Technical Information

Prosonic S FMU95

Ultrasonic measurement
Time-of-Flight

Transmitter for up to 10 sensors
FDU90/91/91F/92/93/95

Field of application
Continuous, non-contact level measurement of fluids, pastes, sludge and powdery to coarse bulk materials with up to 5 or 10 ultrasonic sensors

- Measuring range up to 45 m (148 ft) (depending on sensor and material measured)
- Calculation of average values or sums
- Transmitter available with field housing or top hat rail housing for control cabinet instrumentation
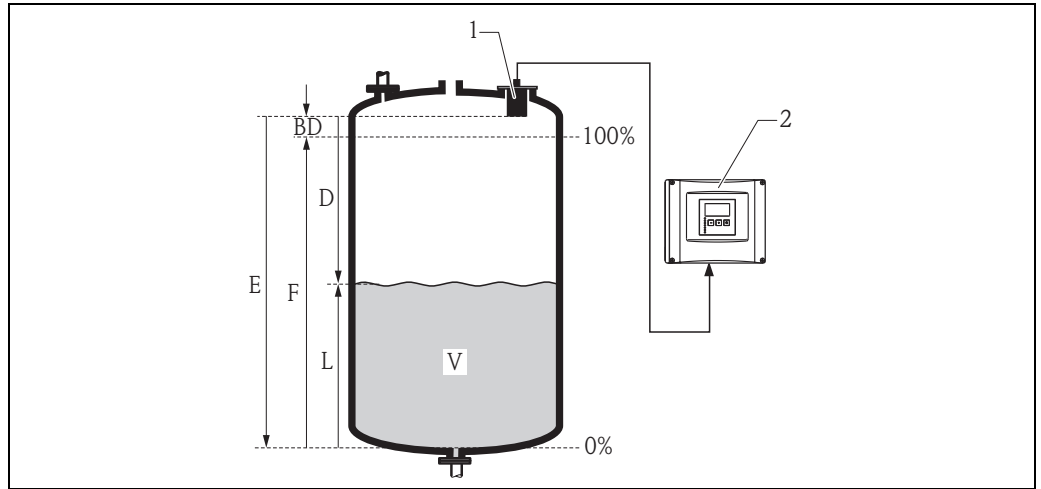
Benefits

- Simple, menu-guided operation with 6-line plain text display, 15 languages selectable
- Envelope curves on the display for quick and simple diagnosis
- Easy operation, diagnosis and measuring point documentation with the supplied "FieldCare" operating program
- Time-of-Flight correction via integrated or external temperature sensors
- Linearization (up to 32 points, freely configurable)
- System integration via PROFIBUS DP with up to 20 measured values

Endress+Hauser

People for Process Automation

Table of Contents

Function and system design

Measuring principle

L00-FMU95xxx-15-00-08-xx-900

BD: Blocking distance, D: Distance from sensor membrane to fluid surface, E: Empty distance F: Span (full distance),
L: Level, V: Volume (or mass)

The sensor transmits ultrasonic pulses in the direction of the product surface. There, they are reflected back and received by the sensor. The transmitter Prosonic S measures the time t between pulse transmission and reception. From t (and the velocity of sound c) it calculates the distance D from the sensor membrane to the product surface:

$$D = c \cdot t/2$$

From D results the desired measuring value:
- Level L
- Volume V

Blocking distance

The span F may not extend into the blocking distance BD. Level echoes within the blocking distance range can not be evaluated due to the transient characteristics of the sensor.

The blocking distances of the individual sensors are given in the following documents:
- TI00396F for the sensors FDU90/91/91F/92/93/95[1]

Time-of-flight correction

In order to compensate for temperature dependent time-of-flight changes, a temperature sensor (NTC) is integrated in the ultrasonic sensors.

Interference echo suppression

The interference echo suppression feature of the Prosonic S ensures that interference echoes (e.g. from edges, welded joints and installations) are not interpreted as a level echo.

Linearization

Pre-programmed linearization curves for specific types of vessels

- Horizontal, cylindrical tank
- Spherical tank
- Tank with pyramidal bottom
- Tank with conical bottom
- Tank with flat, inclined bottom

The pre-programmed linearization curves are calculated on-line.

Linearization table

consisting of up to 32 linearization points; to be entered manually or half-automatically.

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1) The sensors FDU80/80F/81/81F/82/83/84/85/86/96 are not available anymore.
Use the serial number of your device to access the documentation for your device via www.endress.com.

Datalog functions	**Basic version**
	• Peak hold indicator of the min./max. levels and the min./max. temperatures at the sensors
	• Recording of the last 10 alarms
	• Indication of the operating status
	• Indication of the operating hours

Application examples	**Multi-channel level measurement with sum calculation**
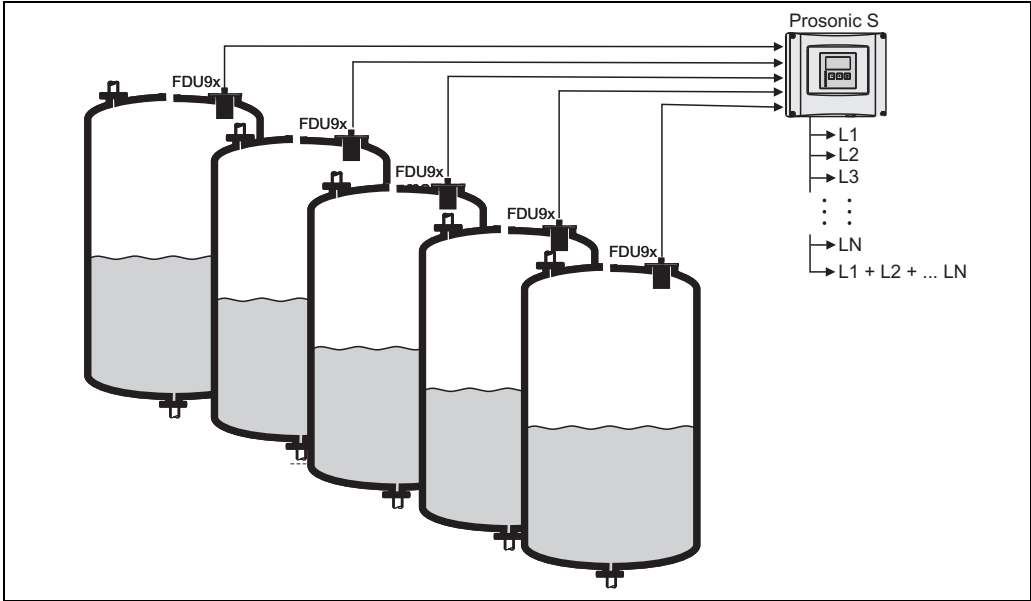
L00-FMU95xxx-15-00-00-xx-010

Multi-channel level measurement with average calculation
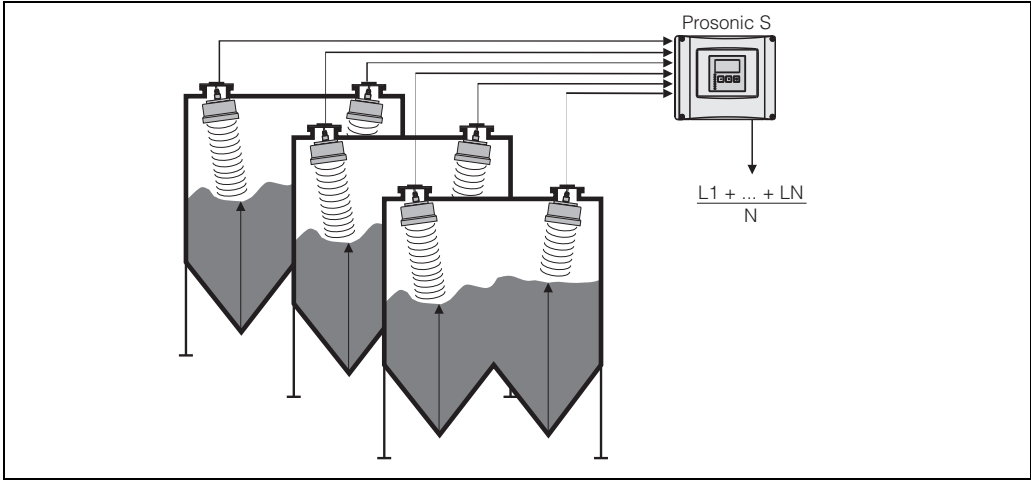
L00-FMU95xxx-15-00-00-xx-003

| System integration PROFIBUS DP | **Operating options** |
| | • Via the display and operating module at the Prosonic S |

