ARLM-70

ANTENNA RADAR LEVEL METER „AMANDA“

Designed for reliable level measurement of various liquids and pasty substances

- **Non-contact antenna radar level meter**
- **Display of values on OLED or LCD display**
- **Measuring range up to 8 m or 20 m**
- **Current output (4 ... 20 mA) with HART® protocol**
- **Measurement independent of the temperature and pressure of the atmosphere above the surface**
- **The possibility of measuring even in aggressive vapors**

TECHNICAL SPECIFICATIONS

work environment		explosion-free area
supply voltage		18 ... 34 V DC
output type		current 4 ... 20 mA with HART® communication (limit values 3,9 ... 20,5 mA)
current consumption		4 ... 20 mA / max. 22 mA
basic measurement accuracy		3 mm (distance 1 m ... 8 m or 1 m ... 20 m)
current output error		max. 80 µA
resolution		0,1 mm
maximum range		8 m or 20 m
dead zone		30 cm
Adjustable measuring range (SPAN)		min. 200 mm
function principle		FMCW
operating temperature range		-30 ... +70 °C
maximum operating overpressure		2 bar
measuring frequency		25 GHz (K-Band)
measurement sensitivity		3 levels
damping		1 ... 99 sec
status signaling (echo dropout)		adjustable 3,75 mA; 4 mA; 20 mA; 22 mA; NO CHANGE
the time of the first measurement from the start of the power supply		20 sec
separation capacity „power leads - housing“		2 nF / 500 V AC
maximum load resistance at	U=24V U=22 V U=20 V	R=270 Ω* R=180 Ω R=90 Ω
protection class		IP 67
recommended cable		PVC 2x0,75 mm^2 with a diameter of 6-8 mm
tightening torque of the cable gland		3 Nm
weight		approx. 0,5 kg

**Including HART® 250 Ω resistor*

BASIC FEATURES AND USE

Non-contact radar level meters with an antenna are suitable for continuous level measurement at medium and longer distances. They can be used both in various closed tanks, containers, in semi-open sumps, and in open space. Their use is suitable where their advantages are fully applied:

1. non-contact measurement
2. the independence of the measurement from the temperature and pressure of the atmosphere above the surface
3. the possibility of measuring even in a vacuum
4. the possibility of measuring even in aggressive vapors
5. the measurement is independent of the medium parameters

The ARLM-70 „Amanda“ radar level gauge works on the FMCW (frequency modulated continuous wave) principle with a frequency of 25 GHz (K-Band).

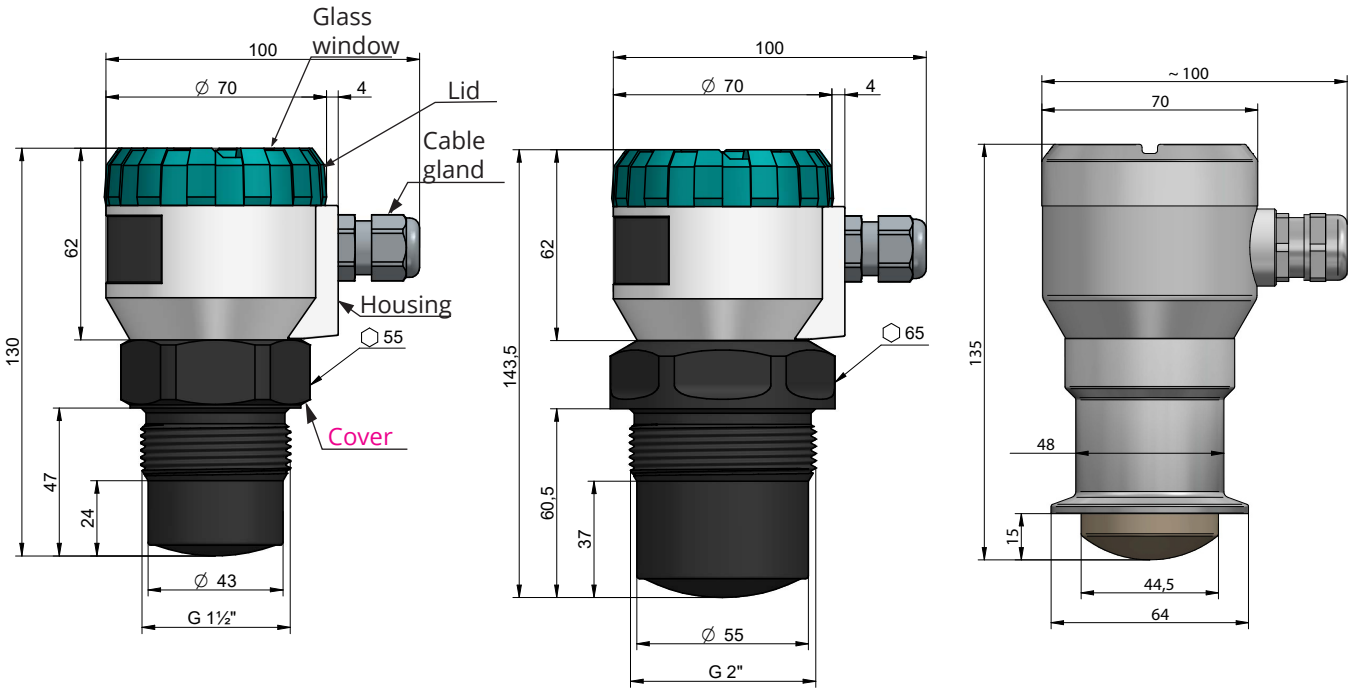
The level meter is equipped with a compact covered funnel antenna. The antenna cover prevents dirt, vapors and gases from entering the antenna.

