CONTROLLERS | PROGRAMMERS

KUBE SERIES

ASCON TECNOLOGIC
EVERYTHING UNDER CONTROL

KM1 / KM3

Mechanical characteristics

PARAMETER	
Housing	Self-extinguishing plastic UL 94 v0
Mounting	Front panel
Dimensions	48 x 48 x 62 mm (w x H x P)
Panel cut-out	45 x 45 (-0... +0.6 mm)
Weight	About 120 g
Terminals	16 terminals for cables from 2.5 mm² (AWG22.... AWG14): - on fixed or removable terminal block with screw terminals; - on terminal block with spring-load terminals
Protection degree	IP 65 mounted on the panel on the panel with gasket (IP20 for screw terminals) In conformity with En 60070-1 (internal use only)

How to order

Model
KM1 - = Controller
KM1T = Controller+ timer
KM3 - = Controller
KM3T = Controller+ timer
KM3P = Controller+ timer + programmer

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

Analogue input + digital input DI1 (standard)
C = J, K, R, S, T, PT100, PT1000 (2 wires), mA, mV, V
E = J, K, R, S, T, NTC, PTC, mA, mV, V

Output 1
I = 4... 20 mA **(KM3 only)**
R = Relay SPST 4 A (resistive load)
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 KM3 only)**(*)

Output 3
- = Not available
R = Relay SPST 2 A (resistive load)
O = VDC for SSR
M = Relay SPST 2 A **(servomotor drive KM3 only)**(*)

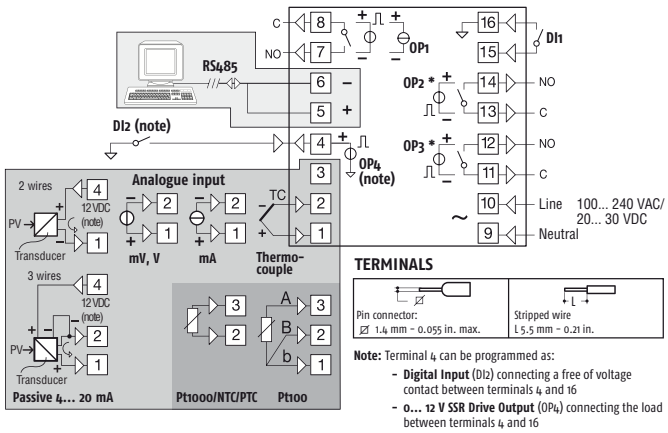
Input/Output 4
D = Output 4 (VDC for SSR)/Power transmitter/Dig. Input DI2

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".**

Electrical connections



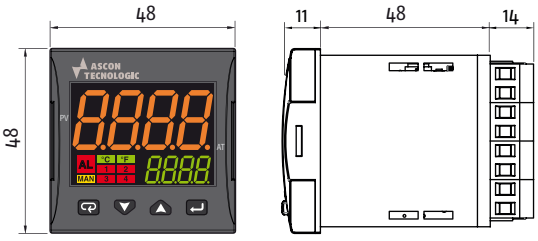
TERMINALS

Pin connector:	Stripped wire
Ø 1.4 mm - 0.055 in. max.	L 5.5 mm - 0.21 in.

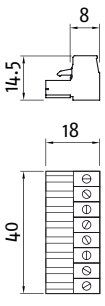
Note: Terminal 4 can be programmed as:
- **Digital Input** (DI2) connecting a free of voltage contact between terminals 4 and 16
- **0... 12 V SSR Drive Output** (OP4) connecting the load between terminals 4 and 16
- **12 Vdc (20 mA) transmitter power supply** connecting the transmitter between terminals 4 and 1

Dimensions (mm)

Instrument with non-removable terminals



Removable terminals



***:** For servomotor drive: **OUT2 = open, OUT3 = close.**

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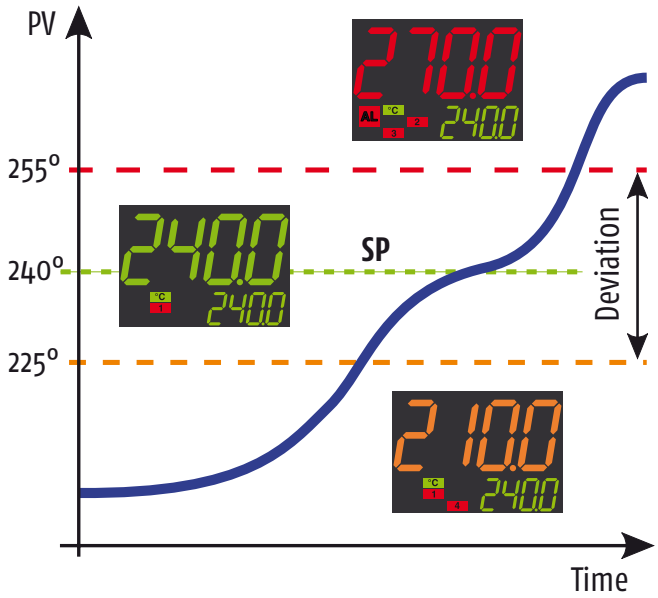
3 COLOUR DISPLAY

The colour of the main display changes depending on process value.
Color change thresholds are programmable.



