

Certified according to DIN ISO 9001

Technical Datasheet



C-Flow Coriolis - KCE 8000 Series Mass Flow Meters

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Description

The coriolis mass flow meters measure simultaneously mass flow, volume flow, temperature and density and consequently can replace different measuring instruments.

Due to a construction free of dead spots the meters are well flushable and can be easily sterilized.

The C-flow mass flow meters do not contain any moving parts and consequently are suited for polluted media as well.

According to the requirements the C-flow mass flow meters are available as compact version with on site display and remote version with electronics in a wall mount or panel mount housing.

For the compact version an additional remote display (KRD 8000) is available, designed for cable lengths up to 1 km.

Principle

Two parallel flow tubes inside the KCM flow meter are vibrating at their resonant frequency in opposite direction. Any mass flow passing through the tubes will delay the vibration at the incoming side and accelerate the vibration at the outgoing side. This causes a small time delay between both ends of the tube. This time delay is measured and used to calculate the mass flow through the tubes.

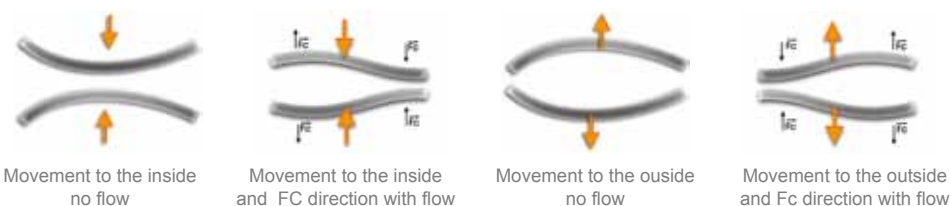
By measuring the resonant frequency of the tubes the mass of the medium and - given a constant volume inside the tubes - the specific gravity of the medium can be calculated.

As both effects are temperature dependent, the temperature is measured via a precise sensor for correcting the temperature effects of flow and density measurement.

As a consequence a coriolis mass flow meter directly measures mass flow, specific gravity and temperature of the medium. Knowing the mass flow and the specific gravity, also the volume flow can be calculated.

Cycle of excursion (simplified)

Rotation and deformation of two parallel looped pipes by the coriolis force F_c .



Application

- Flow measurement of PU components and paints
- Flow measurement of aggressive and contaminated media
- Measurement of mass flow, density, temperature and volume flow

Special Features

- Pmax. 350 bar
- Short response time
- DKD calibration
- Excellent purging and sterilization qualities due to a construction free of dead spots
- Up to +125°C medium temperature
- Individual 8-point-calibration including report

The C-Flow

The C-Flow Coriolis Mass Meters consist of two components:

