

BM SERIES COMPACT GUIDE WAVE

GUIDED WAVE RADAR LEVEL INSTRUMENTS

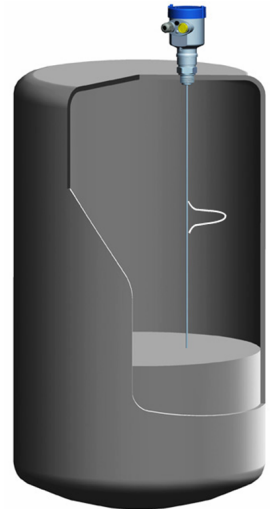
DESCRIPTION

The microwaves impulses at high frequency travel through a stainless steel guide and they are reflected on the surface of the fluid to analyze. The period of time that passes between the emission of the impulses and their reception is proportional to the distance between the surface of the fluid and the plan of reference of the instrument.

BM COMPACT GW5X series is supplied with the advanced microprocessor EchoDiscovery, it can be used in very different environmental conditions.

The instruments have a low energetic consumption, can be installed on metallic or not metallic tanks. They are not dangerous for the users or the atmosphere.

With the instruments BM COMPACT GW5X there is the possibility to use several options about the process connections or detectors. These options make the instrument usable in various conditions, as an example high temperature, high pressure, etc



PRODUCTS OVERVIEW

GUIDE WAVE GW51



GUIDE WAVE GW52



GUIDE WAVE GW53



GUIDE WAVE GW54



GUIDE WAVE GW55

GUIDE WAVE GW56

DISPLAY

The instruments can be set up in 3 ways:

1. by display
2. by BMware software
3. by HART program



BM SERIES COMPACT GUIDE WAVE

TECHNICAL DETAILS

GW51 for liquids and solids

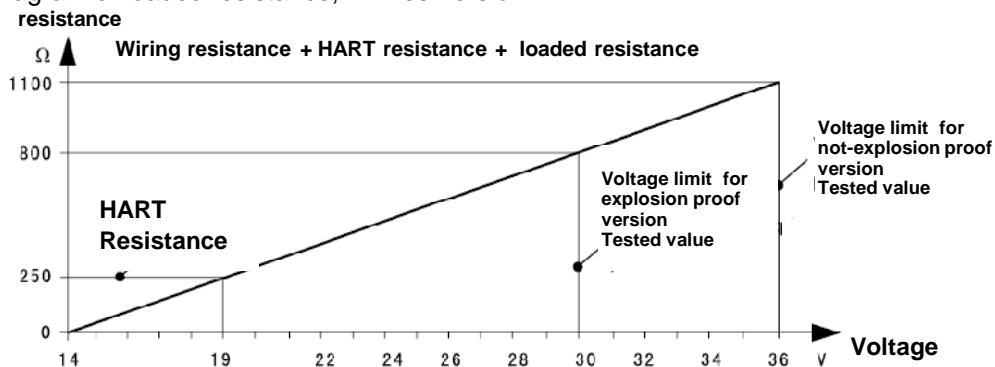
Applications:

Level measurement of liquids and solids, suitable for critical environments.

Max measurable distance:	until 32 m
Accuracy:	±10 mm
Process connection:	G 1½ A - 1½ NPT
Antenna:	Probe
Materials: probe:	AISI 316L / PTFE
cable:	AISI 316L / PTFE
housing:	plastic PBT-FR / Aluminium / AISI 316L
Working temperature:	-40 ÷ 250°C
Storage temperature:	-40 ÷ 80°C
Relative umidity:	<95%
Pressure of use:	-1 ÷ 40 bar
Resistance to vibrations:	mechanical vibrations 10m/s ² , 10÷150Hz
Interval of measure:	~1sec
Interval of updating:	~1sec
Resolution of display:	1mm
Max loaded allowable:	see diagrams following pages
Max loaded allow. values guide:	cable Ø 4mm = 5KN; cable Ø 6mm = 30KN
Max loaded side, values guide:	pole Ø 6mm = 4NM; pole Ø 16mm = 30NM
Supply 2 wires version:	
- Input voltages:	15÷36Vdc
- Absorption:	max. 22.5mA
- Ripple allowed:	<100Hz, U _{ss} >1V; 100Hz÷10KHz, U _{ss} <10mV
Supply 4 wires version:	
- Standard input voltages :	24Vdc ±10%; 230Vac ±10%
- Absorption:	max. 22.5mA
Output signal:	2/4 wires 4-20 mA, HART
Resolution:	6µA
Fixed signal for anomaly:	20.5mA; 22mA; 3.6mA
Resistance 2 wires version:	see following diagram
Resistance 4 wires version:	max 500 ohm
Integration time:	0÷999s, programmable
Cables entry:	1x PG 13.5
Weight:	until 9 kgs (its depend by type of housing and mounting)



Diagram of loaded resistance, 2 wires version



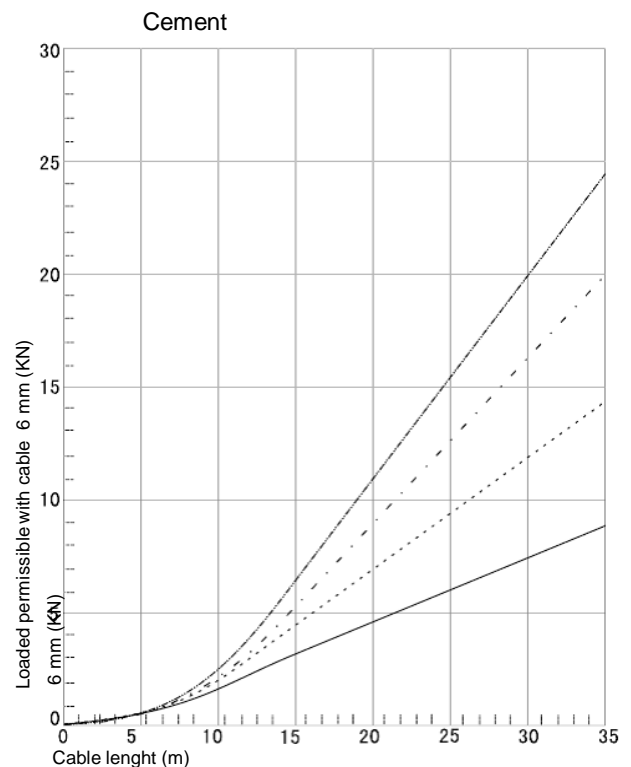
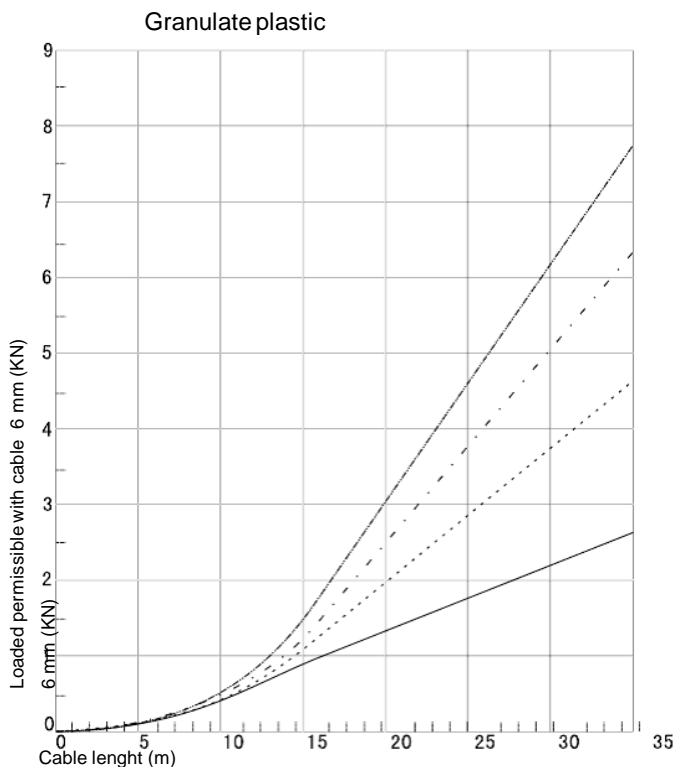
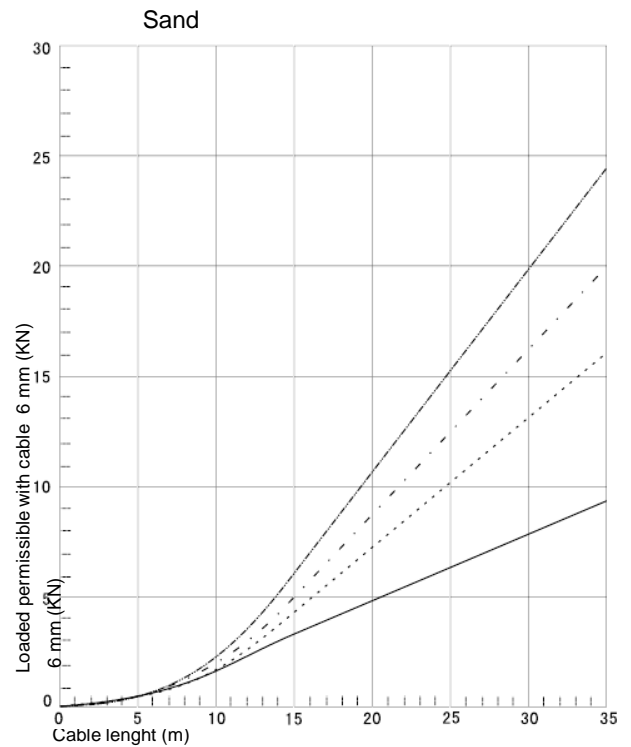
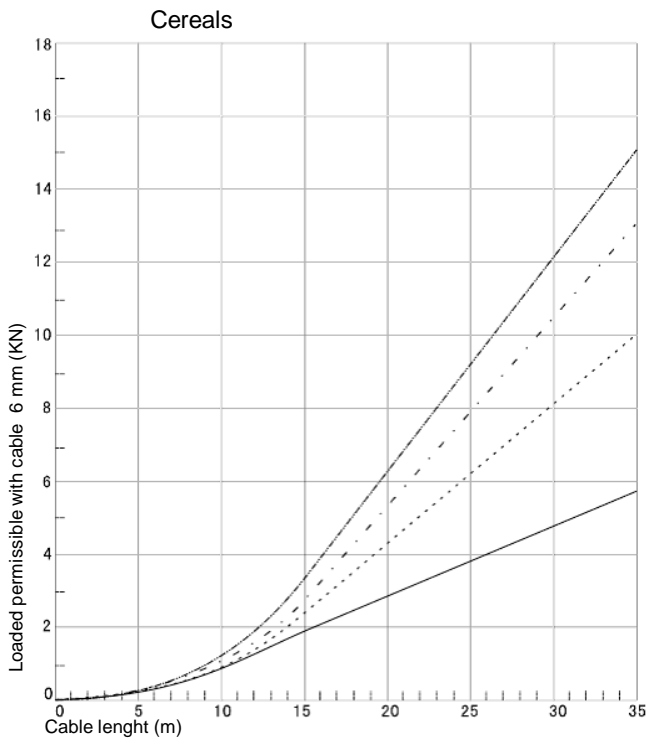


