

### OPTISONIC 4400 F

#### Ultrasonic liquid flowmeter for high temperature and high pressure

 Installation, assembly, start-up and maintenance may only be performed by appropriately trained personnel. Check the nameplate for correct operating conditions.

 This instrument complies with requirements of Low Voltage Directive. Instruments must not be connected to power supply before reading instructions described in the manual.

 This instrument complies with the requirements of Pressure Equipment Directive. Please refer to the nameplate for operating condition limits. Instruments must not be pressurised before reading instructions described in the manual.

 The responsibility as to the suitability, intended use and corrosion resistance of the used materials against the measured fluid of this device rests solely with the operator.

 For use in hazardous areas, special codes and regulations are applicable. Instruments must not be connected to power supply before reading instructions described in the supplementary manual.

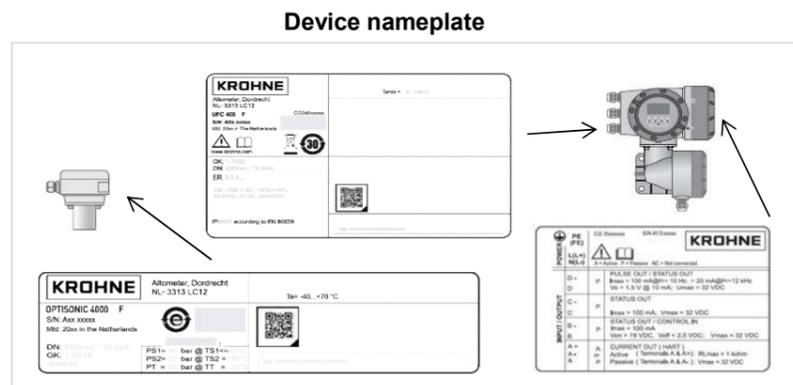
#### Special conditions to be observed

- For ambient and process temperatures, specific product and electrical data, see Ex manual or certificate.
- For dimensions and details of the flameproof joints, the manufacturer shall be contacted.
- The tensile strength of the special fasteners is at least 700 N/mm<sup>2</sup> (property class A2-70 / A4-70).
- The instructions provided with the product shall be followed in detail to assure safe operation.
- Avoid the risk of ignition as a result of electrostatic charging. Do not use the device in areas, with processes that generate high charges, with mechanical friction and cutting process, near electrostatic painting systems (spraying of electrons), with exposure of airborne powder or dust particles (pressurized systems).

Ex ▶ Type Examination Certificate: KIWA 15 ATEX 0054 X / IECEx KIWA 15.0032X  
UKCA: CSAE 22UKEX1056X

### General

 Maximum ambient and process temperatures are depending on version (e.g liner material, size), temperature and protection class and maximum surface temperature of sensor.



Check the device nameplate to ensure that the device is delivered according to your order.

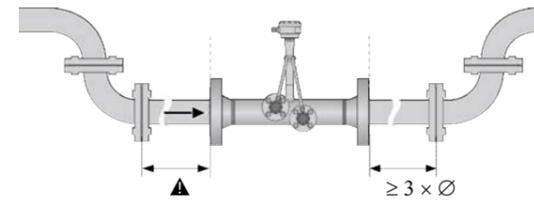
## 1 Installation

The actual installation depends on the version ordered. The illustrations show installation of a separate (remote) version

### Inlet, outlet and T-section

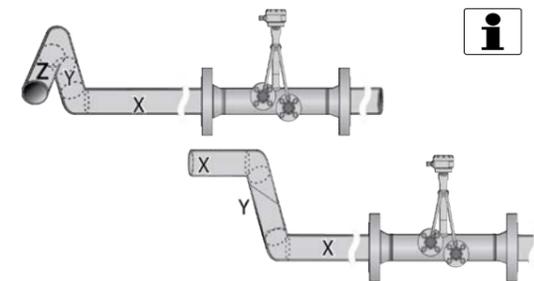
Installation instructions for  $\geq$  DN80/ 3"  
(2 measuring paths)

Consult the manual for DN25...65/ 1...2,5"  
(1 measuring path)