KCE Transmitter



KCM Transducer

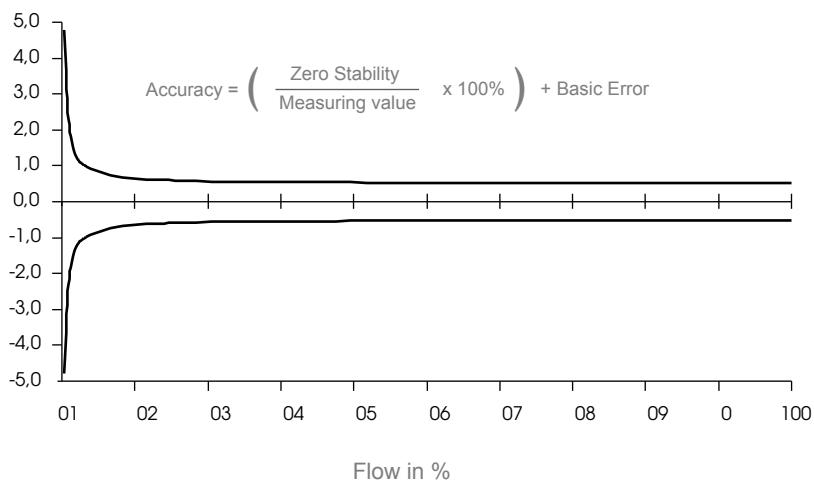
Technical Data - KCM Transducer

	KCM0300	KCM0600	KCM1500	KCM3000	KCM6000	TCM28k	KCM60k
Max. flow (kg/h)	300	600	1500	3000	6000	28 800	60 000
Min. flow (kg/h)	3	6	15	30	60	288	600
Max. flow (lb/min)	11.03	22.06	55.15	110.29	220.59	1060	2205.88
Min. flow (lb/min)	0.11	0.22	0.55	1.10	2.21	10,6	22.06
Basic Accuracy (% of flow reading)	0.5	0.5	0.2	0.15	0.5	0.15	0.5
Zero Stability (% of full scale)	0.02	0.02	0.01	0.01	0.01	0.01	0.02
Zero Drift (% f.s. per °C)	0.002	0.002	0.001	0.001	0.001	0.001	0.002
Repeatability (% of flow)	0.2	0.2	0.1	0.1	0.1	0.1	0.2
Density measuring range	0 - 4500 kg/m ³						
Density accuracy	± 0.002 kg/ltr						
Temperature accuracy	±1 °C ±0.5% of reading						
Process and Ambient							
Process connections	female thread 1/2" adaptors for flanges, diary and tri-clamp				flanges EN1092, ANSI B16.5, DIN2512		
Max. pressure	200 bar				40 bar	100 bar	40 bar
Max. pressure (Option)	350 bar						
Pressure Drop at max. flow H ₂ O	see diagramm						
Operating Density range	500 - 2500 kg/m ³						
Process temperature	-40 ... +125 °C				-40 ... +100 °C		
Ambient temperture	-20 ... +70 °C				-20 ... +60 °C		
Storage temperature	-40 ... +70 °C						
Electr. connections remote	screw type terminals						
Electr. connections compact.	none (internally connected to the electronics)						
Ingress Protection	IP67				IP65		
General							
Tube arrangement	2 serial	2 parallel	2 serial	2 parallel	2 parallel	2 parallel	2 parallel
tube inner diameter	4mm	4mm	8mm	8mm	12mm	18mm	34mm
tube material	stainless steel DIN 1.4571				ss 1.4404 / 1.4571		
housing material	stainless steel DIN 1.4571				cast iron	stainless steel	cast iron
Dimensions	see drawings						

