**Protection ratings and applications:**

**Intrinsically safe (all connector versions):**
- Class I Division 1 Group A, B, C, D T6 [C, US]
- Class I Zone 0 AEx ia IIC T6 [US]
- Ex ia IIC T6 [C]

**Intrinsically safe (connectors: 9, A, G only):**
- Class I, II, III Division 1 Group A, B, C, D, E, F, G T6 [C, US]

**Non incendive (all connector versions):**
- Class I Division 2 Group A, B, C, D, T4A [C, US]
- Class I Zone 2 AEx nL IIC T4 [US]
- Class I Zone 2 Ex nL IIC T4 [C]

**Non incendive (connectors: 9, G only):**
- Class I Zone 2 AEx nA II T4 [US]
- Class I Zone 2 Ex nA II T4 [C]

Certificate Nr.: CSA 1760344
Table of content

Table of content.......................................................................................................................................... 2
1. General Remarks.................................................................................................................................. 3
2. Function..................................................................................................................................................... 3
3. Installation and Commissioning ..................................................................................................... 3
4. Important mounting instructions for Conduit connection .................................................... 4
5. Safety instructions ........................................................................................................................... 5
6. General Safety Precautions............................................................................................................. 5
7. Technical Data ....................................................................................................................................... 6
   7.1 Ceramic sensor (Extract valid only for standard products).......................................................... 6
   7.2 Thin-film sensor (Extract valid only for standard products) ....................................................... 7
8. Model code to identify the delivered part..................................................................................... 8
   8.1 Model code HDA 4100 / HDA 4300 .......................................................................................... 8
   8.2 Model code HDA 4400 / HDA 4700 .......................................................................................... 9
   8.3 Evaluation table: Assignment of the protection classes and application areas............................ 10
   8.4 Serial Number .............................................................................................................................. 11
9. Dimensions............................................................................................................................................ 12
   9.1. Mechanical Connection: ................................................................................................................. 12
   9.2. Electrical Connection: .................................................................................................................... 13
10. Control drawing .................................................................................................................................. 14
11. Certificate............................................................................................................................................. 16
1. General Remarks

If you have any questions concerning to the technical specifications or suitability for particular applications, please contact Product Management Dept. The series HDA 4000 pressure transmitters are factory-calibrated and subjected to final testing on teststands employing proprietary software. If any malfunction is occurring, please contact the HYDAC Service Dept. Any tampering with the transmitter will cause all warranty claims to become null and void.

2. Function

The pressure signal measured by the sensor is proportionally converted into an analogue signal of 4 .. 20 mA.

3. Installation and Commissioning

The pressure transmitters can be mounted directly to the hydraulic system via the thread connection. In order to prevent mechanical damage when dealing with critical applications involving heavy vibrations or blows, for example, we recommend securing the unit with an elastomer clamp and decoupling the hydraulic ports via a Minimess hose. Tightening torque see dimensions.

The overall loop capacity and inductivity is the sum of all particular capacities and inductivities of pressure transmitter and cable (values of pressure transmitter: rf. chapter Technical Data).

The overall capacity as well as the overall inductivity (pressure transmitter + cable) for a respective safety zone must be checked.

Pressure transmitters with a rated pressure of $\leq 100$ bar ($\leq 1500$psi) provide breathing for pressure equalization with ambient pressure. This is enabled by a small hole underneath the plug. On the inside the connector is covered by a special membrane which prevents moisture from seeping into the unit from outside. In order to prevent the hole from becoming clogged, mounting should be done in horizontal position in moist or dusty environments, or vertically with the pressure port pointing downwards.

Connection is to be done from qualified personal in accordance with the pertinent regulations pertaining to potentially explosive environments.

The requirements of the standards (see technical data) cannot be satisfied unless the pressure transmitter housing is properly grounded. Potential equalization has to be provided for throughout the intrinsically safe circuit. When using hose mounting, the housing has to be grounded separately.

On installation, the enclosure of the equipment shall be connected to the ground of the associated IS apparatus. The General Safety Precautions (cf. section 5) are to be heeded in any event.

