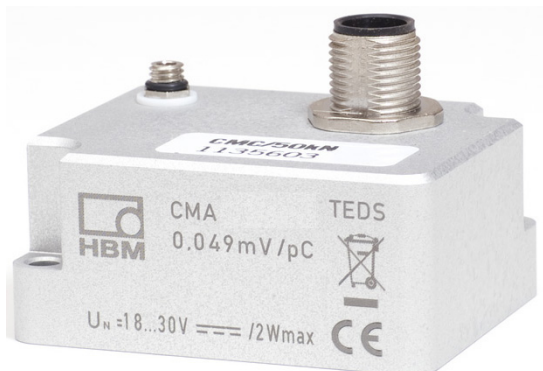


CMA

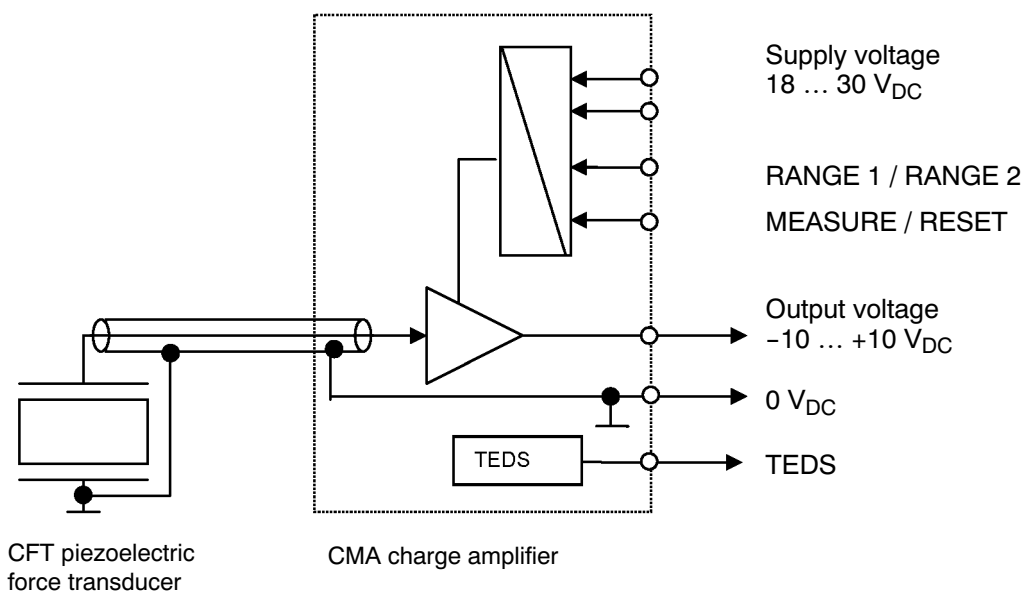
Charge amplifier



Special features

- Compact, robust design
- Two measuring ranges 5:1
- TEDS sensor detection
- Measuring range externally switchable
- Signal output ± 10 V
- All signal inputs/outputs electrically isolated

CMA block diagram



Specifications (data per VDI/VDE 2638 standards)

Charge amplifier		CMA									
Transducers that can be connected		Piezoelectric sensors (passive)									
Max. charge input	pC	1000	2000	5000	20000	39500	158300	210500	287000	482000	2000000
Calibrated measuring ranges 1)	% F _{nom}	100; 20									
Output voltage	V	± 10									
Output span tolerance	%	± 0.5									
Relative reversibility error, 0.5 x F _{nom}	%	< 0.05									
Relative linearity error	%	< ± 0.05									
Effect of temperature on output span / 10K	%	< 0.5									
Nominal (rated) temperature range	°C	0 ... 70									
Drift, at 20 °C	pC/s	< 0.1									
Cut-off frequency	kHz	10 (-3 dB)								7 (-3 dB)	
		5 (-1 dB)								3,5 (-1 dB)	
Supply voltage	V	24 (18 ... 30)									
Power consumption	W	< 1.2									
Output resistance	Ω	< 10									
Permissible load resistance	kΩ	> 5									
Control inputs											
Reset/Measure step	pC	< ± 2									
Measurement mode MEASURE	V	0 ... +5 or open									
RESET	V	12 ... 30									
Measurement range RANGE1	V	0 ... +5 or open									
RANGE2	V	12 ... 30									
Vibration resistance 20 ... 2000 Hz, duration 16 min, cycle 2 min.	m/s ²	100									
Shock (duration 1 ms)	m/s ²	2000									
Housing material		Aluminum									
Dimensions (W x H x D)	mm	57 x 46 x 38									
Weight	g	130									
Electrical connection		Sensor 10 - 32UNF Signal output, supply, digital input M12 x 1, 8-pin (shielded cable recommended)									
Degree of protection (with connected cables)		IP 65									
EMC conformity as per EN 61326-1:2007, EN 61326-2-3:2007		in an industrial environment									

1) Customized measuring ranges are available on request.

