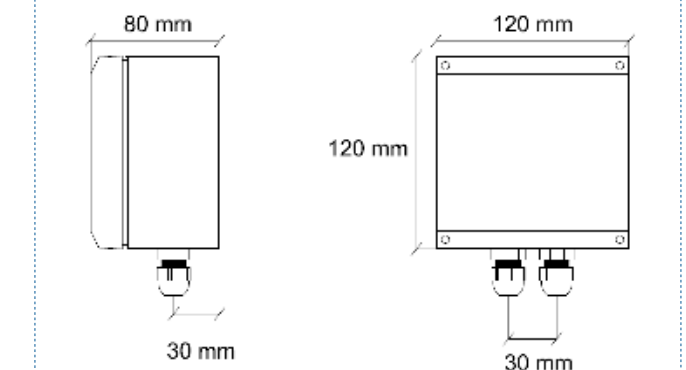
ZO2-3E-300/500



ZO2-3E-C100



REMOTE CASE FOR ZO2-3E-300/500 AND ZO2-3E-C100



OXI/OXM/OXR

• INDICATOR, MONITOR AND CONTROLLER FOR COMBUSTION CONTROL



FEATURES

| INPUTS | OXI - INDICATOR | OXM - MONITOR | OXR - CONTROLLER |
|---------------------------------|---|--|---|
| Main analogue input | Direct in mV from ZO probe (0.2% ±1 digit) or 4... 20 mA linearized in the range 0.0... 20.9% | | |
| Auxiliary analogue inputs | -- | 2 x 4... 20 mA from smoke/air temperatures | 4... 20 mA from boiler load signal |
| Digital inputs and functions | 2 logic inputs: Hold and Fail | 3 logic inputs: Hold, Fail, fuel switch | 4 logic inputs: Hold, Fail, fuel switch, Set Point mem., Auto/man. |
| OUTPUTS | | | |
| Main analogue output | 4... 20 mA/0... 10 V for 0 ₂ % | 4... 20 mA/0... 10 V programmable for 0 ₂ %, T smokes, T air, CO ₂ %, η, λ | 4... 20 mA/0... 10 V control output |
| Auxiliary analogue output | -- | | |
| Alarm output | 2 Relay NO, 250 Vac/5A programmable | | 3 Relay NO, 250 Vac/5 A programmable 1 Relay NO, 250 Vac/5 A Failure |
| FUNCTIONAL | | | |
| Serial communication (optional) | RS485 (2 wires) Mod Bus, J Bus | | |
| Baud rate | 9600 baud max. | | |
| GENERAL | | | |
| Power supply | 100... 240 Vac or 16... 28 Vac (50/60Hz) and 20...30 Vdc | | |
| Power consumption | 4 VA max. | | |
| Dimensions / Weight | 48 x 96 mm (1/16DIN) - depth 150 mm | | |
| Mounting | Flush in panel in 45 x 92 mm hole | | |
| Front protection degree | IP 65, mounted on panel with gasket | | |
| Operating / storage temperature | 0... 50°C (32... 122°F)/-20...+70°C (-4... 158°F) | | |
| Operating humidity | 35... 85 RH% without condensation | | |
| Conformity | IEC801-2, 801-3, 801-4 | | |