The fitting of sensors with a conduit connection may only be carried out utilising the tightening nut on the mechanical connection and not using the flats on the cable outlet.

Installation per Control Drawing No. 18-000-601-4-663126 (see chapter 9).
4. Important mounting instructions for Conduit connection

**Mechanical installation**

Do not use for screwing into the mechanical connection!

**Electrical installation**

Do not use for fixing the sensor during electrical conduit installation!
5. Safety instructions

When used simultaneously in zones 0 and 1, the measurement membrane of the pressure transmitters functions as an “isolating wall” between zone 0 and 1.
To achieve this, the mechanical connection of the sensor has to be fitted in the zone 0 and the electrical connection in the zone 1 area.

For HDA 41xx / 43xx thick film DMS on ceramic diaphragm
The thickness of this “isolating wall” is generally < 1 mm, and < 0.2 mm for rated pressures below 1 bar (15psi). This isolating function is to be ensured in any event by checking the compatibility of the media being measured and the materials used to make the pressure transmitter; the overload and bursting pressures are also to be adhered to (for details, see Technical data).

For HDA 44xx / 47xx thin film DMS on stainless diaphragm
The thickness of this “isolating wall” is generally < 1 mm, and < 0.2 mm for rated pressures below 100 bar (1500psi). This isolating function is to be ensured in any event by checking the compatibility of the media being measured and the materials used to make the pressure transmitter; the overload and bursting pressures are also to be adhered to (for details, see Technical data).

6. General Safety Precautions

The pressure transmitters may no longer be used when the label becomes illegible. Seals and gaskets are to be checked to see that they function properly prior to mounting and at regular intervals in keeping with the climatic conditions and the influence of the media, and to be changed as needed. This check is to be conducted at least every three years. Replacement seals and gaskets can be obtained from HYDAC ELECTRONIC GMBH. (Standard seal see technical data)

If there is damage to the unit, the plug connector or connecting lead, these components are to be replaced.
Compatibility with the following is to be checked in any event the media being measured and the materials used to make the pressure transmitter. The overload and bursting pressures are also to be adhered to (for details, see Technical data).

The internal measurement membrane of the pressure transmitter is to be protected against mechanical damage. This applies especially if the unit is used simultaneously in zones 0 and 1.

On installation, the enclosure of the equipment shall be connected to the ground of the associated IS apparatus.

The data pertaining to use in Hazardous Location is to be heeded in any event (cf Technical data). Substitution of components may impair intrinsic safety.

Operations in areas requiring Division 1 or Zone 0 equipment, are only permitted when operational and process related intensive electrostatic charges are eliminated.
7. Technical Data

### 7.1 Ceramic sensor (Extract valid only for standard products)

<table>
<thead>
<tr>
<th>Input data</th>
<th>HDA 4100 (absolute pressure)</th>
<th>HDA 4300 (relative pressure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring ranges bar</td>
<td>-1 ... 0</td>
<td>1</td>
</tr>
<tr>
<td>Overload ranges bar</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Burst pressures bar</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

| Measuring ranges psi | -15.75 | 1 | 3 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 100 | 120 | 150 | 200 |
| Overload ranges psi | 290 | 45 | 116 | 174 | 290 | 460 | 725 | 725 | 1160 | 1200 | 1500 | 2500 |
| Burst pressures psi | 430 | 73 | 174 | 260 | 430 | 690 | 1080 | 1080 | 1740 | 1600 | 2000 | 2400 | 4000 |

