

Special Documentation

Remote display and operating module DKX001

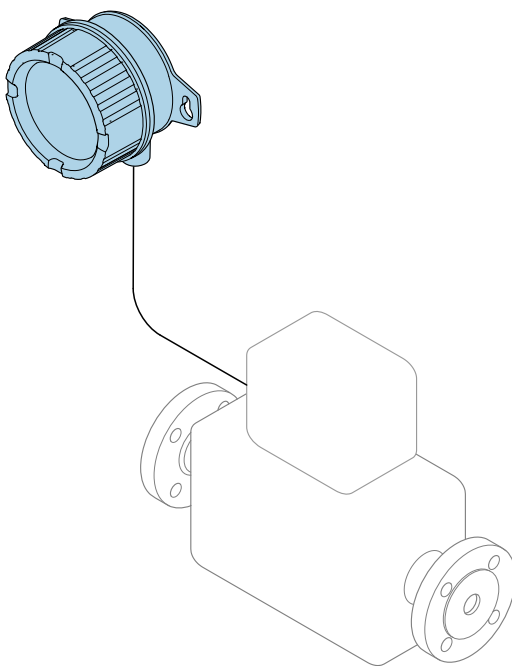


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1 Document information

1.1 Document function


This manual constitutes Special Documentation. It describes the installation of the remote display and operating module DKX001 (device).

NOTICE

During installation:





- Follow the Operating Instructions for the measuring device (e.g. Promass F 300).







For applications in hazardous areas, follow the "Safety Instructions" documentation associated with the device. →  6.



1.2 Symbols used

1.2.1 Safety symbols




Symbol	Meaning
	DANGER! This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.
	WARNING! This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in serious or fatal injury.
	CAUTION! This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.
	NOTE! This symbol contains information on procedures and other facts which do not result in personal injury.

1.2.2 Electrical symbols










Symbol	Meaning
	Direct current
	Alternating current
	Direct current and alternating current
	Ground connection A grounded terminal which, as far as the operator is concerned, is grounded via a grounding system.

Symbol	Meaning
	Protective ground connection A terminal which must be connected to ground prior to establishing any other connections.
	Equipotential connection A connection that has to be connected to the plant grounding system: This may be a potential equalization line or a star grounding system depending on national or company codes of practice.

1.2.3 Tool symbols

Symbol	Meaning
	Flat blade screwdriver
	Allen key
	Open-ended wrench

1.2.4 Symbols for certain types of information

Symbol	Meaning
	Tip Indicates additional information.
	Reference to documentation
	Reference to page
	Reference to graphic
	Notice or individual step to be observed
	Series of steps
	Result of a step
	Help in the event of a problem
	Visual inspection

1.2.5 Symbols in graphics

Symbol	Meaning
1, 2, 3, ...	Item numbers
1 →, 2 →, 3 →, etc.	Series of steps of individual, consecutive images
1, 2, 3, ...	Series of steps within an image
A, B, C, ...	Views
A-A, B-B, C-C, ...	Sections

1.3 Documentation

Detailed information about the measuring device can be found in the Operating Instructions and other documentation:

- On the CD-ROM supplied (not included in the delivery for all device versions).
- Available for all device versions via:
 - Internet: www.endress.com/deviceviewer
 - Smart phone/tablet: *Endress+Hauser Operations App*

1.3.1 Supplementary device-dependent documentation

Safety instructions

Content	Documentation code
ATEX/IECEX Ex ia, Ex tb	XA01494D
ATEX/IECEX Ex nA	XA01498D
cCSA _{US} IS	XA01499D
cCSA _{US} Ex nA	XA01513D
INMETRO Ex ia, Ex tb	XA01500D
INMETRO Ex nA	XA01501D
NEPSI Ex ia	XA01502D
NEPSI Ex nA	XA01503D

Control drawing

Content	Documentation code
cCSA _{US} IS/Ex ia/AEx ia cCSA _{US} Ex nA/AEx nA	FES0245A

Special Documentation

Content	Documentation code
Post mounting	SD00334FYY

Installation Instructions

Content	Documentation code
Display module	EA01144D
Cover for remote display, O-ring for cover	EA01148D

2 Basic safety instructions

2.1 Requirements for personnel

Personnel involved in mounting, electrical installation, commissioning, diagnostics, maintenance and conversion must meet the following requirements:

- ▶ Trained, qualified specialists must have a relevant qualification for this specific function and task.
- ▶ Be authorized by the plant owner/operator.
- ▶ Be familiar with federal/national regulations.
- ▶ Be trained in instrument safety.
- ▶ Be familiar with the individual operating conditions of the devices.
- ▶ Before starting work, read and understand the instructions in the manual and supplementary documentation as well as the certificates (depending on the application).
- ▶ Follow instructions and comply with basic conditions.

The operating personnel must fulfill the following requirements:

- ▶ Are instructed and authorized according to the requirements of the task by the facility's owner-operator.
- ▶ Follow the instructions in this manual.

For Ex-certified devices:

- ▶ Be trained in explosion protection.


2.2 Designated use

Application

The instrument described in this manual is designed solely for the display and operation of the measuring device.

To ensure that the measuring device remains in proper condition for the operating time:

- ▶ The measuring device may be used only on condition that the data on the nameplate are observed and the basic conditions listed in the manual and supplementary documentation are fulfilled.

- ▶ Based on the nameplate, check whether the ordered device is permitted for the intended use in the hazardous area (e.g. explosion protection, pressure vessel safety).
- ▶ If the device is not being operated at atmospheric temperature, it is essential that the relevant basic conditions outlined in the associated device documentation be fulfilled: see "Documentation" section →  6.

Incorrect use

Non-designated use can compromise safety. The manufacturer is not liable for damage caused by improper or non-designated use.

Retrofit

NOTICE

Labeling of explosion-protected electrical apparatus (Ex label).

The DKX001 can be supplied with a compatible approval, housing and cable gland or ordered at a later stage as a compatible device using the separate order structure. The DKX001 has its own approval.

- ▶ There is no requirement to change the nameplate on the measuring device.

2.3 Operational safety

Risk of injury!

- ▶ Operate the device in proper technical condition and fail-safe condition only.
- ▶ The operator is responsible for interference-free operation of the device.

Risk of damaging the electronic components!

- ▶ Ensure you have a working environment protected from electrostatic discharge.

After removal of the electronics compartment cover: risk of electrical shock due to missing touch protection!

- ▶ Switch off the measuring device before removing internal covers.

Penetration of dust and moisture when opening the housing.

- ▶ Only open housing for a brief period.
- ▶ Avoid the penetration of foreign bodies, moisture or contaminants.

If threads are damaged or defective, the measuring device must be repaired.

- ▶ Threads (e.g. of the electronics compartment cover and connection compartment cover) must be lubricated.
- ▶ If abrasion-proof dry lubrication is not available, use an acid-free, non-hardening grease.

For Ex-certified measuring devices:

- ▶ Open the device only when it is in a deenergized state (allow 10 minutes to elapse after switching off the power supply) or in an environment that does not have a potentially explosive atmosphere.