BM SERIES COMPACT GUIDE WAVE

TECHNICAL DETAILS GW51 – LOAD ALLOWED

In the measurement of solid substances, the maximum allowed load is determined by the diameter of the tank and the medium level inside of the same one; in the following diagrams max allowed load are represented for some typical materials: thickness cable permissible loaded le 6 mm.

- Diameter: 12m
- - - - - Diameter: 9m
- Diameter: 6m
- _____ Diameter: 3m



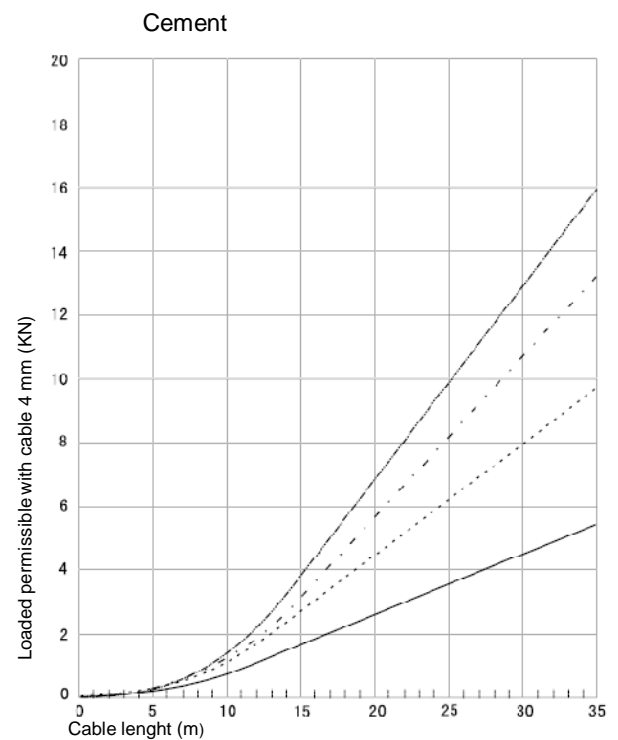
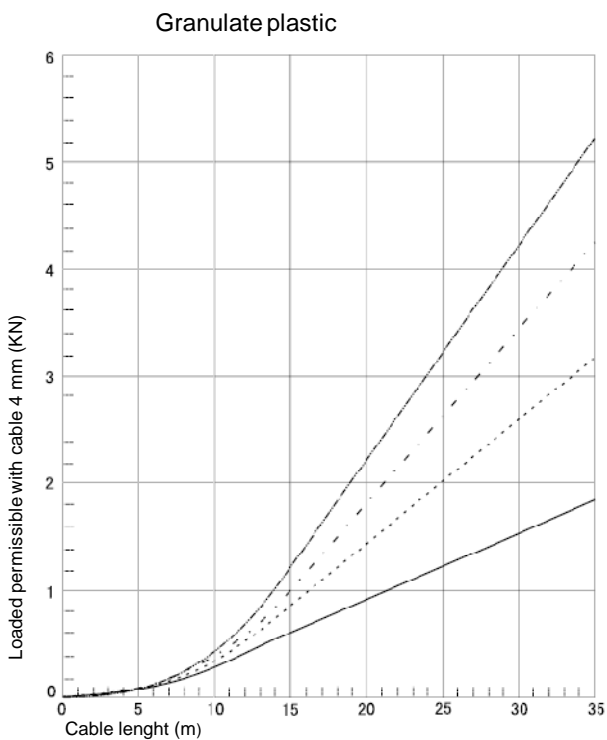
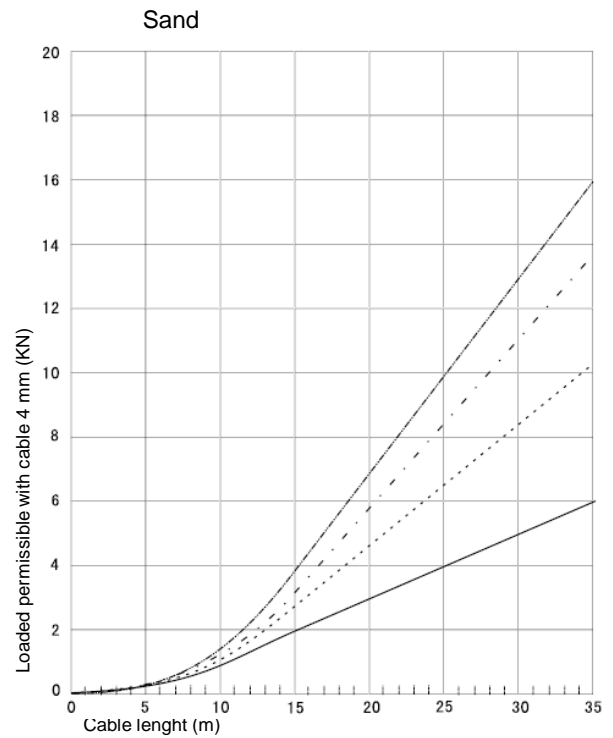
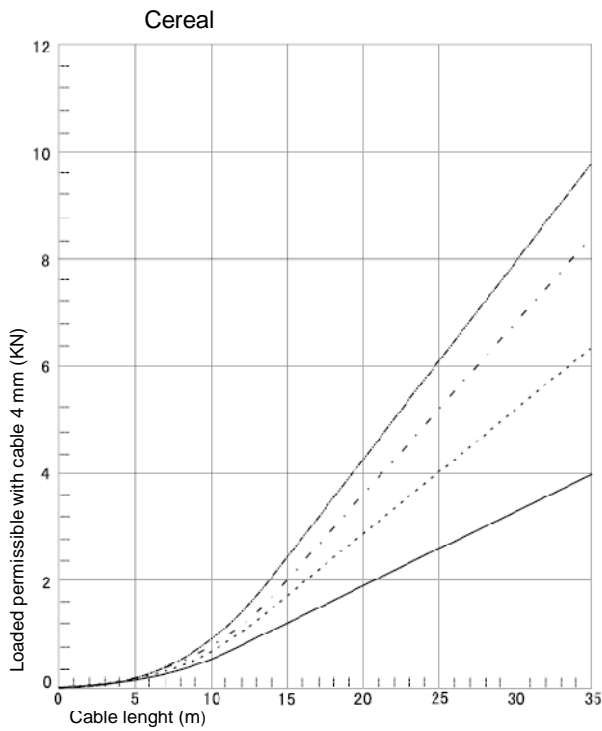


BM SERIES COMPACT GUIDE WAVE

TECHNICAL DETAILS GW51 – LOAD ALLOWED

In the measurement of solid substances, the max allowed load is determined by the diameter of the tank and the medium level inside of the same one; in the following diagrams allowed load examples are represented maximum for some typical materials: thickness cable 4mm.

