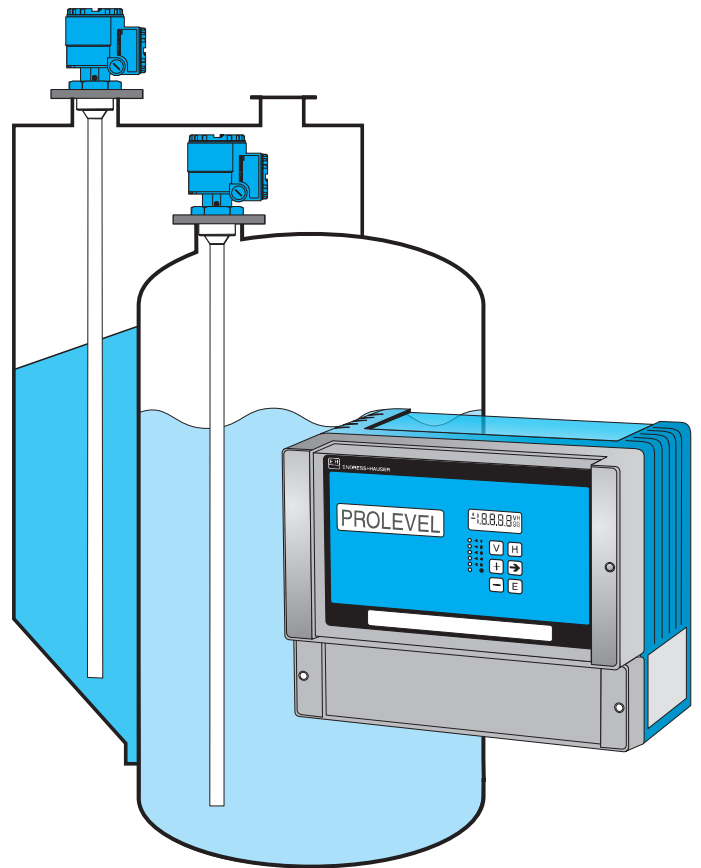
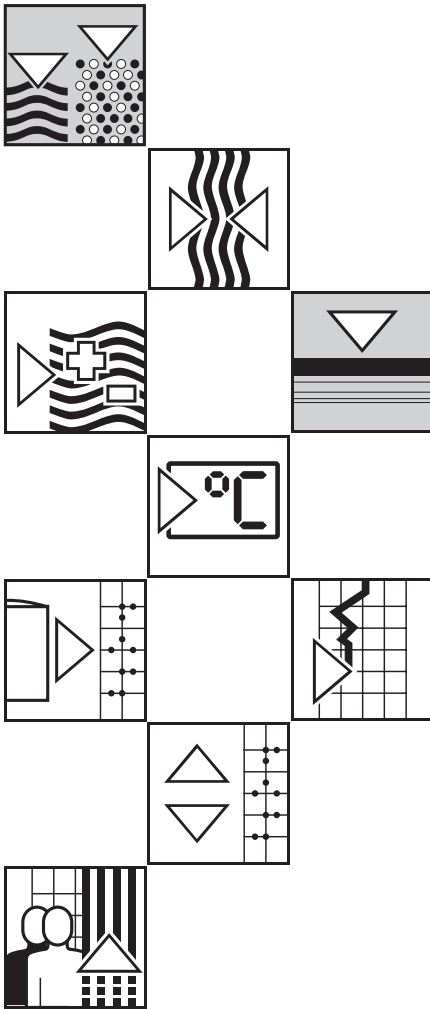


