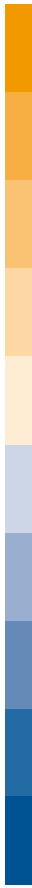


# PROCESS CATALOGUE 2013/2014



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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 Tecnologic S.r.l. has obtained the certification of "Quality System" in conformity to UNI EN ISO 9001:2008 released by the corporate certifier Det Norske Veritas Italy 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:

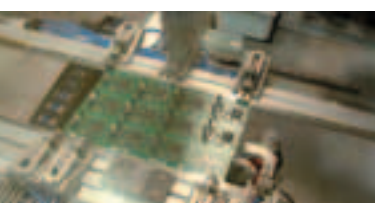
### **Safety**

- 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	KX1	KR1	R38	TLK41	TLK42	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		•	•	•																		
Single display					•	•				•	•		•	•								
Dual display							•	•				•			•	•	•	•	•	•	•	•
Digit		4	4	4	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	3	
For CT							•				•							•	•	•	•	
Relay or voltage for SSR drive outputs		4	4	4	2	4	4	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	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	
Control	ON/OFF and PID	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	
	Servomotor control							•				•									•	
RS485		•	•	•		•	•	•		•		•	•	•	•	•	•	•	•	•	•	
Timer on board		•	•	•														•	•	•	•	
Programmer																					•	
CE certification		•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•
UL approval					•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•
ENEC approval					•																	•

- INDUSTRIAL CONTROLLERS
- ADVANCED PROGRAMMER CONTROLLERS
- DIP RAIL MOUNTING CONTROLLERS
- STATISTICAL 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 <sup>2</sup> (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



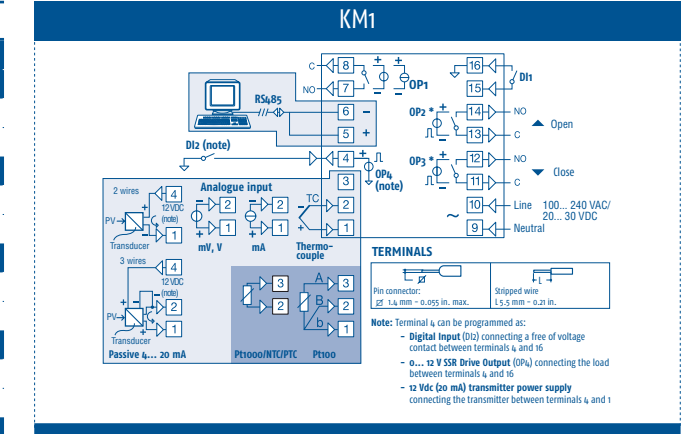
## HOW TO ORDER

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

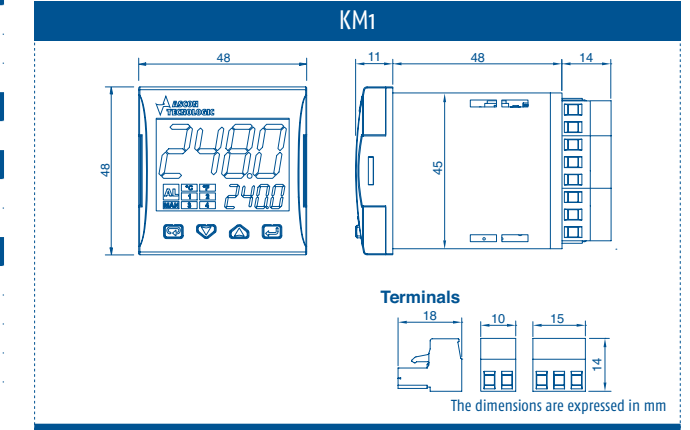
KM1	CODE
VERSION	
Controller	-
Controller + Timer	T
POWER SUPPLY	
24 Vac/Vdc	L
100... 240 Vac	H
INPUT	
TC, RTD, mA, V, mV/digital input 1	C
TC, NTC, PTC, mA, V, mV/digital input 1	E
OUT 1	
Relay SPST 4A	R
Vdc for SSR driving	O
OUT 2	
Relay SPST 2A	R
Vdc for SSR driving	O
Not available	-
OUT 3	
Relay 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  
 DIN RAIL MOUNTING CONTROLLERS  
 PARAMETRIC 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	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	1 or 2 according to instrument's part number (the 2nd digital input is alternative to OUT 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	Relay SPST-NO 2A/240 Vac or voltage to drive SSR 13V max. @ 1mA, 10.5V min. @ 15mA ±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 <sup>2</sup> (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



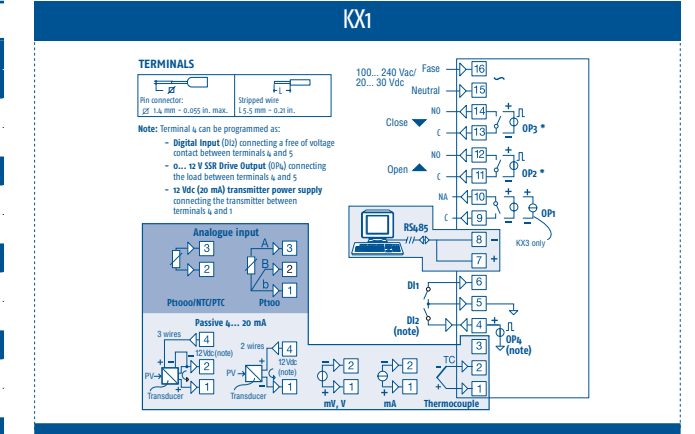
EVERYTHING UNDER CONTROL

## HOW TO ORDER

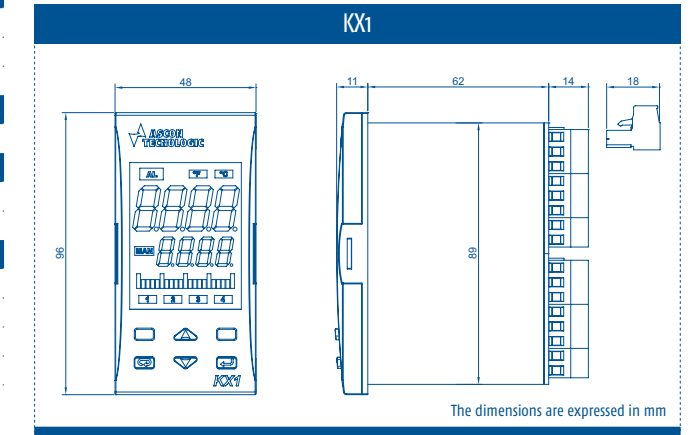
To compose the part number, pls. choose one of the option for each variable

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)	-

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMERS  
 DIN RAIL MOUNTING CONTROLLERS  
 PARAMETRS 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>Model: 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-NO 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	72 x 33 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 <sup>2</sup> (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



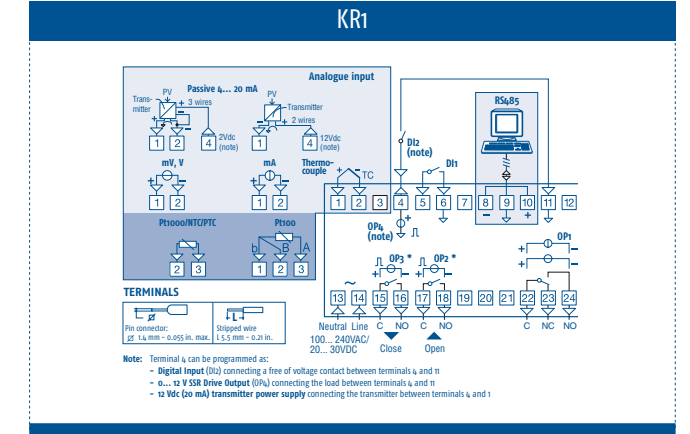
EVERYTHING UNDER CONTROL

## HOW TO ORDER

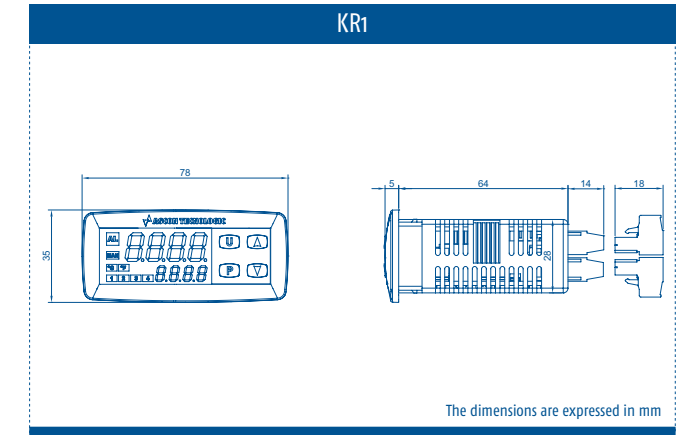
To compose the part number, pls. choose one of the option for each variable

KR1	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 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



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMERS  
 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

# R38

- "SENSITIVE TOUCH" KEYBOARD
- EASY PROGRAMMING



## FEATURES

<b>DISPLAY</b>		R38
Single	4 red or blue digit, h 12 mm	
<b>INPUTS</b>		
3 different configurations	Thermocouples J, K (-40... +999°C / -40... +999°F) or Infrared sensors: J or K	
	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	
<b>OUTPUTS</b>		
Up to 2	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.	
Auxiliary power supply	12 Vdc/20 mA max.	
<b>FUNCTIONAL</b>		
Control	ON/OFF single and double action, Neutral Zone, PID, programmable	
PID functions	Autotuning	
Sampling rate	1 sec	
Serial communication	TTL ModBus	
Baud rate	9600 baud	
<b>GENERAL</b>		
Power supply	12 Vac/Vdc, 24 Vac, 100... 240 Vac/Vdc ±10% (50/60 Hz)	
Power consumption	6 VA approx.	
Dimensions / Weight	78 x 35 mm - depth 64 mm / 180 g approx.	
Keyboard	Mechanical or "Sensitive Touch"	
Connections	Screw terminal block 2 x 1 mm <sup>2</sup> plug-in connector or fix type	
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	Directive EMC 2004/108/CE (EN 61326-1), Directive BT 2006/95/CE (EN 61010-1)	



EVERYTHING UNDER CONTROL

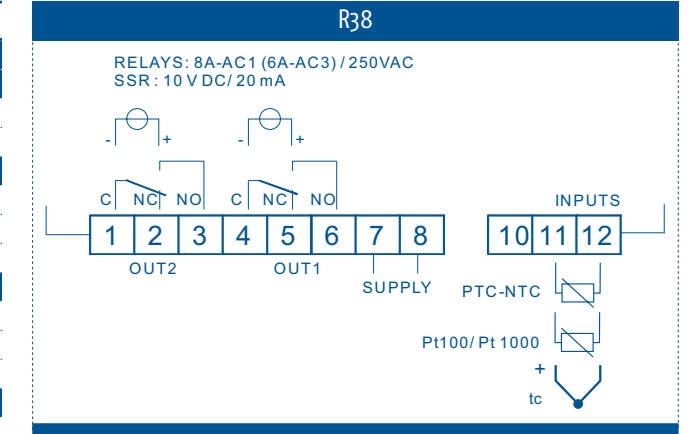
## HOW TO ORDER

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

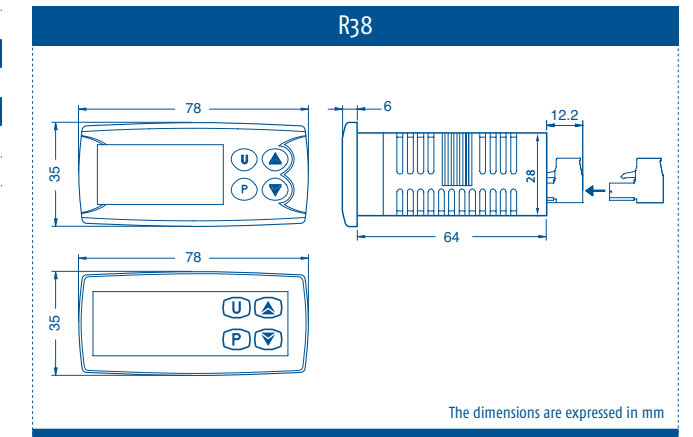
R38	CODE
<b>KEYBOARD</b>	
Mechanical	-
Sensitive-Touch (*)	S
<b>POWER SUPPLY</b>	
12 Vac/Vdc	F
24 Vac/Vdc	L
100... 240 Vac/Vdc	H
<b>INPUT</b>	
TC (J, K)	F
PT100 (2 wires only)	A
PTC/NTC/PT1000	T
<b>OUT 1</b>	
Relay SPDT 8A-AC1	R
Vdc for SSR driving	O
<b>OUT 2</b>	
Relay SPDT 8A-AC1	R
Vdc for SSR driving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

(\*) Capacitive Touch screen keyboard

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMERS  
 DIP SWAY MODIFYING CONTROLLERS  
 INFRARED 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



# TLK 41/42/43

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



FEATURES	TLK41	TLK42	TLK43
<b>DISPLAY</b>	Single display: 4 red digit, h 12 mm	Dual display: 4 red and green digit, h 7 mm	
<b>INPUTS</b>	Thermocouples: J (-160... +1000°C/-256... +1832°F or -160.0... +999.9°C/-199.9... +999.9°F), K (-100... +1370°C/-148... +2498°F or -100.0... +999.9°C/-148.0... +999.9°F), S (0... +1760°C/32... +3200°F or 0.0... 999.9°C/32.0... +999.9°F)		Thermocouples: J, K, S, B, C, E, L, N, R, T (see table next page for temperature ranges)
Universal	Infrared sensors: J or K		Thermoresistances: Pt100 and Pt1000 3 wires (see table next page for temperature ranges)
	Thermoresistances: Pt100 3 wires (-200... +850°C/-328... +1562°F or -199.9... +850.0°C/-199.9... +999.9°F) - according to EN 60751/A2, classe A or B		
	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
<b>OUTPUTS</b>	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		
Up to 4	12 Vdc/20 mA max.		
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	
<b>FUNCTIONAL</b>	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	
<b>GENERAL</b>	24 Vac/Vdc, 100... 240 Vac/Vdc ±10% (50/60 Hz)		
Power supply	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 <sup>2</sup>		
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)		



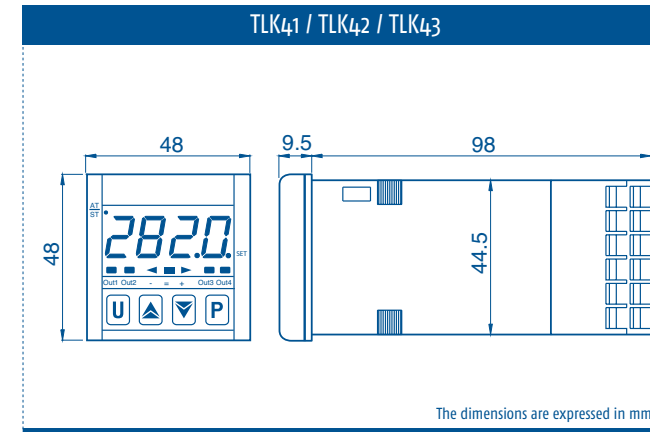
## HOW TO ORDER

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

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

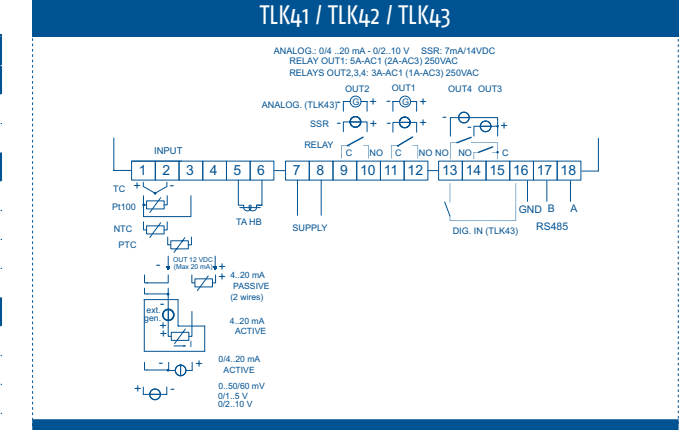
Notes:  
 TLK41-TLK42-TLK43: OUT 3 and OUT 4 have to be of the same type (both R or O).  
 CT INPUT: this function has to be always associated to an output (R or O).  
 TLK43: Analogue output and CT function are mutually exclusive.  
 Digital input is always available when RS485 option is provided.  
 RS485 and OUT 4 are mutually exclusive.

## DIMENSIONS



EVERYTHING UNDER CONTROL

## CONNECTIONS



## TEMPERATURE RANGES

TLK43 TEMPERATURE RANGES	WITHOUT D.P.	WITH D.P.
<b>INPUT</b>		
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  
 ADVANCED PROGRAMMABLE 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

# 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 Vac) 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 <sup>2</sup>
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)



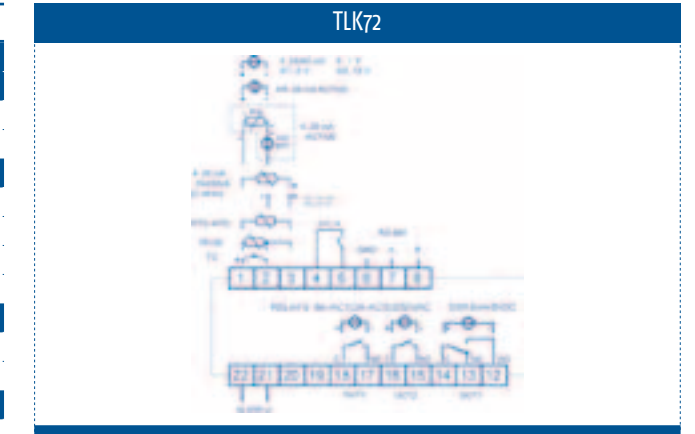
EVERYTHING UNDER CONTROL

## HOW TO ORDER

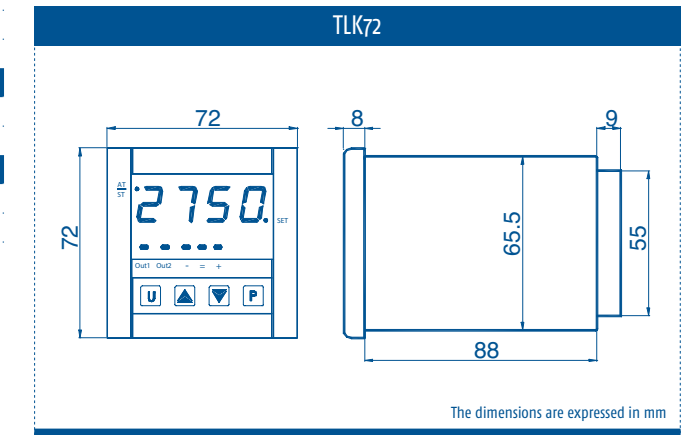
To compose the part number, pls. choose one of the option for each variable

<b>TLK72</b>	
<b>POWER SUPPLY</b>	
24 Vac/Vdc	L
100... 240 Vac	H
<b>INPUT</b>	
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
<b>OUT 1</b>	
Relay	R
Voltage for SSR driving	0
<b>OUT 2</b>	
Relay	R
Voltage for SSR driving	0
Not available	-
<b>OUT 3</b>	
Relay	R
Voltage for SSR driving	0
Not available	-
<b>SERIAL COMMUNICATION</b>	
RS485	S
Not available	-
<b>DIGITAL INPUT</b>	
Available	I
Not available	-

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS

ADVANCED PROGRAMMABLE CONTROLLERS

DIP-RAIL MOUNTING CONTROLLERS

PARAMETERS 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
Serial communication	ModBus
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 <sup>2</sup>
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)



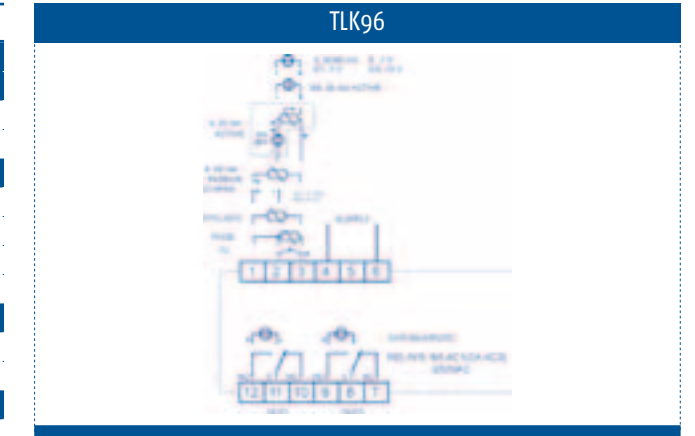
EVERYTHING UNDER CONTROL

## HOW TO ORDER

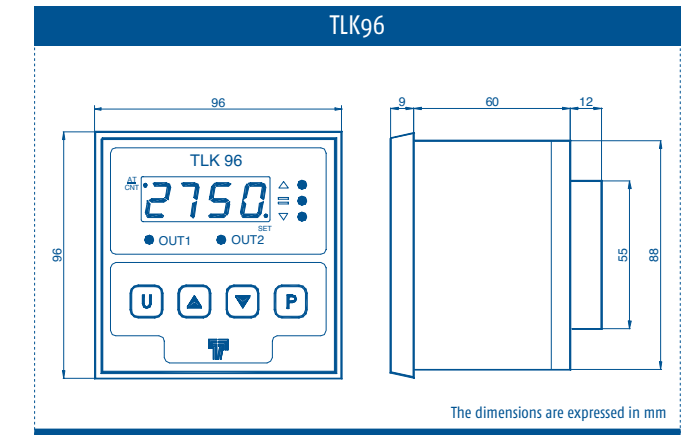
To compose the part number, pls. choose one of the option for each variable

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	O
OUT 2	
Relay	R
Voltage for SSR driving	O
Not available	-

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS

ADVANCED PROGRAMMERS

DIN RAIL MOUNTING CONTROLLERS

PARAMETERS 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

# TLK94

- UNIVERSAL INPUT
- RS485
- UP TO 5 OUTPUTS
- SERVO MOTOR CONTROL



FEATURES	
<b>DISPLAY</b> TLK94	
Dual display	Main display: 4 red digit, h 10 mm Secondary display: 4 green digit, h 7.5 mm
<b>INPUTS</b>	
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
<b>OUTPUTS</b>	
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.
<b>FUNCTIONAL</b>	
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
<b>GENERAL</b>	
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 <sup>2</sup>
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

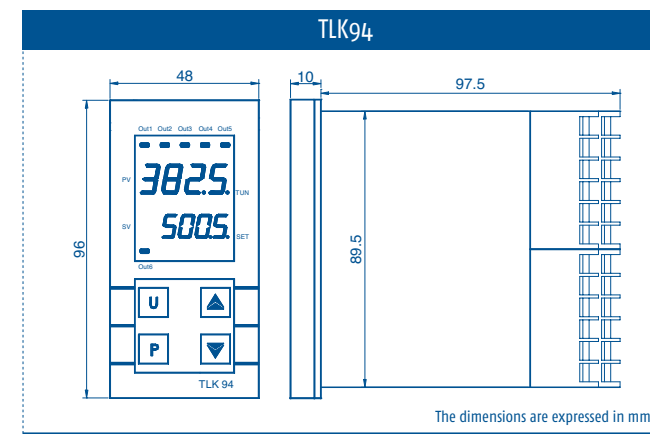
## HOW TO ORDER

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

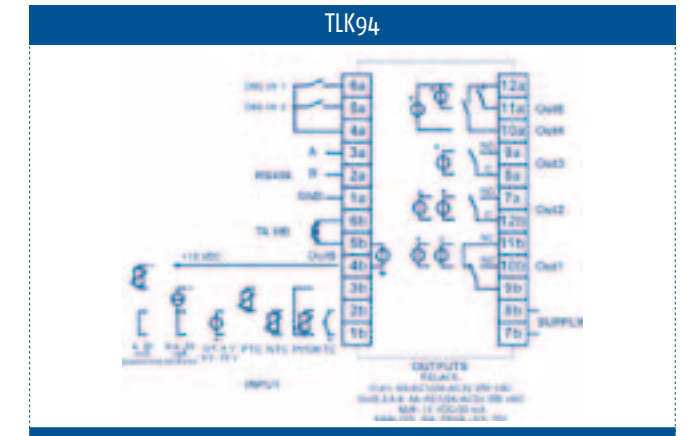
TLK94	
<b>POWER SUPPLY</b>	
24 Vac/Vdc	L
100... 240 Vac/Vdc	H
<b>OUT 1</b>	
Relay SPDT 6 A-AC1	R
Voltage for SSR driving	0
0/4... 20 mA	I
0/2... 10 V	V
<b>OUT 2</b>	
Relay SPST-NO 4 A-AC1	R
Voltage for SSR driving	0
0/4... 20 mA	I
0/2... 10 V	V
Not available	-
<b>OUT 3</b>	
Relay SPST-NO 4 A-AC1	R
Voltage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

INDUSTRIAL CONTROLLERS  
ADVANCED PROGRAMMERS  
DIP PAIR 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



# C1

- CONTROLLER / INDICATOR
- WITH 1 OR 2 ALARMS



## FEATURES

C1	
DISPLAY	Single 4 green digit, h 9 mm + 3 LEDs
INPUTS	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	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	
<b>FUNCTIONAL</b>	
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
<b>GENERAL</b>	
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 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 61000-6-3:2001, EN 61000-6-4:2001, EN 61000-6-2:2001

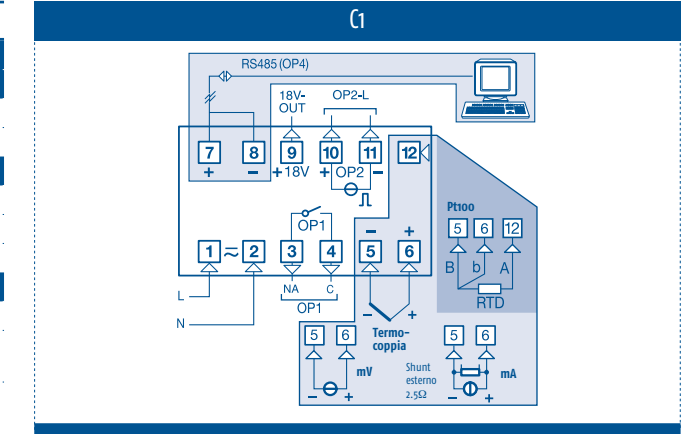


## HOW TO ORDER

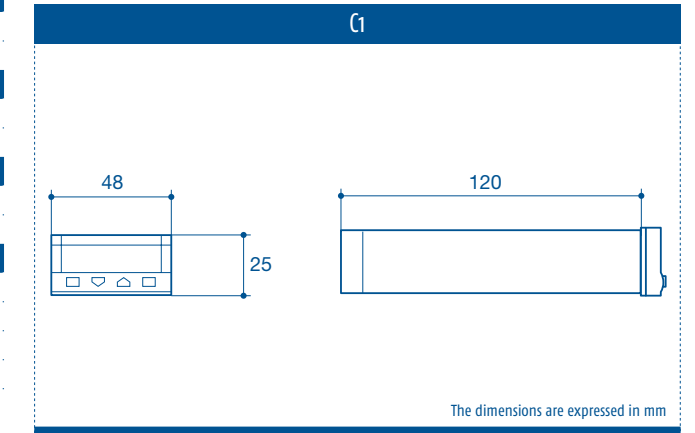
To compose the part number, pls. choose one of the option for each variable

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

## CONNECTIONS



## DIMENSIONS



# 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) +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 <sup>2</sup> (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



