

# PRESSURE TRANSMITTER

## BCT 22

" Piezoresistive Pressure Sensor "



- Piezoresistive pressure sensor
- 22 mm body diameter
- Different models from 0...100mbar to 0...600BAR  
Different vacuum models from 0...-100mbar to 0...-1BAR
- Analog 4 ... 20mA / 0 ... 10VDC etc. different analog outputs or CANopen output option
- G1/4, G1/2, NPT1/4, NPT1/2, M14x1, M20x1.5, UNF7/16X20 etc. process connection options
- EMC and reverse polarity protection
- High accuracy and stabilityLong-term excellent work
- Stainless steel housing

ATEK BCT 22 series Pressure transmitters offer high performance for demanding commercial and heavy industry applications.

Our products with piezoresistive working principle can be used in water, air, oil etc. applications.

The standard stainless steel housing with IP65 / IP67 protection can work in harsh environments.

The BCT 22 series, which is not affected by electrical fluctuations and reverse connections due to over voltage and reverse polarity protection, has a long life.

### APPLICATIONS

- Pneumatic Systems
- Hydraulic Systems
- Machines Equipments
- Air Cooling – Heating Systems
- Water Technologies
- Automation Applications

## TECHNICAL FEATURES

| ELECTRICAL DATA              |                                                                                                                                                                   |                           |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Measurement Principle        | Piezoresistive                                                                                                                                                    |                           |
| Measurement Type             | Relative ambient pressure measurement (optional: absolute pressure)<br>Air, Water, Oil, Non-explosive gases                                                       |                           |
| 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<br>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), 0...20mA (3 Wire)<br>0...10VDC, 1...5VDC, 0...5VDC, Ratiometric<br>CANopen                                                                     |                           |
| Load                         | 4-20mA, 0-20mA                                                                                                                                                    | 250Ω                      |
|                              | 0-5VDC, 1-5VDC                                                                                                                                                    | ≥2.5K                     |
|                              | 0-10VDC                                                                                                                                                           | ≥5K                       |
|                              | Ratiometric                                                                                                                                                       | ≥2.5K                     |
| Supply Voltage               | 4-20mA                                                                                                                                                            | 8 ... 32 V <sub>DC</sub>  |
|                              | 0-20mA                                                                                                                                                            | 12 ... 30 V <sub>DC</sub> |
|                              | 0-10VDC, 0-5VDC, 1-5VDC                                                                                                                                           | 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             | ±0,5 %FS (ceramic) ±0,3 %FS (silicon) @-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                       | Ceramic or Silicon                                                                                                                                                |                           |
| Process Connection           | G1/4, G1/8, G1/2, NPT1/4, NPT1/8, NPT1/2, M14x1, M20x1.5, UNF7/16X20M, UNF7/16X20F                                                                                |                           |
| Mounting / Tightening Torque | 15 ... 20 Nm                                                                                                                                                      |                           |
| Electrical Connection        | DIN43650-A, DIN43650-C, M12, Packard, Circular connector or 3 x 0.14mm² PVC cable                                                                                 |                           |
| 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                                                                                                                                                   |                           |
| Humidity                     | Max. %95 non-condensing                                                                                                                                           |                           |
| Protection Class             | IP65 or IP67<br>** IP67 protection is provided if M12 connector models are equipped with press-printed connectors.                                                |                           |
| 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<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.

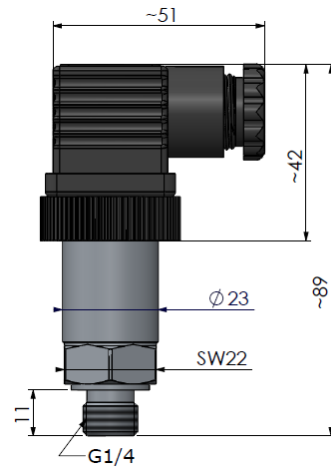
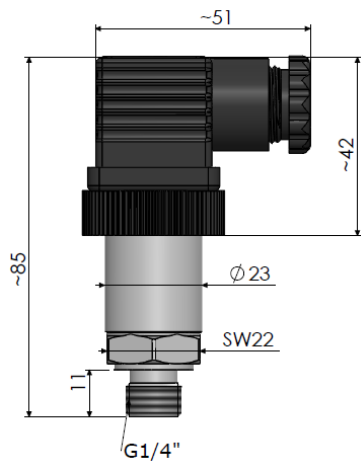
\*\* IP67 protection is provided if M12 connector models are equipped with press-printed connectors.