The ARLM-70 is intended for measuring the level of liquid and pasty substances.

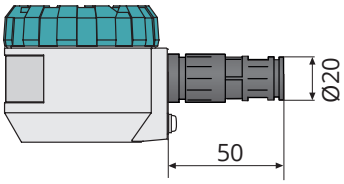
The level meter with two-wire connection with a current output of 4 ... 20 mA with HART® communication. The measuring range is within 0,3 ... 8 m or 0,3 ... 20 m.

DIMENSIONS

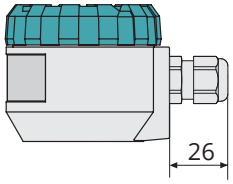
ARLM-70N-08-G1 1/2 | **ARLM-70N-20-G2** | **ARLM-70NS-08-CL64**



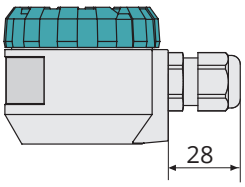
CABLE GLAND DESIGN



variant "H1"
with protective
conductor



variant "B1" ("S1")
with cable gland M16



variant "B2"
with cable gland M20

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS – DISPLAY MODULE

Type of display		matrix OLED, LCD
Resolution		128 x 64 pixels
Height of digits / Number of display digits of measured values		9 mm / 5 digits
Colour of display	OLED LCD	yellow black with white background light
Type of buttons		low lift membrane
Ambient temperature range	OLED LCD	-30 ... +70 °C -20 ... +70 °C
Weight		46 g

OLED- suitable for indoor and low-light applications.
LCD – suitable for outdoor applications particularly with direct sunlight.

USED MATERIALS

parts of the sensor	variants	standard material
Lid	ARLM-70N ARLM-70NS	aluminium alloy with powder coating Stainless steel W. Nr. 1.4301 (AISI 304)
Glass window	all types	polycarbonate
Housing	ARLM-70N ARLM-70NS	aluminium alloy with powder coating Stainless steel W. Nr. 1.4301 (AISI 304)
Cover	ARLM-70NS	plastic material PP Stainless steel W. Nr. 1.4404 (AISI 316L)
Cap Cl64	ARLM-70NS	plastic material PEEK
Cable gland	ARLM-70N ARLM-70NS	plastic - polyamide Stainless steel W. Nr. 1.4301 (AISI 304)

INSTALLATION AND OPERATION

The level meters are mounted in a vertical position in a suitable flange in the upper lid of the tank, or into the hole using the fixing nut. The tightening torque needs to be selected taking into account the gasket used and the working overpressure in the tank.

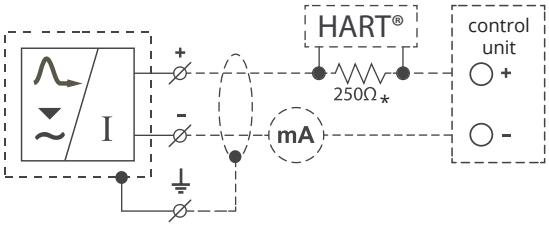
The place for installation must be chosen so that the electromagnetic wave (transmitted by the level gauge) is not affected by near-by objects (reinforcements, ladders, stirrers, etc.) or by the flow of the liquid being filled. The level gauge can be placed in a pipe extension that has a length smaller than the diameter.

