

Uniaxial accelerometer

Type 8205B

High temperature accelerometer 260°C

Accelerometer Type 8205B... is designed for permanent vibration monitoring in harsh and high temperature environments.

- Temperature range -55 ... 260 °C
- Sensitivity 20, 50 and 100 pC/g
- Internally case isolated; differential output
- Frequency response up to 10 kHz ($\pm 10\%$)
- Hermetically welded construction
- Connector and integrated cable versions
- ARINC triangular fixation
- Certified for use in potentially explosive environment



IECEX



CE

RoHS

Description

The sensor features a shear design, which significantly reduces the influence of temperature and base strain. Other features are high frequency response and a hermetic construction of the housing.

The sensor family 8205B... is available with sensitivities of 20, 50 and 100 pC/g in a compact and rugged standard ARINC triangular mounting case. The sensitive axis of the sensor lies in the Z - direction.

The sensor provides a differential signal output and features an internally case isolated design. It is available without cable in a connector version or, alternatively, equipped with a shielded low noise, AWG 22, twisted pair integral high temperature cable with standard lengths up to 30 meters and different cable protection systems to suit various applications.

The accelerometer is ATEX / IECEx certified for applications in hazardous areas.

Application

Condition monitoring of gas turbines and general purpose applications, which require:

- Temperature capability up to 260°C
- Ex-certification for use in potentially explosive environment
- Integrated cable version with specific degree of protection
- EMI immune measuring chain

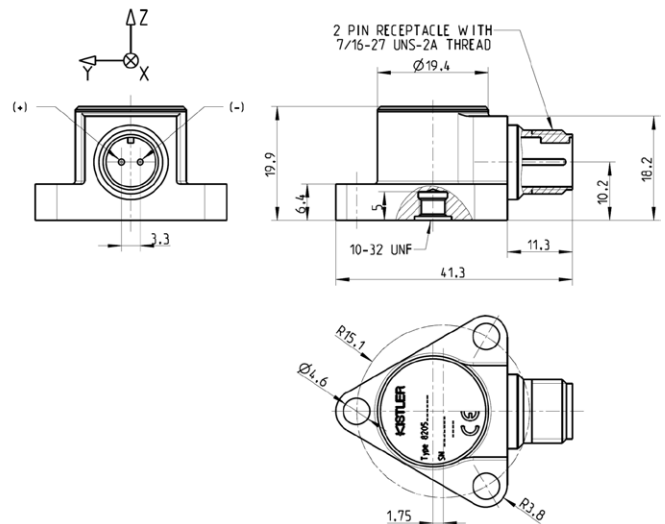


Fig. 1: Accelerometer dimensions

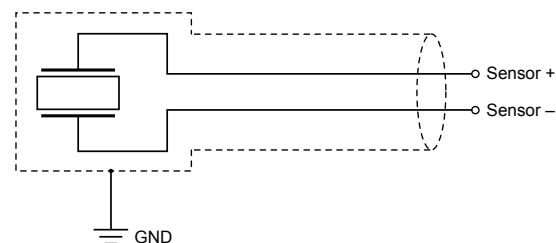


Fig. 2: Electrical schematic, 2-wire, internally case isolated

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Technical data

Reference temperature for performance specifications is 25°C unless otherwise noted.

Dynamic characteristics

Specification	Units	8205Bx1xxJxx	8205Bx2xxJxx	8205Bx3xxJxx
Sensitivity	pC/g	20 ±5 %	50 ±5 %	100 ±5 %
Measuring Range	g	250		
Frequency response		See Fig. 3: Typical frequency response		
upper range (+10%)	Hz	10 000	9 000	8 000
upper range (+5%)	Hz	9 000	8 000	7 500
lower range (-3dB) ¹⁾	Hz	0,5	0,5	0,5
Resonance frequency	kHz	30	28	25
Resonance frequency @260°C	kHz	27	25	22
Thermal sensitivity shift		See Fig. 4: Typical thermal sensitivity shift		
Transverse sensitivity	%	<4		
Amplitude Linearity	%	±1	±1	±1

1) In combination with differential charge amplifiers 5181, 5183, 5185.