Modifications to the device

Unauthorized modifications to the device are not permitted and can lead to unforeseeable dangers:

- ▶ If, despite this, modifications are required, consult with Endress+Hauser.

If, during conversion work, distances are reduced or the dielectric strength of the measuring device cannot be guaranteed:

- ▶ Perform a test on completion of the work (e.g. a high-voltage test in accordance with the manufacturer's instructions).

Repair

To ensure continued operational safety and reliability:

- ▶ Carry out repairs on the device only if they are expressly permitted.
- ▶ Observe federal/national regulations pertaining to repair of an electrical device.
- ▶ Use original spare parts and accessories from Endress+Hauser only.



If you have any questions, please contact your Endress+Hauser service organization.

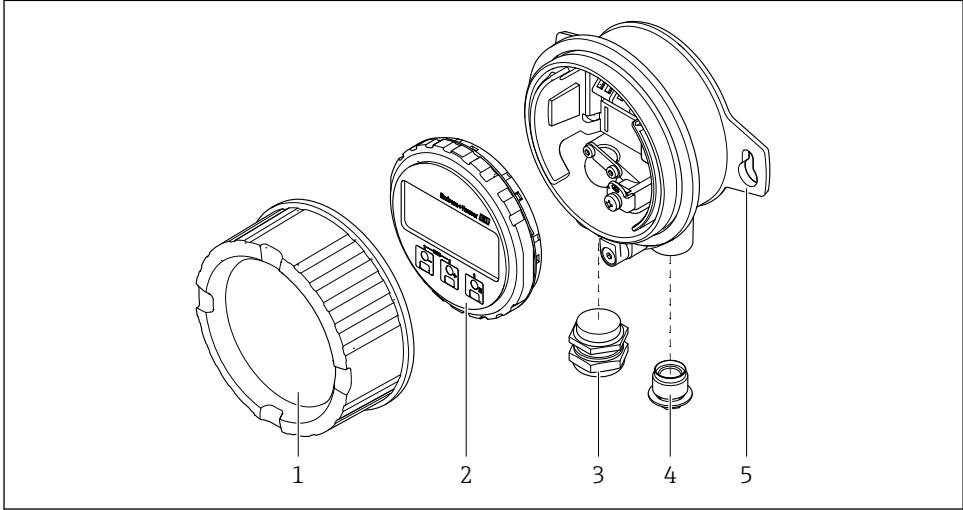
2.4 Product safety

This measuring device is designed in accordance with good engineering practice to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate.



3 Product description

The device consists of a housing and a display and operating module.

3.1 Product design



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 Detailed description of the scope of delivery: →  13

3.2 Connectable transmitters

- Promass 300
- Cubemass 300
- Promag 300

NOTICE

For transmitters with an approval, use of the DKX001 may be restricted.

- Follow the Safety Instructions for the measuring device.
- In addition, follow the Safety Instructions (XA) for the DKX001 →  6.

3.3 Availability

The remote display and operating module DKX001 can be ordered with the measuring device as an optional extra.

3.3.1 Ordering with measuring device

- The measuring device is always supplied with a dummy cover.
- Display or operation at the transmitter is not possible in this case.


Standard version

Order code for measuring device: Order code **030** for "Display; operation", option **O** "Remote display 4-line illuminated; 10 m (30 ft) cable; touch control"

Customer-specific version

- Order code for measuring device: Order code **030** for "Display; operation", option **M** "None; Prepared for remote display"
- Order code for DKX001: Customer-specific options are configured in a separate product structure for the DKX001.

3.3.2 Upgrade without measuring device

- The remote display and operating module DKX001 can also be ordered separately and subsequently as an accessory without a measuring device .
- For the customer-specific version or for upgrading the DKX001 for use in hazardous areas: Use Spare Parts Finding Tool to determine the order code →  26

Dependency between order options for measuring device and DKX001 and the "Approval" order code:

Measuring device				DKX001	
Hazardous areas	Measuring device	Order option	Approval	Order option	Approval
n-Ex, Z2, D2	Promass 300 Cubemass 300 Promag 300	AA	Non-hazardous area	AA	Non-hazardous area
		BS	ATEX+IECEX; Z2, IIC	BS	ATEX+IECEX; Z2, Ex nA
		CS	CSA C/US; Cl.I Div.2, NI	CS	CSA C/US; Cl.I Div.2, NI, Gr. A-D
		MS	INMETRO; Z2, IIC	MS	INMETRO; Z2, Ex nA
		NS	NEPSI; Z2, IIC	NS	NEPSI; Z2, Ex nA
Ex d	Promass 300 Cubemass 300 Promag 300	BD	ATEX+IECEX; Z1/21, Ex d, IIC/IIIC	BE	ATEX+IECEX; Z1/Z21, Ex ia/Ex tb; IIC/IIIC
		CD	CSA C/US; Cl.I,II,III Div. 1, XP, Gr.A-G	CE	CSA C/US; Cl.I,II,III Div.1, IS; Gr.A-G
		ND	NEPSI; Z1/21, Ex d, IIC/IIIC	NE	NEPSI; Z1/Z21, Ex ia/DIP; IIC/IIIC
		MD	INMETRO; Z1/21, Ex d, IIC/IIIC	ME	INMETRO; Z1/Z21, Ex ia/Ex tb; IIC/IIIC

Measuring device				DKX001	
Hazardous areas	Measuring device	Order option	Approval	Order option	Approval
	Promass 300 Cubemass 300	CC	CSA C/US; Cl.I,II,III Div. 1, XP, Gr.C-G	CE	CSA C/US; Cl.I,II,III Div.1, IS; Gr.A-G
		BC	ATEX+IECEX; Z1/Z21, Ex d, IIB/IIIC	BE	ATEX+IECEX; Z1/Z21,Ex ia/Ex tb; IIC/IIIC
		NC	NEPSI; Z1/Z21, Ex d, IIB/IIIC	NE	NEPSI; Z1/Z21, Ex ia/DIP; IIC/IIIC
		MC	INMETRO; Z1/Z21, Ex d, IIB/IIIC	ME	INMETRO; Z1/Z21, Ex ia/Ex tb; IIC/IIIC
Ex de	Pomass 300 Cubemass 300 Promag 300	BB	ATEX+IECEX; Z1/Z21, Ex de, IIC/IIIC	BE	ATEX+IECEX; Z1/Z21,Ex ia/Ex tb; IIC/IIIC
		NB	NEPSI; Z1/Z21, Ex de, IIC/IIIC	NE	NEPSI; Z1/Z21, Ex ia/DIP; IIC/IIIC
		MB	INMETRO; Z1/Z21, Ex de, IIC/IIIC	ME	INMETRO; Z1/Z21, Ex ia/Ex tb; IIC/IIIC
	Promass 300 Cubemass 300	BA	ATEX+IECEX; Z1/Z21, Ex de, IIB/IIIC	BE	ATEX+IECEX; Z1/Z21,Ex ia/Ex tb; IIC/IIIC
		NA	NEPSI; Z1/Z21, Ex de, IIB/IIIC	NE	NEPSI; Z1/Z21, Ex ia/DIP; IIC/IIIC
		MA	INMETRO; Z1/Z21, Ex de, IIB/IIIC	ME	INMETRO; Z1/Z21, Ex ia/Ex tb; IIC/IIIC

3.4 Scope of delivery

The scope of delivery depends on the selection made in the individual product structures for the measuring device and the DKX001.