Operating options

- Via the display and operating module at the Prosonic S
- Via the service interface with the Commubox FXA291 and the operating program FieldCare
- Via PROFIBUS DP with PROFIboard, PROFIcard or PROFIusb and the operating program FieldCare

L00-FMU90xxx-14-00-00-xx-021
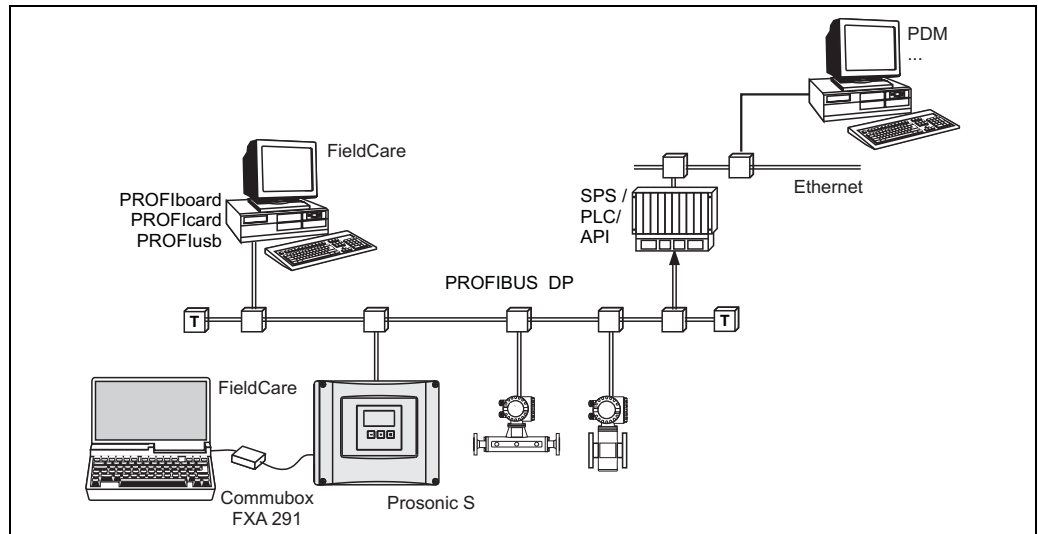
Input

Sensor inputs

Depending on the instrument version, 1 or 2 of the sensors FDU90, FDU91, FDU91F, FDU92, FDU93, FDU95 can be connected. The Prosonic S identifies these sensors automatically.

Sensor	FDU90	FDU91 FDU91F	FDU92	FDU93	FDU95
Max. range[1] in liquids	3 (9.8)	10 (33)	20 (66)	25 (82)	-
Max. range[1] in solids	1.2 (3.9)	5 (16)	10 (33)	15 (49)	45 (148)

m (ft)

[1]   This table gives the maximum range. The range depends on the measuring conditions. For an estimation see Technical Information TI00396F, Chapter "Input".

In order to support existing installations, the following sensors can be connected as well.[2] The type of sensor must be entered manually (except FDU96).

Sensor	FDU80 FDU80F	FDU81 FDU81F	FDU82	FDU83	FDU84	FDU85	FDU86	FDU96
Max. range[1] in liquids	5 (16)	10 (33)	20 (66)	25 (82)	-	-	-	-
Max. range[1] in solids	2 (6.6)	5 (16)	10 (33)	15 (49)	25 (82)	45 (148)	70 (230)	70 (230)

m (ft)

[1]   This table gives the maximum range. The range depends on the measuring conditions. For an estimation see Technical Information TI00189F, Chapter "Planning Recommendations".

The sensors FDU83, FDU84, FDU85 and FDU86 with an ATEX, FM or CSA certificate are not certified for connection to the FMU95 transmitter.

[2]   The sensors FDU80/80F/81/81F/82/83/84/85/86/96 are not available anymore.
      Use the serial number of your device to access the documentation for your device via www.endress.com.

Output

PROFIBUS DP interface

Profile	3.0
Transmittable values	• Main value (level 1 to level 10 • Distances • Temperatures • Averages/sums
Function blocks	• 20 Analog Input Blocks (AI)
Supported baud rates	• 9.6 kbaud • 19.2 kbaud • 45,45 kbaud • 93.75 kbaud • 187.5 kbaud • 500 kbaud • 1.5 Mbaud • 3 Mbaud • 6 Mbaud • 12 Mbaud
Service Access Points (SAPs)	2
ID number	154E (hex) = 5454 (dec)
GSD file	EH3x154E.gsd
Addressing	Via dip switches at the instrument or via software (e.g. FieldCare) Default address: 126 per software
Termination	Can be activated/deactivated in the instrument.
Locking	The device can be locked by hardware or software.

Power supply

**Supply voltage /
Power consumption /
Current consumption**

Instrument version	Supply voltage	Power consumption	Current consumption
AC voltage (FMU95 - ****A****)	90 to 253 V_{AC} (50/60 Hz)	max. 23 VA	max. 100 mA at 230 V_{AC}
DC voltage (FMU95 - ****B****)	10,5 to 32 V_{DC}	max. 14 W (typically 8 W)	max. 580 mA at 24 V_{DC}

Galvanic isolation

The following terminals are galvanically isolated from each other:
• Auxiliary energy
• Sensor inputs
• Bus connection (PROFIBUS DP)

Fuse

• 2 A T /DC
• 400 mA T /AC

Accessible in the terminal compartment

Electrical connection

Terminal compartment of the field housing

The field housing has a separate terminal compartment. It can be opened after loosening the 4 screws of the lid.
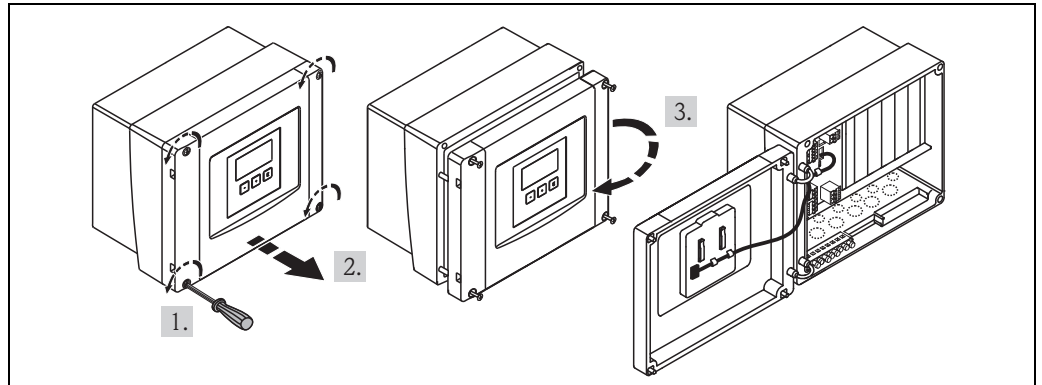
L00-FMU90xxx-04-00-00-xx-002

