ASCON TECNOLOGIC

EVERYTHING UNDER CONTROL

KUBE SERIES

3 DYNAMIC COLOUR LED DISPLAY

THE COLOUR CHANGES DEPENDING ON PROCESS VALUE

PROGRAMMERS

- COMPACT SIZE

- **96 segments** splitted into **8 programmes**;
- **"Segment recovery" + "Elapsed time recovery"** (minute resolution) for restart after a power failure;
- Sequences up to 4 programmes, **with different timebase** (h/min - min/s);
- Up to **999 cycles**;
- *evo*Green - for energy saving;
- *evo*Tune - auto-tune PID parameters "push and forget";
- **Universal Input** (TC, mV, V, mA, Pt100-Pt1000 / PTC-NTC);
- **Universal Output** (relay, SSR, linear mA/V, servomotor);
- **User calibration** for sensor position compensation;
- Parameters sequence **fully customisable**;
- *evo*Tools - programming key for instant parameterisation.

FIELDS OF APPLICATION

- PAINTING ROOMS
- CLIMATIC CHAMBERS AND INCUBATORS
- GLASS BENDING FURNACES
- OVENS FOR GOLDSMITHS
- CERAMIC KILNS
- THERMAL TREATMENT FURNACES
- DENTAL OVENS

ASCON TECNOLOGIC
EVERYTHING UNDER CONTROL

PROGRAMMER FUNCTION

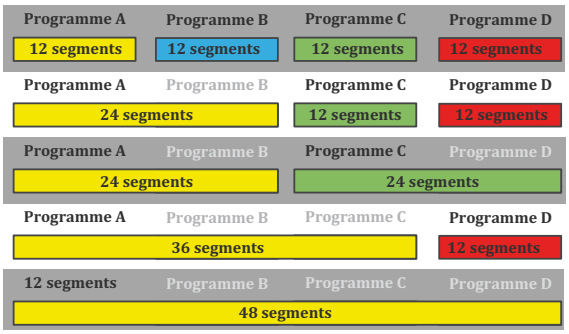
This function allows to set:

- 96 segments splitted into 8 programmes;
- 12 segments per programme (6 ramps and 6 soaks);
- Timebase selectable between h/min or min/s;
- 4 start-up modes: at power-up, at power-up with initial delay, and on command with or without initial delay (from keyboard, digital input or serial line);
- 3 output modes at the end of the programme: process continues with the last programmed set-point, the last active set-point, switching to stand-by;
- 2 programmable events for each programme segment;
- "Programme running" indicator;
- "Programme end" indicator;
- Two digital inputs and/or the button "↻" can be programmed to perform Start/Hold/Reset commands.

PROGRAMME SEQUENCES

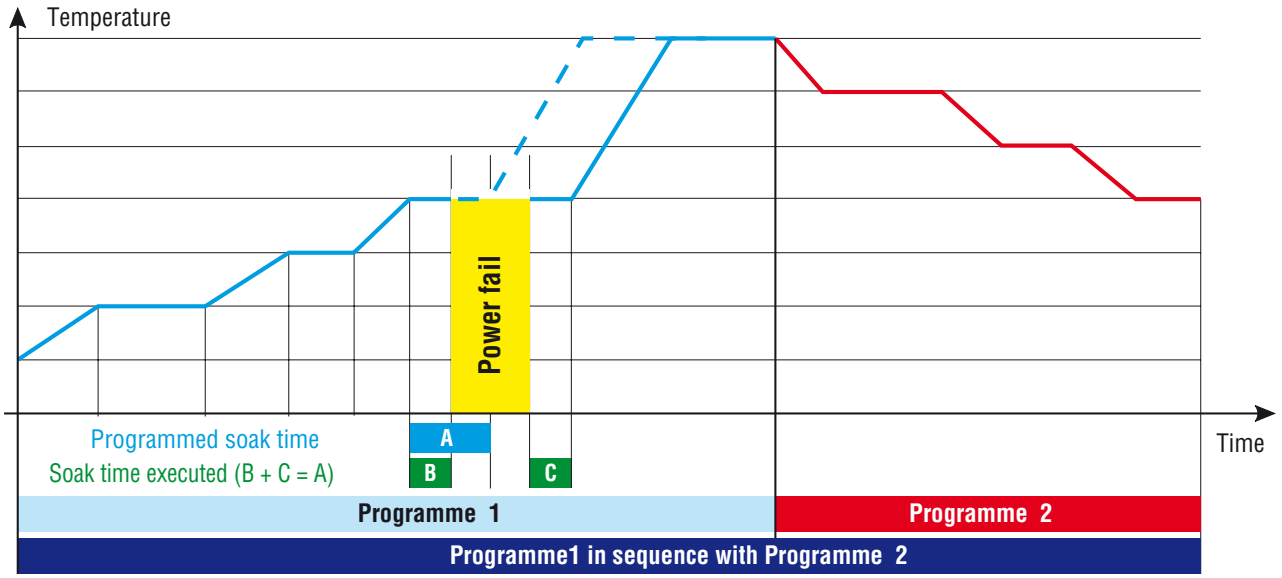
This function allows to:

- Execute sequences of up to 4 programmes each;
- Compose programme sequences, even with a different timebase (h/min – min/s);
- Execute up to 999 times the selected programme cycle.



SEGMENT + ELAPSED TIME RECOVERY

- Restart after power fail: the programme may restart from the segment in execution and run it for the remaining time, then it may proceed with the programme, including the missing repetitions.
- In case of power fail during a ramp, at the power-on, the instrument sets the operative setpoint as the measured value and restarts the ramp.
- In case of power failure during a soak, the instrument restarts from the failure point (accuracy 1 minute). At power recovery, if the measured value is "far" from setpoint and a wait band has been configured, the time counting will restart only when the measured value will be within the wait band.



viale Indipendenza, 56 · 27029 Vigevano (PV) Italy
tel +39 0381 69 871 · fax +39 0381 69 87 30
info@ascontecnologic.com
www.ascontecnologic.com

PROGRAMMERS

KUBE SERIES

CE

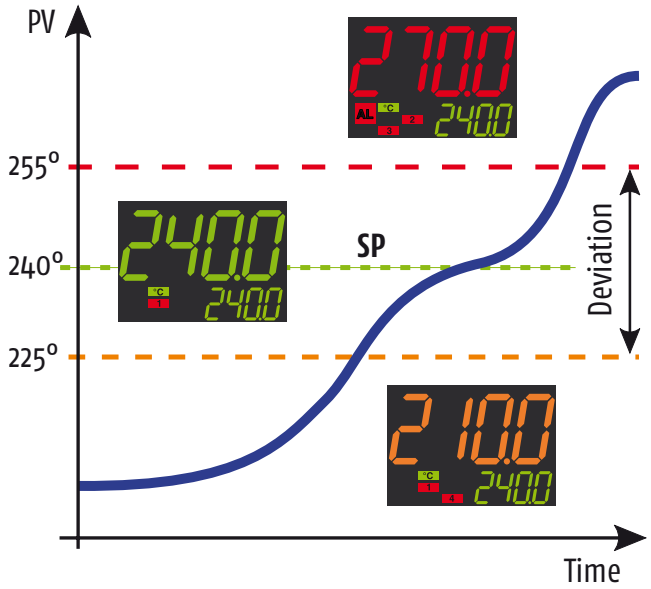
ASCON TECNOLOGIC

EVERYTHING UNDER CONTROL

3 COLOUR DISPLAY

The colour of the main display changes depending on process value.

Color change thresholds are programmable.



Immediate and intuitive process status acknowledgement, from a distance.

This function may be disabled by the user.

evoTUNE

evoTune is a technological evolution of the "classic" auto-tuning method. Performs auto-tuning in all operating conditions.

At evoTune start-up the instrument evaluates the current situation (set point, current process measurements etc.) and establishes the best tuning solution.

Set point change made during auto-tuning, restarts process according to the new conditions.

CUSTOMISED PARAMETER SEQUENCE

Provision of user-defined operator interface has been, until now, only available in 'custom solutions'.

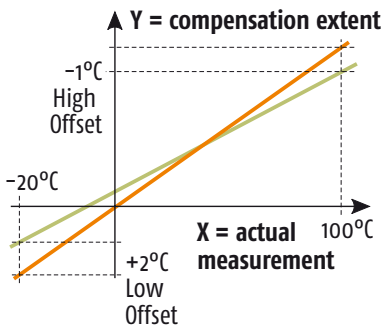
The KUBE Line allows to customise operator parameters making safe and easy the instrument use.