Case 1 - Ordering with measuring device

- **Case 1a** - Standard version with product structure for measuring device:
Order code for measuring device: Order code **030** for "Display; operation", option **O** "Remote display 4-line illuminated; 10 m (30 ft)cable; touch control"
- **Case 1b** - Customer-specific version with product structure for measuring device and separate product structure for the DKX001:
 - Order code for measuring device: Order code **030** for "Display; operation", option **M** "None; Prepared for remote display"
 - Order code for DKX001: Selected order codes in the product structure for the DKX001

Case 2 - Upgrade or spare part without measuring device

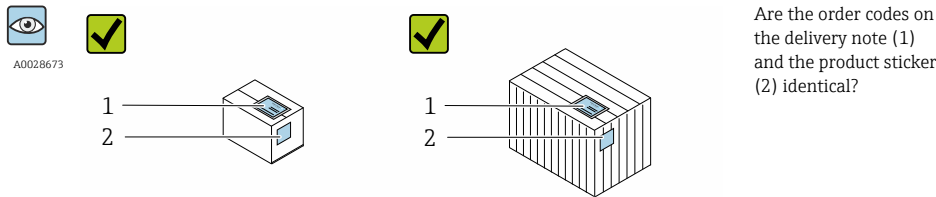
Order code for DKX001: Selected order codes in the product structure for the DKX001

The following table shows which parts are included in the scope of delivery for which versions.

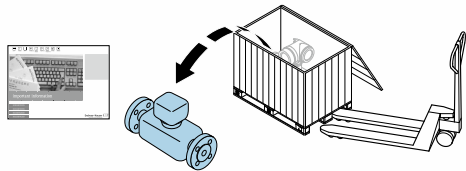
No. →  10	Part	Description
1	Cover	Always included in the scope of delivery.
2	Display module: installed in the housing	Case 1a Always included in the scope of delivery. Case 1b and Case 2 Available only for the following options: Order code for DKX001: Order code 020 for "Display; operation"; option F "4-line illuminated; touch control"
3	Cable gland	Always included in the scope of delivery.
4	Dummy plug	Always included in the scope of delivery.
5	DKX001 housing	Always included in the scope of delivery.  Cable entry depends on the order code for "Electrical connection"
–	Cable	Case 1a <ul style="list-style-type: none"> ▪ Always included in the scope of delivery. ▪ 10 m (30 ft)Cable Case 1b and Case 2 Available only for the following options: Order code for DKX001: Order code 040 for "Cable" <ul style="list-style-type: none"> – Option A "5m" – Option B "10m" – Option D "20m" – Option E "30m"  The use of a customer-specific cable up to 300 m (1 000 ft) is possible. Cable specification: →  19
–	Mounting bracket for mounting on a post	Case 1b and Case 2 Available only for the following options: Order code for DKX001: Order code 620 for "Accessory enclosed"; option RA "Mounting bracket, 1 1/2" pipe"

4 Incoming acceptance and product identification

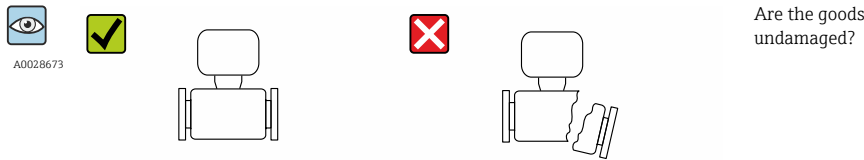
4.1 Incoming acceptance



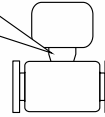
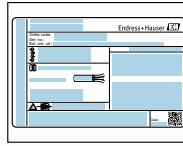
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A0029316



Do the nameplate data match the ordering information on the delivery note?

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Is the CD-ROM with the Technical Documentation (depends on device version) and documents present?

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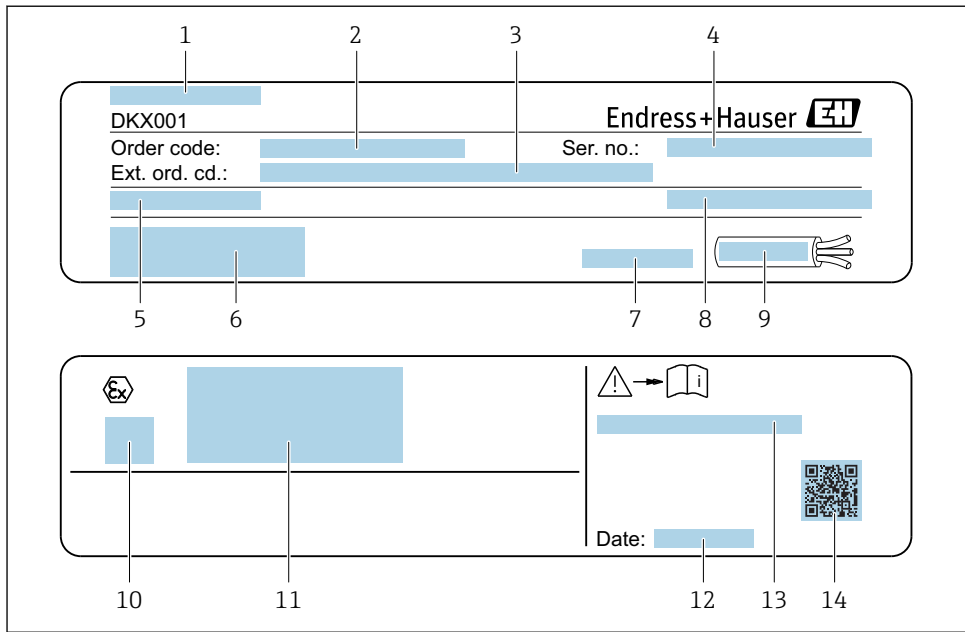


- If one of the conditions is not satisfied, contact your Endress+Hauser Sales Center.
- Depending on the device version, the CD-ROM might not be part of the delivery! The Technical Documentation is available via the Internet or via the *Endress+Hauser Operations App*.

4.2 Product identification


The following options are available for identification of the device:

- Nameplate specifications
- Order code with breakdown of the device features on the delivery note
- Enter serial number of nameplates in *W@M Device Viewer* (www.endress.com/deviceviewer): All details on the measuring device are displayed.
- Enter the serial number from the nameplates into the *Endress+Hauser Operations App* or scan the 2-D matrix code (QR code) on the nameplate with the *Endress+Hauser Operations App*: all the information for the measuring device is displayed.