For easier wiring, the lid can be completely removed by unplugging the display plug and loosening the hinges:
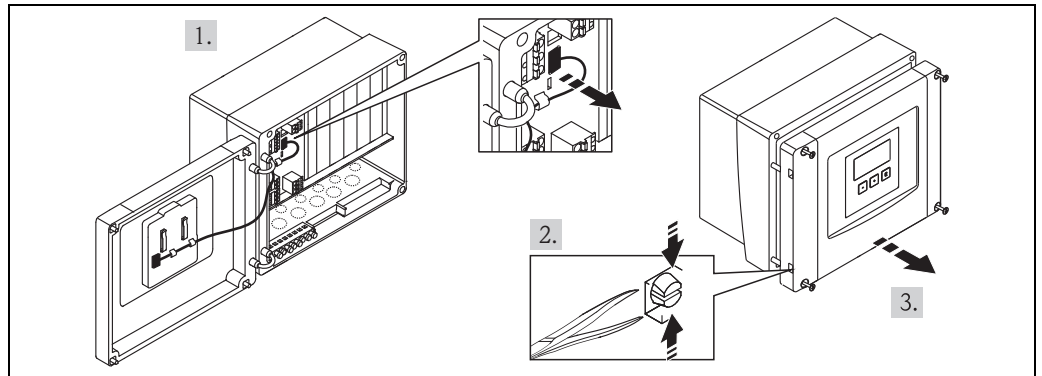
L00-FMU90KAx-04-00-00-xx-009

Cable entries of the field housing

On the bottom of the housing the following openings for cable entries are prestamped:
- M20x1.5 (10 openings)
- M16x1.5 (5 openings)
- M25x1.5 (1 opening)

A suitable cutting device must be used for cutting out the openings.

Terminal compartment of the DIN-rail housing

Single instrument
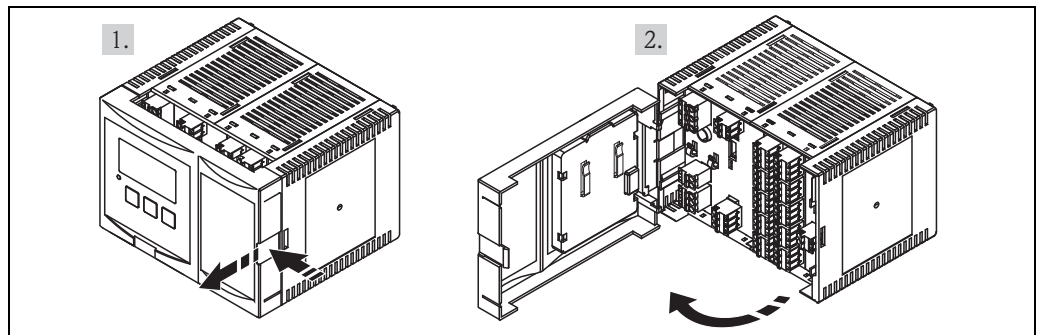
L00-FMU95xxx-04-00-00-xx-005

The catch can be unlocked by slightly pressing onto the clip. Then, the cover of the terminal compartment can be opened.

Several instruments mounted side by side
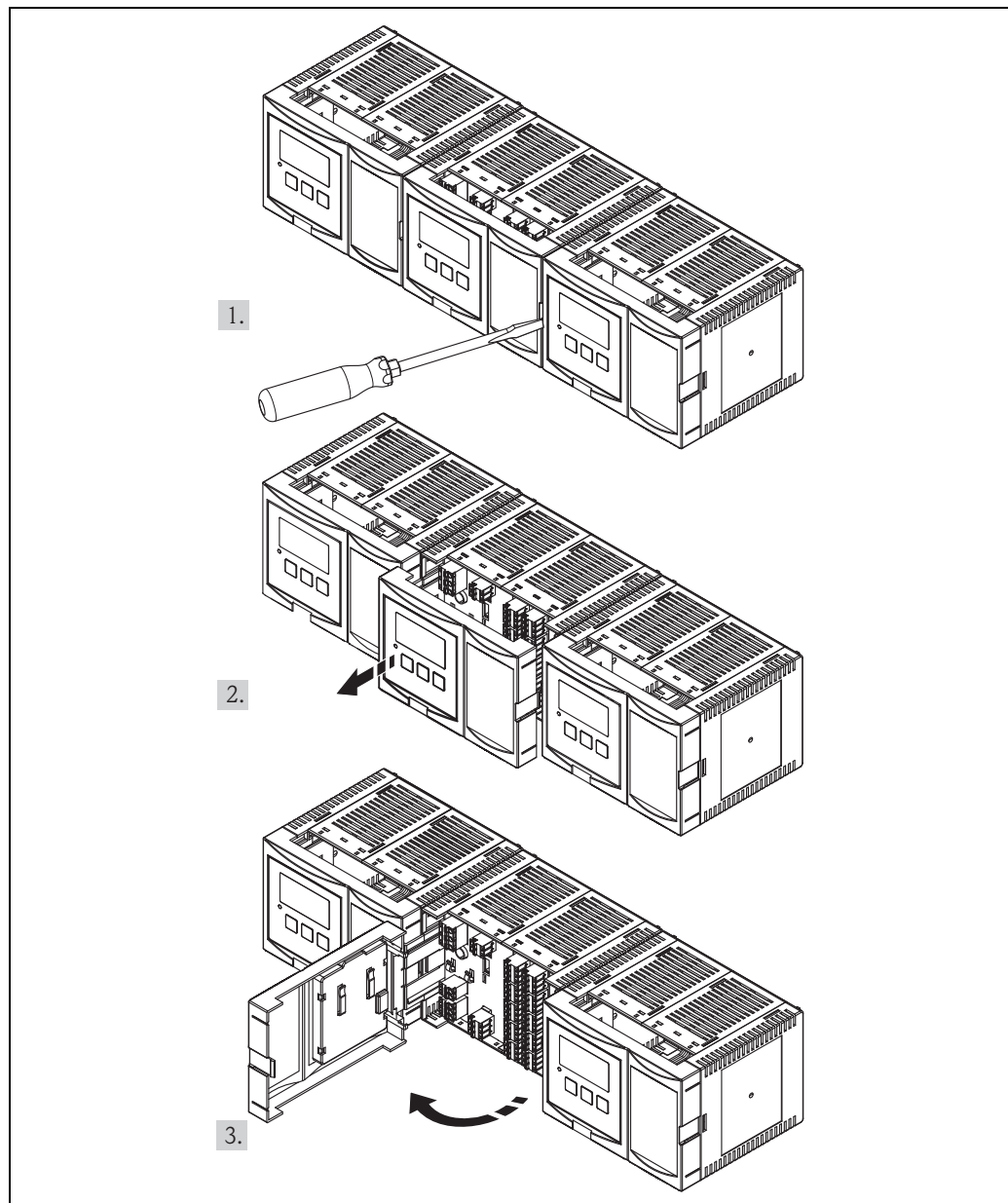
L00-FMU95KAx-04-00-00-xx-005

Open the catch of the cover (e.g. by a screwdriver).

Pull the cover out by approx. 20 mm (0.79 in).

The cover can now be opened.

- The cables can be inserted into the housing from above or from below.
- If the instruments are mounted next to each other and if the sensor cables run in parallel, the synchronization terminals (39 and 40) must be interconnected (see sections → 🖹 9 "Terminal assignment" and → 🖹 12 "Synchronization line").

Terminals

Pluggable spring-force terminals for connection of the cables are supplied in the terminal compartment. Rigid conductors or flexible conductors with cable sleeve can directly be inserted and are contacted automatically.

Feature	Value
Conductor cross section	0,2 mm^2 to 2,5 mm^2 (26 to 14 AWG)
Cable and sleeve cross section	0,25 mm^2 to 2,5 mm^2 (24 to 14 AWG)
Min. stripping length	10 mm (0.39 in)

Terminal assignment

L00-FMU90xxx-04-00-00-xx-001

Terminals of the Prosonic S FMU95; the terminals depicted in grey are not present in every instrument version.