## MECHANICAL DIMENSIONS (mm)

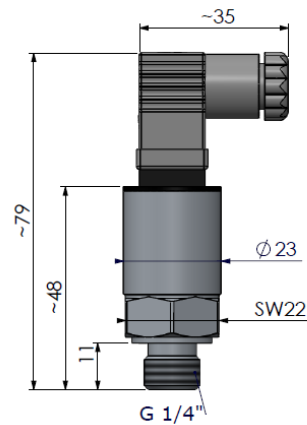
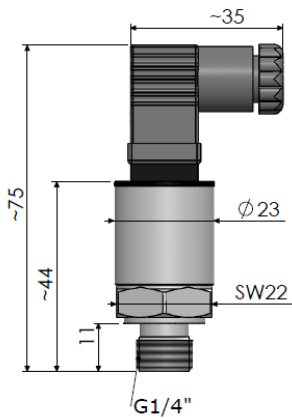
From -100 miliBar to 600 Bar (Analog Output)

From 2 Bar to 400 Bar (Analog Output)

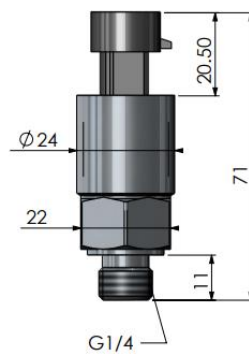
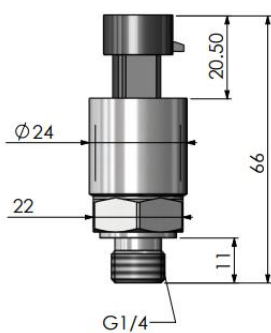
### S30 CONNECTOR : DIN43650-A



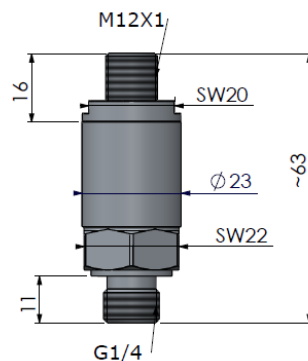
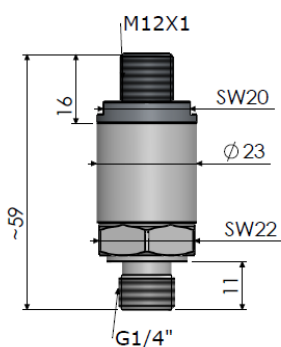
### S31 CONNECTOR : DIN43650-C



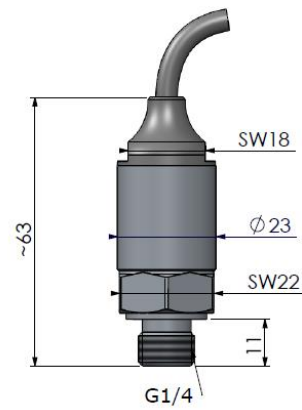
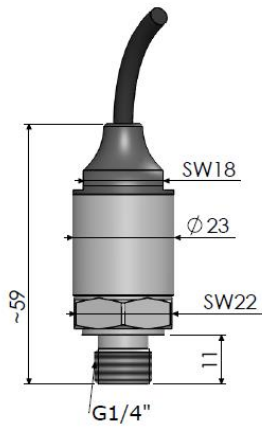
### S32 CONNECTOR : PACKARD