EX-Protection

Pending

Accuracy in %

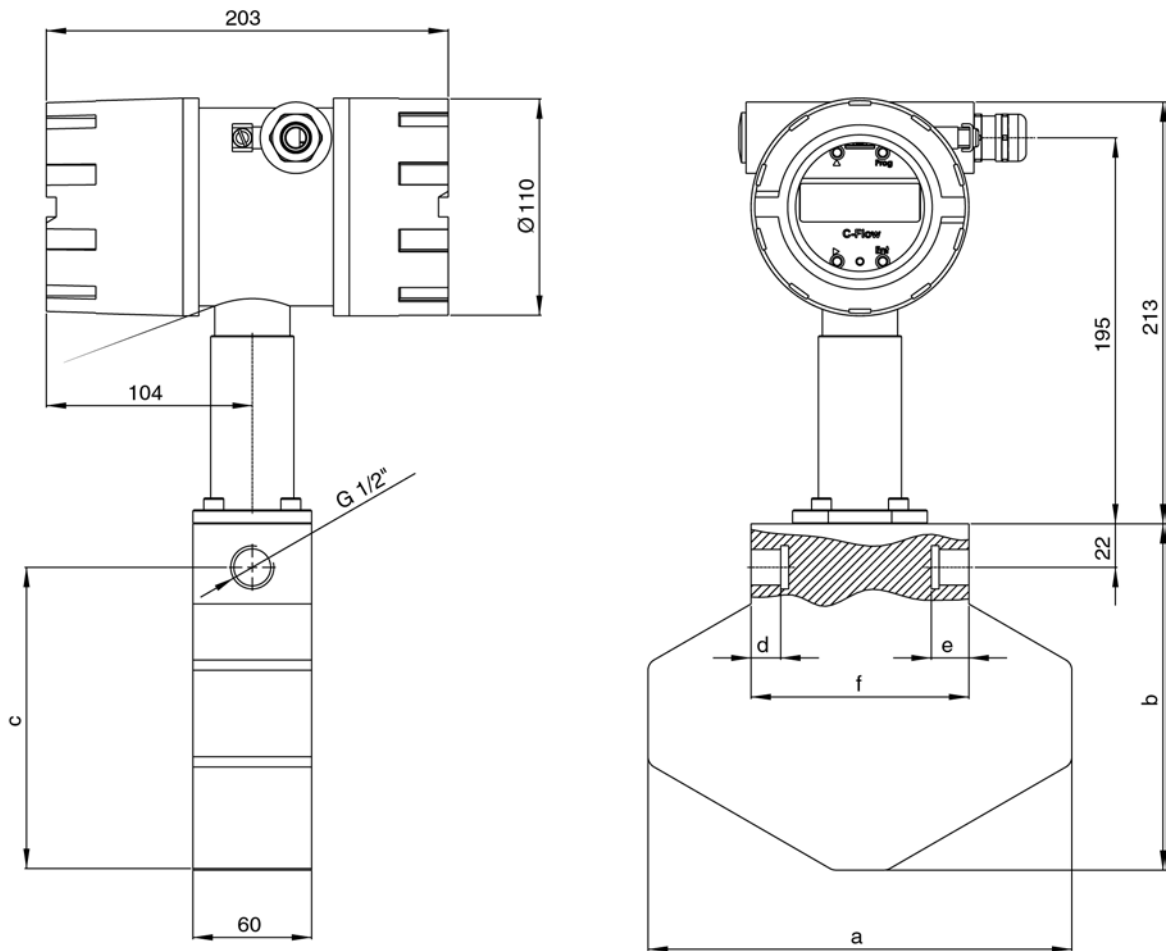


The diagram shows typical values. Individual values may be taken from the calibration records supplied with each meter.

Technical Data - KRD 8001 Remote Display

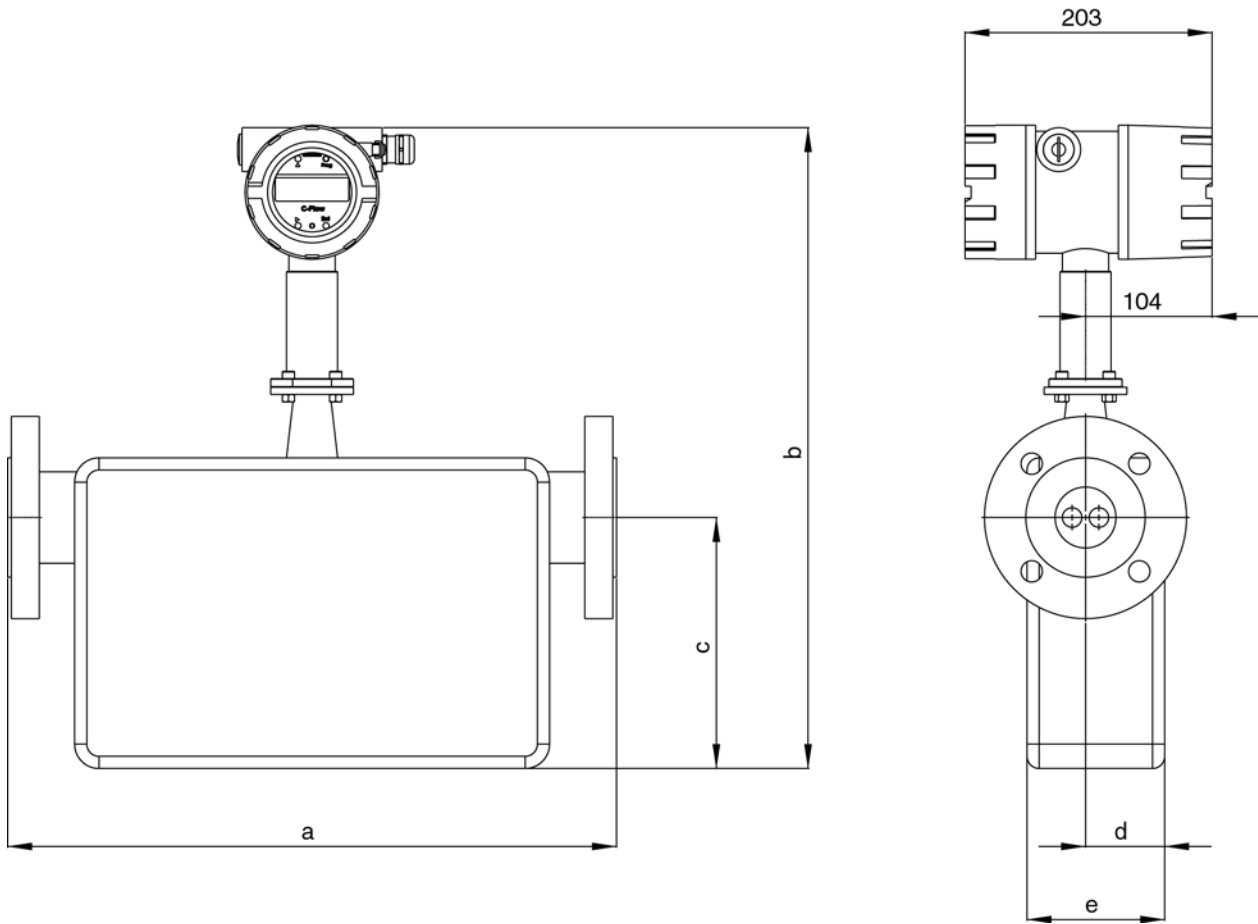
Display:	Graphic, 132 x 32 dot
Supply voltage:	via interface
Programming:	via front keyboard
Interface to KCM:	RS 485
EMC:	according to EN 50 081-2 and EN 50 082-2
Dimensions:	90 x 120 x 50 mm ³ (h x w x d)
Connections:	connector M12, B coded
Material:	ABS - FR
Protection class:	IP 64
Weight:	approx. 500g
Temperature:	operation: 0 to 50°C storage and transport: -20 up to 70°C
Wall mount	hidden screws

