For initial set up, we strongly recommend that you also refer to the relevant manual!

OPTIMASS 6400
Twin, V-tube mass flowmeter

Installation, assembly, start-up and maintenance may only be performed by appropriately trained personnel. Check the nameplate for correct operating conditions.

For use in hazardous areas, special codes and regulations are applicable. Instruments must not be connected to power supply before reading instructions described in the supplementary manual.

This instrument complies with the requirements of the Pressure Equipment Directive. Please refer to the nameplate for operating condition limits. Instruments must not be pressurised before reading instructions described in the manual.

This instrument complies with the requirements of the Low Voltage Directive. Instruments must not be connected to the power supply before reading the instructions described in the manual.

For devices used in SIL applications, additional safety notes apply. For detailed information refer to the “Safety Manual”.

The responsibility as to the suitability, intended use and corrosion resistance of the used materials against the measured fluid of this device rests solely with the operator.

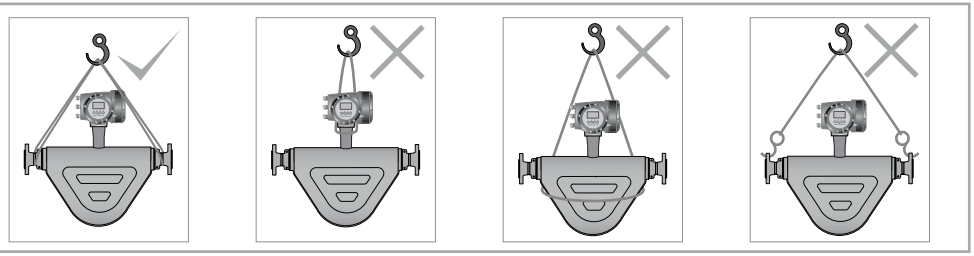
For complete documentation (manuals, supplementary manuals, data sheets and certificates) please refer to **www.krohne.com/Downloads**.

1 Installation

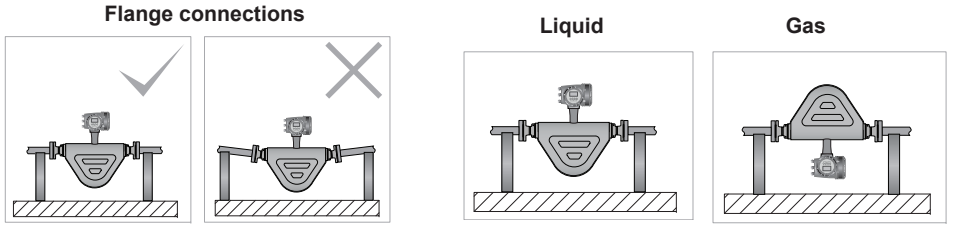
Special conditions of use to be observed

- The OPTIMASS measuring system and MFC converter must be included in the equipotential bonding system of any hazardous area installation.
- Allow the electronics to de-energise before opening the electronics enclosure inside a hazardous area. The time needed to de-energise is 35 minutes for temp. class T6 and 10 minutes for Temp. class T5. There is no waiting time for Temp. class T1
- Use certified cable glands on cable entries. Use a certified plug to seal unused cable entries.
- Install connecting cables as fixed wiring so that they are protected against damage. Connecting cables must not exceed the parameters specified in the Supplementary Instructions for Hazardous Areas.
- For details on the relationship between: maximum permissible ambient temperature, maximum medium temperature, maximum surface temperature and the relevant temperature class for each individual meter, please refer to the tables provided in the relevant meter Handbook and/or the Supplementary Instructions for Hazardous Areas.