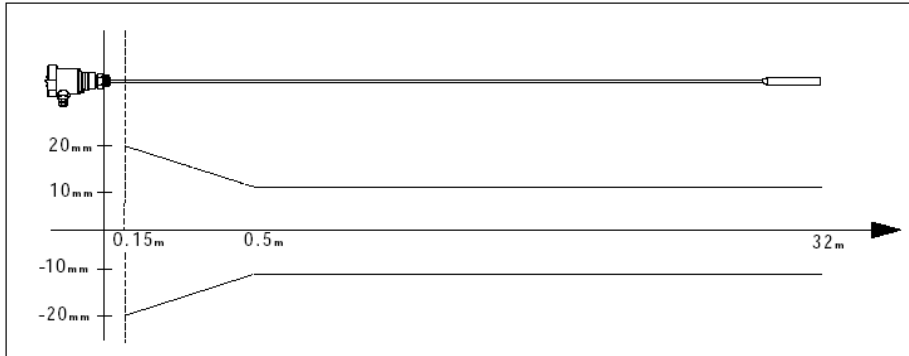
- Diameter: 12m
- - - - - Diameter: 9m
- Diameter: 6m
- Diameter: 3m



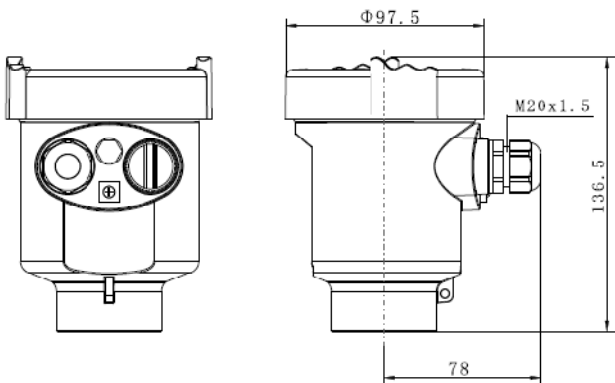
BM SERIES COMPACT GUIDE WAVE

TECHNICAL DETAILS GW51 - follow

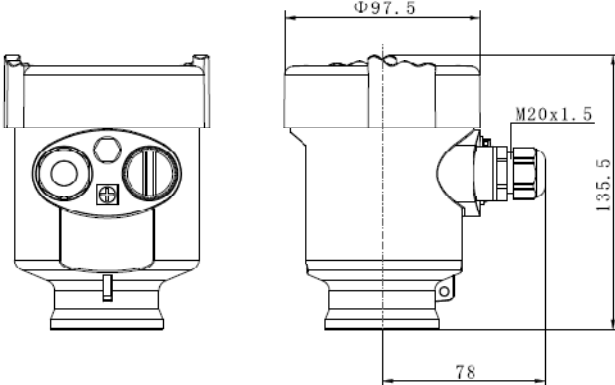
Precision



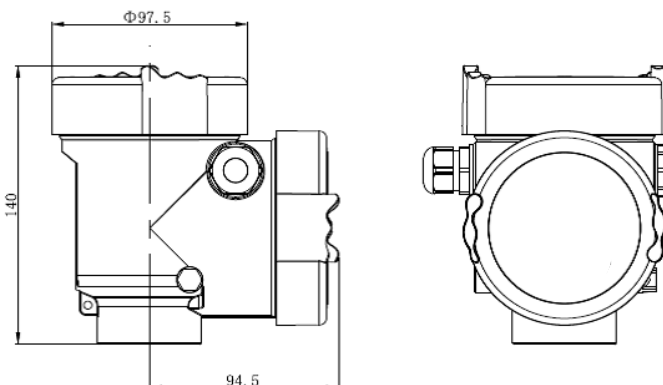
Dimensions with AL/316L frame



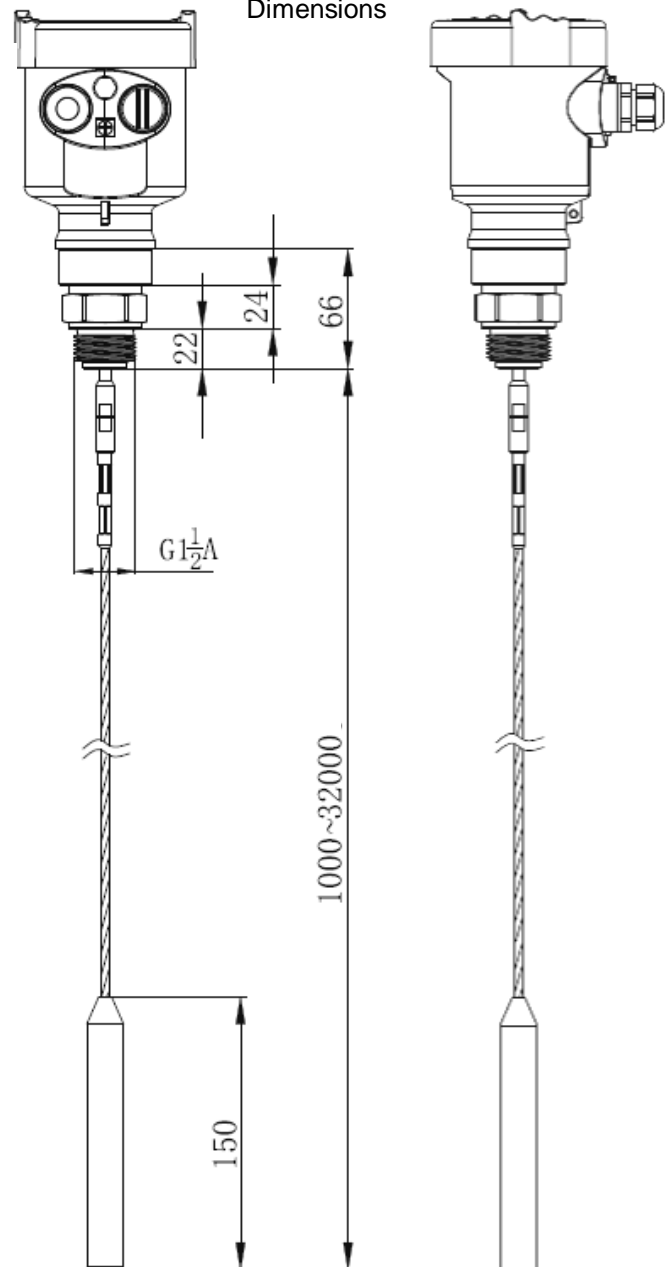
Dimensions with PBT-FRL frame



Dimensions with AL (2 readers) frame



Dimensions





BM SERIES COMPACT GUIDE WAVE

ORDERING CODE GW51

P Standard

Type of Detecting Component /Material

- A Rope /AISI 316L / PTFE
- B Rod/ AISI 316L / PTFE
- C Rope/ AISI 316L / Lengthen PP
- D Rod/ AISI 316L / Lengthen PP
- E Rope/ AISI 316L / Lengthen PTFE
- F Rod/ AISI 316L / Lengthen PTFE
- X Special Type

Process Connections

- GP Thread G 1½ A
- KP Thread G 2A
- NP Thread 1½ NPT
- YP Special Type

Retained seal / Working temperature

- A Viton / -30...150°C
- B Kalrez / -40...250°C

Electronic

- B 4...20 mA HART (2 wires)
- C 4...20 mA / 22,8...26,4 VDC/ 4 wires
- D 4...20 mA /198...242 VDC HART (4 wires)
- E 4...20 mA /22,8...26,4 VDC HART (2 wires)

Housing Material / General Protection

- B Plastic / IP66
- A Aluminium / IP67
- D Aluminium (2 chambers) / IP67
- G AISI 316L / IP67

Wiring

- M M20x1.5
- N ½ NPT

Display / Programming

Cable length / pole

Enter a Five-Digit value in mm

BM SERIES COMPACT GUIDE WAVE

TECHNICAL DETAILS

GW52 for liquids and solids

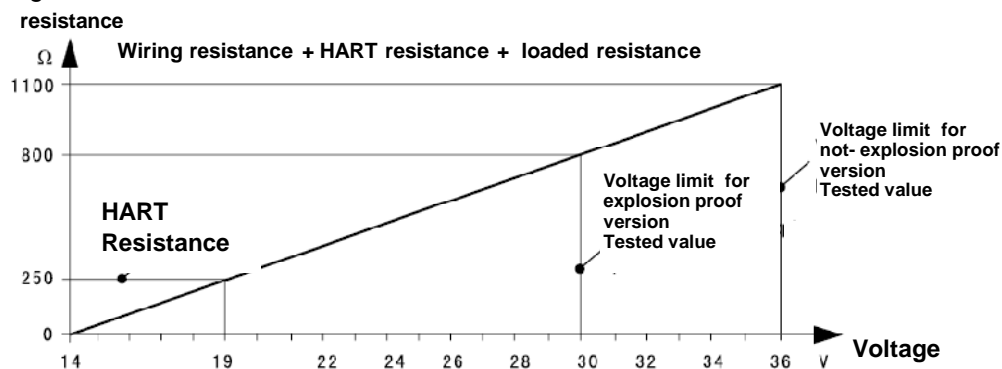
Applications:

Level measurement of liquids and solids, suitable in critical environments.

Max measurable distance:	until 6 m
Accuracy:	±10 mm
Process connection:	Flange
Antenna:	Rope
Materials: pole:	PTFE
housing:	plastic PBT-FR / Aluminium / AISI 316L
Working temperature:	-40 ÷ 150°C
Storage temperature:	-40 ÷ 80°C
Relative humidity:	<95%
Pressure of use:	-1 ÷ 40 bar
Resistance to vibrations:	mechanical vibrations 10m/s ² , 10÷150Hz
Interval of measure:	~1sec
Interval of updating:	~1sec
Resolution of display:	1mm
Max loaded allowable:	see diagrams following pages
Max loaded allow. values guide:	cable Ø 4mm = 5KN; cable Ø 6mm = 30KN
Max loaded side, values guide:	pole Ø 6mm = 4NM; pole Ø 16mm = 30NM
Supply 2 wires version:	
- Input voltages:	15÷36Vdc
- Absorption:	max. 22.5mA
- Ripple allowed:	<100Hz, U _{ss} >1V; 100Hz÷10KHz, U _{ss} <10mV
Supply 4 wires version:	
- Standard input voltages :	24Vdc ±10%; 230Vac ±10%
- Absorption:	max. 22.5mA
Output signal:	2/4 wires 4-20 mA, HART
Resolution:	6µA
Fixed signal for anomaly:	20.5mA; 22mA; 3.6mA
Resistance 2 wires version:	see following diagram
Resistance 4 wires version:	max 500 ohm
Integration time:	0÷999s, programmable
Cables entry:	1x PG 13.5
Weight:	until 5.5 kgs (its depend by type of housing and mounting)