#### Mechanical connection
- see model code / dimensions

#### Parts in contact with media
- Sensor: Ceramic Al2O3
- Connector: 1.4571 (1.4462)
- Seal: FPM / EPDM

#### Output data
- Output signal: 4 .. 20 mA (2 wire)
- Curve deviation at max. setting to DIN 16086 (accuracy class), Max. ≤ ± 1.0 % FS, Typ. ≤ ± 0.5 % FS
- Curve deviation at min. setting (B.F.S.L.), Max. ≤ ± 0.5 % FS, Typ. ≤ ± 0.25 % FS
- Temperature compensation zero point, Max. ≤ ± 0.03 % FS/°C, Typ. ≤ ± 0.02 % FS/°C
- Temperature compensation over range, Max. ≤ ± 0.03 % FS/°C, Typ. ≤ ± 0.02 % FS/°C
- Non-linearity at max. setting to DIN 16086, Max. ≤ ± 0.5 % FS
- Hysteresis, Max. ≤ ± 0.25 % FS
- Repeatability ≤ ± 0.1 % FS
- Rise time ≤ 2 ms
- Long time stability, Typ. ≤ ± 0.3 % FS / year

#### Ambient conditions
- Type of protection intrinsically safe
  - Nominal temperature range, -20 .. + 60 °C [-4 .. +140 °F]
  - Operating temperature range, -20 .. + 60 °C [-4 .. +140 °F]
  - Storage temperature range, -40 .. +100 °C [-40 .. +212 °F]
- Type of protection enclosures against dust non incendive
  - Nominal temperature range, -20 .. + 85 °C [-4 .. +185 °F]
  - Operating temperature range, -20 .. + 85 °C [-4 .. +185 °F]
  - Storage temperature range, -40 .. +100 °C [-40 .. +212 °F]

#### Relevant data for Ex-application
- Supply voltage 12 .. 28 V
- Maximum supply current 100 mA
- Maximum supply power up to 28 V: 1 W
- Capacity of transmitter ≤ 22 nF
- Inductance of transmitter 0 H
- Electric strenght against enclosure See model code

#### Other data
- Reverse polarity protection of the supply voltage, excess voltage and short circuit available
- Residual ripple supply voltage ≤ 5 %
- Life expectancy > 10 million cycles (0 .. 100 % FS)
- weight approx. 150 g

**Notes:** FS (Full Scale) = relative to the full measuring range / B.F.S.L. = Best Fit Straight Line
7.2 Thin-film sensor (Extract valid only for standard products)

<table>
<thead>
<tr>
<th>Input data</th>
<th>HDA 4400</th>
<th>HDA 4700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring ranges</td>
<td>bar</td>
<td>16</td>
</tr>
<tr>
<td>Overload ranges</td>
<td>bar</td>
<td>20</td>
</tr>
<tr>
<td>Burst pressures</td>
<td>psi</td>
<td>500</td>
</tr>
<tr>
<td>Measuring ranges</td>
<td>psi</td>
<td>200</td>
</tr>
<tr>
<td>Overload ranges</td>
<td>psi</td>
<td>7250</td>
</tr>
<tr>
<td>Burst pressures</td>
<td>psi</td>
<td>14500</td>
</tr>
</tbody>
</table>

- Mechanical connection: see model code / dimensions
- Torque rating: see dimensions
- Parts in contact with media:
  - Sensor: Stainless steel 1.4542
  - Connector: < 40bar: 1.4542; 316L
  - ≥ 40bar: 316L; 1.4435; 1.4571; 1.4404
  - Seal: FPM

