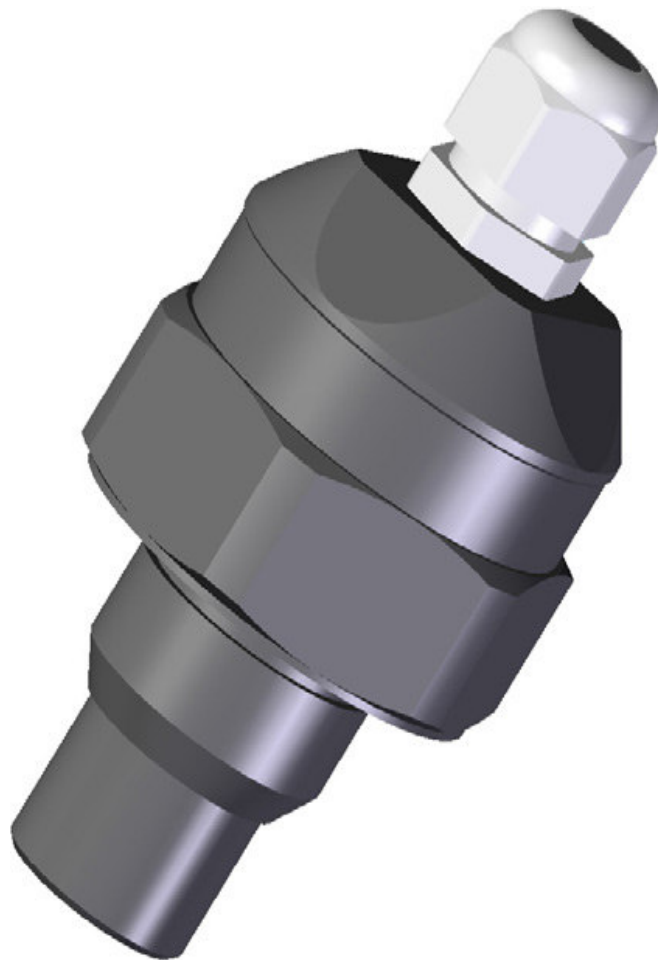




ULM53Xi Ultrasonic Level Meter



UNDATEC Flow measurements

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FCC & CE APPROVED

Intrinsic safety: EN 60079-0:2007
EN 60079-11:2007
EN 60079-26:2007

Electromagnetic compatibility: EN 55011-class B
EN 61326-1 industrial areas
EN 61000-4-2 class A
EN 61000-4-3 class A
EN 61000-4-4 class B
EN 61000-4-5 class A
EN 61000-4-6 class A

This products has got intrinsic safety certification, explosion proof certification and CE certification.

[Errors, mistranslation and technical improvement may change these data !](#)

Description

For continuous level measurement of liquids (even if polluted), mash and paste materials in open or closed vessels, sumps, open channels, etc.

- Variants of level meter with adjustment by two buttons, or by magnetic pen
- State indication by two LEDs
- Current output 4 - 20 mA
- Wide choice of electric connection via connectors, cable glands or protective conductor
- While used with horn adapter can be measured also some difficult media (foamy levels, loose materials, etc.)

The ULM53Xi ultrasonic level meters are compact measurement devices containing an ultrasonic transmitter and an electronic module.

Using an transmitter, level meters transmit the series of ultrasonic pulses that spread towards the level surface.

The transmitter recuperates reflected acoustic waves that are subsequently processed in the electronic module.

Based on the period during which the individual pulses spread towards the level and back, this period is averaged by the electronics that performs temperature compensation and subsequently a conversion to an output current 4 -20 mA

The ULM53Xi ultrasonic level meters are suitable for continuous non-contact level measurement of liquids (water solutions, sewer waste water, etc.), mash and paste materials (sediments, sticks, resins etc.) in closed or open vessels, sumps, reservoirs and open channels. In case the level of bulk-solid materials is measured, the measurement range is reduced.

All setting-up is done using two buttons positioned in the upper part of the sensor. The level meter is equipped with optical state indication (STATE) and with a setting-up process (MENU).