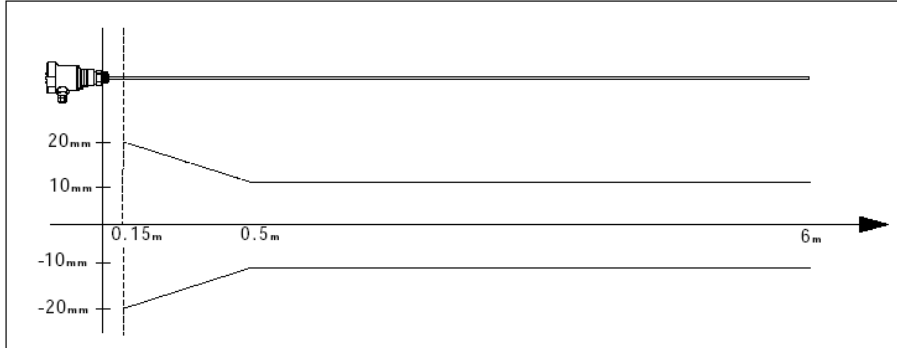
Diagram of loaded resistance, 2 wires version



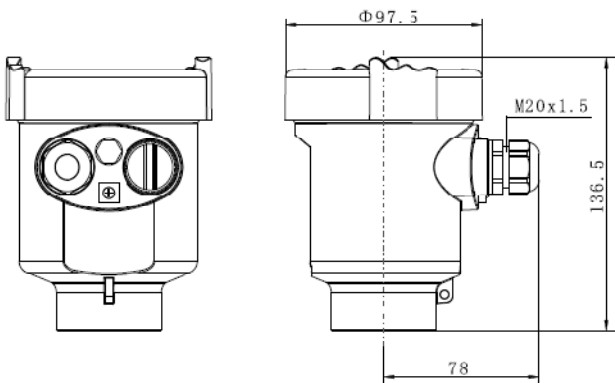
BM SERIES COMPACT GUIDE WAVE

TECHNICAL DETAILS GW52 - follow

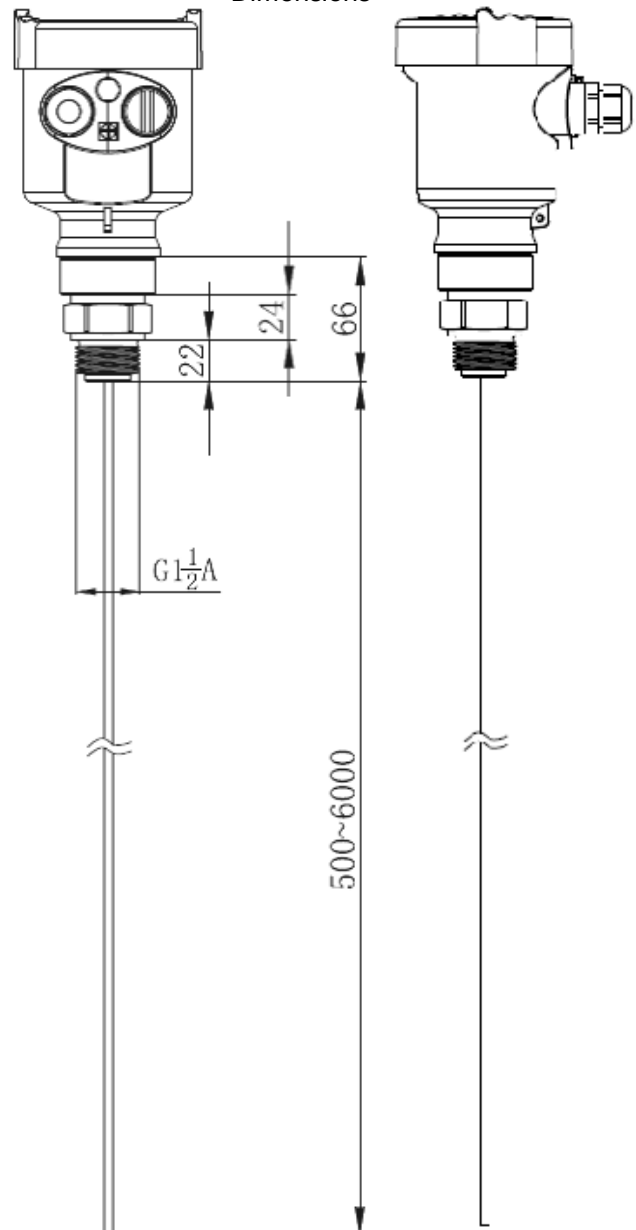
Precision



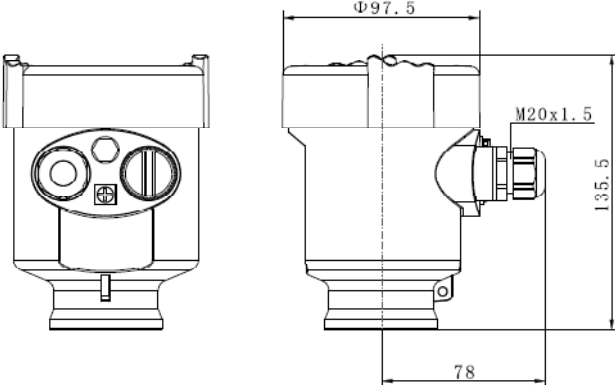
Dimensions with AL/316L frame



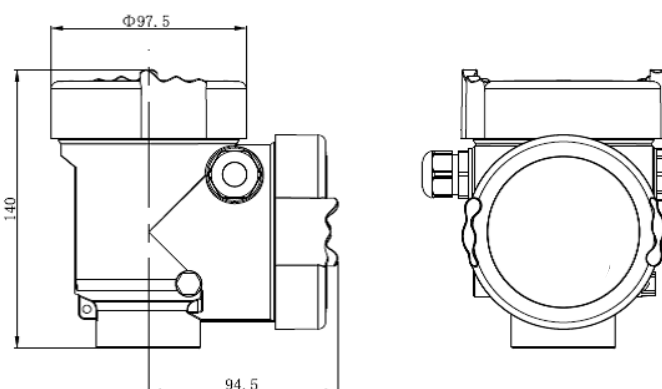
Dimensions



Dimensions with PBT-FRL frame



Dimensions with AL frame (2 readers)





BM SERIES COMPACT GUIDE WAVE

ORDERING CODE GW52

P Standard

Type of Detecting Component/ Material

A Rope/ PTFE

Connection / Material

GP Flange DN50 PN16 AISI 316L (GB/T9119-2000)

NP Flange DN80 PN16 AISI 316L (GB/T9119-2000)

EP Flange DN100 PN16 AISI 316L (GB/T9119-2000)

FP Flange DN150 PN16 AISI 316L (GB/T9119-2000)

YP Special Connection

Retained seal / Working temperature

A PTFE / -30...150°C

Electronic

B 4...20 mA HART (2 wires)

C 4...20 mA / 22,8...26,4 VDC/ HART 4 wires

D 4...20 mA / 198...242 VAC / HART (4 wires)

E 4...20 mA / 22,8...26,4 VDC / HART (2 wires)

Housing Material / General Protection

B Plastic / IP66

A Aluminium / IP67

D Aluminium (2 chambers) / IP67

G AISI 316L / IP67

Wiring

M M20x1.5

N ½ NPT

Display / Programming

A YES

Cable length / pole

Enter a Four-Digit value in mm

Note:

- The size of the flange refers to GB/T9119-2000 PN16. the thickness of the flange is 15mm.

BM SERIES COMPACT GUIDE WAVE

TECHNICAL DETAILS

GW53 for liquids

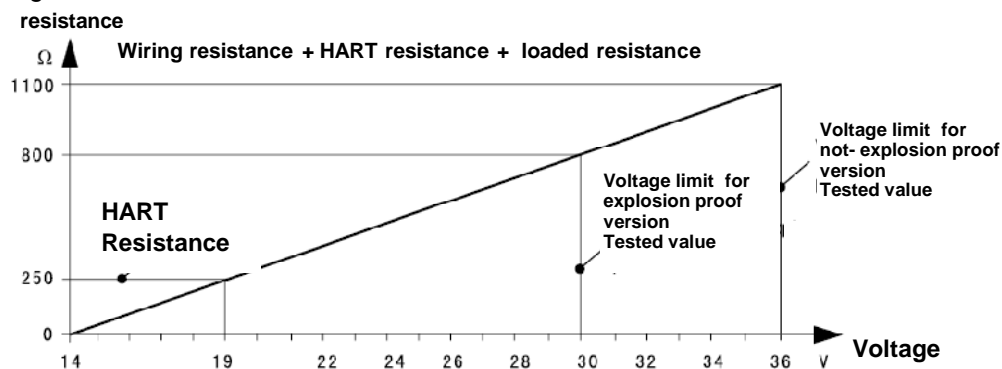
Applications:

Level measurement of liquids, suitable for those with dielectric low constant, in critical environments.