If the level meter has not yet been installed, it must be stored in an intact condition with the cap tightened and the sealing plug in the cable gland.

The level meter does not require any operator to operate. During operation, the operator of the technological unit is informed about the height of the measured substance level using a display module or a follow-up device.

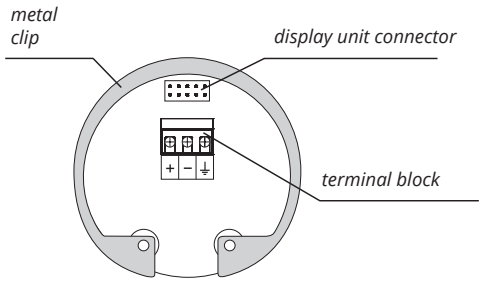
ELECTRICAL CONNECTION

When using the M16 socket, the level meter is connected to the follow-up (evaluation) device with a suitable cable with an external diameter of 6 - 8 mm via screw terminals located under the display module. Recommended core cross-section for the current version is 2 x 0,5 ... 0,75 mm². The positive pole (+U) is connected to the (+) terminal, the negative pole (0 V) to the (-) terminal and the shield (only for shielded cables) is connected to the (⏚).



** In the possible use of HART® communication*

Wiring diagram of the level meter with current output ARLM-70



Inside view of screw terminals of the level meter with current output ARLM-70

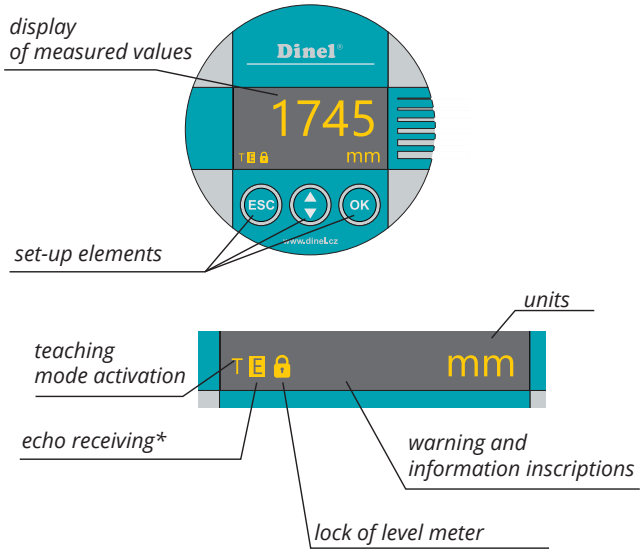
SETTING ELEMENTS

Settings are performed using 3 buttons located on the display module DM-70. All the settings are available in the menu of the level meter.

Button OK
- Set-up mode access
- Confirmation of selected item in the menu
- Move the cursor in the line
- Saving of set-up data

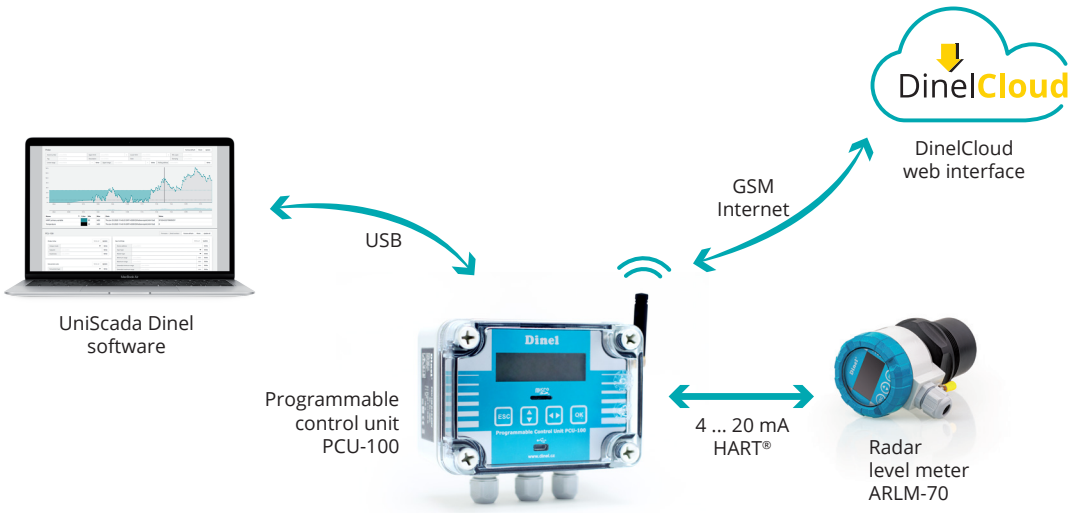
Button
- Move in the menu
- Change of values

