

#### GENERAL INFORMATION



The BCX series 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.



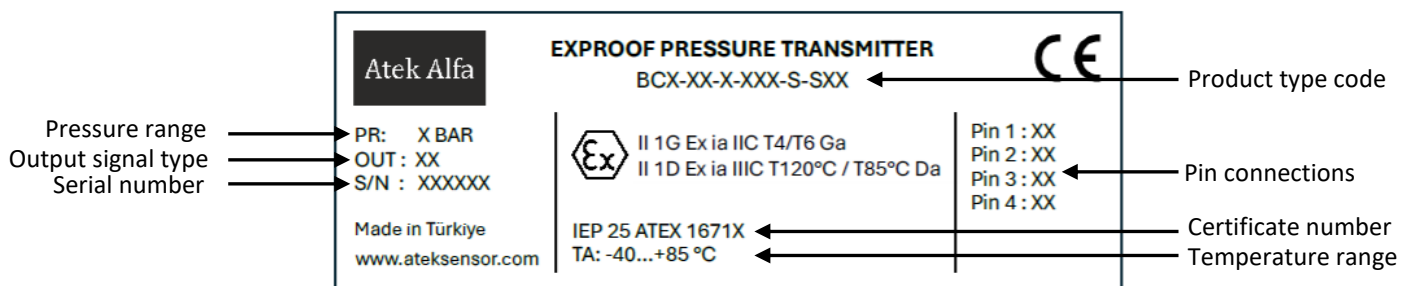
**WARNING:** Before installation, commissioning, and operation, ensure that the pressure transmitter is suitable for the application in terms of measuring range, design, and environmental conditions. Failure to observe these precautions may result in serious injury and/or damage to equipment.

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<br>EN 60079-11    |
| EMC: 2014/30/EU                 | EN 61000-6-2<br>EN 61000-6-3 |
| EU-type examination certificate | IEP 25 ATEX 1671X            |

#### LABEL DESCRIPTION



#### DESIGNATION

Devices for Zones 0, 20 (Ga;Da) **Ex** II 1G Ex ia IIC T4/T6 Ga **Ex** II 1D Ex ia IIIC T120°C/T85°C Da

| TECHNICAL FEATURES        |                                                                                                                                                                   |                           |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| ELECTRICAL DATA           |                                                                                                                                                                   |                           |
| Measurement Principle     | Piezoresistive                                                                                                                                                    |                           |
| Measurement Range         | Diffrent models from 0...100mbar to 0...600Bar<br>Different vacuum models from 0... -100mbar to 0...-1Bar                                                         |                           |
| Maximum Pressure Strength | 300%F.S ≤700mbar, 200%F.S <250Bar, 150%F.S ≥250Bar<br>*Can be 3 or 5 times.                                                                                       |                           |
| Oring – Sealing           | Standard NBR, optional FKM(Viton) or EPDM                                                                                                                         |                           |
| Output Signal             | 4...20mA (2 Wire)<br>0...10VDC<br>0.5-4.5 VDC Ratiometric, 0-5 VDC Ratiometric<br>CANopen                                                                         |                           |
| Load                      | 4-20mA                                                                                                                                                            | 250Ω                      |
|                           | 0-10VDC                                                                                                                                                           | ≥5K                       |
|                           | Ratiometric                                                                                                                                                       | ≥2.5K                     |
| Supply Voltage            | 4-20mA                                                                                                                                                            | 8 ... 32 V <sub>DC</sub>  |
|                           | 0-10VDC                                                                                                                                                           | 12 ... 30 V <sub>DC</sub> |
|                           | Ratiometric                                                                                                                                                       | 5 V <sub>DC</sub>         |
|                           | CANopen                                                                                                                                                           | 8...26 V <sub>DC</sub>    |
| Operating Current         | 30 mA max.                                                                                                                                                        |                           |
| Accuracy                  | ±%0,3 FS @25°C                                                                                                                                                    |                           |
| Total Error Band          | ±0,3 %FS @-10...+70°C                                                                                                                                             |                           |
| Resolution                | 12 bit                                                                                                                                                            |                           |
| Long Term Stability       | ±%0,3 FS / year                                                                                                                                                   |                           |
| Response Time             | Standard: 25ms %10...%90 nominal pressure<br>Optional: 1ms, 5ms, 125ms<br>(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)<br>Optional Stainless Steel 316L or Titanium                                                                                   |                           |
| ENVIRONMENTAL DATA        |                                                                                                                                                                   |                           |
| Operating Temperature     | -40°C ... +85°C                                                                                                                                                   |                           |
| Storage Temperature       | -40°C ... +85°C                                                                                                                                                   |                           |
| Humudity                  | Max. %95 non-condensing                                                                                                                                           |                           |
| Protection Class          | IP65 or IP67<br>*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    |                                                                                                                                                                   |                           |
| Communcation 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<br>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                                                                                                                                                          |                           |