Max measurable distance:	until 6 m
Accuracy:	±10 mm
Process connection:	G 1½ A - 1½ NPT
Antenna:	Pole coaxial Ø 28 mm
Materials: pole:	AISI 316L
housing:	plastic PBT-FR / Aluminium / AISI 316L
Working temperature:	-40 ÷ 250°C
Storage temperature:	-40 ÷ 80°C
Relative umidity:	<95%
Pressure of use :	-1 ÷ 40 bar
Resistance to vibrations:	mechanical vibrations 10m/s2, 10÷150Hz
Interval of measure:	~1sec
Interval of updating:	~1sec
Resolution of display:	1mm
Max loaded allowable:	see diagrams following pages
Max loaded allow. values guide:	cable Ø 4mm = 5KN; cable Ø 6mm = 30KN
Max loaded side, values guide:	pole Ø 6mm = 4NM; pole Ø 16mm = 30NM
Supply 2 wires version:	
- Input voltages:	15÷36Vdc
- Absorption:	max. 22.5mA
- Ripple allowed:	<100Hz, U _{ss} >1V; 100Hz÷10KHz, U _{ss} <10mV
Supply 4 wires version:	
- Standard input voltages :	24Vdc ±10%; 230Vac ±10%
- Absorption:	max. 22.5mA
Output signal:	2/4 wires 4-20 mA, HART
Resolution:	6µA
Fixed signal for anomaly:	20.5mA; 22mA; 3.6mA
Resistance 2 wires version:	see following diagram
Resistance 4 wires version:	max 500 ohm
Integration time:	0÷999s, programmable
Cables entry:	1x PG 13.5
Weight:	until 6 kgs (its depend by type of housing and mounting)



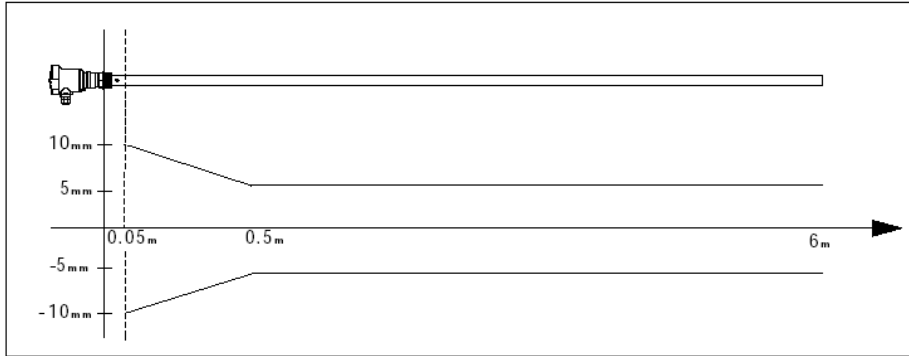
Diagram of loaded resistance, 2 wires version



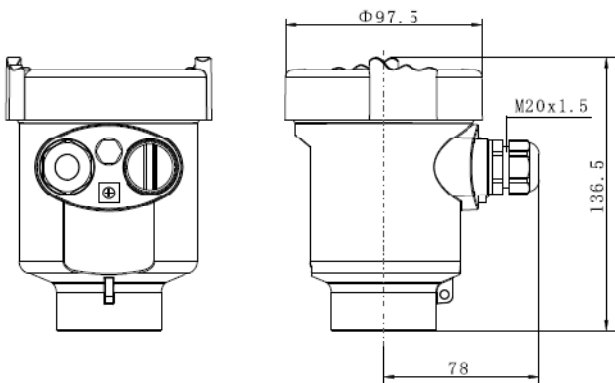
BM SERIES COMPACT GUIDE WAVE

TECHNICAL DETAILS GW53 - follow

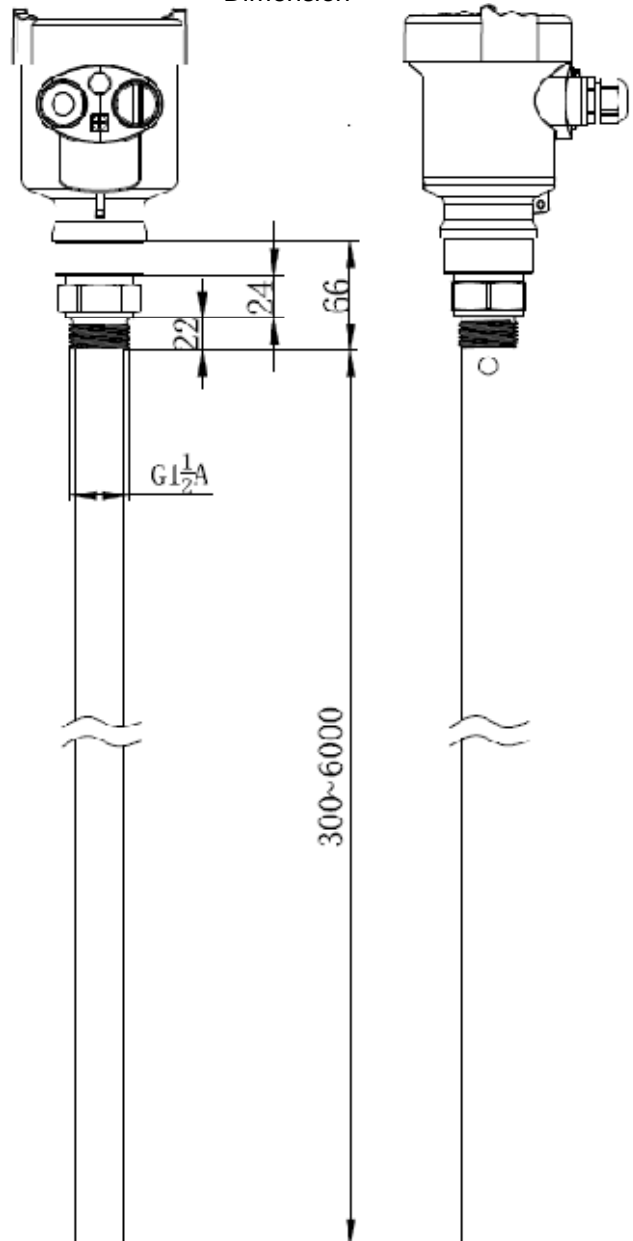
Precision



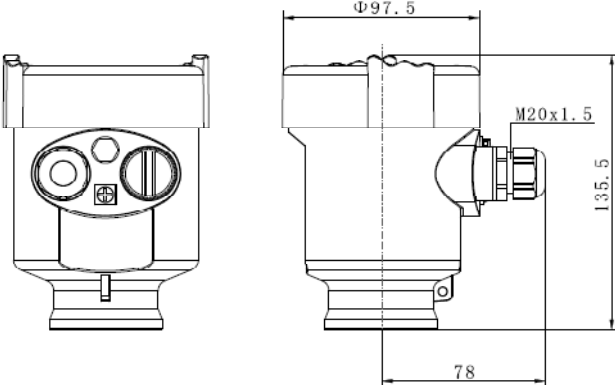
Dimensions with AL/316L frame



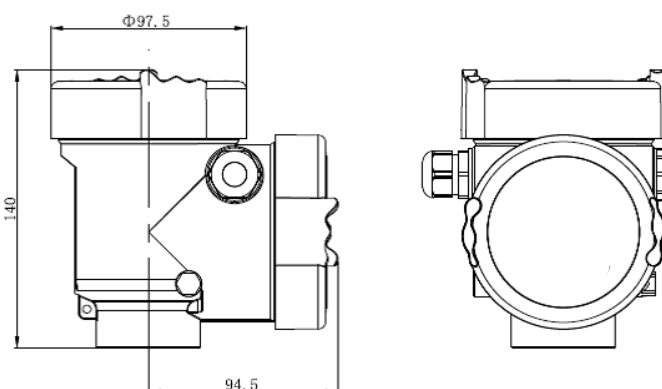
Dimension



Dimensions with PBT-FRL frame



Dimensions with AL frame (2 readers)





BM SERIES COMPACT GUIDE WAVE

ORDERING CODE GW53

P Standard

Type of Detecting Component/ Material

A Coaxial pole Ø 28mm / AISI 316L

Connections / Material

GP Thread G 1 ½" A

KP Thread G 2" A

NP Thread G 1 ½" NPT

YP Special Connection

Retained seal / Working temperature

A Viton / -30...150°C

B Kalrez / -40...150°C

Electronic

B 4...20 mA HART (2 wires)

C 4...20 mA / 22,8...26,4 VDC 4 wires

D 4...20 mA / 198...242 VAC / HART (4 wires)

E 4...20 mA / 22,8...26,4 VDC / HART (2 wires)

Housing Material / General Protection

A Aluminium / IP67

B Plastic / IP66

D Aluminium (2 chambers) / IP67

G AISI 316L / IP66

Wiring

M M20x1.5

N ½ NPT

Display / Programming

A YES

Rod Length

Enter a Four-Digit value in mm

BM SERIES COMPACT GUIDE WAVE

TECHNICAL DETAILS

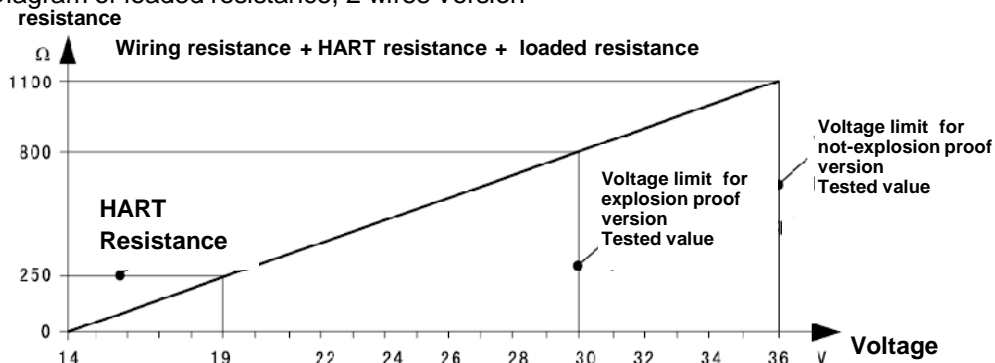
GW54 for liquids

Applications: Level measurement of liquids, suitable for critical environments, to high temperature and high pressure.

