

Pulse Radar Level Transmitter

- **AMTL6610**
- **AMTL6620**
- **AMTL6630**
- **AMTL6650**
- **AMTL6660**
- **AMTL6670**
- **AMTL6680**



Content

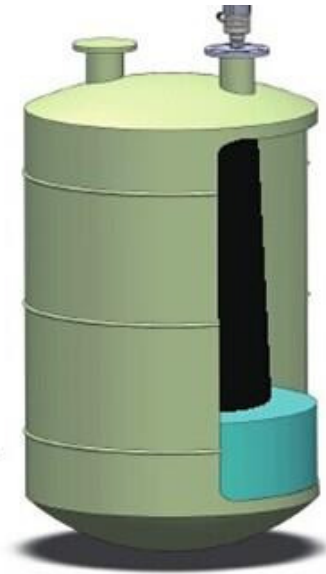
1. Principle.....	P3
2. Type overview.....	P4
3. Mounting instructions.....	P6
4. Electrical connection.....	P12
5. Operation.....	P14
6. Dimensions.....	P17
7. Technical data.....	P22
8. Product code.....	P27
9. Application table.....	P34

1. Principle

1.1 Principle

Extremely short microwave pulses with low emitted power are transmitted by the antenna system to the measured product, reflected by the product surface and received back by the antenna system. Radar waves travel at the speed of light.

The time from emission to reception of the signals is proportional to the level in the vessel. A special time stretching procedure ensures reliable and precise measurement of the extremely short transmission periods.



1.2 Unaffected by temperature and pressure

The propagation of microwaves is virtually unaffected by the ambient temperature and pressure. Hence these radar sensors are ideal for use under extremely difficult process conditions. Pressures from vacuum up to 160 bar(2320 psi) and temperatures from -40 ... +400 °C (-40 ... +752 °F) are no problem for radar.

1.3 Independent of product characteristics

Fluctuations in product composition or even complete product changes do not influence the measuring result. A fresh adjustment is not necessary.





1.4 Frequency ranges for all applications

AMPLETECH radar sensors are available in two different frequency ranges and can thus be implemented in a wide variety of applications. K-band instruments work in a frequency range over 20 GHz. This enables the use of very small antennas and respectively compact process fittings. Due to strong signal focusing, the measuring system achieves high accuracy.

C-band instruments are characterized by low frequencies around 6 GHz. Thus, in most cases, buildup and dirt on the antenna system or foam on the product surface do not affect the measurement.

2. Type overview

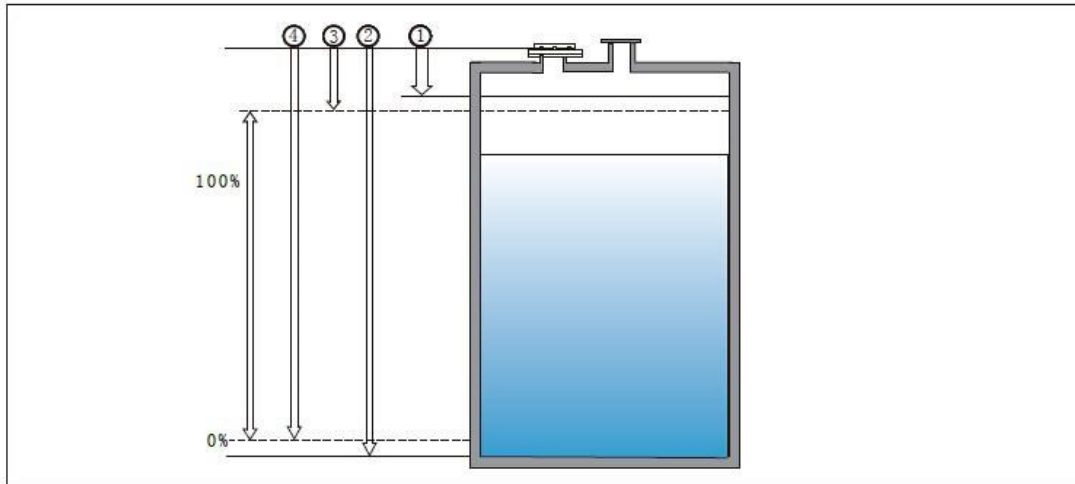
Type	AMTL6610	AMTL6620	AMTL6630
Product photo			
Applications	corrosive liquids in small vessels; under easy process conditions	applicable for all products in storage tanks and process vessels; under complicated process condition; high temperatures and pressures.	applicable for corrosive liquids in storage tanks and process vessels, particularly under sanitary process conditions
Measuring range	< 35 m (114.83 ft)	<70 m (229.66 ft)	<70 m (229.66 ft)
Antenna, material	completely PVDF encapsulated	horn antenna 316L	completely PTFE, encapsulated
Process fitting, material	thread G1½A 、 G3A, PVDF, PP or flange	thread G1½A or flange, 316L, hastelloy	flange or hygienic fitting 316L
Process temperature	-40℃...130℃	-60℃...1000℃	-40℃...130℃
Process pressure	-1...3bar	-1...40bar	-1...16bar
Measuring accuracy	±3mm	±3mm	±3mm
Frequency range	26GHz	26GHz	26GHz
Signal output	4...20 mA/HART	4...20 mA/HART	4...20 mA/HART

Type	AMTL6650	AMTL6660	AMTL6670	AMTL6680
Product photo				
Applications	applicable for corrosive liquids and vessels with small process fitting under easy process conditions	applicable for liquids and solids, large storage tanks	bulk, granular, powder solid	bulk, granular, powder solid
Measuring range	< 35 m (114.83 ft)	<70 m (229.66 ft)	< 15 m (49.21ft)	<70 m (229.66 ft)
Antenna, material	completely PVDF- or PTFE encapsulated	horn antenna 316L	mounting strap, compression flange, adapter flange PPH	thread, swivelling holder, flange 316L
Process fitting, material	G1½A or flange, PVDF, 316L	flange-316L,	flange ; mounting strap	thread , flange 316L
Process temperature	-40°C ...150°C	-40°C ...1000°C	-40°C ...80°C	-60°C ...1000°C
Process pressure	-1...3bar	-1...40bar	-1...2bar	-1...16bar
Measuring accuracy	±1cm	±1cm	±3mm	±3mm
Frequency range	6GHz	6GHz	26GHz	26GHz
Signal output	4...20 mA/HART	4...20 mA/HART	4...20 mA/HART	4...20 mA/HART

3. Mounting instructions

3.1 Measuring range

For the flange versions, the lower flange side is the reference plane for the measuring range, for threaded version, the seal surface of the thread.



Measuring range (operating range), max. measuring distance and reference plane

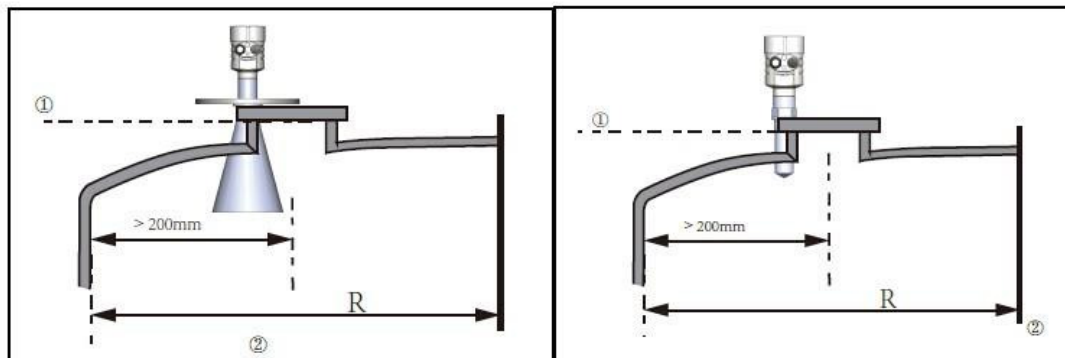
① min. measuring distance ② max. measuring distance ③ full ④ empty



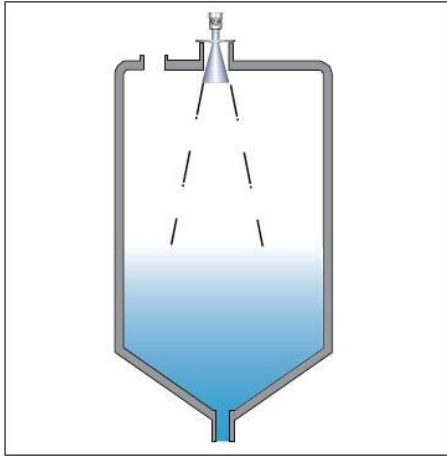
keep the level of material between the min and max.

3.2 Installation position

Mount AMTL Radar at a distance of at least 200 mm from the vessel wall. An ideal installation location is at half vessel radius. If the sensor is mounted in the center of round or dished vessel tops, multiple echoes can arise. These can, however, be faded out by an appropriate adjustment. If you cannot keep this distance you should carry out a false echo storage before setup. This applies mainly if buildup on the vessel wall is expected. In this case, we recommend repeating a false echo storage later with existing buildup.

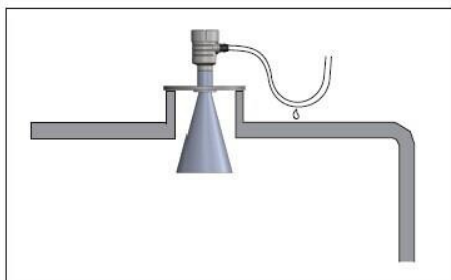


① Reference plane ② Vessel center or symmetry axis



In vessels with conical bottom it can be advantageous to mount the sensor in the center of the vessel, as measurement is then possible down to the lowest point of the vessel bottom.

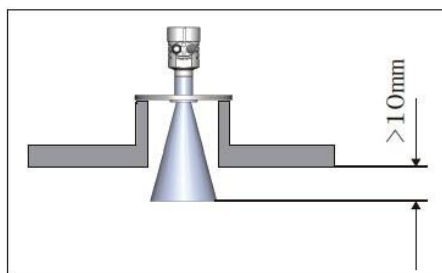
3.3 Water protection



This instrument meets the protection class IP66/67 requirements. please ensure the waterproof cable sealing head.

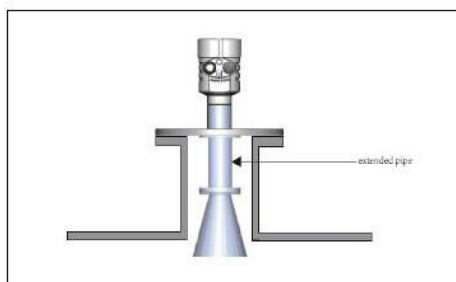
The following diagram.