Dimensional drawing (mm) KCM 0300 to KCM 3000



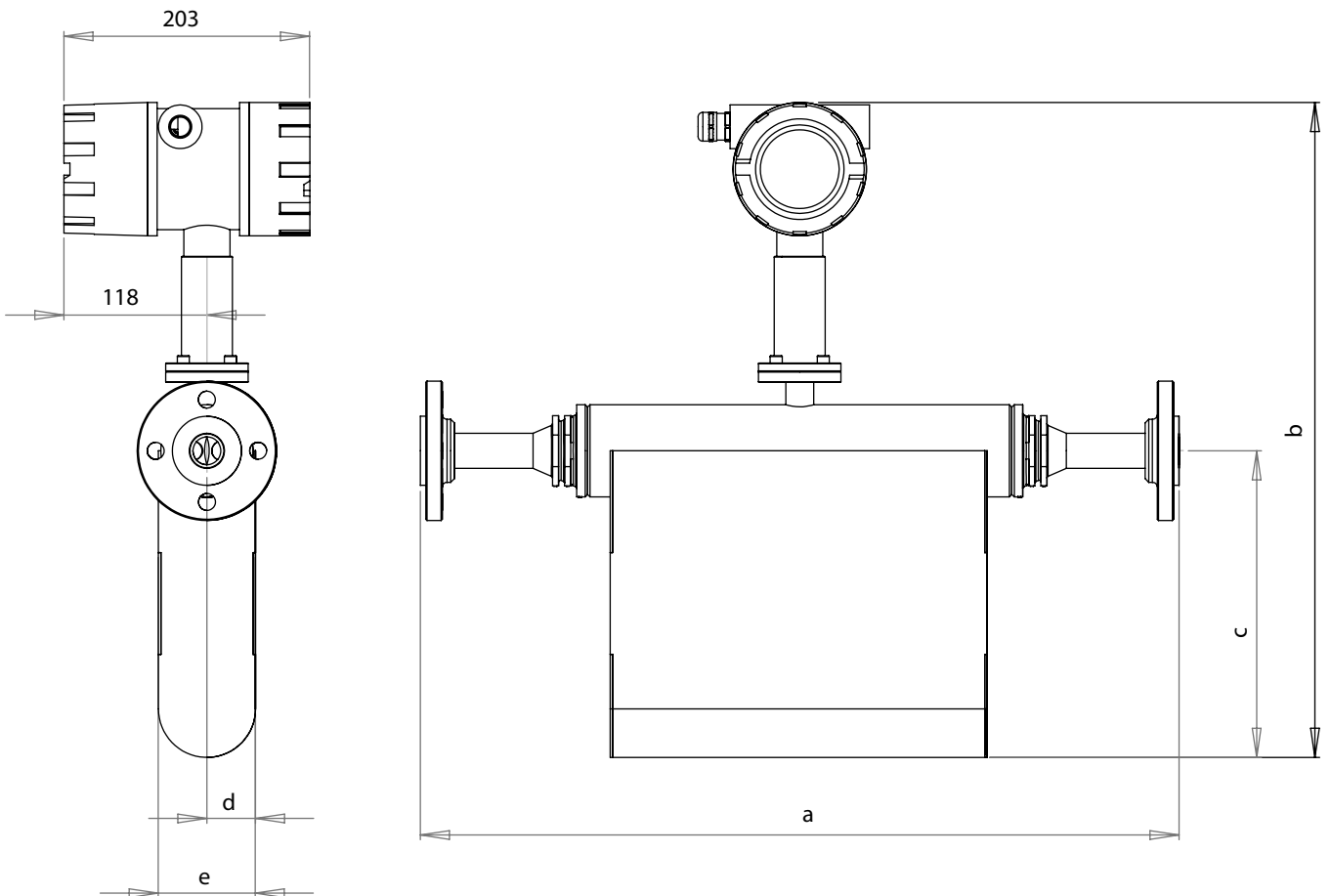
Type	a	b	c	d	e	f
KCM 0300	214	182	160	15	19	110
KCM 0600	214	182	160	15	19	87
KCM 1500	350	280	258	18	21	140
KCM 3000	350	280	258	18	21	140