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 1 Example of a nameplate

- 1 Manufacturing location
- 2 Order code
- 3 Extended order code (Ext. ord. cd.)
- 4 Serial number (ser. no.)
- 5 Permitted ambient temperature (T_a) for the DKX001: $T_a = -40$ to $+65$ °C (-40 to $+149$ °F).
- 6 Space for approvals and certificates: e.g. CE mark, C-Tick
- 7 Permitted ambient temperature for the cable: $T_a > +60$ °C ($+140$ °F). If the ambient temperature is $T_a > +60$ °C ($+140$ °F), the cable must be specified for temperature $T_a + 20$ K.
- 8 Degree of protection
- 9 Permitted temperature range for the cable: $T \geq T_a + 20$ K. If the DKX001 is used at an ambient temperature of $T_a > +60$ °C ($+140$ °F), the cable must have a temperature resistance of at least $T_a + 20$ K (e.g. $T_a = +65$ °C ($+149$ °F) $\rightarrow T_{\text{cable}} \geq +85$ °C ($+185$ °F)).
- 10 Approval information for explosion protection, Pressure Equipment Directive and degree of protection
- 11 Space for approvals: use in hazardous areas
- 12 Manufacturing date: year-month
- 13 Document number of safety-related supplementary documentation \rightarrow  6
- 14 2-D matrix code



Detailed information on the breakdown of the nameplate data: Operating Instructions for the measuring device

5 Storage and transport

5.1 Storage conditions



For detailed information on the storage and transportation conditions, see the Operating Instructions for the device.

Storage temperature: →  29

5.2 Transporting the product



For detailed information on transportation, see the Operating Instructions for the device.

5.3 Packaging disposal





For detailed information on the disposal of packaging, see the Operating Instructions for the device.

6 Installation

Mounting the remote display and operating module

The remote display and operating module can be mounted in the following ways:

- Wall mounting →  17
- Post mounting →  18

6.1 Required tools

For wall mounting:

Drill with drill bit Ø 6.0 mm

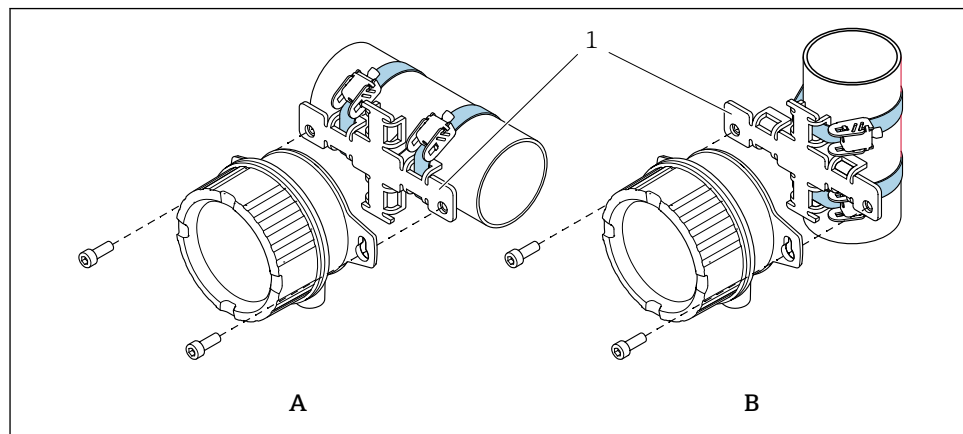
For mounting on a post:

- Mounting the safety claw: Allen key 3 mm
- Grounding screws (internal and external): Phillips screwdriver PZ2

6.2 Wall mounting

Dimensions for wall mounting: →  29

6.3 Post mounting




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2 Mounting options for remote display and operating module DKX001

1 Mounting kit

A Cable entry parallel to pipe

B Cable entry perpendicular to pipe

 The mounting bracket can be ordered directly with the DKX001 (order code DKX001: order code for "Accessory enclosed", option **RA** "Mounting bracket, 1"/2" pipe").

It is also available as a separate accessory. Order number: 71340960

7 Electrical connection

7.1 Connection conditions

7.1.1 Required tools

- Cable gland M16 (cast, stainless): wrench 22 mm
- Cable gland M16 (aluminum, coated): wrench 24 mm
- Clamp for cable shield: Phillips screwdriver PZ1
- Terminals: Phillips screwdriver 0.5 × 3.5 mm

7.1.2 Requirements for the connecting cable

Optionally available connecting cable

A cable is supplied depending on the order option

- Order code for measuring device: Order code **030** for "Display; operation", option **O** or
- Order code for measuring device: Order code **030** for "Display; operation", option **M** and
- Order code for DKX001: Order code **040** for "Cable", option **A, B, C, D**

Standard cable	2 × 2 × 0.34 mm ² (22 AWG) PVC cable with common shield (2 pairs, pair-stranded)
Flame resistance	According to DIN EN 60332-1-2
Oil-resistance	According to DIN EN 60811-2-1
Shielding	Tin-plated copper-braid, optical cover ≥ 85 %
Capacitance: core/shield	≤200 pF/m
L/R	≤24 μH/Ω
Available cable length	5 m (15 ft)/10 m (35 ft)/20 m (65 ft)/30 m (100 ft)
Operating temperature	When mounted in a fixed position: -50 to +105 °C (-58 to +221 °F); when cable can move freely: -25 to +105 °C (-13 to +221 °F)

Standard cable - customer-specific cable

No cable is supplied, and it must be provided by the customer (up to max. 300 m (1 000 ft)) for the following order option:

Order code for DKX001: Order code **040** for "Cable", option **1** "None, provided by customer, max 300 m"

A standard cable can be used as the connecting cable.

Standard cable	4 cores (2 pairs); pair-stranded with common shield
Shielding	Tin-plated copper-braid, optical cover ≥ 85 %
Capacitance: core/shield	Maximum 1 000 nF for Zone 1, Class I, Division 1

L/R	Maximum 24 $\mu\text{H}/\Omega$ for Zone 1, Class I, Division 1
Cable length	Maximum 300 m (1 000 ft), see the following table

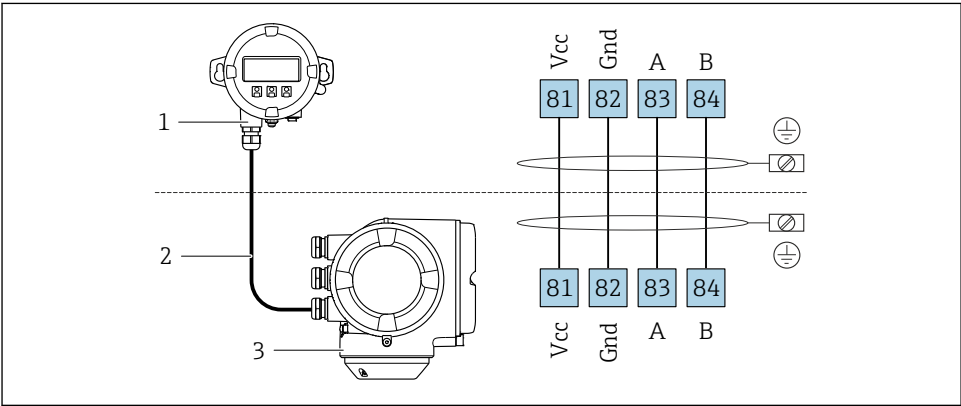
Cross-section	Max. Cable length for use in Non-hazardous area, Ex Zone 2, Class I, Division 2 Ex Zone 1, Class I, Division 1
0.34 mm ² (22 AWG)	80 m (270 ft)
0.50 mm ² (20 AWG)	120 m (400 ft)
0.75 mm ² (18 AWG)	180 m (600 ft)
1.00 mm ² (17 AWG)	240 m (800 ft)
1.50 mm ² (15 AWG)	300 m (1 000 ft)

7.1.3 Terminal assignment

NOTICE

Only one display or operation unit may be connected to the transmitter at any one time.
The remote display and operating module DKX001 cannot be connected at the same time as the existing display and operating module.

