



WURM

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Product information

DAR 120


Pressure sensor in stainless steel design



Features

- Records pressures in liquid and gaseous refrigerants in refrigerating plants
- Converts pressure into a standard electrical signal 4...20mA
- Version 0...120bar = 4...20mA
- Compact design with integrated signal amplifier
- Polarity-safe, plug-in connection by two-wire fabricated cable (3.5m) with M12 connector
- Fully welded, metal measurement cell with excellent overload protection
- No mechanical ageing, high temperature resistance
- Compatible with all standard refrigerants, incl. propane/R290 ($\text{CH}_3\text{CH}_2\text{CH}_3$), ammonia/R717 (NH_3) and carbon dioxide/R744 (CO_2)
- Standard thread for refrigeration technology

Writing conventions

| Symbol | Meaning |
|---|---|
|  WARNING! | Avoid the described hazard: Otherwise death or serious bodily injury can result. |

For your safety

For safe operation and to avoid personal injury and equipment damage through operating error, always read these instructions, become familiar with the device, and follow all safety instructions on the product and in this document, as well as the safety guidelines of Wurm GmbH & Co. KG Elektronische Systeme. Keep these instructions ready to hand for quick reference and pass them on with the device if the product is sold.

Wurm GmbH & Co. KG Elektronische Systeme accepts no liability in case of improper use or use for other than the intended purpose.

| | |
|---------------------|---|
| Target group | These instructions are intended for refrigerating plant construction technicians. |
| Intended use | The DAR 120 is a pressure sensor for recording pressures in liquid and gaseous refrigerants in refrigeration equipment. |


WARNING!
Danger of bodily injuries and property damage!

- In the case of hazardous refrigerants, such as oxygen, acetylene, combustible or poisonous materials, and for refrigeration equipment, compressors etc., the relevant regulations must be observed in addition to all general rules. Residue of measurement media in dismantled pressure gauges can result in hazards to people, equipment and the environment. Adequate ventilation must be ensured. Protective gloves and eye protection must be worn.
- Do not exceed the overload limit of the corresponding measurement range or pressure sensor! Otherwise, bursting of the pressure sensor can result!
- Do not open the device!
- Do not repair the device yourself! If required, send it in for repair with an exact description of the fault!
- Any operation other than that described is improper and therefore must be prevented.

Validity of the documentation

| Date | Documentation status |
|---------|----------------------|
| 2018-01 | |

This document automatically ceases to be valid if a new technical description is issued.

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For further information, see our website at www.wurm.de

**Installation**

| | |
|--|---|
| | <p>WARNING! Danger of bodily injuries and property damage!</p> <ul style="list-style-type: none"> ▪ When installing or removing the pressure sensor, make sure that the line is free of pressure. ▪ Take the device out of operation if it is faulty or damaged (such as visible damage to the device) and therefore endangers safe operation. |
|--|---|

| | |
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| | <p>Notes!</p> <ul style="list-style-type: none"> ▪ Select the right pressure gauge with regard to measurement range, design and specific measurement conditions before installing or placing into operation. ▪ Installation requires a 24-cm combination wrench, which should be used with a maximum force of 20Nm. |
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The pressure sensors are connected via the standard thread to the cooling circulation.

To avoid condensation on the housing and thus the possible penetration of moisture inside the sensor, care must be taken that the pressure sensor housing always has a temperature above the current dew point.

The thermal influence on the pressure transmitter via the pipelines must be kept as low as possible.

It is therefore not permitted, for example, to install the pressure sensor directly in suction collecting lines or other lines with large pipe cross sections. The connection should always be made via a non-insulated pipeline with a minimum internal diameter of 4mm and a minimum length of 200mm.

