

BCX-22 SMART LINE

EXPROOF PRESSURE TRANSMITTER



OPERATING MANUAL

EXPROOF PRESSURE TRANSMITTER USER MANUAL

SMERI BCX 22

GENERAL INFORMATION



The BC222 is an ex-proof pressure transmitter designed for use in hazardous areas with a risk of explosive atmospheres. Operating on the piezoresistive principle, this series can be safely used in applications involving various fluids such as water, air, and oil.

Thanks to its EMC compliance and reverse polarity protection, it delivers long-lasting and reliable performance without being affected by electrical surges or incorrect wiring. Its stainless steel housing, which comes standard with IP65 / IP67 protection, ensures reliable operation even in harsh environmental conditions.

SAFETY INSTRUCTIONS

- This product must be installed by authorized personnel only. During the installation and operation of the pressure transmitters, attention must be paid to the relevant national safety regulations and the country-specific regulations regarding Ex applications.
- Before powering the device, check the values indicated on the product label to ensure that the pressure and temperature ratings, as well as the ex-proof protection class, meet the requirements of the intended application.
- The specified IP protection class is only valid if the cable and plug are connected correctly. No modifications may be made to the product unless explicitly stated in this manual.
- For all service operations on the pressure transmitter, all applicable national safety and accident prevention regulations, as well as the safety instructions provided in the operating manual, must be strictly observed.



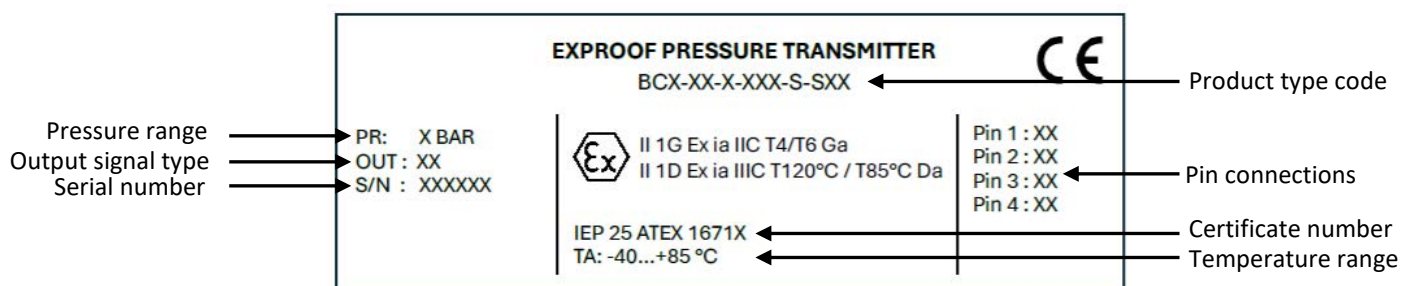
WARNING: Before installation, commissioning, and operation, ensure that the pressure transmitter is suitable for the application in terms of measuring range, design, and environmental conditions. Failure to observe these precautions may result in serious injury and/or damage to equipment.

This instrument converts pressure into an electrical signal. The instrument has been designed and manufactured solely for the intended use described here and must only be used accordingly. If the instrument is used in a different manner, the provided protection may be invalidated, and Atek Alfa shall not be liable for any claims.

COMFORMITY

Directive	Standard
ATEX: 2014/34/EU	EN 60079-0 EN 60079-11
EMC: 2014/30/EU	EN 61000-6-2 EN 61000-6-3
EU-type examination certificate	IEP 25 ATEX 1671X

LABEL DESCRIPTION



DESIGNATION

Devices
for Zones

0, 20 (Ga;Da)



II 1G Ex ia IIC T4/T6 Ga



II 1D Ex ia IIIC T120°C/T85°C Da

TECHNICAL FEATURES

ELECTRICAL DATA

Measurement Principle	Piezoresistive	
Measurement Range	Diffrent models from 0...100 mbar to 0...600 bar Different vacuum models from 0... -100 mbar to 0...-1 bar	
Maximum Pressure Strength	300%F.S ≤700mbar, 200%F.S <250Bar, 150%F.S ≥250Bar *Can be 3 or 5 times.	
Oring – Sealing	Standard NBR, optional FKM(Viton) or EPDM	
Output Signal	4...20mA (2 Wire) 0...10VDC 0.5-4.5 VDC Ratiometric, 0-5 VDC Ratiometric CANopen	
Load	4-20mA	250Ω
	0-10VDC	≥5K
	Ratiometric	≥2.5K
Supply Voltage	4-20mA	8 ... 32 V _{DC}
	0-10VDC	12 ... 30 V _{DC}
	Ratiometric	5 V _{DC}
	CANopen	8...26 V _{DC}
Operating Current	30 mA max.	
Accuracy	±%0,5 FS at 25°C ±%1 FS at 0...+70°C ±%2 FS at -40...+85°C	
Resolution	12 bit	
Response Time	Standard: 25ms 10...90 % nominal pressure Optional: 1ms, 5ms, 125ms (1ms response time is only available for current output, not for voltage output models)	