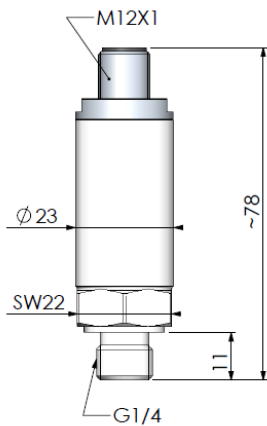
### S12/S15 CONNECTOR : M12



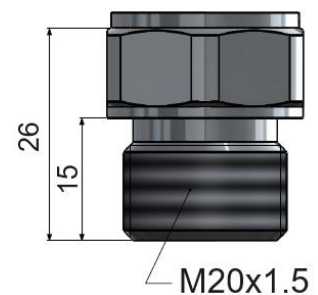
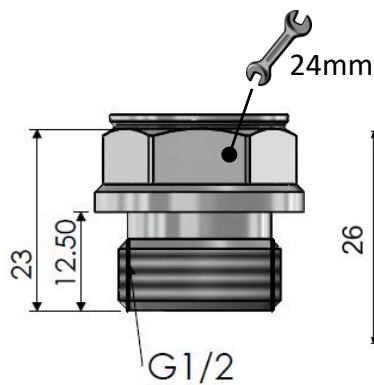
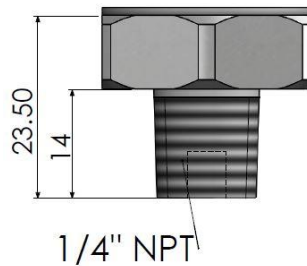
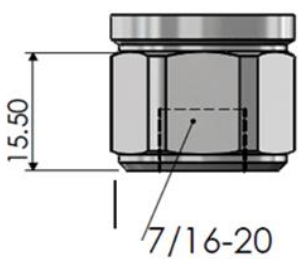
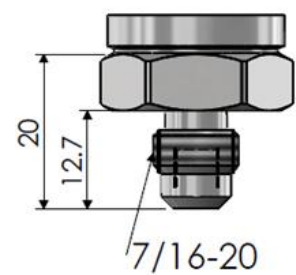
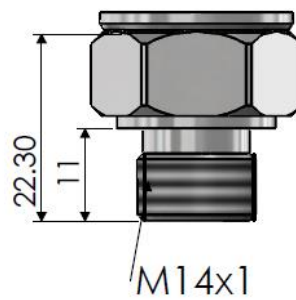
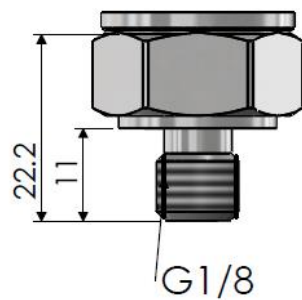
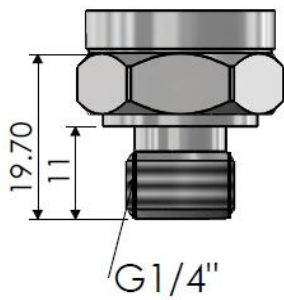
## CABLE



### Mechanical Dimensions for CANopen Output

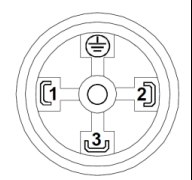
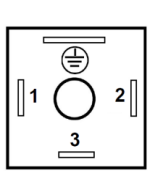
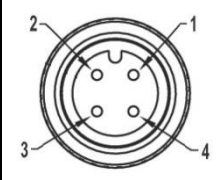
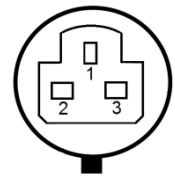
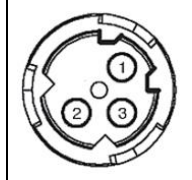
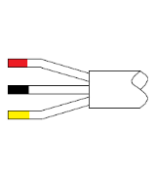


### PROCESS CONNECTION OPTIONS



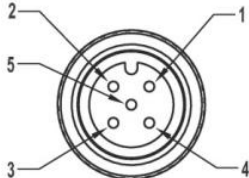
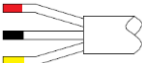
- \* In the case of the G1/2 model, the dimension of key slot is 24mm. All other models are 22mm.
- \*\* Do not turn the product by holding from connector during installation. Otherwise, the product may be damaged.