Output data

<table>
<thead>
<tr>
<th>Output data</th>
<th>4...20 mA (2 wire)</th>
<th>4...20 mA (2 wire)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curve deviation at max. setting to DIN 16086 (accuracy class)</td>
<td>Max. ≤ ± 1.0% FS</td>
<td>≤ ± 0.5% FS</td>
</tr>
<tr>
<td></td>
<td>Typ. ≤ ± 0.5% FS</td>
<td>≤ ± 0.25% FS</td>
</tr>
<tr>
<td>Curve deviation at min. setting (B.F.S.L.)</td>
<td>Max. ≤ ± 0.5% FS</td>
<td>≤ ± 0.25% FS</td>
</tr>
<tr>
<td></td>
<td>Typ. ≤ ± 0.25% FS</td>
<td>≤ ± 0.15% FS</td>
</tr>
<tr>
<td>Temperature compensation zero point</td>
<td>Max. ≤ ± 0.025% FS °C</td>
<td>≤ ± 0.015% FS °C</td>
</tr>
<tr>
<td></td>
<td>Typ. ≤ ± 0.015% FS °C</td>
<td>≤ ± 0.008% FS °C</td>
</tr>
<tr>
<td>Temperature compensation over range</td>
<td>Max. ≤ ± 0.025% FS °C</td>
<td>≤ ± 0.015% FS °C</td>
</tr>
<tr>
<td></td>
<td>Typ. ≤ ± 0.015% FS °C</td>
<td>≤ ± 0.008% FS °C</td>
</tr>
<tr>
<td>Non-linearity at max. setting to DIN 16086</td>
<td>Max. ≤ ± 0.3% FS</td>
<td>≤ ± 0.3% FS</td>
</tr>
<tr>
<td></td>
<td>Typ. ≤ ± 0.2% FS</td>
<td>≤ ± 0.1% FS</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>Max. ≤ ± 0.4% FS</td>
<td>≤ ± 0.1% FS</td>
</tr>
<tr>
<td></td>
<td>Typ. ≤ ± 0.25% FS</td>
<td>≤ ± 0.05% FS</td>
</tr>
<tr>
<td>Repeatability</td>
<td>≤ ± 0.1% FS</td>
<td>≤ ± 0.05% FS</td>
</tr>
<tr>
<td>Rise time</td>
<td>≤ 2 ms</td>
<td>≤ 2 ms</td>
</tr>
<tr>
<td>Long time stability</td>
<td>Typ. ≤ ± 0.3% FS / year</td>
<td>≤ ± 0.1% FS / year</td>
</tr>
</tbody>
</table>

Ambient conditions

- Type of protection intrinsically safe
  - Nominal temperature range, -20. . .. 60 °C [-4 .. +140 °F]
  - Operating temperature range, -20. . .. 60 °C [-4 .. +140 °F]
  - Storage temperature range, -40. . .. +100 °C [-40 .. +212 °F]

- Type of protection enclosures against dust non incendive
  - Nominal temperature range, -20. . .. 85 °C [-4 .. +185 °F]
  - Operating temperature range, -20. . .. 85 °C [-4 .. +185 °F]
  - Storage temperature range, -40. . .. +100 °C [-40 .. +212 °F]

Safety type to DIN 40050 / NEMA (Depending on connector version)
- Min. IP 65 / Min. NEMA 4

Certificate Nr.: CSA 1760344

Vibration resistance to IEC 68-2-6 at 10..500Hz
- ≤ 20 g (196.2 m/s²)

Safety type to DIN 40050 / NEMA (Depending on connector version)
- Min. IP 65 / Min. NEMA 4

Relevant data for Ex-application

<table>
<thead>
<tr>
<th>Relevant data</th>
<th>12 .. 28 V</th>
<th>12 .. 28 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage</td>
<td>100 mA</td>
<td>100 mA</td>
</tr>
<tr>
<td>Maximum supply current</td>
<td>up to 28 V; 1 W</td>
<td>up to 28 V; 1 W</td>
</tr>
<tr>
<td>Maximum supply power</td>
<td>≤ 22 nF</td>
<td>≤ 22 nF</td>
</tr>
<tr>
<td>Inductance of transistor</td>
<td>0 H</td>
<td>0 H</td>
</tr>
<tr>
<td>Electric strenght against enclosure</td>
<td>See model code</td>
<td>See model code</td>
</tr>
</tbody>
</table>

Other data

<table>
<thead>
<tr>
<th>Other data</th>
<th>available</th>
<th>available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse polarity protection of the supply voltage, excess voltage and short circuit</td>
<td>available</td>
<td>available</td>
</tr>
<tr>
<td>Residual ripple supply voltage</td>
<td>≤ 5 %</td>
<td>≤ 5 %</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>&gt; 10 million cycles (0 .. 100 % FS)</td>
<td>&gt; 10 million cycles (0 .. 100 % FS)</td>
</tr>
<tr>
<td>weight</td>
<td>approx. 150 g</td>
<td>approx. 150 g</td>
</tr>
</tbody>
</table>