USER CALIBRATION

This function allows the manufacturer of the equipment to **calibrate the entire measurement values** compensating for errors due to:

- Sensor position;
- Sensor accuracy class;
- Accuracy of the instrument.

The "*User calibration*" **DOES NOT** change factory calibration and can be removed at any time.



evoGREEN ENERGY SAVING

The user selectable function allows reduction of energy consumption while indicating the presence of alarms and process deviations, from a distance.

Once the function is activated, the display acts as follows:

- If no button is pressed within the user defined time, the display turns off and 4 display segments remain lit and alternate to report that the system is in operation;
- If an alarm is detected or a button is pressed, the display turns on again immediately.

Normal operation

Alarm or operator command

viale Indipendenza, 56 · 27029 Vigevano (PV) Italy
tel +39 0381 69 871 · fax +39 0381 69 87 30

info@ascontecnologic.com
www.ascontecnologic.com

ASCON TECNOLOGIC
EVERYTHING UNDER CONTROL

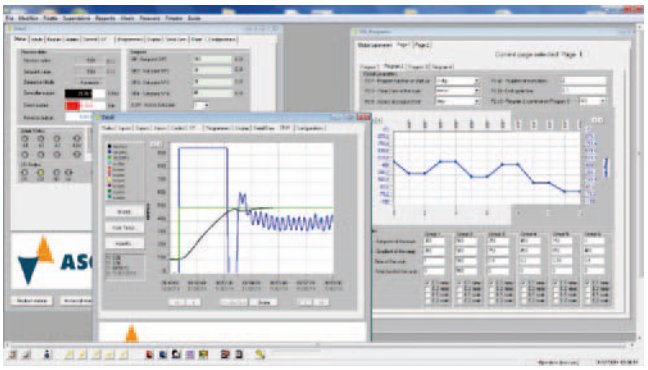
ACCESSORIES

A01 - Programming key

- A PC is NOT necessary to "copy and paste" a configuration (during production, startup or service);
- Copy an instrument configuration (to another key or a PC) even if the instrument is damaged (power supply or display not working);
- Configure / connect the instrument easily (even without a proper serial port) by using our configurator or a third party software;
- Configure the instrument safely from your desk (no high power connection on the instrument);
- Serial communication test (RS485);
- During startup, real time data monitoring allows easy and fast reaction (dynamic configurator);
- With a key preconfigured for a specific job, mistakes cannot be made by the operator. Just a buttonclick is required.

In other words you can:

- Copy the configuration from instrument to key, without a PC;
- Copy the configuration from key to instrument, without a PC;
- Use the key as USB/RS485 converter, with or without our SW;
- Use the key as USB/TTL converter, with or without our SW;
- Link with a PC, even if the instrument is not provided with RS485 port (is also possible to read a saved configuration).



Configuration software

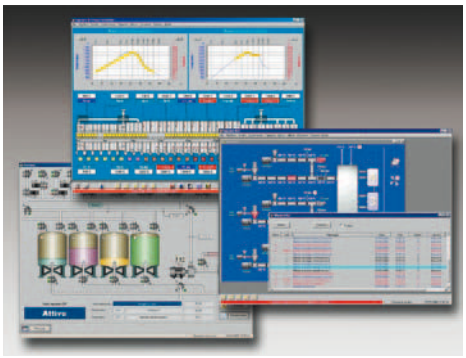
Supplied free of charge, once loaded on the PC, provides:

- Easy configuration of an instrument;
- Upload and download previously saved configurations;
- Simplify the start-up, using the real time update of variables and parameters.