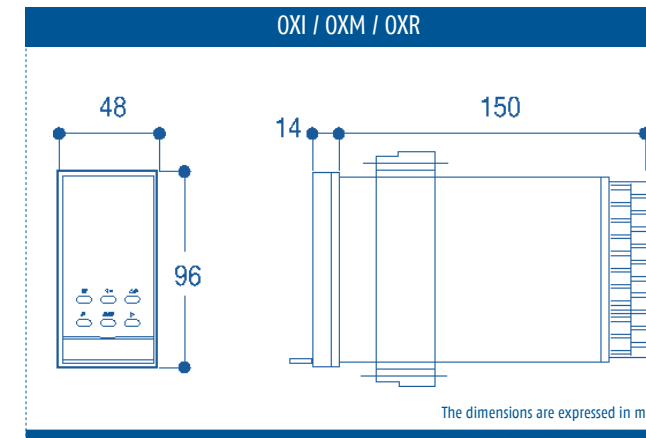
EVERYTHING UNDER CONTROL

HOW TO ORDER

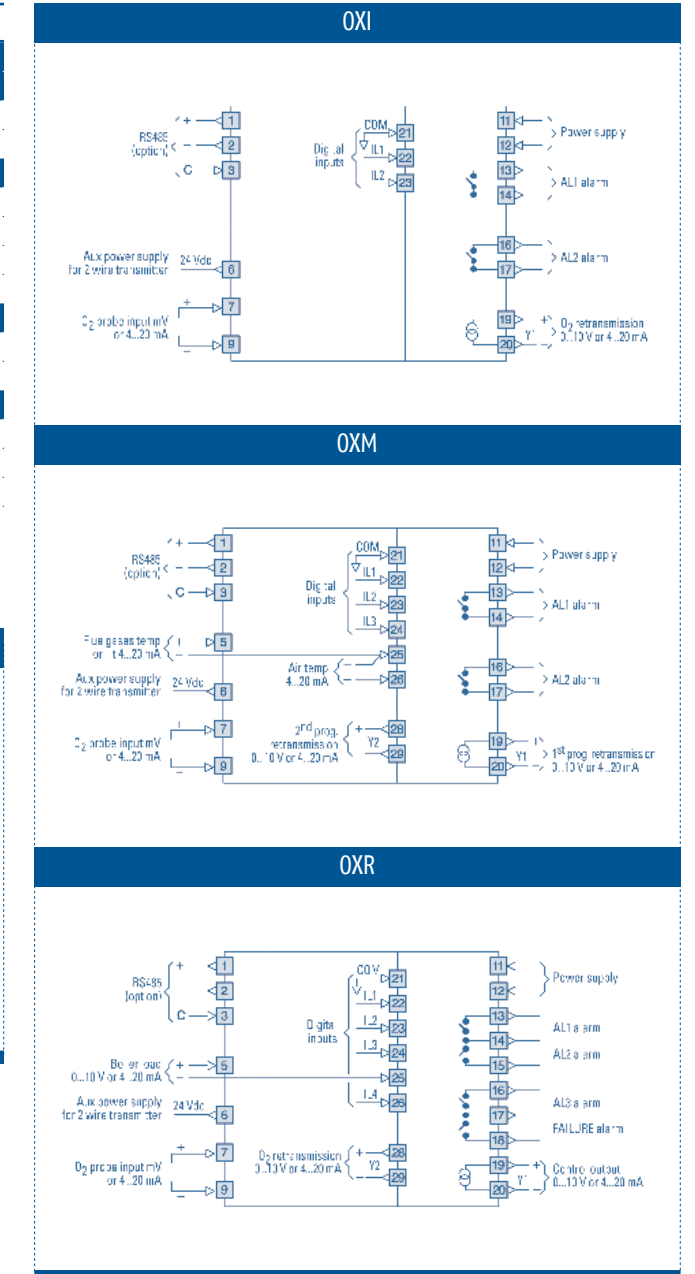
To compose the part number, pls. choose one of the option for each variable

| OXI/OXM/OXR | CODE |
|--|------|
| POWER SUPPLY | |
| 230 Vac | 3 |
| 24 VacVdc | 5 |
| SERIAL COMMUNICATION | |
| Not available | 0 |
| 20 mA Current Loop Ascon Tecnologic protocol | 1 |
| 20 mA Current Loop ModBus protocol | 2 |
| RS485 ModBus protocol | 3 |
| OUT 1 | |
| 4... 20mA retransmission | 1 |
| 0... 10V retransmission | 2 |
| OUT 2 (OXM AND OXR ONLY) | |
| Not available | 0 |
| 0... 20mA retransmission | 1 |
| 0... 10V retransmission | 2 |

DIMENSIONS



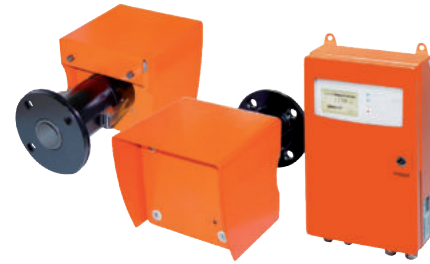
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INDUSTRIAL CONTROLLERS
 ADVANCED PROGRAMMER CONTROLLERS
 DIN RAIL MOUNTING CONTROLLERS
 THERMOSTATS ANALOGUE CONTROLLERS
 SPECIAL CONTROLLERS AND "CUSTOM"
 PAC SYSTEMS
 PRE-PROGRAMMED SYSTEMS
 PLC AND OPERATOR PANELS
 TIMERS COUNTERS POWER LIMITERS
 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