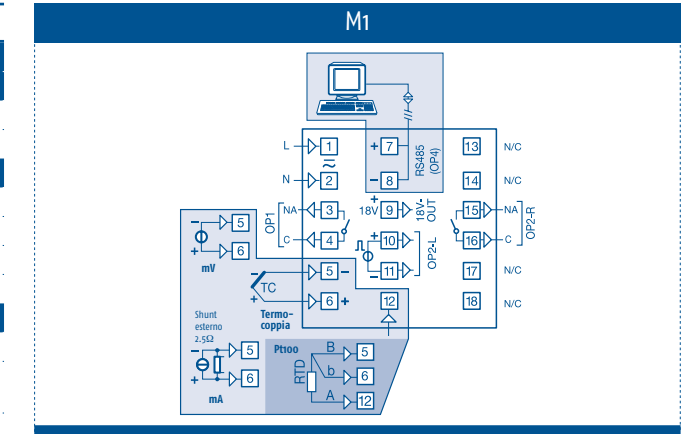
EVERYTHING UNDER CONTROL

## HOW TO ORDER

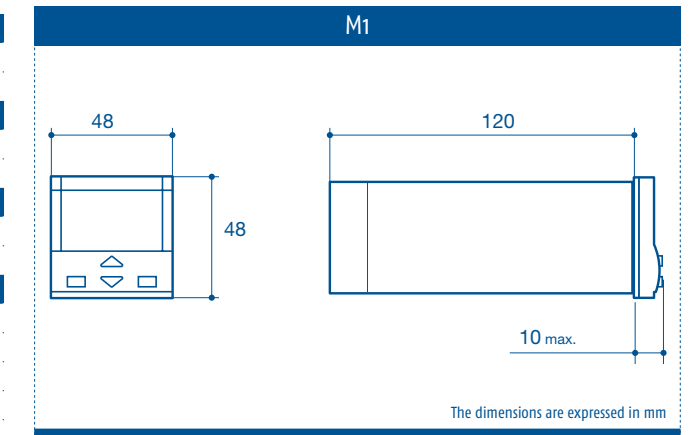
To compose the part number, pls. choose one of the option for each variable

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	00
Transmitter Power supply	06
Transmitter Power supply + retransmission	07
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



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

# 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: L/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



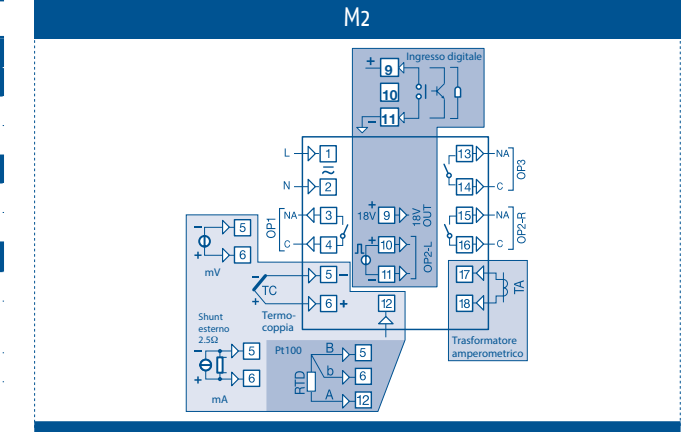
EVERYTHING UNDER CONTROL

## HOW TO ORDER

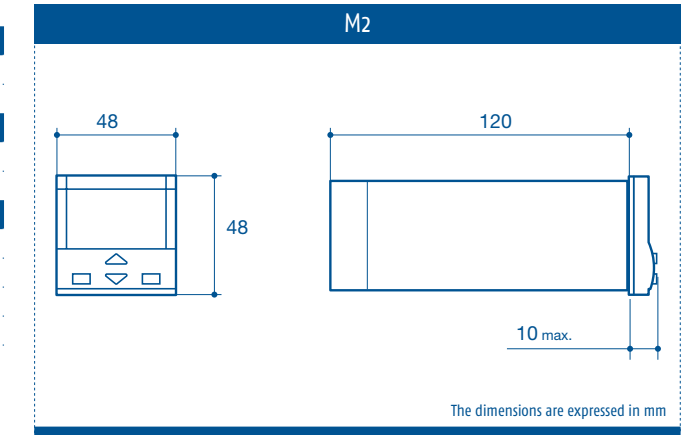
To compose the part number, pls. choose one of the option for each variable

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

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMERS  
 DIN RAIL MOUNTING CONTROLLERS  
 PARAMETRIC 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

# M3 / M4

- REGOLATORE CALDO-FREDDO
- REGOLATORE CALDO-FREDDO CON USCITA CONTINUA



**FEATURES**

DISPLAY	M3	M4
Dual	Main display: 4 green digit, h 10 mm Secondary display: 4 green digit, h 6.75 mm + 5 LEDs	
<b>INPUTS</b>		
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	
<b>OUTPUTS</b>		
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	
<b>FUNCTIONAL</b>		
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	
<b>GENERAL</b>		
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 mm <sup>2</sup> (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

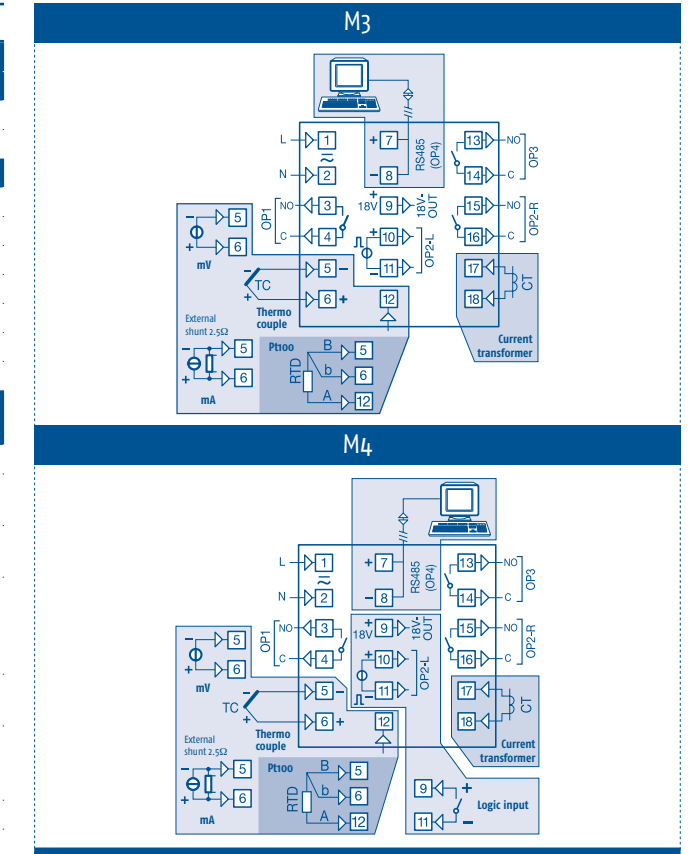
## HOW TO ORDER

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

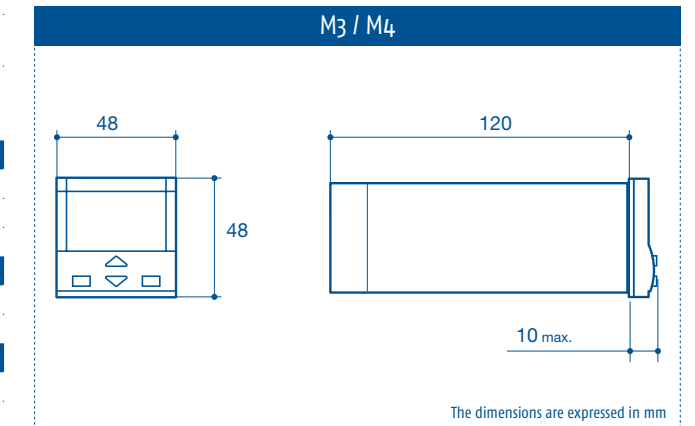
M3 / M4	CODE
<b>POWER SUPPLY</b>	
100... 240 Vac/Vdc	3
24 Vac/Vdc	5
<b>OUT 1, 2 E 3</b>	
Relay/Relay/Voltage for SSR driving	0
Relay/Relay/Voltage for SSR driving + Relay	1
Relay/Relay/Voltage for SSR driving + triac	2
Triac/Relay/Voltage for SSR driving + Relay	4
Triac/Relay/Voltage for SSR driving + triac	5
Relay + triac/Voltage for SSR driving + Relay (M3 only)	7
Relay + Voltage for SSR driving (M3 only)	8
<b>SERIAL COMMUNICATION + DIGITAL INPUT</b>	
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
<b>SPECIAL FUNCTIONS</b>	
Not available	0
Start-up + Timer	2
Limit switch version	9
<b>INSTRUCTION MANUAL</b>	
Italian/English	0
Not available	9
<b>FRONT FRAME COLOUR</b>	
Dark grey	0
Dark grey + shunt 0,1%	2
<b>SPECIAL EXECUTION</b>	
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  
 PARAMETRIC 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	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	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 <sup>2</sup> (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	



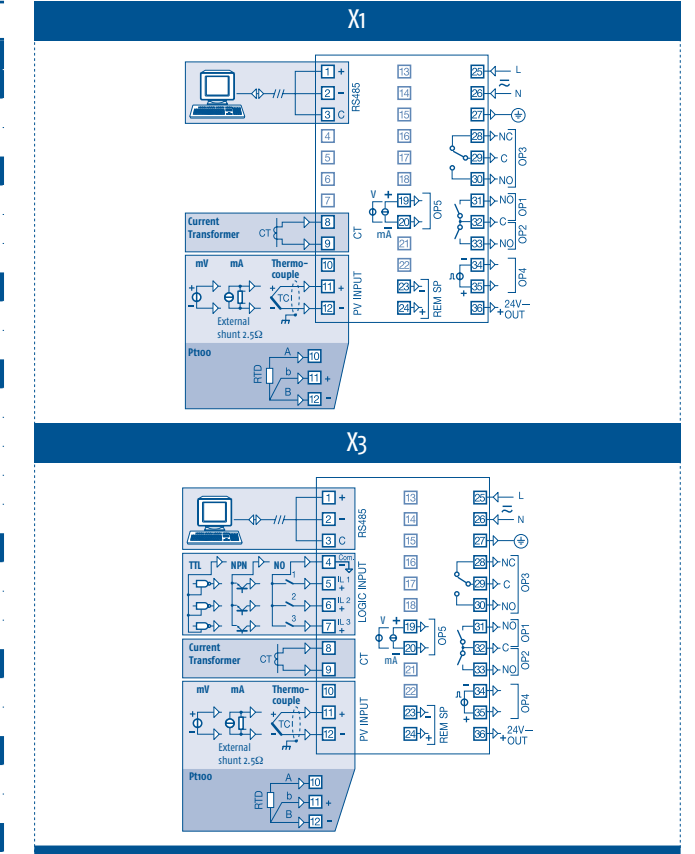
## HOW TO ORDER

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

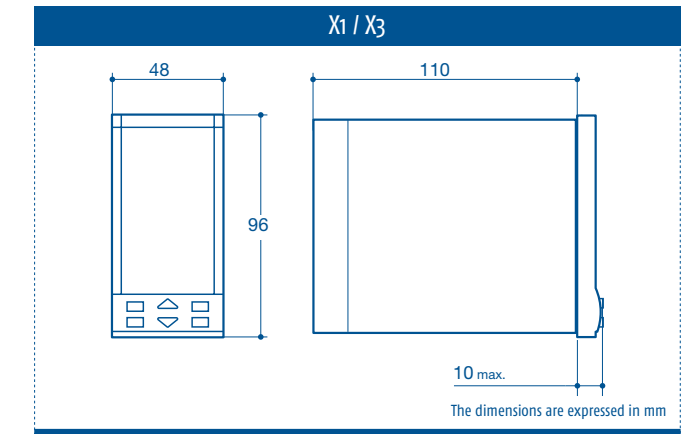
X1 / X3	CODE
<b>POWER SUPPLY</b>	
100... 240 Vac/Vdc	3
24 Vac/Vdc	5
<b>OUT 1, OUT 2, OUT 3 AND OUT 4</b>	
Relay-Relay-Relay-Voltage for SSR driving	1
Triac-triac-Relay-Voltage for SSR driving	5
Relay-Relay-Relay-Relay	9
<b>SERIAL COMMUNICATION</b>	
Not available	0
RS485	5
<b>OPTIONS</b>	
Not available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

EVERYTHING UNDER CONTROL

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMABLE CONTROLLERS  
 DIN RAIL MOUNTING CONTROLLERS  
 PARAMETRIC 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

# Q1 / Q3

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



FEATURES	Q1	Q3
<b>DISPLAY</b>	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
<b>INPUTS</b>	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)	
Universal		
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
<b>OUTPUTS</b>		
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: 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.	
Auxiliary power supply	+18Vdc ±20%, 30mA max. for external transmitter (2, 3 or 4 wires)	
<b>FUNCTIONAL</b>		
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	
<b>GENERAL</b>		
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	



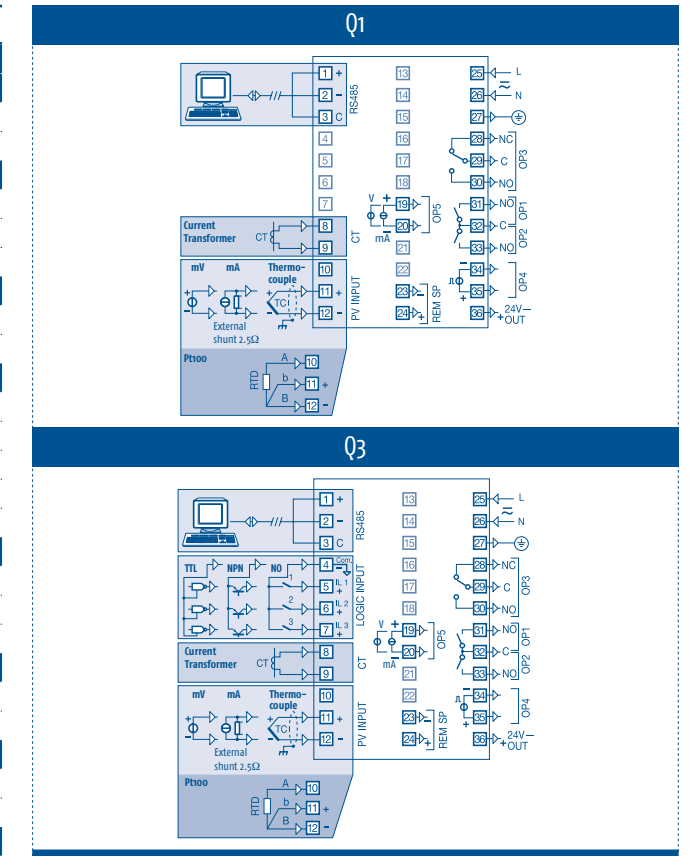
## HOW TO ORDER

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

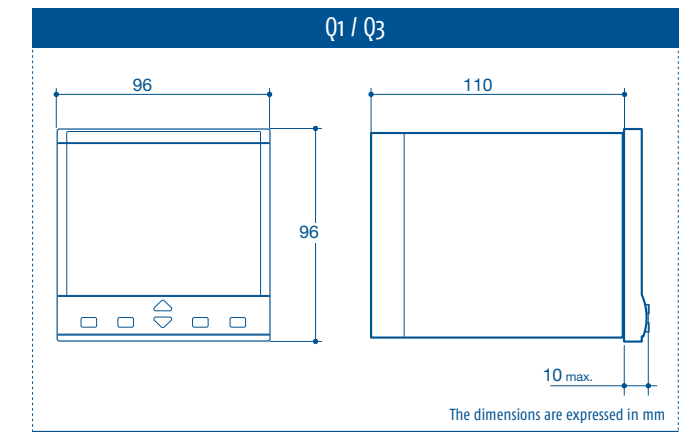
Q1 / Q3	CODE
<b>POWER SUPPLY</b>	
100... 240 Vac/Vdc	3
24 Vac/Vdc	5
<b>OUT 1, OUT 2, OUT 3 AND OUT 4</b>	
Relay-Relay-Relay-Voltage for SSR driving	1
Triac-triac-Relay-Voltage for SSR driving	5
Relay-Relay-Relay-Relay	9
<b>SERIAL COMMUNICATION</b>	
Not available	0
RS485	5
<b>OPTIONS</b>	
Not available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

EVERYTHING UNDER CONTROL

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
ADVANCED PROGRAMMABLE CONTROLLERS  
DIP-RAIL MOUNTING CONTROLLERS  
PARAMETERS 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

## 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	KX3	KR3	K31	K32	K38	K39	K48	K49	K85	K30	M5	X5	Q5
Dimensions (mm)	78x35			•	•	•	•	•							
	48x48	•											•		
	48x96		•						•	•				•	
	70 x 84 4 DIN Modules										•	•			
	96x96														•
3 dynamic colour dual 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				•	•	•	•	•	•	•	•			
	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	2	2	3	3	3	5	3	4	4
Analogue current or voltage outputs		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  
 DIP 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

# KM3

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

evolution



FEATURES	
DISPLAY	KM3
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	<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) Infrared sensors: J or K</p> <p>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</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) 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) 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	<p>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)</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	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 <sup>2</sup> (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



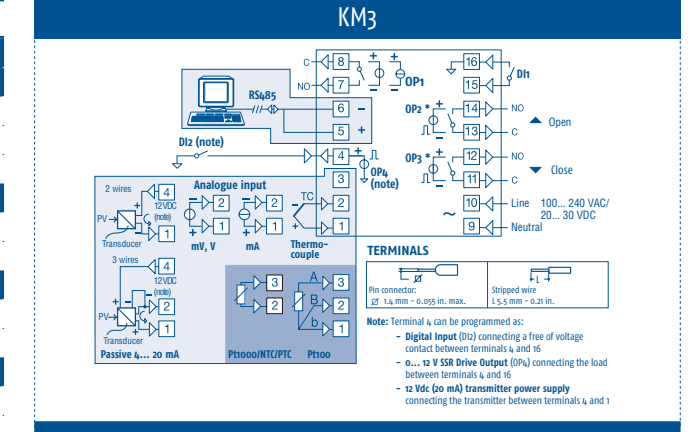
EVERYTHING UNDER CONTROL

## HOW TO ORDER

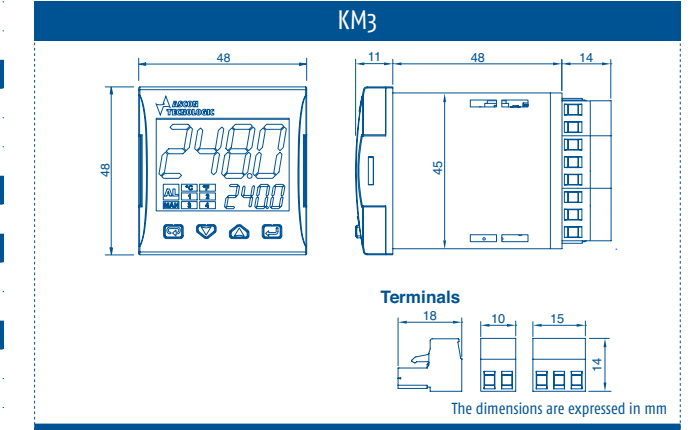
To compose the part number, pls. choose one of the option for each variable

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)	-

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMER CONTROLLERS  
 DIN RAIL MOUNTING CONTROLLERS  
 PARAMETRS 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 <sup>2</sup> (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



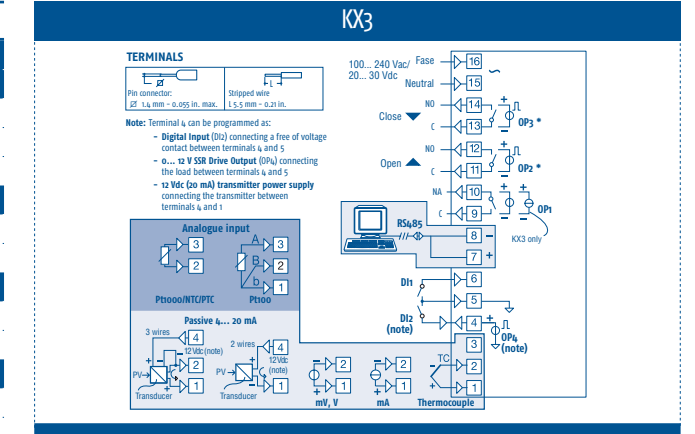
EVERYTHING UNDER CONTROL

## HOW TO ORDER

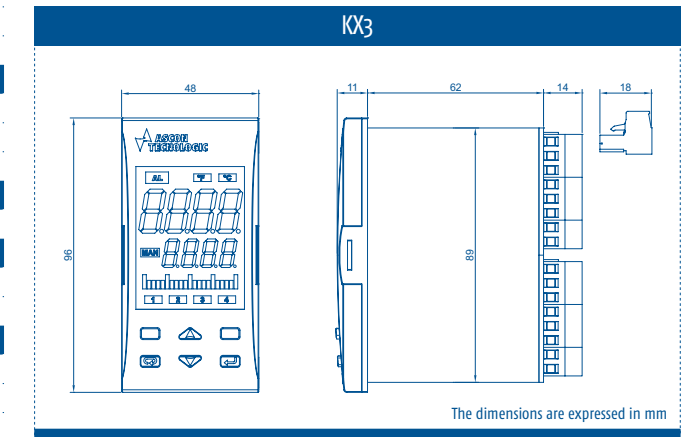
To compose the part number, pls. choose one of the option for each variable

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)	-

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMER CONTROLLERS  
 DIN RAIL MOUNTING CONTROLLERS  
 PARAMETRS 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

# KR3

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

evolution



FEATURES	
DISPLAY	KR3
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	<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	<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	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 <sup>2</sup> (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



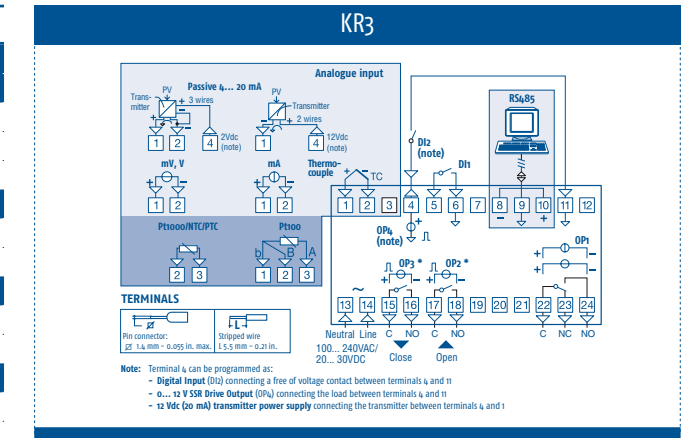
EVERYTHING UNDER CONTROL

## HOW TO ORDER

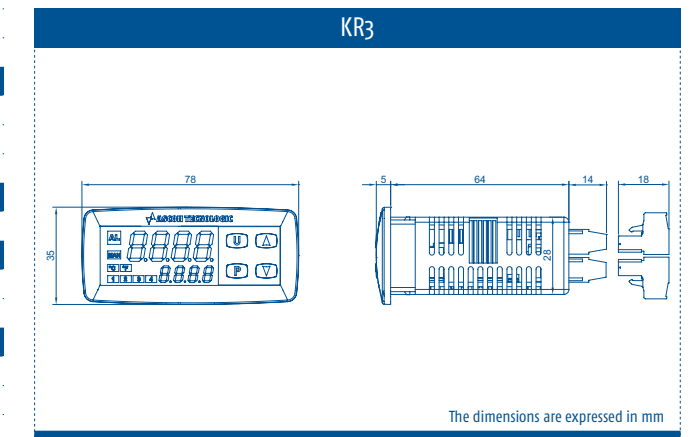
To compose the part number, pls. choose one of the option for each variable

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



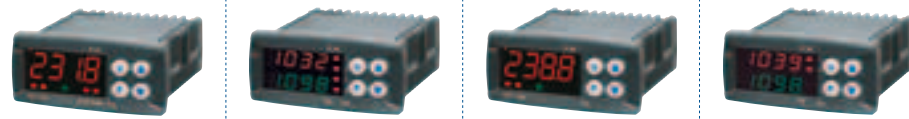
## DIMENSIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMER CONTROLLERS  
 DIN RAIL MOUNTING CONTROLLERS  
 PARAMETRS ANALOGUE CONTROLLERS  
 SPECIAL CONTROLLERS AND "CUSTOM"  
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 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) 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			
4 different configurations				
Accuracy	±0.5% fs + 1 digit; tc 5 ±1% fs + 1 digit			
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			
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: 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.			
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 <sup>2</sup>		Screw terminal block 2 x 1 mm <sup>2</sup>	
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)			



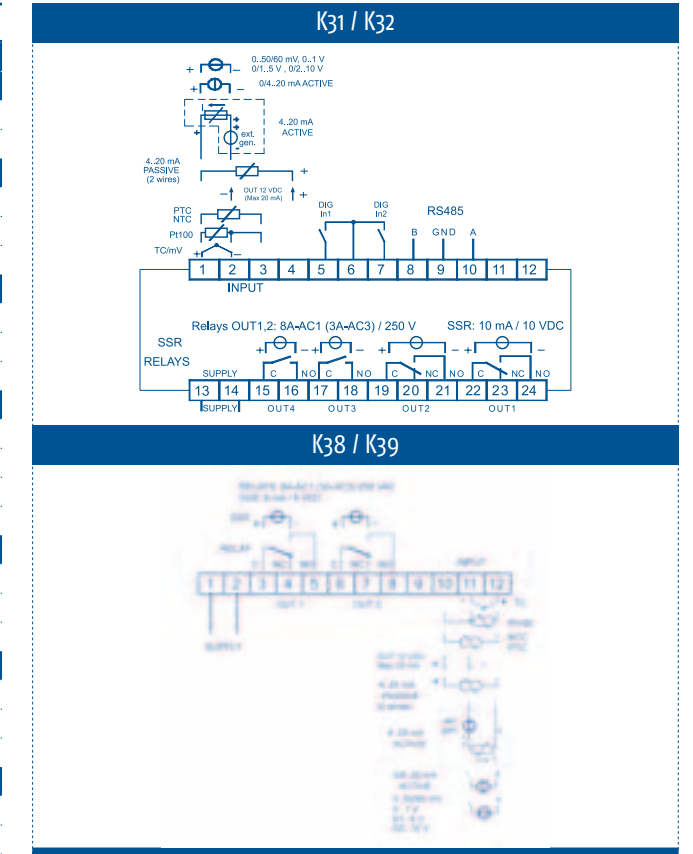
## HOW TO ORDER

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

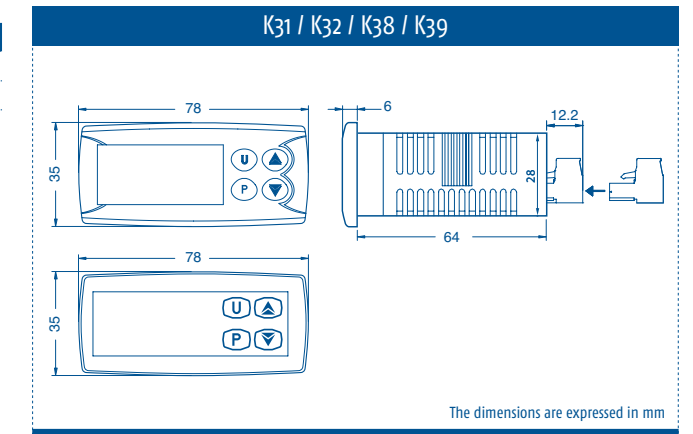
K31 / K32 / K38 / K39	CODE
KEYBOARD	
Mechanical	-
Sensitive-Touch (*) - K32 only	S
VERSION	
Controller	-
Controller + Timer	T
Controller + Timer + Programmer	P
POWER SUPPLY	
12 Vac/Vdc	F
24 Vac/Vdc	L
100... 240 Vac	H
INPUT	
TC, PT100, mV	C
TC, PTC, NTC, mV	E
0/4... 20mA	I
0... 1V, 0/1... 5V, 0/2... 10V	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

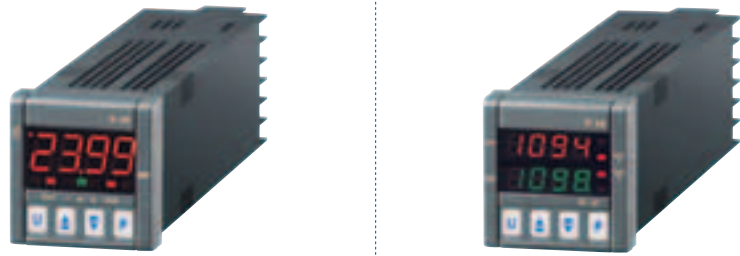


The dimensions are expressed in mm



# 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
<b>INPUTS</b>		
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	
<b>OUTPUTS</b>		
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.	
<b>FUNCTIONAL</b>		
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	
<b>GENERAL</b>		
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 <sup>2</sup>	
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)	