Max measurable distance:	until 6 m (pole), until 30 m (probe)
Accuracy:	±10 mm
Process connection:	G 1½ A - 1½ NPT
Antenna:	Pole / Probe
Materials: pole:	AISI 316L
probe:	AISI 316L
housing:	plastic PBT-FR / Aluminium / AISI 316L
Working temperature:	-40 ÷ 250°C
Storage temperature:	-40 ÷ 80°C
Relative umidity:	<95%
Pressure of use:	-1 ÷ 40 bar
Resistance to vibrations:	mechanical vibrations 10m/s ² , 10÷150Hz
Interval of measure:	~1sec
Interval of updating:	~1sec
Resolution of display:	1mm
Max loaded allowable:	see diagrams following pages
Max loaded allow. values guide:	cable Ø 4mm = 5KN; cable Ø 6mm = 30KN
Max loaded side, values guide:	pole Ø 6mm = 4NM; pole Ø 16mm = 30NM
Supply 2 wires version:	
- Input voltages:	15÷36Vdc
- Absorption:	max. 22.5mA
- Ripple allowed:	<100Hz, U _{ss} >1V; 100Hz÷10KHz, U _{ss} <10mV
Supply 4 wires version:	
- Standard input voltages :	24Vdc ±10%; 230Vac ±10%
- Absorption:	max. 22.5mA
Output signal:	2/4 wires 4-20 mA, HART
Resolution:	6µA
Fixed signal for anomaly:	20.5mA; 22mA; 3.6mA
Resistance 2 wires version:	see following diagram
Resistance 4 wires version:	max 500 ohm
Integration time:	0÷999s, programmable
Cables entry:	1x PG 13.5
Weight:	until 12 kgs (its depend by type of housing and mounting)



Diagram of loaded resistance, 2 wires version

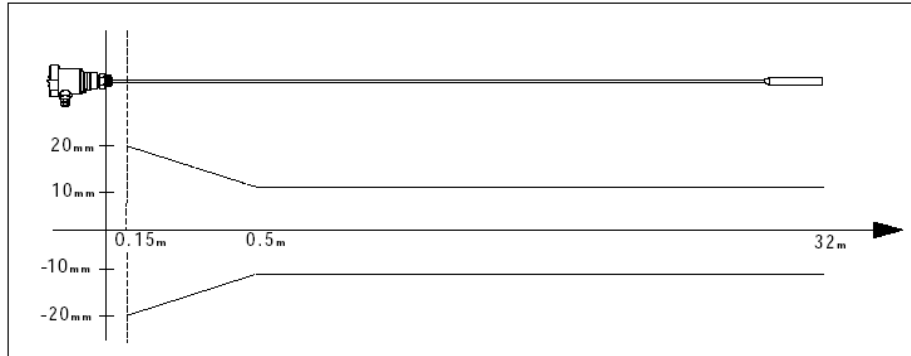




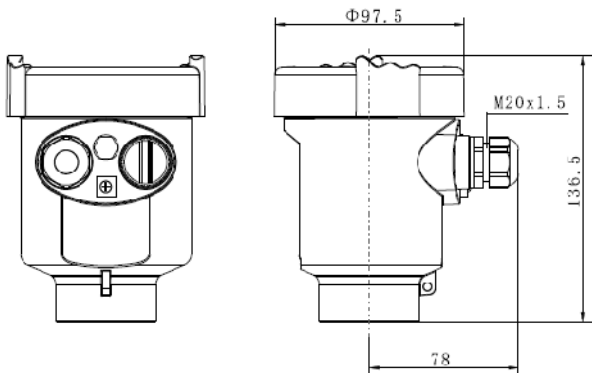
BM SERIES COMPACT GUIDE WAVE

TECHNICAL DETAILS GW54 - follow

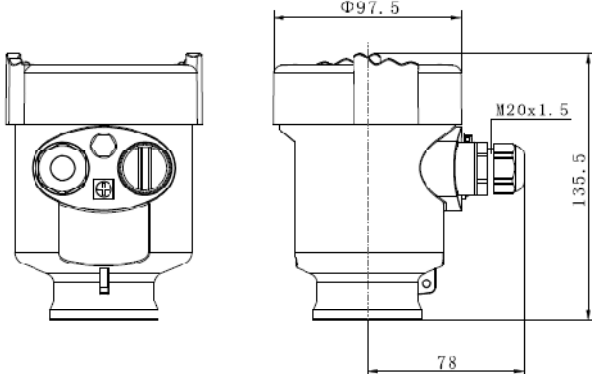
Precision



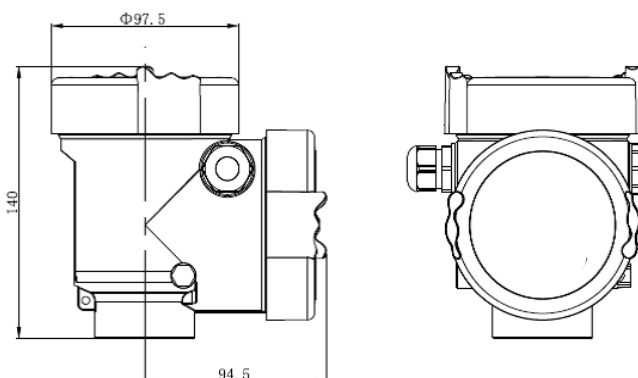
Dimensions with AL/316L frame



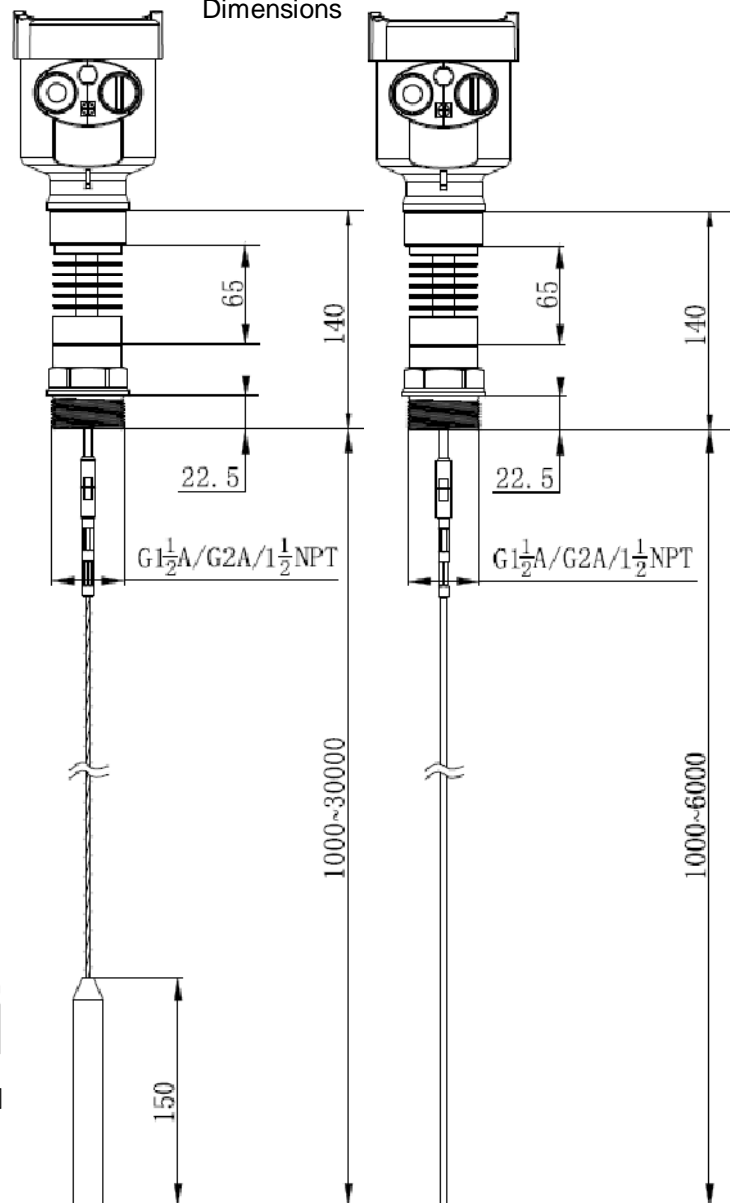
Dimensions with PBT-FRL frame



Dimensions with AL frame (2 readers)



Dimensions





BM SERIES COMPACT GUIDE WAVE

ORDERING CODE GW54

P Standard

Type of Detecting Component / Material

- A Rope / AISI 316L / PTFE
- B Rod / AISI 316L / PTFE
- C Rope / AISI 316L / Lengthen PP
- D Rod / AISI 316L / Lengthen PP
- E Rope / AISI 316L / Lengthen PTFE
- F Rod / AISI 316L / Lengthen PTFE
- X Special Type

Connections

- GP Thread G 1½ A
- KP Thread G 2A
- NP Thread 1½ NPT

Retained seal / Working temperature

- A Viton / -30...250°C
- B Kalrez / -40...250°C

Electronic

- B 4...20 mA HART (2 wires)
- C 4...20 mA / 22,8...26,4 VDC HART 4 wires
- D 4...20 mA / 198...242 VAC HART 4 wires
- E 4...20 mA / 22,8...26,4 VDC HART 2 wires

Housing Material / General Protection

- A Aluminium / IP67
- B Plastic / IP66
- D Aluminium (2 chambers) / IP67
- G AISI 316L / IP67

Wiring

- M M20x1.5
- N ½ NPT

Display / Programming

- A YES

Cable length / pole

Enter a Five-Digit value in mm

BM SERIES COMPACT GUIDE WAVE

TECHNICAL DETAILS

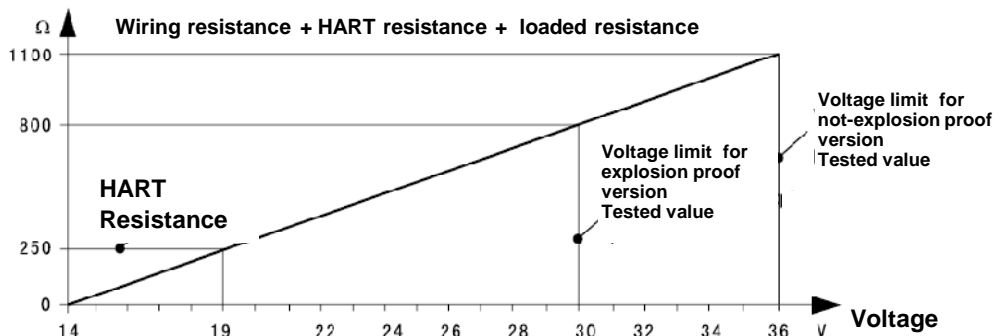
GW55 for liquids

Applications: Level measurement in liquids, suitable for critical environments, to high temperature and high pressure.