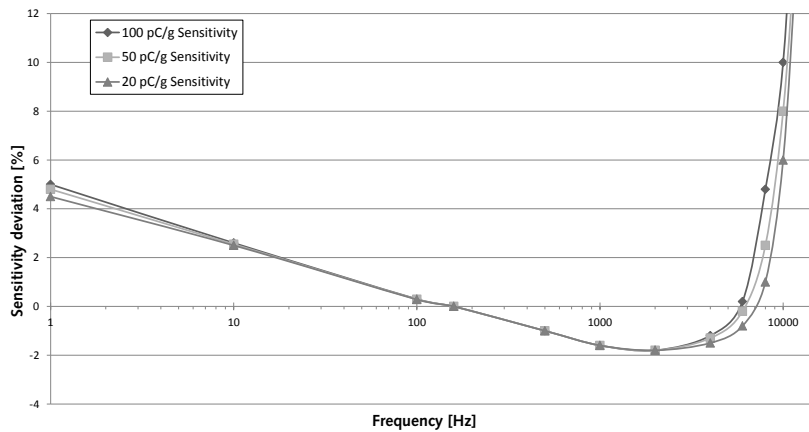


Fig. 3: Typical frequency response; relative to reference value at 159Hz

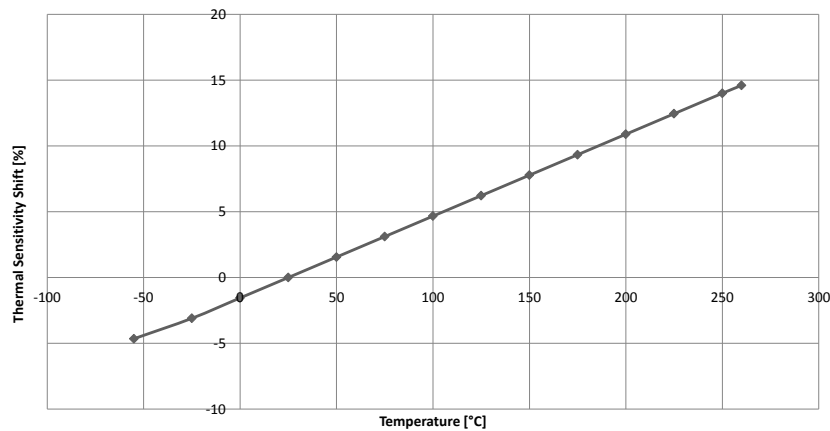


Fig. 4: Typical thermal sensitivity shift

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Electrical characteristics

Specification	Units	8205Bx1xxJxx	8205Bx2xxJxx	8205Bx3xxJxx
Resistance between pins at RT	GΩ		>10	
Resistance between pins at 260°C	MΩ		>50	
Isolation pin to case at RT	GΩ		>10	
Isolation pin to case at 260°C	MΩ		>50	
Capacitance between pins at RT	pF	3 500	7 000	14 000
Capacitance (pin to case) at RT	pF		<40	
Cap. unbalance between pins at RT	pF		<2	
Polarity		Acceleration in z-axis of the unit creates a positive charge on + pin (see Fig.1)		

Environmental characteristics

Operating temperature range		
Continuous	°C	-55...260
Extreme (t < 100 h)	°C	300
Humidity (ingress protection)		Hermetically sealed (IP68)
Max. ambient pressure	bar	25
Sinusoidal vibration limit	g _{pk}	500
Shock limit (1ms half sine)	g _{pk}	2 000
Base strain sensitivity	g _{pk} /με	<0,0008

Explosive environment

Ex-nA (non sparking) Approval gas zone 2	ATEX		II 3G Ex nA IIC T6/270°C -55°C ≤ Ta ≤ +260°C BASEEFA17ATEX0017X
	IECEX		Ex nA IIC T6/270°C IECEX Bas 17.0012X
EEx-ia (intrinsically safe) Approval gas zone 0 / 1 / 2	ATEX		II 1G Ex ia IIC T6 ...T270°C Ga -55°C ≤ Ta ≤ +260°C BASEEFA09ATEX0234
	IECEX		Ex ia IIC T6 ...T270°C Ga IECEX BAS 09.0112
Entity Parameters T6 to T270 (-55°C ≤ Ta ≤ 260°C)			U _i = 30 V I _i = 130 mA C _i = 21 nF + 0,2nF/m cable L _i = 30 μH + 1,5 μH/m cable P _i = 0,8 W

