KM–KR Enology

Make a SPA for your wine

**KUBE FOR WINE**

**KM1E – KR1E – ENOLOGY VERSIONS**

- Wine controller in DIN 78 x 35 mm or 48 x 48 mm (depth < 70 mm) case;
- Input PT100, PTC or mA;
- 3 Relay outputs;
- Control action selectable by front keyboard or digital input;
- The colour of the display shows the action selected;
- ON/Stand–By of the Process with dedicated label;
- High/Low Alarms addressed to a dedicated output (OUT1);
- Remote control through 2 Digital Inputs;
- **evoTools** – Protection of the configuration making back-up on the electronic A01 key or on a PC;
- Selective protection of the parameters;
- **evoTools** – Modbus or Ethernet communications (optional);
- **evoGreen** – For energy saving.
- Parameters sequence fully customizable;
- Removable and non-removable screw or spring terminal blocks.

**DISPLAY COLOUR SHOWS THE ACTION**

RED = HEAT, GREEN = COOL, AMBER = HEAT/COOL

**FIELDS OF APPLICATION**

- KM1E is designed to meet the specific needs of the wine industry, for the heat treatment of wine and the different needs of the cellars;
- KM1E is designed for precise temperature control during vinification, which requires a cooling step during fermentation, but also a heating step necessary to obtain certain organoleptic characteristics;
- KM1E is factory-configured for standard wine applications (input for PT100, heating or cooling control, minimum and maximum alarm);
- There is a simple procedure based on some parameters used to adapt this basic configuration to your needs, or to return to the factory configuration.
**3 COLOUR DISPLAY**

The colour of the main display shows the control action selected. By a simple action (pushing a key for 3 seconds) you can select the right control for current “phase”.

- HEAT  
- COOL  
- HEAT & COOL

Two sequences are programmable:
- Heat, cool and Heat&Cool
- Heat or cool only

In addition you can use 2 different set points and in particular Sp1 for Heat action and Sp2 for cooling one (automatically selected setting the desired action) or to use the same set point for all actions.

**CUSTOMIZED PARAMETER SEQUENCE**

Providing a user-defined operator interface has been, until now, a privilege of “custom” solutions. The KUBE Line allows to customize operator parameters making the instrument safe and easy to be used.

**EvoGreen Energy Saving**

This user selectable function allows the customer 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.

**ALL TANKS CAN BE MANAGED**

The same controller can work with tanks equipped with one or two heat exchanger circuits.

**ACCESSORIES**

A01 Programming key – An electronic key with memory, can be connected directly to a special connector of the instrument. The key allows to perform various functions, such as:
- Storing an instrument configuration and transferring it to another one;
- Fast and simple instrument configuration without having to use a PC;
- Communications with a PC also if the instrument is not equipped with the optional RS485 port.

AET1 Ethernet Gateway – The AET1 Ethernet Gateway allows to connect to an Ethernet network a controller equipped with a TTL port (it is not mandatory that the controller is equipped with the optional RS485 ModBus communications port).
ENOLEG Y VERSION
KUBE KM1E – KR1E

SPECIFICATIONS

DISPLAY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main display</td>
<td>4 digit h 10.9 mm (KR) or 15.5 (KM) three colours red, green and amber</td>
</tr>
<tr>
<td>Secondary display</td>
<td>4 digit h 6 mm (KR), 7.6 mm (KM) green colour</td>
</tr>
</tbody>
</table>

INPUTS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal Input</td>
<td>RTD: Pt100 3 wires (-200... +850°C/-328... +1562°F); Thermistors: PTC KTY81-121 (-50... +150°C/-58... +302°F); Linear signals: 0/4... 20mA</td>
</tr>
<tr>
<td>Measurement accuracy</td>
<td>±0.5% span ±1 digit, (±1% span ±1 digit for TC type S)</td>
</tr>
<tr>
<td>Digital inputs</td>
<td>1 contact input + 1 (available when I/O 4 = DI2) programmable as voltage (24 VDC) or contact input</td>
</tr>
</tbody>
</table>

OUTPUTS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 3 OUt1, OUt2 and OUt3</td>
<td>Relay SPST-NO 4A/240 Vac (SPDT for KR) Relay SPST-NO 2A/240 Vac</td>
</tr>
</tbody>
</table>

FUNCTIONAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>PID single or double action, On/Off, On/Off with Neutral Zone. Autotune and 2/4Tune. Overshoot control</td>
</tr>
<tr>
<td>Alarms</td>
<td>3 alarms configurable as absolute, deviation, band</td>
</tr>
<tr>
<td>Set Point</td>
<td>2 set Points selectable automatically or manually</td>
</tr>
<tr>
<td>Serial communications</td>
<td>TTL (standard) + RS485 (optional), protocol: MODBUS RTU</td>
</tr>
<tr>
<td>Communications speed</td>
<td>1200... 38400 baud selectable (8 bit + 1 stop bit, no parity)</td>
</tr>
<tr>
<td>Work hours/days counter</td>
<td>With 2 simultaneous functions: cumulative non-erasable and resettable with alarm</td>
</tr>
<tr>
<td>Power calculation</td>
<td>Instant power, hourly consumption, total consumption during program running</td>
</tr>
<tr>
<td>Evogreen</td>
<td>Time based Display switch-off, selectable</td>
</tr>
</tbody>
</table>

GENERAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>24 Vac/dc ±10%, 100... 240 Vdc/15... 100%), 50/60 Hz, power consumption 7 VA max.</td>
</tr>
<tr>
<td>Temperature</td>
<td>Operating: 0... 50°C (32... 122°F); Storage: -20... +70°C (-4... +158°F);</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>20... 95 RH% with no condensation</td>
</tr>
<tr>
<td>Conformity</td>
<td>EN 61010-1, EN 61326</td>
</tr>
<tr>
<td>Housing</td>
<td>Self–extinguishing plastic UL 94 V0</td>
</tr>
<tr>
<td>Mounting</td>
<td>Front panel</td>
</tr>
<tr>
<td>Dimensions</td>
<td>KM1E = 48 x 48 x 62 mm (W x H x P); KR1E = 35 x 78 x64 mm (W x H x P)</td>
</tr>
<tr>
<td>Weight</td>
<td>KM1E: About 120 g, KR1E: About 140 g</td>
</tr>
<tr>
<td>Terminals</td>
<td>16 terminals for cables from 2.5 mm² (AWG22... AWG14)</td>
</tr>
<tr>
<td>Protection degree</td>
<td>IP 65 panel mounted with gasket and screw bracket (IP20 for screw terminals) In conformity with En 60070-1 (internal use only)</td>
</tr>
<tr>
<td>Conformity</td>
<td>EN 61010-1, EN 61326, UL</td>
</tr>
</tbody>
</table>

Dimensions (mm)

Instrument with non removable terminals

Removable terminals

Instrument with non removable terminals

Removable terminals
**Electrical connections**

**Order code**

**Model**
- KM1E = Controller 48 x 48 mm
- KR1E = Controller 35 x 78 mm

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

**Analogue input + digital input DI1 (standard)**
- D = Pt100, mA
- P = PTC, mA

**Output 1**
- R = KM1E: Relay SPST-NO 4 A (resistive load), KR1E: SPDT 4 A (resistive load)

**Output 2**
- = Absent
- R = Relay SPST-NO 2 A (resistive load)

**Output 3**
- = Absent
- R = Relay SPST-NO 2 A (resistive load) selectable when OP2 is present

**Digital input 2**
- D = Digital 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
- H = With removable spring terminal block
- N = With removable terminal block (fixed part only)