WinTec - Supervisor

Based on simple and flexible SCADA, it provides:

- Data acquisition;
- Centralized control;
- Alarm and recipes management;
- Trend;
- Report.



viale Indipendenza, 56 · 27029 Vigevano (PV) Italy
tel +39 0381 69 871 · fax +39 0381 69 87 30
info@ascontecnologic.com
www.ascontecnologic.com

PROGRAMMERS

KUBE SERIES

CE

ASCON TECNOLOGIC

EVERYTHING UNDER CONTROL

KR5P

KM5P

KX5P

SPECIFICATIONS

DISPLAY	KR5P/KM5P	KX5P
Dual LED	**Main display:** 4 digit h 10.9 mm (KR5P) or 15.5 (KM5P and KX5P) dynamic three colours red, green and amber or 1 fixed selectable colour	
	Secondary display: 4 digit h 6 mm (KR5P), 7.6 mm (KM5P) or 10 mm (KX5P) green coloure	
	Bargraph: –	**20 segment bar graph**
INPUTS		
Universal Input	**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 **RTD:** Pt100 3 wires and Pt1000 2 wires (-200... +850°C/-328... +1562°F) **Thermistors:** PTC KTY81-121 (-50... +150°C/-58... +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	
Measurement accuracy	±0.5% span ±1 digit, (±1% span ±1 digit for T/c type S)	
Digital inputs	1 contact input + 1 (available when I/O 4 = DI2) programmable as voltage (24 VDC) or contact input	
OUTPUTS		
Up to four	**OUT1:** Relay SPST-NO 4A/240 Vac (SPDT for KR5P) or voltage output for SSR driving 13V max. @ 1mA, 10.5V min. @ 15 mA ±10% or analogue 0/4... 20 mA, 0/2... 10 V galvanically isolated	
	OUT2 and OUT3 (*): Relay SPST-NO 2A/240 Vac or Voltage output for SSR driving 13V max. @ 1mA, 10.5 V min. @ 15 mA ±10% or Relay SPST-NO 2A/240 Vac (for servomotor drive)	
	OUT4 programmable: Voltage output for SSR driving 13V max. @ 1mA, 10.5 V min. @ 22 mA ±10% or transmitter power supply or 2nd Digital Input	
FUNCTIONAL		
Control	PID single or double action, On/Off, On/Off with Neutral Zone, Servomotor. Autotune, Selftune and evoTune. Overshoot control	
Alarms	3 alarms configurable as absolute, deviation, band	
Set Point	4 set Points selectable	
Serial communications	TTL (standard) + RS485 (optional), protocol: MODBUS RTU	
Communications speed	1200... 38400 baud selectable (8 bit + 1 stop bit, no parity)	
Evogreen	Time based Display switch-off, selectable	
Programmes	Up to 12 segments with "guaranteed soak"	
Programme memory	8 programmes	
Programme sequence	Up to 4 programmes can be executed in sequence	
GENERAL		
Power supply	24 Vac/dc ±10%, 100... 240 Vac/dc (-15... +10%), 50/60 Hz, power consumption 7 VA max.	
Temperature	**Operating:** 0... 50°C (32... 122°F); **Storage:** -20... +70°C (-4... +158°F);	
Relaitve humidity	20... 95 RH% with no condensation	
Conformity	EN 61010-1, EN 61326	

***: For servomotor drive, both OUT2 and OUT3 are relay output (see "How to order": OUT2 and OUT3 = code M).**

viale Indipendenza, 56 · 27029 Vigevano (PV) Italy
tel +39 0381 69 871 · fax +39 0381 69 87 30

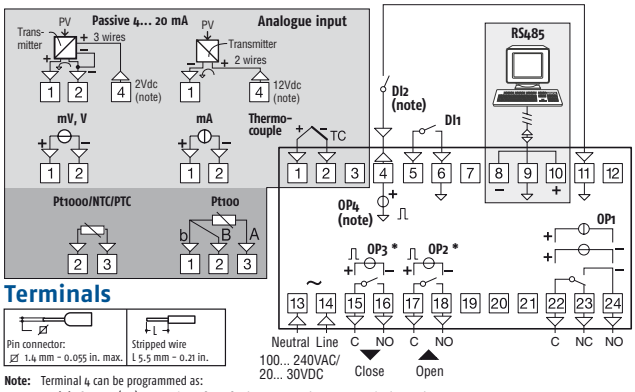
info@ascontecnologic.com
www.ascontecnologic.com