- Existing display and operating module: Disconnect electrical connection.
- Connect the remote display and operating module DKX001.



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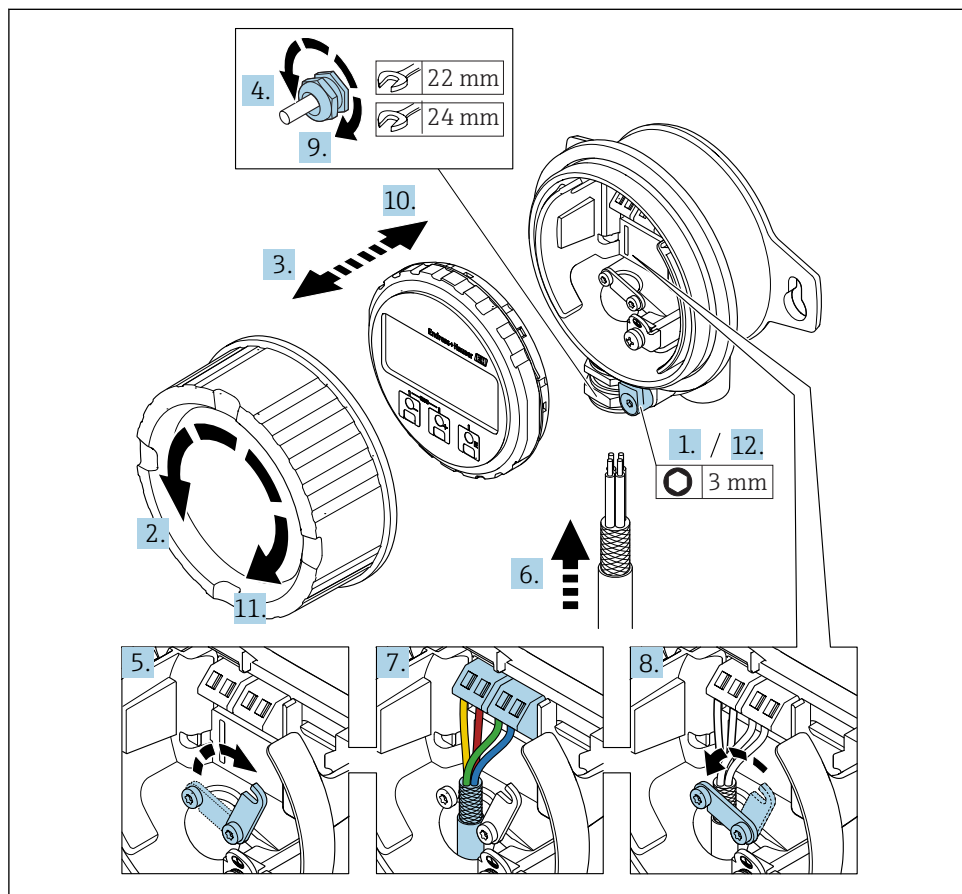
- 1 Remote display and operating module DKX001
- 2 Connecting cable
- 3 Measuring device

7.2 Connecting the DKX001

NOTICE

Only one display or operation unit may be connected to the transmitter at any one time. The remote display and operating module DKX001 cannot be connected at the same time as the existing display and operating module.

- ▶ Existing display and operating module: Disconnect electrical connection.
- ▶ Connect the remote display and operating module DKX001.



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1. Loosen the securing clamp of the housing cover.
2. Unscrew the housing cover.
3. Remove the display module.
4. Release the cable gland.
5. Release the screw and push up the strain relief lug.

6. To ensure tight sealing, do not remove the sealing ring from the cable entry.
Push the cable through the cable entry .
7. In the case of stranded cables, also fit ferrules.
Strip the cable and cable ends. Connect the cable in accordance with the terminal assignment .
8. Push down the strain relief lug and tighten it over the cable shield.
↳ Potential matching is now guaranteed.
9. Firmly tighten the cable gland.
↳ The cable is now fully connected.
10. Mount the display module in the electronics compartment.
11. Screw on the housing cover.
12. Attach the securing clamp for the housing cover.

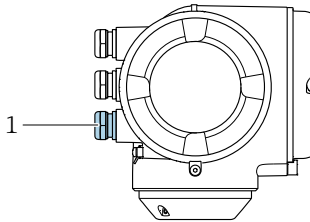
 The terminal assignment at the transmitter and at the DKX001 must correspond
→  20.

7.3 Connecting the transmitter

NOTICE

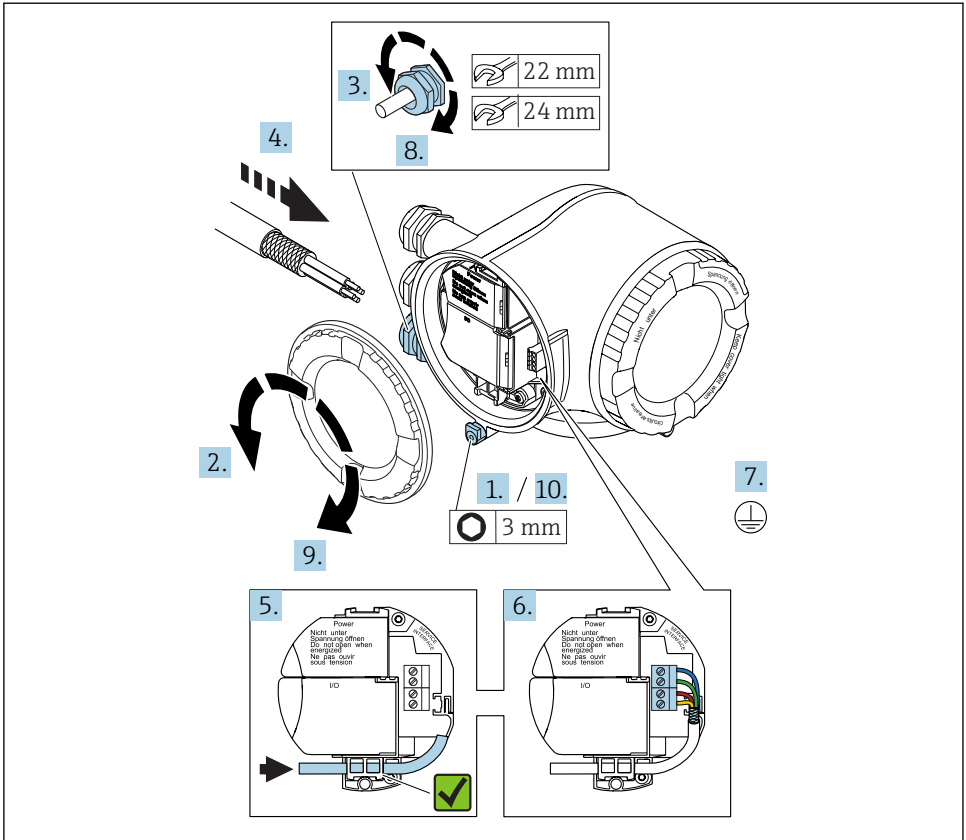
The remote display and operating module DKX001 cannot be connected at the same time as the existing display or operation unit.