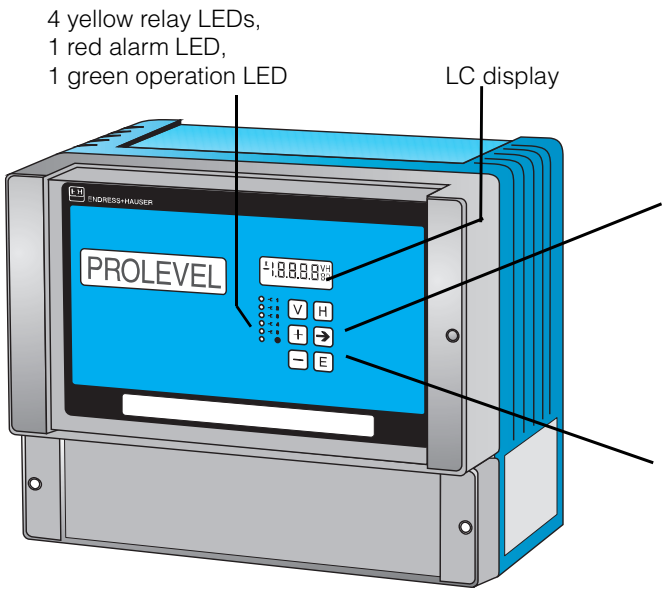
prolevel FMC 662 Capacitance Level Measurement

Installation and Operating Instructions



Short Instructions

Operation



- V** Selects vertical matrix position
- H** Selects horizontal matrix position
- V** + **H** Select position V0H0
- Selects next digit
- + **+** Move decimal point
- +** Increases value of digit
- Decreases value of digit
- E** Registers entry

Quick configuration for level measurement

	Function	Matrix Ch 1 Ch 2		Action
	1 Reset transmitter Operating mode	V9H5		- Enter 672, press »E« to register entry - <i>Omit if commissioned as in Section 4.1</i> - Enter 0 = channels 1+2, 1 = channel 1, 2 = channel 2 - Press »E« to register entry
	2 »Empty« calibration*	V0H1	V4H1	- Fill vessel 0...40% full (probe covered) - Enter level in %, m, ft, etc. - Press »E« to register entry
	3 »Full« calibration*	V0H2	V4H2	- Fill vessel 60...100% full - Enter level in %, m, ft, etc. - Press »E« to register entry
	4 0/4 mA signal	V0H3 V0H5 V0H6	V4H3 V4H5 V4H6	- Enter 0 for 0...20 mA signal, 1 for 4...20 mA signal - Press »E« to register entry - Enter level for 0/4 mA signal (if not 0) - Press »E« to register entry - Enter level for 20 mA signal (if not 100) - Press »E« to register entry
	5 Channel 1 Relays 1a and 1b Channel 2 Relays 2a and 2b	V1H0 V1H1	V5H0 V5H1	- Enter level for switching in calibration units - Press »E« to register entry - Enter fail-safe mode: 0 = minimum, 1 = maximum - Press »E« to register

* Can be performed in reverse order

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Notes on Safety

The Prolevel FMC 662 is a field transmitter for level measurement which can be used with a variety of capacitance probes. It has been designed to operate safely in accordance with current technical and safety standards, and must be installed by qualified personnel according to the instructions in this manual.

Approved usage

The manufacturer accepts no responsibility for any damage arising from incorrect use, installation or operation of the equipment. Changes or modifications to the equipment not expressly approved in the operating manual or by the bodies responsible for compliance may void the user's authority to operate the equipment.

The Prolevel FMC 662 transmitter is available with certificate of conformity for use with probes installed in hazardous areas. The Table below indicates the combinations available and conditions for installation. Full details can be taken from the certificates. Please note that where quoted technical data differs from that listed in Section 1.5, that in the certificate applies.

Certificates

Certificate	Instruments	Notes
PTB 99 ATEX 2090	Prolevel FMC 661/662, FMB 662	  II (1) GD, [EEx ia] IIC, install outside Ex-area
CSA LR 53988-81	FMC 662	Class I, II, III Div. I Groups A-G
FM J.I. 0Z2A7.AX	FMC 662	Class I, II, III Div. I Groups A-G
PTB 98 ATEX 2215 X	DC 12 TE, DC .. TE .., DC .. E .., DC .. Capacitance probes 11500 Z(M), 11961 (Z), 21561 (Z) with electronic insert EC 16/17/27/37/47 Z, FEC 12, HTC 16/17/27 Z, HTC 10 E, HMC 37/47 Z	  II 1/2 G, II 2 G, EEx ia IIC/IIB T6
PTB 98 ATEX 2215 X	DC 12 TE, DC .. TE .., DC .. E .., DC .. Capacitance probes 11500 Z(M), 11961 Z, 21561 Z with electronic insert EC 17/37/47 Z, FEC 12	  II 1 G, EEx ia IIC/IIB T6

Safety conventions

In order to highlight safety-relevant or alternate operation procedures in the manual the following conventions have been used, each indicated by a corresponding icon in the margin.



