Dinel®

Product SPECIFICATION SHEET

ACDC DYNAMICS
www.acdc.co.za

ULM-53 Series

- For continuous level measurement of liquids (even if polluted), mash and paste materials in open or closed vessels, sumps, open channels, etc.
- Configuration and adjustment of measuring range by two buttons
- Xi version for usage in explosive areas
- State indication by two LEDs
- Current (4 ... 20 mA) or voltage (0 ... 10 V) output
- Options of inverse function (20 ... 4 mA or 10 ... 0 V)



Ultrasonic level meters ULM® is self contained device that includes electroacoustics transducer and electronic module. The level meter ULM transmits series of ultrasonic pulses which propagates towards the liquid surface. Reflected acoustic wave is received back in the ULM transducer and processed in electronic module. The distance calculations are based on time of flight of the acoustic wave to the level and back.

The level meters are suited to level measurement of various liquid materials, sewerage waters, mash and paste materials, suspensions etc. In case the level of bulk-solid materials is measured, the measurement range is reduced. We recommend to consult the use with the manufacturer.

All the setting is done by means of two buttons, located in the upper part of the sensor. Level meters are equipped with optimal state indication "STATE" and the setting process "MENU". The level meters outputs can be current or voltage.

Features of variants

- **ULM–53_–02–_** **Measuring range from 0.25 m to 2 m,** plastic PVDF transmitter and plastic body (PP+HDPE), process connection with thread G 1".
- **ULM–53_–06–_** **Measuring range from 0.25 m to 6 m,** plastic PVDF transmitter and plastic body (PP+HDPE), process connection with thread G 1 ½".
- **ULM–53_–10–_** **Measuring range from 0.5 m to 10 m,** plastic PVDF transmitter and plastic body (PP+HDPE), aluminium alloy ("Xi" version) or polypropylene ("N" version) flange.
- **ULM–53_–20–_** **Measuring range from 0.5 m to 20 m,** with plastic PVDF transmitter and plastic body (PP+HDPE), aluminium alloy flange.

BRANCH CONTACT DETAILS

Johannesburg	010 202 3300
Germiston	011 418 9600
Cape Town	021 510 0710
Pinetown	031 700 4215
Riverhorse	031 492 4800

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Technical 010 202 3500
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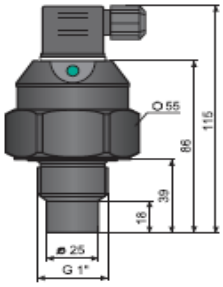
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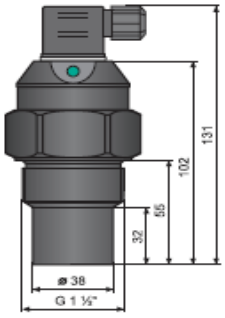
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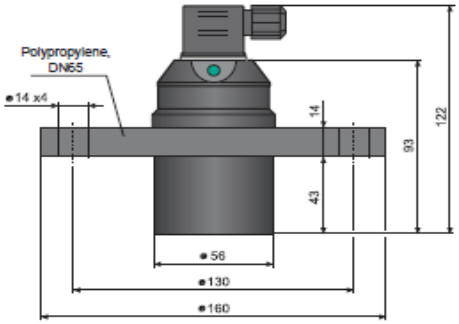
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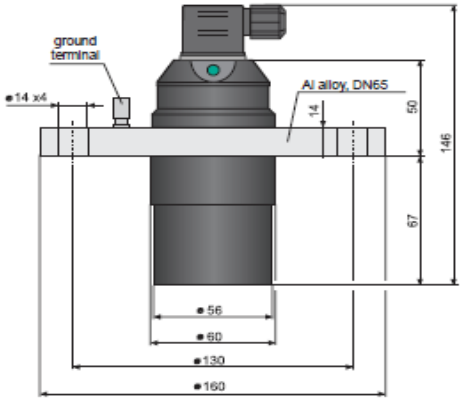
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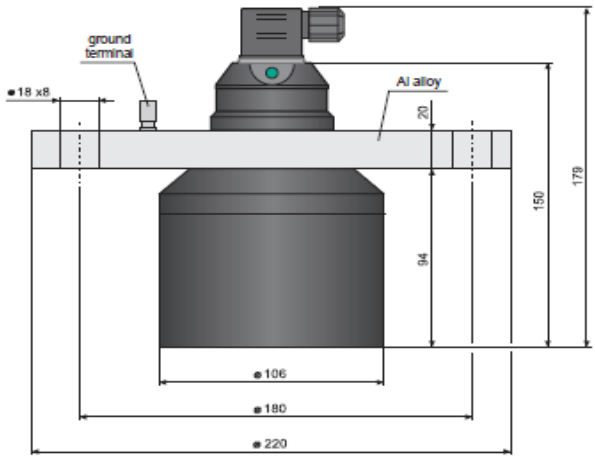
ULM–53N–10–_