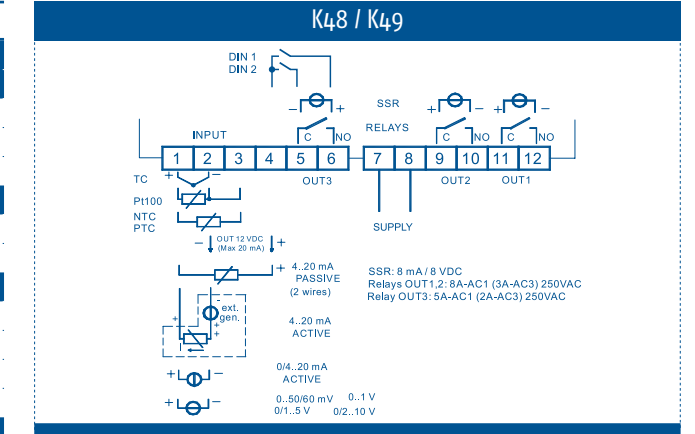
EVERYTHING UNDER CONTROL

## HOW TO ORDER

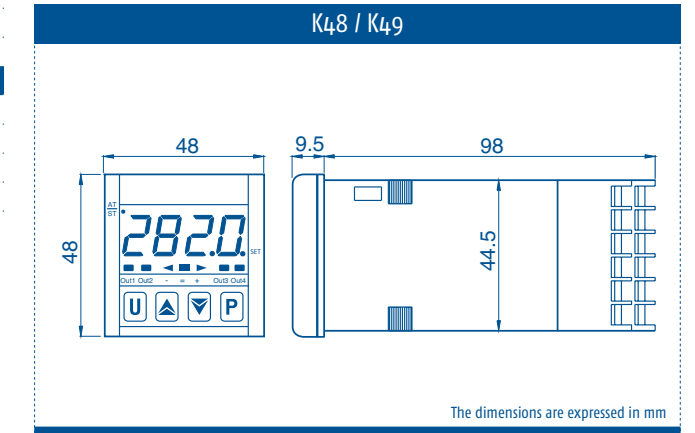
To compose the part number, pls. choose one of the option for each variable

K48/K49	CODE
<b>VERSION</b>	
Controller	-
Controller + Timer	T
Controller + Timer + Programmer	P
<b>POWER SUPPLY</b>	
24 Vac/Vdc	L
100... 240 Vac	H
<b>INPUT</b>	
TC,PT100,mV	C
TC,PTC,NTC,mV	E
0/4... 20mA	I
0... 1V, 0/1... 5V, 0/2... 10V	V
<b>OUT 1</b>	
Relay SPDT 8A-AC1	R
Vdc for SSR driving	0
<b>OUT 2</b>	
Relay SPDT 8A-AC1	R
Vdc for SSR driving	0
Not available	-
<b>OUT 3/ DIGITAL INPUTS</b>	
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  
 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 <sup>2</sup>
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)



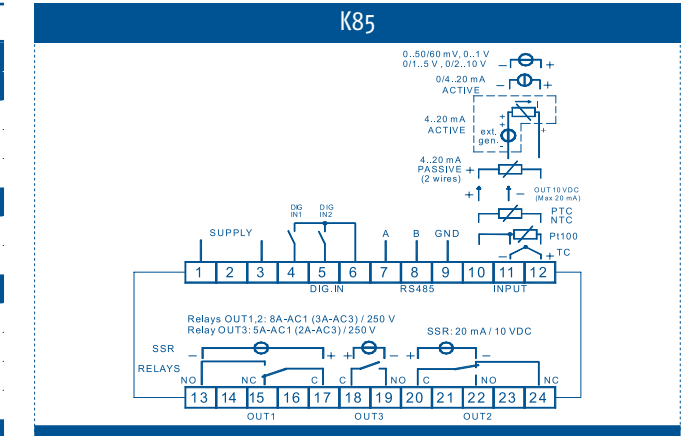
EVERYTHING UNDER CONTROL

## HOW TO ORDER

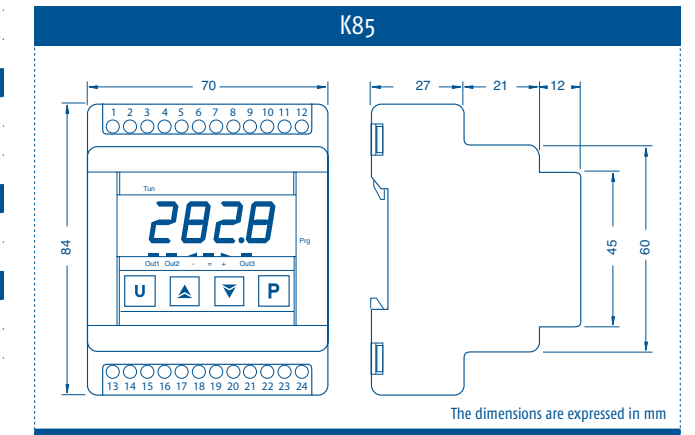
To compose the part number, pls. choose one of the option for each variable

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	-
INPUT DIGITALE	
2 digital inputs	D
Not available	-

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMER CONTROLLERS  
 DIN RAIL MOUNTING CONTROLLERS  
 PARAMETRS 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	
<b>INPUTS</b>	
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
<b>OUTPUTS</b>	
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.
<b>FUNCTIONAL</b>	
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	Del Set Point
Serial communication	RS485 con protocollo ModBus-RTU (JBUS)
Baud rate	1200... 38400 baud, programmabile
<b>GENERAL</b>	
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 <sup>2</sup>
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)



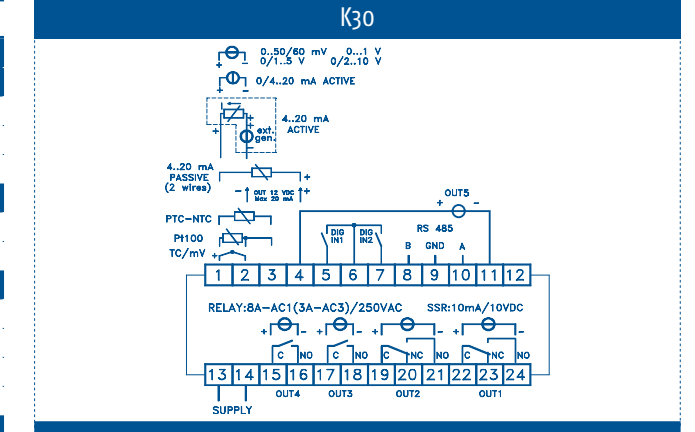
EVERYTHING UNDER CONTROL

## HOW TO ORDER

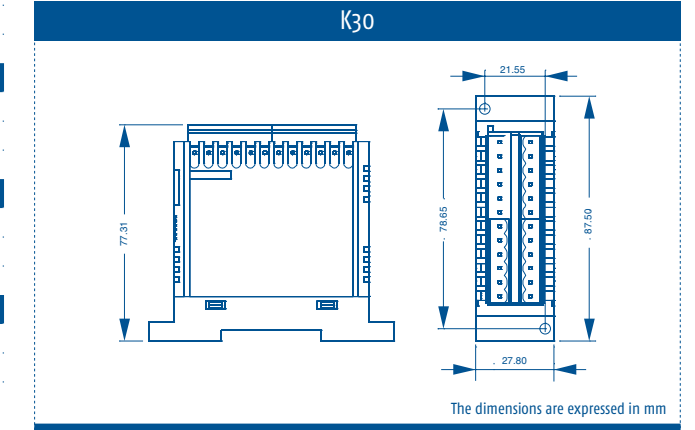
To compose the part number, pls. choose one of the option for each variable

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

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMER CONTROLLERS  
 DIN RAIL MOUNTING CONTROLLERS  
 PARAMETRIC 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

# M5

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



**FEATURES**

DISPLAY	
M5	
Double	Main display: 4 green digit, h 10 mm Secondary display: 4 green digit, h 8 mm + 8 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 (thermoelements) 0 0.1% ±1 digit (for mA and mV)
Auxiliary inputs (opt.)	Non isolated remote Set Point: current 0/4... 20mA or voltage 1...5/ 0...5/ 0...10V 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...1/5/10V 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 <sup>2</sup> (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

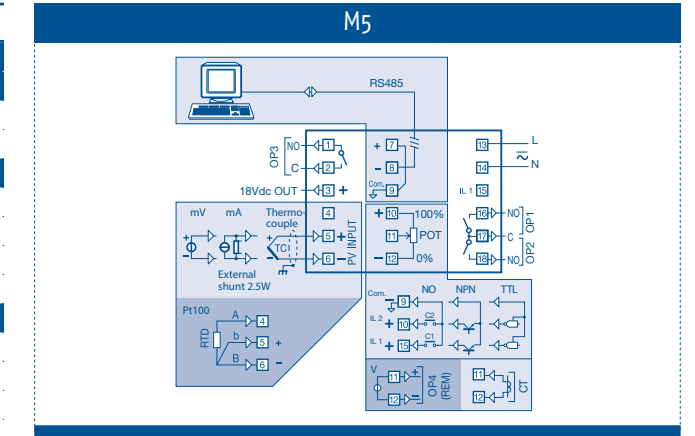


## HOW TO ORDER

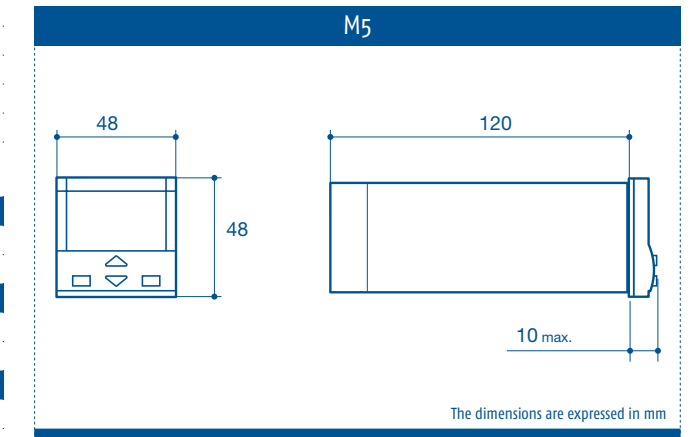
To compose the part number, pls. choose one of the option for each variable

M5	CODE
<b>POWER SUPPLY</b>	
100... 240 Vac	3
24 VacVdc	5
<b>OUT 1 AND OUT 2</b>	
Relay/Relay	1
Relay/triac	2
Triac/Relay	4
Triac/triac	5
<b>SERIAL COMMUNICATION</b>	
<b>OPTIONS</b>	
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
<b>SPECIAL FUNCTIONS</b>	
Not available	0
Programmer	1
<b>INSTRUCTION MANUAL</b>	
Italian/English	0
Not available	9
<b>FRONT FRAME COLOUR</b>	
Dark grey (std)	0
Dark grey shunt 0.1%	2
<b>SPECIAL EXECUTION</b>	
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  
PARAMETERS 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
<b>INPUTS</b>		
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)	
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	
<b>OUTPUTS</b>		
Up to 6	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	
<b>FUNCTIONAL</b>		
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)	
<b>GENERAL</b>		
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 <sup>2</sup> (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	



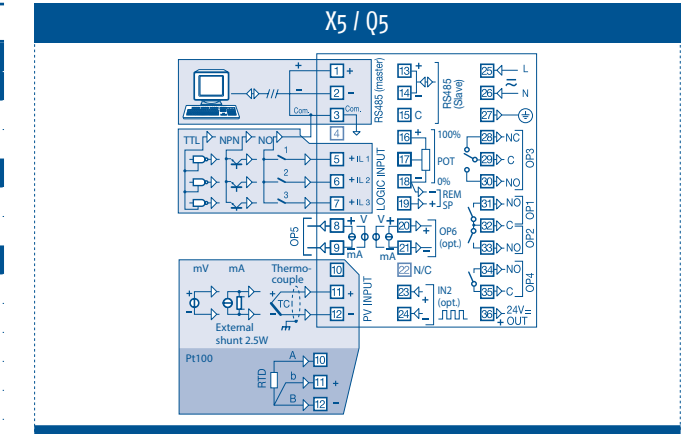
EVERYTHING UNDER CONTROL

## HOW TO ORDER

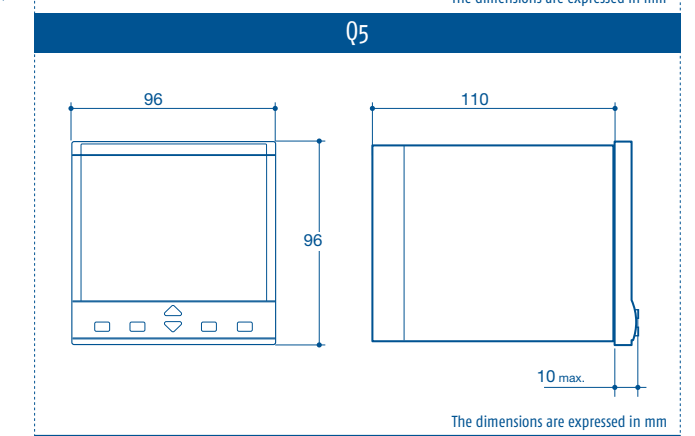
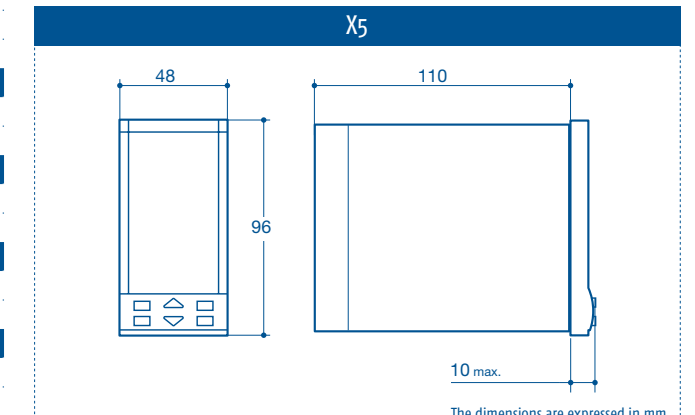
To compose the part number, pls. choose one of the option for each variable

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

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
ADVANCED PROGRAMMER CONTROLLERS  
DIN RAIL MOUNTING CONTROLLERS  
PARAMETERS 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	K85	TLZ35
Dimensions (mm)	78 x 35 22.5 x 99 1 DIN Module	•	•	•	•		
	70 x 84 4 DIN Modules					•	•
Single display 4 digit						•	•
Input	Number of inputs	1	1	2	1	1	1
	Universal	•	•	•			
	J-K-S-R-T + IR + PTC-NTC				•	•	•
	J-K-S-R-T + IR + Pt100				•	•	•
	Digital	1	1	1+2	2	2	
	For CT	•					
Relay or voltage for SSR drive outputs		4	4	2+2	5	4	2
Analogue current or voltage outputs			1				
Measuring or Set Point retransmission			•				
Power supply	12 Vac/Vdc						•
	24 Vac/Vdc	•	•	•	•	•	•
	100... 240 Vac				•	•	•
Control Loops		1	1	2	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
- PLC AND OPERATOR PANELS
- TIMERS COUNTERS POWER LIMITERS
- INDICATORS
- I/O MODULES
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- 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)
<b>OUTPUTS</b>			
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		--
<b>FUNCTIONAL</b>			
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		
<b>GENERAL</b>			
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 <sup>2</sup> (AWG28-AWG16) Inputs/Outputs: 0.2... 2.5 mm <sup>2</sup> (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.

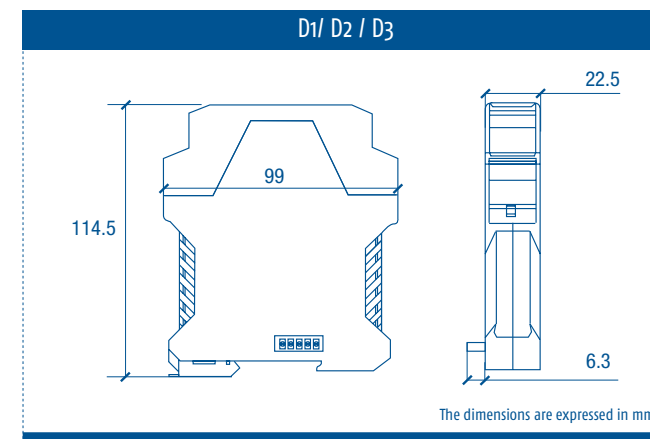


## HOW TO ORDER

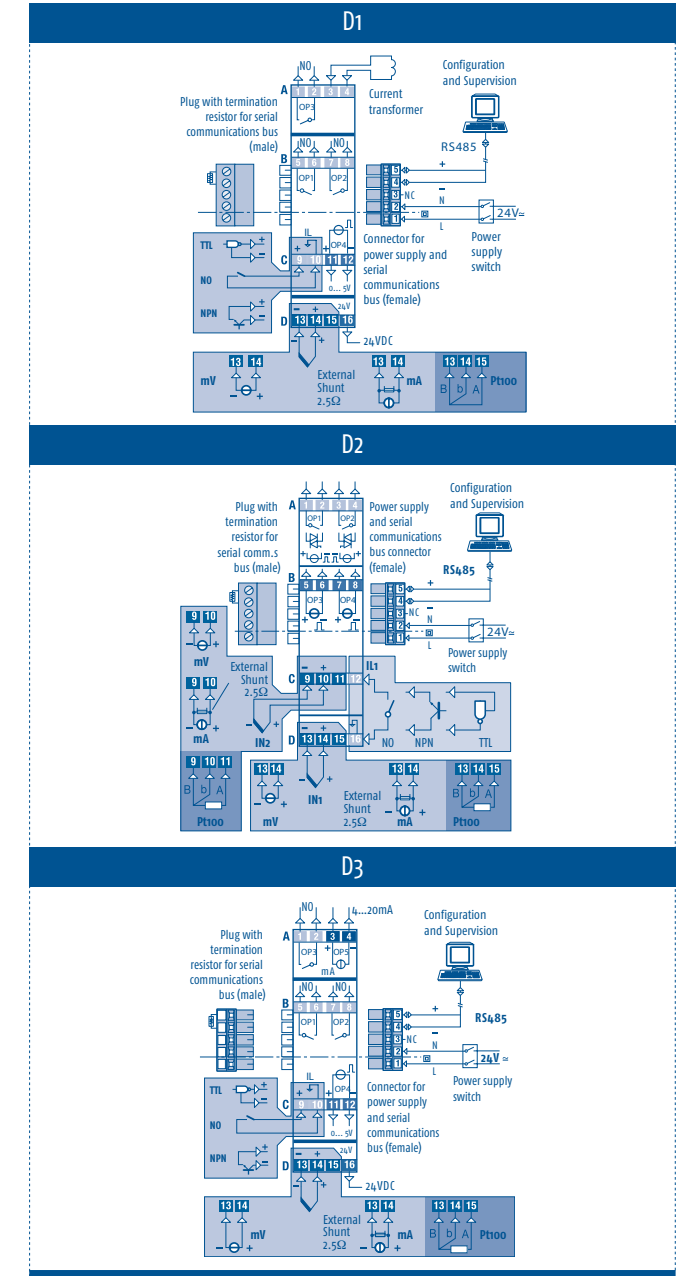
To compose the part number, pls. choose one of the option for each variable

D1 / D2 / D3	CODE
<b>POWER SUPPLY</b>	
24 Vac/Vdc	5
<b>OUT 1 E 2</b>	
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
<b>SERIAL COMMUNICATION</b>	
RS485	5
<b>OPTIONS 1</b>	
Not available	0
Servomotor (D3 only)	2
Current transformer (D1 only)	3
Analogue Out (D3 only)	5
Servomotor + Analogue Out (D3 only)	7
<b>SPECIAL FUNCTIONS (D1 AND D3 ONLY)</b>	
Not available	0
Start-up + Timer	2
<b>INSTRUCTION MANUAL</b>	
Italian/English	0
Not available	9
<b>OPTIONS 2</b>	
Shunt 1%	0
Shunt 0.1%	2
<b>OPTIONS 3</b>	
Not available	0
Tropicalization	3

## DIMENSIONS



## CONNECTIONS





# K30

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



## FEATURES

K30	
<b>INPUTS</b>	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
<b>OUTPUTS</b>	
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.
<b>FUNCTIONAL</b>	
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	Del Set Point
Serial communication	RS485 con protocollo ModBus-RTU (JBUS)
Baud rate	1200... 38400 baud, programmabile
<b>GENERAL</b>	
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 <sup>2</sup>
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)



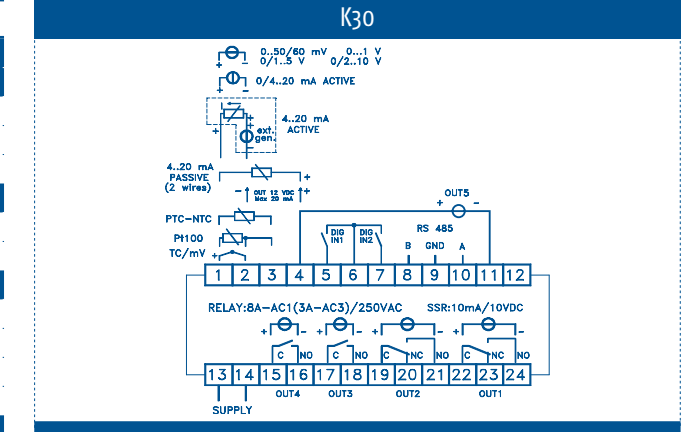
EVERYTHING UNDER CONTROL

## HOW TO ORDER

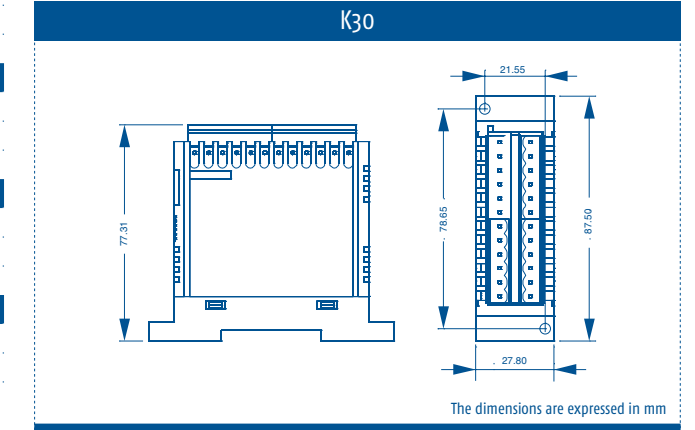
To compose the part number, pls. choose one of the option for each variable

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

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
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 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 <sup>2</sup>
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)



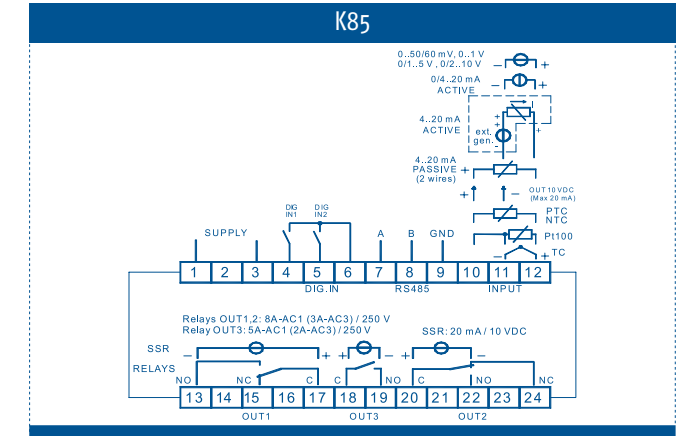
EVERYTHING UNDER CONTROL

## HOW TO ORDER

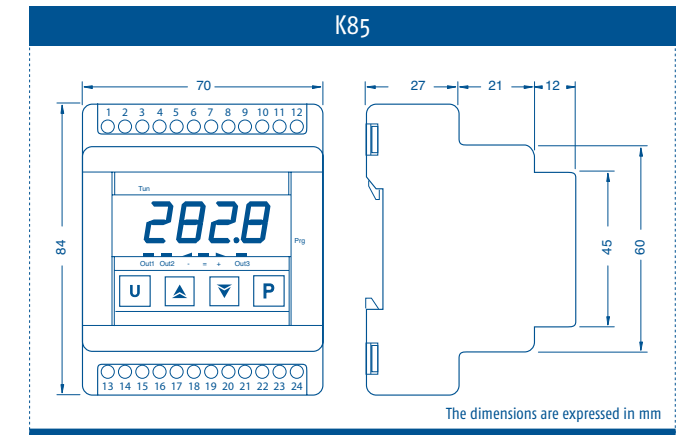
To compose the part number, pls. choose one of the option for each variable

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	-
INPUT DIGITALE	
2 digital inputs	D
Not available	-

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
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 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 <sup>2</sup>
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)

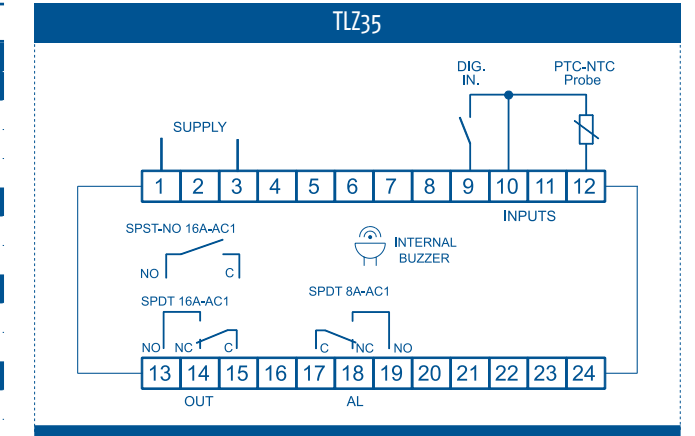


## HOW TO ORDER

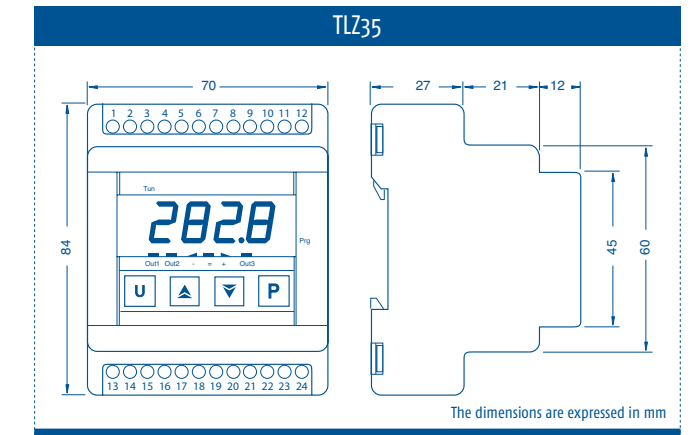
To compose the part number, pls. choose one of the option for each variable

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	•	•	•	•	•	•	•
CE certification		•	•	•	•	•	•	•
UL approval		•	•	•	•			
ENEC approval (with "Sensitive Touch" keyboard only)		•						

- INDUSTRIAL CONTROLLERS
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- DIN RAIL MOUNTING CONTROLLERS
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- PAC SYSTEMS
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- 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	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
CONTROL	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 <sup>2</sup> or plu-in connector with screw terminals 2.5 mm <sup>2</sup>
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).