ZCO

• CO IN-SITU ANALYZER



FEATURES

| GENERAL | ZCO |
|---|---|
| Measuring distance (TX-RX) | 0.5 m... 8.0 m (1.6... 26 ft) |
| Measuring range | Programmable between 0...500 ppm and 0...20000 ppm relative to 1 mt. |
| Accuracy | 5% f.s. |
| Response time | 5... 360 s |
| Flue gas temperature | ≤ 250°C (higher temperatures available with extended calibration) |
| Ambient temperature | -20... +55°C |
| Processing unit ambient temperature | 0... +55°C |
| 1 analogue input for gas temperature | 0/4... 20 mA/100 |
| 1 isolated analogue output for CO retransmission | 0/4... 20 mA/500 Ω max. |
| Digital input for plant | max. load 5V, 2 mA |
| 2 digital alarm outputs | Fail and threshold |
| Outputs current | Rating 1 A, 125 Vdc, 150 Vac max. (30 VA dc or 60 VA ac) |
| Power supply | 115/230 Vac 50/60 Hz (selectable via jumper) |
| Power consumption | 75 VA |
| Protection degree | IP 65 |
| Connection cable between transmitter-receiver | 15 m |
| Connection cable between receiver-processing unit | 2 m + extension 5 m |
| Air instruments | Pressure: +2 mbar compared to the pressure at chimney Consumption: 30 m³/h max. |
| Options | Extension cable for connecting receiver-processing unit 10 or 15 meters (maximum distance receiver-processing unit without repeater: 17 meters) Optical alignment unit |
| Conformity | EMC specifications in accordance with EN 50081-1 and EN 50082-2 |
| Certifications | Guidelines VDE EN 61010 (IEC 1010-1, VDE 0411), protection class 1, degree of protection IP65 CE (EMC EC Guideline 89/336 EWG, NSP 72/23/EWG TÜV Certification (Report no. 502/074/196-20 081751) |

HOW TO ORDER

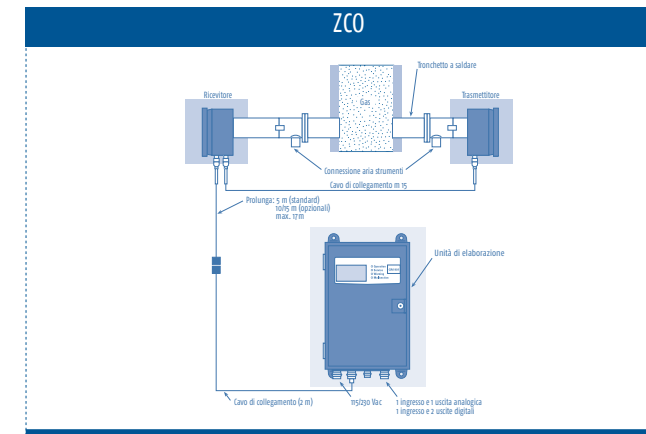
To compose the part number, pls. choose one of the option for each variable

| CO ANALYSIS SYSTEM COMPOSITION | CODE |
|--|----------------|
| 1 transmitter | ZCO-IGM-901-00 |
| 1 receiver | |
| 1 processing unit with connecting cable 2 m | |
| 1 extension cable between receiver-processing unit 5 m | |
| 1 connecting cable between transmitter-receiver 15 m | |
| 2 fixing flanges with connection for air instruments | |
| 2 welding flanges connections | |
| 2 kit special nuts and washers | |
| 2 gasket kits | |
| 1 manual | |
| 1 calibration certificate | |

ACCESSORIES

| ACCESSORIES | CODE |
|---|--------------------|
| Extension cable between receiver-processing unit 10 m | AZCPROLUNGA10M |
| Extension cable between receiver-processing unit 15 m | AZCPROLUNGA15M |
| Optical alignment unit | AZC2020436 |
| Blower with air filter 0.55Kw 220-240 Vac 50/60 Hz single-phase | AZCSOFFIANTEMGT230 |
| Blower with air filter 0.55Kw 400 Vac 50/60 Hz three-phase | AZCSOFFIANTEMGT400 |