Dimensional drawing (mm) KCM 6000 to KCM 60K



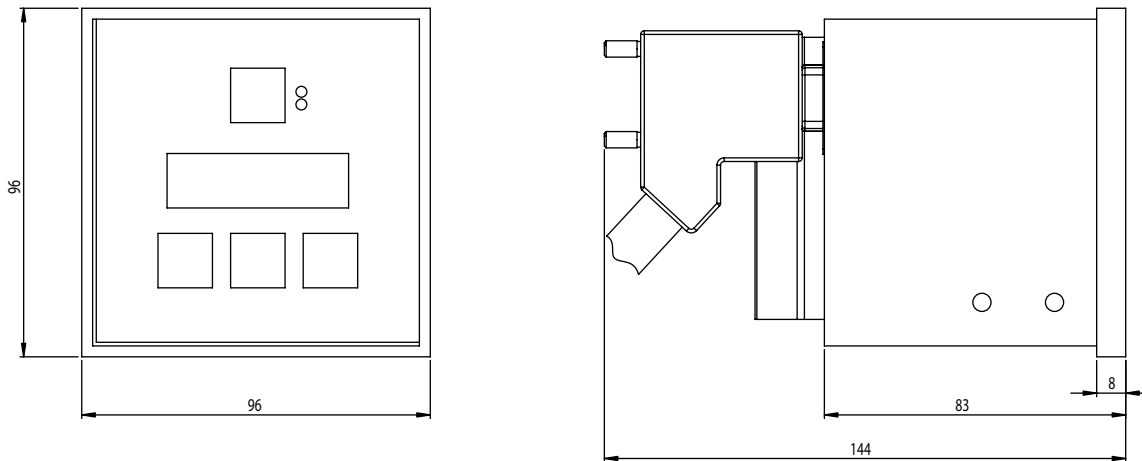
Type	a	b	c	d	e
KCM 6000	400	450	173	65	113
KCM 60K	600	577	290	77	137