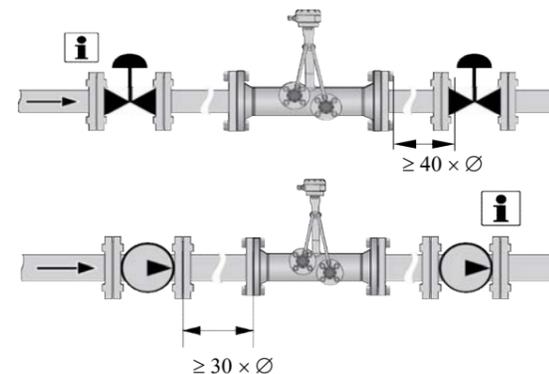
▲ see below "2D and 3D bends"

XY (2D bends upstream) :  $\geq 10 \times \varnothing$   
XYZ (3D bends upstream) :  $\geq 15 \times \varnothing$

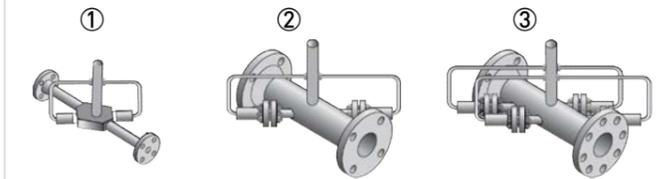


Installation: Depends on 2D/3D bends upstream

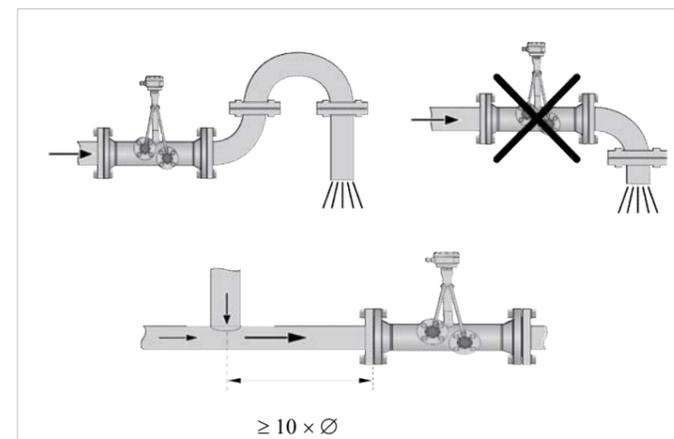
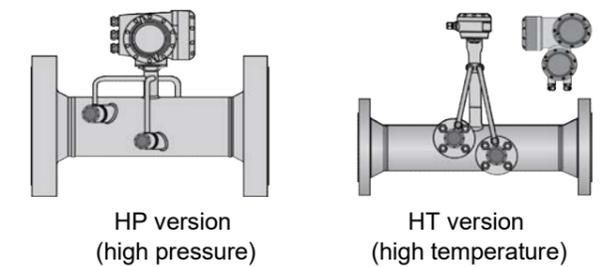
 Check the manual for more details on installation options.



