



# KS 45

## Universal industrial controller

- Compact design
- Top-hat rail mounting
- Display & operating functions
- Communication features
- 2-point, 3-point, 3-point stepping, continuous control
- Fast cycle times
- Two universal inputs & universal output
- Timer and programmer
- Customer-specific linearization
- Auto/manual switchover

rail line

### FEATURES

- Compact design, only 22.5 mm (0.87") wide
  - saves space in the control cabinet
- Clips onto top-hat DIN rail
- Plug-in screw terminals or spring-clamp connectors
  - simple connection
- Dual-line LC display with additional display elements
  - process values always in view
- Convenient 3-key operation
- Direct communication between mounted controllers, fieldbus connections via bus coupler
  - simple integration into PLC / PC
- Universal input- also reduces stock keeping
- Second analog input
  - for external setpoint or heating current
  - as universal input (optional)
- Universal high-resolution output as combined voltage/current output
- Two output relays or optocoupler outputs
- Fast 100 ms response
  - also suitable for fast signals
- 2-point, 3-point, 3-point stepping, continuous output
- Self-tuning function

### APPLICATIONS

- ⊕ Furnaces
- ⊕ Burners & boilers
- ⊕ Plastics processing
- ⊕ Driers
- ⊕ Climatic chambers
- ⊕ Heat treatment
- ⊕ Sterilizers
- ⊕ Oxygen content control
- ⊕ etc.

### DESCRIPTION

The universal KS 45 controllers are designed to provide precise and cost-effective temperature control in practically all branches of industry. The controller output is configurable as signal, 2-point or continuous PID control, 3-point control with optional split range, and 3-point stepping control.

A universal input is provided for the process value signal. A second analog input is available for heating current measurement or for an external setpoint signal. Every KS 45 has at least one universal input and two switching outputs. Depending on version, the controller has a universal output or optocoupler outputs. The universal output is configurable as a voltage or current signal, for controlling solid-state relays, or as a transmitter supply signal. Galvanic isolation is provided between inputs and outputs as well as from the supply voltage and the communication interfaces.

### Mounting

The compact KS 45 is clipped onto a top-hat DIN rail, and can also be unmounted very simply. All connections are of the plug-in type, so that a controller can be replaced very quickly without disturbing the wiring.

### Display and operation

The dual-line LC display permits simultaneous indication of the measured value and all of the unit's operating functions.

Moreover, a LED and 4 other display elements give a reliable indication of operating status, operating mode, and error messages.

The user-configurable engineering unit of the measured value can be included in the display. By means of the extended Operating Level, it is possible to show any signal or parameter in the 2nd display line.

### Interfaces and Engineering Tools

The controller settings are also configurable by means of an Engineering Tool. Via the BlueControl® software (which includes a controller simulation), and especially the convenient connection via the BluePort® front interface, the user can solve the task in hand without having to work through operating instructions. Of course, practically all settings can also be made from the controller front.

Moreover, the KS 45 can exchange data with superordinate systems and PCs via an optional RS 485 interface

## ORDERING DATA

Universal controller KS 45 **K S 4 5 - 1** - - - **0 0 - 00**

1 universal input, 1 digital input with display and BluePort® interface	↑ ↑ ↑ ↑				
<b>without plug-in connector terminals</b> with screw terminal connector		<b>0</b>			
90...260V AC, 2 output relays, INP2 as current input (0...20mA)		<b>1</b>			
18...30VAC/18...31VDC, 2 output relays, INP2 as current input (0...20mA)		<b>2</b>			
90...260V AC, mA/V/logic + 2 relays, INP2 as current input (0...20mA)		<b>3</b>			
18...30VAC/18...31VDC, mA/V/logic + 2 relays, INP2 as current input (0...20mA)		<b>4</b>			
90...260V AC, 2 optocoupler outputs, 1 relay, INP2 as current input (0...20mA DC and 0...50 mA AC)		<b>5</b>			
18...30VAC/18...31VDC, 2 optocoupler outputs., 1 relay, INP2 as current input (0...20mA DC and 0...50 mA AC)		<b>0</b>			
without options		<b>1</b>			
RS 485 / MODBUS - protocol		<b>2</b>			
System interface (only for 24V versions)		<b>0</b>			
di1 as contact input		<b>1</b>			
di1 as optocoupler input		<b>2*</b>			
INP2 as universal input, O <sub>2</sub> -measurement, di1 as contact input		<b>3*</b>			
INP2 as universal input, O <sub>2</sub> -measurement, di1 as optocoupler input		<b>0</b>			<b>0</b>
Standard configuration		<b>9</b>			<b>D</b>
Customer-specific configuration					<b>U</b>
Standard (CE-certification)					
DIN 3440 / EN 14597					
UL/cUL certified					

\* not on versions with optocoupler outputs (KS45-1x4... and KS45-1x5...)

### Standard accessories:

- Operating notes
- Devices with 'Interface' option: bus connector for fitting into top-hat rail

## SYSTEM COMPONENTS

Fieldbus coupler PROFIBUS DP	<b>RL40-112-00000-000</b>
Fieldbus coupler PROFIBUS DP, UL / cUL certified	<b>RL40-112-00000-U00</b>
Power supply module	<b>RL40-119-00000-000</b>
Power supply module UL / cUL certified	<b>RL40-119-00000-U00</b>

➤ Please also order the associated **documentation** (as separate item):

Description	Order no.
<b>Operating instructions for KS 45 (D)</b>	<b>9499-040-71818</b>
<b>Operating instructions for KS 45 (E)</b>	<b>9499-040-71811</b>
<b>Interface description for Modbus rail line (D)</b>	<b>9499-040-72018</b>
<b>Interface description for Modbus rail line (E)</b>	<b>9499-040-72011</b>
<b>Interface description for PROFIBUS-DP (D)</b>	<b>9499-040-77118</b>
<b>Interface description for PROFIBUS-DP (E)</b>	<b>9499-040-77111</b>



### PMA

Prozeß- und Maschinen- Automation GmbH  
P.O. Box 31 02 29  
D-34058 Kassel  
Tel.: +49 - 561 - 505 1307  
Fax: +49 - 561 - 505 1710  
E-mail: mailbox@pma-online.de  
Internet: http://www.pma-online.de

### Your local representative