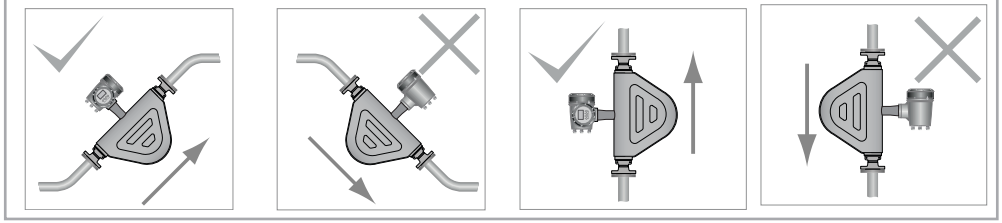
Handling the meter



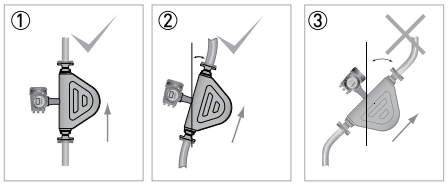
Supporting the meter



Mounting positions



Self draining



① If the meter needs to be self draining, install the meter vertically.
② The meter can be installed at an angle. The table below gives the maximum angles.
③ If the installation angle is greater than shown in the table, the meter will not be self draining.

Meter size	08	10	15	25	50	80	100	150	200	250
Maximum angle	15º			20º				20º		

Excessive vibration

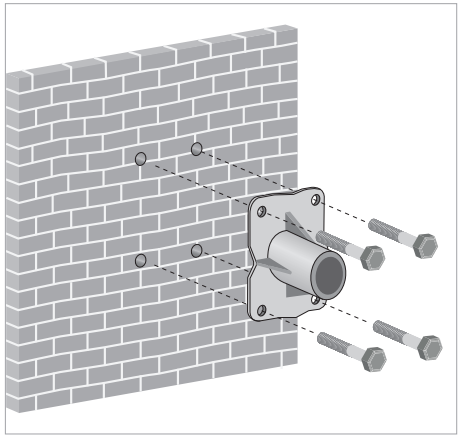
Vibration from pumps and other equipment in the process line can have an effect on the meter that, in some situations, can cause damage. Damage is most likely to occur if the meter has hygienic connections and the level of vibration is excessive.

CAUTION!

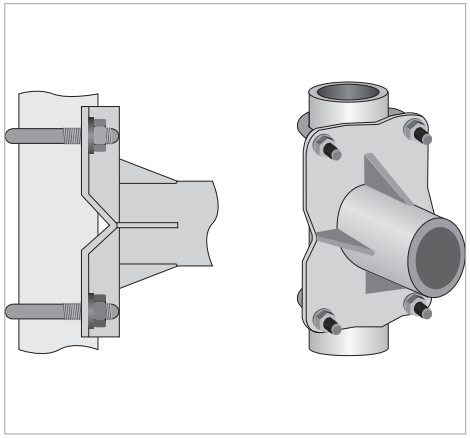
If there is excessive vibration in the process pipework, you must isolate the meter from its mounting. It is recommended that you place an insert made from rubber (or similar material) between the meter body, or pipework, and the mounting clamp or fixing point. For more information, contact the manufacturer.

MFC 400 Remote

Wall mount



Field mount

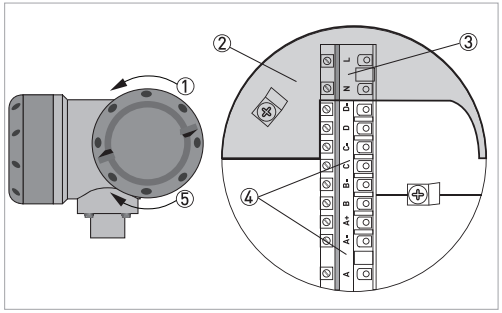


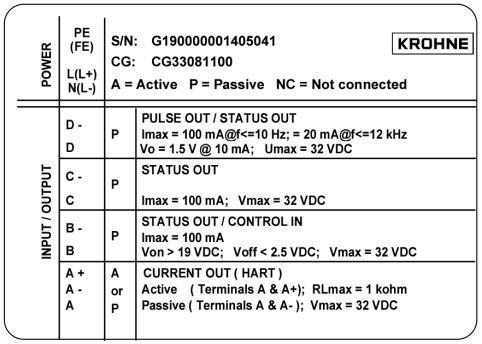
2 Electrical connections

Danger:

- Turn off the power supply before working on electrical connections.
- Check the voltage data on the nameplate
- Observe national regulations for electrical installations
- The device MUST be grounded in accordance with regulations to protect personnel against electric shock

Compact





The label (above) on the inside of the terminal compartment lid, gives information about output connections.