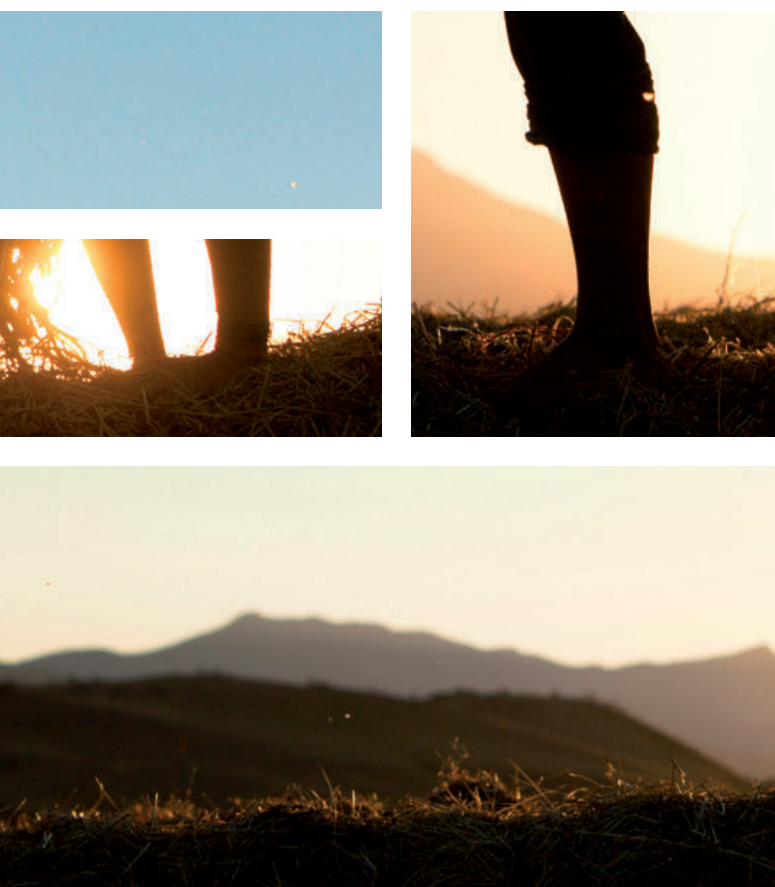
CONNECTIONS



DIMENSIONS

| PROBE |
|---|
| <p>The dimensions are expressed in mm</p> |
| PROCESSING UNIT |
| <p>The dimensions are expressed in mm</p> |
| FLANGE |
| <p>The dimensions are expressed in mm</p> |

ACCESSORIES



ACCESSORIES



To complete the range...

Together with our products we can also supply all the accessories of your applications: probes, sockets, gaskets, hole covers, programming keys, signal and protocol converters, front frame protections, external and current transformers, adapters and more...

A01

• UNIVERSAL PROGRAMMING KEY
FOR ASCON TECHNOLOGIC INSTRUMENTS



FEATURES

| FUNCTIONAL | |
|---------------------------------|--|
| Functions | <p>A01</p> <p>The key is able to "dialogue" with:</p> <ul style="list-style-type: none"> * An instrument and to copy parameters from it to the key and vice versa * A second key and to integrally copy its parameters * A Personal computer * A Personal computer and an instrument <p>A01 is able to recovery data from failed instruments too and permits unlimited copies of configuration, error free.</p> |
| Serial communication | <p>Interface RS485, not insulated</p> <p>Interface TTL, not insulated</p> |
| GENERAL | |
| Connections | <p>TTL male connector: JST S 5B-PH-KL</p> <p>TTL female connector : SAMTEC SQT-105-02-L-S</p> <p>RS485 connector: Phoenix MC 1,5/3-G-3,5</p> <p>PWS connector : Dc power Jack 1,3mm</p> <p>USB connector type: Mini-USB</p> <p>Dip switch: 4 ways</p> |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -20...+70°C (-4... 158°F) |
| Operating humidity | 20... 95 RH% without condensation |



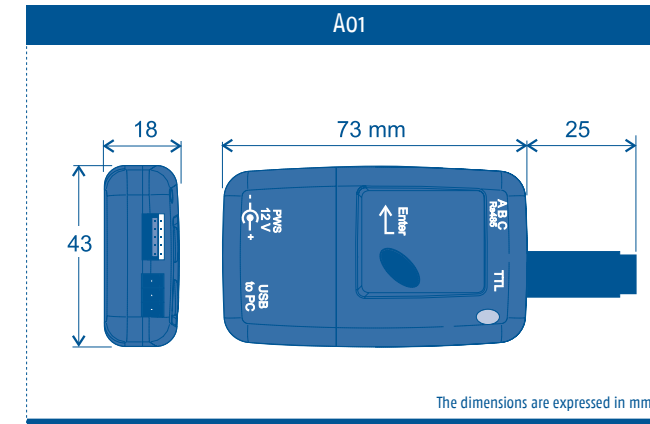
EVERYTHING UNDER CONTROL

HOW TO ORDER

To compose the part number, pls. choose one of the option for each variable

| A01 | CODE |
|--|------|
| CONNECTOR | |
| 5 pole for 78x35, DIN rail, 72x72 series | 5 |
| 3 pole for 48x48 series | 3 |
| POWER ADAPTOR | |
| Available | E |
| Not available | - |
| KIT FOR PC CONFIGURATION | |
| USB cable and SW on Cdrom support | S |
| Without cable and SW | - |