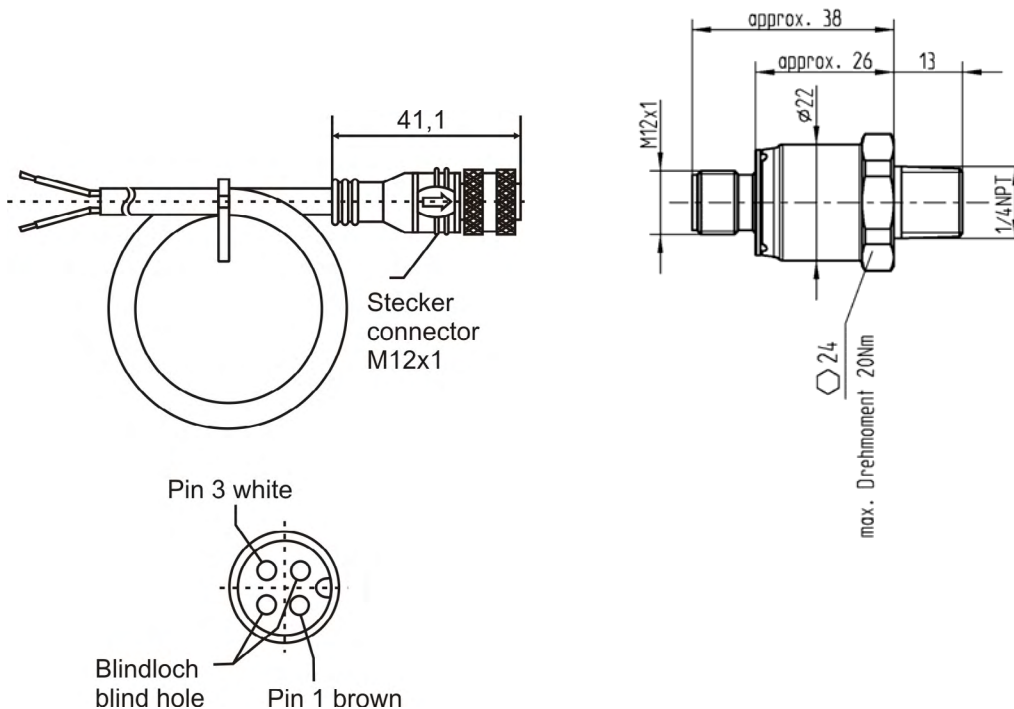
The electrical cable connection is made via a prefabricated cable with a standardised M12 plug DIN EN 175301-803.

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| | <p>Note!</p> <ul style="list-style-type: none"> ▪ Damage to the cable insulation can result in leaking and thus water penetration and false measurement results. |
|--|--|

Characteristics curves

| | | | | | | | | | | |
|---------|---------|------|------|-------|-------|-------|-------|-------|-------|-------|
| Current | I / mA | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| DAR 120 | p / bar | 0.00 | 7.50 | 15.00 | 22.50 | 30.00 | 37.50 | 45.00 | 52.50 | 60.00 |

| | | | | | | | | | | |
|---------|---------|-------|-------|-------|-------|-------|--------|--------|--------|--|
| Current | I / mA | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
| DAR 120 | p / bar | 67.50 | 75.00 | 82.50 | 90.00 | 97.50 | 105.00 | 112.50 | 120.00 | |

Dimensions

Technical data

| | |
|---|---|
| Power supply | 7...30V= |
| Electrical connection via prefabricated connection cable (3.5m) and M12 plug DIN EN 175301-803 | Pin 1: brown (BW) power supply (7...30V=) PIN 3: white (WH) measurement signal (4...20mA) |
| Output | 4...20mA two-wire, reverse-polarity-proof (load-independent current in power supply) |
| Media temperature | -40...+100°C |
| Ambient temperature | -30...+85°C |
| Measurement range | 0...120bar |
| Overload limit | 320bar |
| Accuracy | 25°C → ±0.8%, 0°C → ±1.0%, -20°C → ±1.2%, Sum of linearity, hysteresis and reproducibility |
| Degree of protection | IP67 (in assembled condition) |
| Weight | About 100g |
| Diameter | 26mm |
| Height | 100mm (with plug) |
| Threads | 1/4" NPT, length 13mm |
| CE conformity | – 2014/30/EU (EMC Directive) CE |
| EAC conformity | – TR CU 020/2011 EAC |


Note!

- Please also observe the technical documentation of the measurement or control electronics used.