



## OPTIFLEX 2200 C/F Supplementary instructions

2-wire / Guided Radar (TDR) Level Meter

**Dual Seal system for cFMus-approved devices**



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## 1.1 Scope of the document

These supplementary instructions (addendum) only contain the data applicable to the **Dual Seal system**.

These instructions are applicable only to the cFMus-approved version of the TDR level transmitter. For more data about cFMus applications, refer to the certificate of compliance and the control drawings. If you do not have these documents, contact the nearest office or download them from the manufacturer's internet site.

For all other data, use the Quick Start and Handbook. If you do not have these documents, contact the nearest office or download them from the manufacturer's internet site.



### **INFORMATION!**

*The technical data for the non-Ex version in the Handbook shall be valid in its current version, provided that it is not rendered invalid or replaced by these supplementary instructions, the certificate of compliance and the control drawings.*



### **WARNING!**

*Installation, commissioning and maintenance may only be carried out by "Personnel trained in explosion protection".*

## 1.2 General notes

The Dual Seal system for this modular level meter agrees with American National Standard ANSI / ISA-12.27.01-2003 (Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids). It uses the pressure relief valve principle:

- to make sure that the process fluid does not go into the electrical system and
- to show the condition of the primary seal.

1.3 Dual Seal data on cFMus nameplates

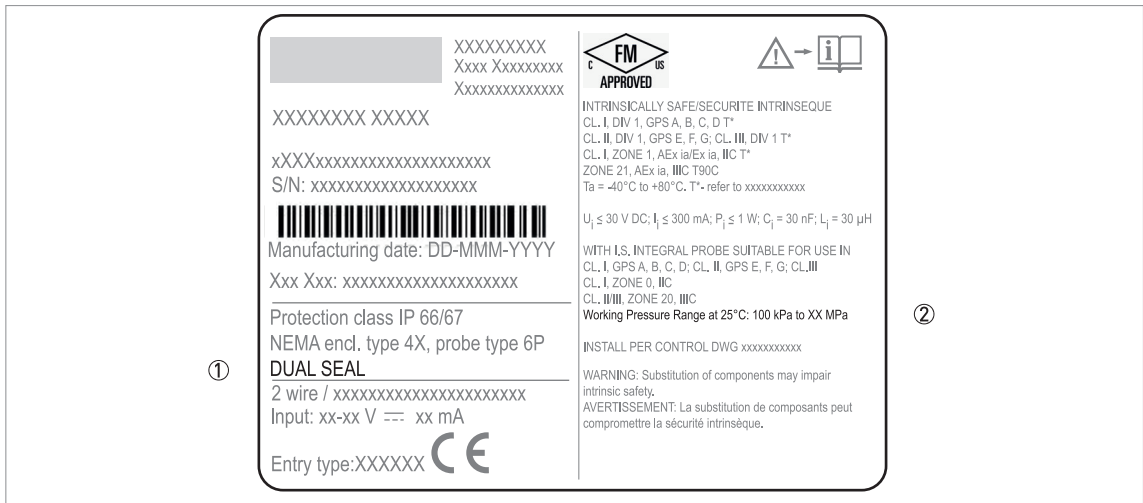


Figure 1-1: Dual Seal data on cFMus nameplates

- ① The device has the Dual Seal system – cFMus-approved devices only
- ② The minimum working pressure of the device is 100 kPa. If the working pressure is less than 100 kPa, the annunciation valve will not operate correctly. For more data about the annunciation valve, refer to *Operating principle* on page 5.

## 2.1 System design

There are 2 seals in the housing:

- The **primary seal** at the bottom of the housing. This is a wetted part that is made of FKM/FPM, Kalrez<sup>®</sup> 6375 or EPDM. The primary seal material used depends on the options selected in the customer order.
- The **secondary seal** between the the electronics block compartment and the terminal / user interface compartment.

## 2.2 Operating principle



### **WARNING!**

*Make sure that the process fluid in the tank is compatible with the primary seal material.*



### **INFORMATION!**

*No maintenance is necessary.*

*The device is supplied with the annunciation valve in its "CLOSED" position. Inspect the annunciation valve carefully for damage or signs of rough handling. Report damage to the carrier and to the local office of the manufacturer.*

An **annunciation** (pressure relief) **valve** is attached to one of the cable entries on the housing. It has a red indicator that shows if the primary seal is damaged.