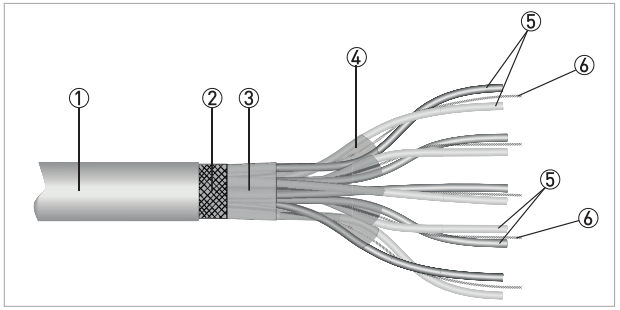
Procedure

1. Unscrew the housing cover ①
2. Open the touch guard ②
3. Put the electrical cable through the related cable gland
4. Connect the electrical wires ③
5. Close the touch guard ②
6. Put the signal cable/s through the related cable gland/s
7. Connect the signal cables ④
8. Replace the housing cover and tighten it with your hand ⑤.

Remote

Signal cable preparation

The signal cable is made up of five (twisted) pairs of cables. Each pair also has a drain wire and the three wires are covered in a foil wrap. The five cable pairs are covered in an outer foil wrap and a braided screen. The complete cable is protected by a PVC outer sheath

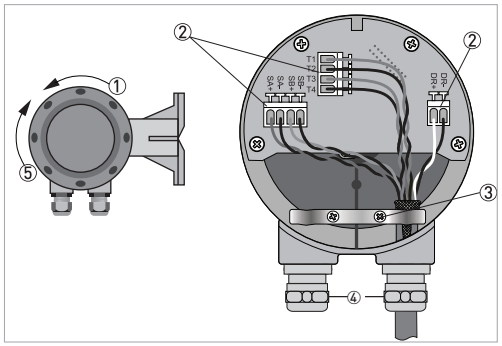


① Outer Sheath
② Braided screen
③ Outer foil wrap
④ Foil wrap
⑤ Cable pairs
⑥ Drain wires

Strip back all the foil wraps and discard them. Unwrap the braided screen so that it can be twisted to form a connection underneath the earth clamp. Bend all five drain wires back and twist them together with the braided screen.

It is important that ALL five drain wires AND the braided screen form part of the shielding.

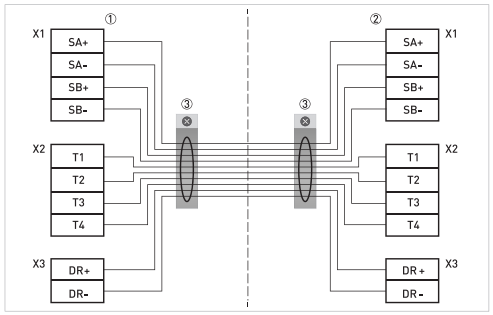
Cable connections (sensor and converter)



Procedure

1 Unscrew the housing cover ①
2 Put the electrical cable/s through the related cable gland/s ④
3 Connect the conductors ②
4 Run the twisted sink wires and the braided screen under the earth clamp ③
5 Fix the clamp in place using the two screws
6 Tighten the cable gland/s ④
7 Replace the housing cover and tighten it with your hand ⑤

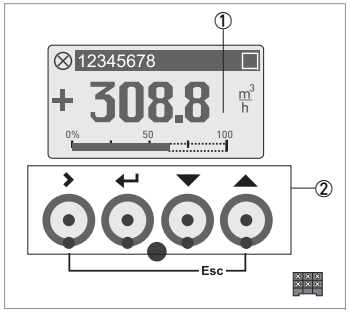
Shielding



① Signal converter
② Flow sensor
③ Cable shielding

3 Quick setup

Display



① Display (ER1.0.x shown)
② Optical operating keys

Procedure:

Touch the glass directly in front of the optical operating keys to access menus.

If the optical keys are not used for a period of 5 minutes, the display will return to the measuring mode.