- Always connect only one display or operating module at the transmitter.



A0031655

- 1 Connecting the remote display and operating module DKX001



A0031703

3 Sample graphic

1. Loosen the securing clamp of the housing cover.
2. Unscrew the housing cover.
3. Release the cable gland.
4. To ensure tight sealing, do not remove the sealing ring from the cable entry. Push the cable through the cable entry.
5. Guide the cable through the bracket underneath the housing.
6. In the case of stranded cables, also fit ferrules.
Strip the cable and cable ends. Connect the cable in accordance with the terminal assignment.
7. Connect the protective ground.
8. Firmly tighten the cable gland.
➤ The cable is now fully connected.

9. Screw on the housing cover.
10. Attach the securing clamp for the housing cover.

7.4 Ensuring potential equalization

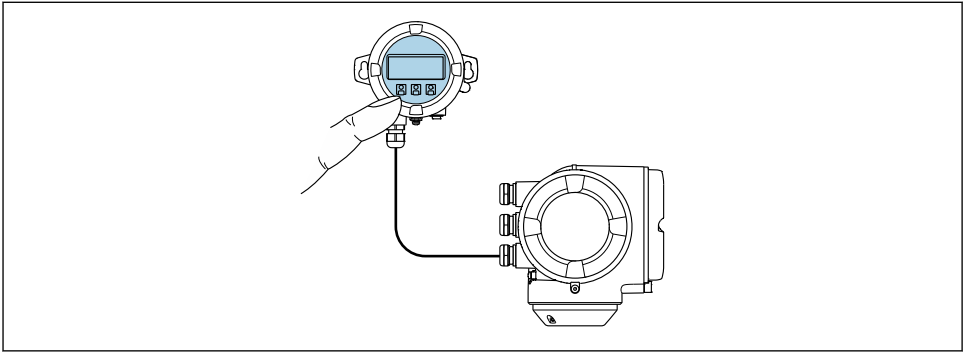
1. The potential equalization line must be connected at both the transmitter and the DKX001.
2. If potential differences are anticipated, lay the potential equalization conduction between the DKX001 and the transmitter, if necessary.



For detailed information on guaranteeing potential equalization at the transmitter, see the Operating Instructions for the measuring device

8 Operation options

The display and operating elements correspond to those of the display module .



A0026786

Display elements

- 4-line, illuminated, graphic display
- White background lighting; switches to red in event of device errors
- Format for displaying measured variables and status variables can be individually configured
- Permitted ambient temperature for the display: -20 to $+60$ °C (-4 to $+140$ °F)
The readability of the display may be impaired at temperatures outside the temperature range.

Operating elements

- External operation via touch control (3 optical keys) without opening the housing: \oplus , \square , \boxminus
- Operating elements also accessible in various hazardous areas

9 Diagnostics and troubleshooting



For detailed information on diagnostics and troubleshooting, see the Operating Instructions for the device.

10 Maintenance

10.1 Maintenance tasks

No special maintenance work is required.

10.2 Replacing seals

10.2.1 Replacing housing seals

NOTICE

When using the device in a dusty atmosphere:

► only use the associated Endress+Hauser housing seals.

1. Replace defect seals only with original seals from Endress+Hauser.
2. The housing seals must be clean and undamaged when inserted into their grooves.
3. Dry, clean or replace the seals if necessary.

11 Repairs

11.1 General notes

11.1.1 Repair and conversion concept

The Endress+Hauser repair and conversion concept provides for the following:

- The measuring devices have a modular design.
- Spare parts are grouped into logical kits with the associated Installation Instructions.
- Repairs are carried out by Endress+Hauser Service or by appropriately trained customers.
- Certified devices can only be converted to other certified devices by Endress+Hauser Service or at the factory.


11.1.2 Notes for repair and conversion

For repair and modification of a measuring device, observe the following notes:

- Use only original Endress+Hauser spare parts.
- Carry out the repair according to the Installation Instructions.
- Observe the applicable standards, federal/national regulations, Ex documentation (XA) and certificates.



- Document every repair and each conversion and enter them into the *W@M* life cycle management database.

11.2 Spare parts

 The SFT (Spare Parts Finding Tool) supports you when searching for the right spare parts for a specific device.

Launch the Endress+Hauser Device Viewer via a web browser:

www.endress.com/deviceviewer



 Detailed information on spare parts: Installation Instructions →  6

11.3 Conversion kit

11.3.1 Alteration with remote display and operating module DKX001

Mounting the remote display and operating module

The remote display and operating module can be mounted in the following ways:

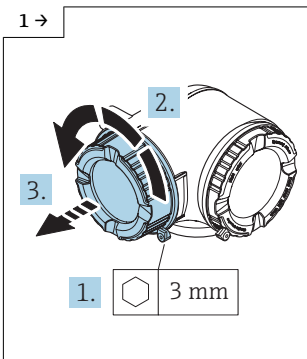
- Wall mounting →  17
- Post mounting →  18

NOTICE

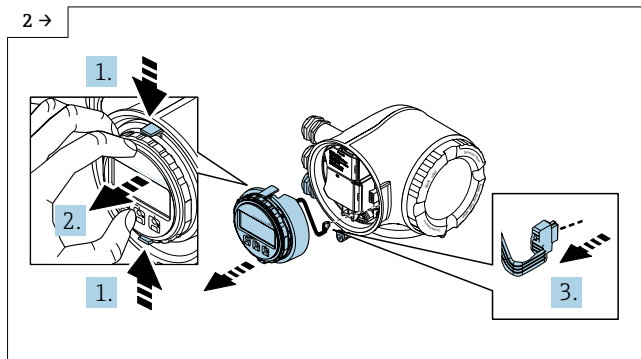
The remote display and operating module DKX001 cannot be connected at the same time as the existing display or operation unit.

- Always connect only one display or operating module at the transmitter.