Button ESC
- Cancelling of carried out changes
- Shift one level up

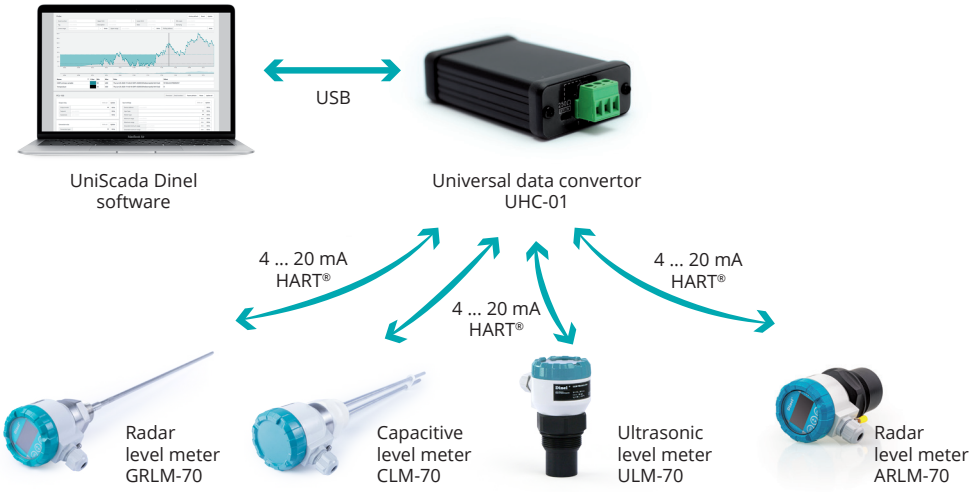


** Slow flashing while the reflected signal (echo) is received from the measured level.*

CONNECTION TO PCU-100



CONNECTION TO UHC-01



ORDER CODE

ARLM-70

PERFORMANCE

N	basic design for non-explosive environments, aluminum body
NS	for non-explosive environments, stainless steel housing, head, and cover only max. range 08, process connection Cl64, and cable gland S1 can be selected

MAXIMUM RANGE

08	0,3 ... 8 m
20	0,3 ... 20 m

PROCESS CONNECTION

G1 1/2	pipe thread G1½" (version 08)
G2	pipe thread G2" (version 20)
Cl64	Tri-Clamp, Ø 64mm (version NS - 08)

OUTPUT TYPE

I	4 ... 20 mA current loop with HART® communication

ELECTRICAL CONNECTION

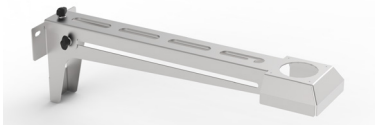
B1	plastic cable gland M16
B2	plastic cable gland M20
H1	plastic cable gland for protective hose
S1	stainless steel cable gland M16, for NS version

SET-UP ELEMENTS

D	version with OLED display (transparent lid)
C	version with LCD display (transparent lid)
L	without display (full lid without glass)

ARLM-70 N - 20 - G2 - I - B2 - D EXAMPLE OF CODING

ACCESSORIES

1x O-ring EPDM	included in the price		
Telescopic bracket	at extra cost	VKD	
universal convertor from USB to HART®	at extra cost	UHC-01	
display unit	at extra cost	DM-70	
fixing nut plastic	at extra cost	PUM-G1½ PUM-G2	
extension cable for display	at extra cost	PK-70-1	
stainless steel or steel welding flange	at extra cost	NN-G1½ ON-G1½ NN-G2 ON-G2	
protective hose (for type of cable outlet H1)	at extra cost	OH-13	

Further information can be found in the ARLM-70 manual on our website www.dinel.cz
The manufacturer reserves the right to change the specifications and appearance of the product without prior notice.

Dinel, s.r.o.
U Tescomy 249, 760 01 Zlín
tel.: +420 577 002 000
e-mail: sale@dinel.cz

www.dinel.cz

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