3.4 Socket



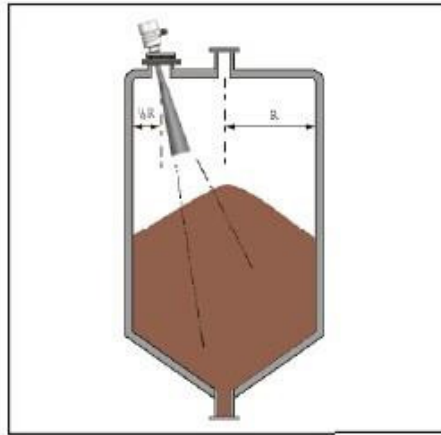
Socket pieces should be dimensioned such that the antenna end protrudes at least 10 mm (0.4 in) out of the socket.

3.5 Extended antenna



If socket is longer than antenna, the extended pipe can be used to let the antenna protrude out of the end the socket.

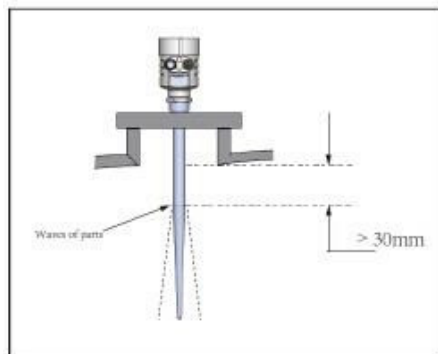
3.6 Installation of AMTL6680



Mount the sensor at least 200mm(7.874 in) away from the vessel wall. To measure as much of the vessel volume as possible, the sensor should be aligned so that the measuring beam reaches the lowest level in the vessel. In a cylindrical silo with conical outlet, the easiest way is to mount the instrument in the center of the silo. If mounting in the center of the silo is not possible, the sensor can be aligned towards the vessel center by means of an optional swivelling holder.

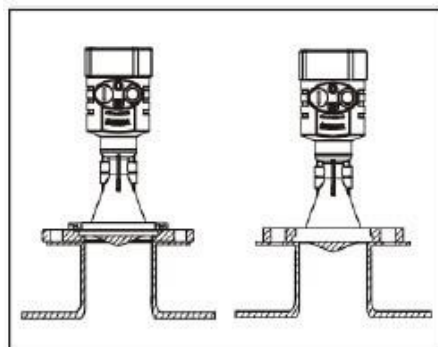
The description in the operating instructions manual of the sensors gives a simple overview of how to determine the inclination angle.

3.7 AMTL6650 Rod antenna installation



The socket piece should be dimensioned in such a way that the antenna end protrudes 30cm out of the socket.

3.8 AMTL6670 Socket installation



① socket

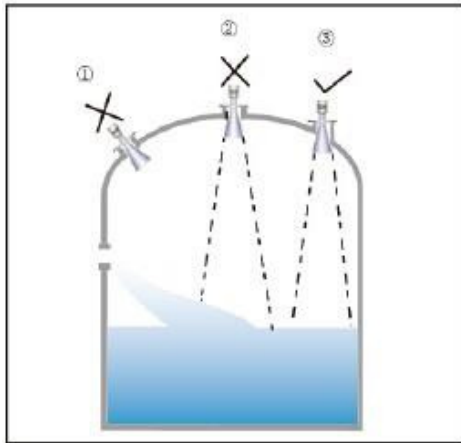
To keep false reflections from a vessel socket to a minimum, the socket should be as short as possible. The socket end should be rounded.

If the medium has good reflective properties, AMTL6670 can also be mounted on a longer socket piece. Recommended values for socket heights are specified in the operating instructions manual. You must carry out a false echo storage afterwards.

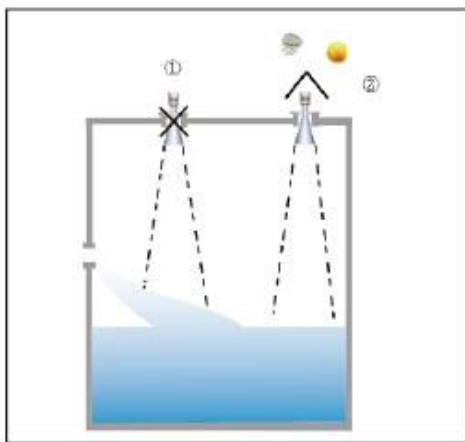


- ② with mounting strap
Mounting with mounting strap and alignment to the surface of material.

3.9 Typical installation errors

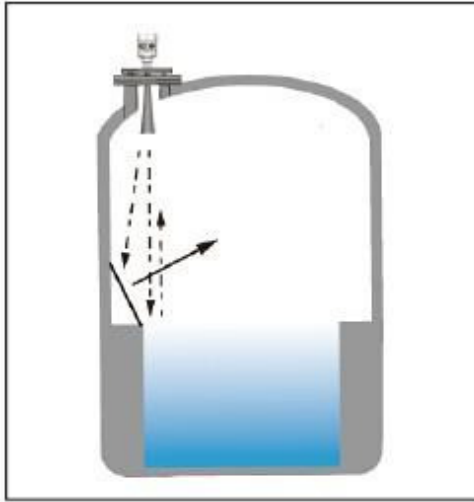


- ① Error
Antenna should be set vertical with surface of material
- ② Error
The instrument cannot be installed in the arched or domed roof intermediate.
- ③ Right



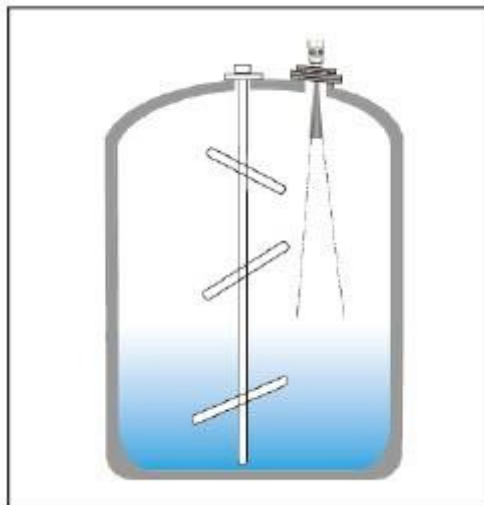
- ① Error
Do not mount the instruments in or above the filling stream. Make sure that you detect the product surface, not the inflowing product.
- ② Right

3.10 Installation of reflection plate



There are obstacles affecting measurement needed reflection plate.

3.11 Agitators



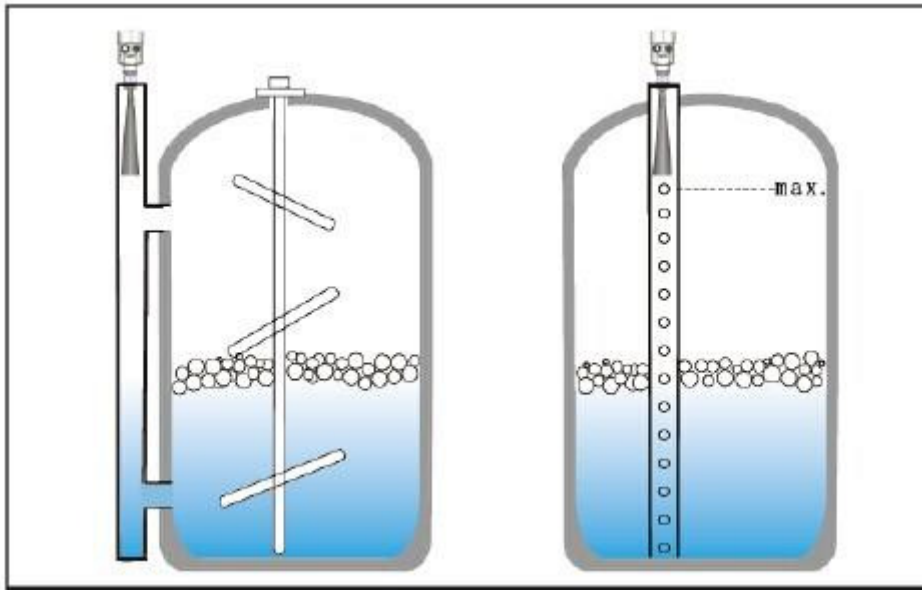
If there are agitators in the vessel, a false echo storage should be carried out with the agitators in motion. This ensures that the interfering reflections from the agitators are saved with the blades in different positions.

3.12 Foam generation

Through the action of filling, stirring and other processes in the vessel, dense foams which considerably damp the emitted signals may form on the product surface. If foams lead to measurement errors, you should use the biggest possible radar antennas or low frequency radar sensors e.g. AMTL 6650, 6660 (C-band). The sensors with guided microwaves are not influenced by foam generation and are particularly suitable for such applications.

3.13 Standpipe antenna

When using a standpipe antenna, influences by turbulences and vessel installations such as e.g. heating spirals or agitators are excluded. The standpipe antenna is also suitable for vessels with foam generation or for measurement of products with low dielectric figures ($DK > 1.6$). Standpipe antennas must extend all the way down to the requested min. level, as measurement is only possible within the tube. If a good mixing of the product is important, you should use a radar sensor with perforated surge pipe.



Measurement in a standpipe is not recommended for very adhesive products.

The vent hole in the surge pipe must be in one plane with the polarization marking on the sensor.

3.14 Pressure

The process fitting must be sealed if there is gauge or low pressure in the vessel. Before using, check if the seal material is resistant against the measured product. The max permissible pressure is stated in chapter "Technical data" or on the type label of the sensor.

4. Electrical connection

4.1 Voltage supply

4...20mA/HART two-wire: For power supply, an approved installation cable with PE conductor is necessary.

4...20mA/HART four-wire: Power supply and current output are carried on two separate connection cables.

The standard version can be operated with an earth-connected current output, the Exd version must be operated with a floating output.

4.2 Connection cable

The sensors are connected with standard cable without screen. An outer cable diameter of 5...9mm ensures the seal effect of the cable entry.

4...20 mA/HART four-wire

For power supply, an approved installation cable with PE conductor is necessary.

4...20 mA/HART two-wire and four-wire

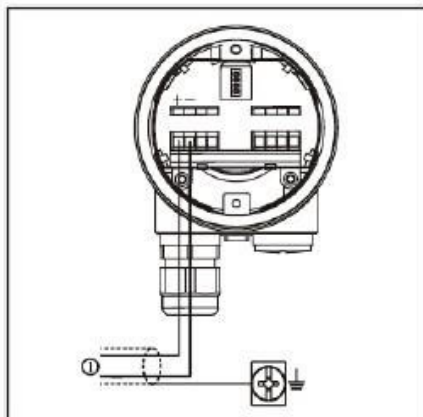
If electromagnetic interference is expected which is above the test values of EN 61326 for industrial areas, screened cable should be used. In HART multi drop mode the use of screened cable is generally recommended.

4.3 Cable screen and grounding

If screened cable is necessary, the cable screen must be connected on both ends to ground potential. If potential equalization currents are expected, the connection on the evaluation side must be made via a ceramic capacitor (e.g. 1 n F, 1500 V).