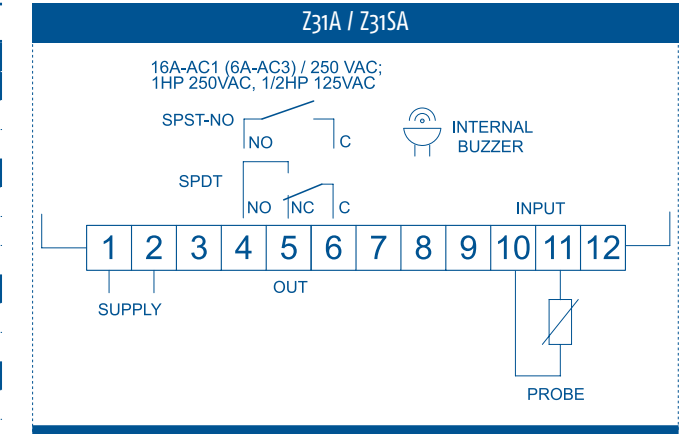
## HOW TO ORDER

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

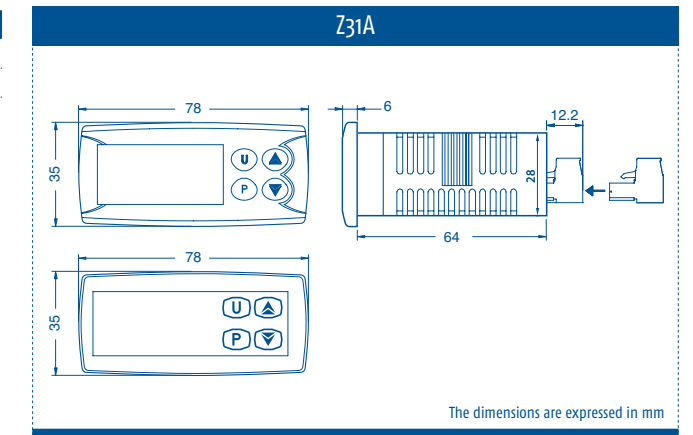
Z31A	CODE
KEYBOARD	
Mechanical	-
Sensitive-Touch (*)	S
POWER SUPPLY	
12 Vac/Vdc	F
12... 24 Vac/Vdc	G
100... 240 Vac	H
OUT 1	
Relay SPDT 16A-AC1	S
Relay SPST NO-16A-AC1	R
BUZZER (INTERNAL)	
Available	B
Not available	-
CONNECTION	
Plug-in screw type	E
Plug-in screw type, fix part only	N
Fix screw type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

(\*) Capacitive Touch screen keyboard

## CONNECTIONS



## DIMENSIONS



# 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 <sup>2</sup> 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)

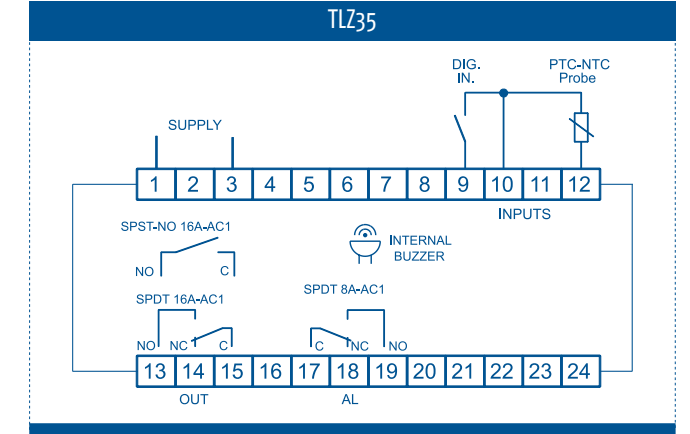


## HOW TO ORDER

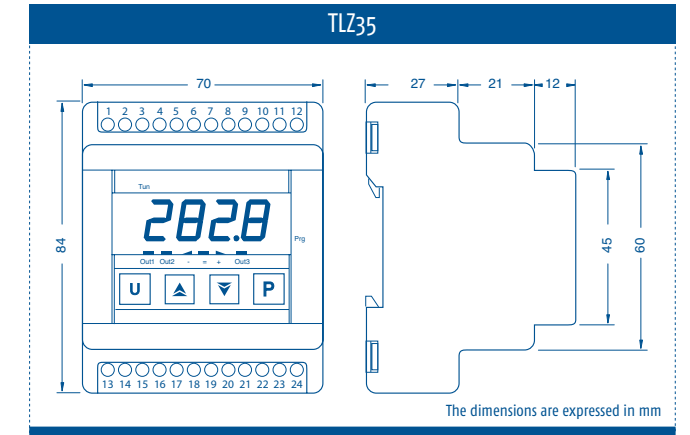
To compose the part number, pls. choose one of the option for each variable

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	E51A 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 <sup>2</sup>
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)



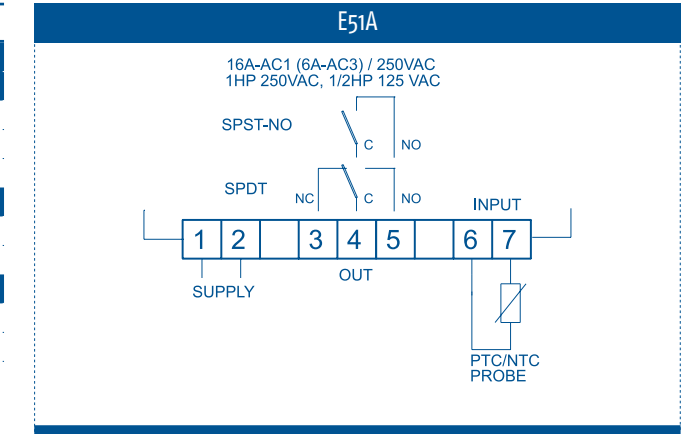
EVERYTHING UNDER CONTROL

## HOW TO ORDER

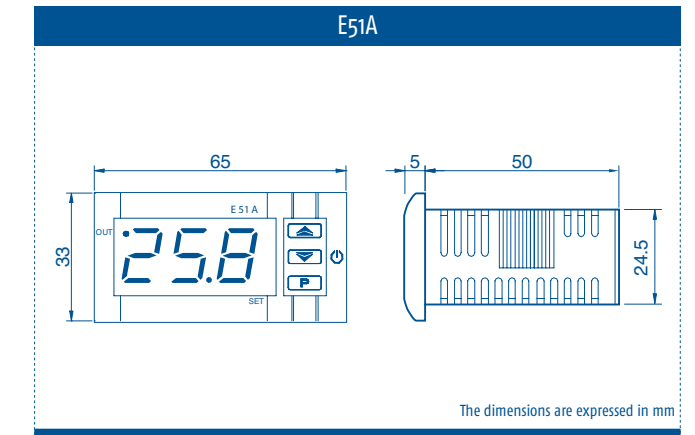
To compose the part number, pls. choose one of the option for each variable

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 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

# 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 <sup>2</sup> / 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).

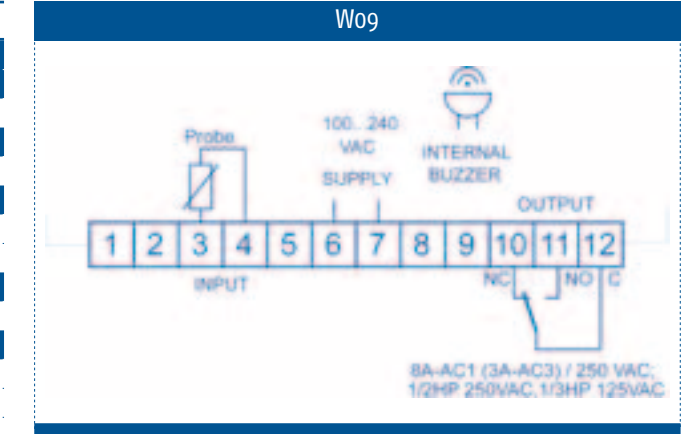


## HOW TO ORDER

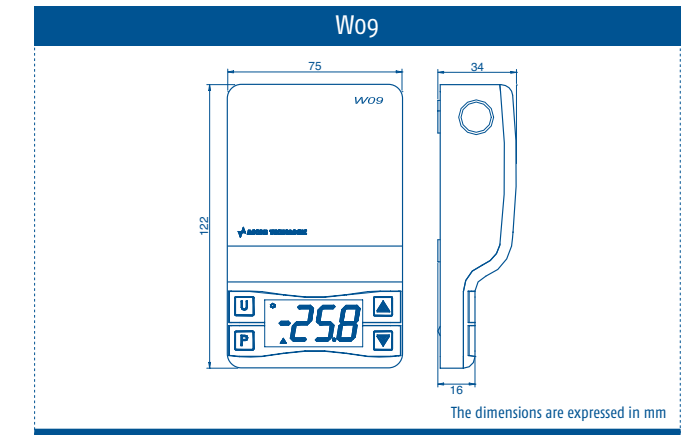
To compose the part number, pls. choose one of the option for each variable

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

TCPDE M	
<b>INPUTS</b>	Thermocouples J, K Thermoresistances Pt 100 IEC
2 different configurations	
Accuracy	±5% f.s.
<b>OUTPUT</b>	
One	OUT 1: Relay 8A-AC1 (3A-AC3)/250Vac or 20 mA/12 Vdc to drive SSR
<b>FUNCTIONAL</b>	
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
<b>Ranges</b>	
	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
<b>GENERAL</b>	
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
<b>RANGES</b>	
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
<b>POWER SUPPLY</b>	
24... 240 Vac	U
<b>INPUT</b>	
J	J
K	K
Pt100	P
<b>OUTPUT</b>	
Relay	R
0... 12 V for SSR driving	T
<b>WIRING DIAGRAM</b>	
Thermocouples	31
Thermoresistances (*)	32
Thermocouples	33
Thermocouples	34
Thermocouples	35
<b>CONNECTIONS</b>	
Faston	F
Octal	O
<b>CONTROL</b>	
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

INPUT: TC

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

INPUT: Pt100

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"

FEATURES		TC030	TLK33
Dimensions (mm)	78 x 35		•
	72 x 144	•	
Single display			•
Triple display		•	
Digit		3+3+4	4
Inputs	J-K	•	
	Pt100 2 wires	•	
	TC J,K,S, IR + PT100		•
	TC J,K,S, IR + PTC, NTC		•
	0/4... 20mA		•
Relay outputs	0/10... 50mV, 0/12... 60mV, 0/1... 5V, 0/2... 10V		•
		7	
Voltage output 12... 24 Vdc and Vdc for SSR driving (10mA/Vdc)			2
Power supply	24, 115, 230 Vac	•	
	12... 24 Vdc		•
Control	ON/OFF	•	
	Peltier cells: PID double action, Autotuning FAST, Selftuning, Fuzzy overshoot control		•
RS485		•	•
8 programs		•	
CE certification		•	•
UL approval			

# TC030

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



## FEATURES

DISPLAY	
Triple	TC030 2 temperature indications: 3 red digit, h 14 mm 1 time indication: 4 red digit, h 7 mm
INPUTS	
Up to 4: Top, Floor, Steamer and auxiliary probe	Thermocouples: J/K (-50 ... +999 °C/-58 ... +999 °F) Thermoresistances: Pt 100 2 wires (-50... +600°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	24, 115, 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 <sup>2</sup>
Operating / storage temperature	0... 50°C (32... 122°F)/-20...+70°C (-4... 158°F)
Operating humidity	20... 95 RH% without condensation

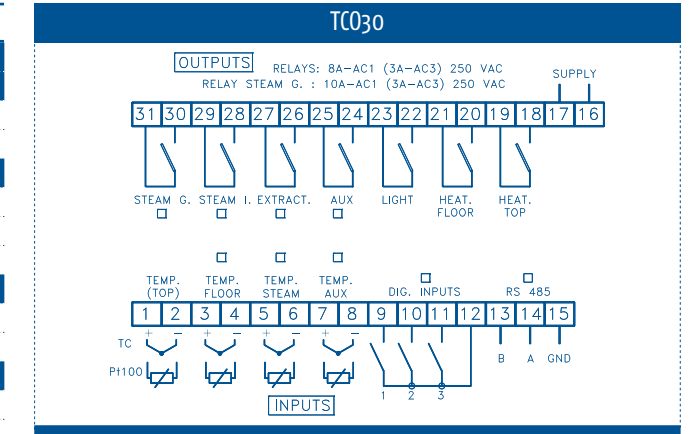


## HOW TO ORDER

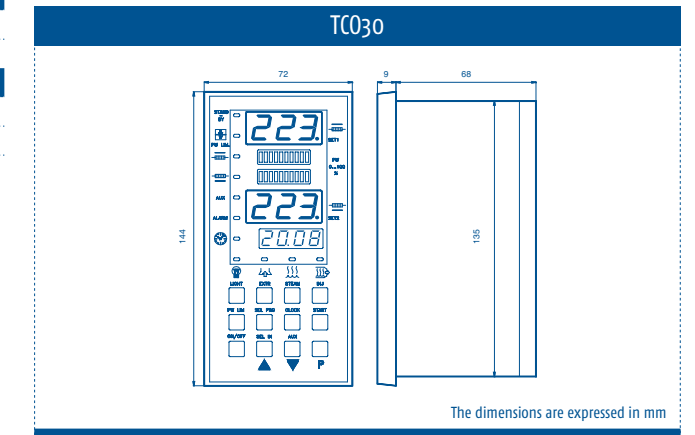
To compose the part number, pls. choose one of the option for each variable

TC030	CODE
<b>INPUT</b>	
Pt100	D
J-K	C
<b>POWER SUPPLY</b>	
230 Vac	D
115 Vac	C
24 Vac	A
<b>AUXILIARY PROBE INPUT</b>	
Available	A
Not available	-
<b>AUXILIARY OUTPUT</b>	
Available	R
Not available	-
<b>STEAM PROBE INPUT</b>	
Relay	V
Vdc for SSR driving	-
<b>SERIAL COMMUNICATION</b>	
RS485	S
Not available	-
<b>3 DIGITAL INPUTS</b>	
Available	I
Not available	-

## CONNECTIONS



## DIMENSIONS



## 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 <sup>2</sup>
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)



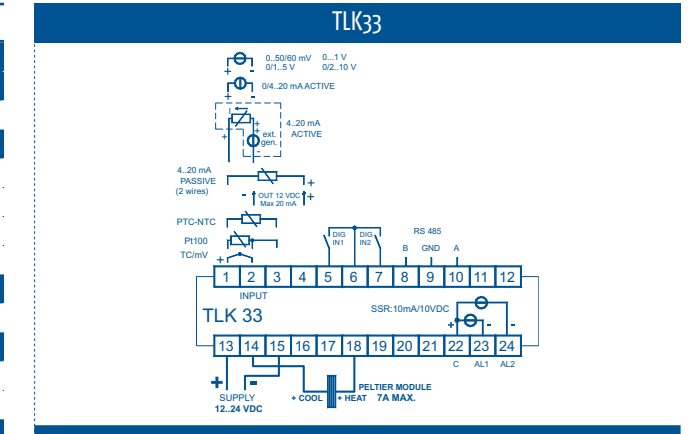
## HOW TO ORDER

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

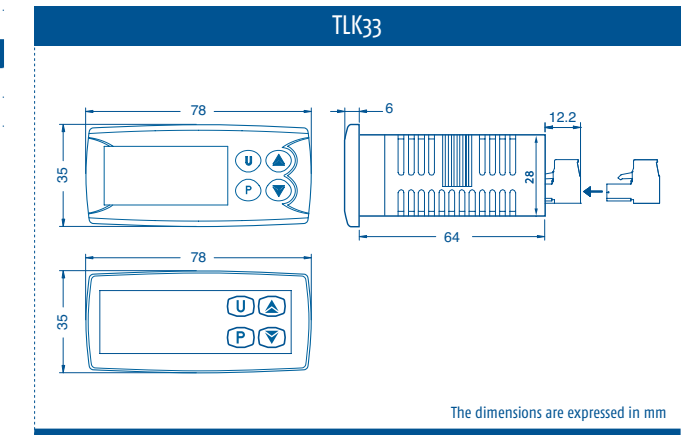
TLK33	CODE
<b>POWER SUPPLY</b>	
12... 24 Vdc	G
<b>INPUT</b>	
PT100 + TC (J,K,S,IRS), mV	D
PTC,NTC,mV + TC (J,K,S,IRS)	E
0/4... 20mA	I
0/1... 5V, 0/2... 10V	V
<b>CONTROL OOUTPUTS ( 2 FOR SSR )</b>	
12... 24 Vdc for Peltier cells (7A max)	0
<b>OUT AL1</b>	
Vdc for SSR driving	0
Not available	-
<b>OUT AL2</b>	
Vdc for SSR driving	0
Not available	-
<b>SERIAL COMMUNICATION</b>	
RS485 + 2 digital inputs	S
Not available	-
<b>DIGITAL INPUT</b>	
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). They manage the control, the monitoring and permit the remote control of machines and small industrial plants.

Within Sigma2 line, two hardware solutions are available: one modular and distributed (SigmaPAC: CU02) and one compact (MicroPAC: M81, MP02).



# PAC SYSTEMS

FEATURES		M8i		MP02	CU02
Dimensions (mm)	10 moduli DIN (175 x 110 mm) 8 moduli DIN (152 x 110 mm)	•		•	•
Inputs (16 bit)	Ingresso universale			2	
	NTC-PT1000	8			
	0/4... 20 mA, 0/1... 5V, 0... 10V	4		6+2	
	Digitali	12		8 + 32 (*)	1
	Potenziometro Raziometrico (5V)	1		2	
Relay or voltage outputs		10		8+32 (*)	2
Analogue outputs (current or voltage)				4	
Analogue outputs (voltage only)		4			
Power supply	24 Vac/Vdc	•			
	24 Vdc			•	•
Control	ON/OFF, PID con Autotuning avanzato Controllo Attuatori motorizzati	•		•	•
Processor ARM 32 bit		•		•	•
16 MB RAM, 2MB program and 64 KB flash		•		•	•
USB port		•		•	•
Real Time Clock		•		•	•
Ethernet port (communication, programming, configuration)		•		•	•
RS485 port		•		•	•
RS232 port		1		1	2
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)					•

(\*) with expansion units - see hereunder models

Digital 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 (8inputs 24 Vdc + 8 relays outputs 2A)  
 MPD40808 (8 inputs 120 Vac + 8 relays outputs 2A)

- INDUSTRIAL CONTROLLERS
- ADVANCED PROGRAMMER CONTROLLERS
- DIP 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

# M81 SIGMA2

- COMPACT PROGRAMMABLE CONTROLLER (MICROPAC)
- 8 + 4 A/I
- 12 D/I + 10 D/O
- 4 A/O



FEATURES	
<b>INPUTS</b>	
	M81
12 Analogue	8x Thermistors NTC 103AT-2, Thermoresistances Pt1000 and 4x Linear signals 0/1... 5V, 0/2... 10V, 0/4... 20 mA, ratiometrics Resolution: 16 bit Accuracy: 0.5% of span Input impedance >100kΩ (V); 300Ω (mA) Insulation 2500V channels to power supply and channels to logic (High level analogue signals) Insulation 800 V between power supply and logic (Sensors)
12 Digital	12 digital inputs for free voltage contacts Insulation 800 V between power supply and logic Compliant to IEC/EN 61131-2 (type 1)
<b>OUTPUTS</b>	
4 Analogue	4x 0... 10 V Resolution 16 bit Accuracy: 0.5% of span Load >1kΩ Insulation 800 V between power supply and logic
10 Digital	10 relay digital outputs channels (2 relays SPDT-5A, 8 relays SPST-NO 2A) Insulation 2500V channels to power supply and channels to logic
<b>FUNCTIONAL</b>	
Processor	ARM 32 bit
Memory	16 MB of RAM system, application memory max. 2 MB internal + 3.5 MB on USB key 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	10ms
Serial ports	Ethernet + RS485 + RS232/485
Protocols	Modbus RTU (Master/Slave), Modbus TCP Server, ASCII
<b>GENERAL</b>	
Power supply	24 Vac/Vdc (-15... +25%) (50/60 Hz)
Power consumption	13 VA (+6.5 VA with I/O modules)
Dimensions / Weight	175 x 110 mm, depth 60 mm / 450 g approx.
Mounting	On OMEGA DIN A rail
Front protection degree	IP 20
Operating / storage temperature	0... 50°C (32... 122°F) / -40... +70°C (-40... 158°F)
Operating humidity	5... 95 RH% without condensation



## HOW TO ORDER

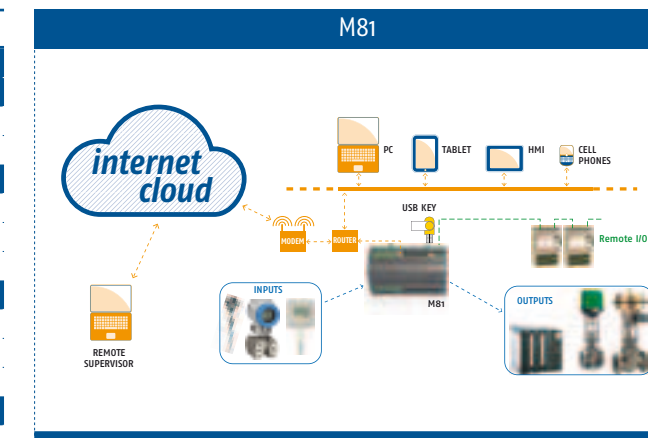
To compose the part number, pls. choose one of the option for each variable

M81	CODE
<b>ANALOGUE INPUTS</b>	
0/4... 20mA	-
0/5 Volt, ratiometrics	5
<b>OUT 1</b>	
Relay SPDT 5A	R
Vdc for SSR driving	0
SSR 2A 250 Vac	Q
<b>OUT 2</b>	
Relay SPDT 5A	R
Vdc for SSR driving	0
SSR 2A 250 Vac	Q
<b>OUT 7...10</b>	
Relay SPST 2A	R
Not available	-
<b>ANALOGUE OUTPUTS 1...4</b>	
0... 10V	V
Not available	-
<b>USB PORT</b>	
Available	U
Not available	-
<b>COMMUNICATION PORTS</b>	
COM 1 RS485/232	1
COM1 RS485/232 + COM2 RS485	2
<b>RESERVED PART NO.</b>	
-	-
<b>CONNECTIONS</b>	
Plug-in screw type	E
Plug-in screw type, fix part only	N

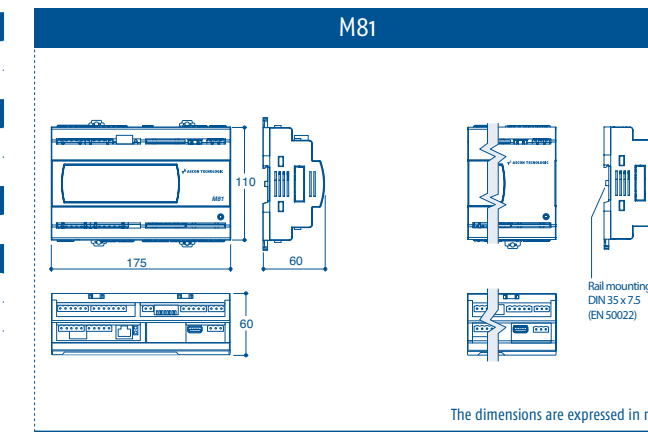
## ACCESSORIES

<b>CABLES</b>	
APS2 CABLECUPROG	ETHERNET CABLE 2M, PROGRAMM. CU, PC-RJ45/CU-RJ45
<b>POWER ADAPTORS</b>	
APS2 ALDR75-24	POWER ADAPTOR 3.2 A
APS2 ALDR12024	POWER ADAPTOR 5 A

## CONNECTIONS



## DIMENSIONS



# MP02 SIGMA2

- COMPACT PROGRAMMABLE CONTROLLER (MICROPAC) + ON BOARD I/O AND EXPANSION CAPABILITY
- 8 A/I + 8 D/I
- 4 A/O + 8 D/O



## FEATURES

INPUTS	MP02
6 analogue	6x 0...10V, 0/1...5V, 0...1V - 0/4...20mA
	Resolution: 16 bit
	Accuracy: 0.1% of span
	Input impedance >100kΩ (V); 300Ω (mA)
2 universal analogue	Insulation 800 V between power supply and logic
	±15 mV, ± 35mV, ±50 mV, ±100 mV, ±300 mV, ±1.25 V, TC (L, J, T, K, S, R, N), Pt100, Pt1000 and potentiometer (0.1... 10kΩ)
	Resolution: 16 bit
	Accuracy: 0.1% of span
8+32 digital	Input impedance >10 MΩ (V)
	Insulation 800 V between power supply and logic
	40 Vpp between the channels (differential inputs)
	8 + 32 (with expansion units) 24 Vdc (ON: 5...30V, OFF: 0..3V) or 8 + 8/16 max. 120 Vac
OUTPUTS	Counter input 80 Hz max. frequency
	Sink type
	Protection: Reverse polarity and overvoltage
	Insulation 800 V between power supply and logic
0/2/4 analogue	±10 V (±25 mA max.), 0/4... 20 mA
	Resolution: 13 bit
	Accuracy: 0.1% of span
	Insulation 800 V between power supply and logic
8+32 Digital	8 + 32 (with expansion units) 24Vdc, 0.5 A or 8 + 8/16 relays (2A, 240 Vac, NA)
	Source type (PNP)
	Protection: Reverse polarity and short circuit
	Insulation 800V between channels and power supply
<b>FUNCTIONAL</b>	
Processor	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
Execution cycle Minimum time	≥5ms (10ms typical)
Serial ports	Ethernet + RS485 + RS232/485
Protocols	Modbus RTU (Master/Slave), Modbus TCP Server, ASCII
<b>GENERAL</b>	
Power supply	24 Vdc (-15... +25%) / 50/60 Hz
Power consumption	13 VA (+3.5 VA with both expansion units)
Dimensions / Weight	152 x 110 mm, depth 66 mm / 460 g approx.
Mounting	On OMEGA DIN A rail
Front protection degree	IP 20
Operating / storage temperature	0... 50°C (32... 122°F) / -40...+70°C (-40... 158°F)
Operating humidity	5... 95 RH% without condensation

Note: MP02 unit can be expanded up to 2 I/O modules through the side connector and via one of the RS485 ports by using the Modbus I/O modules.

