

## Data sheet

### Analog outputs 2 x 0/4...20 mA

**MULTICAL® 403**

**MULTICAL® 603**

**MULTICAL® 803**

- Two current outputs
- Outputs selectable as either 0...20 mA or 4...20 mA
- Fast update speed
- Analog outputs are galvanically isolated from the meter



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## Description

The new high performance analog output module for the MULTICAL® 403, MULTICAL® 603 and MULTICAL® 803 energy meters is the optimal choice for control purposes. The analog outputs are primarily used in building management and industrial applications. Here the analog outputs are often used to pass information to other types of equipment, typically a PLC or similar.

The analog output module is designed with focus on reliability and long-term stable current outputs of meter data.

## Applications

The analog module provides fast updating of meter values to support control applications based on flow, energy or temperatures. The galvanic isolation between the meter and the analog circuits ensures an installation with a minimum of electrical interference.

The module offers two independent and programmable current output signals for simple monitoring and control tasks.

## Installation

The module is easily mounted in the module slot of the meter. A configuration might be necessary if it is required to change the values of the output or the output current setting.

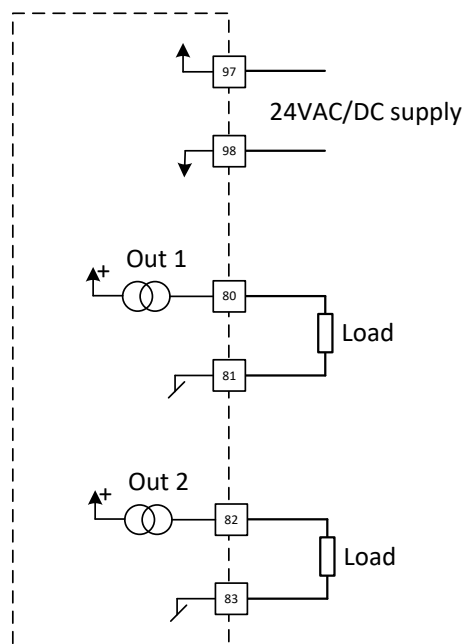
The module is power-supplied from the meter's internal 230 VAC or 24 VAC supply module. The current outputs must be supplied by a separate power supply.

## 0/4...20 mA output connection

Screw terminals for the two analog outputs + and -.

The load of the current loop is connected directly between the + and - terminals.

Note: The module has active current outputs. Applying a voltage across the outputs may damage the module.



## Description

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### External power

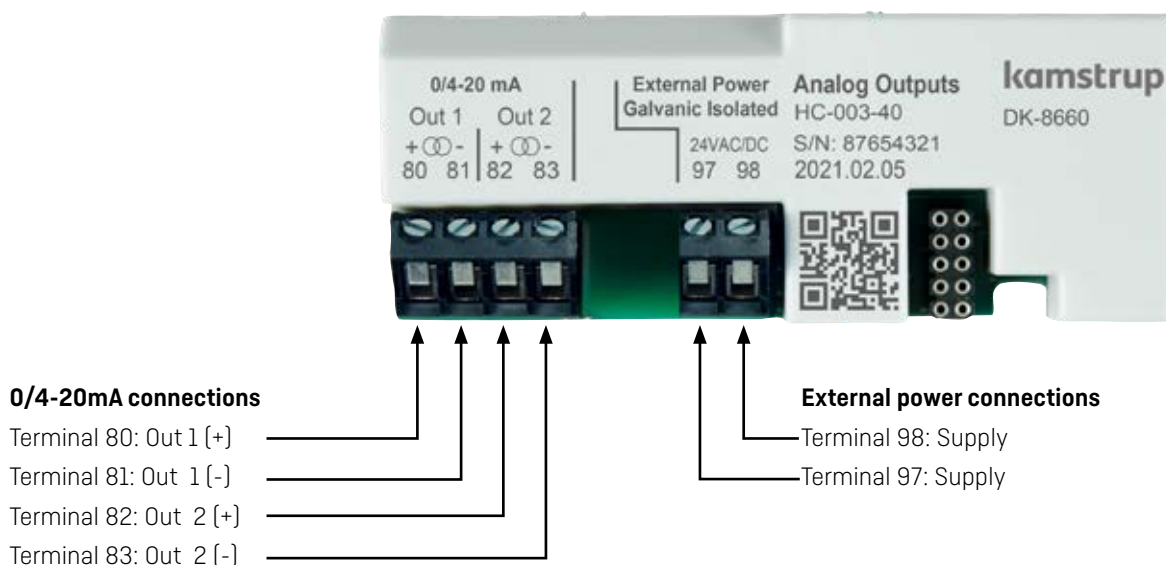
Screw terminals for connection of the power supply which are needed for the current outputs. The power supply must be able to deliver sufficient current and voltage to keep the analog outputs stable.