4.4 Wiring plan

4.4.1. two-wire 24VDC

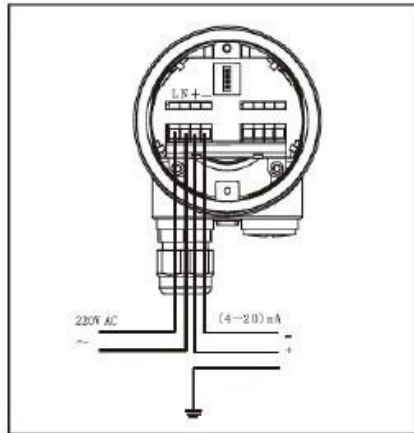


For 24VDC supply

Connection HART two-wire,


Wiring plan	
+	Voltage supply and signal output
-	Voltage supply and signal output
⏏	Ground

4.4.2 Four-wire 220VAC

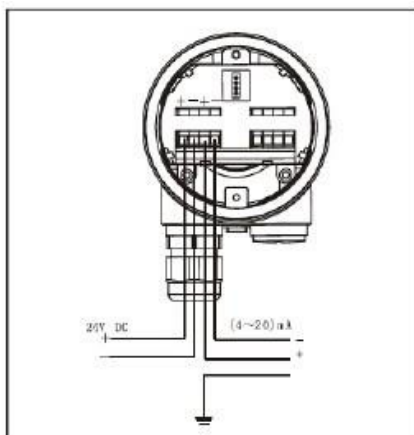


For 220VAC supply

Connection HART four-wire


Wiring plan	
L	Voltage supply
N	Voltage supply
+	Signal output
-	Signal output
	Ground

4.4.3 Four-wire 24VDC



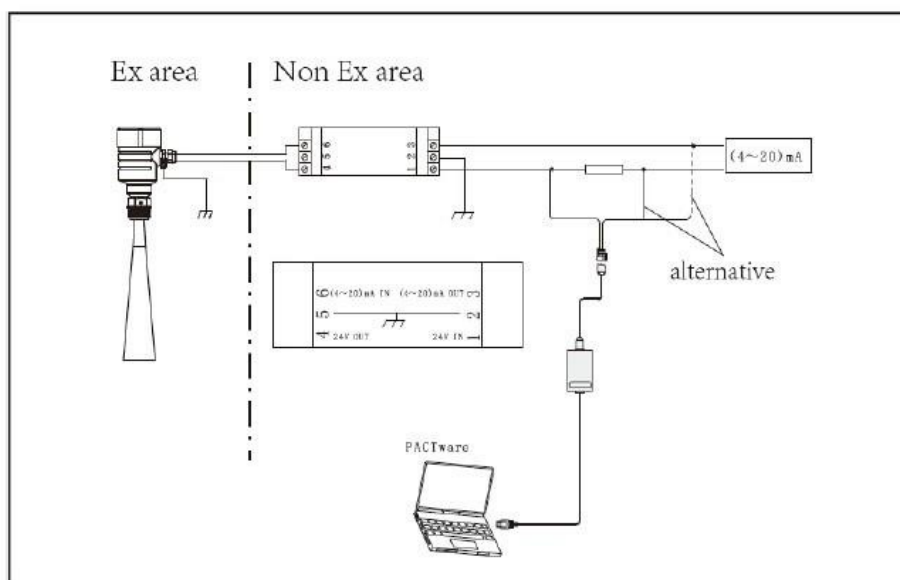
For 24VDC supply

Connection HART four-wire

Wiring plan	
24V+	Voltage supply
24V-	Voltage supply
+	Signal output
-	Signal output
	Ground

4.5 Connection in Ex area

In hazardous areas you should take note of the appropriate regulations, conformity and type approval certificates of the sensors and power supply units.



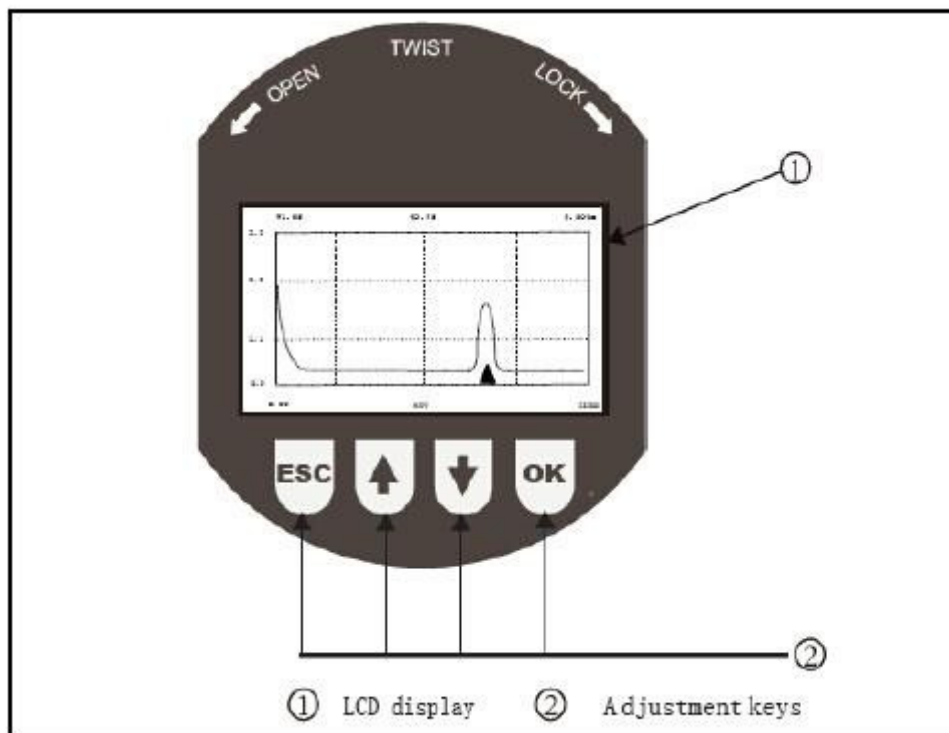
5. Operation

The Radars can be adjusted with the following adjustment media:

- with indicating and adjustment module
- tank side monitor
- an adjustment software on pc
- a HART handheld
- ROSEMOUNT 375/475 (only for hart common command)

5.1 Adjustment with the indicating and adjustment module

DISP is a pluggable indication and adjustment module for sensors. Indication and adjustment are carried out via four keys and a clear, graphic-capable dot matrix display. The adjustment menu with language selection is clearly structured and enables easy setup. After setup, DISP serves as indicating instrument: through the screwed cover with glass insert, measured values can be read directly in the requested unit and presentation style. The integrated back ground lighting of the display can be switched on via the adjustment menu.



Key functions

OK key:

- Move to the menu overview
- Confirm selected menu
- Save value
- Edit parameter

ESC key

- jump to the next higher menu
- interrupt input
- jump to the fast wave display

↑key:

- look up the selected menu
- change the value
- move the enlarge wave edge logo to left

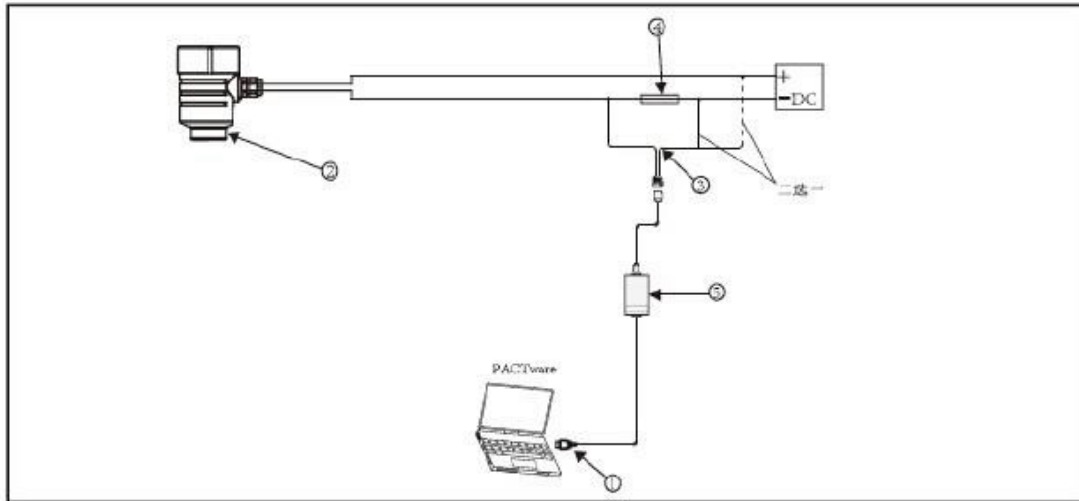
↓key

- look down the selected menu
- Select editing position
- move the enlarge wave edge logo to right