Max measurable distance:	until 6 m (pole), until 30 m (probe)
Accuracy:	±10 mm
Process connection:	G 1½ A - 1½ NPT
Antenna:	Pole / Probe
Materials: pole:	AISI 316L / Ceramic
probe:	AISI 316L / Ceramic
housing:	plastic PBT-FR / Aluminium / AISI 316L
Working temperature:	-200 ÷ 400°C
Storage temperature:	-40 ÷ 80°C
Relative umidity:	<95%
Pressure of use:	-1 ÷ 40 bar
Resistance to vibrations:	mechanical vibrations 10m/s ² , 10÷150Hz
Interval of measure:	~1sec
Interval of updating:	~1sec
Resolution of display:	1mm
Max loaded allowable:	see diagrams following pages
Max loaded allow. values guide:	cable Ø 4mm = 5KN; cable Ø 6mm = 30KN
Max loaded side, values guide:	pole Ø 6mm = 4NM; pole Ø 16mm = 30NM
Supply 2 wires version:	
- Input voltages:	15÷36Vdc
- Absorption:	max. 22.5mA
- Ripple allowed:	<100Hz, U _{ss} >1V; 100Hz÷10KHz, U _{ss} <10mV
Supply 4 wires version:	
- Standard input voltages :	24Vdc ±10%; 230Vac ±10%
- Absorption:	max. 22.5mA
Output signal:	2/4 wires 4-20 mA, HART
Resolution:	6µA
Fixed signal for anomaly:	20.5mA; 22mA; 3.6mA
Resistance 2 wires version:	see following diagram
Resistance 4 wires version:	max 500 ohm
Integration time:	0÷999s, programmable
Cables entry:	1x PG 13.5
Weight:	until 9 kgs (its depend by type of housing and mounting)



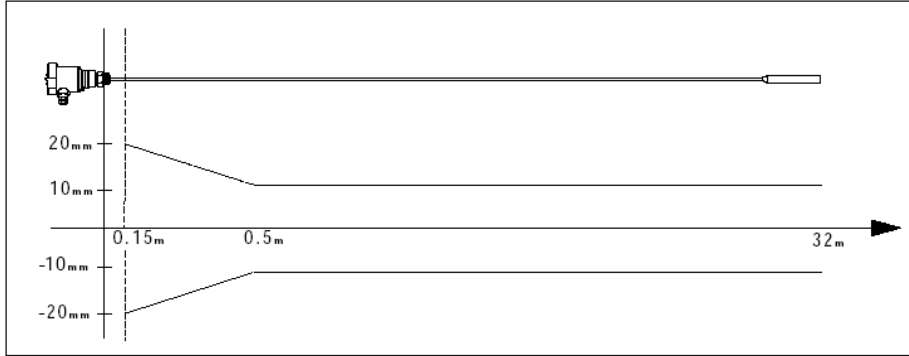
Diagram of loaded resistance, 2 wires version
resistance



BM SERIES COMPACT GUIDE WAVE

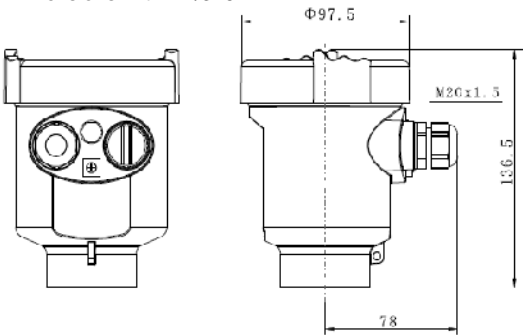
TECHNICAL DETAILS GW55 - follow

Precision

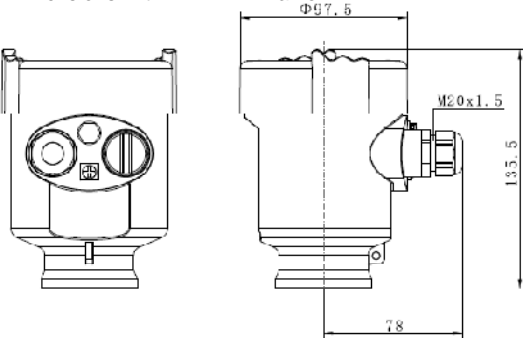


Dimensions

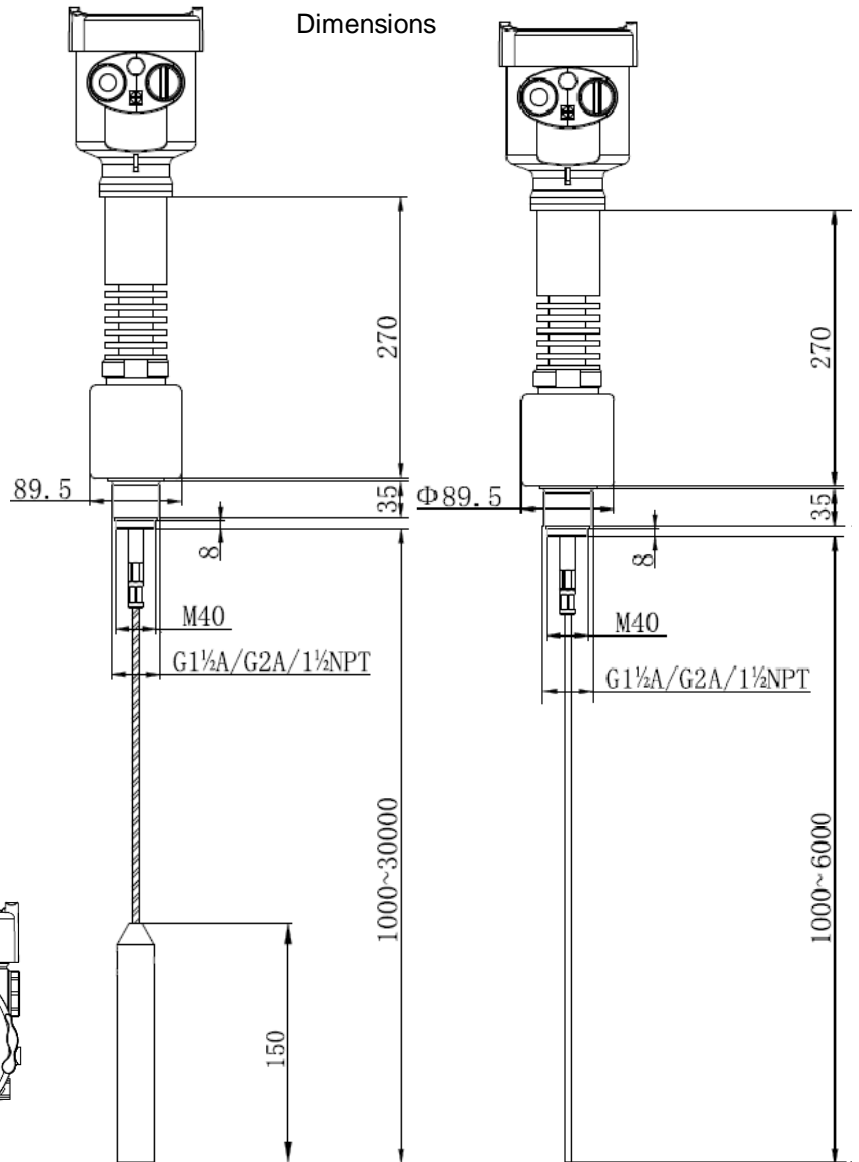
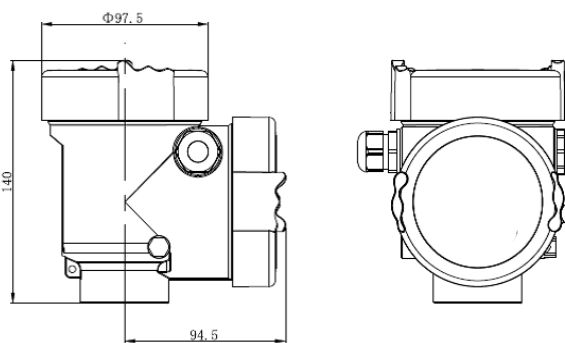
Dimensions with AL/316L



Dimensions with PBT-FRL frame



Dimensions with AL frame (2 readers)





BM SERIES COMPACT GUIDE WAVE

ORDERING CODE GW55

P Standard

Type of Detecting Component / Material

- A Rope / AISI 316L / Ceramic
- B Rod / AISI 316L / Ceramic

Connections

- GP Thread G 1½ A
- KP Thread G 2A
- NP Thread 1½ NPT

Electronic

- B 4...20 mA HART(2wires)
- C 4...20 mA / 22,8...26,4 VDC HART 4 wires
- D 4...20 mA / 198...242 VAC HART 4 wires
- E 4...20 mA / 22,8...26,4 VDC HART 2 wires

Housing Material / General Protection

- B Plastic / IP66
- A Aluminium / IP67
- D Aluminium (2 chambers) / IP67
- G AISI 316L / IP67