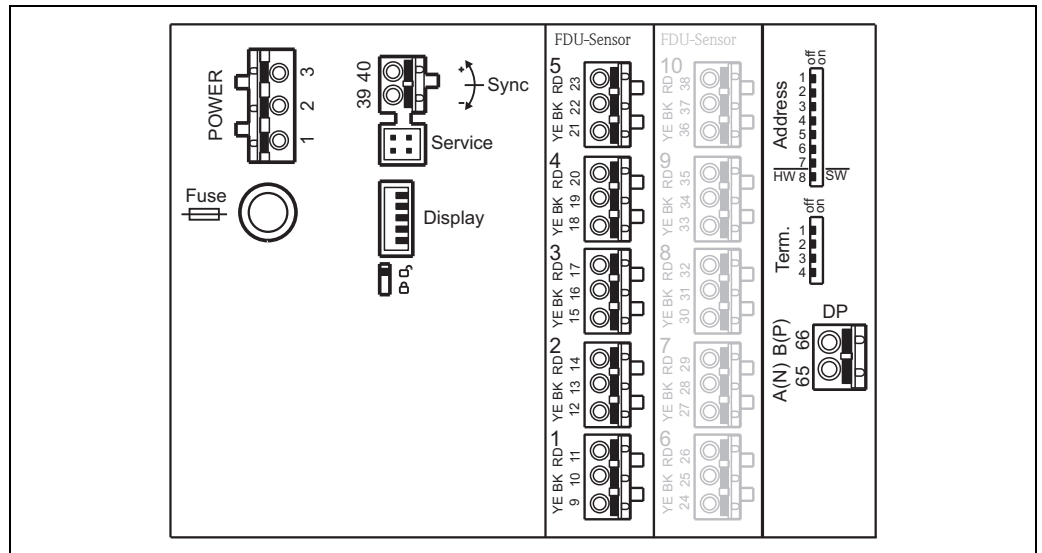| Terminals	Meaning	Remarks
Auxiliary energy		
1	• L (for AC version) • L+ (for DC version)	Depending on instrument version: • 90 to 253 V$_{AC}$ • 10,5 to 32 V$_{DC}$
2	• N (for AC version) • L- (for DC version)	
3	Potential equalization	
Fuse		Depending on instrument version: • 400 mA T (for AC) • 2 A T (for DC)
Bus communication		
65	PROFIBUS A (RxT/TxD - N)	
66	PROFIBUS B (RxT/TxD - P)	
Synchronization		
39, 40	Synchronization	See section "Synchronization line"
Level inputs		
09,10,11	Sensor 1 (FDU8x/9x)	YE: yellow strand BK: black strand RD: red strand
12, 13, 14	Sensor 2 (FDU8x/9x)	
15, 16, 17	Sensor 3 (FDU8x/9x)	
18, 19, 20	Sensor 4 (FDU8x/9x)	
21, 22, 23	Sensor 5 (FDU8x/9x)	

Terminals	Meaning	Remarks
24, 25, 26	Sensor 6 (FDU8x/9x)	Only available for the version with 10 sensor inputs YE: yellow strand BK: black strand RD: red strand
27, 28, 29	Sensor 7 (FDU8x/9x)	
30, 31, 32	Sensor 8 (FDU8x/9x)	
33, 34, 35	Sensor 9 (FDU8x/9x)	
36, 37, 38	Sensor 10 (FDU8x/9x)	

⚠ CAUTION

Limitation of electrical safety.

▸ When using the public supply mains, an easily accessible power switch must be installed in the proximity of the device. The power switch must be marked as a disconnector for the device (IEC/EN 61010).

ℹ In order to avoid interference, do not route the sensor cables parallel to high-voltage or electric power lines and not close to frequency converters.

Additional elements on the terminal areas

Designation	Meaning/Remarks
Fuse	Fuse: 2 A T /DC or 400 mA T/AC
Display	Connection of the display or the remote display and operating module
Service	Service interface for connection of a PC/Notebook via Commubox FXA291
🔓	Locking switch
Term.	Bus termination
Address	Bus address

Connection of the sensors FDU9x

L00-FMU95xxx-04-00-00-xx-004
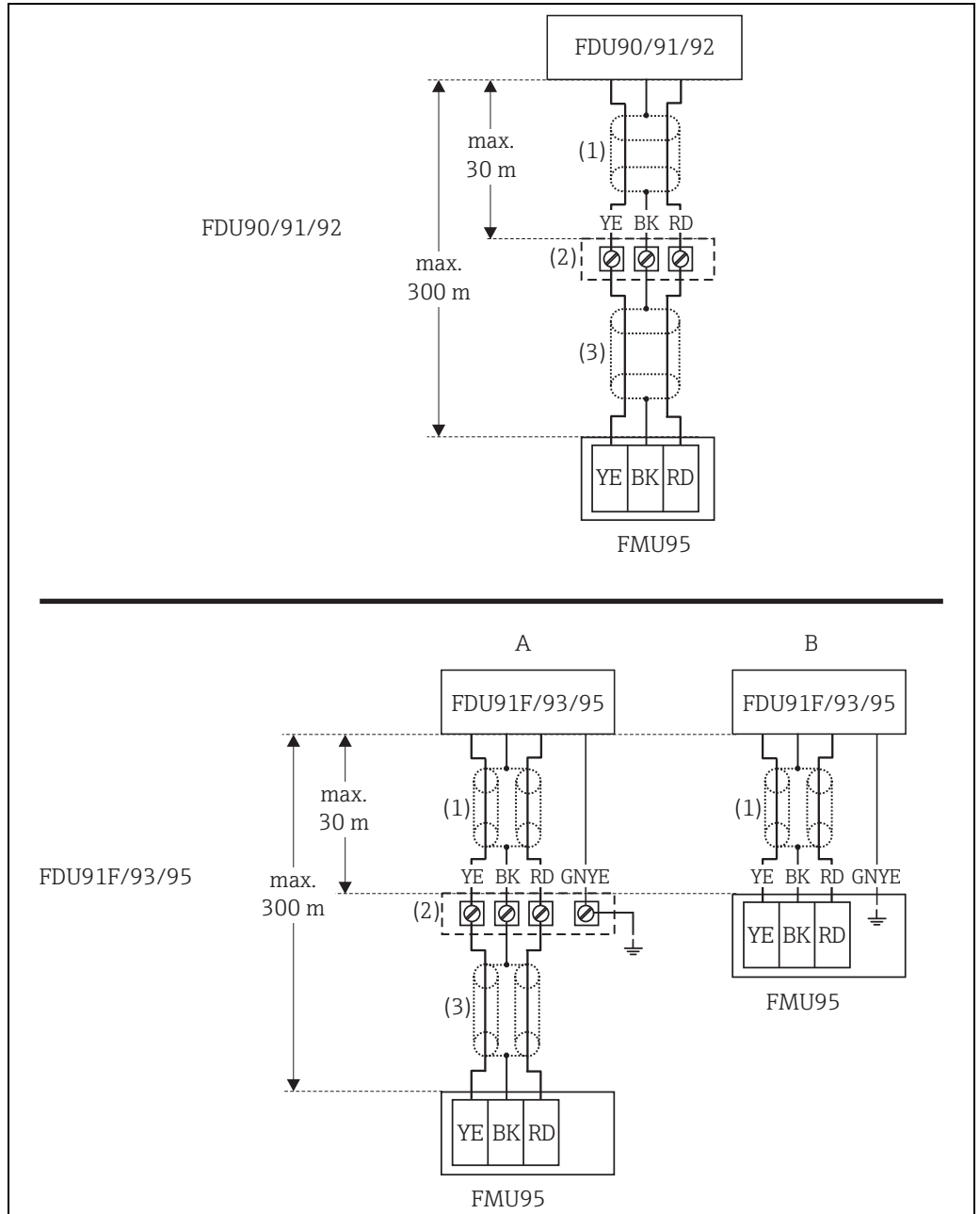
(A): grounding at the terminal box,
(B): grounding at the transmitter FMU95,
(1): screen of the sensor cable,
(2): terminal box,
(3): screen of the extension cable

Colours of the strands: YE = yellow; BK = black; RD = red; BU = blue; BN = brown; GNYE = green-yellow

For details on the sensor connection refer to Technical Information TI00396F[3].