5.2 Adjustment with tank side monitor

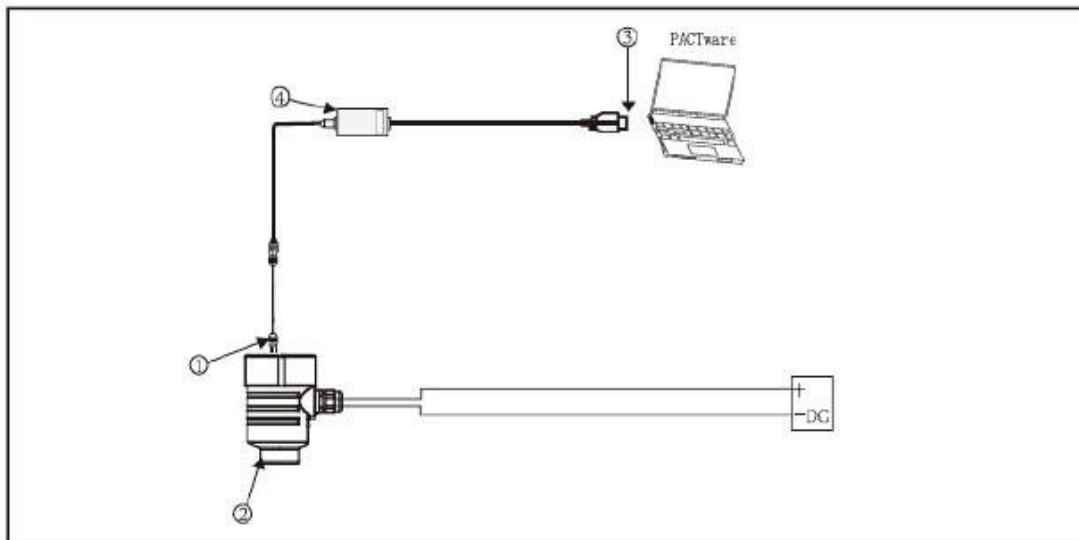
5.3 Adjustment with PC

5.3.1 Connection of the PC to the sensor via HART



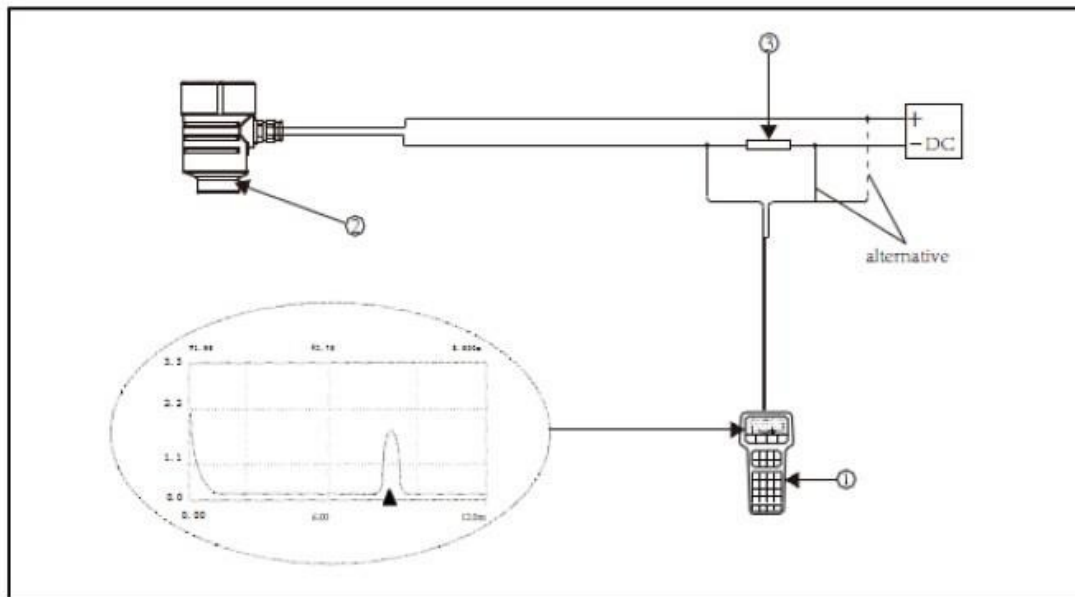
- ① USB cable
- ② Sensors
- ③ HART adapter cable
- ④ 250 Ohm HART adapter resistor
- ⑤ HART-USB CONVERTER

5.3.2 Connection of the PC to the sensor via IIC



- ① USB cable
- ② Sensors
- ③ I2C adapter cable
- ④ IIC-USB CONVERTER

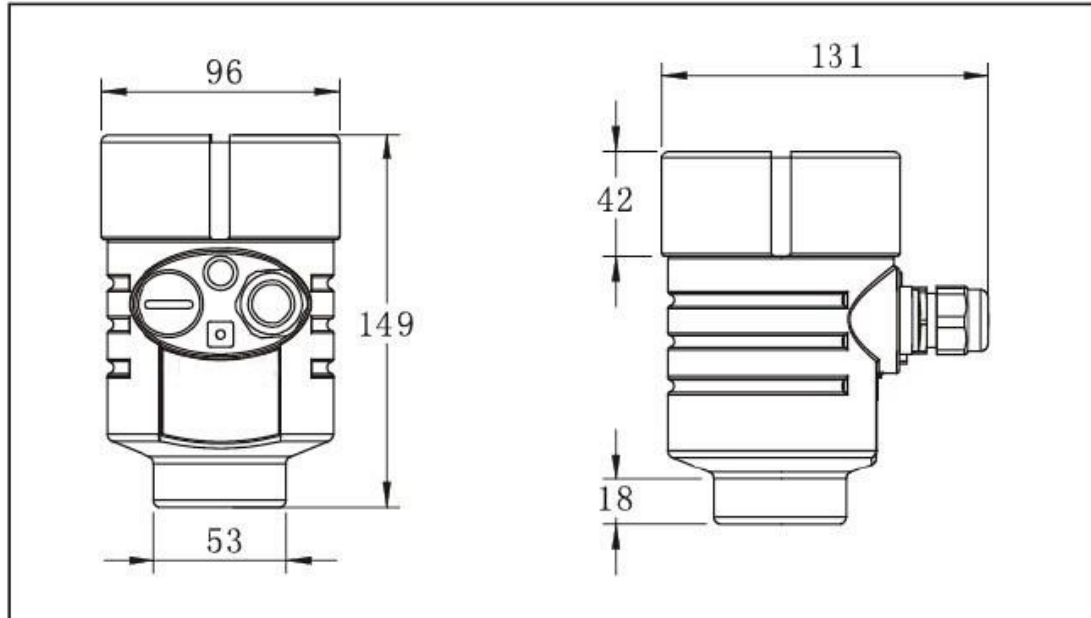
5.4 Adjustment with HART DISP



- ① HART DISP
- ② Sensor
- ③ HART resistor 250Ohm

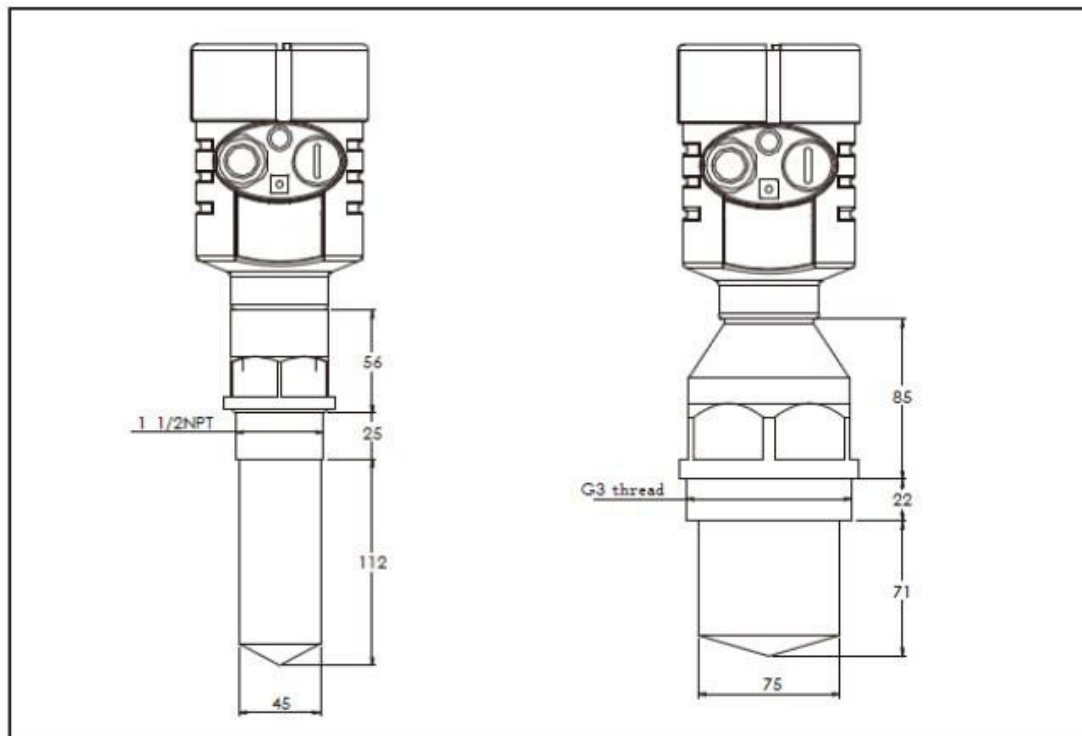
6. Dimension

6.1 Dimension of Housing

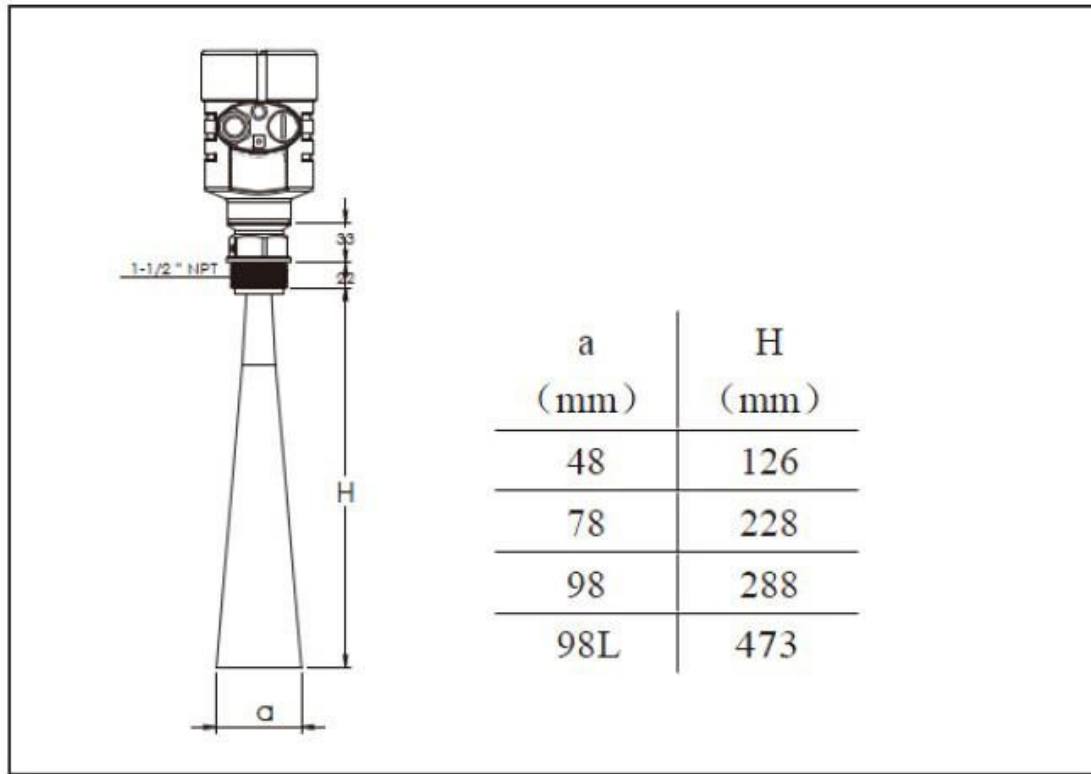


6.2 Dimension of sensors

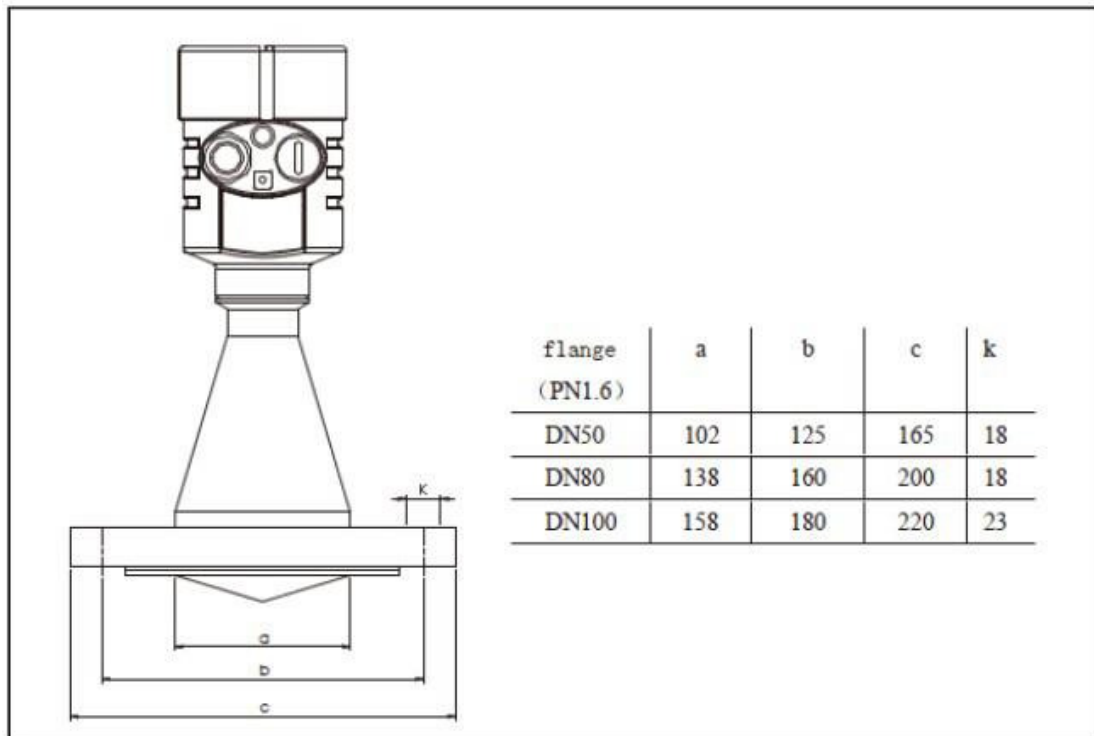
6.2.1 AMTL6610- encapsulated antenna system in threaded version