Physical characteristics

Dimensions	mm	see Fig. 1
Mass (sensor only)	g	50
Case material		Stainless steel (1.4435)
Connector		Two pin 7/16-27 UNS
Mounting		3x M4x12 or 10-32 UNFx0,5"
Torque (3 x M4)	Nm	2,9

Accelerometer versions with integral cable

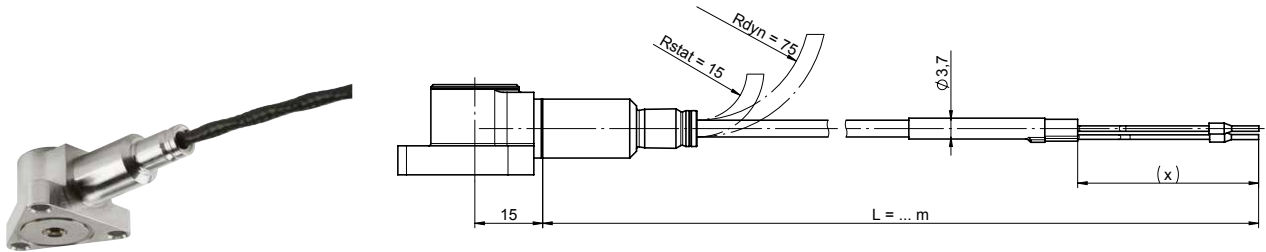


Fig. 5: 8205BxxBDJxx: No cable protection

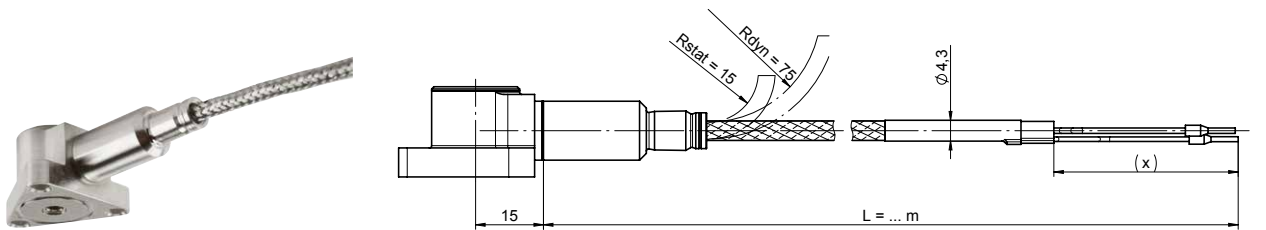


Fig. 6: 8205BxxCDJxx: Steel overbraid

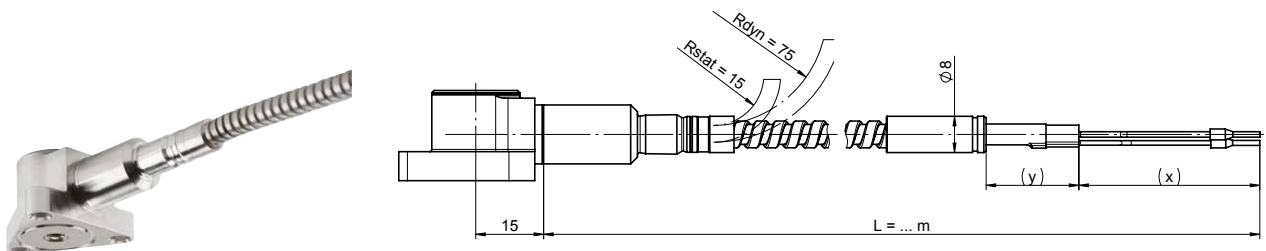


Fig. 7: 8205BxxDDJxx: Spiral metal hose

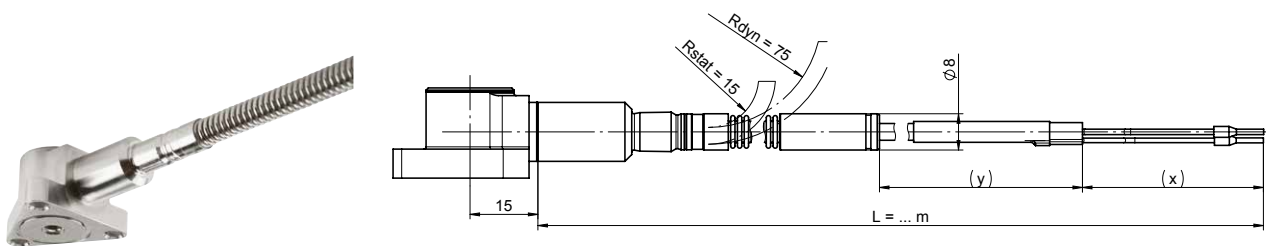


Fig. 8: 8205BxxEDJxx: Hermetic corrugated metal hose

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Cable characteristics