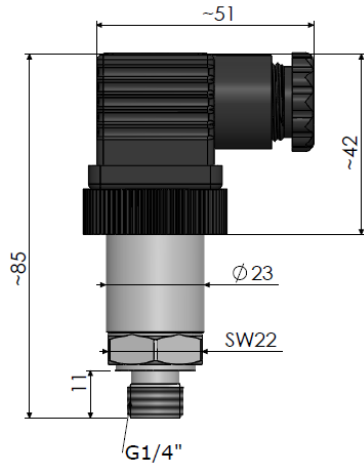
\* Product life will be shortened when more pressure is given than working pressure.

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

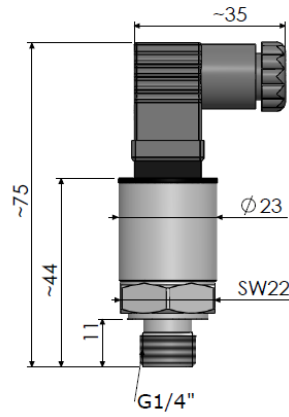
\*\* IP67 protection is provided if M12 connector models are equipped with press-printed connectors.

## MECHANICAL DIMENSIONS

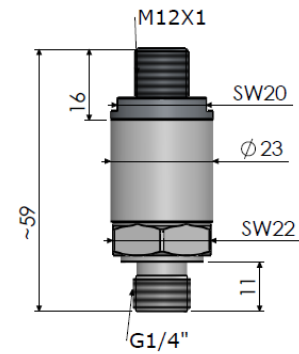
S30: DIN43650-A CONNECTOR



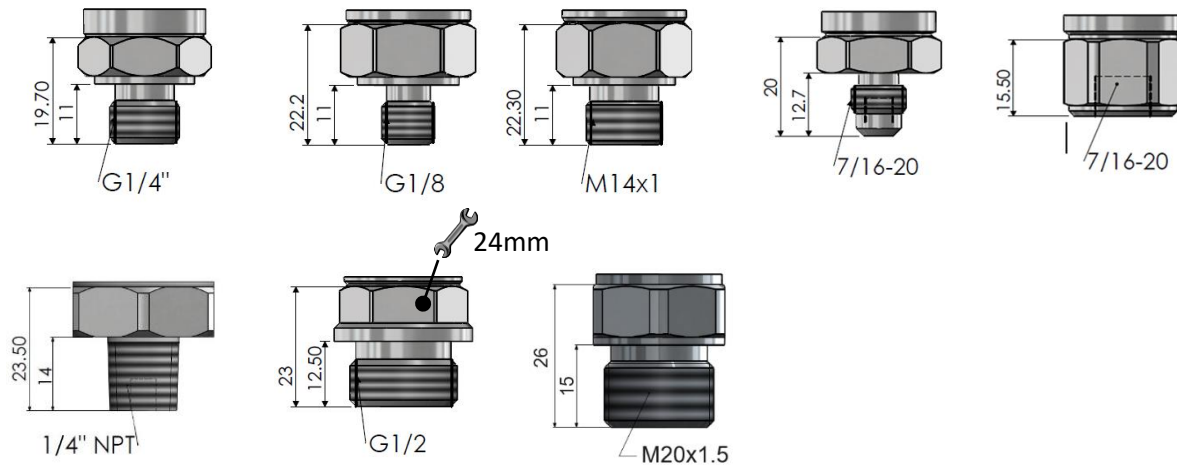
S31: DIN43650-C CONNECTOR



S12/S15: M12 CONNECTOR



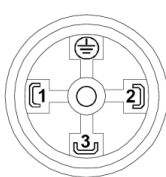
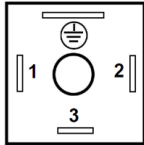
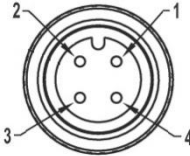
## PROCESS CONNECTION OPTIONS



- \* 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                                                                              | 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 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 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.

# Atek Alfa

### Manufacturer Firm's and Authorized Service's Title, Address Details

**Manufacturer Firm:** ATEK ELEKTRONİK SENSÖR TEKNOLOJİLERİ SANAYİ VE TİCARET A.Ş.

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