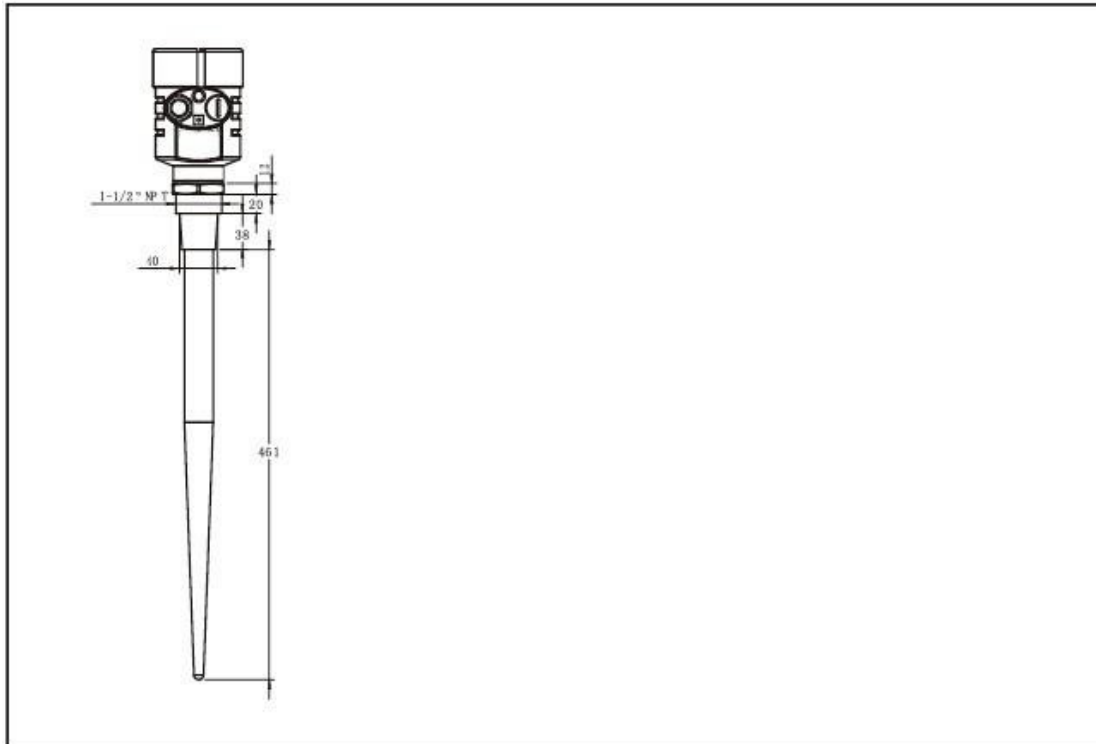
6.2.2 AMTL6620- horn antenna in threaded version