Notes: FS (Full Scale) = relative to the full measuring range / B.F.S.L. = Best Fit Straight Line

Status: 2009/10/22
8. Model code to identify the delivered part

8.1 Model code HDA 4100 / HDA 4300

HDA 4 X X X - A - XXXXX - C X X - XXX - F1 (psi) XX inch

Accuracy
1 = 1% FS max., ceramic, absolute
3 = 1% FS max., ceramic, relative

Mechanical Connection
4 = G 1/4 A DIN 3852, male
5 = 7/16-20 UNF 2B (SAE 4), female
6 = 7/16-20 UNF 2A (SAE 4), male
7 = 9/16-18 UNF 2A (SAE 6), male
8 = 1/4-18 NPT, male
C = SF250CX, Autoclave (7/16-20 UNF 2B), female
F = 1/4-18 NPT, female

Electrical Connection
4 = Appliance plug, Binder series 714 M18, 4 pole
5 = Appliance plug, DIN 43650, 3 pole + PE
6 = Appliance plug, M12 x 1, 4 pole
9 = Conduit connection (1/2-14 NPT male)
A = Appliance plug DIN 43650, 3 pole + PE, 1/2" Conduit female
G = Conduit connection (1/2-14 NPT male), flying leads

Signal
A = 4 .. 20 mA

Measuring Ranges
Measuring ranges are shown in bar or psi (in case of psi see additional psi declaration in model code)

Approval
C = (Details please see description of approvals)

Isolation voltage
H = 500 V AC to housing
N = 125 V AC to housing

Types of protection and application areas (see table item 7.3)
A = group 1
B = group 2 and 3
C = group 4
L = group 1, 2, 3 and 4 (only in combination with longer housing and male conduit)

Modification Number
000 = Standard
(other number used e.g. for: version with long housing, snubber, pin-wiring, connector on flying leads)

Sealing material (in contact with media)
F = FPM-seal (e.g. for hydraulic fluid)
E = EPDM-seal (e.g. for refrigerant fluid)

Material, mech. Connection, housing (in contact with media)
1 = Stainless steel

Additional declaration for psi version (escaped for bar version)

Cable length (e.g. for Conduit connection or flying leads)
Shown in cm or inch
8.2 Model code HDA 4400 / HDA 4700

Accuracy
4 = 1% FS max., thin film
7 = 0.5% FS max., thin film

Mechanical Connection
4 = G 1/4 A DIN 3852, male
5 = 7/16-20 UNF 2B (SAE 4), female
6 = 7/16-20 UNF 2A (SAE 4), male
7 = 9/16-18 UNF 2A (SAE 6), male
8 = 1/4-18 NPT, male
C = SF250CX, Autoclave (7/16-20 UNF 2B), female
F = 1/4-18 NPT, female

Electrical Connection
4 = Appliance plug, Binder series 714 M18, 4 pole
5 = Appliance plug, DIN 43650, 3 pole + PE
6 = Appliance plug, M12 x 1, 4 pole
9 = Conduit connection (1/2-14 NPT male)
A = Appliance plug DIN 43650, 3 pole + PE, 1/2" Conduit female
G = Conduit connection (1/2-14 NPT male), flying leads

Signal
A = 4..20 mA

Measuring Ranges
Measuring ranges are shown in bar or psi (in case of psi see additional psi declaration in model code)

Approval
C = (Details please see description of approvals)

Isolation voltage
H = 500 V AC to housing
N = 125 V AC to housing

Types of protection and application areas (see table item 7.3)
A = group 1
B = group 2 and 3
C = group 4
L = group 1, 2, 3 and 4 (only in combination with longer housing and male conduit)

Modification Number
000 = Standard
(other number used e.g. for: version with long housing, snubber, pin-wiring, connector on flying leads)

Additional declaration for psi version (escaped for bar version)

Cable length (e.g. for Conduit connection or flying leads)
Shown in cm or inch
### 8.3 Evaluation table: Assignment of the protection classes and application areas