DIMENSIONS



A30

• SIGNAL CONVERTER FROM
USB/RS232/RS485 TO RS485/TTL



FEATURES

| FUNCTIONAL | A30U | A30- |
|---------------------------------|--|--|
| Interface type | From USB to RS485 auto powered From USB to TTL auto powered | From USB to RS485 From USB to TTL From RS232 to RS485 From RS232 to TTL From RS485 to RS485 From RS485 to TTL |
| TX/RX commutation | Automatic | |
| Baud rate | 38400, automatic selection | |
| GENERAL | | |
| Power supply | 24 Vac/Vdc ±10% or 100... 240Vac (-15... +10%) (50/60 Hz) | |
| Power consumption | 5 VA max. | |
| Dimensions / Weight | 78x35 mm, depth 77,31 mm / 180 g | |
| Connections | PWS: screw terminal block (M3 screws, for cables \varnothing 0.25 to \varnothing 2.5 mm ² or AWG 23 to AWG 14) RS232/RS485: screw terminal block (M2 screws, for cables \varnothing 0.25 to \varnothing 1.5 mm ² or AWG 23 to AWG 16) | |
| Protection degree | IP20 (terminal block) | |
| Mounting | On OMEGA DIN A rail | |
| Operating / storage temperature | 0... 50°C (32... 122°F) / -30... +70°C (-22... 158°F) | |
| Operating humidity | 20... 85 RH% without condensation | |
| Conformity | EN61326-1, EN61010-1 | |



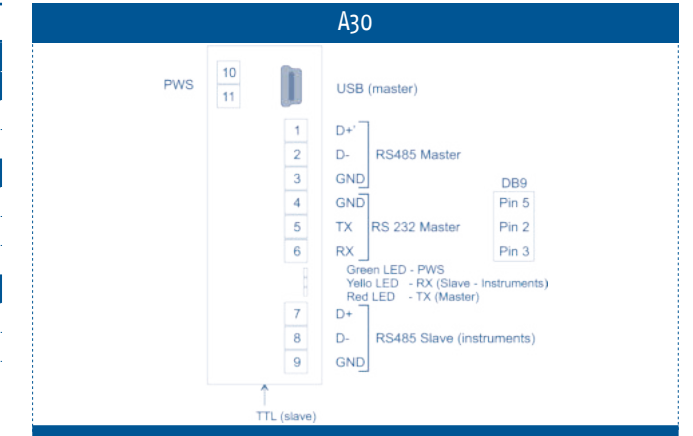
EVERYTHING UNDER CONTROL

HOW TO ORDER

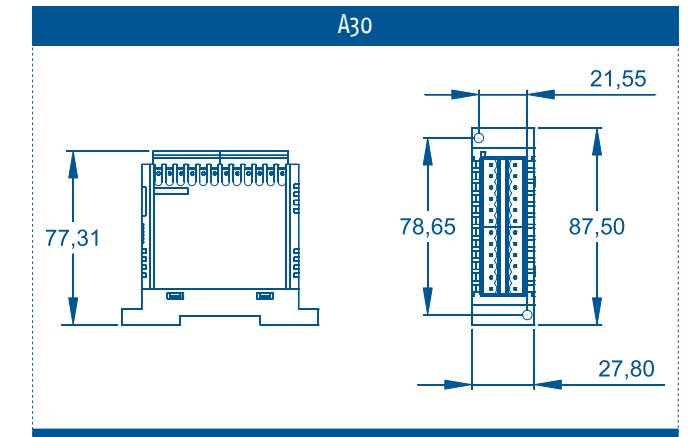
To compose the part number, pls. choose one of the option for each variable

| A30 | CODE |
|---|------|
| MODEL | |
| From USB to RS485 or TTL | U |
| From USB/RS232/RS485 to RS485 or TTL | - |
| POWER SUPPLY | |
| 24 Vac/Vdc (A30 only) | L |
| 100... 240 Vac (A30 only) | H |
| 5V supplied by the USB port (A30U only) | - |
| CONNECTIONS | |
| Plug-in screw type | E |
| Plug-in screw type, fix part only | N |

CONNECTIONS



DIMENSIONS



INDUSTRIAL CONTROLLERS
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 PAC SYSTEMS
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 INDICATORS
 I/O MODULES
 SUPERVISION
 COMBUSTION CONTROL
 ACCESSORIES

APS2 ALDR

POWER SUPPLY FOR SIGMADUE SERIES



Power supply for instruments of sigmadue series.

| CODE | DESCRIPTION |
|-----------------|----------------------------------|
| APS2 ALNDR75-24 | Power supply 75W - 24Vdc - 3.2 A |
| APS2 ALEDR12024 | Power supply 120W - 24Vdc - 5 A |

APS2 ATOPEH

INDUSTRIAL SWITCHES



Industrial Ethernet switches.