	Electrical shielding	Mechanical protection	Handling	IP degree
8205B__B: Without extra protection	++	+	+++	IP54
8205B__C: With steel overbraid	+++	++	++	IP54
8205B__D: With spiral metal hose	++	+++	++	IP54
8205B__E: With hermetic corrugated metal hose	++	+++	+	IP68 ²⁾

²⁾ Hermetically sealed, pressure resistant up to 25 bar

+ sufficient ++ good +++ very good

Cable termination

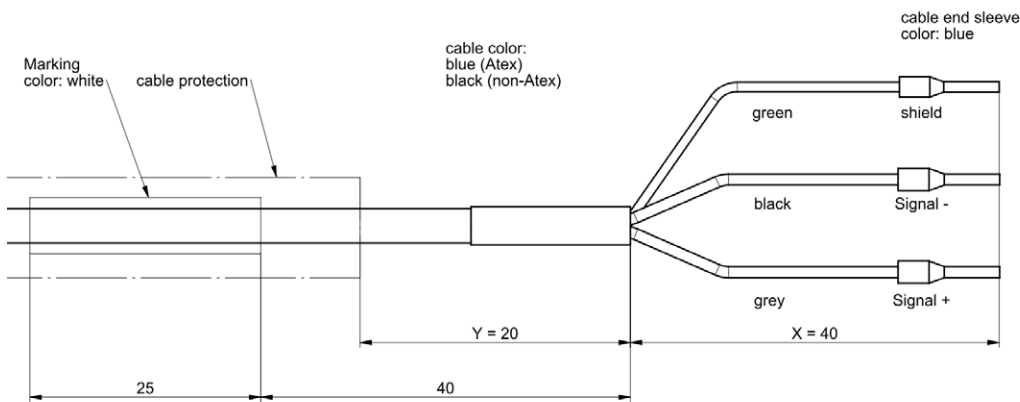


Fig. 9: Cable Termination

Marking on cable-end

KISTLER
Type 8205Bxxx SN ...

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Electrical schematic and connection to differential charge amplifier