ULM–53Xi–10–I



ULM–53_–20–_



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TECHNICAL SPECIFICATIONS

Measuring range [1]	ULM–53_–02–_ ULM–53_–06–_ ULM–53_–10–_ ULM–53_–20–_	0.25 ... 2 m 0.25 ... 6 m 0.5 ... 10 m 0.5 ... 20 m
Current supply	ULM–53_–__–U	12 mA
Supply voltage	ULM–53N–__–_ ULM–53Xi–__–I	18 ... 36 V DC 18 ... 30 V DC
Current output ULM–53_–__–I Voltage output ULM–53N–__–U		4 ... 20 mA (limit values 3.9 ... 20.5 mA) 0 ... 10 V (limit values 0 ... 10.2 V)
Resolution		< 1 mm
Accuracy (within the total range)	ULM–53_–06–_; 10–_; 20–_ ULM–53_–02–_	0.2 % 0.25 %
Temperature error		max. 0.04 % / K
Beamwidth (-3 dB)	ULM–53_–02–_; 10–_ ULM–53_–06–_ ULM–53_–20–_	10° 14° 12°
Ambient temperature range	ULM–53_–02–_; 06–_ ULM–53_–10–_; 20–_	-30 ... +70°C -30 ... +60°C
Measuring period	ULM–53_–02–_ ULM–53_–06–_ ULM–53_–10–_ ULM–53_–20–_	0.6 s 1.0 s 1.8 s 5.0 s
Averaging (can be modified according to agreement)		4 samples
Short time temperature stress resistance		+90°C / 1 hour
Max. operation overpressure (on transmission surface)		0.1 MPa
Max. internal values [2] (for the Xi version only)		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 echo failure – inverse mode level in dead zone – basic mode level in dead zone – inverse mode	3.75 mA (0 V) 22 mA (10.5 V) 22 mA (10.5 V) 3.75 mA (0 V)
Protection class		IP67
Recommended cable		PVC 2 x 0.75 mm² (3 x 0.5 mm²)
Maximal current output load resistance (at U = 24 V DC)		R_{max} = 270 Ω
Minimal voltage output load resistance		R_{min} > 1 kΩ
Delay between supply power rise time and first measurement	ULM–53_–02–_; 06–_; 10–_ ULM–53_–20–_	3 s 5 s
Delay between power supply rise time and full emission output	ULM–53_–02–_; 06–_; 10–_ ULM–53_–20–_	30 s 45 s
Weight	ULM–53_–02–_ ULM–53_–06–_ ULM–53_–10–_ ULM–53_–20–_	0.20 kg 0.25 kg 0.65 kg 2.80 kg

[1] *In case the level of bulk-solid materials is measured, the measurement range is reduced.*
[2] *Allowed temperature range in the zone 0: -20°C ... +60°C; allowed pressure range in the zone 0: 80 ... 110 kPa.*

AREA CLASSIFICATION (according to EN 60079-10 and EN 60079-14)

ULM–53N–__–_	Performance for non-explosive areas
ULM–53Xi–02–I ULM–53Xi–06–I	Explosive proof – suitable for explosive areas (combustible gases or vapours) Ⓔx II 1/2G Ex ia IIB T5 with isolating repeater (IRU–420) the whole level meter – zone 1, front head part – zone 0
ULM–53Xi–10–I	Explosive proof – suitable for explosive areas (combustible gases or vapours) Ⓔx II 1/2G Ex ia IIA T5 with isolating repeater (IRU–420) the whole level meter – zone 1, front head part – zone 0
ULM–53Xi–20–I	Explosive proof – suitable for explosive areas (combustible gases or vapours) Ⓔx II 2G Ex ia IIA T5 with isolating repeater (IRU–420) the whole level meter – zone 1

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