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3) The sensors FDU80/80F/81/81F/82/83/84/85/86/96 are not available anymore.
Use the serial number of your device to access the documentation for your device via www.endress.com.

Synchronization line

- If wiring several Prosonic S (FMU90/FMU95) which are mounted in a common cabinet and if the sensor cables run in parallel, the synchronization terminals (39 and 40) must be interconnected.
- Up to 20 instruments can be synchronized in this way.
- The synchronization prevents an evaluation unit from receiving a signal while a different evaluation unit is emitting a signal.
This prevents pulses in the sensor cable of one sensor from influencing the received signal on the cable of a different sensor.
- If there are more than 20 instruments, groups must be formed, each containing a maximum of 20 instruments. For the instruments within each group, the sensor cables may run in parallel. The sensor cables of different groups must be seperated from each other.
- Usual commercial screened cable can be used for synchronization
  - max. length: 10 m (33 ft) between the individual instruments
  - cross section: 2 x (0.75 to 2.5 mm^2 (20 to 14 AWG))
  - for lengths up to 1 m (3.3 ft), an unscreened cable can be used; for lenghts exceeding 1 m (3.3 ft), screening is required. The screen must be connected to ground
- Instruments of the Prosonic FMU86x family can be connected to the synchronization line as well. In this case a maximum of 10 instruments can be connected to each synchronisation line.

L00-FMU90xxx-04-00-00-xx-004

L00-FMU90xxx-04-00-00-xx-017
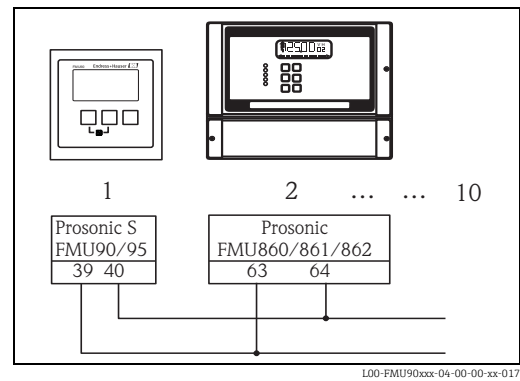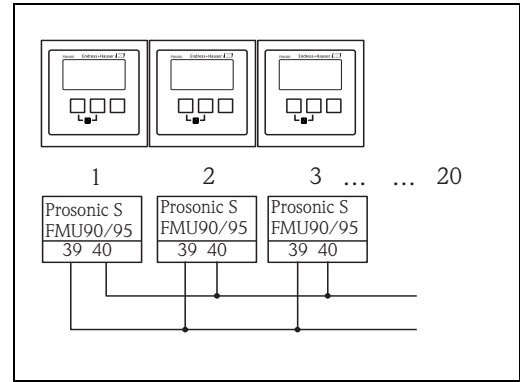
Connection of the separate display and operating module

L00-FMU90xxx-04-00-00-xx-005
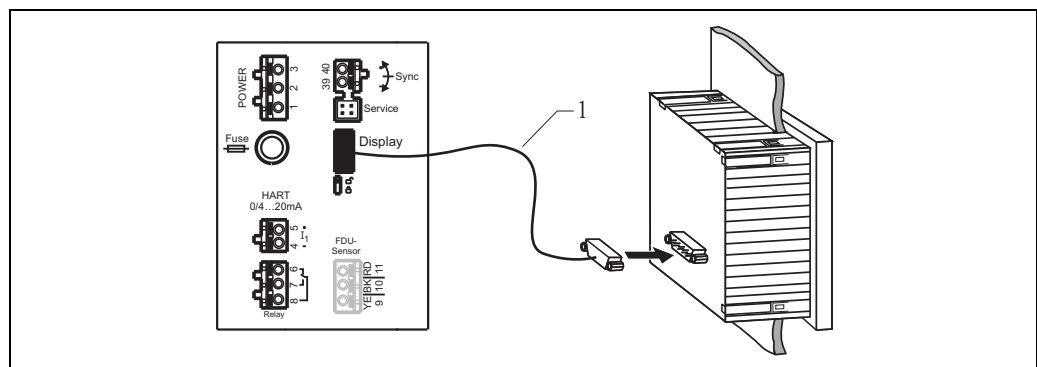
1   Connection of the display plug with the cable (3 m (9.8 ft))

For the version of the Prosonic S with a separate display for panel mounting, a pre-assembled connecting cable (3 m (9.8 ft)) is supplied. The cable must be connected to the display plug of the Prosonic S.

ℹ Minimum diameter for cable bushing: 20 mm (0.79 in)

Performance characteristics

Reference operating conditions	• Temperature = 24±5 °C (75±9 °F)
	• Pressure = 960±100 mbar (14±1.45 psi)
	• Relative humidity = 60±15 %
	• Ideally reflecting surface, sensor vertically aligned
	  (e.g. calm, plane liquid surface of 1 m^2 (10.76 ft^2))
	• No interference echoes within the signal beam
	• Settings of the application parameters:
	  – Tank shape = flat ceiling; Medium property = liquid; Process condition = calm surface

Maximum measuring error[4] [5]	±0,2 % of the maximum span of the sensor
Typical measuring error[5]	Include linearity, repeatability and hysteresis Better than ±2 mm (0.08 in) + 0.17 % of the measured distance
Measured value resolution	1 mm (0.04 in) with FDU90/FDU91
Measuring frequency	• 0.2 Hz (with 5 sensors) • 0.1 Hz (with 10 sensors) The exact value depends on the settings of the application parameters and the instrument version (5 sensors or 10 sensors). ℹ️ If unused sensor inputs are switched off (in the "sensor management" menu), the measuring frequency increases. The Prosonic S measures with one sensor per second.

Operating conditions: Environment

Ambient temperature	−40 to +60 °C (−40 to +140 °F) The functionality of the LC display becomes restricted at $T_U < −20$ °C ($T_U < −4$ °F). If the device is operated outdoors in strong sunlight, a protective cover should be used (→ 🖹 19).
Storage temperature	−40 to +60 °C (−40 to +140 °F)

Climate class	• **Field housing:** according to DIN EN 60721-3 4K2/4K5/4K6/4Z2/4Z5/4C3/4S4/4M2
	  (DIN 60721-3 4K2 corresponds to DIN 60654-1 D1)
	• **Housing for DIN rail mounting:** according to DIN EN 60721-3 3K3/3Z2/3Z5/3B1/3C2/3S3/3M1
	  (DIN 60721-3 3K3 corresponds to DIN 60654-1 B2)

Vibration resistance	• Housing for DIN rail: DIN EN 60068-2-64 / IEC 68-2-64; 20 to 2000 Hz; 0.5 (m/s^2)^2/Hz • Field housing: DIN EN 60068-2-64 / IEC 68-2-64; 20 to 2000 Hz; 1.0 (m/s^2)^2/Hz

Ingress protection	• Field housing: IP66 / NEMA 4x
	• Housing for DIN rail: IP20
	• Separate display:
	  – IP65 / NEMA 4 (front panel, if mounted in cabinet door)
	  – IP20 (rear panel, if mounted in cabinet door)

Electromagnetic compatibility (EMC)	Electromagnetic compatibility according to all relevant requirements of the EN 61326- series and NAMUR recommendation EMC (NE21). For details see declaration of conformity. With respect to interference emission the devices meet the requirements of class A and are only provided for use in an "industrial environment"!