- Digital 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 (8inputs 24 Vdc + 8 relays outputs 2A)
  - MPD40808 (8 inputs 120 Vac + 8 relays outputs 2A)



EVERYTHING UNDER CONTROL

## HOW TO ORDER

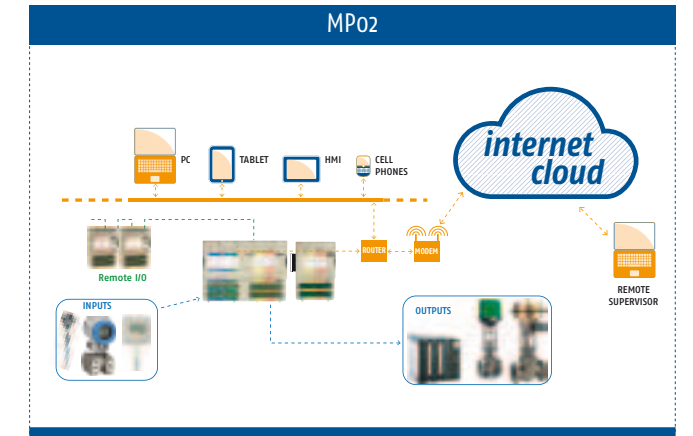
To compose the part number, pls. choose one of the option for each variable

MP02	CODE
<b>ANALOGUE INPUTS</b>	
6 ch - 0/4... 20mA, Volt	0
8 ch - 0/4... 20mA, Volt	1
6 ch - 0/4... 20mA, Volt + Universal channels	2
<b>RESERVED PART NO.</b>	
-	-
<b>RESERVED PART NO.</b>	
-	-
<b>RESERVED PART NO.</b>	
-	-
<b>ANALOGUE OUTPUTS 1...4</b>	
Not available	0
2 ch. - 0/4... 20mA, Volt	1
4 ch. - 0/4... 20mA, Volt	2
<b>USB PORT</b>	
Not available	-
<b>COMMUNICATION PORTS</b>	
COM1 RS485/232 + COM2 RS485	2
<b>RESERVED PART NO.</b>	
-	-
<b>CONNECTIONS</b>	
Clamp type	M

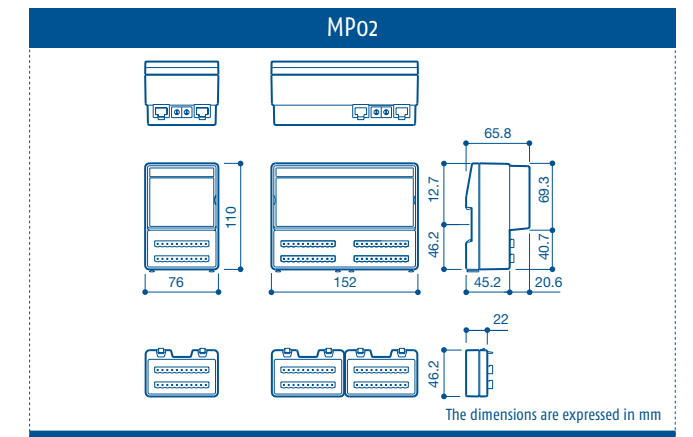
## ACCESSORIES

<b>CABLES</b>	
APS2 CABLECUCONF	RS232 CABLE 2M, CONFIG. CU, PC-DB9F/CU-RJ45
APS2 CABLECUPROG	ETHERNET CABLE 2M, PROGRAMM. CU, PC-RJ45/CU-RJ45
<b>POWER ADAPTORS</b>	
APS2 ALDR75-24	POWER ADAPTOR 3.2 A
APS2 ALDR12024	POWER ADAPTOR 5 A
<b>FILTERS</b>	
APS2 FILTRI	FERRITES + FILTERS
<b>PLUGS</b>	
APS2 SPINAM11	PLUG WITH 11 POLE CLAMP TERMINALS
APS2 SPINAV11	PLUG WITH 14 POLE SCREW TERMINALS
APS2 SPINAM14	PLUG WITH 11 POLE CLAMP TERMINALS
APS2 SPINAV14	PLUG WITH 14 POLE SCREW TERMINALS

## CONNECTIONS



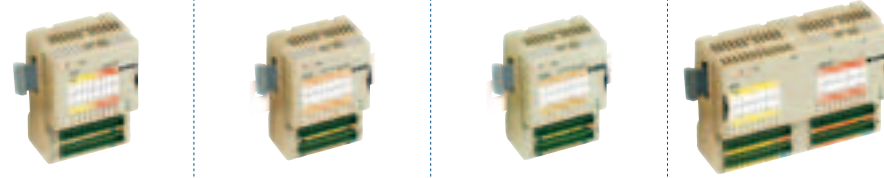
## DIMENSIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMABLE CONTROLLERS  
 DIN RAIL MOUNTING CONTROLLERS  
 PARAMETRIC 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

# MP-D 1/2/4

• EXPANSION UNITS FOR MICROPAC MP02



**FEATURES**

INPUTS	MP-D1/08-08/Mo	MP-D2/08-08/Mo	MP-D4/08-08/Mo	MP-D1/16-16/Mo
Digital	8 inputs (24 Vdc)		8 inputs (120 Vac)	16 inputs (24 Vdc)
<b>OUTPUTS</b>				
Digital	8 outputs (24 Vdc, 0.5A)	8 relay outputs 2A, NO		16 outputs (24 Vdc, 0.5A)
<b>GENERAL</b>				
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			



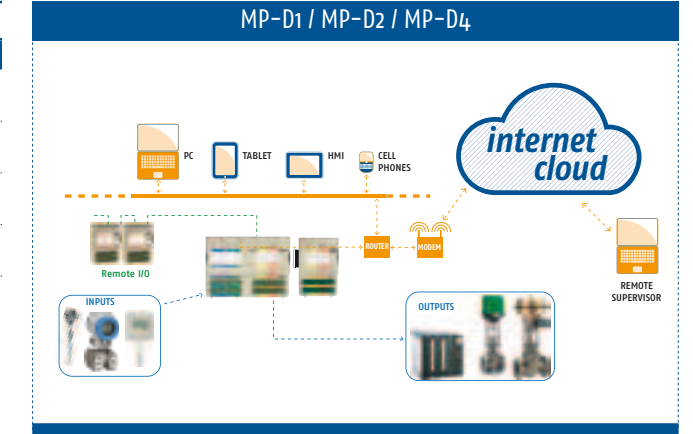
EVERYTHING UNDER CONTROL

## HOW TO ORDER

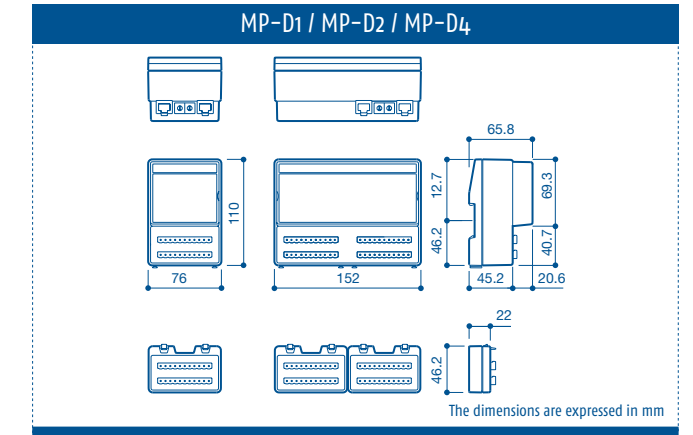
To compose the part number, pls. choose one of the option for each variable

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



## DIMENSIONS



- INDUSTRIAL CONTROLLERS
- ADVANCED PROGRAMMERS
- DIP RAIL MOUNTING CONTROLLERS
- PARAMETERS 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

# CU02 SIGMA2

- DISTRIBUTED PROGRAMMABLE CONTROLLER
- CANOPEN + ETHERNET
- 2XRS232 E 1XRS485
- 1 PROFIBUS DP SLAVE PORT



### FEATURES

CONTROL UNIT - SIGMAPAC LINE - CU02	
<b>INPUT</b>	one input 24Vdc NO contact
<b>OUTPUTS</b>	1x relay 1A 120Vac/24Vdc resistive load for Watchdog and Wake Up functions
<b>FUNCTIONAL</b>	
Processor	ARM 32 bit
Memory	16 MB of RAM system, 128 kB redundant FLASH memory
Programming languages	IL, ST, FBD, LD, SFC, CFC
Standard	IEC61131-3
Real time clock	on board
Execution cycle Minimum time	≥5ms (10ms typical)
Serial ports	1xEthernet + 1xRS485 (CANOpen) + 1xRS232 + 1xRS232/USB + 1xRS485
Protocols	Modbus RTU (Master/Slave), Modbus TCP Server, CANOpen Master, Profibus DP, ASCII
<b>GENERAL</b>	
Power supply	24 Vdc (-15... +25%) (50/60 Hz)
Power consumption	6.5 VA
Dimensions / Weight	152 x 110 mm, depth 66 mm / 430 g circa
Mounting	On OMEGA DIN A rail
Front protection degree	IP 20
Operating / storage temperature	0... +55°C (32... +131°F) / -20... +85°C (-4... +185°F)
Operating humidity	5... 95 RH% without condensation

Note: SigmaPAC is a programmable distributed controller, modular and open. It is based on a CANOpen network to which are connected the I/O modules. I/O modules: See section "Acquisition and data recording".



## HOW TO ORDER

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

CPU MODULE - SIGMA2	CODE
Model o1 - spare parts only	- 01
Model o2	- 02
<b>SERIAL COMMUNICATION</b>	
Not available	0
Profibus	2
RS232 + RS485	5
<b>SERIAL COMMUNICATIONS</b>	
RS232	0
USB	1
<b>ETHERNET</b>	
Available	1
<b>INSTRUCTION MANUAL</b>	
Italian / English	0
Not available	9
<b>CUSTOMIZATION</b>	
Standard	0
Customized	/ABA

### AVAILABLE MODELS

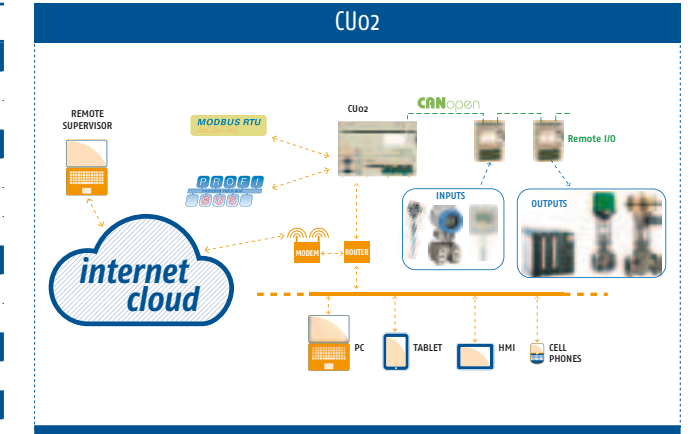
CU-02 5010	Control unit with Ethernet port, RS232 and 2 additional serial comms. (232+485)
CU-02 2010	Control unit with Ethernet port, RS232 and Profibus DP slave

## ACCESSORIES

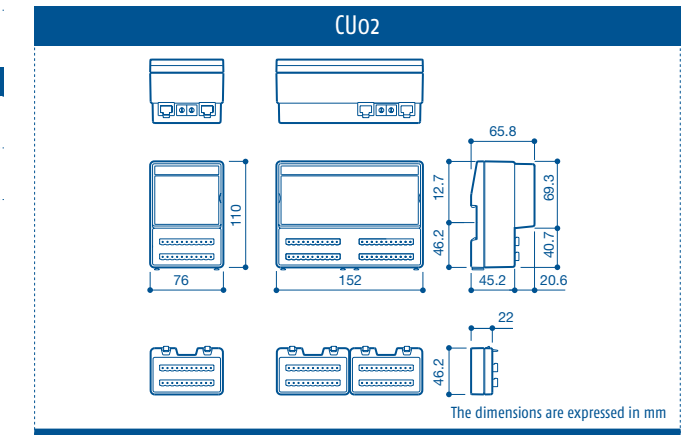
CABLES	
APS2 CABLECUCONF	RS232 CABLE 2M, CONFIG. CU, PC-DB9F/CU-RJ45
APS2 CABLECUPROG	ETHERNET CABLE 2M, PROGRAMM. CU, PC-RJ45/CU-RJ45
POWER ADAPTORS	
APS2 ALDR75-24	POWER ADAPTOR 3.2 A
APS2 ALDR12024	POWER ADAPTOR 5 A
PLUGS	
APS2 SPINAM11	PLUG WITH 11 POLE CLAMP TERMINALS
APS2 SPINAV11	PLUG WITH 14 POLE SCREW TERMINALS

EVERYTHING UNDER CONTROL

## CONNECTIONS



## DIMENSIONS



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



# OPENPCS

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

FEATURES

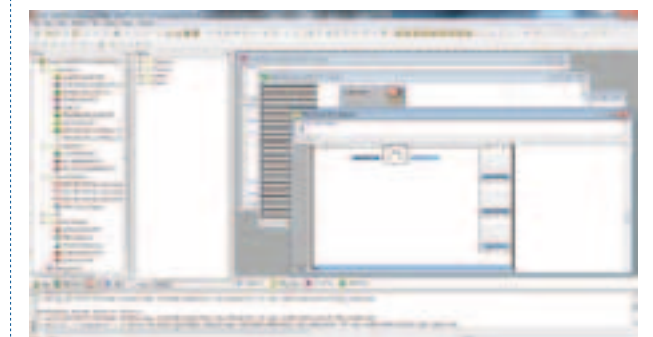
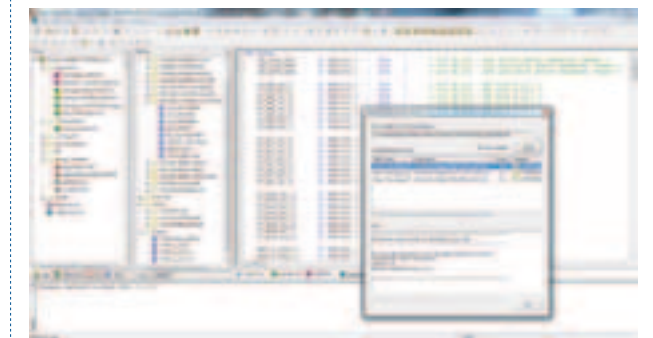
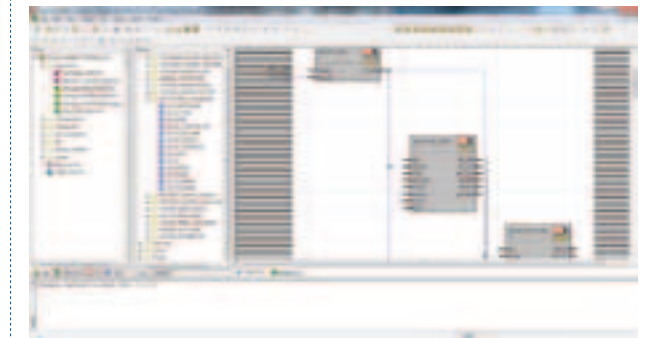
FUNCTIONAL	SOFTWARE OPENPCS
Standard	IEC 61131-3
Programming languages	Instruction List Structured Text Function Block Diagram Ladder Diagram Sequential Function Chart Continuous Function Chart
Programming	Application project developing structured and simplified by the variable declaration method and 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



- INDUSTRIAL CONTROLLERS
- ADVANCED PROGRAMMER CONTROLLERS
- DIN RAIL MOUNTING CONTROLLERS
- PARAMETERS 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



## 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 .)
	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
PRE-PROGRAMMED SOLUTION	
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
<b>OPERATOR PANEL</b>	
Without Operator panel	-
With Operator panel integrated in the system	P
<b>MODEM</b>	
Without Modem	-
With UMTS Modem for remote management	P
<b>INPUTS EXPANSION MODULES</b>	
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
<b>OUTPUTS EXPANSION MODULES</b>	
Without modules	-
With 8 0... 10V control outputs modules	8

## COMPONENTS

### ACCESSORIES

- OPKIT - Kit made of 7" Touch screen operator panel with connection cables
- R2IA46P015NPSO - PT1000 6X40 mm probe in ABS case
- R2IB126P15NPS - PT1000 6X120 mm probe with 1.5 m PVC cable
- gTUDR102 - Thermowell for immersion probes 1/4 gas thread, pipe 7.5x60 mm under-thread 60 mm with PG7 connector

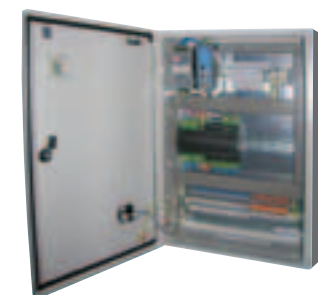
### OPERATOR PANELS



### OPERATOR PANELS



### ELECTRIC PANEL



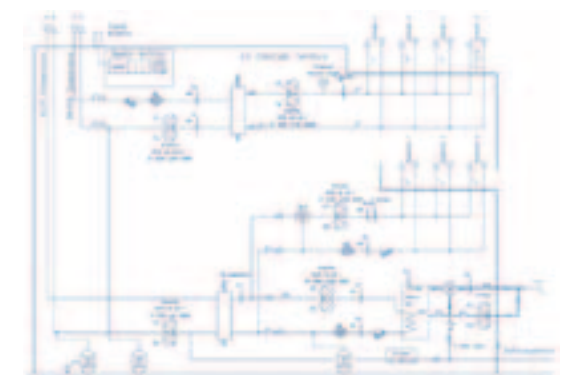
### M81



### 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 XXX-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



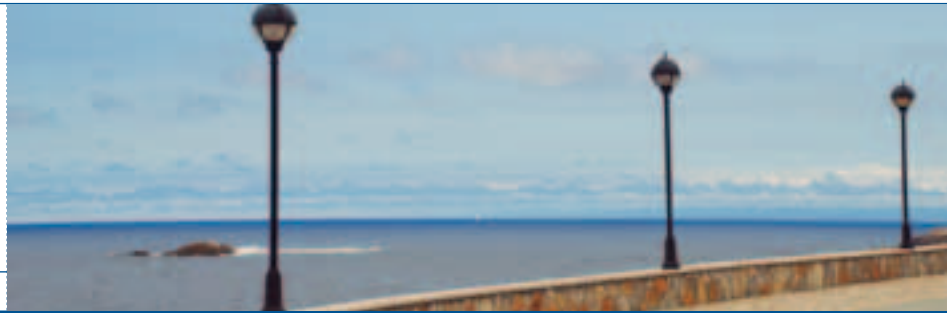
## SCREENSHOTS





# LIGHT PAC

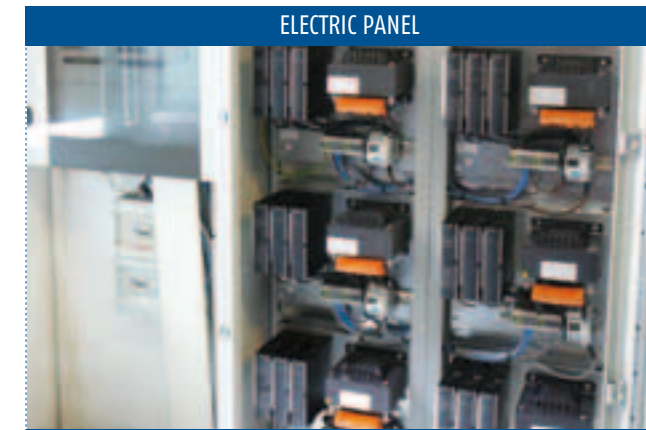
• SOLUZIONE DI TELECONTROLLO PER LA RIPARTIZIONE DEL CARICO LUCI



## FEATURES

LIGHTPAC	
What is it ?	<p>It is a control system to be installed in electrical cabin with optional functionality to handle remote commands with a Point to Point connection from a PC.</p> <p>The control system LightPAC consists of two electric panels : one for the power (LPS 01) and one for the control (CPS 03).</p> <p>The system is able to perform the programming of the load distribution of the lighting three-phase or single phase systems. The control panel is interfaced with the power panels LPS 01 equipped with power controllers TH...E series: these can control single-phase systems or three-phase power up to 60A.</p>
Functions	Power supply voltage reduced lighting
	Adjustment of the light depending on times (10 progr. with 6 slots)
	Measure of the current supplied
	Calculation of power and energy saving
	Registration of the average daily savings
	Remote Management via Ethernet (also via the Web)
PRE-PROGRAMMED SOLUTION	
System components	<p>Electric panel code CPS 03</p> <p>Electric power panel code LPS 01</p>

## COMPONENTS

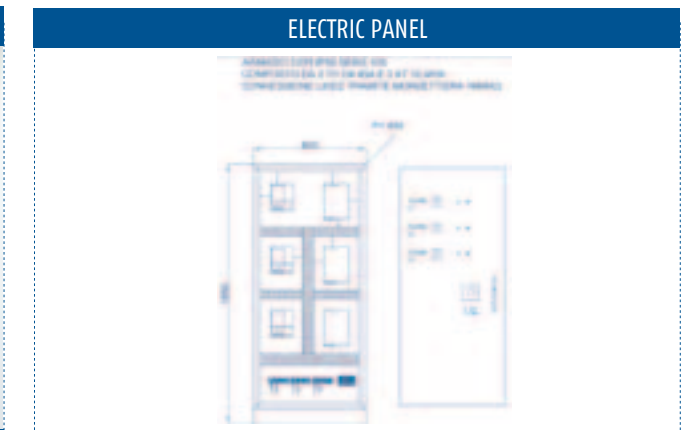


ELECTRIC PANEL



OPERATOR PANELS

## DIMENSIONS



ELECTRIC PANEL

## 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 8050I	OPMT 6050IV		OPMT 8070IH	OPMT 3070	OPMT 8100I	OPMT 3105/N	OPMT 3120	OPMT 3150/N
Dimensions (inches)	4.3"	•	•	•		•	•				
	7"										
	10"							•			
	10.4"								•		
	12.1"									•	
	15"										•
Flash MB memory		128	128	128		128	256	128	128	256	256
RAM MB memory		128	64	64		64	256	64	64	256	256
Colours		262 K	65 K	66 K		67 K	16.7 M	68 K	68 K	16.2 M	262 K
Slot SD/SDHC card		•				•	•	•	•	•	•
USB Host		•				•	•	•	•	•	•
USB Client				•		•	•	•	•	•	•
Ethernet		•	•			•	•	•	•	•	•
Power supply	24 Vac/Vdc	•	•	•		•	•	•	•	•	•
Audio						•	•	•	•	•	•
Video										•	•
COM1 RS232/485 2 4 wires			•	•		•	•	•	•	•	•
COM2 RS232			•	•		•		•	•		
COM3 RS232/485 2 wires			•	•		•	•	•	•		
COM1 RS485 2 wires		•								•	•
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  
 DIP 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		P04
Display		4.3" TFT
Resolution (pixel)		480 x 272
Brightness (cd/m <sup>2</sup> )		280
Back Light type		LED
Colours		262 K
Touch panel		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

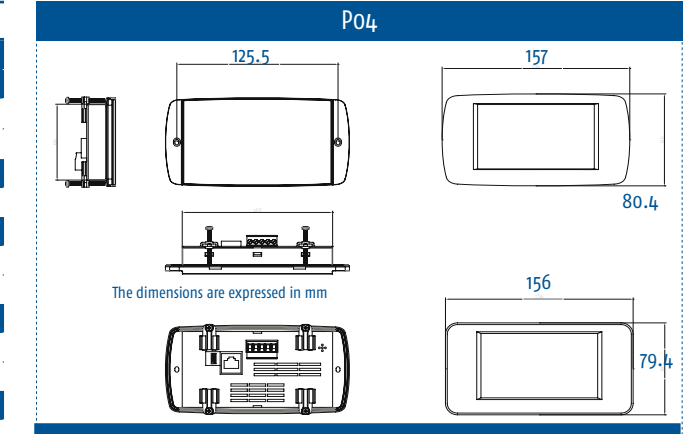


## HOW TO ORDER

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

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

## DIMENSIONS



# OPMT

- TOUCH SCREEN OPERATOR PANELS
- TFT WIDESCREEN HIGH RESOLUTION BACKLIGHTED LED DISPLAY
- 4.3" AND 7"



FEATURES

DISPLAY	OPMT			
	8050IE	6050IP	8070IE	3070
Display	4.3" TFT		7" TFT	
Resolution (pixel)	480 x 272		800 x 480	
Brightness (cd/m <sup>2</sup> )	500		350	500
Contrast ratio	500:1			
Back Light type	LED			
Colours	65 K		16.7 M	
Touch panel	4 wire Resistive Type			
<b>MEMORY</b>				
Flash (MB)	128		256	
RAM (MB)	128	64	128	256
<b>I/O PORTS</b>				
Slot SD card	Not available		SD/SDHC	
USB Host	Available	Not available	1.1 x 1	2.0 x 1
USB Client	Not available	Available	Not available	2.0 x 1
Ethernet	10/100 T	Not available	10/100 base-T	
COM port	COM1 RS232/RS485 2 and 4w, COM3 RS485 2w		COM1 RS232/485 2 and 4w, COM3 RS232/RS485 2w	
Audio	Not available		Available	
CAN bus	Not available		Available	
RTC	Available			
<b>POWER SUPPLY</b>				
Power supply	24 Vdc ±20%			
Power consumption (mA @24V)	250		350	400
<b>MECHANICAL</b>				
Case	UL V04 Autoextinguishing plastic		Aluminium	
Weight	250 g	300 g	600 g	900 g
Protection degree	IP65		IP66	
Operating temperature	0... +50°C / 32°... +122°F		-20... +50°C / -4°... +122°F	
Operating humidity	10...90% RH without condensation			
<b>SOFTWARE</b>				
Software (optional)	Programmable with "Easy Builder 8000" software		Programmable with "Easy Builder Pro" software	



EVERYTHING UNDER CONTROL

## HOW TO ORDER

OPMT	
8050IE	4.3" TFT, 65K colours, wide screen 16/9, 480x272 p.
6050IP	4.3" TFT, 65K colours, wide screen 16/9, 480x272 p.
8070IE	7" TFT, 65K colours, 16/9, 800x480 p. 2xUSB+SD card
3070	7" TFT, 16.7M col., 800x480 p. 2xUSB + SD/SDH card

- 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

# OPMT

- TOUCH SCREEN OPERATOR PANELS
- TFT WIDESCREEN HIGH RESOLUTION BACKLIGHTED LED DISPLAY
- 10", 10.4", 12.1" AND 15"



## FEATURES

OPMT				
DISPLAY	8100IE	3105/N	3120	3150/N
Display	10" TFT	10.4" TFT	12.1" TFT	15" TFT
Resolution (pixel)	800 x 480	800 x 600	1024 x 768	
Brightness (cd/m <sup>2</sup> )	300	400	500	350
Contrast ratio	500:1	400:1	700:1	
Back Light type	LED			
Colours	65 K	262K	16.2 M	
Touch panel	4 wire Resistive Type			
MEMORY				
Flash (MB)	128			256
RAM (MB)	128			256
I/O PORTS				
Slot SD card	Not available		SD/SDHC	
USB Host	1.1 X 1		2.0 X 1	
USB Client	Not available		2.0 X 1	
Ethernet	10/100 base-T			
COM port	COM1 RS232/485 2 and 4w, COM3 RS485 2w		COM1 RS232/485 2 and 4w, COM3 RS232/RS485 2w, CAN Bus (CANOpen protocol)	
Audio	Available			
Video	Not available		NTSC/PAL RCAx2	
RTC	Available			
POWER SUPPLY				
Power supply	24 Vdc ±20%			
Power consumption (mA @24V)	400	800	850	900
MECHANICAL				
Case	UL V04 Autoextinguishing plastic		Aluminium	
Weight	1.300 g	1.600 g	2.100 g	2.750 g
Protection degree	IP65		IP66/NEMA4	
Operating temperature	0... +50°C / 32°... +122°F			
Operating humidity	10...90% RH without condensation			
SOFTWARE				
Software (optional)	Programmable with "Easy Builder 8000" software		Programmable with "Easy Builder Pro" software	



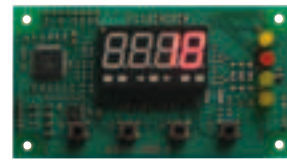
EVERYTHING UNDER CONTROL

## HOW TO ORDER

OPMT	
8100I	10" TFT, 65K colours, 800x480 p. 2xUSB + SD card
3105/N	10.4" TFT, 262K colours, 800x600 p. 2xUSB + SD card
3120	12.1" TFT, 16.2M colours, 1024x768 p. 2xUSB
3150/N	15" TFT, 16.2M colours, 1024x768 p. 2xUSB

# 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
<b>FUNCTIONAL</b>			
Sampling rate		500 ms	
Acoustic alarm	--	Internal buzzer (optional)	
Serial communication		TTL Modbus not isolated	
Protocol		ModBus-RTU (JBUS)	
Baud rate		38400 baud	
<b>GENERAL</b>			
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 <sup>2</sup>	
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)		