The valve opens when there is a difference of more than 1 bar / 14.5 psi between the pressure inside the electronics block compartment and atmospheric pressure. The annunciation valve has 2 positions:

Annunciation valve position	Relative pressure in the electronics block compartment		Condition
	[psi]	[bar]	
Closed	< +14.5	< +1	The red indicator is in. The primary seal is in good condition. The device is safe to use.
			The red indicator is in. Possible failure of the primary seal. The process fluid is in the housing but cannot flow out of the valve. The device is safe to use.
Open	> +14.5	> +1	The red indicator is out. Failure of the primary seal. The process fluid is in the housing and can flow out of the valve.

The illustrations that follow show the location of the annunciation valve on the level meter and the open and closed positions of the red indicator:

### Location of the annunciation valve

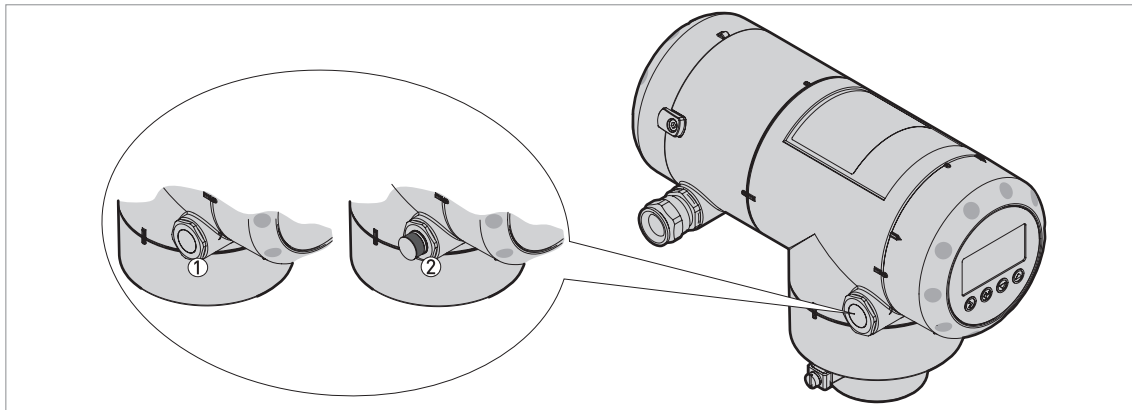


Figure 2-1: Location of the annunciation valve on the probe housing of the Compact version

- ① Annunciation valve in its "CLOSED" position
- ② Annunciation valve in its "OPEN" position

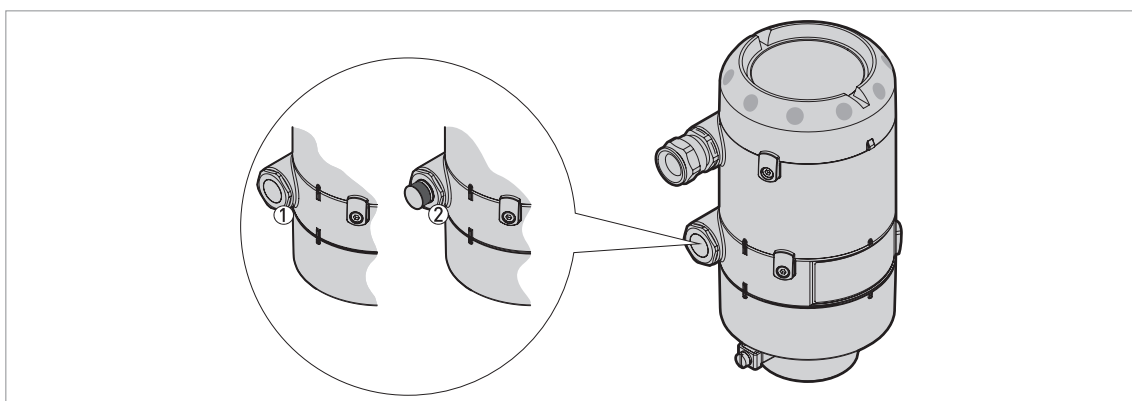


Figure 2-2: Location of the annunciation valve on the probe housing of the Remote (Field) version

- ① Annunciation valve in its "CLOSED" position
- ② Annunciation valve in its "OPEN" position

**WARNING!**

*If the annunciation valve is open (the red indicator is out), contact the supplier.*



### KROHNE product overview

- Electromagnetic flowmeters
- Variable area flowmeters
- Ultrasonic flowmeters
- Mass flowmeters
- Vortex flowmeters
- Flow controllers
- Level meters
- Temperature meters
- Pressure meters
- Analysis products
- Products and systems for the oil & gas industry
- Measuring systems for the marine industry

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