Immediate and intuitive process status acknowledgement, even at great distance.

This function may be disabled by the user.

evoGREEN ENERGY SAVING

This user selectable function allows to reduce energy consumption while indicating the presence of alarms and process deviations, even from a great 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

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.

evoTOOLS CONFIGURATION CODE

To make a quick and safe instrument configuration of the instrument, just enter two 4 digit codes.

Input signal type, alarms, control mode and auxiliary functions activation will be selected and "ready to use" by pushing a few buttons.

This function does not exclude the full configuration menu, if the application requires it.

cod 1 = 0110
01: Type K thermocouple input;
10: Heat PID control, output on OP1, OP2 = AL1, OP3 = AL2, OP4 = AL3

cod2 = 1284
1: AL1 Sensor break;
2: AL2 absolute high;
8: AL3 external band alarm;
4: Absolute working time counter (in hours)

CUSTOMIZED PARAMETER SEQUENCE

Provide a user-defined operator interface has been, until now, a privilege of "custom" solutions.

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

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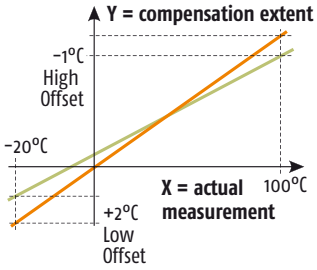
USER CALIBRATION

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.



INDEPENDENT TIMER

Timer function with 6 different operation modes.
Programmable time base in h/min, min/s s/thents of seconds.
Start/Hold/Reset command from digital inputs and/or from the button "↻".
Function Timer operates in parallel but independently from Control.

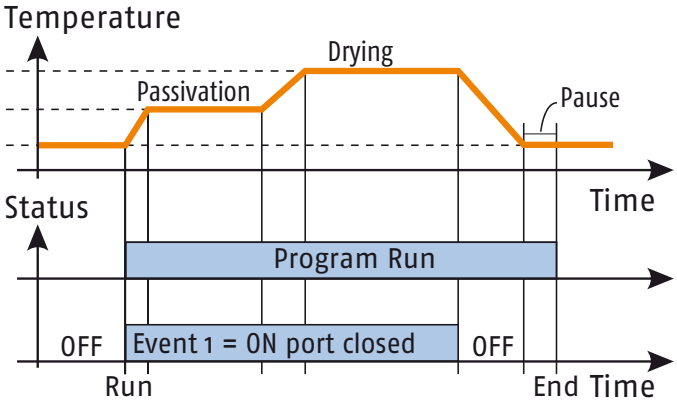
PROGRAMMER FUNCTION

This function allows to set:

- Up to 8 segments (4 ramps and 4 soaks);
- 4 start-up modes: at power-up, at power-up with initial delay, on command (from the keyboard, digital input or serial line) and on command signal with initial delay;
- 3 output modes at the end of the program: the process continues with the last programmed set-point, using the last active set-point, switching to stand-by;
- 2 programmable events for each program segment;
- Indicator "program running";
- Timed indicator "program end";
- Two digital inputs and/or the button "↻" can be programmed to perform Start/Hold/Reset commands;

Application example:

Paint booth and drying chambers to spray paint (car spray booths).



WORKING HOURS/DAYS COUNTER

With adjustable preset

Generates preventive maintenance alerts after a predetermined period of actual operation.

The alert does not interfere with instrument functions and can be reset by maintenance to restart the count.

Normal operation | Inspection request | Normal operation

Non resettable

It counts the actual operation period, from its first power-up. Could be used to extend the warranty beyond the legal period. The continuous non-resettable counter provides manufacturer of the machine with a reliable parameter to calculate MTBF (Medium Time Between Failures).

ACCESSORIES

A01 - Programming key

An electronic key, with memory, that can be connected directly to the instrument (even not powered), It provides a variety of functions, including:

- Memorize an instrument configuration (even not fully functional) and transfer it into another one;
- Configure the instruments in a safe and quick way, without the need for a PC;
- Communicate with a PC, even if the instrument is not equipped with an RS-485 port.

Configuration software

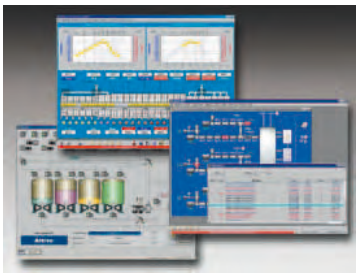
Supplied free of charge, once loaded on PC, allows to:

- Easily configure an instrument;
- Upload and download previously saved configurations;
- Simplify the start-up , thanks to 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.



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