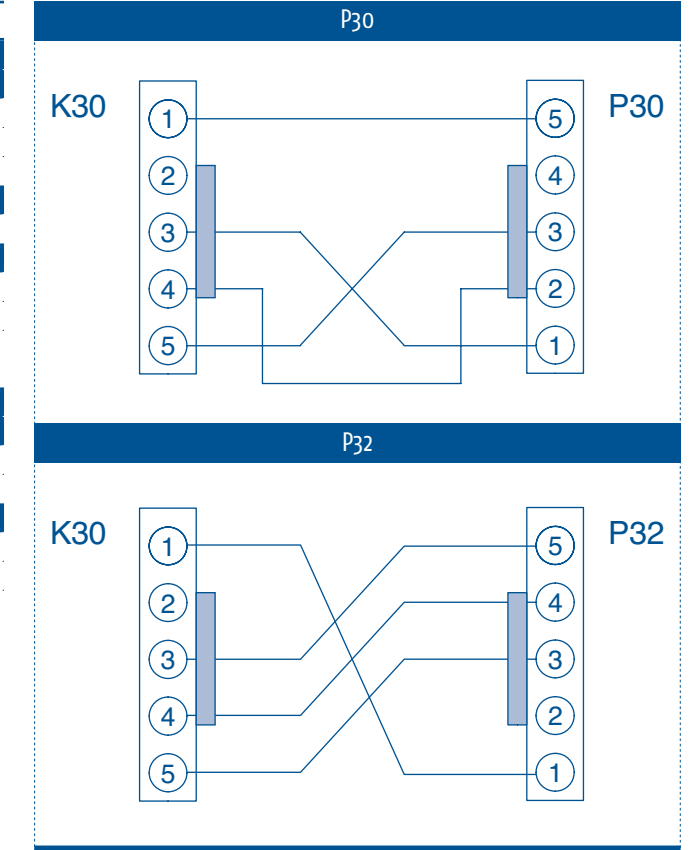
## HOW TO ORDER

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

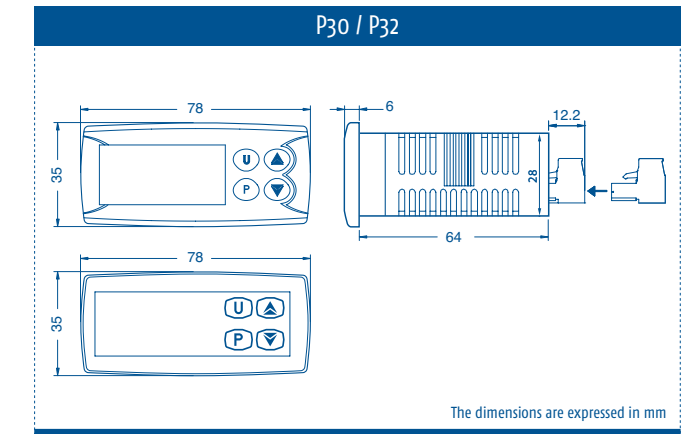
P01	CODE
<b>DISPLAY</b>	
Red	-
Amber	A
Blue	U
<b>INPUT</b>	
From the connected controller	-
<b>OUTPUT</b>	
Out 8 Vdc	W
Not available	-

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

## CONNECTIONS



## DIMENSIONS



## 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				•					
	70 x 84 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	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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- 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

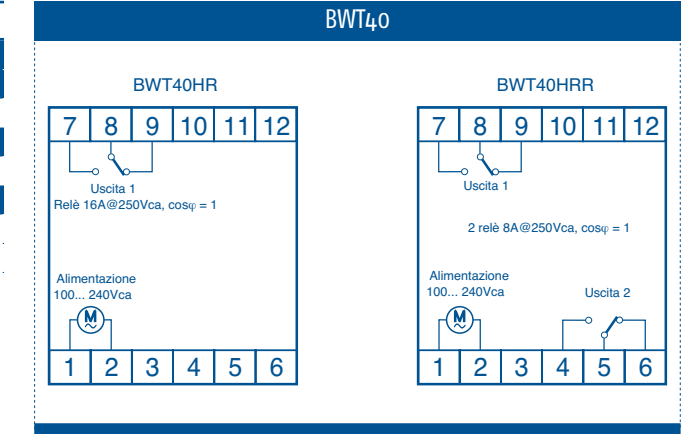


## HOW TO ORDER

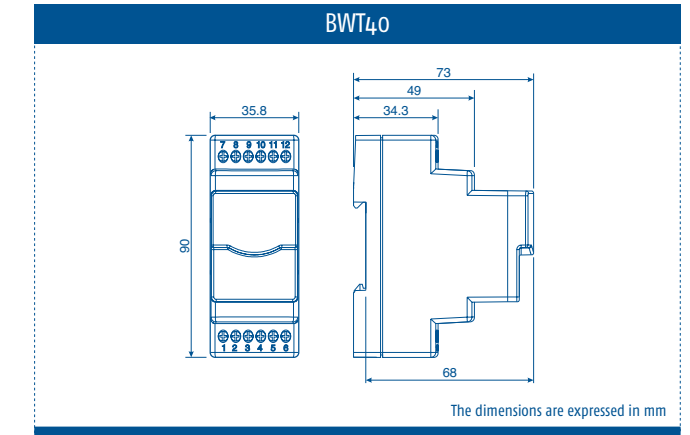
To compose the part number, pls. choose one of the option for each variable

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

## CONNECTIONS



## DIMENSIONS



# TT 34/49/73

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



### FEATURES

	TT34	TT49	TT73
<b>DISPLAY</b>	4 red digit, h 12 mm		4 red digit, h 14 mm
<b>INPUTS</b>	2 for free voltage contacts or 2 for voltage contacts (the same of the power supply)		
Digital inputs	2 for free voltage contacts or 2 for voltage contacts (the same of the power supply)		
Delay time inputs	15 msec max.		
<b>OUTPUTS</b>	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		
<b>FUNCTIONAL</b>	Programmable functions		
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	According to the used ext. battery	Approx. 10 hrs with full load battery	
<b>GENERAL</b>	Power supply		
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	9 mA approx.	4.5 mA approx.	
Battery	External 9 V - E type	Internal 3.6 V - rechargeable	
Power consumption voltage inputs	1 mA max.		
Dimensions / Weight	33 x 75 mm - depth 64 mm / 175 g approx.	48 x 48 mm (1/16DIN) - depth 98 mm / 200 g approx.	72 x 72 mm - depth 96 mm / 270 g approx.
Connections	Screw terminal block 2x1 mm <sup>2</sup>		
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)		

Note: The external battery (9V - type E) is provided only on request. The battery is used to keep counting even in the absence of supply.

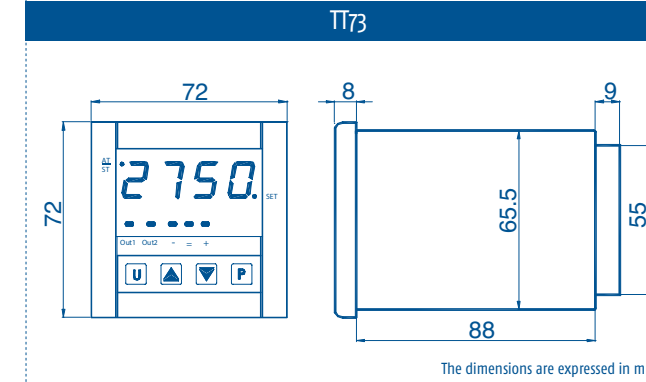
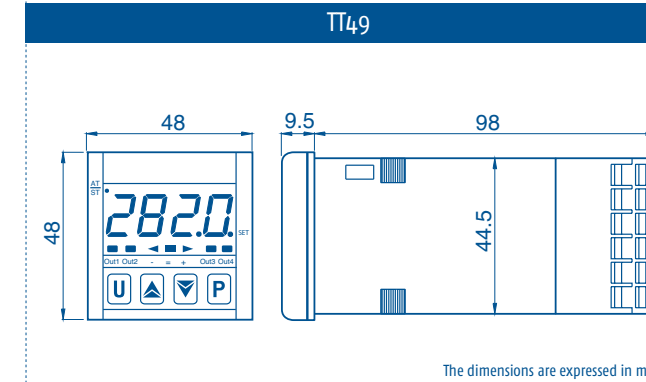
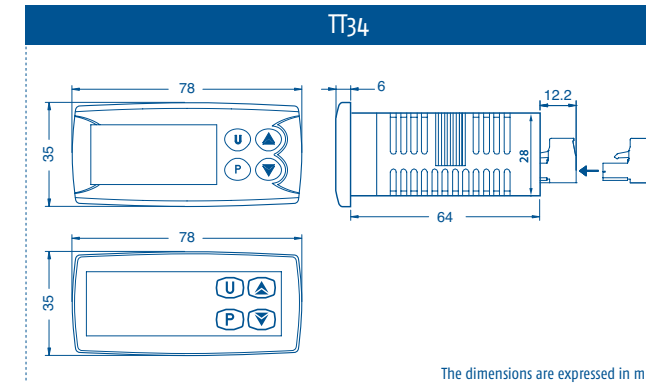


## HOW TO ORDER

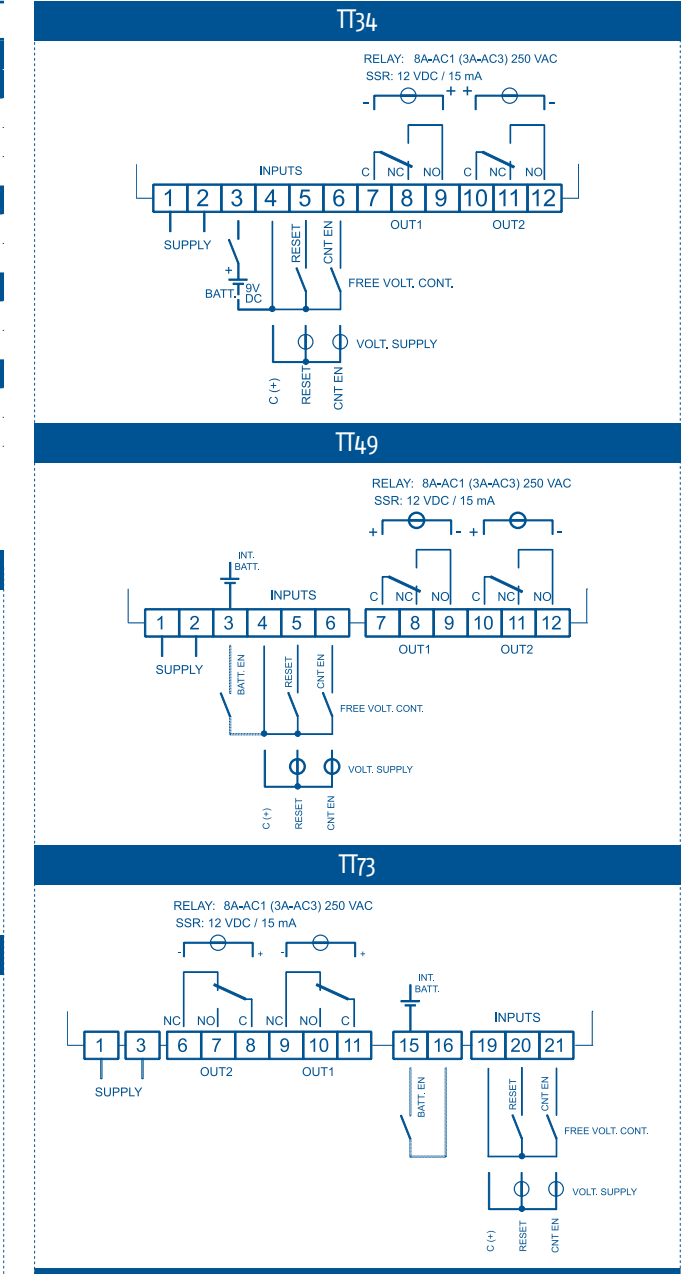
To compose the part number, pls. choose one of the option for each variable

TT34 / TT49 / TT73	CODE
<b>POWER SUPPLY</b>	
12 Vac/Vdc	F
100... 240 Vac/Vdc	H
24 Vac/Vdc	L
<b>INPUT</b>	
Voltage	V
Free voltage	C
<b>OUT 1 + OUT 2</b>	
Relay	RR
Vdc for SSR driving	00
<b>BATTERY (TT49 AND TT73 ONLY)</b>	
Internal	B
External - 9V Type E	-

## DIMENSIONS



## CONNECTIONS



# TC 34/49/73

- MULTIFUNCTION AND MULTIFREQUENCY COUNTERS
- UP TO 2 OUTPUTS



## FEATURES

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

CE

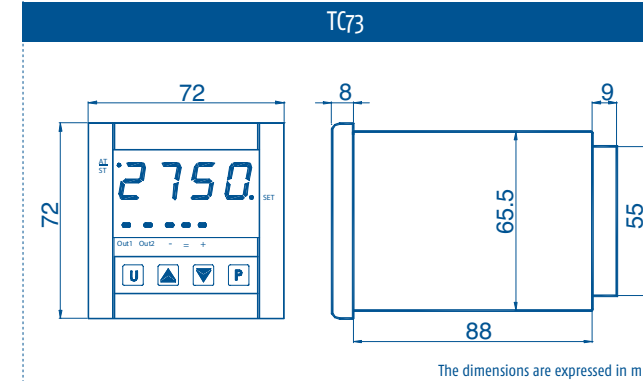
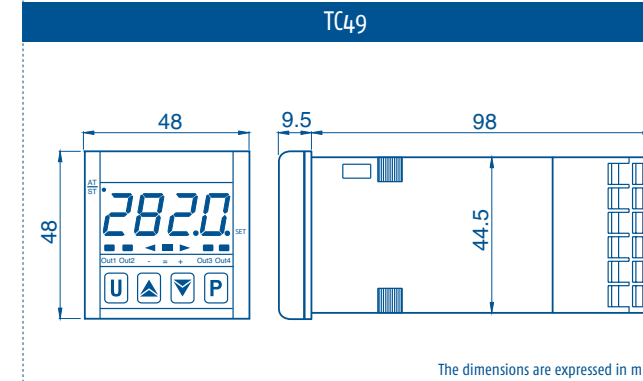
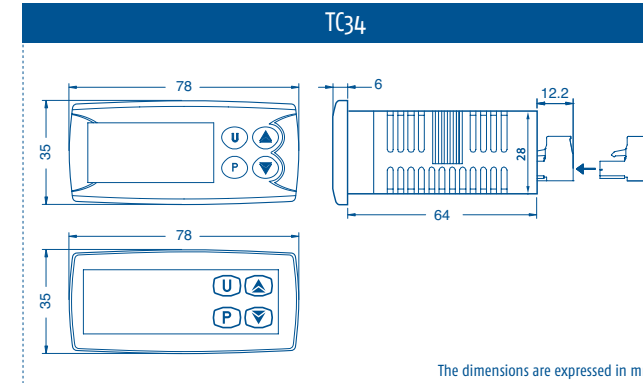
EVERYTHING UNDER CONTROL

## HOW TO ORDER

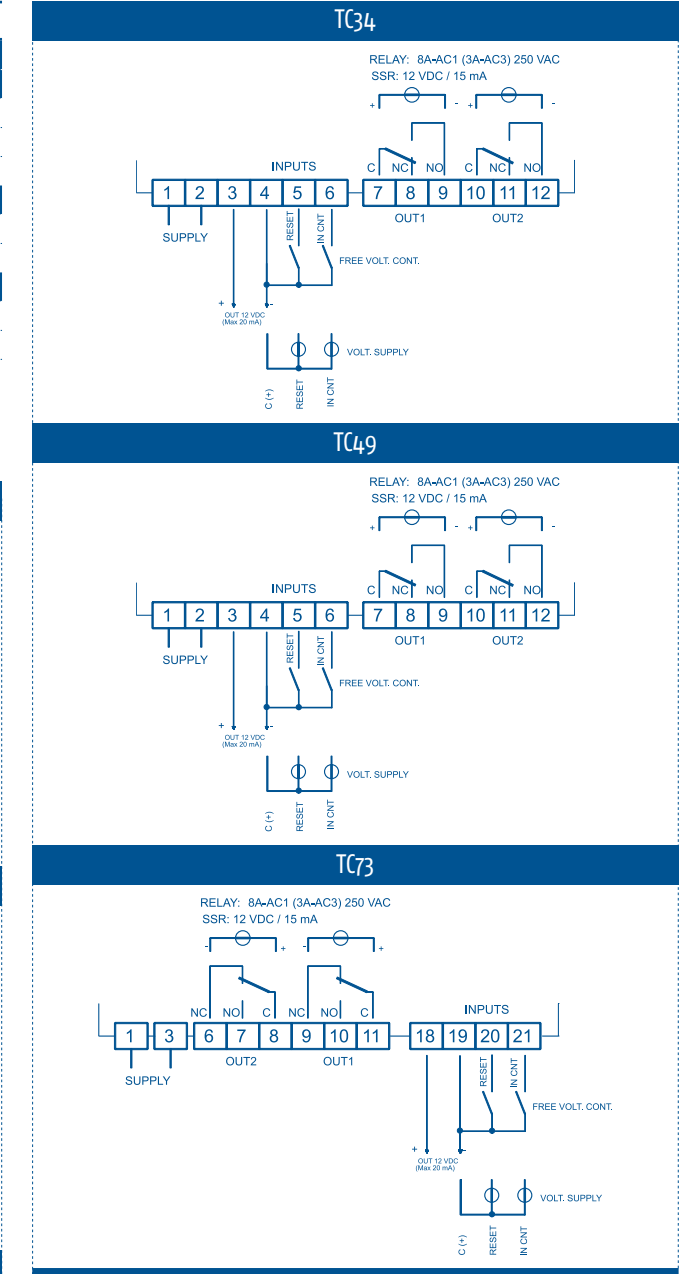
To compose the part number, pls. choose one of the option for each variable

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

## DIMENSIONS



## CONNECTIONS



INDUSTRIAL CONTROLLERS  
ADVANCED PROGRAMMABLE CONTROLLERS  
DIP RAIL MOUNTING CONTROLLERS  
PARAMETERS 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

- LIMITATORI DI POTENZA
- UP TO 2 OUTPUTS



## FEATURES

	TP34	TP49
<b>DISPLAY</b>	Single 4 red digit, h 12 mm	
<b>INPUTS</b>	2 for free voltage contacts or 2 for voltage contacts (the same of the power supply)	
Delay time inputs	15 msec max.	
<b>OUTPUTS</b>	Up to 2	
OUT 1 and OUT 2	Relay SPDT (8A-AC1, 3A-AC3/250 Vac) or 12 Vdc/15 mA to drive SSR	
<b>GENERAL</b>		
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.	
<b>FUNCTIONAL</b>		
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 <sup>2</sup>	
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)	



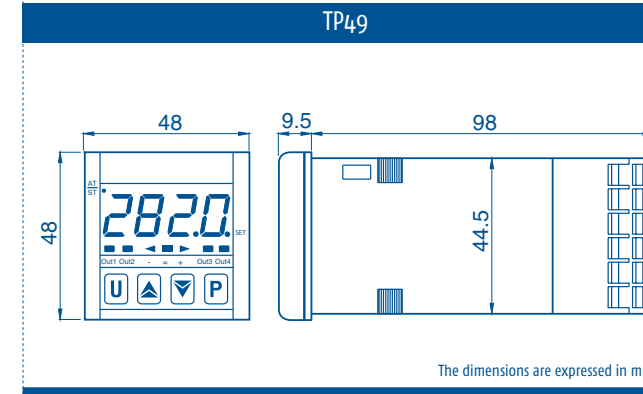
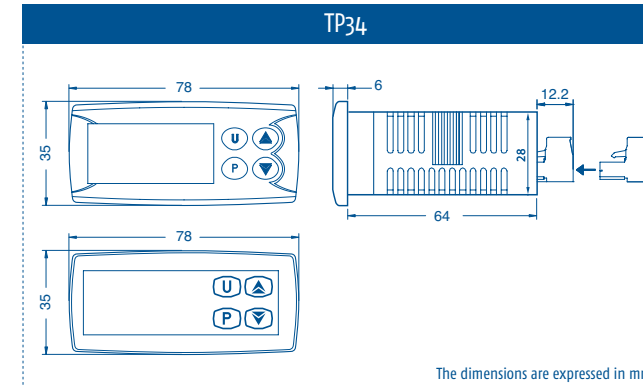
EVERYTHING UNDER CONTROL

## HOW TO ORDER

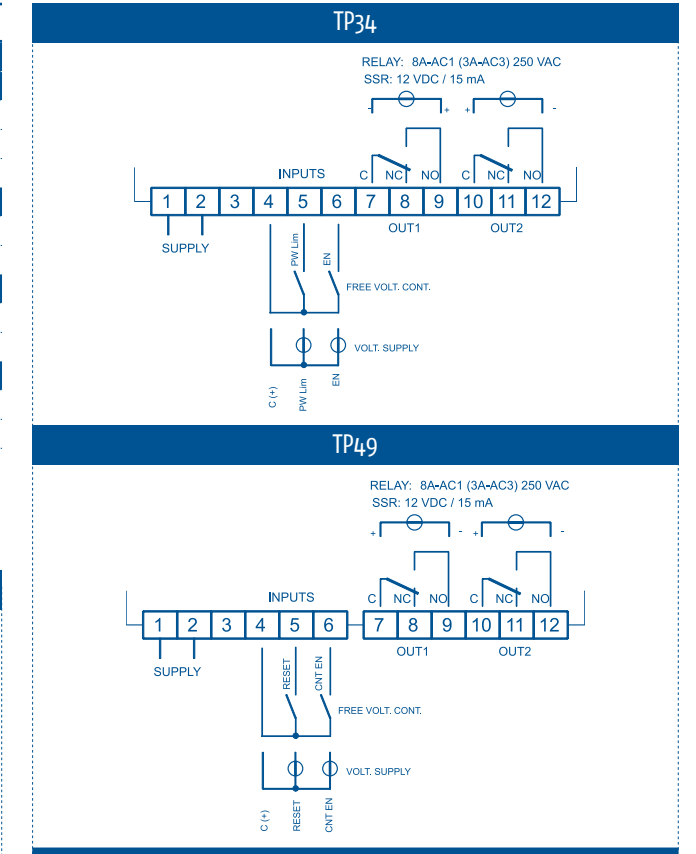
To compose the part number, pls. choose one of the option for each variable

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

## DIMENSIONS



## CONNECTIONS



INDUSTRIAL CONTROLLERS  
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 DIN RAIL MOUNTING CONTROLLERS  
 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



## 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		•	•							
	24 x 48							•			
	48 x 48	•				•					
	70 x 84 4 DIN Modules						•				
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							•	•	•	•
Auxiliary input	Digital		2			2	2		3	3	3
	Strain gauge (5V/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
- DIP 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 <sup>2</sup>
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

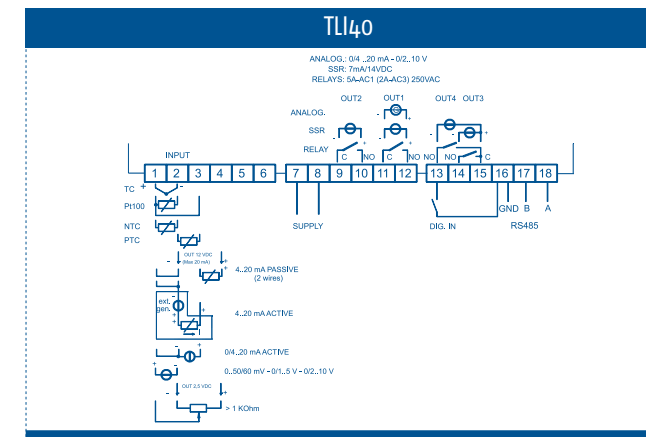
To compose the part number, pls. choose one of the option for each variable

TLI40	CODE
<b>POWER SUPPLY</b>	
20... 30 Vac/Vdc	L
90... 240 Vac	H
<b>OUT 1</b>	
Relay	R
20 mA/14 Vdc for SSR driving	O
0/4... 20mA	C
0/2... 10V	V
Not available	-
<b>OUT 2</b>	
Relay	R
Vdc for SSR driving	O
Not available	-
<b>OUT 3</b>	
Relay	R
Vdc for SSR driving	O
Not available	-
<b>OUT 4</b>	
Relay	R
Vdc for SSR driving	O
Not available	-
<b>SERIAL COMMUNICATION AND DIGITAL INPUT</b>	
RS485	S
RS485 + Digital input	I
Not available	-
<b>SENSOR POWER SUPPLY</b>	
2.5 Vdc	B
12 Vdc for analogue input	A
<b>INPUT FROM POTENTIOMETER</b>	
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 ... 900.0 °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 PROGRAMMABLE CONTROLLERS  
DIP SWITCH MODIFIABLE CONTROLLERS  
PARAMETERS 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 31V/38V

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



FEATURES

DISPLAY	K31V	K38V
Single	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), 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	
4 different configurations		
Digital inputs	2 for free voltage contacts	
OUTPUTS		
Up to 4 (K31V) Up to 2 (K38V)	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 1 and OUT 2: Relay SPDT (8A-AC1, 3A-AC3/250 Vac) or 12V ±20% 20 mA max. to drive SSR
Auxiliary power supply	12 Vdc/20 mA max.	
FUNCTIONAL		
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.
Connections	Plug-in terminals or Screw terminal block 2 x 1 mm <sup>2</sup>	Screw terminal block 2 x 1 mm <sup>2</sup>
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)	



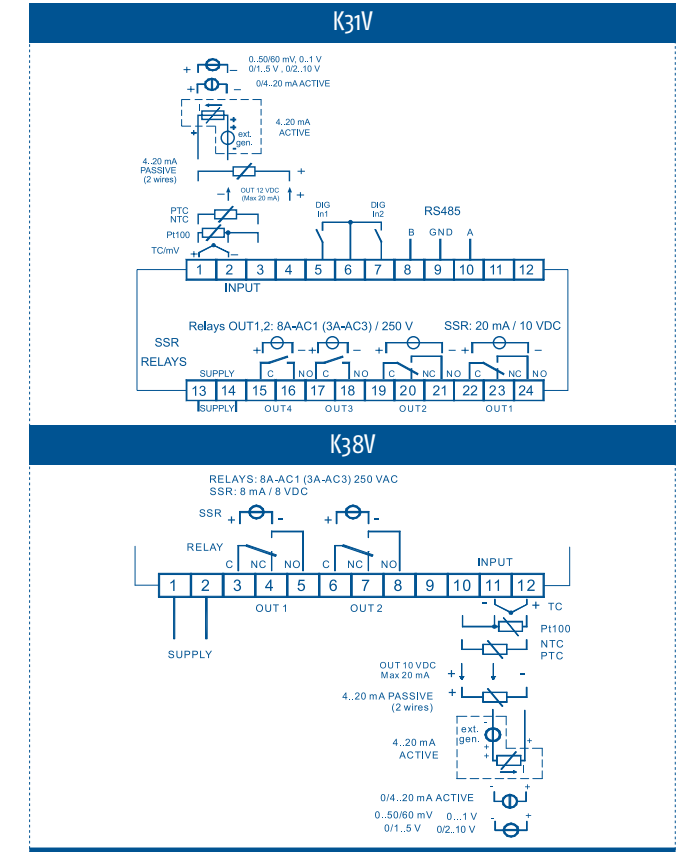
## HOW TO ORDER

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

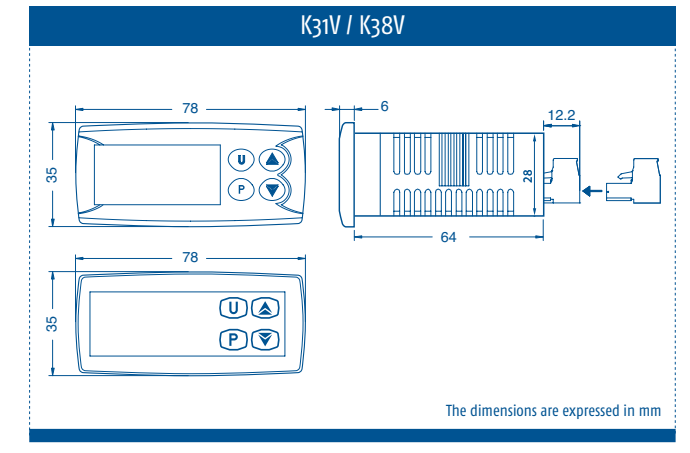
K31V	CODE
<b>POWER SUPPLY</b>	
12 Vac/Vdc	F
24 Vac/Vdc	L
100... 240 Vac/Vdc	H
<b>INPUT</b>	
TC, PT100, mV	C
TC, PTC, NTC, mV	E
0/4... 20mA	I
0... 1V, 0/1... 5V, 0/2... 10V	V
<b>OUT 1</b>	
Relay SPDT 8A-AC1	R
Vdc for SSR driving	0
<b>OUT 2</b>	
Relay SPDT 8A-AC1	R
Vdc for SSR driving	0
Not available	-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

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

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMABLE CONTROLLERS  
 DIN RAIL MOUNTING CONTROLLERS  
 PARAMETRIC 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 48V/85V