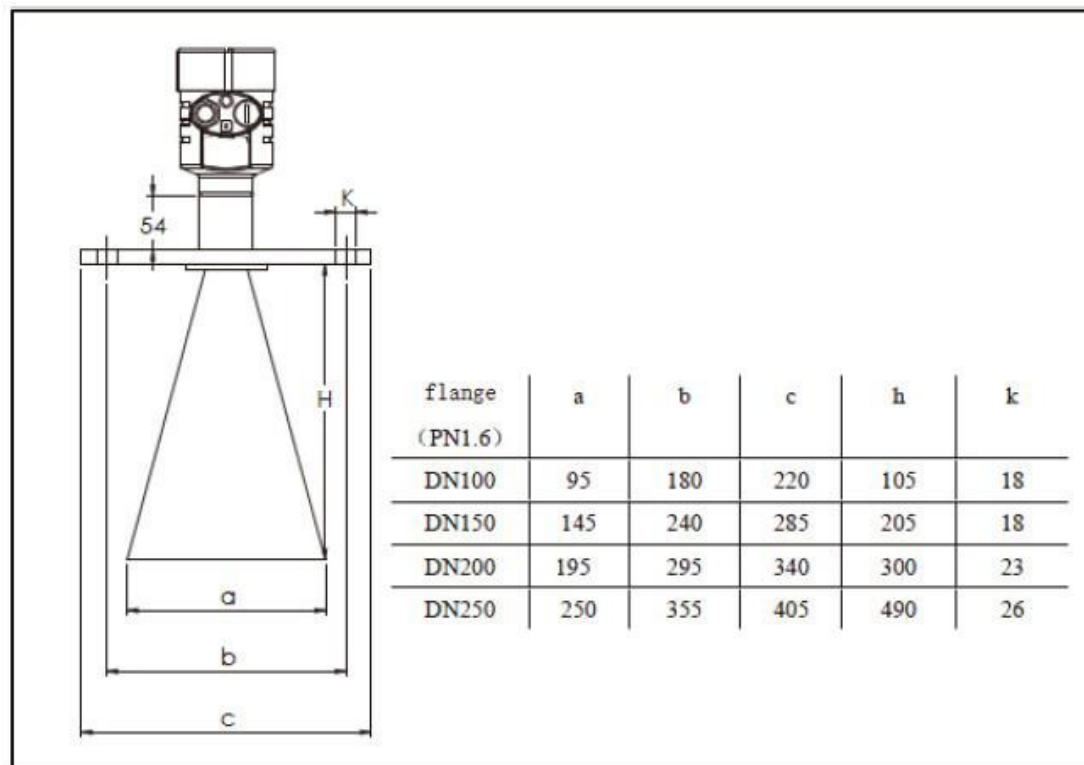
6.2.3 AMTL6630- flange version



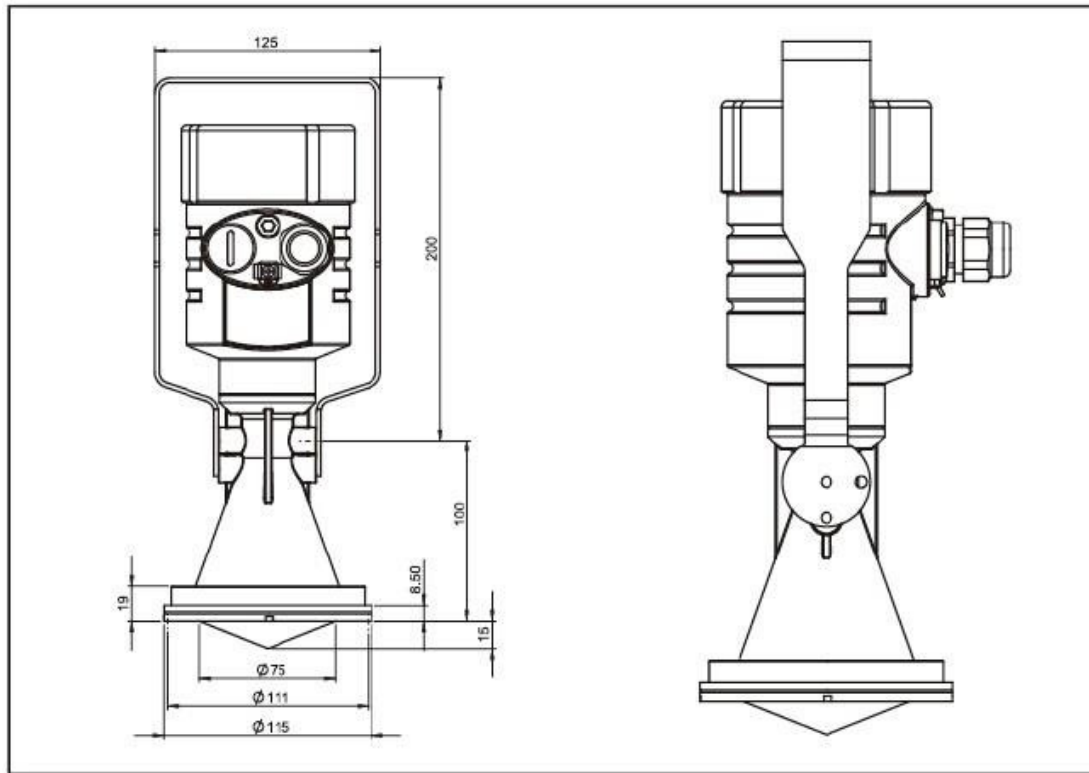
6.2.4 AMTL6650- thread version



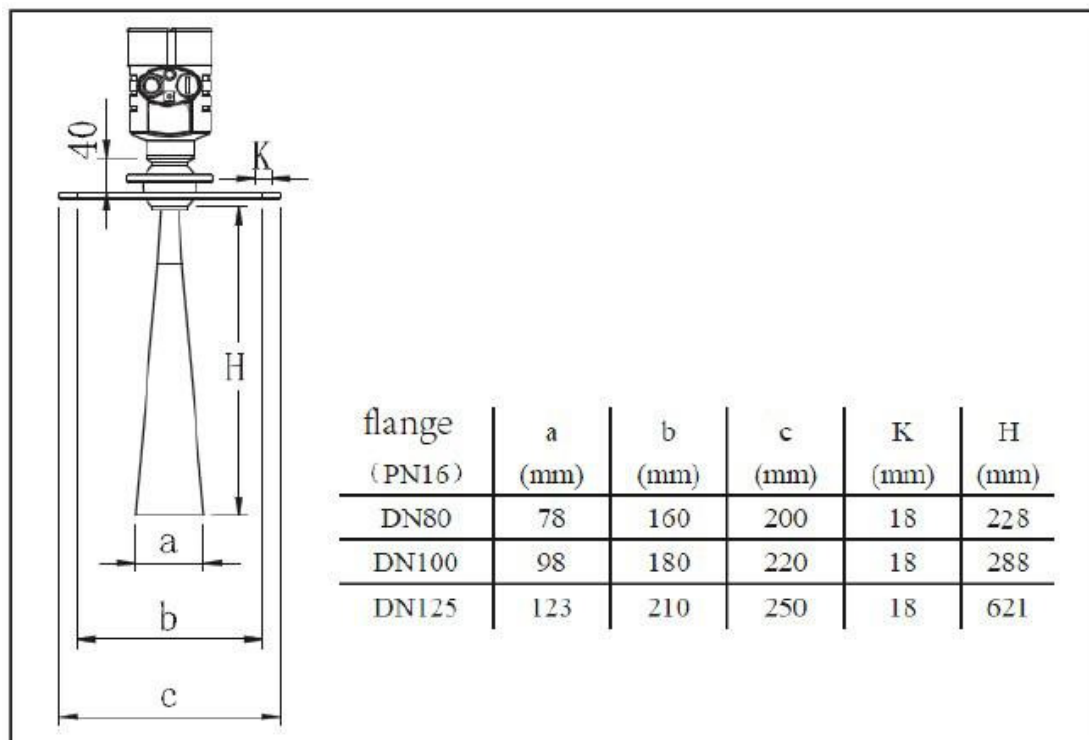
6.2.5 AMTL6660- standard version



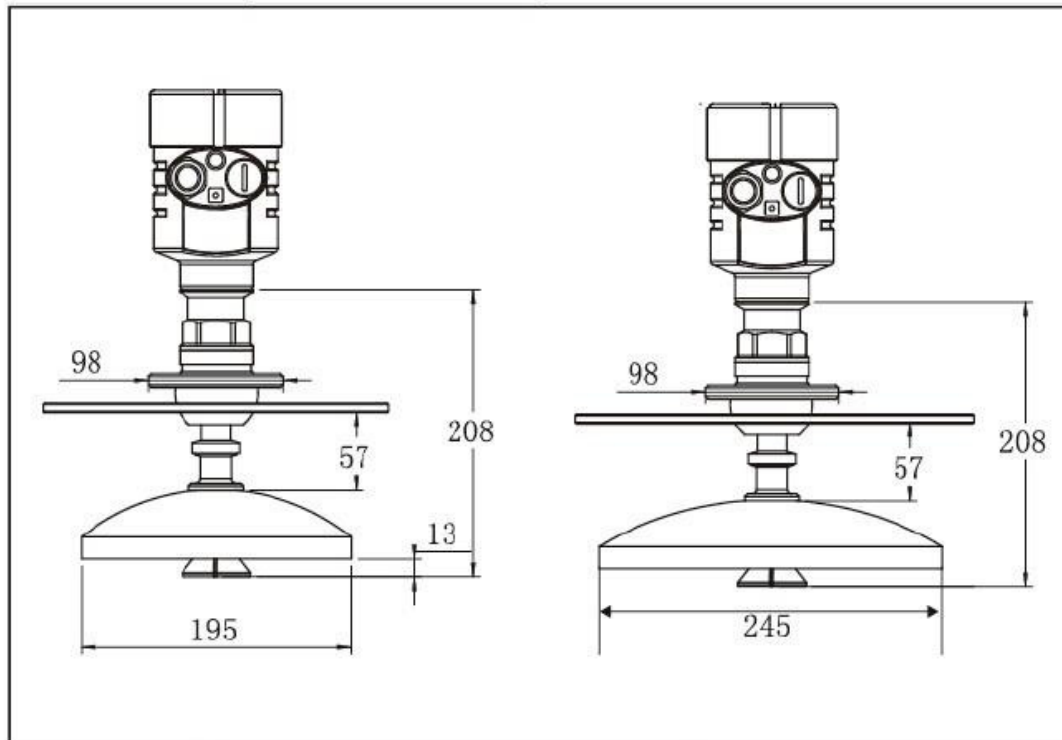
6.2.6 AMTL6670- plastic horn antenna with mounting strap



6.2.7 AMTL6680- plastic horn antenna with mounting strap



6.2.8 AMTL6680- parabolic antenna in flange version



Ø 195 parabolic antenna

Ø 245 parabolic antenna

7. Technical data

7.1 General data

Type		AMTL 6610	AMTL 6620	AMTL 6630	AMTL 6650	AMTL 6660	AMTL 6670	AMTL 6680
Process fitting	Thread	√	√		√	√		√
	Flange	√	√	√	√	√	√	√
	Mounting strap	√					√	
	Tri-Clamp	√		√				
Process seal	PTFE/PVDF	√		√	√			
	FKM (Viton) -40...130°C		√			√		√
	Kalrez6375 -40...150°C		√			√		√
Antenna material	completely PVDF encapsulat ed	φ40			√			
		φ45	√					
		φ75	√					
	plastic horn antenna PP/PVDF/PTFE	√					√	
	horn antenna 316L		√			√		√
	Cone antenna316L +PTFE			√				
	parabolic antenna 316L		√					√
Communication	HART							
Process temperature	•AMTL6610: -40°C...130°C •AMTL6660: -40°C...1000°C •AMTL6620: -60°C...1000°C •AMTL6670: -40°C...80°C •AMTL6630: -40°C...130°C •AMTL6680: -60°C...1000°C •AMTL6650: -40°C...150°C							
Power supply	•Non-Ex instrument for two wire: 18-36VDC, Permissible residual ripple<100mV.vp.p • EEx-ia instrument for two wire: 20-28VDC, Permissible residual ripple<100mV.vp.p • EEx-d-ia instrument for two wire: 20-36VDC, Permissible residual ripple<100mV.vp.p • Non-Ex and Exd instrument for four wire DC: 20...72VDC, power: 3W • for four wire AC: 90...260VAC,50/60Hz power: 3W							
Ambient conditions	•-40°C...+80°C							
Protection	•IP67							
Approval	• Exia IIC T6 • Exd [ia]ia IIC T6							

7.2 Cable entry

Cable entry: 1 x cable entry M20 x 1.5 cable (5 ... 9 mm).

7.3 Connection cable

- Wire cross-section 0.5 mm²
- Wire resistance < 0.036 Ohm/m
- Tensile strength > 1200 N (270 pounds force)
- Standard length 5 m (16.4 ft)
- Max. length 1000 m (3280 ft)
- Min. bending radius 25 mm (0.984 in) with 25 ° (77 °CF)

7.4 Output variable

Output signal: 4-20mA (HART)

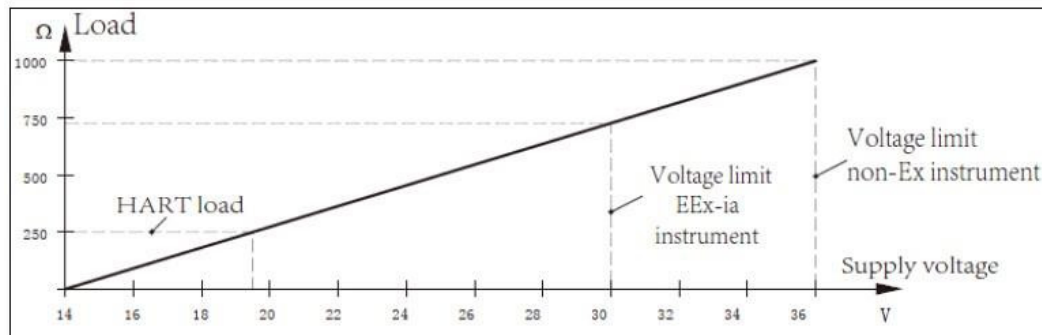
Signal resolution: 1.6uA

Fault message: Current output unchanged 20.5 mA, 22 mA, < 3.6 mA

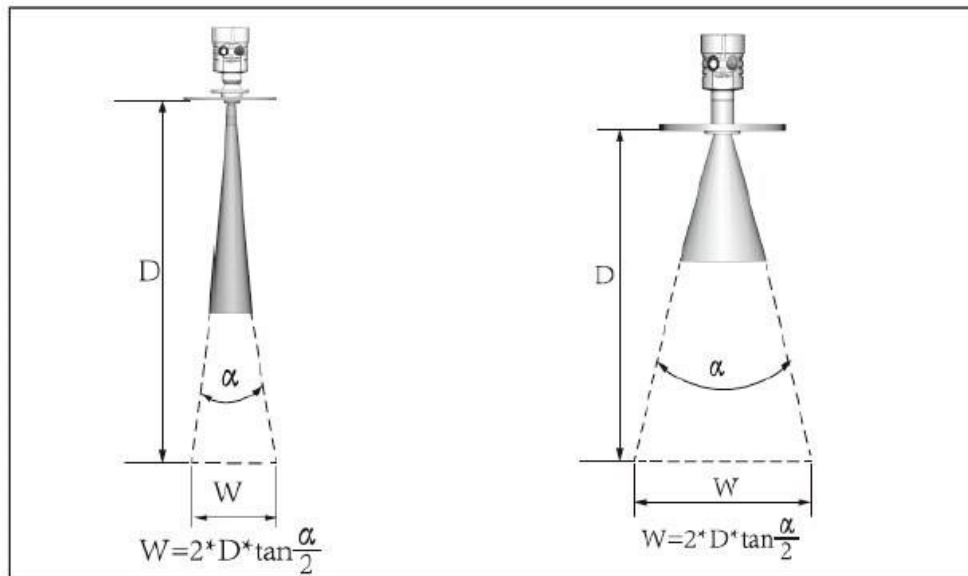
Damping: 0-90S adjustable

Max Load for 4... 20 mA/HART four-wire instrument: max. 500 Ohm

load diagram under Power supply (4... 20 mA/HART two-wire instrument)



7.5 Angle of antenna



26G beam of antenna

6G beam of antenna

7.5.1 26G Radar

Dimension of antenna	AMTL6620/AMTL6680				AMTL6670		AMTL6630			AMTL6610	
	48	78	98	123	195	245	50	80	100	45	75
Angle	18°	12°	8°	6°	5°	4°	18°	12°	8°	20°	15°
Distance (D)	Diameter of beam (W)									Rod antenna	
	48	78	98	123	198	246	48	78	98	φ45	φ75
3m	0.95	0.63	0.42	0.31	0.26	0.21	0.95	0.63	0.42	1.06	0.79
6m	1.90	1.26	0.84	0.62	0.52	0.42	1.90	1.26	0.84	2.12	1.58
9m	2.85	1.89	1.26	0.93	0.79	0.63	2.85	1.89	1.26	3.18	2.37
12m	3.80	2.52	1.68	1.24	1.05	0.84	3.80	2.52	1.68	4.24	3.16
15m	4.75	3.15	2.10	1.55	1.31	1.05	4.75	3.15	2.10	5.30	3.95
20m	-	4.20	2.80	2.07	1.75	1.40	6.33	4.20	2.80	7.07	5.27
25m	-	-	3.50	2.58	2.18	1.75	-	5.25	3.50	-	-
30m	-	-	4.20	3.10	2.62	2.10	-	-	4.20	-	-
35m	-	-	-	3.62	3.06	2.44	-	-	4.90	-	-
40m	-	-	-	4.13	-	2.79	-	-	-	-	-
45m	-	-	-	4.65	-	3.14	-	-	-	-	-