<table>
<thead>
<tr>
<th>Group</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection class</td>
<td>Intrinsically safe</td>
<td>Intrinsically safe</td>
<td>Non incendive with field wiring</td>
<td>Non incendive</td>
</tr>
<tr>
<td>Use in gases and dusts</td>
<td>Use in gases</td>
<td>Use in gases</td>
<td>Use in gases</td>
<td>Use in gases and dusts</td>
</tr>
</tbody>
</table>

| Certificate number | 1760344 |

<table>
<thead>
<tr>
<th>Application</th>
<th>Intrinsically safe</th>
<th>Intrinsically safe</th>
<th>Non incendive</th>
<th>Non incendive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class I, II, III</td>
<td>Ex ia IIC T6</td>
<td>Class I</td>
<td>Class I, II, III</td>
</tr>
<tr>
<td></td>
<td>Division 1</td>
<td></td>
<td>Division 2</td>
<td>Division 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of explosion protection; Category; Use in Zone</th>
<th>Electrical connection (see model code)</th>
<th>Model code - characteristic</th>
<th>Electrical connection (see model code)</th>
<th>Model code - characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsically safe</td>
<td>9; A; G</td>
<td>A</td>
<td>9; A; G</td>
<td>L</td>
</tr>
<tr>
<td>Class I, II, III</td>
<td></td>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Division 1</td>
<td></td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group A, B, C, D, E, F, G T6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non incendive with field wiring</td>
<td>4; 5; 6; 9; A; G</td>
<td></td>
<td>9; G</td>
<td></td>
</tr>
<tr>
<td>Use in gases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non incendive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group A, B, C, D, F, G, T4A</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ex nL IIC T4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class I Zone 2</td>
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<tr>
<td>AEx nL IIC T4</td>
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<tr>
<td>Class I Zone 2</td>
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<td></td>
</tr>
<tr>
<td>AEx nA II T4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group A, B, C, D, F, G, T4A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ex nA II T4</td>
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<td></td>
</tr>
<tr>
<td>Class I Zone 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AEx nA II T4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8.4 Serial Number

The serial number includes the calendar week and year of manufacture of the unit, adjacent to the sequential serial number.

Configuration of serial number: \( xyykzzzzz \)

- **XX**: Manufacturing date  
  e.g.: 05 → 2005
- **yy**: Calendar week  
  e.g.: 33
- **k**: Change control status  
  e.g.: A
- **zzzzzz**: Sequential serial number  
  e.g.: 000001
9. Dimensions

9.1. Mechanical Connection:

7/16-20 UNF 2 (SAE 4), female
Torque rating: 15 Nm

7/16-20 UNF 2A (SAE 4), male
Torque rating: 15 Nm

9/16-18 UNF 2A (SAE 6), female
Torque rating: 20 Nm

SF250CX, Autoclave (7/16-20 UNF 2B), female
Torque rating: 15 Nm

1/4-18 NPT, male
Torque rating: max. 40 Nm

1/4-18 NPT, female
Torque rating: max. 40 Nm
9.2. Electrical Connection:

Appliance plug
Binder series 714 M18, 4 pole

Appliance plug
DIN 43650, 3 pole + PE

Appliance plug
M12x1, 4 pole

Conduit connection
1/2-14 NPT male

Appliance plug
DIN 43650, 3 pole + PE, 1/2" Conduit female

Conduit connection
1/2-14 NPT male, flying leads
10. Control drawing

Installation of the apparatus in accordance with the Canadian Electrical Code respectively with the National Electrical Code.

HDA 4000 for hazardous locations

HYDAC ELECTRONIC GMBH
Mat. No.: 669717

10. Control drawing

For electrical connection of intrinsically safe transmitters it is essential to use an approved barrier or power supply in class I Zone 0 hazardous areas. Generally, any installation, operation, maintenance or service in hazardous areas is allowed only by authorized personnel and must follow safety directives and regulations.

Warning: Substitution of components may impair intrinsic safety.