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Features of variants

- ULM53Xi-01 Measuring range from 0.1 m to 1 m, plastic PVDF transmitter and plastic body (PP+HDPE), process connection with thread G ¾".
- ULM53Xi-02 Measuring range from 0.2 m to 2 m, plastic PVDF transmitter and plastic body (PP+HDPE), process connection with thread G 1".
- ULM53Xi-06 Measuring range from 0.2 m to 6 m, plastic PVDF transmitter and plastic body (PP+HDPE), process connection with thread G 1 ½".
- ULM53Xi-10 Measuring range from 0.4 m to 10 m, plastic PVDF transmitter and plastic body (PP+HDPE), process connection with thread G 2 ¼".
- ULM53Xi-20 Measuring range from 0.5 m to 20 m, with plastic PVDF transmitter and plastic body (PP+HDPE), aluminium alloy flange.

Technical Specifications

test condition of data: 25°C (77°F)

Measuring range (1)	
ULM53Xi-01	0.1 ... 1 m
ULM53Xi-02	0.2 ... 2 m
ULM53Xi-06	0.2 ... 6 m
ULM53Xi-10	0.4 ... 10 m
ULM53Xi-20	0.5 ... 20 m
Supply voltage	
ULM53Xi-01..20	18 ... 30 V DC
Current supply	
ULM-53Xi-01..20	4 ... 20 mA / max. 22 mA
ULM-53Xi-01..20	4 ... 20 mA (limit values 3.9 ... 20.5 mA)
Current output	
ULM-53Xi-01, 02, 06, 10, 20	4 ... 20 mA (limit values 3.9 ... 20.5 mA)
Resolution	< 1 mm
Accuracy (within the total range)	
ULM53Xi-01 in area 0,1-0,2 m / 0,2-1,0 m	0,3 % / 0,2 %
ULM53Xi-02..06	0,15 %
ULM53Xi-10..20	0,2 %
Temperature error	max. 0,04% / °C
Beamwidth (-3 dB)	
ULM53Xi-01, 02, 10	10°
ULM53Xi-06	14°

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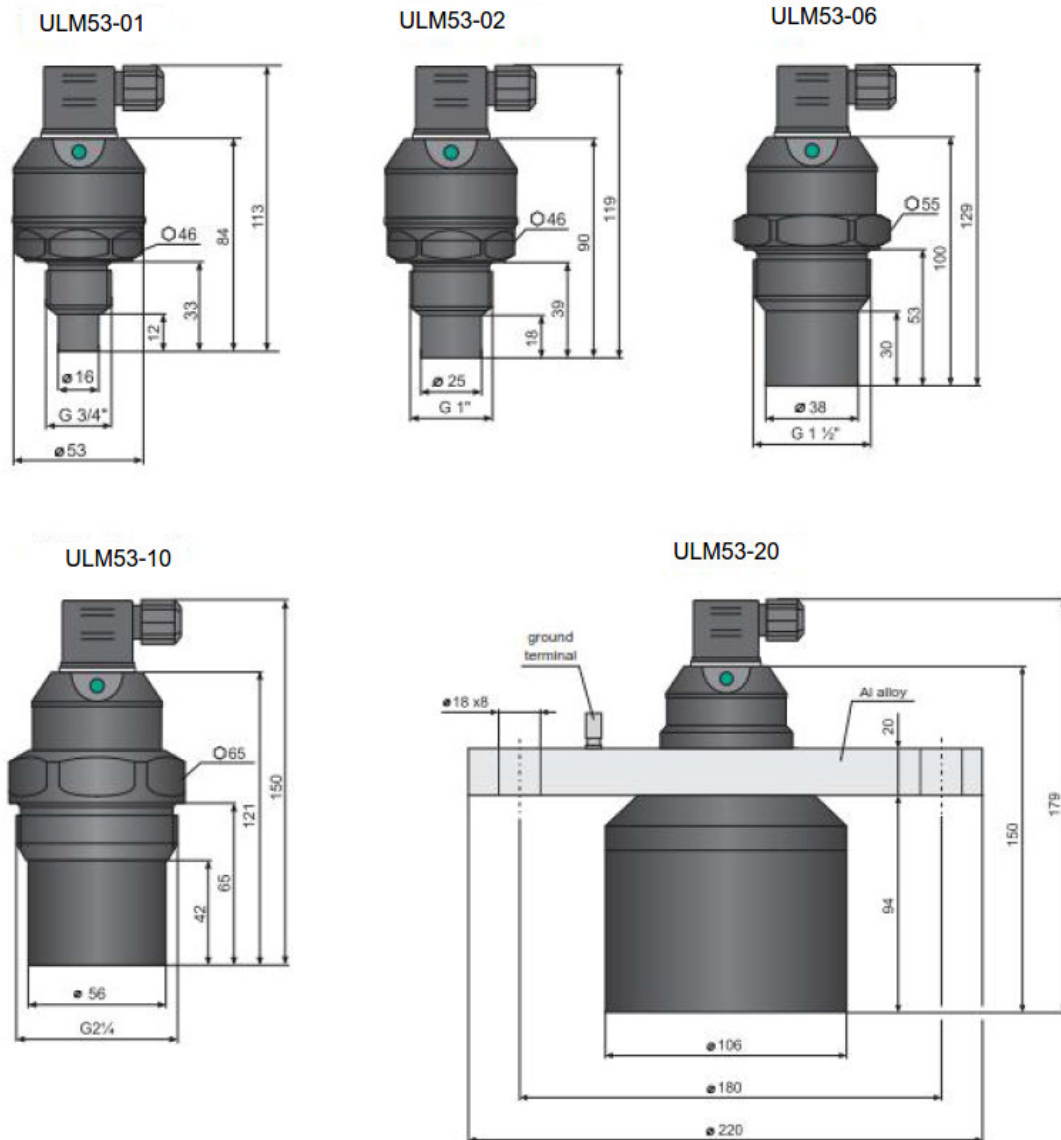
BA-ULM53 – 201705-e