Note: The supply must be galvanically isolated from the receiving equipment.

### Cable connections

#### Terminals

Max cable size 1.5 mm<sup>2</sup>



## Technical specifications

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### Physical

For installation in MULTICAL® 403, MULTICAL® 603 and MULTICAL® 803.

### Mechanical data

Dimensions (L x W x D) 90 x 35 x 14 mm

Weight < 45 g

### MULTICAL® Supply

↻ AC supply

### Data refresh rate

Data from the meter to the module are refreshed each time the meter completes an integration. Integration mode is defined by the meters L-code.

### Analog output

Active current outputs 0...20 mA or 4...20 mA

Open loop voltage  $\geq 10$  VDC

Resolution 16 bit

Overall accuracy > 0.1 %

Galvanic isolation > 2kV

### External power

Voltage 24 VAC/VDC  $\pm 30$  %

Recommended current  $\geq 100$  mA

### Environment

Operational temperature 5 °C – 55 °C

Humidity 25 – 85 % RH non-condensing

### Markings/approvals

CE, MID together with the type approval of MULTICAL® 403, MULTICAL® 603 and MULTICAL® 803

### Programming

Configuration/firmware Via the optical readout head or the multipole connector on the module using METERTOOL HCW

## Ordering

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### Order No.

HC-003-40

6699 035

6699 099

6699 403

www.kamstrup.com

### Description

Analog outputs 2 x 0/4...20 mA

USB configuration cable for H/C-modules

Infrared optical readout head w/USB A plug

Transformer 230/24 VAC

METERTOOL HCW

## Configuration

	XX	Y	Y	Z	Z	Z
<b>Module type</b>						
Analog outputs 2 x 0/4...20 mA	40	0	1	1	0	2
<b>Output 1 configuration</b>						
0-20 mA		0				
4-20 mA		1				
<b>Output 2 configuration</b>						
0-20 mA			0			
4-20 mA			1			
<b>Data on Output 1</b>						
Flow V1 actual					0	
Flow V2 actual*					1	
Power actual					2	
t1 actual					3	
t2 actual					4	
t3 actual*					5	
t1-t2 differential temperature					6	
<b>Data on Output 2</b>						
Flow V1 actual						0
Flow V2 actual*						1
Power actual						2
t1 actual						3
t2 actual						4
t3 actual*						5
t1-t2 differential temperature						6

\* Only in MULTICAL® 603 and MULTICAL® 803

An analog module configured to 40-01-102 will be set up like this:

- Output 1 is 0-20 mA. Data on output 1 is Flow V1 actual
- Output 2 is 4-20 mA. Data on output 2 is Power actual

Scaling of the outputs is possible within a wide range. The scaling range is deliberately limited to ensure an overall high accuracy. Scaling is possible during ordering of the module or via METERTOOL HCW.

## Display readings

### Module information

The module information can be read by choosing "TECH loop" on the MULTICAL® meter.

Module placed in module slot 1: Choose menu 2-101 in "TECH loop"

Module placed in module slot 2: Choose menu 2-201 in "TECH loop"

Module placed in module slot 3: Choose menu 2-301 in "TECH loop"

Module placed in module slot 4: Choose menu 2-401 in "TECH loop"

The following module information is available:

Menu	Menu index	Information	Display example
2-x01	31	Module configuration	
2-x01-1	32	Module firmware and revision	
2-x01-2	33	Module serial number	
2-x01-3	40	Output 1: 0 % value 0 mA/4 mA on output 1 indicates a flow of 0 l/h l/h is shown for flow*	
2-x01-4	41	Output 1: 100 % value 20 mA on output 1 indicates a flow of 25000 l/h l/h is shown for flow*	

## Display readings

Menu	Menu index	Information	Display example
2-x01-5	42	Output 2: 0 % value 0 mA/4 mA on output 2 indicates a power of 0.0 kW <b>kW</b> is shown for power*	
2-x01-6	43	Output 2: 100 % value 10 V or 20 mA on the output indicates a power of 3280.0 kW <b>kW</b> is shown for power*	
	40,41,42,43	<b>°C</b> is shown for temperatures* <b>k</b> is shown for temperature difference *	

\* Only in MULTICAL® 603