HYDAC ELECTRONIC GMBH
Mat. No.: 669717
11. Certificate

Certificate of Compliance

Certificate: 1760344
Project: 1951662
Issued to: Hydac Electronic GmbH
Hauptstrasse 27
D-66128 Saarbruecken
GERMANY
Attention: Mr A. Eitel

Master Contract: 224264
Date Issued: September 10, 2007

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US'

Issued by: E. Giusti
Authorized by: M. Hoendervangers

PRODUCTS

CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations

Class I, II, III, Division 1, Group A, B, C, D, E, F, G T6

- Pressure Transducer, series HDA 4ab9-A-d-Cef-g-h1 i j, HDA 4abA-A-d-Cef-g-h1 i j and HDA 4abG-A-d-Cef-g-h1 i j;

Class I, Division 1, Group A, B, C, D T6

Ex ia IIC T6

- Pressure Transducer, series HDA 4abc-A-d-Cef-g-h1 i j;

input rated 12 ... 28 Vdc, 4 - 20 mA; with entity parameters: U_{i} (V_{max}) = 28 V, I_{i} (I_{max}) = 100 mA, Pi = 1 W, Ci = 22 nF, Li = 0 mH; intrinsically safe when connected in accordance with Installation Drawing No. 18-00-601-4-66 3126, sheet 1.

Maximum ambient temperature of +60 °C.

The 'C' and 'US' indicators adjacent to the CSA Mark signify that the product has been evaluated to the applicable CSA and ANSI/UL Standards, for use in Canada and the U.S., respectively. This 'US' indicator includes products eligible to bear the 'NRTL' indicator. NRTL, i.e. National Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards.

D00-507 Rev. 2004-06-30
CLASS 2258-84 PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations - Certified to US Standards

Class I, II, III, Division 1, Group A, B, C, D, E, F, G T6
- Pressure Transducer, series HDA 4ab9-A-d-Cef-g-h1 i j, HDA 4abA-A-d-Cef-g-h1 i j and HDA 4bgG-A-d-Cef-g-h1 i j;

Class I, Division 1, Group A, B, C, D T6
Class I, Zone 0, Ex ia IIC T6
- Pressure Transducer, series HDA 4abc-A-d-Cef-g-h1 i j;
input rated 12...28 Vdc, 4 - 20 mA; with entity parameters: Ul (Vmax) = 28 V, li (Imax) = 100 mA, Pi = 1 W, Ci = 22 nF, Li = 0 mH; intrinsically safe when connected in accordance with Installation Drawing No. 18-00-601-4-66 3126, sheet 1.
Maximum ambient temperature of +60 °C.

CLASS 2258-02 PROCESS CONTROL EQUIPMENT - For Hazardous Locations

Class I, II, III, Div. 2, Groups A, B, C, D, F, G T4A
Class I, Zone 2, Ex nA II T4
- Pressure Transducer, series HDA 4ab9-A-d-Cef-g-h1 i j and HDA 4abG-A-d-Cef-g-h1 i j;
input rated 12...28 Vdc.
Degree of Protection provided by the enclosure: IP6x
Maximum ambient temperature of +85 °C.

Class I, Division 2, Group A, B, C, D T4A
Class I, Zone 2, Ex nL IIC T4
- Pressure Transducer, series HDA 4abc-A-d-Cef-g-h1 i j;
input rated 12...28 Vdc, Ci = 12 nF, Li = 0 mH, non-incendive when connected in accordance with Installation Drawing No. 18-00-601-4-66 3126, sheet 2.
Degree of Protection provided by the enclosure: IP6x
Maximum ambient temperature of +85 °C.