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4)   according to EN 61298-2
5)   with reference operating conditions

Mechanical construction

Housing versions

- Field housing; optionally with integrated display and operating module
- Housing for top-hat rail mounting; optionally with integrated display and operating module
- Housing for top-hat rail mounting with separated display and operating module for cabinet door mounting

Dimensions of the field housing

L00-FMU90xxx-06-00-00-xx-001
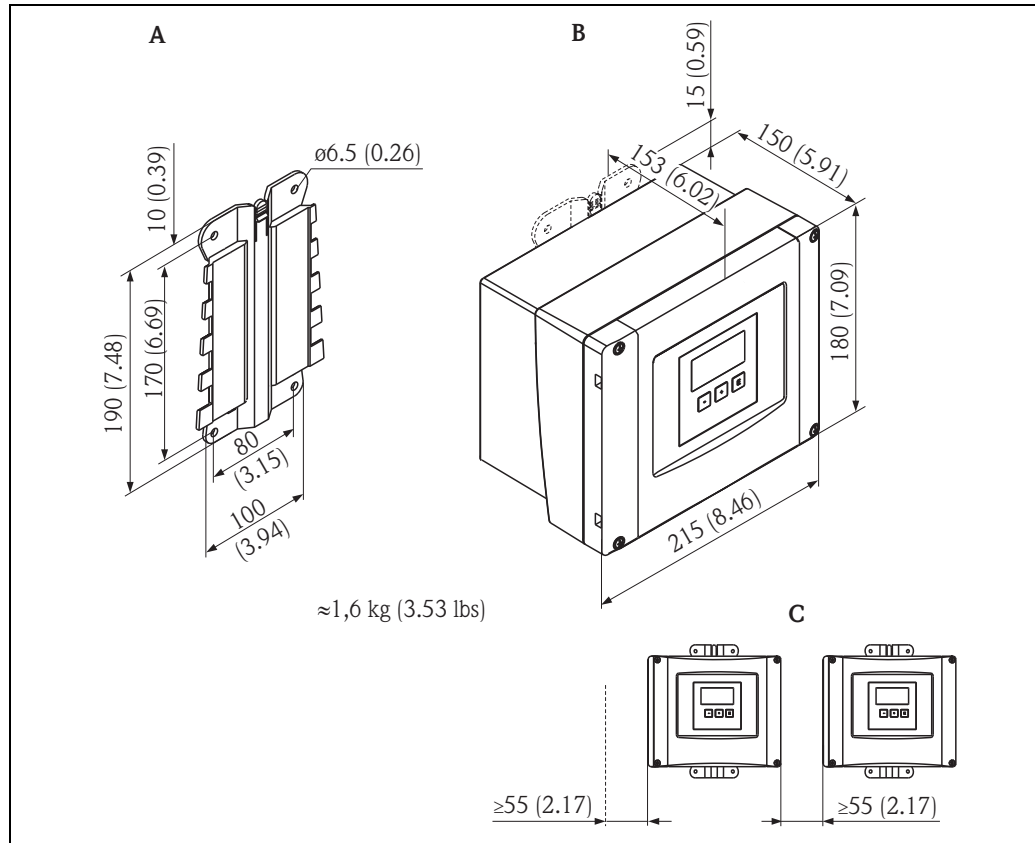
Dimensions in mm (in)
A   Mounting help (supplied); can also be used as drilling template
B   Field housing
C   Minimum mounting distance

The dimensions of the field housing are the same for all instrument versions.
To open the housing, a minimum mounting distance of 55 mm (2.17 in) is required on the left.

🛈 The mounting help must be mounted on a plane surface and must not become bent. Otherwise the mounting of the field housing may be difficult or impossible.

Dimensions of the DIN-rail housing

EN 60715
TH 35x7.5/15
(1.4x0.3/0.6)

≈0,7 kg (1.54 lbs)

L00-FMU90xxx-06-00-00-xx-005
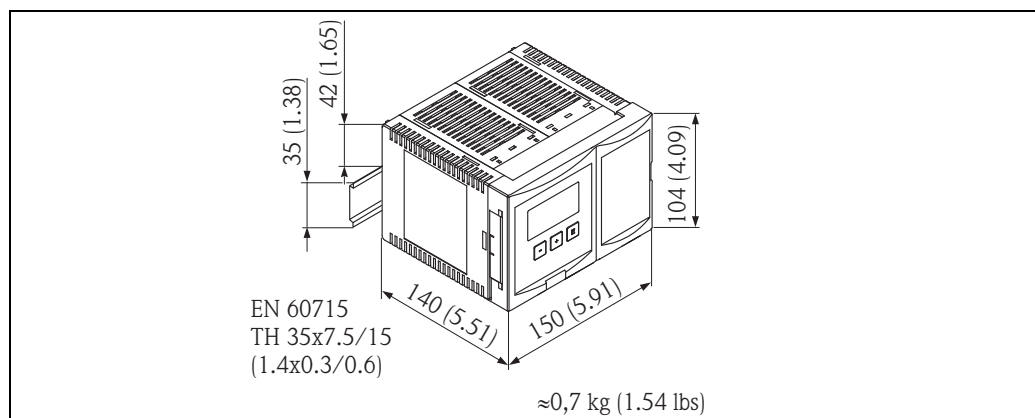
Dimensions in mm (in)

Dimensions of the separate display and operating module
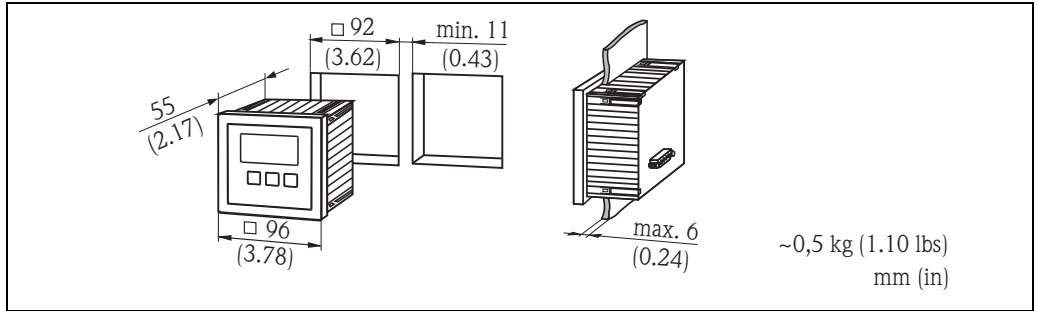
L00-FMU90xxx-06-00-00-xx-004

Weight

Housing version	Weight
Field housing	Approx. 1.6 to 1.8 kg (3.53 to 3.97 lbs); depending on instrument version
Housing for DIN rail	Approx. 0.7 kg (1.54 lbs)
Separate display and operating module	Approx. 0.5 kg (1.10 lbs)

Materials
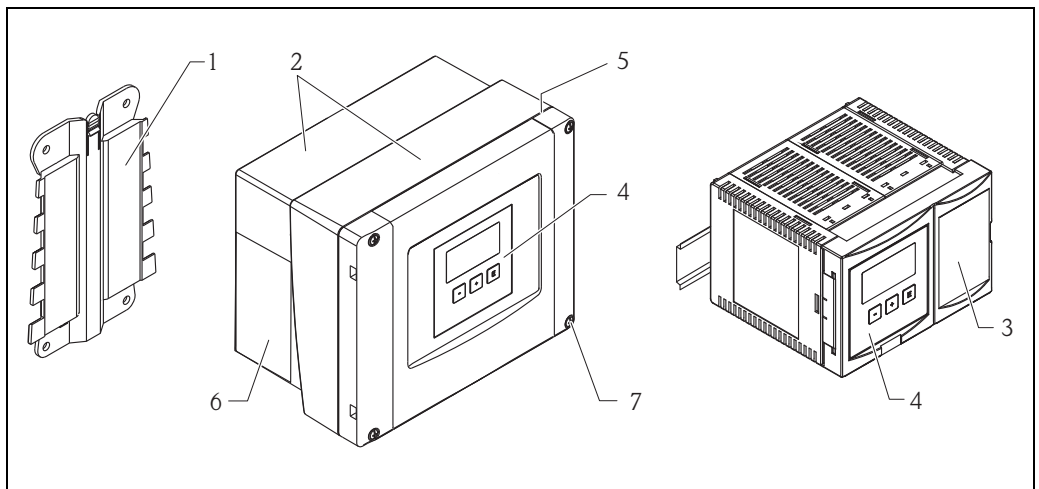
L00-FMU9xxx-16-00-00-xx-000

Pos.	Part	Material
1	Housing bracket	PC-FR
2	Field housing	PC-FR
3	Housing for DIN rail	PBT-GF
4	Separate display and operating module	PC
5	Sealing	PUR foam
6	Nameplate	Polyester
7	Screws	A4 (1.4578)