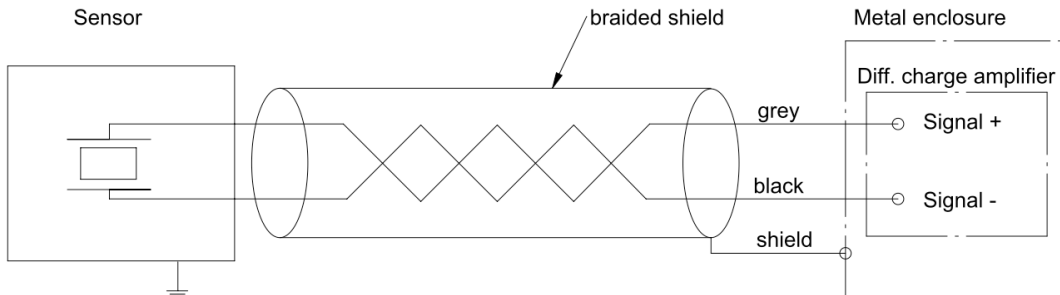


Fig. 10: Integral cable, without protection

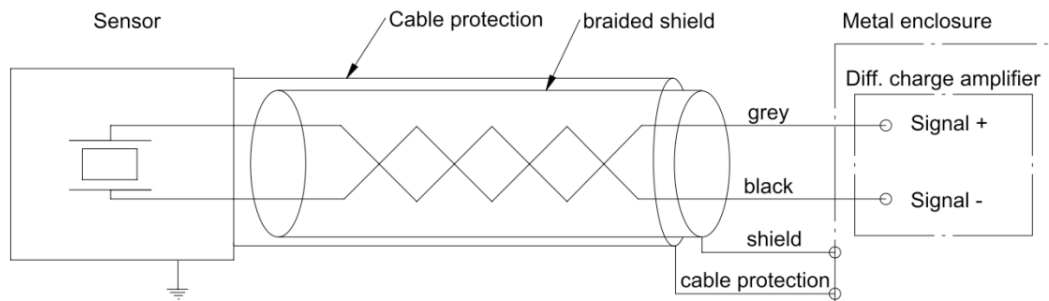


Fig. 11: Integral cable, with cable protection

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Accessories

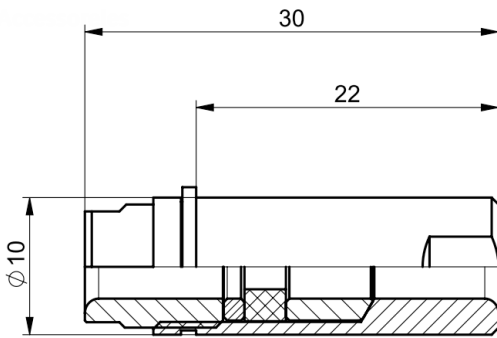


Fig. 12: Adapter Type 1700A37B (for cable without protection)

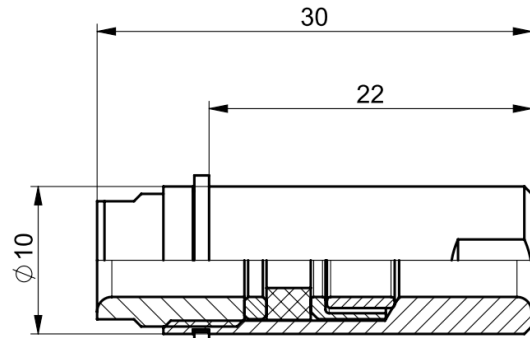


Fig. 13: Adapter Type 1700A37C (for cable with steel overbraid)

Included accessories

- Mounting screw (3x)
ISO 4762-M4x12 INOX A2
- Hex-Key AF3

Type/Mat. No.

8445A51
65007763

Optional accessories

- Mounting template
- Pipe mountingadapter
- Mountingadapter square 30x30mm
- Softline cable for version 8205BxxAxJxx
- Connector to connect accelerometer to charge amplifier 5181, 5183, 5185
for version 8205BxxBxJxx
for version 8205BxxCxJxx
- Mounting screw (replacement)
ISO 4762-M4x12 INOX A2

Type/Mat. No.

8433AT1
8433AP20
8433AS30
1652AC2A3Axx
1700A37B
1700A37C
8445A51

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Typical cable installation situations with cable feed trough into an electronic cabinet or enclosure