| CODE | DESCRIPTION |
|-----------------|--|
| APS2 ATOPEH2006 | 6 port Ethernet Switch - Plastic case |
| APS2 ATOPEH2306 | 6 port Ethernet Switch - Metallic case |
| APS2 ATOPEH2308 | 8 port Ethernet Switch - Metallic case |

APS2 MODEM

MODEM GSM/GPRS

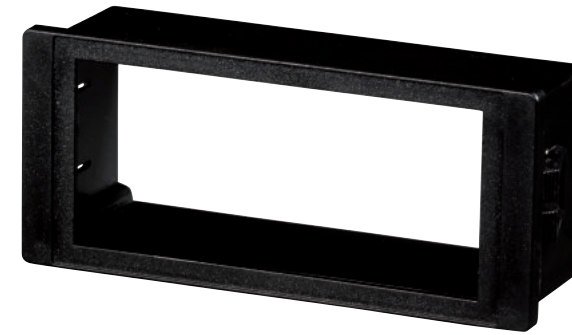


Modem GSM/GPRS in metallic case.

| CODE | DESCRIPTION |
|----------------|--|
| APS2 MODEMG100 | Modem for OMEGA DIN A rail mounting Dimensions 73 x 54 mm, depth 25 mm Pws: 230 Vac - 12 Vdc E-GSM Quad-band 850/900/1800/1900 MHz ETSI GSM Phase 2+ Class 4 (2W@ 850/900 MHz) Class 1 (1W@ 1800/1900 MHz) Antenna GSM: SMA-F connector PWS: 5.5 - 32 Vdc (micro-FIT connector) RS232 + Audio conn. female 15-pin Sub-D |

BOX-AR

ADAPTERS



Accessories used to adapt an instrument to an already existing hole, but with different mechanical measures.

| CODE | DESCRIPTION |
|-----------|---|
| BOX 04175 | Adapter for hole from 75 x 32 to 58 x 26 mm |
| BOX 1002 | Adapter for hole from 64,4 x 32,4 to 34,3 x 15 mm |
| ARFQ96D | Adapter for hole from 96 x 96 to 48 x 96 mm |
| ARFQ96M | Adapter for hole from 96 x 96 to 48 x 48 mm |

CAL

PROTECTION COVERS

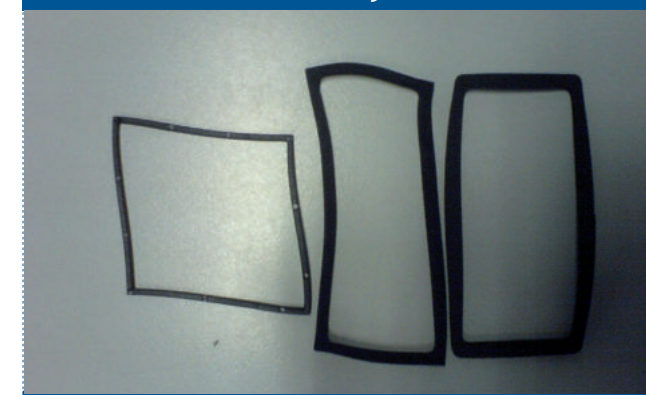


Protection covers made of transparent plastic or soft rubber to protect the front of the instruments. Some models assure the IP65 protection degree.

| CODE | DESCRIPTION |
|---------------|-----------------------------|
| CAL48x48-M | 48 x 48 mm (soft rubber) |
| CAL48x48-IP65 | 48 x 48 mm (Plastic - IP65) |
| CAL48x96-1 | 48 x 96 mm (Plastic) |
| CAL48x96-IP65 | 48 x 96 mm (Plastic - IP65) |
| CAL72x72-1 | 72 x 72 mm (Plastic) |
| CAL96x96-1 | 96 x 96 mm (Plastic) |
| CAL96x96-IP65 | 96 x 96 mm (Plastic) |

GUAR

EXTERNAL GASKETS FOR IP65 PROTECTION DEGREE



External gaskets in neoprene mousse able to increase the instrument front protection degree.

| CODE | DESCRIPTION |
|-----------|--|
| GUAR 6993 | IP65 gasket for 65 x 33 mm front |
| GUAR 6927 | IP65 gasket for 75 x 33 mm (old style) front |
| GUAR 6925 | IP65 gasket for 78 x 35 mm (new style) front |
| GUAR 6923 | IP65 gasket for 48 x 48 mm front |
| GUAR 6973 | IP65 gasket for 48 x 96 mm front |
| GUAR 6974 | IP65 gasket for 72 x 72 mm front |
| GUAR 6926 | IP65 gasket for 181 x 36 mm front |

TAPPO

HOLE COVER



Accessories used to cover an existing hole that it's not possible to leave empty for aesthetic reasons or protection.