Human interface

**Display and operating
module**
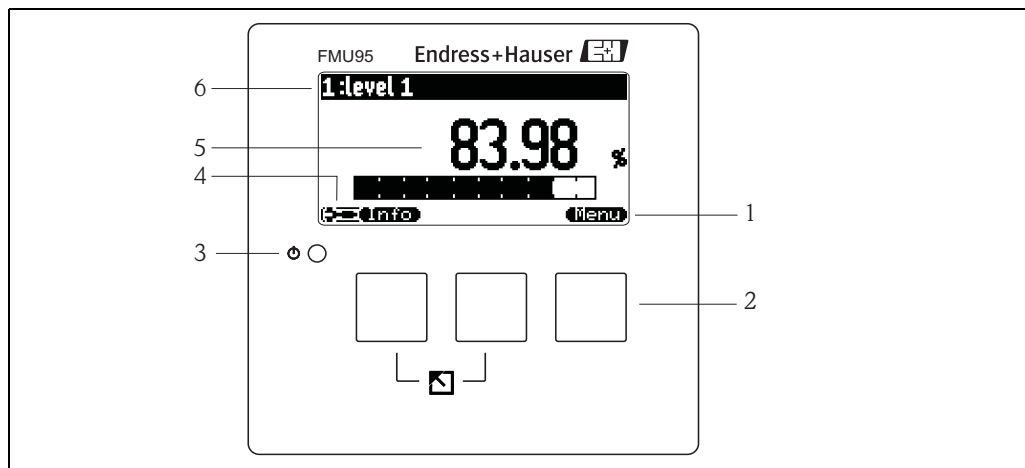
L00-FMU95xxx-07-00-00-xx-001

1   Softkey symbol
2   Key
3   LED indicating the operating state
4   Display symbols
5   Value of the parameter, including unit
6   Name of the parameter

Display (Examples)

L00-FMU90xxx-07-00-00-en-041

Display of a function including help text and descriptive graphic
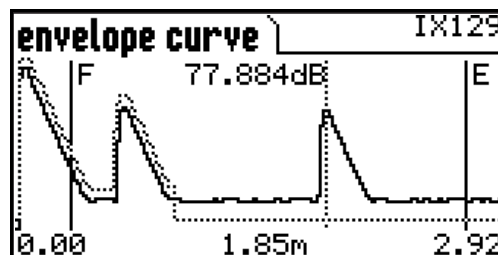
L00-FMU90xxx-19-00-00-en-089

*Display of the envelope curve including the mapping. The level
echo and the empty distance are marked.*

Keys (softkey operation)

The function of the keys depends on the current position within the operating menu (softkey
functionality). The key functions are indicated by softkey symbols in the bottom line of the display.

LED

The LED (a) indicates the operating state ("normal operation", "alarm" or "warning")

Display

An illuminated display is available as an option (s. feature 40 of the product structure → 📄 18)

Operating menu

The Prosonic S has got a dynamical operating menu. Only those functions are visible which are relevant
for the instrument version and installation environment at hand.

Basic setup

The operating menu contains a basic setup for easy commissioning of the connected sensors. The basic
setup guides the user through the complete commissioning procedure.

Locking of the instrument

The instrument can be locked against parameter changes in the following ways:
- Locking switch in the terminal compartment
- Key combination at the operating module
- Input of a locking code via software (e.g. "FieldCare")

Certificates and Approvals

CE mark

The measuring system meets the legal requirements of the EC-guidelines. Endress+Hauser confirms the instrument passing the required tests by attaching the CE-mark.

Ex approval

The available certificates are listed in the ordering information. Note the associated safety instructions (XA) and control or installation drawings (ZD).

Warning!
- Measuring systems for use in hazardous environments are accompanied by separate "Ex documentation", which is an integral part of this Operating Manual. Strict compliance with the installation instructions and ratings as stated in this supplementary documentation is mandatory.
  - Ensure that all personnel are suitably qualified.
  - Observe the specifications in the certificate as well as national and local standards and regulations.
- The transmitter may only be installed in suitable areas.
- Sensors with a certificate for hazardous areas may be connected to a transmitter without a certificate.
- For FM approvals:
  Unauthorized substitution of components may impair the suitability for Division 1 or Division 2.
- Do not disconnect equipment unless the area is known to be non-hazardous.

Note!
- The sensor must be installed and used in a way that eliminates any danger. Possible installation positions: in tanks, vessels, silos, over stockpiles, open channels, weirs or other bins.
- Sensors FDU9x with Ex-approval can be connected to the transmitter FMU95 without Ex-approval.

External standards and guidelines

EN 60529

Protection class of housing (IP code)

EN 61326 series

EMC product family standard for electrical equipment for measurement, control and laboratory use

NAMUR

User association for automation technology in process industries

US Standard UL 61010-1

CSA General Purpose Units FMU9x-N******** are tested according to US standard UL 61010-1, 2nd edition

Ordering information

Product structure

010										Approval
	R									Non-hazarous area
	J									ATEX II 3D
	N									CSA General Purpose

020										Application
		1								Level

030										Housing, material
			1							Field mounting PC, IP66 NEMA 4x
			2							DIN rail mounting PBT, IP20

040										Operation
				C						Illuminated display + keypad
				E						Illuminated display + keypad, 96x96, panel mounting, front IP65
				K						w/o display, via communication

050										Power supply
					A					90-253 VAC
					B					10.5-32 VDC

060										Level input
						A				5x sensor FDU9x/8x
						B				10x sensor FDU9x/8x

080										Output
							3			PROFIBUS DP

110										Language (*)
								1		de, en, nl, fr, es, it, pt
								2		de, en, ru, pl, cs
								3		en, zh, ja, ko, th, id

120										Additional option
									A	Basic version
									L	5-point linearity protocol only to order with FDU9x sensor + 5-point linearity protocol

995										Marking
										1 Tagging (TAG)
										2 Bus address

FMU95 -										complete product designation

(*): meaning of the language code:

cs: Czech; de: German; en: English; es: Spanish; fr: French; id: Bahasa (Indonesia, Malaysia); it: Italian;
ja: Japanese; ko: korean; nl: Dutch; pl: Polish; pt: Portuguese; ru: Russian; th: Thai; zh: Chinese

Scope of delivery

- Instrument according to the version ordered
- Operating program: FieldCare
- Operating Instructions (depending on communication version → 🗎 23, "Documentation")
- for certified instrument versions: Safety Instructions (XAs) or Control Drawings (ZDs) → 🗎 23, "Documentation"

Accessories

Commubox FXA291	The Commubox FXA291 connects Endress+Hauser field instruments via service interface to the USB interface of a personal computer or a notebook. For details refer to TI00405C/07/EN.