7.5.2 6G Radar

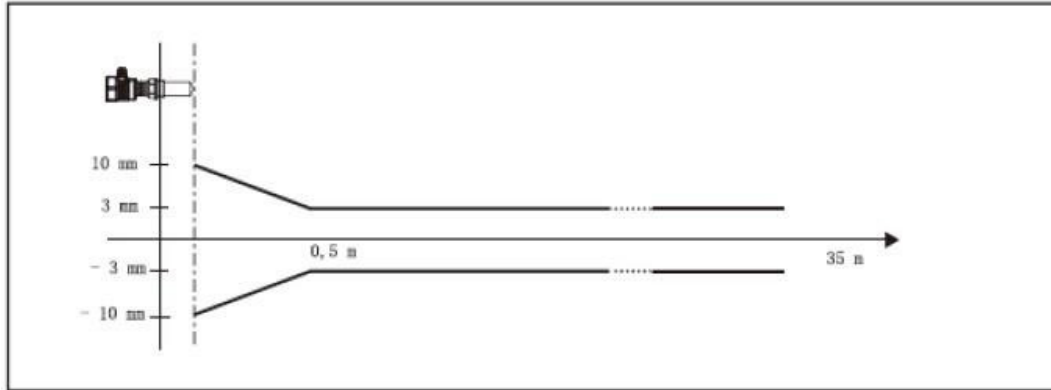
Dimension Of antenna	AMTL6660		AMTL6650		
	95	145	195	245	
Angle	30°	23°	19°	15°	30°
Distance (D)	Diameter of beam (W)				
	95mm	145mm	195mm	245mm	
3m	1.61	1.22	1.00	0.79	1.61
6m	3.22	2.44	2.01	1.58	3.22
9m	4.82	3.66	3.01	2.37	4.82
12m	6.43	4.88	4.02	3.16	6.43
15m	8.04	6.10	5.02	3.95	8.04
20m	10.72	8.14	6.69	5.27	10.72
25m	-	10.17	8.37	4.37	13.40
30m	-	12.20	10.04	5.25	16.08
35m	-	14.24	11.71	6.12	18.76
40m		-	13.39	7.00	-
45m		-	15.06	7.87	-

7.6 Measuring accuracy

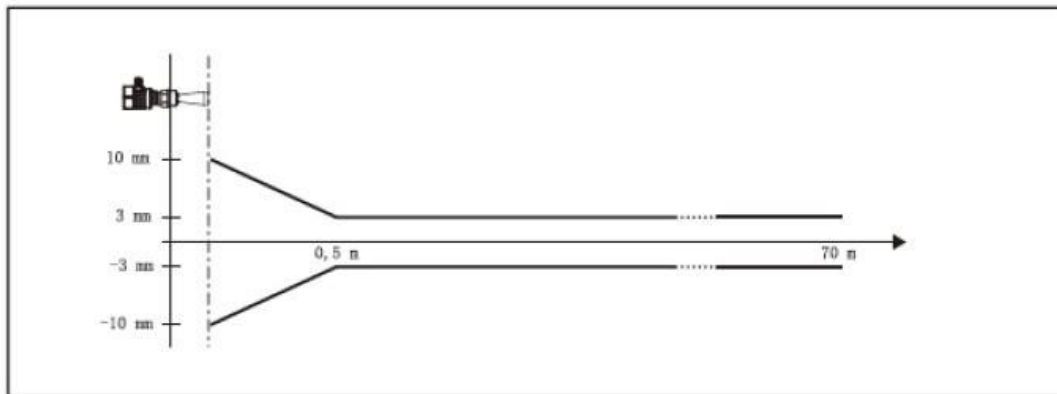
Resolution, general > 1mm.

Deviation see diagrams

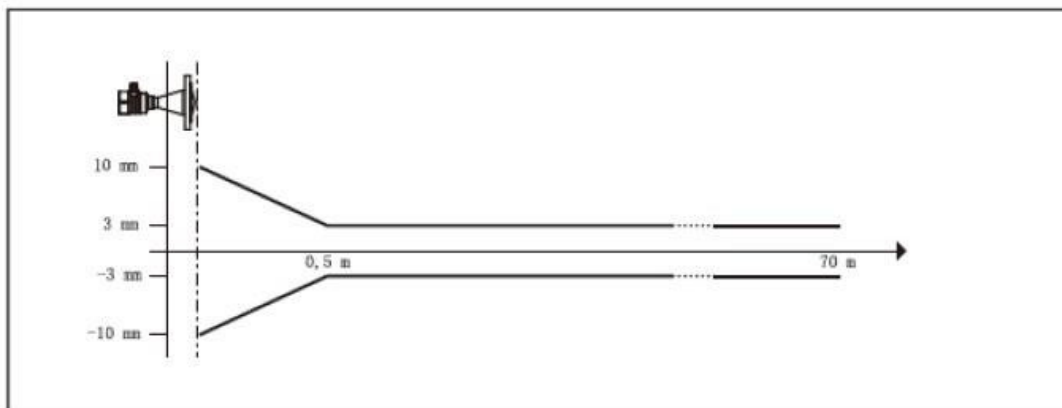
AMTL6610



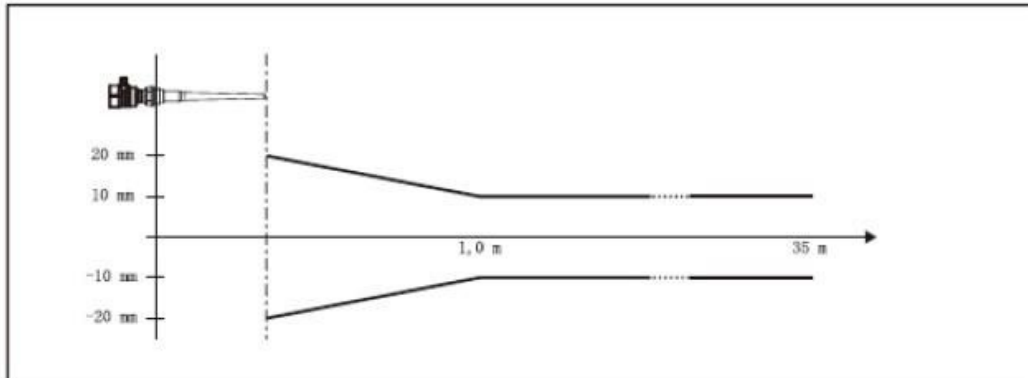
AMTL6620



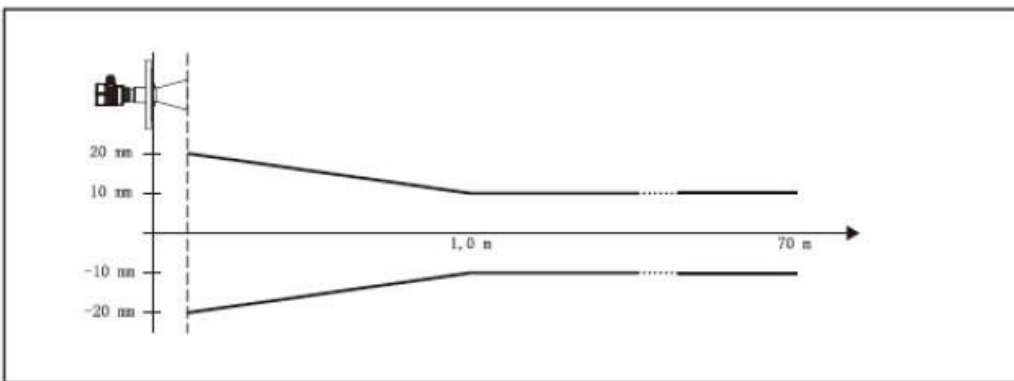
AMTL6630



AMTL6650



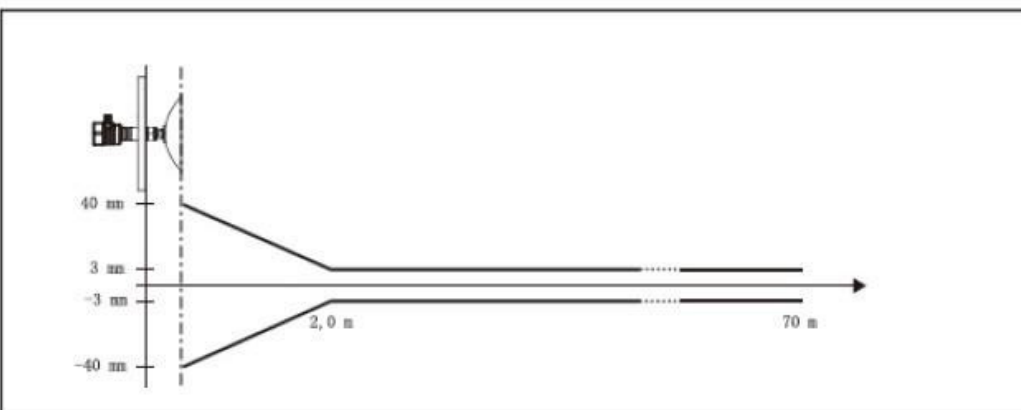
AMTL6660



AMTL6670



AMTL6680



8. Product code

AMTL6610 (26G)

Model	AMTL6610-
Approval	
XX	without
CX	Exia IIC T6
DX	Exd [ia]ia IIC T6
Version / Material / Process temperature/ Pressure	
A	with encapsulated horn antenna ø45 / PTFE / -40°C...150°C / -1...3bar
B	with encapsulated horn antenna ø75 / PVDF / -40°C...130°C / -1...3bar
C	with plastic horn antenna ø80 / -40°C...80°C / -1...0.2bar
T	customization
Process fitting / Material	
XX	without compression flange
GP	Thread G1½A
NP	Thread 1½NPT
HP	ThreadG3A
CA	Tri-Clamp 2"
CB	Tri-Clamp3"
AC	Adapter flangeDN50
AD	Adapter flange DN80
AE	Adapter flangeDN100
AH	Adapter flangeDN150
TT	customization
Electronics	
H	H Two-wire 4...20mA/HART; 24 VDC
B	Four wire 4...20mA/HART; 220 VAC
I	Four wire 4...20mA/HART; 24 VDC
W	wireless; GPRS; Wireless C Mesh
T	customization
Housing / Protection	
A	Aluminum / IP67
W	StSt 316L / IP67
Cable entry / Plug connection	
M	M20x1.5 / without
N	½NPT/ without
Indicating/adjustment module	
X	without
A	with

AMTL6620 (26G)