MECHANICAL DATA

Sensor	Silicon
Process Connection	G1/4, G1/8, G1/2, NPT1/4, NPT1/8, NPT1/2, M14x1, M20x1.5, UNF7/16X20M, UNF7/16X20F
Mounting / Tightening	15 ... 20 Nm
Electrical Connection	DIN43650-A, DIN43650-C, or M12 connector
Housing Material	Stainless Steel - 1.4305 (AISI303) Optional Stainless Steel 316L or Titanium

ENVIRONMENTAL DATA

Operating Temperature	-40°C ... +85°C
Storage Temperature	-40°C ... +85°C
Humidity	Max. %95 non-condensing
Protection Class	IP65 or IP67 *IP67 protection is provided if M12 connector models are equipped with press-printed

EMC PROTECTION

Immunity	IEC 61000-6-2
Emission	IEC 61000-6-3

CANopen SPECIFICATIONS

Communucation Profile	CiA 301
Device Type	CANopen, CiA DS404
Node ID	Can be set from 1 to 127 with LSS or SDO (Default Node ID:1)
Baud Rate	10 kBit/s, 20 kBit/s, 50 kBit/s, 100 kBit/s, 125 kBit/s, 250 kBit/s, 500 kBit/s, 800 kBit/s, 1 Mbit/s Default Baud Rate:125 kBit/s
PDO Data Rate	1000 ms
Error Control	Heartbeat, Emergency Message
PDO	4 Tx PDO
PDO Modes	Event/Time triggered, Synch/Asynch
SDO	1 server
Position Information	Object Dictionary 0x6/7/8/9130
Termination Resistance	Optional

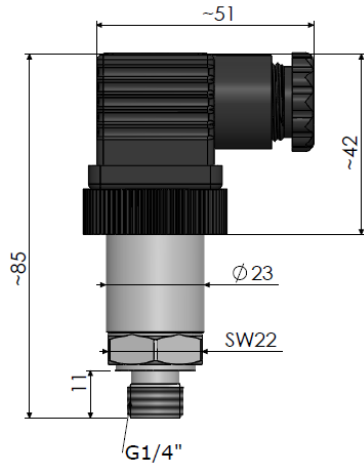
* Product life will be shortened when more pressure is given than working pressure.

According to the product, it may be damaged at high pressure of 3-5 times.

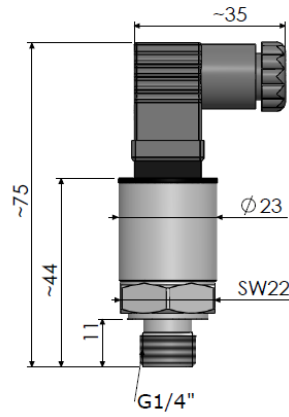
** IP67 protection is provided if M12 connector models are equipped with press-printed connectors.