Converter keys

Key	Measuring mode	Menu mode	Submenu or function mode	Parameter and data mode
›	Switch from measuring mode to menu mode. Press Optical key for 2.5s display shows "A0.0.0.0 Quick Setup"	Access to display menu, and then 1st submenu is displayed.	Access to displayed submenu or function	For numerical values, move cursor (highlighted in blue) one position to the right
↵	Reset display. "Quick Access" function	Return to measuring mode	Press 1 to 3 times, return to menu mode, data saved	Return to submenu or function, data saved
▲ or ▼	Switch between display pages: measured value 1 + 2, trend page and status page	Select menu	Select submenu or function	Use cursor to change number, unit, property and to move the decimal point
Esc [›+▲]	–	–	Return to menu mode without acceptance of data	Return to submenu or function without acceptance of data

The menus shown below are only for the quick setup of the meter. For a complete list of menus please refer to the relevant converter Handbook.

The quick setup menus shown here are for electronic revision (ER)1.x and electronic revision (ER) 2.x.x If you are not sure which electronics revision is installed on the converter, please check the nameplate.

Details of standard HART menus are shown in the converter Handbook. For information regarding menu structures for additional communication protocols, please refer to the relevant Supplementary Instructions.

Zero calibration

ER 1.0.x

Key	Screen		Description and setting
›	A	Quick Setup	Press and hold for 2.5 s, then release key
2 x ▼	C	Setup	
3 x ›	C1.1.1	Zero Calibration	
›		Calibrate Zero? Automatic	
↵		Please wait Countdown from 40s	
		Calibrate zero Passed	
↵		Zero Calibration +XX.XXX%	Display of measured zero calibration in %
5 x ↵		Save Configuration? Yes	
		Display page	

ER 2.x.x

Key	Screen		Description and setting
›	A0.0.0	Quick Setup	Press and hold for 2.5 s, then release key
2 x ▼	C0.0.0	Setup	
3 x ›	C1.1.1	Zero Calibration	
›		Calibrate Zero? Automatic	
↵		Please wait Countdown from 40s	
		Calibrate zero Passed	
↵		Zero Calibration +XX.XXX%	Display of measured zero calibration in %
5 x ↵		Save Configuration? Yes	
		Display page	

Quick setup menu

ER 1.0.x

Measuring mode	Select Menu	Select menu and/or submenu		Select function & set data
Press > for 2.5 s				
A Quick Setup		A1 Language		
		A2 Tag		
		A3 Reset	A3.1 Reset Errors	
			A3.2 All Totalisers	
			A3.3 Totaliser 1	
			A3.4 Totaliser 2	
			A3.5 Totaliser 3	
		A4 Analogue Output	A4.1 Measurement	
			A4.2 Units	
			A4.3 Range	
			A4.4 Low Flow Cutoff	
			A4.5 Time Constant	
		A5 Digital Outputs	A5.1 Measurement	
			A5.2 Pulse Value Unit	
			A5.3 Value p. Pulse	
			A5.4 Low Flow Cutoff	
		A6 GDC IR Interface		
		A7 Flow Direction		
		A8 Zero Calibration		
		A9 Operation Mode		

ER 2.x.x

Measuring mode	Select Menu	Select menu and/or submenu		Select function & set data
Press > for 2.5 s				
A Quick Setup		A1.0.0 Language		
		A2 Reset	A2.1.0 Reset Errors	
			A2.2.0 Stop all Simulations	
			A2.3.0 All Totalisers	
			A2.4.0 Totaliser 1	
			A2.5.0 Totaliser 2	
			A2.6.0 Totaliser 3	
		A3 Configuration	A3.1.0 Tag	
			A3.2.0 Measurement	
			A3.3.0 Range	
			A3.4.0 Alarm Code	
			A3.5.0 Low Flow Cutoff	
			A3.6.0 Damping	
			A3.7.0 Terminals C Type	
			A3.8.0 Flow Direction	
		A4.0.0 Safety Mode		
		A5.0.0 SIL Verification		
		A6.0.0 Unlock Device		
		A7.0.0 Calibrate Zero		
		A8.0.0 Operation Mode		

Contact

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