Model	AMTL6620-
Approval	
XX	without
CX	Exia IIC T6
DX	Exd [ia]ia IIC T6
Version / Material	
C	with horn antenna ø48mm / 316L
D	with horn antenna ø78mm / 316L
E	with horn antenna ø98mm / 316L
N	with horn antenna ø98mm long version/ 316L
L	with parabolic antenna ø195mm / 316L
K	with parabolic antenna ø245mm / 316L
T	customization
Process fitting / Material	
GD	Thread G1½A / 316L
ND	Thread 1½NPT / 316L
FD	flange DN80 PN16
FE	flange DN100 PN16
AE	flange 2" 150lb RF
AI	flange 3" 150lb RF
AK	flange 4" 150lb RF
TT	customization
Seal / Process temperature	
2	FKM (Viton) / -40...130°C / -1...40bar
3	Kalrez 6375 / -20...130°C / -1...40bar
4	FKM (Viton) + radiator / -40...250°C / -1...3bar
5	Kalrez 6375 + radiator / -20...250°C / -1...3bar
T	customization / Max1000°C /Max 400bar
Electronics	
H	H Two-wire 4...20mA/HART; 24 VDC
B	Four wire 4...20mA/HART; 220 VAC
I	Four wire 4...20mA/HART; 24 VDC
W	wireless; GPRS; Wireless C Mesh
T	customization
Housing / Protection	
A	Aluminum / IP67
W	St St 316L / IP67
Cable entry / Plug connection	
M	M20x1.5 / without
N	½NPT/ without
Indicating/adjustment module	
X	without
A	with

AMTL6630 (26G)

Model	AMTL6630-
Approval	
XX	without
CX	Exia IIC T6
DX	Exd [ia]ia IIC T6
Version / Material / Process temperature/ Pressure	
N	with encapsulated horn antenna/ TFM-PTFE / -40...+150°C/ -1...20bar
V	hyg.encaps. horn ant./ TFM-PTFE + Viton / -25...+130°C/ -1...16bar
E	hyg.encaps. horn ant./ TFM-PTFE + EPDM / -40...+130°C/ -1...16bar
T	customization
Process fitting / Material	
CA	without compression flange
CB	Tri-Clamp 2" / 316L
CC	Tri-Clamp 4" / 316L
LB	Hyg.fitting w. tension flangeDN32PN16
LA	Hyg.fitting w. compression nutF40PN16
FC	Flange DN50
FD	Flange DN80
FE	Flange DN100
FK	Flange DN150
AE	Flange 2" 150lb RF
AI	Flange 3" 150lb RF
AK	Flange 4" 150lb RF
AM	Flange 6" 150lb RF
TT	customization
Electronics	
H	H Two-wire 4...20mA/HART; 24 VDC
B	Four wire 4...20mA/HART; 220 VAC
I	Four wire 4...20mA/HART; 24 VDC
W	wireless; GPRS; Wireless C Mesh
T	customization
Housing / Protection	
A	Aluminum / IP67
W	StSt 316L / IP67
Cable entry / Plug connection	
M	M20x1.5 / without
N	½NPT/ without
Indicating/adjustment module	
X	without
A	with

AMTL6650 (6G)

Model	AMTL6650-
Approval	
XX	without
CX	Exia IIC T6
DX	Exd [ia]ia IIC T6
Version / Material / Process temperature/ Pressure	
K	Rod antenna for sockets 50mm/ / PTFE / -40°C...130°C-1...3bar/
L	Rod antenna for sockets 100mm / PTFE / -40°C...130°C150°C / -1...3bar/
M	Rod antenna for sockets 250mm / PTFE / -40°C...130°C150°C / -1...3bar/
T	customization
Process fitting / Material	
GP	Thread G1½A
NP	Thread 1½NPT
FC	Flange DN50
FD	Flange DN80
FE	Flange DN100
FK	Flange DN150
FL	Flange DN200
AE	Flange 2" 150lb RF
AI	Flange 3" 150lb RF
AK	Flange 4" 150lb RF
AM	Flange 6" 150lb RF
AN	Flange 8" 150lb RF
TT	customization
Electronics	
H	H Two-wire 4...20mA/HART; 24 VDC
B	Four wire 4...20mA/HART; 220 VAC
I	Four wire 4...20mA/HART; 24 VDC
W	wireless; GPRS; Wireless C Mesh
T	customization
Housing / Protection	
A	Aluminum / IP67
W	StSt 316L / IP67
Cable entry / Plug connection	
M	M20x1.5 / without
N	½NPT/ without
Indicating/adjustment module	
X	without
A	with

AMTL6660 (6G)

Model	AMTL6660-
Approval	
XX	without
CX	Exia IIC T6
DX	Exd [ia]ia IIC T6
Version / Material / Process temperature/ Pressure	
A	without horn antenna for standpipe
D	with horn antenna ø75 mm / 316L
E	with horn antenna Ø95mm / 316L
H	with horn antenna Ø145mm / 316L
I	with horn antenna Ø195mm / 316L
J	with horn antenna Ø245mm / 316L
F	with standpipe Ø50mm / / 316L
T	customization
Process fitting / Material	
FC	Flange DN50
FD	Flange DN80
FE	Flange DN100
FK	Flange DN150
FL	Flange DN200
FI	Flange DN250
AE	Flange 2" 150lb RF
AI	Flange 3" 150lb RF
AK	Flange 4" 150lb RF
AM	Flange 6" 150lb RF
AN	Flange 8" 150lb RF
AP	Flange 10" 150lb RF
TT	customization
Seal / Process temperature	
2	FKM (Viton) / -40...150°C/ -1...40bar
3	Kalrez 6375 / -15...150°C/ -1...40bar
4	FKM (Viton) + radiator / -40...250°C / -1...3bar
5	Kalrez 6375 + radiator / -20...250°C / -1...3bar
H	Graphite and ceramic / -60...400°C/ -1...40bar
T	customization / Max1000°C /Max 400bar
Electronics	
H	H Two-wire 4...20mA/HART; 24 VDC
B	Four wire 4...20mA/HART; 220 VAC
I	Four wire 4...20mA/HART; 24 VDC
W	wireless; GPRS; Wireless C Mesh
T	customization
Housing / Protection	
A	Aluminum / IP67
W	St St 316L / IP67
Cable entry / Plug connection	
M	M20x1.5 / without

N	½NPT/ without
Indicating/adjustment module	
X	without
A	with

AMTL6670 (26G)

Model	AMTL6670-
Approval	
XX	without
CX	Exia IIC T6
DX	Exd [ia]ia IIC T6
Version / Material / Process temperature/ Pressure	
C	with plastic horn antennaø80 / -40°C...80°C / -1...0.2bar
T	customization
Process fitting / Material	
XX	without compression flange
FE	Adapter flange DN100PN16 / PPH
TT	customization
Electronics	
H	H Two-wire 4...20mA/HART; 24 VDC
B	Four wire 4...20mA/HART; 220 VAC
I	Four wire 4...20mA/HART; 24 VDC
W	wireless; GPRS; Wireless C Mesh
T	customization
Housing / Protection	
A	Aluminum / IP67
W	StSt 316L / IP67
Cable entry / Plug connection	
M	M20x1.5 / without
N	½NPT/ without
Indicating/adjustment module	
X	without
A	with

AMTL6680(26G)

Model	AMTL6680-
Approval	
XX	without
CX	Exia IIC T6
DX	Exd [ia]ia IIC T6
Version / Material / Process temperature/ Pressure	
B	with horn antenna ø40mm / 316L
C	with horn antenna ø48mm / 316L
D	with horn antenna ø78mm / 316L
E	with horn antenna ø98mm / 316L
F	with horn antenna ø98mm Lengthen / 316L
G	with horn antenna ø123mm Lengthen / 316L
L	with parabolic antenna ø195mm / 316L
K	with parabolic antenna ø245mm / 316L
N	with horn antenna ø98mm+ dust-cover / 316L
R	with horn antenna ø98mm L+ dust-cover / 316L
M	with horn antenna ø123mm L dust-cover / 316L
T	customization
Process fitting / Material	
GD	Thread G1½Ax
ND	Thread 1½NPT
FC	Flange DN50
FD	Flange DN80
FE	Flange DN100
FR	Flange DN150
FK	Flange DN200
FL	Flange DN250
AE	Flange 2" 150lb RF
AI	Flange 3" 150lb RF
AK	Flange 4" 150lb RF
AM	Flange 6" 150lb RF
1F	Swiveling holder with flange 2" 150lb
1G	Swiveling holder with flange 3" 150lb
1H	swiveling holder with flange 4" 150lb
1C	Swiveling holder with flange DN50
1D	Swiveling holder with flange DN80
1E	Swiveling holder with flange DN100
1R	Swiveling holder with flange DN150
1K	swiveling holder with flange DN200
1L	Swiveling holder with flange DN250
1T	customization
Seal / Process temperature / pressure	
2	FKM(Viton) / -40...130°C / -1...40bar
3	Kalrez 6375 / -20...130°C / -1...40bar
4	FKM(Viton) + radiator/ -40...250°C (not with steam) / -1...3bar
F	Kalrez 6375 + radiator / -20...250°C / -1...3bar

H	Graphite and ceramic / -200...400°C /
T	customization / Max 1000°C / Max 400bar
Electronics	
H	H Two-wire 4...20mA/HART; 24 VDC
B	Four wire 4...20mA/HART; 220 VAC
I	Four wire 4...20mA/HART; 24 VDC
W	wireless; GPRS; Wireless C Mesh
T	customization
Housing / Protection	
A	Aluminum / IP67
W	StSt 316L / IP67
Cable entry / Plug connection	
M	M20x1.5 / without
N	½NPT/ without
Indicating/adjustment module	
X	without
A	with

9. Parameter table for sensors selection

Customer information:

Company:_____ Contact:_____

Address:_____ Zip code:_____

Telephone:_____ Mobile: _____

Email:_____ Date:_____

License

- ☐ The standard type (Non-explosion-proof) ☐ Intrinsically safe (Exia IIB T5)
☐ Intrinsically safe (Exia IIC T6 Ga) ☐ Intrinsically safe+ marine license (Exia IIC T6 Ga)
☐ Intrinsically safe and Flame proof (Exd ia IIC T6 Ga)

Tank / Container Information

The Types of Tank:

- ☐ Tank ☐ Reaction Tank ☐ Separation Tank ☐ Marine Tank

The Tank Structure:

Material of Tank:_____ Pressure:_____

Tank size:

Tank Height: _____ Diameter:_____

The top of the tank:

☐ Vault ☐ Flat ☐ Open

The bottom of the tank

☐ Cone bottom ☐ Flat ☐ Slope bottom

Installation:

☐ Top installation ☐ Side installation
☐ The bypass pipe mount ☐ Arc bottom ☐ Guided wave pipe installation

Installation takes over the top of the tank (information):

Height of take over : _____mm Diameter of take over: _____ mm

Measurement of Medium

Media name: ☐ Liquid ☐ Solid ☐ Mixed Media

Medium temperature: _____

Dielectric Constant: _____

Linked material: ☐ Yes ☐ No

Mixing: ☐ Yes ☐ No

Process Connection

Thread: ☐ G1½" A ☐ 1½" NPT

Flange: ☐ Flange (DN=) ☐ Flange (ANSI=)

Power supply:

☐ 24V DC Two wire system ☐ 24V DC Four wire system ☐ 220V AC Four wire system

Output: ☐ 4-20mA ☐ HART

Display: ☐ Take the meter display program ☐ Without meter display program