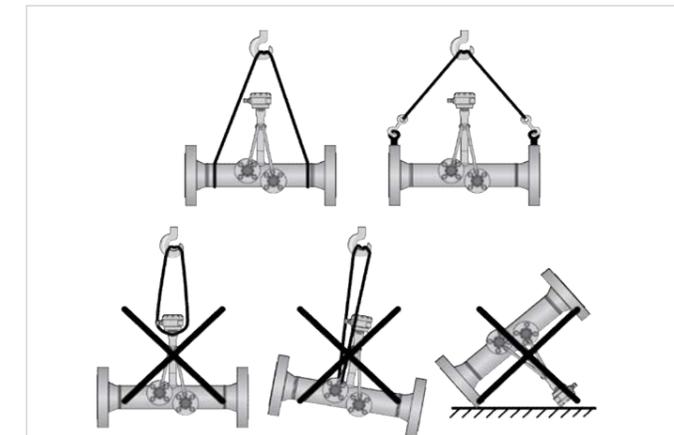
### System Configuration



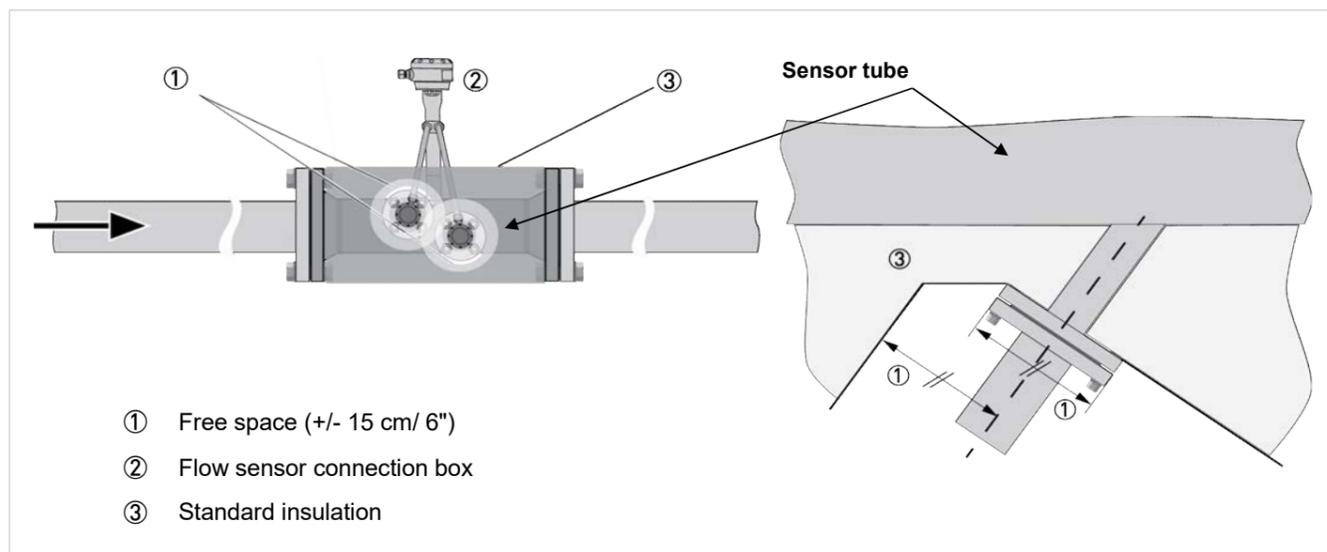
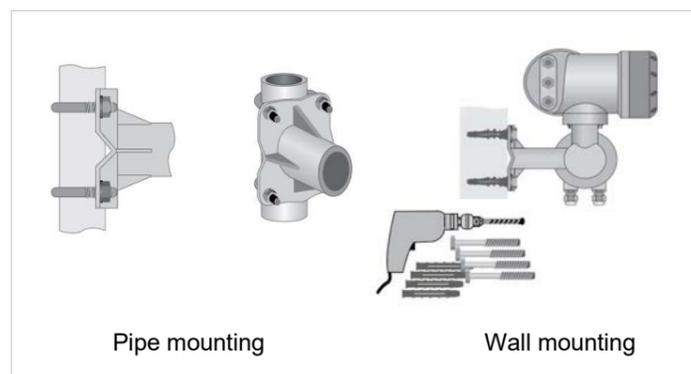
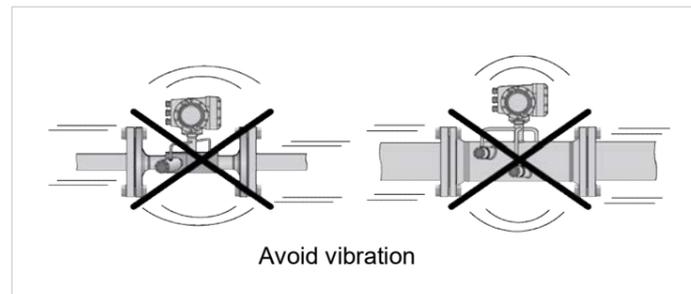
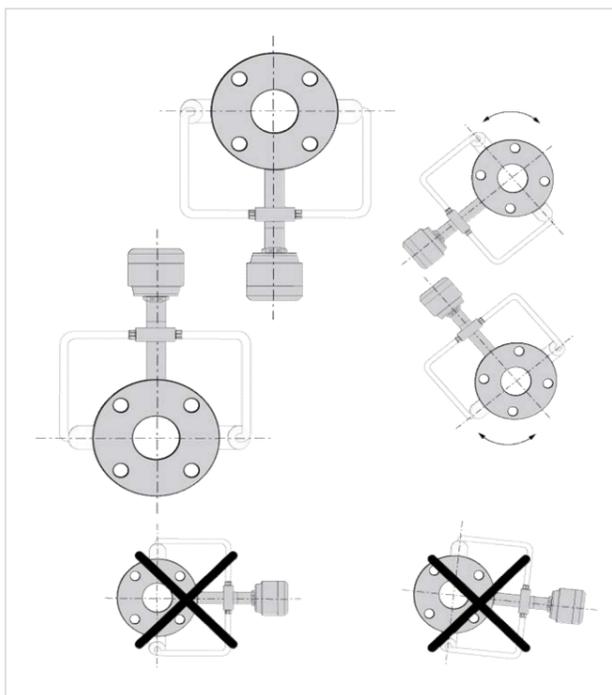
- ① Single beam HP compact version (DN25...40)
- ② Single beam version (DN50...80)
- ③ Double beam version ( $\geq$  DN100)