- INDICATORS
- UP TO 3 OUTPUTS FOR ALARM INDICATION
- RS485 OR TTL SERIAL COMMUNICATION



**FEATURES**

DISPLAY	K48V	K85V
Single	4 red digit, h 7mm	4 red digit, h 12 mm + 3 LEDs bargraph
<b>INPUTS</b>		
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	
<b>OUTPUTS</b>		
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	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.	
<b>FUNCTIONAL</b>		
Signal retransmission	--	Set point
Serial communication	TTL ModBus	RS485 with Modbus RTU protocol
Baud rate	--	1200... 38400 baud, programmable
<b>GENERAL</b>		
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	4 DIN rail modules, 70 x 84 mm - depth 60 mm
Weight	180 g approx.	230 g approx.
Connections	Screw terminal block 2.5 mm <sup>2</sup>	
Mounting	Flush in panel in 45 x 45 mm hole	On OMEGA DIN A rail
Front protection degree	IP65, mounted in panel with gasket	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)	



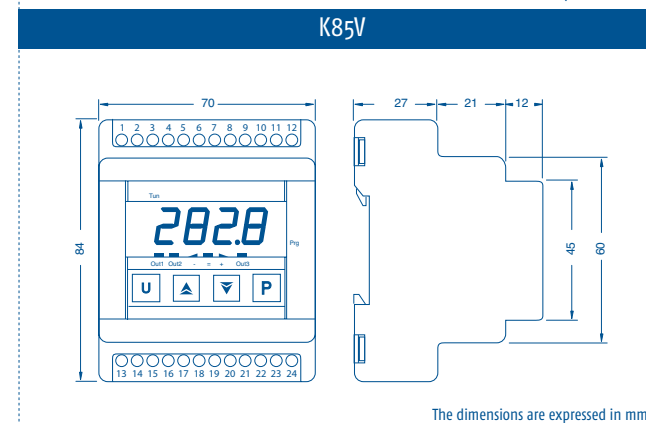
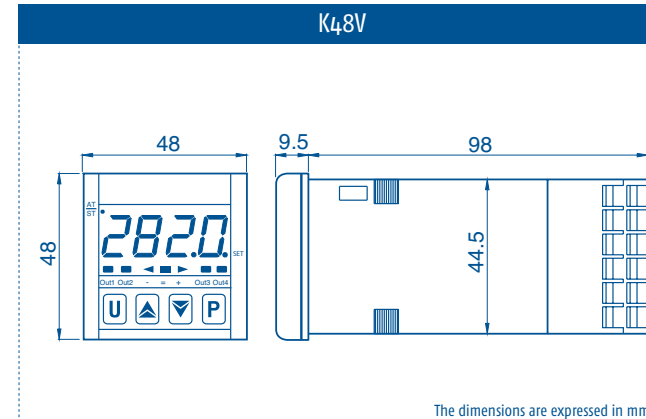
EVERYTHING UNDER CONTROL

## HOW TO ORDER

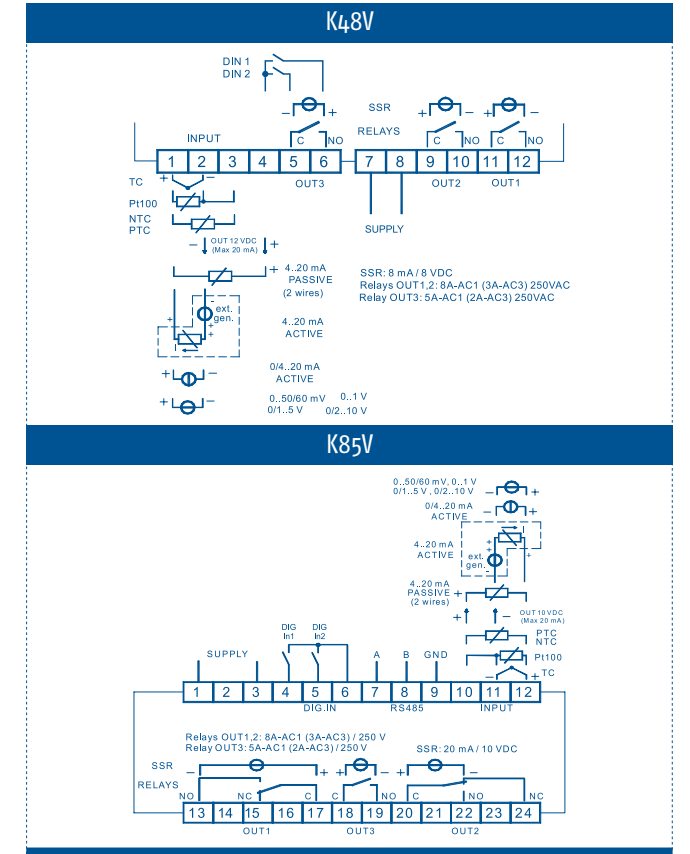
To compose the part number, pls. choose one of the option for each variable

K48V / K85V	CODE
<b>POWER SUPPLY</b>	
12 Vac/Vdc	F
24 Vac/Vdc	L
100... 240 Vac/Vdc	H
<b>INPUT</b>	
TC, PT100, mV	C
TC, PTC, NTC, mV	E
0/4... 20mA	I
0... 1V, 0/1... 5V, 0/2... 10V	V
<b>OUT 1</b>	
Relay SPDT 8A-AC1	R
Vdc for SSR driving	0
<b>OUT 2</b>	
Relay SPDT 8A-AC1	R
Vdc for SSR driving	0
Not available	-
<b>OUT 3</b>	
2 digital inputs (K48V only)	D
Relay	R
Vdc for SSR driving	0
Not available	-

## DIMENSIONS



## CONNECTIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMERS  
 DIN RAIL MOUNTING CONTROLLERS  
 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
<b>DISPLAY</b>	5 digit programmable as red or green, h 15.5 mm	
<b>INPUTS</b>	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 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)	
<b>OUTPUTS</b>	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	
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	
Auxiliary power supply	24 Vdc (±20%)/30 mA max. for external transmitter	
Outputs configuration	2, programmable as alarm	4, programmable as alarm
<b>FUNCTIONAL</b>	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	
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 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	
<b>GENERAL</b>	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 mm² (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)	

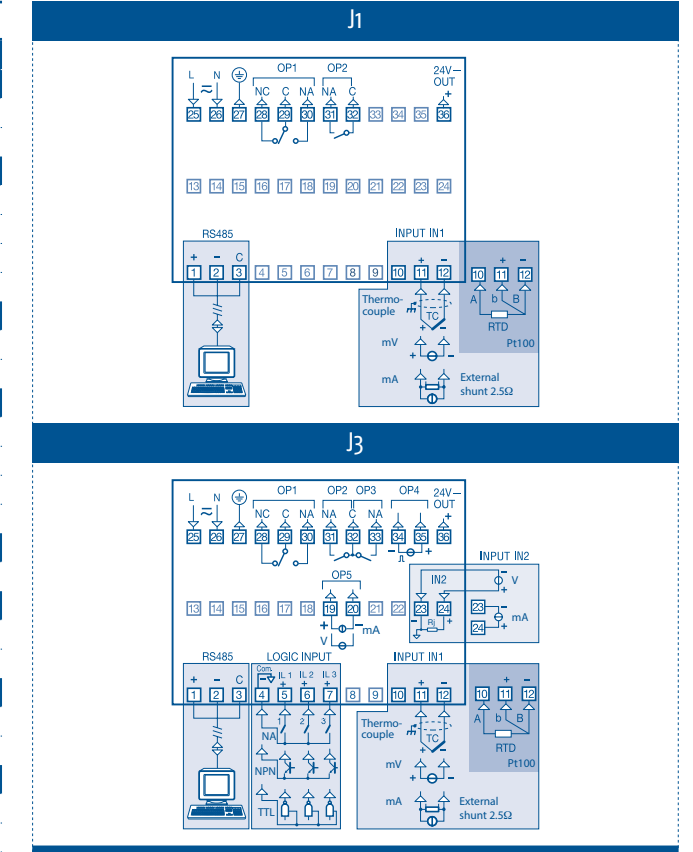


## HOW TO ORDER

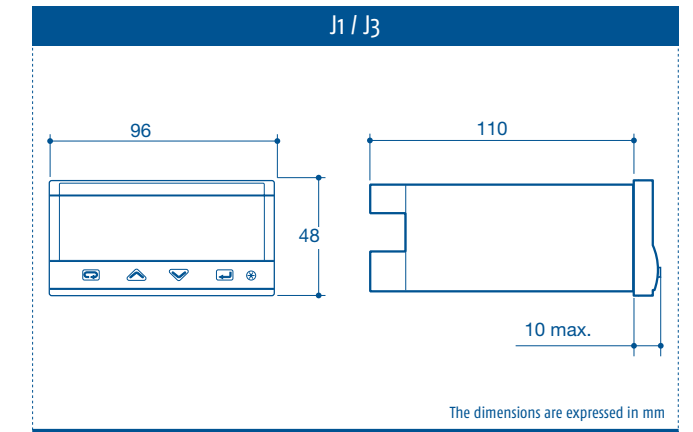
To compose the part number, pls. choose one of the option for each variable

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

## CONNECTIONS



## DIMENSIONS



# J5

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



## FEATURES

<b>DISPLAY</b>		J5
Single	5 digit programmable as red or green, h 15.5 mm	
<b>INPUTS</b>		
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)	
<b>OUTPUTS</b>		
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	
<b>FUNCTIONAL</b>		
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	
<b>GENERAL</b>		
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 <sup>2</sup> (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)	

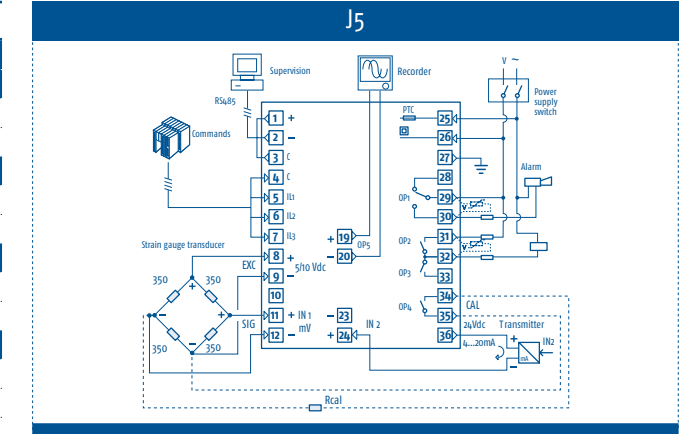


## HOW TO ORDER

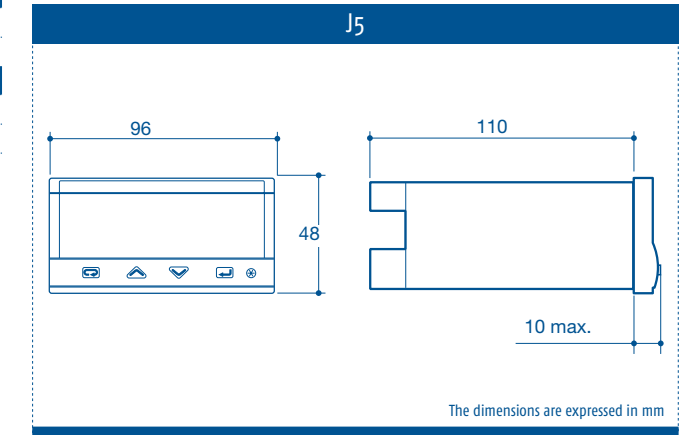
To compose the part number, pls. choose one of the option for each variable

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



# 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... +112°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	OUT1 and OUT2: Relay NO, 2A res./250Vac (4A res./120Vac) / SSR, 1A res./250Vac OUT3 and OUT4: logic 0/5 Vdc, not insulated		--
Outputs OUT1-OUT2	OUT1 and OUT2: Relay NO, 2A res./250Vac (4A res./120Vac) / SSR, 1A res./250Vac		--
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	Reference value		--
Setpoint	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	24Vac (-25...+12%), 24Vdc (-15...+25%) (50/60Hz)		
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 <sup>2</sup> (AWG28-AWG16) Inputs/Outputs: 0.2... 2.5 mm <sup>2</sup> (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.



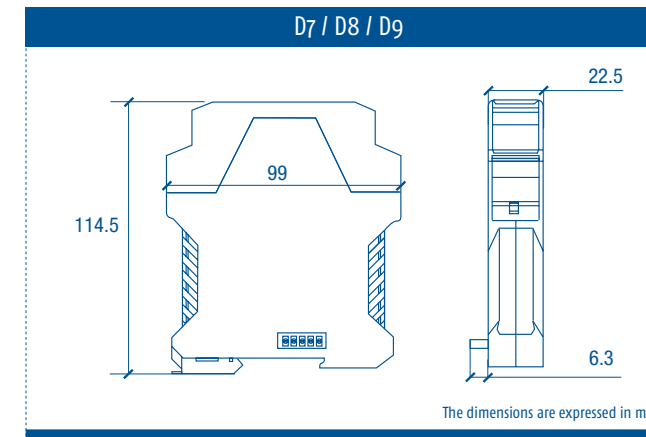
EVERYTHING UNDER CONTROL

## HOW TO ORDER

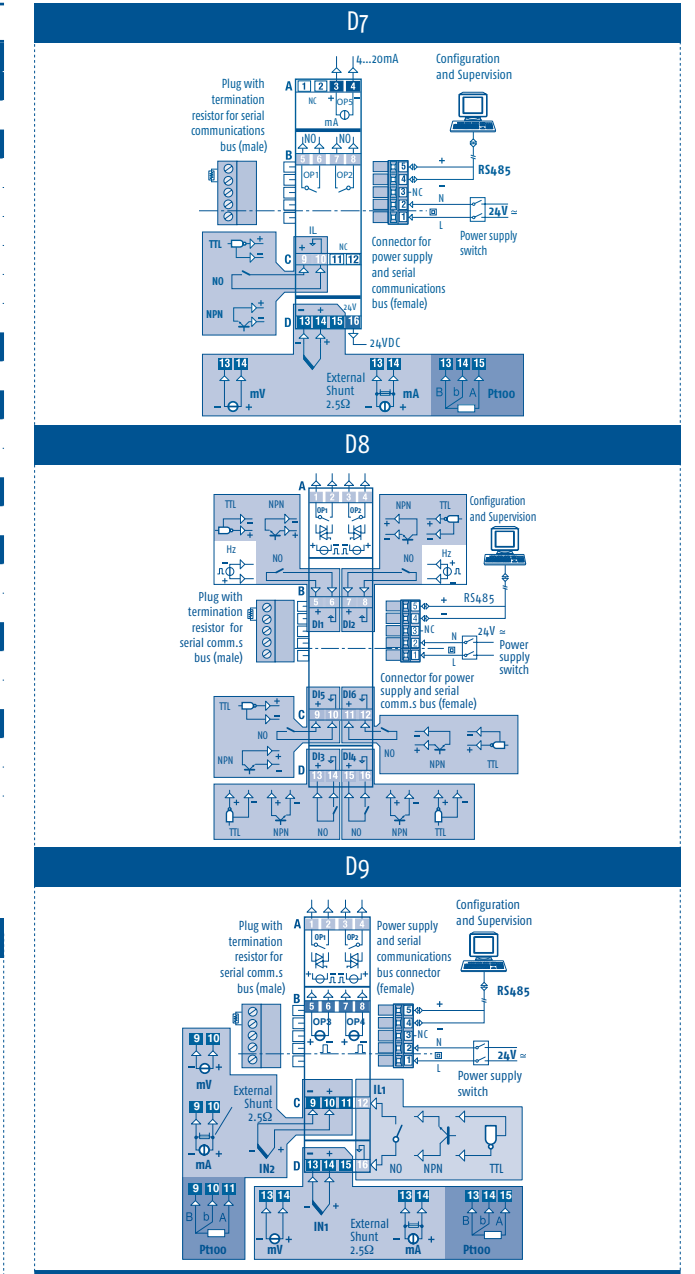
To compose the part number, pls. choose one of the option for each variable

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

## DIMENSIONS



## CONNECTIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMERS  
 DIN RAIL MOUNTING CONTROLLERS  
 STATISTICAL 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

# 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		
Acquisition 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						



EVERYTHING UNDER CONTROL

## 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

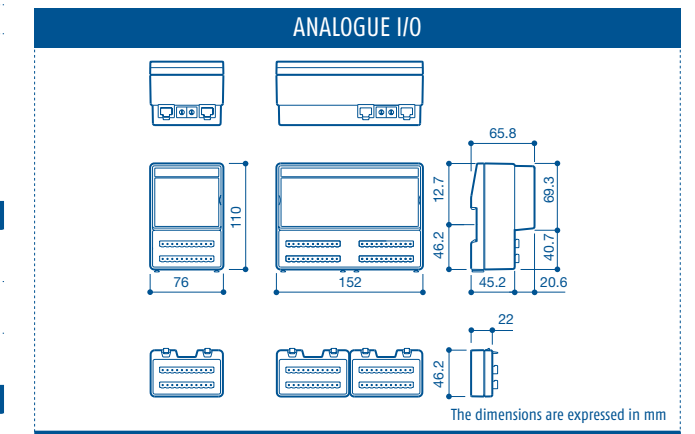
## ACCESSORIES

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/I (-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



INDUSTRIAL CONTROLLERS

ADVANCED PROGRAMMERS

DIN RAIL MOUNTING CONTROLLERS

PARAMETERS ANALOGUE CONTROLLERS

SPECIAL CONTROLLERS AND "CUSTOM"

PAC SYSTEMS

PRE-PROGRAMMED SYSTEMS

PLC AND OPERATOR PANELS

TIMERS COUNTERS POWER LIMITERS

INDICATORS

I/O MODULES

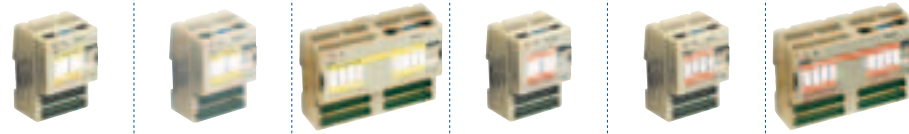
SUPERVISION

COMBUSTION CONTROL

ACCESSORIES

## 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			
<b>OUTPUTS</b>						
Number of outputs				16		32
Voltage				24 Vdc		
Current				500 mA	2 A	500 mA
<b>FUNCTIONAL</b>						
Modbus protocol	Available	--		Available		--
CANOpen protocol			Available			
Serial communication			RS 485, with dual connector RJ45			
Isolation class	800 V	2500 V		800 V		
<b>GENERAL</b>						
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.

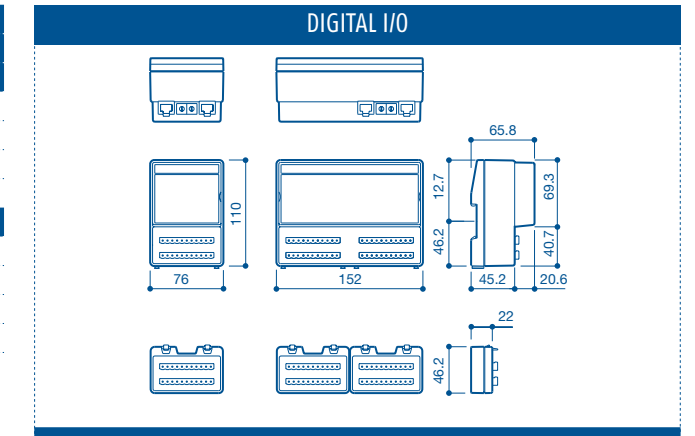


EVERYTHING UNDER CONTROL

## HOW TO ORDER

CODE	PROTOCOL	DESCRIPTION	CHANNELS	
			I	O
<b>DIGITAL INPUTS</b>				
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	
<b>DIGITAL OUTPUTS</b>				
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

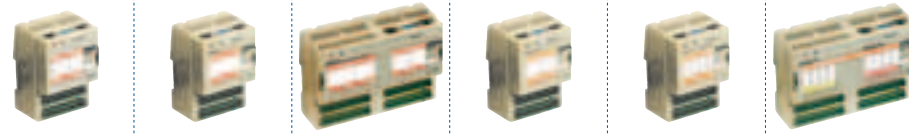


## ACCESSORIES

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		--	
<b>OUTPUTS</b>						
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		
<b>FUNCTIONAL</b>						
Modbus protocol	--		Available		--	
CANOpen protocol	Available					
Serial communication	RS 485, with dual connector RJ45					
Isolation class	4000 V	800 V	4000 V	800 V		
<b>GENERAL</b>						
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.

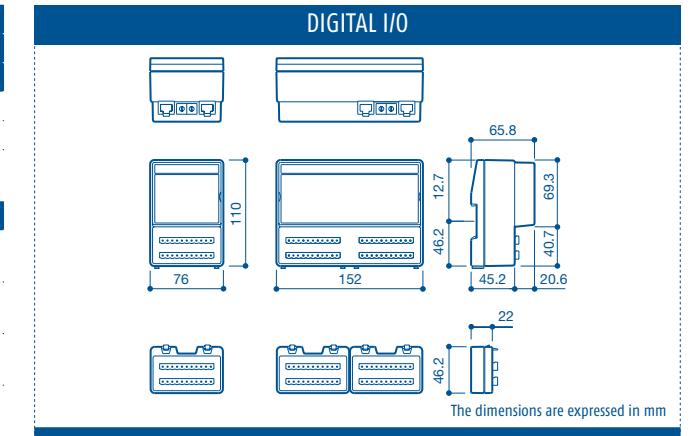


EVERYTHING UNDER CONTROL

## HOW TO ORDER

CODE	PROTOCOL	DESCRIPTION	CHANNELS	
			I	O
<b>RELAY OUTPUTS</b>				
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
<b>DIGITAL I/O</b>				
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

# TDA

- ANALOGUE AND DIGITAL ACQUISITION MODULES
- RS485
- 4 OR 8 INPUTS



## FEATURES

INPUTS	TDA04	TDA08
Digital inputs	4 digital inputs for free voltage contacts	
4 analogue inputs	0/4...20 mA or 0/2...10 V	--
8 probe inputs	--	8x Thermistors PTC KTY 81-121 (990Ω at 25°C) or NTC 103AT-2 (10kΩ at 25°C) or 8x Thermoresistances Pt1000 (1kΩ at 0°C)
Accuracy	±0.5% fs	
OUTPUT	One 1 Relay SPST-NO (5A-AC1, 2 A-AC3/250 Vac)	
FUNCTIONAL	Serial communication RS485 optoisolated – MODBUS RTU (JBUS) protocol	
Baud rate	Programmable between 1200 and 38400 baud	
Sampling rate	2 samples per second	
Range	350 points	According to the used probe
GENERAL	Power supply 24, 115, 230 Vac ±10% (50/60 Hz)	
Power consumption	5 VA approx.	
Dimensions / Weight	4 DIN rail module 70 x 84 x 60 mm / 210 g approx.	
Connections	Screw terminal block 2.5 mm <sup>2</sup>	
Mounting	On OMEGA DIN A rail	
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

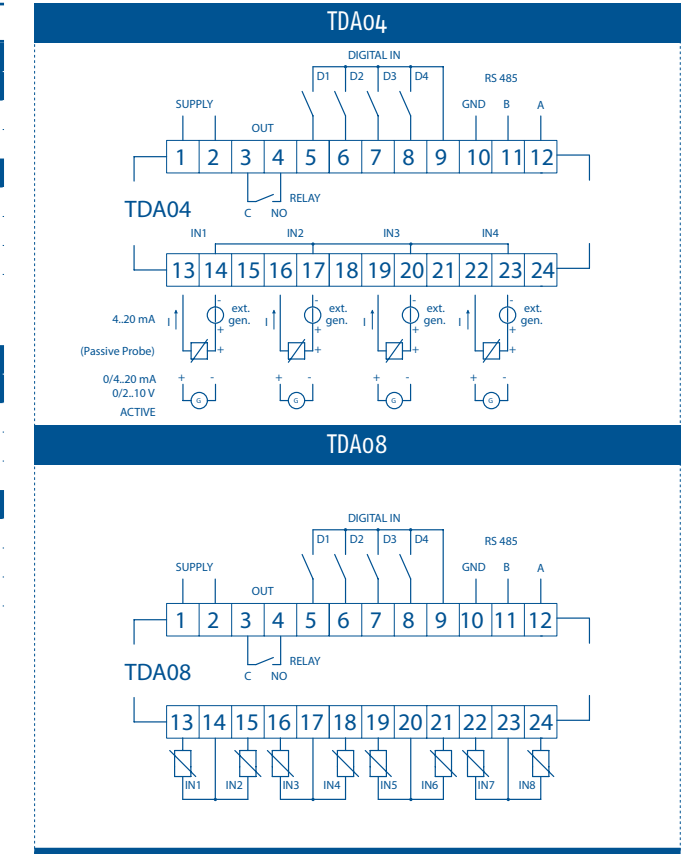
## HOW TO ORDER

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

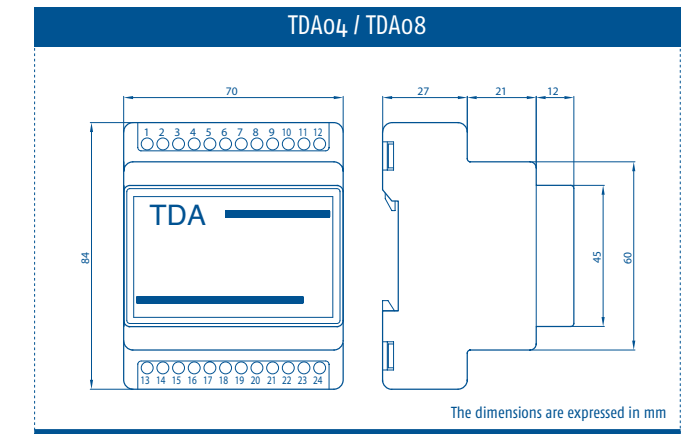
TDA04	CODE
INPUT	
0/2...10V	W
0/4...20 mA	I
POWER SUPPLY	
24 Vac	A
115 Vac	C
230 Vac	D

TDA08	CODE
INPUT	
PT1000	P
NTC	N
PTC	E
POWER SUPPLY	
24 Vac	A
115 Vac	C
230 Vac	D

## 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



## 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			•
	Websver			•
Power supply 24 Vac/Vdc		•	•	•
CE certification + UL approval (listed)		•		•

# 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 Bisynch 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



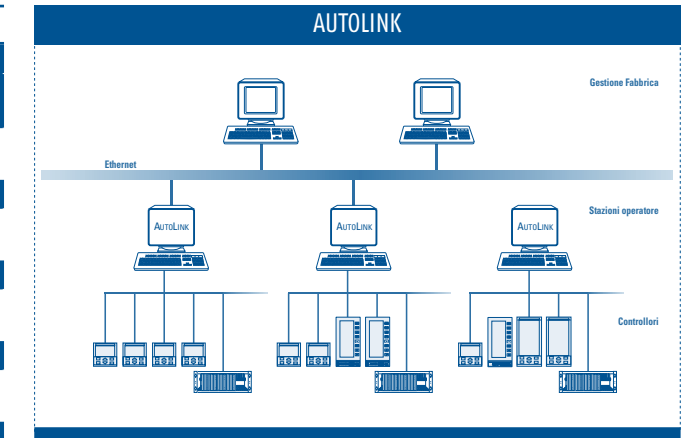
EVERYTHING UNDER CONTROL

## 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

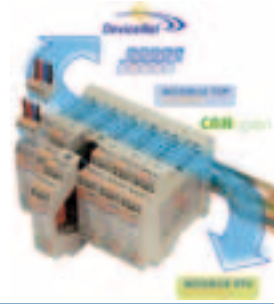
## CONNECTIONS



INDUSTRIAL CONTROLLERS  
 ADVANCED PROGRAMMERS  
 DIN RAIL MOUNTING CONTROLLERS  
 INVERTERS  
 ANALOGUE CONTROLLERS  
 SPECIAL CONTROLLERS AND "CUSTOM"  
 PAC SYSTEMS  
 PRE-PROGRAMMED SYSTEMS  
 PLC AND OPERATOR PANELS  
 TIMERS COUNTERS POWER SUPPLIES  
 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)
<b>GENERAL</b>		
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 <sup>2</sup> (AWG28-AWG16) Inputs/Outputs: 0.2... 2.5 mm <sup>2</sup> (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)