| CODE | DESCRIPTION |
|----------------|-----------------------------------|
| TAPPO 33x75 | Cover for 75 x 33 mm hole |
| TAPPO 48x48-AT | Cover and box for 48 x 48 mm hole |
| TAPPO 48x96 | Cover for 48 x 96 mm hole |
| TAPPO 96x96 | Cover for 96 x 96 mm hole |

TCTR

EXTERNAL POWER TRANSFORMERS



Accessories available with different ratio of transformation for different instrumentation demands.

| CODE | DESCRIPTION |
|-------------------------|-------------|
| PRIMARY/SECONDARY POWER | |
| A | 24/12 V |
| C | 115/12V |
| D | 230/12V |
| POWER | |
| 3 | 3 VA |
| 5 | 5 VA |
| 10 | 10 VA |

Other models available on request.

TLCOV

EXTENDED FRONT PLATE



Accessories that make it possible to extend the front plate of instruments 78 x 35 mm to 185 x 38 mm. Available also hole plugs and switches to cover the side holes.

| CODE | DESCRIPTION |
|----------------------------|--|
| TLCOV | INSTRUMENT TO BE EXTENDED |
| XX | Part.no to define the instrument to be extended |
| POSITION OF THE INSTRUMENT | |
| D | Instrument mounted on the right side |
| S | Instrument mounted on the left side |
| HOLES DIMENSIONS | |
| -- | Holes with \varnothing 20 mm |
| -1 | Left hole with \varnothing 20 mm - Right hole with \varnothing 22 mm |
| 1- | Left hole with \varnothing 22 mm - Right hole with \varnothing 20 mm |
| 11 | Holes with \varnothing 22 mm |

TR-AMP

CURRENT TRANSFORMERS



Accessories available with different ratio of current for different instrumentation demands.

| CODE | DESCRIPTION |
|----------------|----------------|
| TR-AMP-100/02 | Ratio 100/0.2 |
| TR-AMP-25/005 | Ratio 25/0.05 |
| TR-AMP-200/04 | Ratio 200/0.4 |
| TR-AMP-50/005 | Ratio 50/0.05 |
| TR-AMP-100/005 | Ratio 100/0.05 |

ZOC

SOCKETS



Accessories available in different executions: to be soldered, with screws.

| CODE | DESCRIPTION |
|-----------|-------------------------------------|
| ZOC 02203 | Octal (IP20) |
| ZOC 02805 | Octal |
| ZOC 02204 | Undecal (IP20) |
| ZOC 02976 | Octal with terminals to be soldered |
| ZOC 03110 | Octal with screws |

THERMOELEMENTS

- THERMOCOUPLES
- THERMORESISTANCES
- THERMISTORS
- CABLES AND ACCESSORIES

PROBES AND ACCESSORIES

To choose correctly the probe is often decisive for the good result of the process control. We, at Ascon Tecnologica puts at your disposition our experience and technical competence with the purpose to find the correct solution to every application problem...

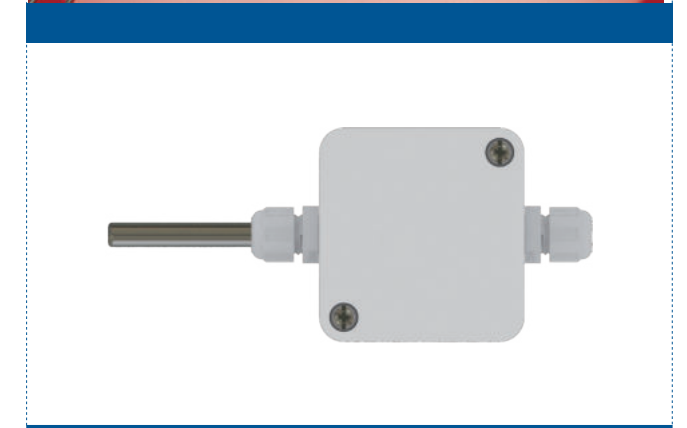
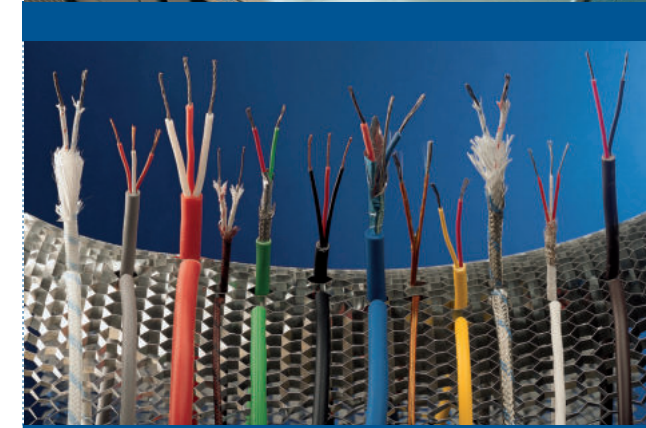
Here following just some of the possible execution of our thermolements:

- Probes for machines and small plants
- Flexible probes with MgO insulation
- High pressure probes with replaceable insertion
- High temperature probes with ceramic or methalic sleeve
- Accessories: nipple, thermowell, flanges and so on
- Compensated cables

Our technical team is available to discuss your requirements for custom made products. Get in touch with us.