## ELECTRICAL CONNECTION FOR ANALOG OUTPUTS

|                |            |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
|----------------|------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                |            |  |  |  |  |  |  |
|                |            | <b>DIN D43650-A</b>                                                               | <b>DIN D43650-C</b>                                                               | <b>M12 / 4 pin</b>                                                                | <b>PACKARD</b>                                                                     | <b>CIRCULAR</b>                                                                     | <b>CABLE</b>                                                                        |
|                |            | S30                                                                               | S31                                                                               | S12      S15                                                                      | S32                                                                                | S33                                                                                 | COLOR                                                                               |
|                |            | PIN NO                                                                            | PIN NO                                                                            | PIN NO                                                                            | PIN NO                                                                             | PIN NO                                                                              |                                                                                     |
| CURRENT OUTPUT | +Vcc       | 2                                                                                 | 2                                                                                 | 2      1                                                                          | B (2)                                                                              | 1                                                                                   | RED                                                                                 |
|                | Analog Out | 1                                                                                 | 1                                                                                 | 1      3                                                                          | C (1)                                                                              | 2                                                                                   | BLACK                                                                               |
| VOLTAGE OUTPUT | +Vcc       | 2                                                                                 | 2                                                                                 | 2      1                                                                          | B (2)                                                                              | 1                                                                                   | RED                                                                                 |
|                | GND        | 1                                                                                 | 1                                                                                 | 1      3                                                                          | C (1)                                                                              | 2                                                                                   | BLACK                                                                               |
|                | Analog Out | 3                                                                                 | 3                                                                                 | 3      2                                                                          | A (3)                                                                              | 3                                                                                   | YELLOW                                                                              |

- \* For IP67 protection at model with M12 connector, press-printed cable should be used. Otherwise, it can not be used under IP67 conditions.
- \*\* PVC cable is used as standard in the model with cable.
- \*\*\* On models with the PACKARD connector, the letter of pin numbers are 1(C) , 2(B) , 3(A).
- \*\*\*\* Only S30 connector type can be selected for 0-20mA analog output. Other connector types or wired models cannot be selected.

## ELECTRICAL CONNECTION FOR CANOPEN OUTPUTS

|              |                                                                                    |                                                                                    |
|--------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|              |  |  |
|              | <b>M12 / 5 PIN (S13)</b>                                                           | <b>CABLE</b>                                                                       |
| CAN_SHIELD   | Pin 1                                                                              | SHIELD                                                                             |
| V+ (8...26V) | Pin 2                                                                              | RED                                                                                |
| GND (0V)     | Pin 3                                                                              | BLACK                                                                              |
| CAN_H        | Pin 4                                                                              | YELLOW                                                                             |
| CAN_L        | Pin 5                                                                              | GREEN                                                                              |

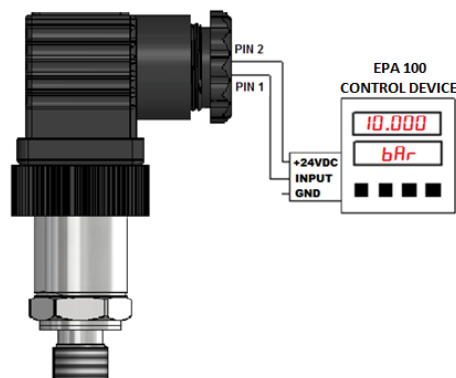
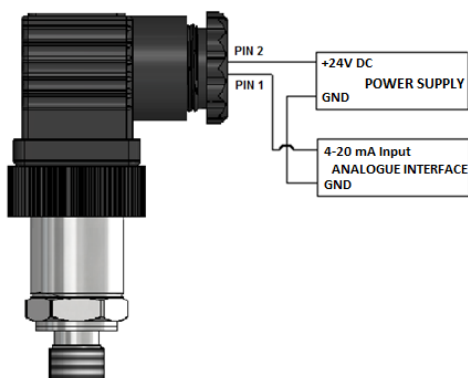
**WARNING**

Wrong connections may damage the sensor.