### Transport



## Installation position



 Check the manual for more details on installation options.

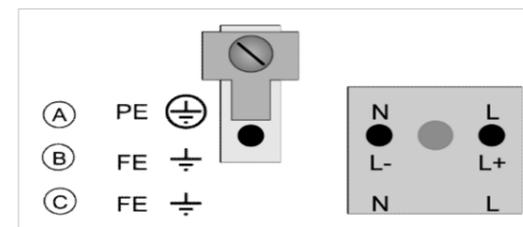
## 2 Electrical connection

 All work on the electrical connections may only be carried out with the power disconnected. Take note of the voltage data on the nameplate! Observe the national regulations for electrical installations!

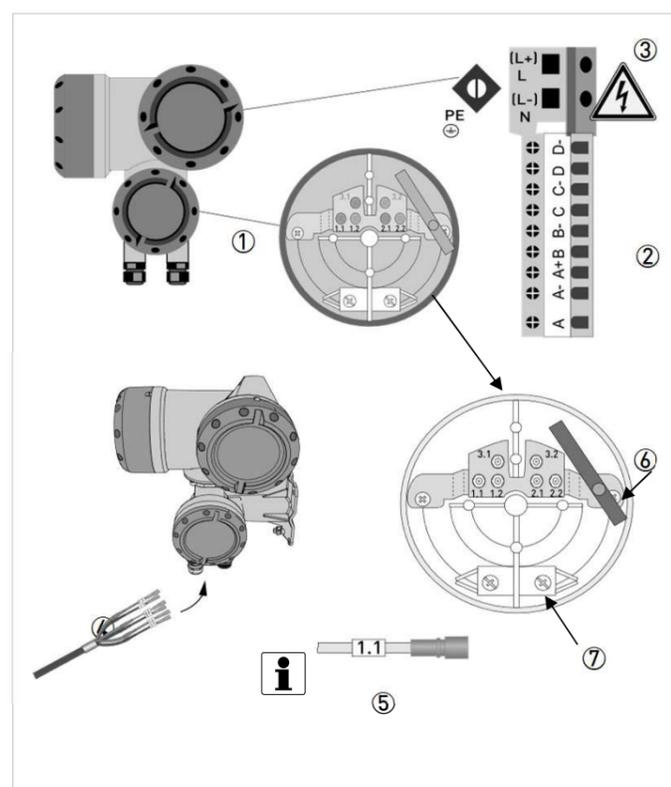
 Observe without fail the local occupational health and safety regulations. Any work done on the electrical components of the measuring device may only be carried out by properly trained specialists.

 The device must be grounded in accordance with regulations in order to protect personnel against electric shocks.