Pin and cable assignment

Supply voltage 0 V (GND)

RANGE 1 / RANGE 2

MEASURE / RESET

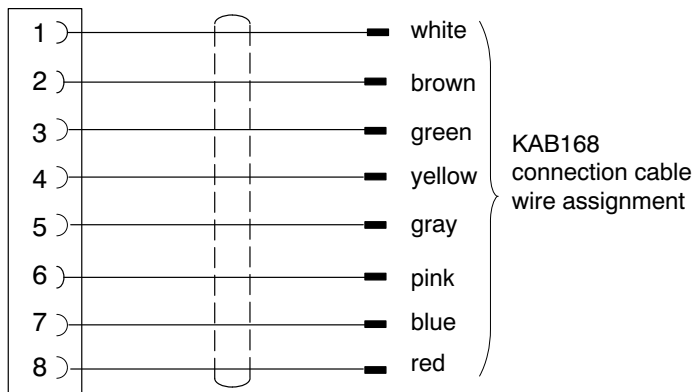
TEDS

Output signal -10 ... +10 V

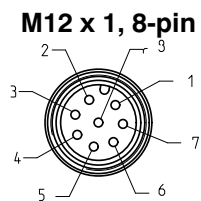
Signal ground

Do not assign!

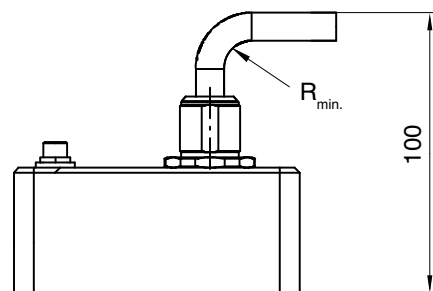
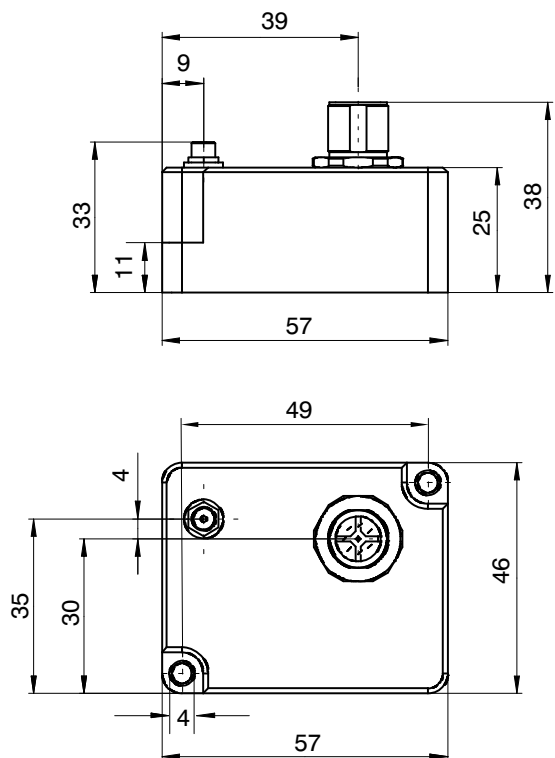
Supply voltage 18 ... 30 V_{DC}¹⁾



¹⁾ Operating on a SELV circuit (separated extra-low voltage)



Dimensions (in mm; 1 mm = 0.03937 inches)



Connection cable bending radius: $R_{\min} = 9.75 \text{ mm}$

Scope of delivery

Order number	
1-CMA1	Single-channel charge amplifier for piezoelectric sensors, measuring range 1 000 pC
1-CMA2	Single-channel charge amplifier for piezoelectric sensors, measuring range 2 000 pC
1-CMA5	Single-channel charge amplifier for piezoelectric sensors, measuring range 5 000 pC
1-CMA20	Single-channel charge amplifier for piezoelectric sensors, measuring range 20 000 pC
1-CMA39	Single-channel charge amplifier for piezoelectric sensors, measuring range 39 500 pC
1-CMA158	Single-channel charge amplifier for piezoelectric sensors, measuring range 158 000 pC
1-CMA210	Single-channel charge amplifier for piezoelectric sensors, measuring range 210 000 pC
1-CMA287	Single-channel charge amplifier for piezoelectric sensors, measuring range 287 000 pC
1-CMA482	Single-channel charge amplifier for piezoelectric sensors, measuring range 482 000 pC
1-CMA2000	Single-channel charge amplifier for piezoelectric sensors, measuring range 2 000 000 pC

Accessories (not included in scope of delivery)

1-KAB168-5	8-wire cable to the processing electronics, M12 x 1 cable plug, 5 m long, free ends
1-KAB168-20	8-wire cable to the processing electronics, M12 x 1 cable plug, 5 m long, free ends
1-KAB143-3	Connection cable, coaxial, 3m long
1-KAB145-3	Connection cable, coaxial, 3m long, with plug 10 - 32UNF, robust design

Modifications reserved.

All details describe our products in general form only. They are not to be understood as express warranty and do not constitute any liability whatsoever.

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