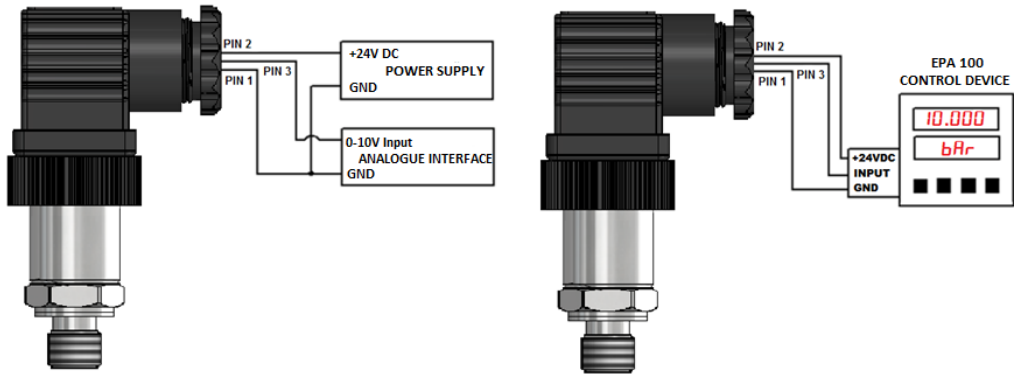
If the transmitter is used for water pressure measurement, do not remove the integrated M5 valve. Otherwise, pressure peaks caused by the water pump may damage the transmitter.

## SAMPLE CONNECTIONS

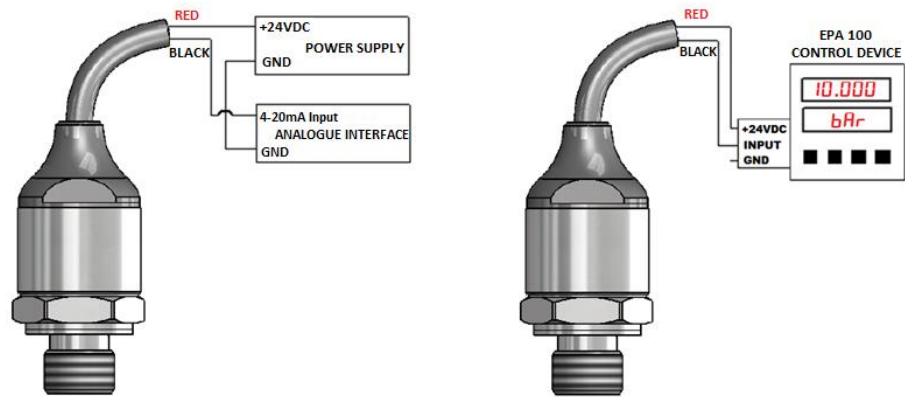
| 2 Wire 4-20mA Connection<br>Connector Pin No | Signal                          |
|----------------------------------------------|---------------------------------|
| <b>1</b>                                     | <b>4...20mA Analogue Output</b> |
| <b>2</b>                                     | <b>+8...32 VDC (Supply)</b>     |



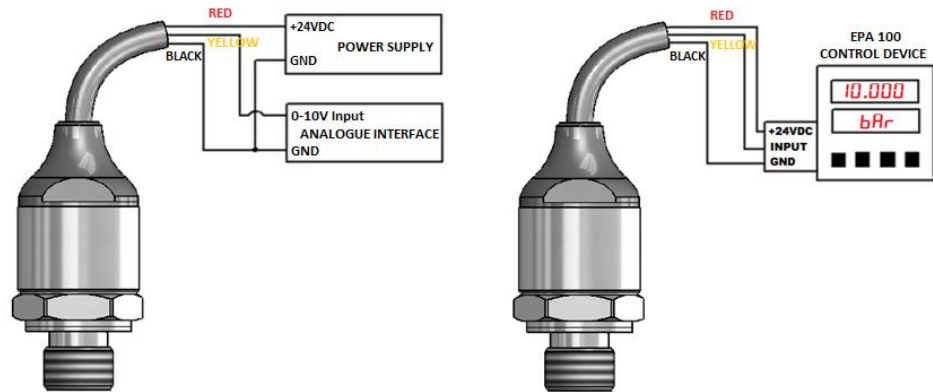
| 3 Wire 0-10VDC or 0-20 mA Connection<br>Connector Pin No | Signal                      |
|----------------------------------------------------------|-----------------------------|
| 1                                                        | GND                         |
| 2                                                        | +12...30 VDC (Supply)       |
| 3                                                        | 0...10VDC or 0-20 mA Output |