Note!

Note!

- A note highlights actions or procedures which, if not performed correctly, may indirectly affect operation or may lead to an instrument response which is not planned.



Caution!

Caution!

- Caution indicates actions or procedures which, if not performed correctly, may lead to personal injury or incorrect functioning of the instrument



Warning!

Warning!

- A warning indicates actions or procedures which, if not performed correctly, will lead to personal injury, a safety hazard or destruction of the instrument

1 Introduction

The Prolevel FMC 662 is a field transmitter for level measurement with capacitance probes. It may be installed, commissioned and maintained by authorised personnel only. The operating manual must have been read and understood before the equipment is installed: instructions are to be followed exactly.

Since it is not possible to describe all applications in detail, the standard application, continuous level measurement on channels 1 and 2, has been used as the basis for the functional description. Other applications as listed in Section 1.1 are described in Chapter 5. The operating instructions are structured as follows:

In this manual

- Chapter 1: Introduction;
contains general information including application, measurement principle and functional description.
- Chapter 2: Installation;
contains hardware configuration, installation instructions, connection diagrams and technical data.
- Chapter 3: Controls;
describes operation with the front panel keys, Commulog VU 260 Z, and via the Rackbus RS 485 interface.
- Chapter 4: Calibration and Operation;
tells you how to commission the Prolevel for the standard application including calibration, linearisation, analogue outputs, relays and locking the parameter matrix.
- Chapter 5: Other Operating Modes;
describes differential level measurement and level measurement with a reference probe
- Chapter 6: Trouble-Shooting;
contains a description of the self-checking system with error messages, the simulation feature as well as instructions for configuration on replacement of the transmitter, probe or electronic insert.
- Chapter 7: Appendix;
contains a flowchart for calibration and linearisation using volume units.
- Index:
lists key words to help you find information quickly.

Short instructions for the standard set-up, continuous level measurement, which is used in 80% of applications, are to be found in the front cover. We advise you to commission as described in Section 4.1. before using this procedure as this ensures that probes can be exchanged without the need for re-calibration.

Short instructions

In addition to this manual, the following publications provide information on configuration of the Prolevel FMC 662.