Protection cover for the field housing

- Material: 316Ti (1.4571)
- is mounted by the mounting help of the Prosonic S
- Order-Code: 52024477
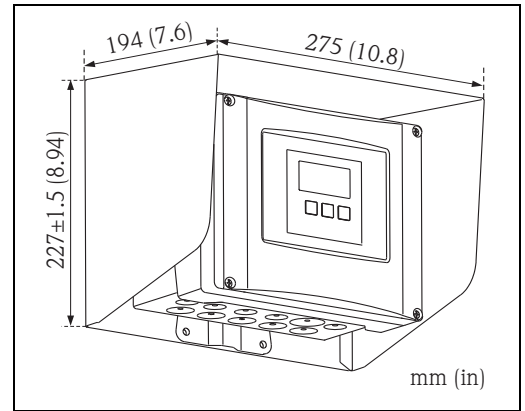
L00-FMU90xxx-06-00-00-xx-003

Mounting plate for the field housing

- suited for the mounting help of the Prosonic S
- for 1" - 2" tubes
- Dimensions: 210 mm x 110 mm (8.27 x 4.33 in)
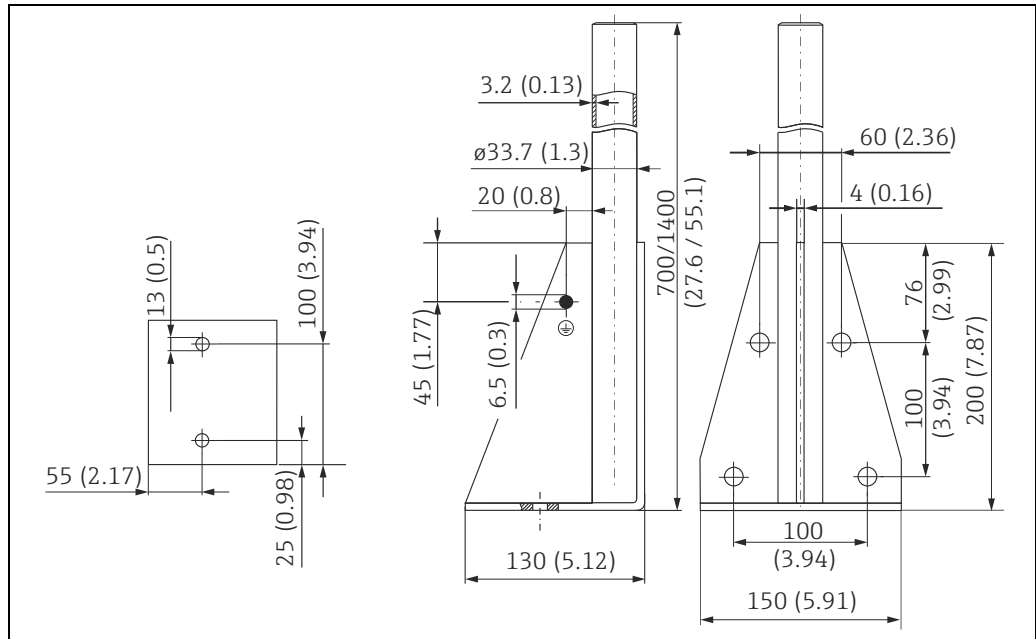- Material: 316Ti (1.4571)
- fixing clips, screws and nuts are supplied
- Order code: 52024478
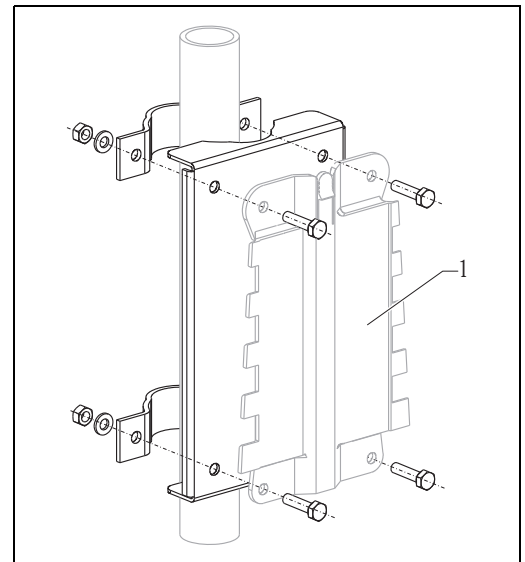
L00-FMU90xxx-00-00-00-xx-001

1   Mounting help of the field housing

Mounting bracket

Dimensions in mm (in)

A0019279

| Height	Material	Weight	Order Code
700 (27.6)	Galvanized steel	3.2 kg (7.06 lbs)	919791-0000
700 (27.6)	316Ti (1.4571)		919791-0001
1400 (55.1)	Galvanized steel	4.9 kg (10,08 lbs)	919791-0002
1400 (55.1)	316Ti (1.4571)		919791-0003

mm (in)

Adaption plate for remote display

Used to mount the remote display into the opening (138 mm x 138 mm (5.43 x 5.43 in)) of the remote display module of the Prosonic FMU860/861/862 (Display size: 144 x 44 mm (5.67 x 5.67 in)).

Order-Code: 52027441

Note!
The adapter plate can be mounted directly in the old remote display of the FMU86x series. The housing of the remote display of FMU860/861/862 is the holder for the adapter plate and the new remote display of the FMU90/95 in the format 96 x 96 mm (3.78 x 3.78 in).
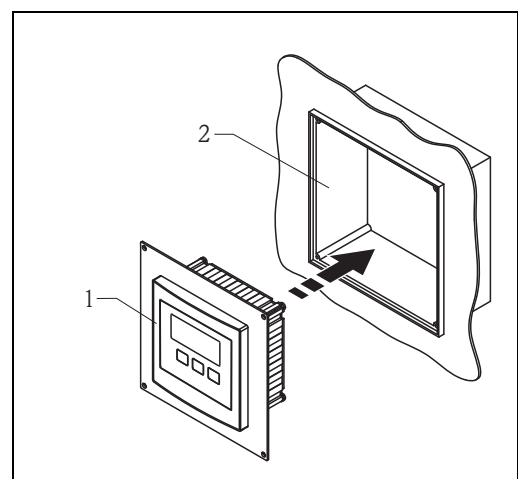
L00-FMU90xxx-00-00-00-xx-001

1 Remote display of the Prosonic S with adaption plate
2 Opening of the remote display FMU860/861/862

Option:
• Adaption plate 160 x 160 mm (6.3 x 6.3 in), thickness 3 mm (0.12 in), aluminum, opening 92 x 92 mm (3.62 x 3.62 in) for remote display of the FMU90 (size of the display: 96 x 96 mm (3.78 x 3.78 in)).
• Can be used to replace the FMU86x remote display or DMU2160/2260.
• Order Code: TSPFU 0390
• Contact Endress+Hauser: http://www.endress.com/contact

Overvoltage protection HAW562

System principle

L00-FMU9x-15-00-00-en-001

Application examples

G09-HAW562xx-04-10-01-en-004

Level measurement with 2 Prosonic FDU9x level sensors and version PROFIBUS DP

Ordering information

Surge Arrester HAW562, compact device for DINrail installation in signal and power supply lines and communication lines protecting field devices and systems against overvoltage and magnetic induction.

						Approval
	AA					Non-hazardous area
	8D					ATEX II 2 (1)G Ex ia IIC T6
						Application
		A				Measuring signal 0/4-20 mA, PFM, PA, FF
		B				Supply voltage 10-55 V (+/-20%)
		C				Supply voltage 90-230 V (+/-10%)
		D				Communication RS485/MOD-Bus/PROFIBUS DP
		E				Protection module Prosonic FMU90
			+			**Additional selection (option)**
						Additional approvals
			LA			SIL
						Accessory enclosed
			PA			Screen grounding terminal
			PB			Field housing
			PC			Mounting bracket, wall/pipe
						Marking
				Z1		Tagging (TAG), metal
				Z3		Commissioning label, paper
				Z6		Tagging (TAG), by customer
HAW562-		+				complete product designation

For details see Technical Informations TI01012K and TI01013K and the Operating Instruction BA00306K.

Documentation

Technical Information	**TI00396F**
	Technical Information for the ultrasonic sensors FDU90/FDU91/FDU91F/FDU92/FDU93/FDU95[6]

Operating Instructions	**BA00344F**
	Operating Instructions for Prosonic S FMU95 This document describes the installation and commissioning of the Prosonic S. It contains those functions from the operating menu, which are required for a standard measuring task. Additional functions are described in this document: Description of Instrument Functions for Prosonic S FMU95, document number BA00345F.
	BA00345F
	Description of Instrument Functions for Prosonic S FMU95
	BA00346F
	Slot-Index tables for the PROFIBS-DP interface of Prosonic S FMU95

Safety Instructions	**XA00326F**
	Safety Instructions for ATEX II 3D

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6) The sensors FDU80/80F/81/81F/82/83/84/85/86/96 are not available anymore.
Use the serial number of your device to access the documentation for your device via www.endress.com.

71308102

www.addresses.endress.com

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People for Process Automation