CLASS 2258-82 PROCESS CONTROL EQUIPMENT - For Hazardous Locations - Certified to US Standards

Class I, II, III, Div. 2, Groups A, B, C, D, F, G T4A
Class I, Zone 2, AEx nA II T4
- Pressure Transducer, series HDA 4ab9-A-d-Cef-g-h1 i j and HDA 4abG-A-d-Cef-g-h1 i j;
input rated 12...28 Vdc.
Degree of Protection provided by the enclosure: IP6x
Maximum ambient temperature of +85 °C.
Class I, Division 2, Group A, B, C, D T4A
Class I, Zone 2, AEx nL IIC T4

- Pressure Transducer, series HDA 4abc-A-d-Cef-g-h1 i j;
input rated 12 ... 28 Vdc, C1 = 12 nF, L1 = 0 mH, non-incendive when connected in accordance with Installation
Drawing No. 18-00-601-4-66 3126, sheet 2.
Degree of Protection provided by the enclosure: IP6x
Maximum ambient temperature of +85 °C.

Type Codes for Pressure Transducers series HDA 4abc-A-d-Cef-g-h1 i j:

a = measurement accuracy (1, 3, 4 or 7)
b = mechanical connection (process) (1, 2, 3, 4, 5, 6, 7, 8, 9, A, C, E, F, G, H, K, L, M ... Z)
c = electrical connection 1, C, D, E = fixed cable, flying leads
2 ... 8, F = several types of connectors
9, G = 1/2" NPT conduit connection (male)
A = connector with 1/2" NPT female adapter
H ... Z = free for future use
d = measuring range (5 digits, bar or PSI) up to 1000 bar max. (10000 psi max.)
e = isolation variants H = 500 Vac isolation from enclosure
N = 125 Vac isolation from enclosure (functional only)
f = Approval variants A, B, C, L
g = indication for modifications (3 digits); 000 for standard version
h = sealing material F = FPP sealing *)
E = EPDM sealing *)
i = stainless steel medium connection *)
j = length of cable, if applicable, in cm or inch as indicated

*) only applicable for models with a = 1 or 3
APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No. 0-M91  General Requirements - Canadian Electrical Code, Part II
C22.2 No. 1010-1-2004  Safety requirements for Electrical Equipment for Measurement, Control and Laboratory Use - Part 1: General Requirements
UL 61010-1  Safety requirements for Electrical Equipment for Measurement, Control and Laboratory Use - Part 1: General Requirements
CAN/CSA-C22.2 No. 25 -1966  Enclosures for Use in Class II Groups E, F, and G Hazardous Locations
C22.2 No. 30-M1986  Explosion-Proof Enclosures for Use in Class I Hazardous Locations
CAN/CSA-C22.2 No. 157-92  Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations
CAN/CSA-C22.2 No. 213-M1987  Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations
ANSI/UL Standard 508  Electric Industrial Control Equipment
ANSI/UL Standard 913  Intrinsically Safe Apparatus and Associated Apparatus For Use in Class I, II and III, Div. 1 Hazardous (Classified) Locations
UL Standard 1604  Electrical Equipment for Use in Class I and Class II, Division 2, and Class III Hazardous (Classified) Locations
CAN/CSA-E60079-0-02/U  Electrical Apparatus for Explosive Gas Atmospheres - Part 0: General Requirements
UL 60079-0
CAN/CSA-E60079-11-02/U  Electrical Apparatus for Explosive Gas Atmospheres - Part 11: Intrinsic Safety "i"
UL 60079-11
CAN/CSA-E60079-15-02/U  Electrical Apparatus for Explosive Gas Atmospheres - Part 15: Type of Protection "n"
UL 60079-15

Note: C22.2 No. 30 was used as a guide and is included solely to allow direct process connection.
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HYDAC SERVICE
If you have any questions concerning repairwork, please don’t hesitate to contact HYDAC SERVICE:

HYDAC SERVICE GMBH
Hauptstr. 27
D-66128 Saarbrücken
Germany

Tel.: +49-(0)6897-509-1936
Fax: +49-(0)6897-509-1933

Notice
The information and particulars provided in this manual apply to the operating conditions and applications described herein. In the event of deviating applications and/or operating conditions, please contact the respective HYDAC department concerned.

If you have any questions, suggestions, or encounter any problems of a technical nature, please contact your HYDAC representative.

All technical details are subject to change without notice.