Smart temperature transmitter
type APT-2000ALW

- 4…20 mA output signal + HART protocol
- Programmable range, zero shift, characteristic and damping ratio with local panel keys
- ATEX Intrinsic safety, ATEX Explosion proof
- Resistant or thermocouple measuring element
- Accuracy 0.075%

Version
APT-2000ALW/GB
version with spring loaded sensor to screwing in thermowell.
- standard version
- Exia version
- Exd version
- MID version

APT-2000ALW/GN
version with spring loaded sensor to screwing in thermowell.
- standard version
- Exia version
- Exd version

APT-2000ALW/WW
- version with replaceable measuring sensor.

APT-2000ALW/WW
- version suitable for mounting cable sensor.
Technical data

Metrological parameters

Error (digital value)

\[ \pm (0.05 + 0.05\% z + 0.001 |t|) °C \] for sensor Pt100

\[ \pm (0.5 + 0.05\% z) °C \] for sensor K

\[ \pm (0.5 + 0.05\% z + 0.002 (t - 375)) °C \] for sensor K

where:

\(|t|\) – absolute value of the measured temperature °C

t – value of the measured temperature °C

z – transmitter setting range °C

Additional error for analog output \( \pm 0.04\% z \)

Measuring range

<table>
<thead>
<tr>
<th>Sensor type</th>
<th>Min set range</th>
<th>Nominal range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pt100</td>
<td>10°C</td>
<td>-200...550°C</td>
</tr>
<tr>
<td>K</td>
<td>10°C</td>
<td>-40...550°C</td>
</tr>
</tbody>
</table>

Electrical parameters

Power supply 12...55 V DC (Ex 13.5...28 V)

Additional voltage drop when display illumination switched on 3 V

Output signal 4...20 mA + Hart protocol

AT EX certificate

Ex ia

Ex d

Ambient temperature

for version with Ex ia -40...85°C

for version with Ex d -40...80°C

Min. immersion length \( L=100\) mm

Materials

Casing Aluminium, 316Lss - special version

Sensor material 321ss

Thermowell according to table

Communication and configuration

The communication standard for data interchange with the transmitter is the Hart protocol.

Communication with the transmitter is carried out with:

- a KAP-03, KAP-03Ex communicator,
- some other Hart type communicators,
- a PC using an Hart/RS/Bluetooth converter and Raport 2 configuration software.

The data interchange with the transmitter enables the users to:

- identify the transmitter;
- configure the output parameters;
- read the currently measured temperature value of the output current and the percentage output control level;
- force an output current with a set value;
- calibrate the transmitter in relation to a model temperature.

Standard thermowell data

<table>
<thead>
<tr>
<th>Thermowell type</th>
<th>Standard dimensions of thermowell</th>
<th>Thermowell material</th>
<th>Available process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø[mm]</td>
<td>L[mm]</td>
<td>l[mm]</td>
<td></td>
</tr>
<tr>
<td>OG2.9</td>
<td>9x1</td>
<td>100, 160, 250, 400</td>
<td>-</td>
</tr>
<tr>
<td>OG2.11</td>
<td>11x2</td>
<td>100, 160, 250, 400</td>
<td>-</td>
</tr>
<tr>
<td>T1</td>
<td>11x2</td>
<td>100, 160, 250, 400</td>
<td>-</td>
</tr>
<tr>
<td>SW1/SW2</td>
<td>18x7/24x7</td>
<td>140, 200</td>
<td>65, 65</td>
</tr>
<tr>
<td>SW1T/SW2T</td>
<td>18x7/24x7</td>
<td>100, 140, 200</td>
<td>35, 65, 65</td>
</tr>
</tbody>
</table>
Example: Temperature transmitter APT-2000ALW thermowell type T1, ATEX version Ex ia, immersion length 250 mm, flange DN50 PN40, K type sensor, set range 0 - 300°C, alarm signal 23 mA

APT-2000ALW/ Ex ia/GN/T1/DN50/L=250 mm / DN50 PN40 / K / 0 ÷ 300°C / 23 mA

Smart Temperature Transmitter APT-2000ALW MID

Application

Smart temperature transmitters APT-2000ALW MID is applicable to the measurement of the temperature in applications designed according to directive 2004/22/WE (MID), harmonized norm PN-EN 12405-1:2005/pr A2:2009 and recommendation OIML R140:2007. Device subcomponent suitable for custody transfer measurement of gas with MID approval.

Application

Mechanical construction and installation of the transmitter enclosure shall comply with the transmitter APT-2000ALW are described on page IX/2, IX/3 of catalogue. Temperature transmitters APT-2000ALW MID. Transmitter due to factory blockade of transmitter configuration can not be configurable by user. Electrical connection of the transmitter is according to a drawing on page IX/3. Available are only terminals SIGNAL + and SIGNAL -. Temperature transmitter APT-2000ALW MID are produce with GB type of sensor and with resistant sensor Pt100. Note! For custody transfer applications, the cover clamp screws have to be locked with seal wire.

Metrological parameters

Max. permissible error according to EN12405-1 (calculated in relation to the measured value)
- in reference conditions
  20±3°C(±1 during the measurement) ≤ 0.1% 
- nominal operating conditions ≤ 0.2% 
  special version ≤ 0.1% 

Long-term stability < 0.2% / 5 years

Operating temperature range -25...55°C

Measuring range

-20...60°C

Ordering procedure

SMART TEMPERATURE TRANSMITTER APT-2000ALW MID

Ordering procedure

APT-2000ALW/___/___/___/___/ L = ..... mm / ___/___ ÷ ___°C/___

Special version:
Ex ia - ATEX certificate
Ex d - ATEX certificate
SS - Housing material 316SS
IP67

Version: GB, GN, WW, NC

Thermowell type: according to table

Type of thread of flange connection:
M20x1,5; G1/2**; M27x2; G1" or flange

Immersion length

Type of measuring element: Pt100, K

Set measuring range

Alarm signal: 3,8 or 23 mA