### Power supply - grounding



### Electrical connections signal converter



- (A) 100...230 VAC (-15% / +10%), 22VA
- (B) 24VDC (-55% / +30%), 12W
- (C) 24VAC/DC (AC: -15% / +10%; DC: -25% / +30%), 22VA or 12W

- ① Sensor cable connections
- ② I/O connections
- ③ Mains supply connection
- ④ Insert cable(s) into terminal compartment
- ⑤ Marking on cable
- ⑥ Tool for releasing connectors
- ⑦ Grounding clamps



Connect the cable on connector with similar numeral marking

## 2 Electrical connection



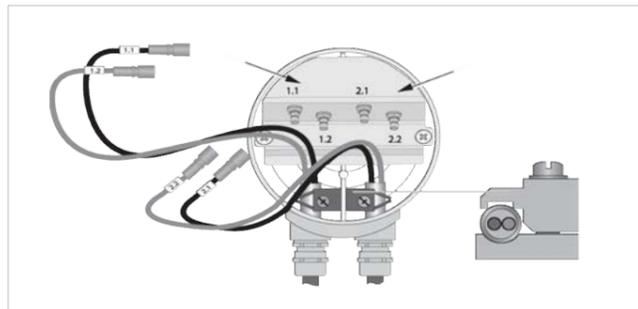
For devices used in hazardous areas, additional safety notes apply; please refer to the Ex documentation.

Refer to the manual for connection of Ex (i) acc. to NAMUR



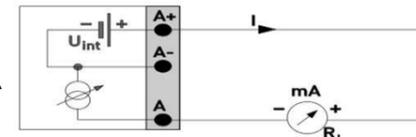
Connect the cable on connector with similar numeral marking

### Signal cable to flow sensor

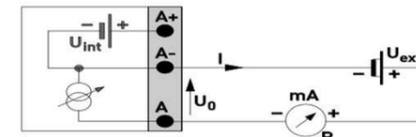


Standard version

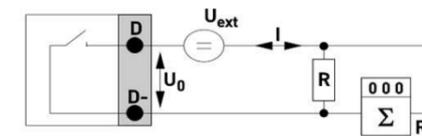
### Connection diagram



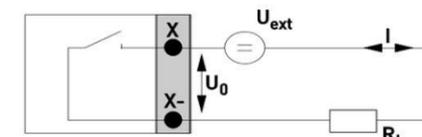
Current output active Ia (basic I/O)



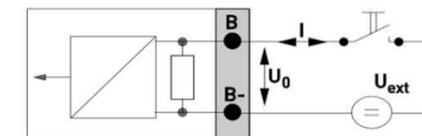
Current output passive Ip (basic I/O)



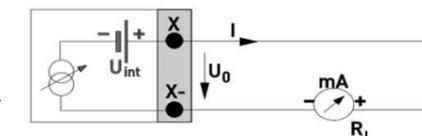
Pulse/frequency output passive Pp (basic I/O)



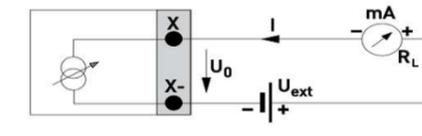
Status output/limit switch passive Sp (basic I/O)



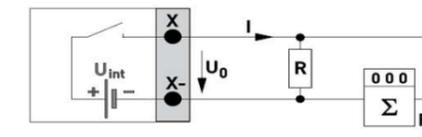
Control input passive Cp (basic I/O)



Current output active Ia (modular/Ex i I/O)



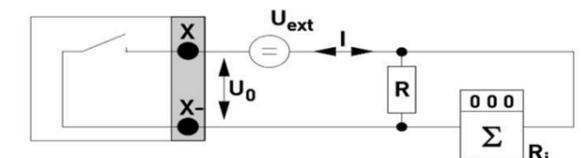
Status output/limit switch passive Sp (basic I/O)



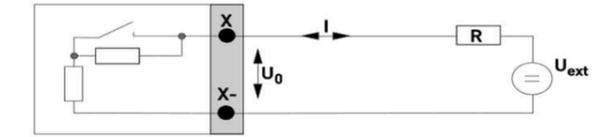
Pulse/frequency output active Pa (modular I/O)