MECHANICAL DIMENSIONS

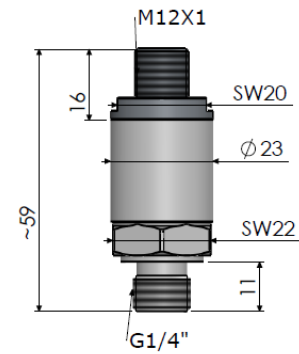
S30: DIN43650-A CONNECTOR



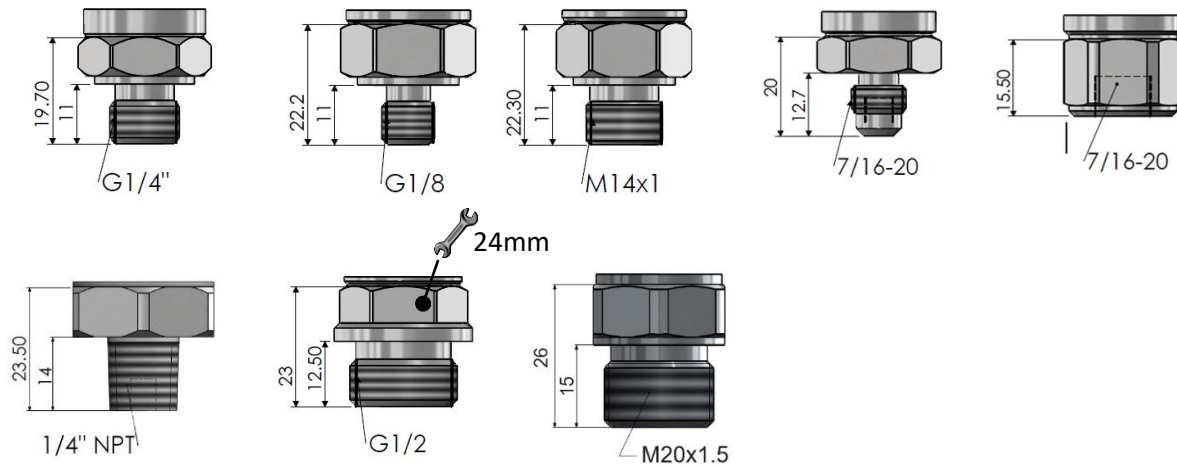
S31: DIN43650-C CONNECTOR



S12/S15: M12 CONNECTOR



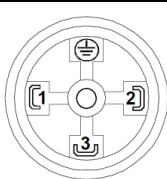
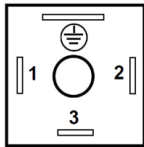
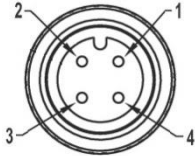
PROCESS CONNECTION OPTIONS



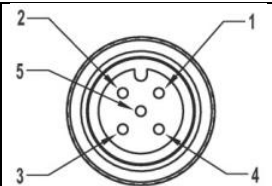
- * In the case of the G1/2 model, the dimension of key slot is 24mm. All other models are 22mm.
 ** Do not turn the product by holding from connector during installation. Otherwise, the product may be damaged.

ELECTRICAL CONNECTIONS

CONNECTIONS FOR ANALOG OUT

					
		DIN D43650-A	DIN D43650-C	M12 / 4 pin	
		S30	S31	S12	S15
		PIN NO		PIN NO	
CURRENT OUTPUT	+Vcc	2	2	2	1
	Analog	1	1	1	3
VOLTAGE OUTPUT	+Vcc	2	2	2	1
	GND	1	1	1	3
	Analog	3	3	3	2
Protection		IP65	IP65	IP67	
Ambient Temperature		-40°C ... +85°C			
Ex zones		0, 1, 2 20, 21, 22			

CONNECTIONS FOR CANOPEN OUT

	
	M12 / 5 pin
	S13
	PIN NO
CAN_SHIELD	Pin 1
V+ (8...26V)	Pin 2
GND (0V)	Pin 3
CAN_H	Pin 4
CAN_L	Pin 5
Protection	IP67
Ambient Temp.	-40°C ... +85°C
Ex zones	0, 1, 2 20, 21, 22

- * For IP67 protection at model with M12 connector, press-printed cable should be used. Otherwise, it can not be used under IP67 conditions.
 *IP rating only provided with female connector mounted according to instruction.
 *Connector S30: Turning of pin insert max. 45°.
 *Connector S12 and S15: Ventilation via cable end.

INSTALLATION

The device must be installed by specially qualified personnel in accordance with the requirements of installation standard EN 60079-14 and the relevant national regulations. The maximum mounting torque for the BCX 22 pressure transmitter is 20 Nm. Certified accompanying operating resources (e.g., safety barrier) must be included for the use of the pressure transmitter.

ATTENTION

The ex-proof electrical circuit must be limited to surge category I as specified in IEC 60664-1, or the circuit power supply must be provided exclusively via a certified intrinsically safe power source with protection level "ia". For transmitters with plugs, only the supplied mating plugs with a gasket should be used. The IP protection class is ensured only when the plug and gasket are properly installed. If the transmitter is not grounded via the pressure connection or the housing, grounding must be ensured through the cable shield or the potential equalization line in the connector.

MAINTENANCE

BCX 22 pressure transmitters are maintenance-free. The provisions of standard EN 60079-17 must be followed. The condition of the plugs and connection cables should be regularly checked for damage (e.g., annually). Defective plugs or cables must be replaced immediately. The required inspection intervals should be determined by the operator depending on the application conditions. Only original manufacturer parts may be used for replacements.

DISPOSAL



Disposal of Packagings: Packaging materials consist of recyclable materials. For providing recycling, please dispose waste packagings to collecting points of authorized recycling facilities.

Disposal of E-Waste: This device is in conformity with WEEE Directive and consists of recyclable materials. This product should not be disposed with general waste for preventing negative effects on environment and human health. This product should be disposed to collecting points of authorized recycling facilities. Further information can be reached from authorized unit.



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