Dimensional drawing (mm) TCM 28K

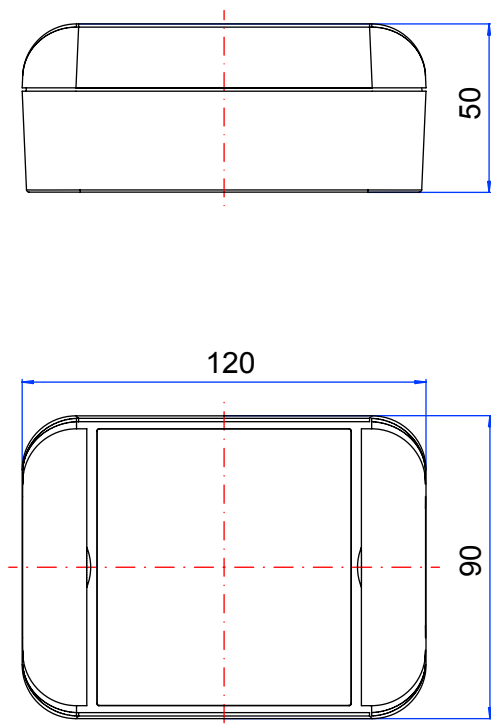


Typ	a	b	c	d	e
KCM 28K	626	541	253	40	80

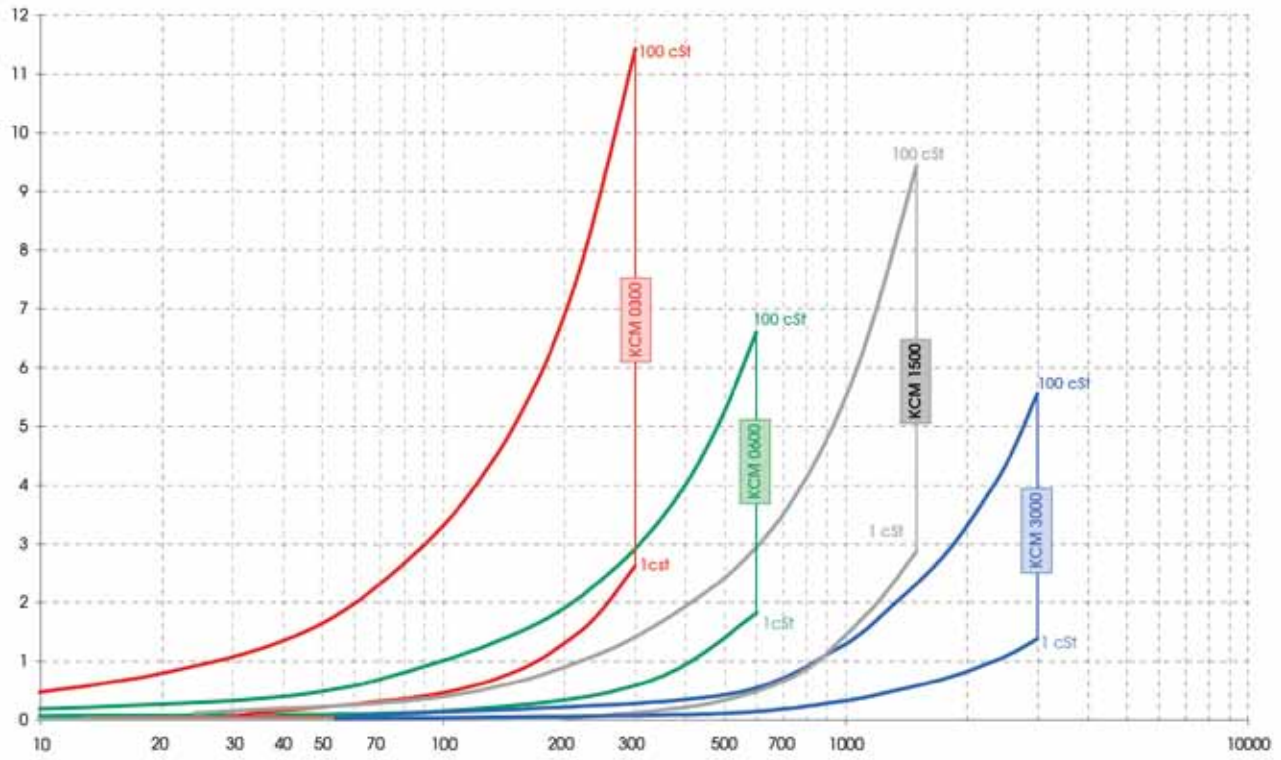
Dimensional drawing (mm) Panel-Mounted Housing



Dimensional drawing (mm) Remote Display KRD 8001



Pressure drop in bar



Overview

Compact version with female threads and Exd housing



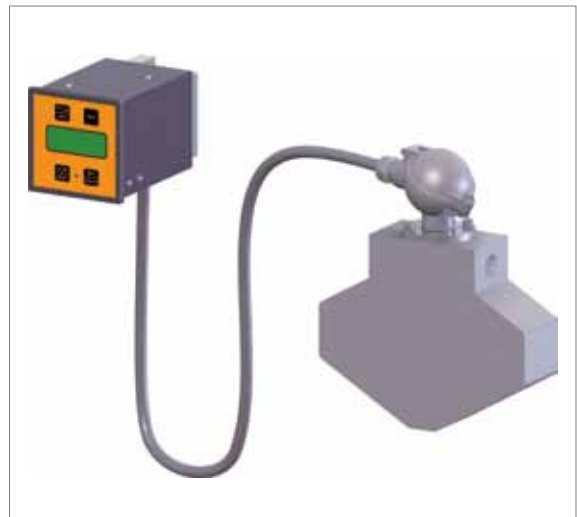
Remote Display KRD 8001



Exd housing for wall-mounting (separated version, also with flange ends)



Remote panel-mounted housing (separated version, also with flange ends)



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