ASCON TECNOLOGIC
EVERYTHING UNDER CONTROL

CONNECTIONS AND DIMENSIONS

KR5

Electrical connections



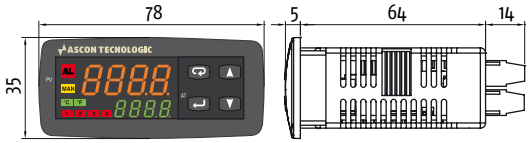
Terminals

Note: Terminal 4 can be programmed as:
- **Digital Input** (DI2) connecting a free of voltage contact between terminals 4 and 11
- **0... 12 V SSR Drive Output** (OP_4) connecting the load between terminals 4 and 11
- **12 Vdc (20 mA) transmitter power supply** connecting the transmitter between terminals 4 and 1

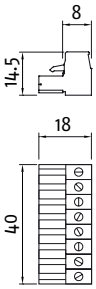
*: For servomotor drive: **OUT_2 = open, OUT_3 = close**.

Dimensions (mm)

Instrument with non-removable terminals

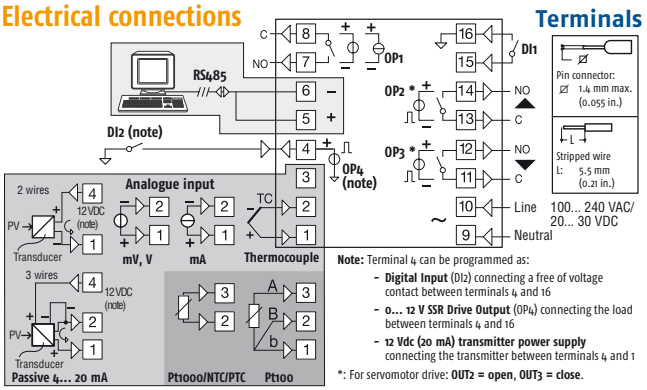


Removable terminals



KM5

Electrical connections



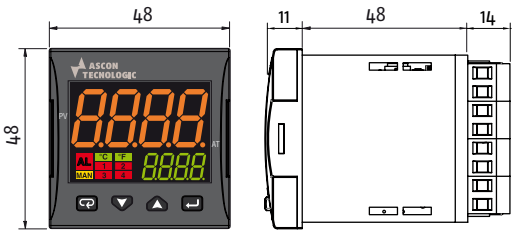
Terminals

Note: Terminal 4 can be programmed as:
- **Digital Input** (DI2) connecting a free of voltage contact between terminals 4 and 16
- **0... 12 V SSR Drive Output** (OP_4) connecting the load between terminals 4 and 16
- **12 Vdc (20 mA) transmitter power supply** connecting the transmitter between terminals 4 and 1

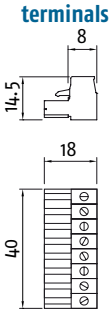
*: For servomotor drive: **OUT_2 = open, OUT_3 = close**.

Dimensions (mm)

Instrument with non-removable terminals



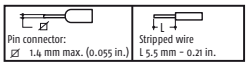
Removable terminals



KX5

Electrical connections

Terminals

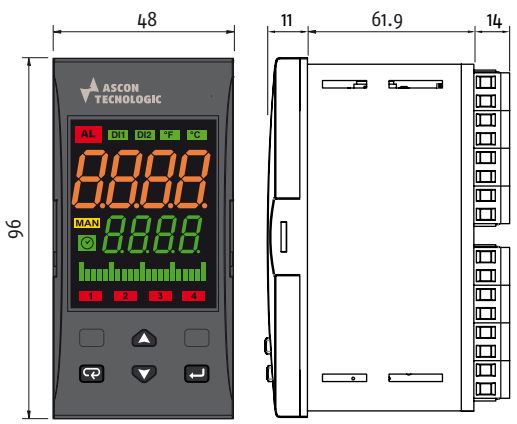


Note: Terminal 4 can be programmed as:
- **Digital Input** (DI2) connecting a free of voltage contact between terminals 4 and 5
- **0... 12 V SSR Drive Output** (OP_4) connecting the load between terminals 4 and 5
- **12 Vdc (20 mA) transmitter power supply** connecting the transmitter between terminals 4 and 1

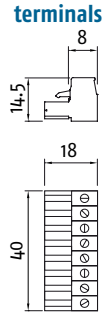
*: For servomotor drive: **OUT_2 = open, OUT_3 = close**.