ULM53Xi-20_	12°
Ambient temperature range	
ULM53Xi-01, 02, 06	-30 ... +70°C
ULM53Xi-10, 20	-30 ... +60°C
Measuring period	
ULM53Xi-01, 02	0,5 s
ULM53Xi-06, 10	1,2 s
ULM53Xi-20	5,0 s
Short time temperature stress resistance	
	+90°C / 1 hod.
Max. operation overpressure (on transmission surface)	
	0,1 MPa
Max. internal values (for the Xi version only) (2)	
	U _i =30 V DC; I _i =132 mA; P _i =0,99 W; C _i =370 nF; L _i =0,9 mH
Failure indication	
echo failure – basic mode	3,75 mA
echo failure – inverse mode	22 mA
level in dead zone – basic mode	22 mA
level in dead zone – inverse mode	3,75 mA
Protection class	
	IP68
Explosion protection proof	
	Ex II 1 / 2G Ex ia IIA T5 GA / GB
Recommended cable	
	PVC 2 x 0,75 mm ²
Maximal current output load resistance	
at U = 24 V DC	R _{max} = 270 Ω
at U = 22 V DC	R _{max} = 180 Ω
at U = 20 V DC	R _{max} = 90 Ω
Delay between supply power rise time and first measurement.	
ULM53Xi-01, 02, 06	5 s
ULM53Xi-10, 20	9 s
Weight	
ULM53Xi-01	0,20 kg
ULM53Xi-02	0,20 kg
ULM53Xi-06	0,25 kg
ULM53Xi-10	0,65 kg
ULM53Xi-20	2,80 kg
(1) In case the level of bulk-solid materials is measured, the measurement range is reduced.	
(2) Allowed pressure range in the zone 0: 80 ... 110 kPa.	

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Dimensions



Installation

Level meter is installed into the upper lid of the tank (vessel), using a fixing nut or a flange.

If installed in an open channel (sumps, reservoirs, etc.), install the level meter as close as you can to the maximum level expected.

The front of the level meter must run in parallel to the measured level.

Emitted acoustic signal must not be affected by near objects (stiffeners, ladders, mixers, unevenness, etc.), stream of filling, airflow, etc.

Foam on the level absorbs the acoustic wave reflection which might cause malfunction of the level meter. If possible select the location where the foaming is as low as possible. Protect the level meter against direct sunlight.

In the case of uncertainty we recommend to consult the application with the producer.

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Order code

ULM53Xi-01	1 m
ULM53Xi-02	2 m
ULM53Xi-06	6 m
ULM53Xi-10	10 m
ULM53Xi-20	20 m

Cable length must be specified in plain text when ordering !