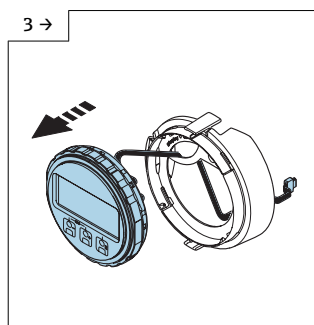
Removing existing display module from transmitter housing



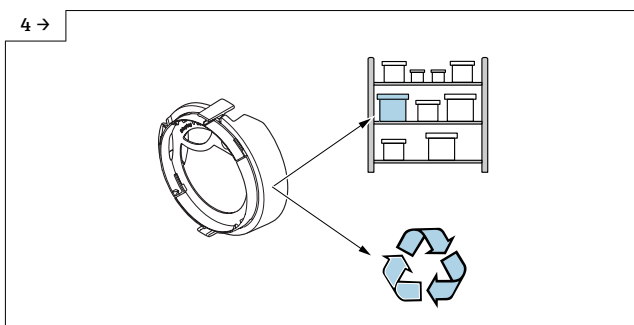
A0090251



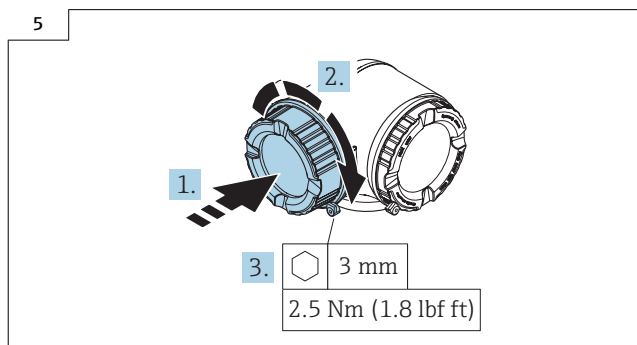
A0031818



A0030253

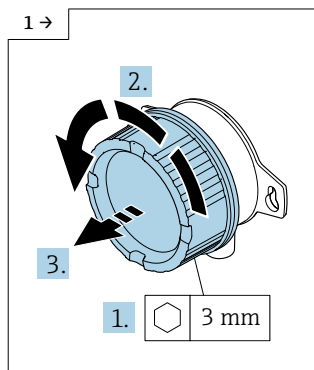


A0031819

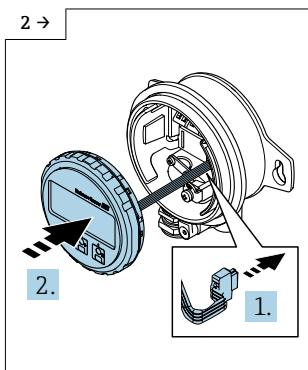


A0031820

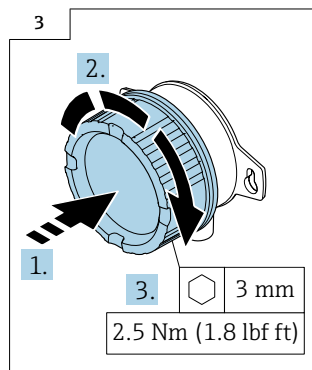
Installing existing display module in the DKX001 housing



A0031821



A0031822





A0031823

Connecting display module

- Connect DKX001 → 21.

Connecting the transmitter

1. If present:
Remove dummy plug.
2. If there is no cable gland at the transmitter:
Provide a suitable cable gland for the relevant connecting cable.
3. If there is a cable gland at the transmitter:
Note the requirements for the connecting cable →  19.
4. Connect the transmitter. →  22

11.3.2 Adjusting the order code in the CER database on Engine Obligatory instruction

NOTICE

Technical changes such as upgrades, configuration changes to inputs/outputs or conversions on Endress+Hauser flowmeters require a necessary adjustment of the order code or the order code of the affected device.

This adjustment is absolutely essential in ensuring that the correct device data are displayed in the CER database on Engine. Future deliveries of spare parts, as well as follow-up orders for new devices using modified order structures, are guaranteed to be correct.

- ▶ Changes of this kind therefore necessitate new nameplates that correctly display each technical change to the specified device data.
- ▶ In addition, the service organization responsible for implementing technical changes to devices, must ensure that the changed device data are adjusted accordingly in the Endress+Hauser CER database.

Adjusting the order code in the CER database on Engine directly

The following options are available:

1. With admin rights:
This must be carried out by an authorized person from the service organization (SC) in question.
2. For additional information on CER admin users, go to the following link on clue.endress.com: [Link: http://clue.endress.com/display/wamwiki/CER+Admins](http://clue.endress.com/display/wamwiki/CER+Admins)
3. Without admin rights:
To complete CER training, go to the following link on clue.endress.com: <http://clue.endress.com/display/wamwiki/CER+Admin+training>
↳ Once you have completed this training program, you will be assigned admin status.

11.4 Return

The measuring device must be returned if repairs or a factory calibration are required, or if the wrong measuring device has been ordered or delivered. According to legal regulations, Endress+Hauser, as an ISO-certified company, is required to follow certain procedures when handling returned products that are in contact with medium.

To ensure swift, safe and professional device returns, please read the return procedures and conditions on the Endress+Hauser website at www.services.endress.com/return-material

11.5 Disposal

Observe the following notes during disposal:

- Observe valid federal/national regulations.
- Ensure proper separation and reuse of the device components.

12 Technical data

12.1 Power supply

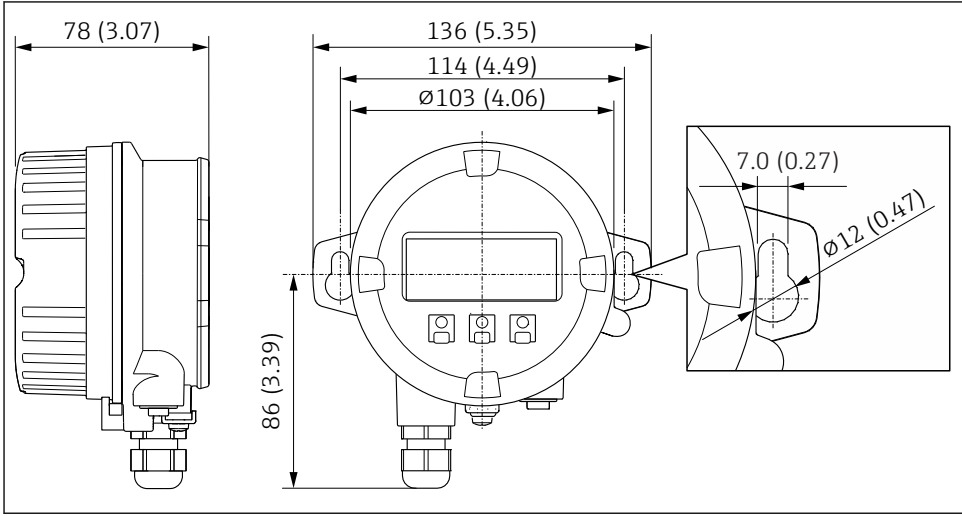
→  19

12.2 Environment

Ambient temperature range	−40 to +65 °C (−40 to +149 °F) (for Ex, standard); −50 to +65 °C (−58 to +149) (for Ex, order option JN)
Storage temperature	−50 to +80 °C (−58 to +176 °F)
Climate class	DIN EN 60068-2-38 (test Z/AD)
Degree of protection	IP66, NEMA 4X
Vibration resistance	DIN EN 60068-2-64/IEC 68-2-64: 20 to 2 000 Hz, 1 (m/s ²) ² /Hz
Electromagnetic compatibility (EMC)	Electromagnetic compatibility in accordance with all of the relevant requirements outlined in the EN 61326 series and NAMUR Recommendation EMC (NE 21). For details, refer to the Declaration of Conformity.