Dimensions (mm)

Instrument with non-removable terminals



Removable terminals



viale Indipendenza, 56 · 27029 Vigevano (PV) Italy
tel +39 0381 69 871 · fax +39 0381 69 87 30

info@ascontecnologic.com
www.ascontecnologic.com

PROGRAMMERS

KUBE SERIES

CE

ASCON TECNOLOGIC

EVERYTHING UNDER CONTROL

HOW TO ORDER

Order Code

Model
KR5P = Programmer + Controller 78 x 35 x 78
KM5P = Programmer + Controller 48 x 48 x 64
KX5P = Programmer + Controller 48 x 96 x 75.9

Power supply
H = 100... 240 VAC
L = 24 VAC/DC

Analogue input + digital input DI1 (standard)
C = J, K, R, S, T, PT100, PT 1000 (2 wires), mA, mV, V
E = J, K, R, S, T, NTC, PTC, mA, mV, V

Output 1
I = 0/4... 20 mA, 0/2... 10 V
R = Relay SPST 4 A resistive load (KR5P: relay SPDT 4A/240 Vac)
O = VDC for SSR

Output 2
- = Not available
R = Relay SPST 2 A resistive load
O = VDC for SSR
M = Relay SPST 2 A (**servomotor drive only**)*

Output 3
- = Not available
R = Relay SPST 2 A resistive load
O = VDC for SSR
M = Relay SPST 2 A (**servomotor drive only**)*

Input/Output 4
D = Output 4 (VDC for SSR)/Transmitter Pws/Dig. Input DI2

Serial communication
- = TTL Modbus
S = RS485 Modbus + TTL Modbus

Connection type
- = Standard (non-removable screw terminal block)
E = With removable screw terminal block
M = With removable spring terminal block
N = With removable terminal block (fixed part only)

*: For servomotor drive, both **OUT2** and **OUT3** codes **must** be selected as "**M**".