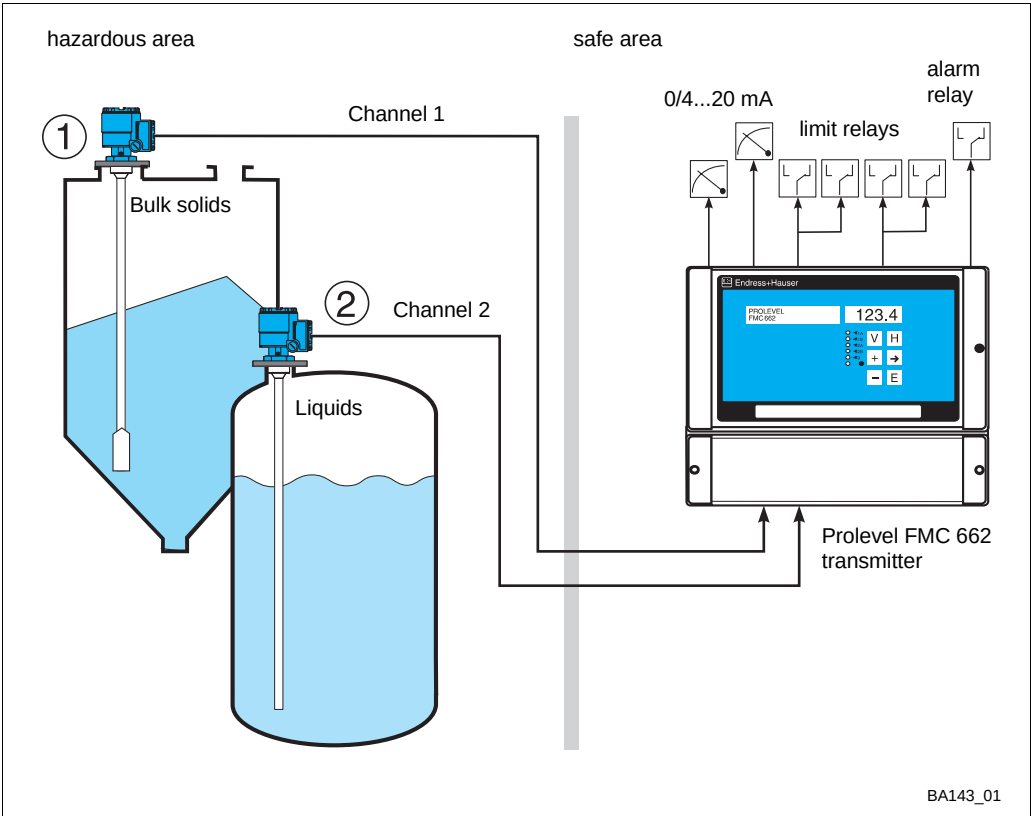
Further documentation

- BA 028F Commulog VU 260 Z handheld terminal
- BA 134F Rackbus RS 485

The installation of the probes, electronic inserts and accessories is described in the documentation accompanying these articles - see text for references. When installing probes in explosion hazardous areas the instructions included in the accompanying probe certification must also be observed.

1.1 Application

Fig. 1.1:
Standard application showing
Prolevel FMC 662 controlling
level measurement
① in bulk solids
② in liquids



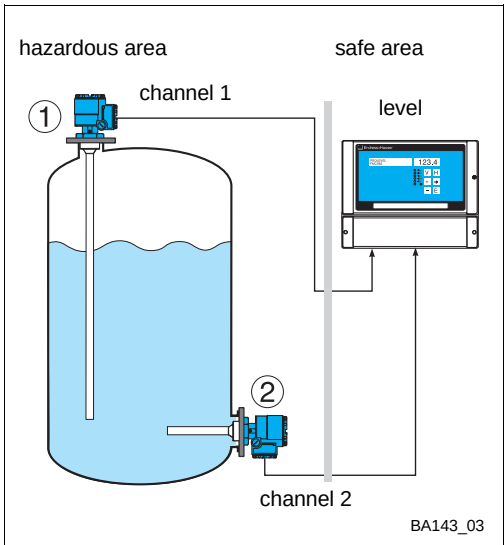
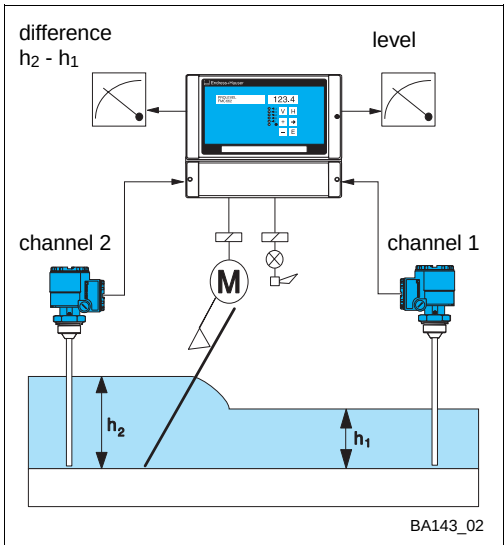
The Prolevel FMC 662 is designed for level measurement on one or two channels with a capacitance probe. The applications described in this manual are as follows:

- Level or volume measurement ...Chapter 4
- Differential level measurement ...Chapter 5
- Level measurement with a reference probe ...Chapter 5.

Prolevel transmitters may also be used for applications in explosion hazardous areas and possess intrinsically-safe sensor circuits conforming to EEx ia IIC. A list of certificated combinations is to be found in »Notes on Safety« preceding this chapter.

Fig. 1.2:
Left:
Prolevel FMC 662 used for level
difference measurement with
screen control

Right:
Prolevel FMC 662 used for level
measurement with reference
probe
① Measuring probe
② Reference probe



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