| 2 Wire 4-20mA Connection<br>Cable Color | Signal                   |
|-----------------------------------------|--------------------------|
| BLACK                                   | 4...20mA Analogue Output |
| RED                                     | +8...32 VDC (Supply)     |



| 3 Wire 0-10VDC Connection<br>Cable Color | Signal                |
|------------------------------------------|-----------------------|
| BLACK                                    | GND                   |
| RED                                      | +12...30 VDC (Supply) |
| YELLOW                                   | 0...10VDC Output      |



## Model

BCT 22 – 10Bar – A – G1/4 – S30 – -

## Output Signal

Voltage Output Product  
 V : 0-10VDC (standard)  
 V1 : 0-5VDC  
 V2 : 1-6VDC  
 V3 : 0,5-4,5VDC  
 V4 : 0,5-5,5VDC  
 V5 : 1-5VDC  
 V6 : 1-10VDC

Ratiometric Products  
 V8 : Ratiometric 0.5-4.5VDC  
 V9 : Ratiometric 0-5VDC

Current Output Products  
 A : 4-20mA (2-wire) (standard)  
 A0 : 0-20mA (3-wire)

CANopen Output Products  
 C: CANopen

\* Ask for other options.

## Electrical Connection

S12 : M12x1 4 pin connector  
 S13 : M12x1 5 pin connector (for CANopen output)  
 S15 : M12x1 4 pin (1 supply, 3 output)  
 S30 : DIN43650-A type large type connector  
 S31 : DIN43650-C type small type connector  
 S32 : Packard connector  
 S33 : Circular connector  
 2M : 2 meters cable

\*Only S30 connector can be selected for 0-20mA (A0) analog output. Other connector types or wired models cannot be selected.

\* Ask for other options.

## Pressure Range

0...-100mBar : Vacuum 0...-100mbar  
 -1...0Bar : Vacuum -1...0BAR  
 0...-1Bar : Vacuum (Reverse Calibration)

100mBar : 0...100mbar  
 250mBar : 0...250mbar  
 400mBar : 0...400mbar  
 600mBar : 0...600mbar

1Bar : 0...1BAR  
 10Bar : 0...10BAR  
 16Bar : 0...16BAR  
 25Bar : 0...25BAR  
 100Bar : 0...100BAR  
 160Bar : 0...160BAR  
 250Bar : 0...250BAR  
 400Bar : 0...400BAR  
 600Bar : 0...600BAR

\* Ask for other options.

## Process Connection

G1/4 : G1/4 Connection  
 G1/8 : G1/8 Connection  
 G1/2 : G1/2 Connection  
 NPT1/4 : NPT1/4 Connection  
 NPT1/8 : NPT1/8 Connection  
 NPT1/2 : NPT1/2 Connection  
 M14 : M14x1 Connection  
 M20x1.5 : M20x1.5 Connection  
 7/16M : UNF7/16x20M Connection  
 7/16F : UNF7/16x20F Connection

\* Ask for other options.

Body Material/  
Custom Coding

Empty : Stainless 303  
 E316 : Stainless 316L

\* Ask for other options.

**Note:** The products are standard in **relative** type. If **absolute** pressure is required, please specify this during the ordering process.

## Sample Code :

BCT 22 100mBar A G1/4 S30

Features: 0...100mbar working range, 4-20mA analogue output (2 wire connection), G1/4 connection, DIN43650-A connector, stainless 303 body

BCT 22 10Bar A G1/4 S30 E316

Features: 0...10BAR working range, 4-20mA analogue output (2 wire connection), G1/4 connection, DIN43650-A connector, stainless 316L body

## RECOMMENDED PRODUCTS

## BSS Series Pressure Transmitter Coolers

[Max. 300 °C](#)

## EPA Series Process Control Devices

[48x48mm model EPA 100](#)

[74x74mm model EPA 200](#)

[96x48mm model EPA 300](#)