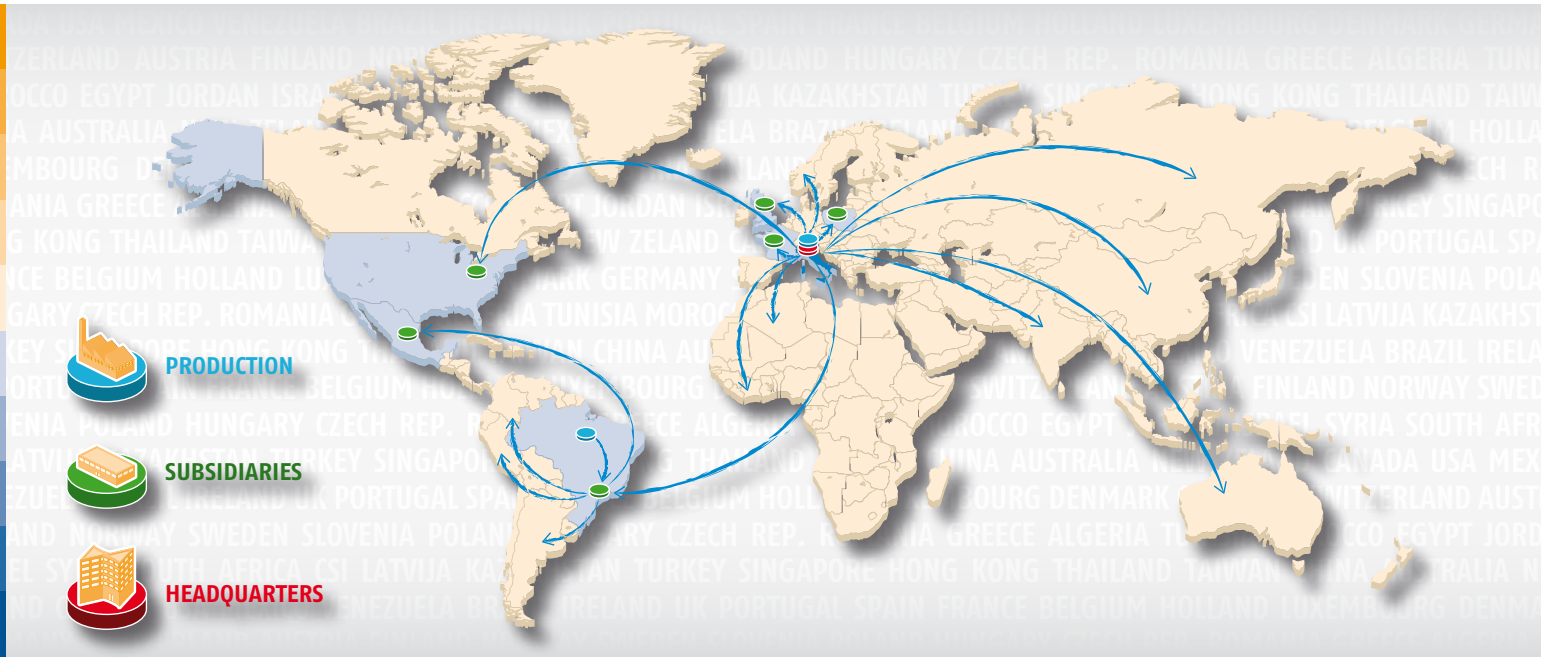
Mechanical characteristics

PARAMETER	
Housing	Self-extinguishing plastic UL 94 v0
Mounting	Front panel
Dimensions (L x A x P)	KR5P: 78 x 35 x 78 mm KM5P: 48 x 48 x 62 mm KX5P: 48 x 96 x 75.9 mm
Panel cut-out	KR5P: 71 x 29 mm (-0... +0.6 mm) KM5P: 45 x 45 mm (-0... +0.6 mm) KX5P: 45 x 89 mm (-0... +0.6 mm)
Weight	KR5P: 140 g approx. KM5P: 120 g approx. KX5P: 160 g approx.
Terminals	16 terminals (24 for the KR5P) for cables from 2.5 mm² (AWG22... AWG14): - on fixed or removable terminal block with screw terminals; - on removable terminal block with spring-load terminals
Protection degree	IP 65 panel mounted with gasket (IP20 for screw terminals) In conformity with En 60070-1 (internal use only)

viale Indipendenza, 56 · 27029 Vigevano (PV) Italy
tel +39 0381 69 871 · fax +39 0381 69 87 30
info@ascontecnologic.com
www.ascontecnologic.com

ASCON TECNOLOGIC

EVERYTHING UNDER CONTROL



Ascon Tecnologic s.r.l.
viale Indipendenza, 56 · 27029 Vigevano (PV) Italy
tel +39 0381 69 871 · fax +39 0381 69 87 30

info@ascontecnologic.com
www.ascontecnologic.com

Ascon Tecnologic France
BP 76 · 77202 – Marne La Vallee Cedex 1
tel +33 1 64 30 62 62 · fax +33 1 64 30 84 98
info@ascontecnologic.fr
www.ascontecnologic.com/fr

Tecnologic uk ltd
Unit Number 1, Farnborough Business Centre
Eelmoor Road, Farnborough
Hampshire GU14 7XA
tel +44 125 2377 600 · fax +44 125 2377 60
sales@tecnologicuk.co.uk
www.t-uk.co.uk

Ascon Polska Sp. z o.o.
KOCHCICE ul. Kochanowicka 43
42-713 Kochanowice
tel +48 34 35 33 619 · fax +48 34 35 33 884
info@ascon.pl
www.ascon.pl

Ascon Tecnologic – North America
1111 Brook Park Road
Cleveland, OH 44109
tel. +1 216 485 8350 ext. 229
info@ascontec-na.com
www.ascontecnologic.com/en

Coelmatic Ltda
Al. Vincente Pinzon, 173 – 9° andar
Sao Paulo · SP – CEP 04547 – 130
tel. / fax +55 112066-3211
info@coel.com.br
www.coelmatic.com.br

Coelmatic SAPI SA de CV
Paseo De los Cipreses, 3720
Del Paseo Residencial,
Monterrey, Nuevo León – CEP 64920
tel. +52 81 8104 1012
info@coelmatic.com.mx
www. coelmatic.com.mx

COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV
= ISO 9001 =
= OHSAS 18001 =

Distributors and assistance Worldwide. Contatct Ascon Tecnologic for more info.