12.3 Mechanical construction


12.3.1 Dimensions



A0028921

4 Engineering unit mm (in)

Post mounting

- Mounting bracket optionally available: Order code 620 for "Accessory enclosed"; option RA "Mounting bracket, 1/2" pipe"
- Detailed information on post mounting: →  18

12.3.2 Materials

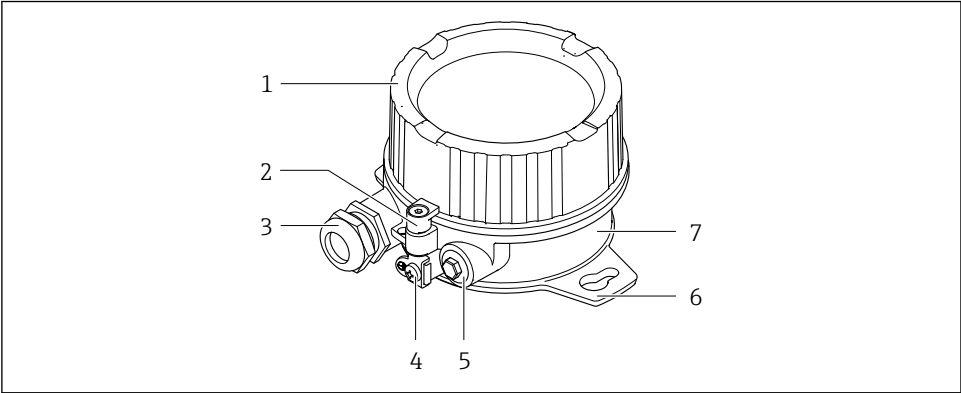
DKX001

Order code for measuring device: Order code 030 for "Display; operation", option O or option M



Order code for measuring device: Order code 030 for "Display; operation", option O

The housing material of the display and operating module DKX001 depends on the choice of transmitter housing material.



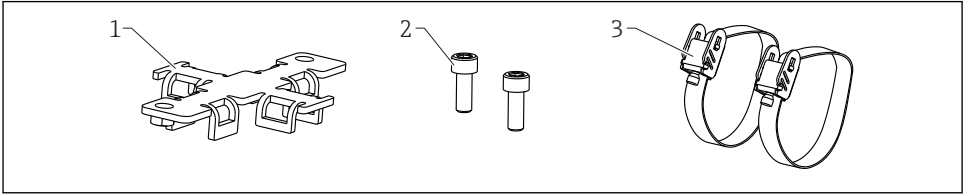
A0031670

Item	Component part		Housing material	
			Single-chamber, cast, stainless	Single-chamber, aluminum, coated
1	Cover		CF3M (similar to 316L/1.4404)	PA12
	Window material		Glass	
	Seal		EPDM PTFE-coated	
2	Securing clamp	Screw	A4	A4
		Clamp	Stainless steel, 316L (1.4404)	
3	Cable gland	Gland M16	Stainless steel, 1.4404 (316L)	Plastic/nickel-plated brass (CuZn)
		Thread M16		
		Thread G1/2		
		Thread NPT1/2		

Item	Component part		Housing material	
			Single-chamber, cast, stainless	Single-chamber, aluminum, coated
4	Ground terminal	Screw	A4	A2
		Spring ring	A4	A4
		Clamping bracket	Stainless steel 304 (1.4301)	Stainless steel 304 (1.4301)
		Bracket	Stainless steel 304 (1.4301)	Stainless steel 301 (1.4310)
5	Blind plug		Stainless steel, 316L (1.4404)	Nickel-plated brass (CuZn)
	Gore-Tex filter		ePTFE	ePTFE
	Seal		Santoprene TM	Santoprene TM
6	Housing		Cast, stainless steel, 1.4409 (CF3M) similar to 316L	Aluminum, AlSi10Mg, coated
7	Nameplate		Adhesive label	

Mounting bracket

Order code for DKX001: Order code for "Accessory enclosed", option RA "Mounting bracket, 1"/2" pipe"






A0031349

Item	Component part	Material
1	Mounting bracket	304 (1.4301)
2	Allen screws	A2
3	Hose clip	304 (1.4301)


12.4 Certificates and approvals

12.4.1 Ex approval

The DKX001 is certified for use in hazardous areas.

- The safety instructions that must be followed are enclosed in a separate document entitled "Safety Instructions" (XA) →  6.
- The document is referenced on the nameplate →  1,  16.



The approval of the DKX001 depends on the measuring device: →  13

ATEX/IECEX

Currently, the following versions for use in hazardous areas are available:

Ex ia, Ex tb

Category	Type of protection
II2G/Zone 1	Ex ia IIC T6...T4 Gb
II2D/Zone 21	Ex tb IIIC T115 °C Db

Ex nA

Category	Type of protection
II3G/Zone 2	Ex nA IIC T6...T4 Gc

cCSA_{US}

Currently, the following versions for use in hazardous areas are available:

IS, Ex ia, AEx ia

Category	Type of protection
Class I, Division 1, Groups A-D, Class II, Groups E-G, Class III	IS
Class I, Zone 1, AEx/Ex ia IIC T6 to T4 Gb Zone 21, AEx/Ex tb IIIC T115°C Db	Ex ia/AEx ia ¹⁾

- 1) Entity parameters in accordance with control drawing

NI, Ex nA

Category	Type of protection
Class I, Division 2, Groups A-D	NI ¹⁾
Class I, Zone 2, AEx/ Ex nA IIC T6 to T4 Gc	Ex nA/AEx nA ²⁾

- 1) Non-incendive
2) Entity parameters in accordance with control drawing

INMETRO

Currently, the following versions for use in hazardous areas are available:

Ex ia, tb

Category	Type of protection
Zone 1/Zone21	Ex ia/Ex tb; IIC/IIIC

Ex nA

Category	Type of protection
Zone 2	Ex nA

NEPSI

Currently, the following versions for use in hazardous areas are available:

Ex i

Category	Type of protection
Zone 1/Zone 21	Ex ia IIC T4~T6 Gb Ex tD A21 IP6X T115°C

Ex nA

Category	Type of protection
Zone 2	Ex nA IIC T4~T6

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