EVERYTHING UNDER CONTROL

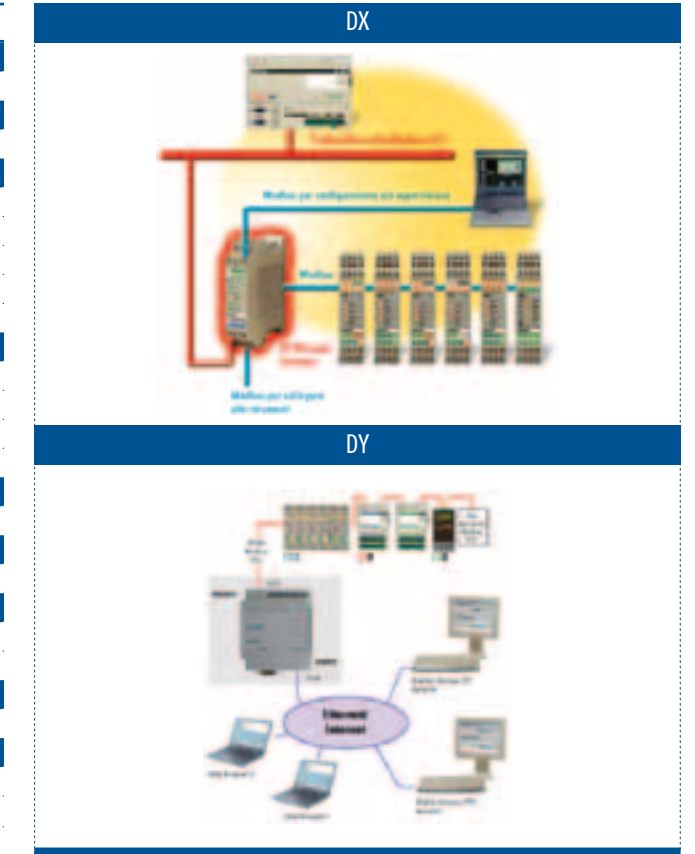
## HOW TO ORDER

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

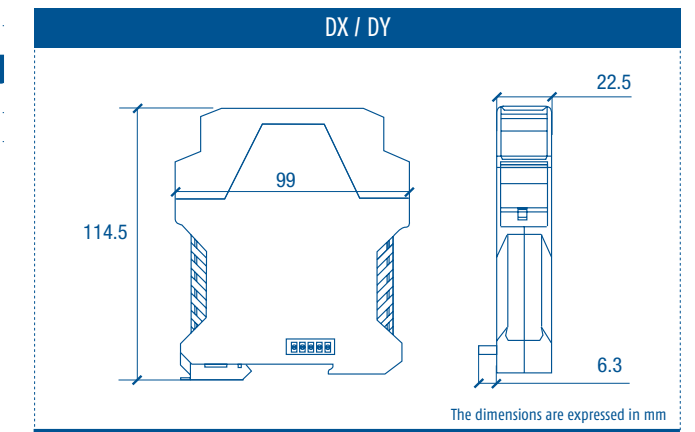
DX	CODE
Gateway/Manager for Delta2/Gamma2 series	
<b>POWER SUPPLY</b>	
24 Vac/Vdc	5
<b>NUMBER OF INSTRUMENTS IN BACKUP</b>	
0 Instruments	0
4 Instruments	1
8 Instruments	2
16 Instruments	3
32 Instruments	4
<b>FIELDBUS COMMUNICATION</b>	
No fieldbus	0
DeviceNet	1
Modbus	5
Profibus DP	7
<b>OPTION 1</b>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

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

## CONNECTIONS



## DIMENSIONS



INDUSTRIAL CONTROLLERS  
ADVANCED PROGRAMMER CONTROLLERS  
DIN RAIL MOUNTING CONTROLLERS  
PARAMETERS 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



# 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.

# ZO<sub>2</sub>

• ZIRCONIUM OXIDE PROBE  
FOR O<sub>2</sub> MEASUREMENT



## FEATURES

GENERAL	ZO <sub>2</sub> -I/E
Measurement type	Direct and continuous oxygen content measurement in wet flue gas
Sensor	Heated zirconium oxide ZrO <sub>2</sub>
Max. Heater	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 <sub>2</sub> Measuring range	0.3% ... 25%
Accuracy	±2%
Output range 4... 20mA	0... 20.96% , 0... 25% Adjustable with keys
Response time	< 5 sec.
Heating up time	15 min.
Calibration 2-points	1%... 20.9%
Intervallo di calibrazione	Procedure of calibration with keys 12 months
Error indicator	Relay DPST, NC+NO and red led on card Relay intervention in case of: 0 <sub>2</sub> < 0.3% probe disconnection probe anomaly heater anomaly supply voltage anomaly
Sensor heating up time	<15s Automatic temperature control Power supply 0... 24V
Pluggable screw connectors	Output 4... 20mA Fault signal contacts Sensor wiring (5 wires)
Operation interface	Red led, green led and 3 keys
Remote probe connection	With supplied cable (3 m)

## HOW TO ORDER

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

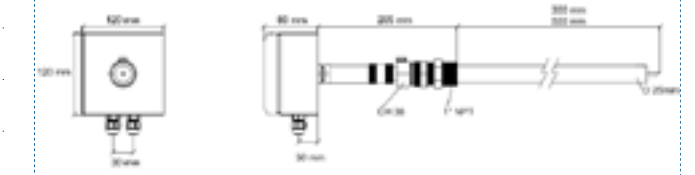
MODEL	DESCRIPTION
ZO <sub>2</sub> -I-300	IN-SITU ZIRCONIUM OXIDE PROBE WITH INTEGRATED ELECTRONICS L=300 MM
ZO <sub>2</sub> -I-500	IN-SITU ZIRCONIUM OXIDE PROBE WITH INTEGRATED ELECTRONICS L=500 MM
ZO <sub>2</sub> -E-300	IN-SITU ZIRCONIUM OXIDE PROBE WITH EXTERNAL ELECTRONICS L=300 MM
ZO <sub>2</sub> -E-500	IN-SITU ZIRCONIUM OXIDE PROBE WITH EXTERNAL ELECTRONICS L=500 MM
ZO <sub>2</sub> -E-C100	IN-SITU ZIRCONIUM OXIDE PROBE WITH EXTERNAL ELECTRONICS L=100 MM

## ACCESSORIES

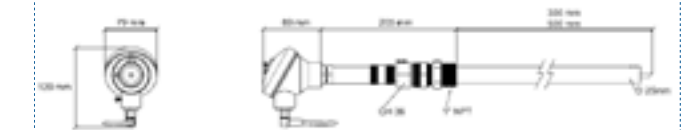
POWER ADAPTORS	
APS2 ALDR75-24	POWER ADAPTOR 3.2 A
APS2 ALDR12024	POWER ADAPTOR 5 A

## DIMENSIONS

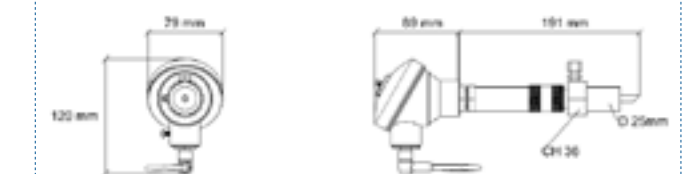
### ZO<sub>2</sub>-I 300/500



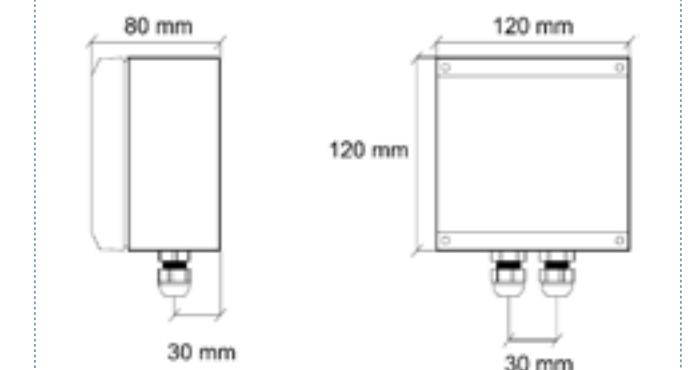
### ZO<sub>2</sub>-E-300/500



### ZO<sub>2</sub>-E-C100



### REMOTE CASE FOR ZO<sub>2</sub>-E-300/500 AND ZO<sub>2</sub>-E-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 Z0 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 O <sub>2</sub> %	4... 20 mA/0... 10 V programmable for O <sub>2</sub> %, T smokes, T air, CO <sub>2</sub> %, 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 (1/16 DIN) - 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		



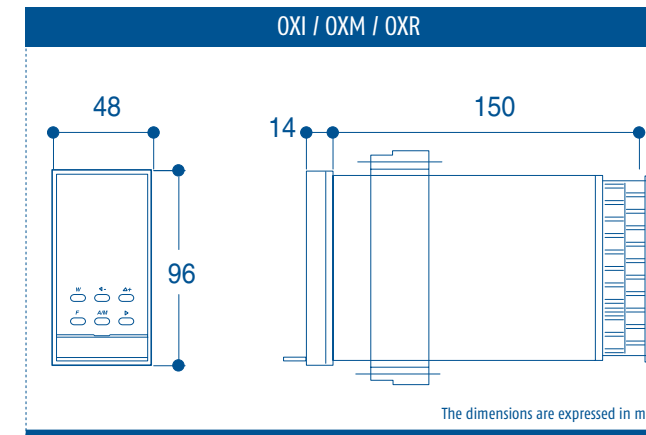
EVERYTHING UNDER CONTROL

## HOW TO ORDER

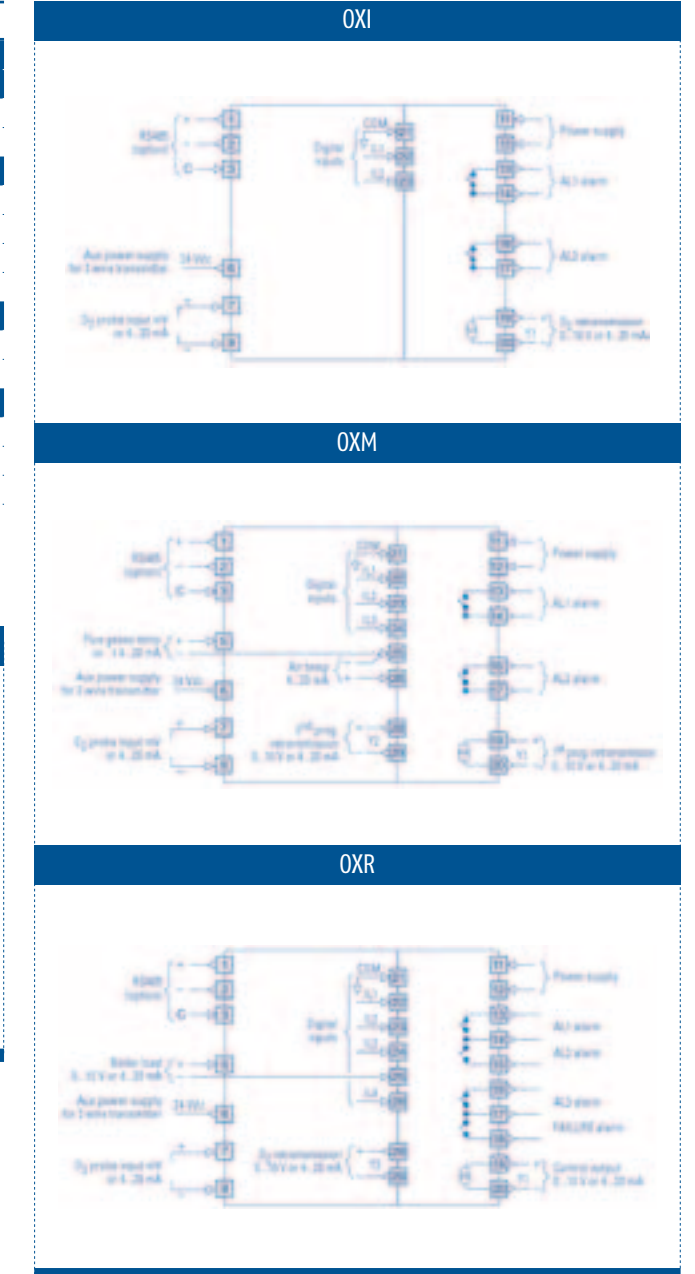
To compose the part number, pls. choose one of the option for each variable

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

## DIMENSIONS



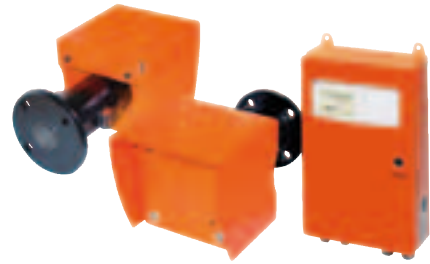
## CONNECTIONS



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

# 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...100 ppm and 0...20000 ppm
Accuracy	5% f.s.
Response time	5... 360 s
Gas temperature	≤ 300°C (higher temperatures available on request)
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	Specifiche EMC secondo EN 50081-1/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

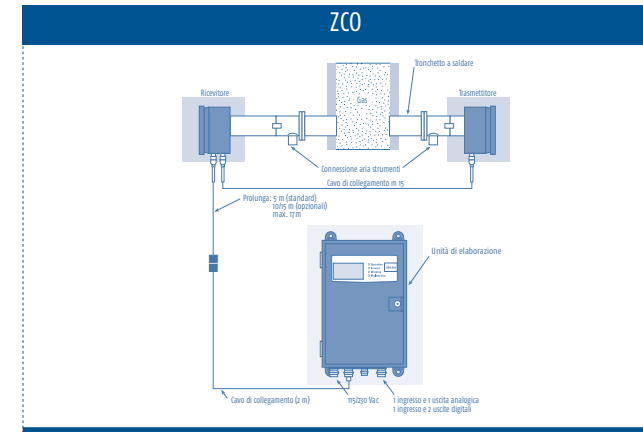
To compose the part number, pls. choose one of the option for each variable

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 tronchetti a saldare	
2 kit speciali nuts and washers	
2 seals tronchetti-flanges	
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



EVERYTHING UNDER CONTROL

## DIMENSIONS

PROBE
PROCESSING UNIT
FLANGE

INDUSTRIAL CONTROLLERS

ADVANCED PROGRAMMERS

DIP-BAIT MONITORING CONTROLLERS

PARAMETERS ANALOGUE CONTROLLERS

SPECIAL CONTROLLERS AND "CUSTOM"

PAC SYSTEMS

PRE-PROGRAMMED SYSTEMS

PLC AND OPERATOR PANELS

TIMERS COUNTERS POWER LIMITERS

INDICATORS

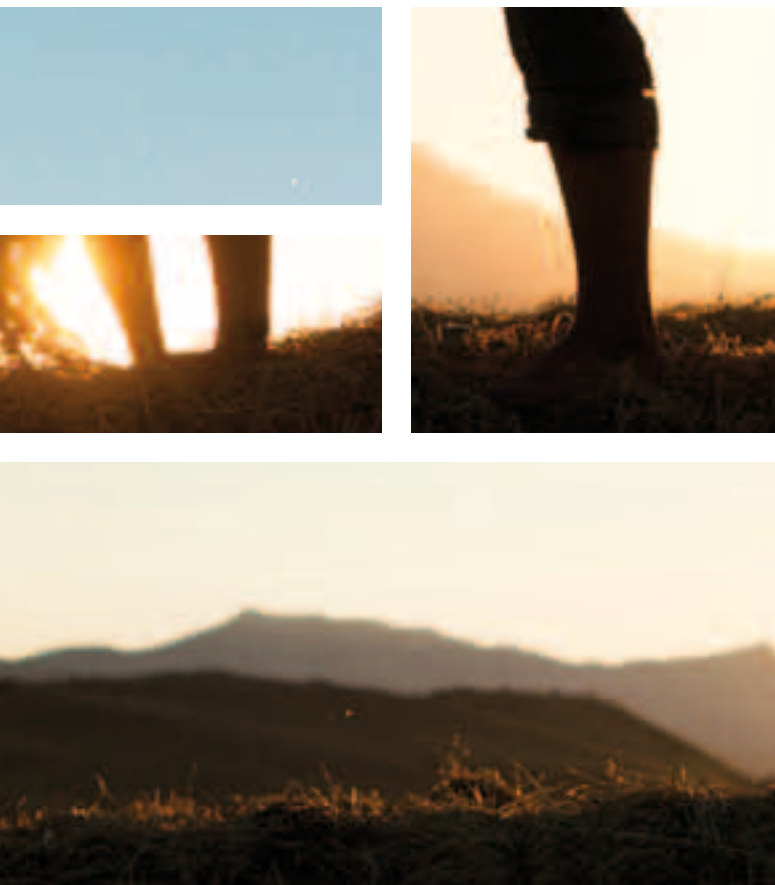
I/O MODULES

SUPERVISION

COMBUSTION CONTROL

ACCESSORIES

# ACCESSORIES



*flexible*  
solutions  
for every  
requirements



## 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	
	<b>A01</b>
Functions	<p>The key is able to "dialogue" with:</p> <ul style="list-style-type: none"> <li>* An instrument and to copy parameters from it to the key and vice versa</li> <li>* A second key and to integrally copy its parameters</li> <li>* A Personal computer</li> <li>* A Personal computer and an instrument</li> </ul> <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

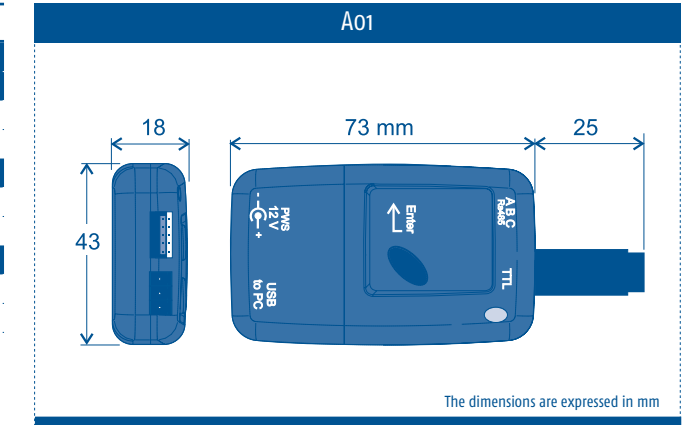


## HOW TO ORDER

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

A01	CODE
<b>CONNECTOR</b>	
5 pole for 78x35, DIN rail, 72x72 series	5
3 pole for 48x48 series	3
<b>POWER ADAPTOR</b>	
Available	E
Not available	-
<b>KIT FOR PC CONFIGURATION</b>	
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	
<b>GENERAL</b>		
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 <sup>2</sup> or AWG 23 to AWG 14) RS232/RS485: screw terminal block (M2 screws, for cables $\varnothing$ 0.25 to $\varnothing$ 1.5 mm <sup>2</sup> 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	

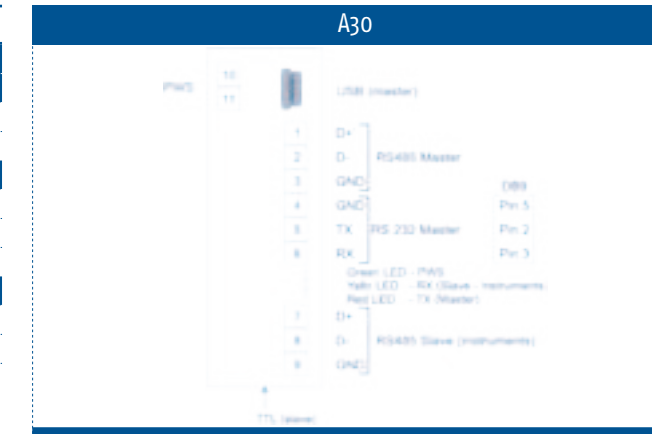


## HOW TO ORDER

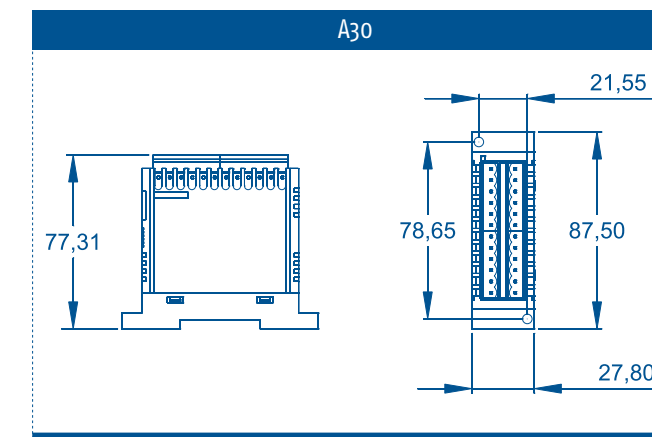
To compose the part number, pls. choose one of the option for each variable

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

## CONNECTIONS



## DIMENSIONS



# APS2 ALDR

POWER SUPPLY FOR SIGMADUE SERIES



Power supply for instruments of sigmadue series.

CODE	DESCRIPTION
APS2 ALDR75-24	Power supply 75W - 24Vdc - 3.2 A
APS2 ALDR12024	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

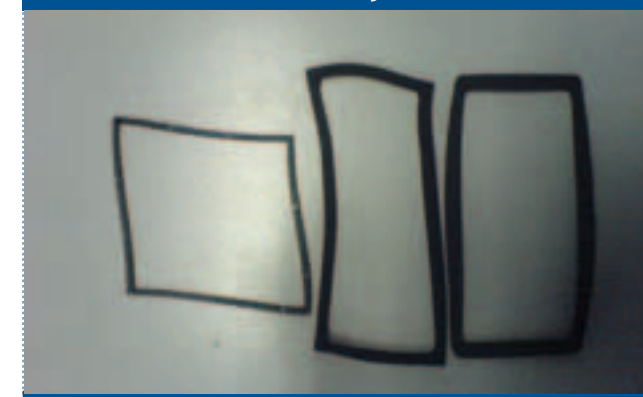


Protection covers made of transparent plastic or soft rubber to protect the front of the instruments. Some models assure the IP65 protection degree.

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

# GUAR

EXTERNAL GASKETS FOR IP65 PROTECTION DEGREE

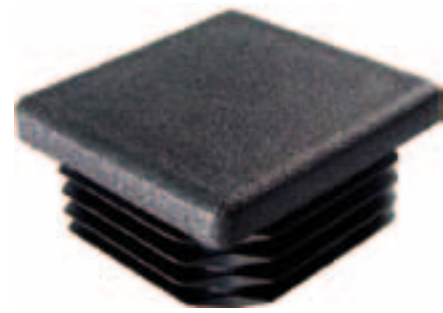


External gaskets in neoprene mousse able to increase the instrument front protection degree.

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	Cover 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 Tecnologic puts at your disposition our experience and technical competence with the purpose to find the correct solution to every application problem...

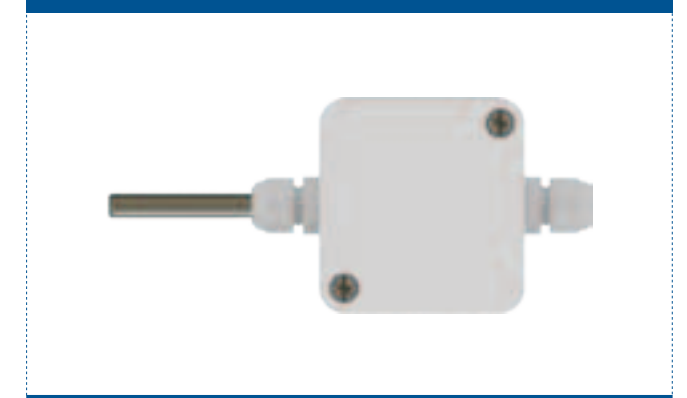
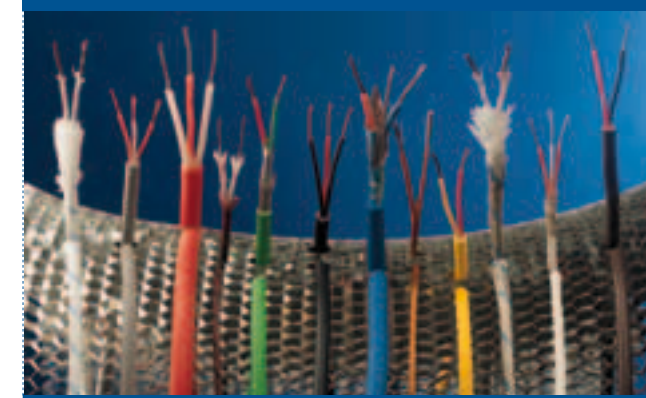
Here following just some of the possible execution of our thermolements:

- 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



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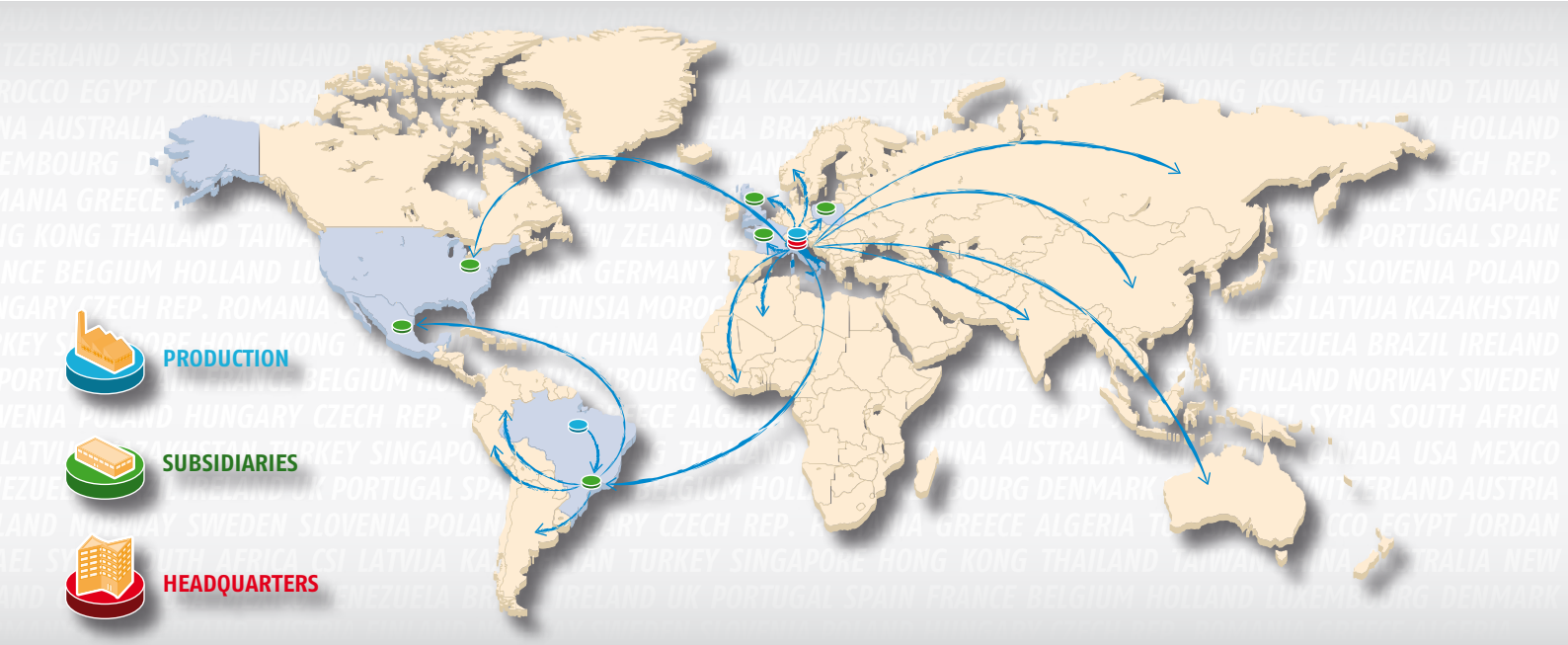
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