CE

EVERYTHING UNDER CONTROL



- INDUSTRIAL CONTROLLERS
- ADVANCED PROGRAMMER CONTROLLERS
- DIN RAIL MOUNTING CONTROLLERS
- THERMOSTATS ANALOGUE CONTROLLERS
- SPECIAL CONTROLLERS AND "CUSTOM"
- PAC SYSTEMS
- PRE-PROGRAMMED SYSTEMS
- PLC AND OPERATOR PANELS
- TIMERS COUNTERS POWER LIMITERS
- INDICATORS
- I/O MODULES
- SUPERVISION
- COMBUSTION CONTROL
- ACCESSORIES

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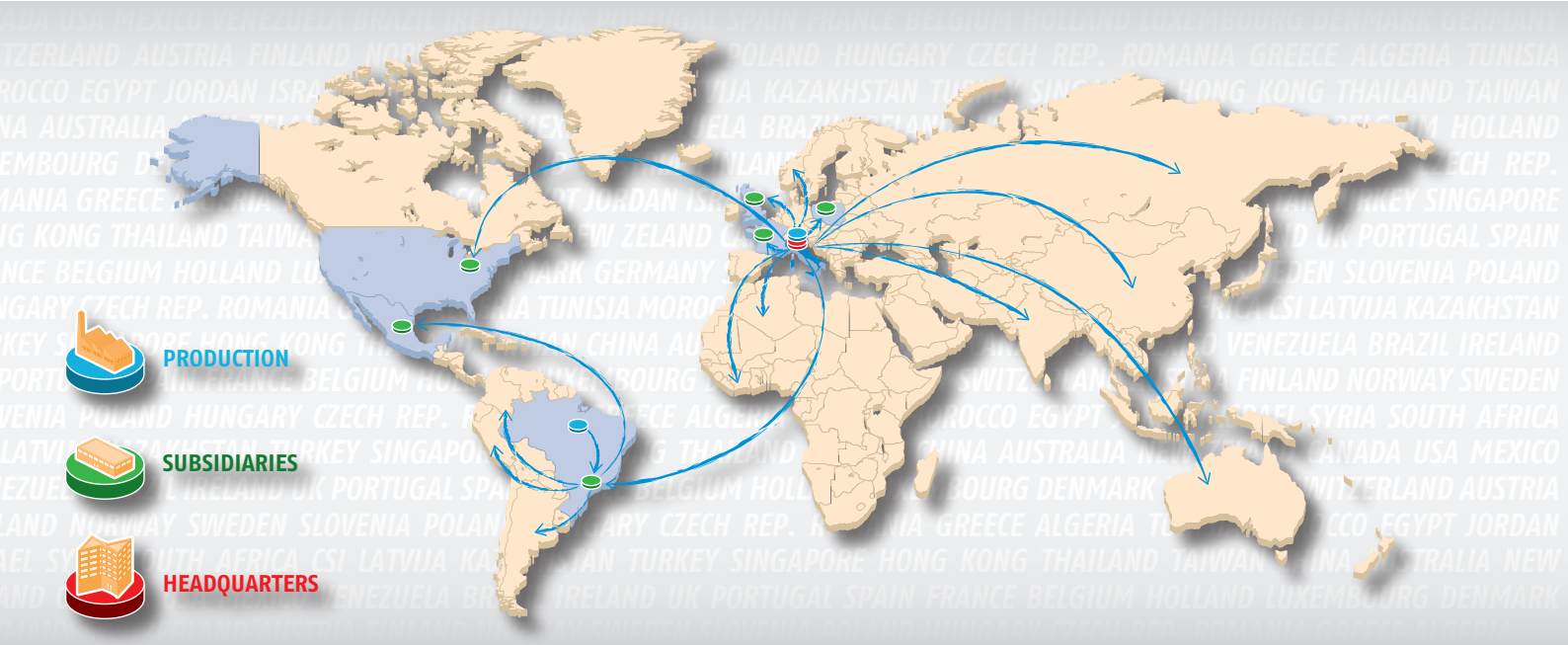
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