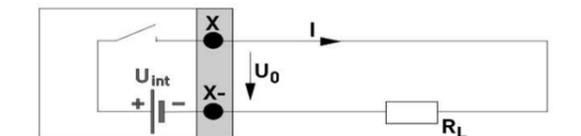
### Observe connection polarity



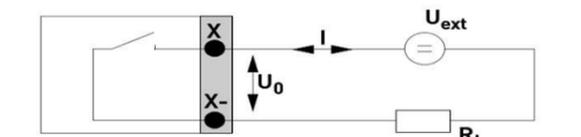
Pulse/frequency output passive Pp (modular I/O)



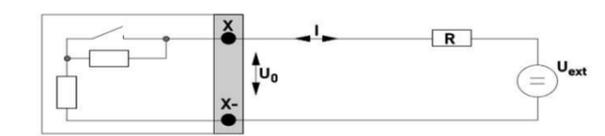
Pulse/ frequency output passive PN, NAMUR (modular I/O)



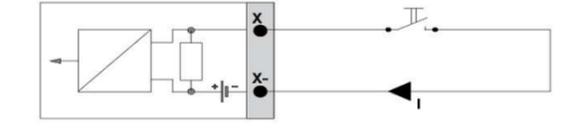
Status output/limit switch active Sa, (modular I/O)



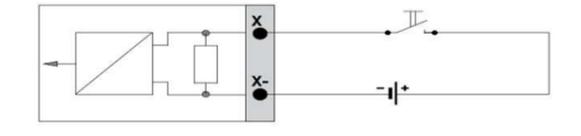
Status output/limit switch passive Sp, (modular I/O)



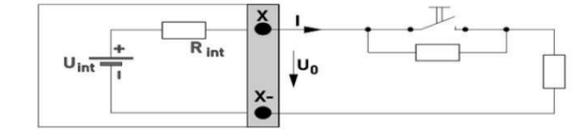
Status output/limit switch SN, NAMUR, (modular I/O)



Control input active Ca, (modular I/O)

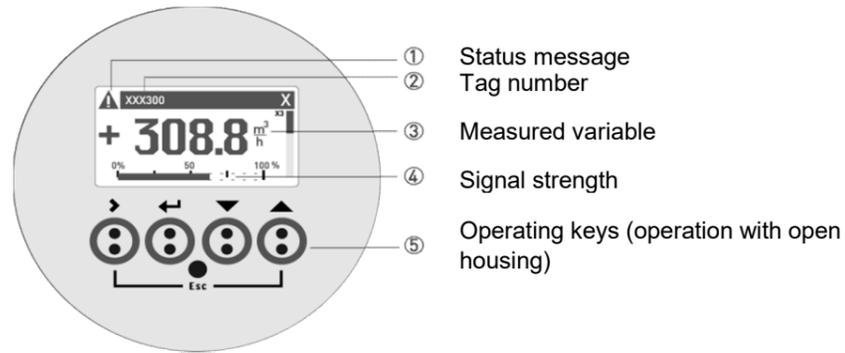


Status output/limit switch passive Sp, (modular I/O)



Control input active CN to NAMUR, (modular I/O)

## 3 Quick Setup



- ① Status message
- ② Tag number
- ③ Measured variable
- ④ Signal strength
- ⑤ Operating keys (operation with open housing)

Measuring mode			
Press > 2.5 s	Select menu	Select Submenu	Functions
←	A	A1 language	
	Quick Setup	A2 tag	>
		A3 reset	←
		A3.1 reset errors	
		A3.2 totalizer 1	
		A3.3 totalizer 2	
		A3.4 totalizer 3	
		A4.1 measurement	
		A4.2 unit	
		A4.3 range	
		A4.4 low flow cutoff	
		A4.5 time constant	
		A5.1 measurement	
		A5.2 pulse value unit	
		A5.3 value p. pulse	
		A5.4 low flow cutoff	
		A6 GDC IR interface	

### Download documents/software

Scan the code on the nameplate or scan the following code and enter the serial number.



## Contact

Select your country from the region / language selector to view your local KROHNE contact details on:

[www.krohne.com](http://www.krohne.com)