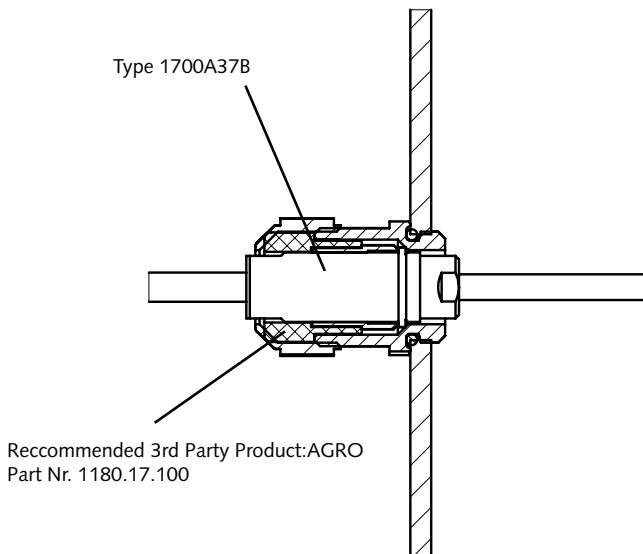


Fig. 14: Cable without protection

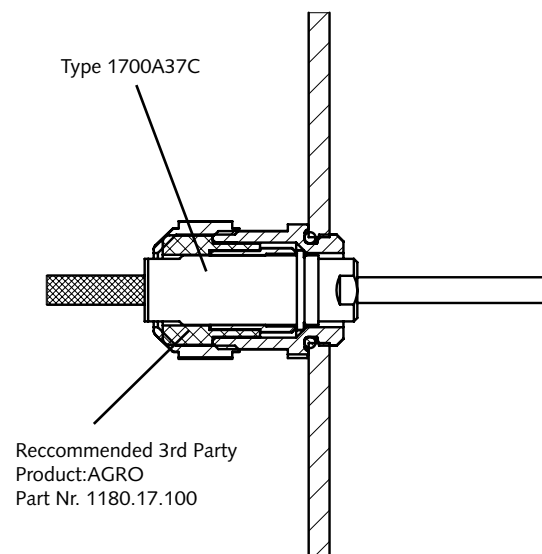


Fig. 15: Cable with steel overbraid

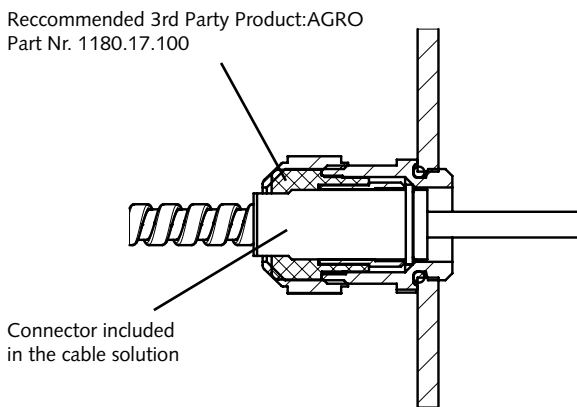


Fig. 16: Cable with spiral metal hose

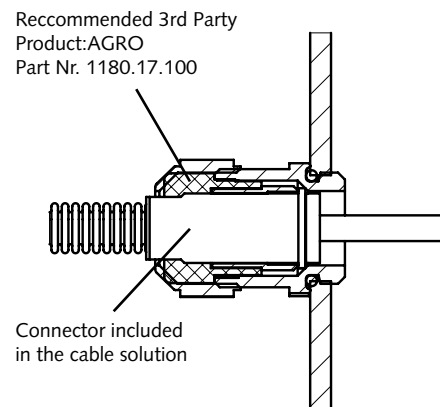


Fig. 17: Cable with hermetical corrugated metal hose

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Ordering key

Type 8205B J

EX-Certification

no Ex-Certification	-
Ex- ia; Ex-na	E

Sensitivity

20 pC/g	1
50 pC/g	2
100 pC/g	3

Cable type

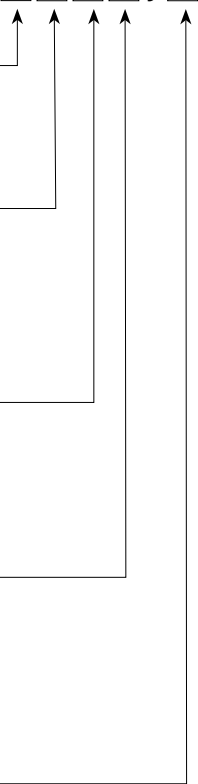
No cable	A
Without extra protection	B
With steel overbraid	C
With spiral metal hose	D
With sealed metal hose	E

Cable termination

Default Lead Lengths (40,20)	D
Custom Lead Lengths (x25 ...500, y 0 ...500)	C

Cable length

Integral Cable; 5m	05
Integral Cable; 10m	10
Integral Cable; 20m	20
Integral Cable; Customer specified (0.5m - 30m)	Sp



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