Working temperature

- A -200...400°C

Wiring

- M M20x1.5
- N ½ NPT

Display / Programming

- A YES

Cable length / pole

Enter a Five-Digit value in mm

BM SERIES COMPACT GUIDE WAVE

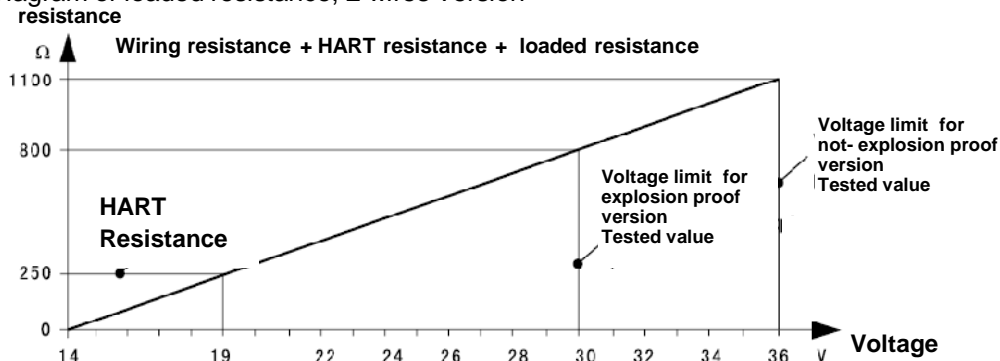
TECHNICAL DETAILS

GW56 for liquids and dust

Applications: Level measurement in liquids, suitable for critical environments with dielectric low constant.

Max measurable distance:	until 6 m (pole), until 30 m (probe)	
Accuracy:	±10 mm	
Process connection:	G 1½ A - 1½ NPT	
Antenna:	Pole / Probe	
Materials: pole:	AISI 316L / PTFE	
probe:	AISI 316L / PTFE	
housing:	plastic PBT-FR / Aluminium / AISI 316L	
Working temperature:	-40 ÷ 250°C	
Storage temperature:	-40 ÷ 80°C	
Relative umidity:	<95%	
Pressure of use:	-1 ÷ 40 bar	
Resistance to vibrations:	mechanical vibrations 10m/s ² , 10÷150Hz	
Interval of measure:	~1sec	
Interval of updating:	~1sec	
Resolution of display:	1mm	
Max loaded allowable:	see diagrams following pages	
Max loaded allow. values guide:	cable Ø 4mm = 5KN; cable Ø 6mm = 30KN	
Max loaded side, values guide:	pole Ø 6mm = 4NM; pole Ø 16mm = 30NM	
Supply 2 wires version:		
- Input voltages:	15÷36Vdc	
- Absorption:	max. 22.5mA	
- Ripple allowed:	<100Hz, U _{ss} >1V; 100Hz÷10KHz, U _{ss} <10mV	
Supply 4 wires version:		
- Standard input voltages :	24Vdc ±10%; 230Vac ±10%	
- Absorption:	max. 22.5mA	
Output signal:	2/4 wires 4-20 mA, HART	
Resolution:	6µA	
Fixed signal for anomaly:	20.5mA; 22mA; 3.6mA	
Resistance 2 wires version:	see following diagram	
Resistance 4 wires version:	max 500 ohm	
Integration time:	0÷999s, programmable	
Cables entry:	1x PG 13.5	
Weight:	until 9 kgs (its depend by type of housing and mounting)	

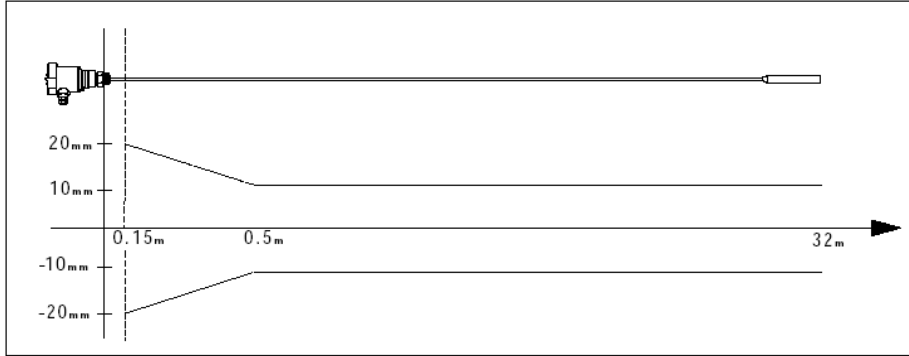
Diagram of loaded resistance, 2 wires version



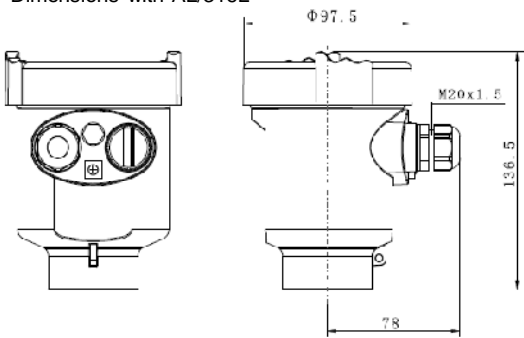
BM SERIES COMPACT GUIDE WAVE

TECHNICAL DETAILS GW56 - follow

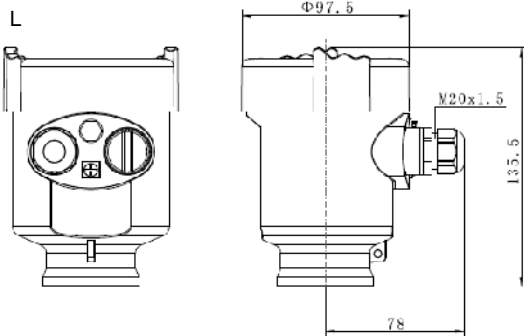
Precision



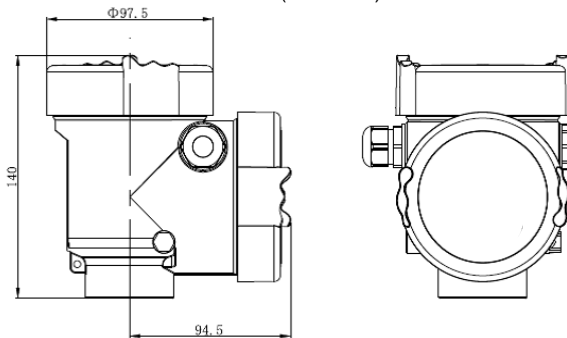
Dimensions with AL/316L



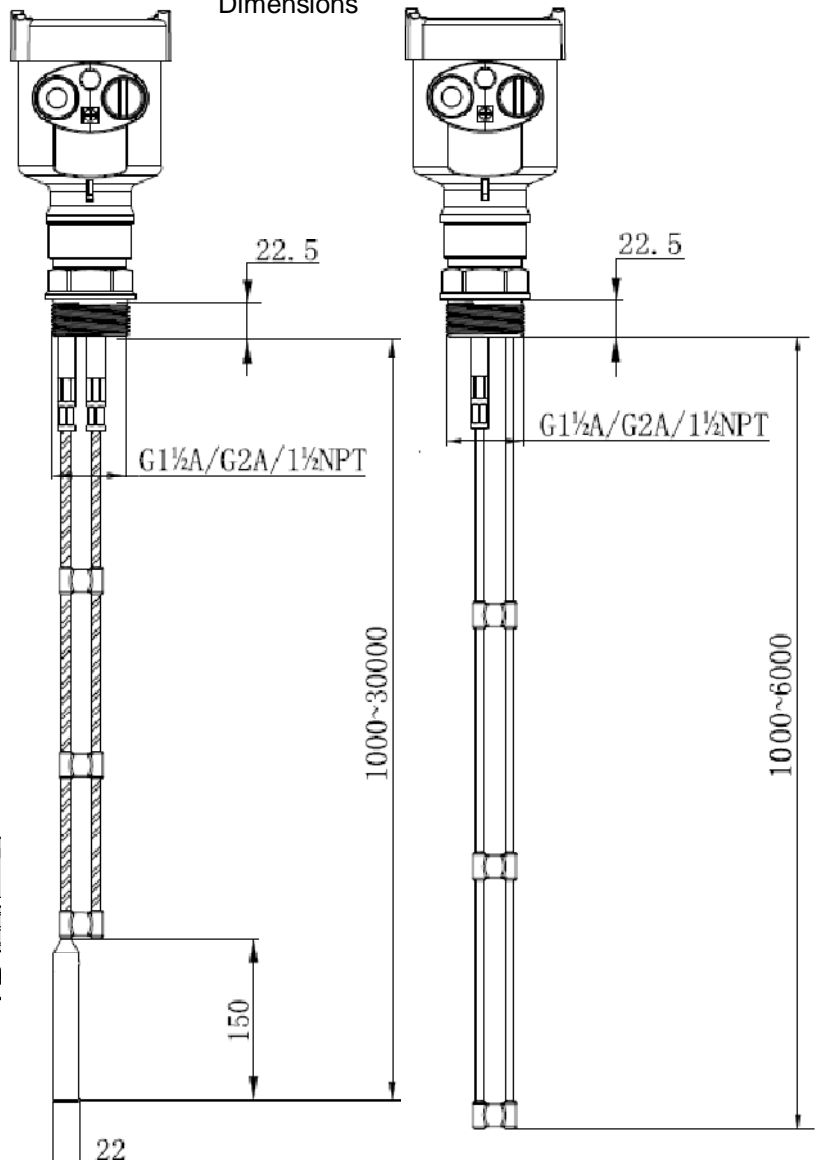
Dimensions with PBT-FRL frame



Dimensions with AL frame (2 readers)



Dimensions





BM SERIES COMPACT GUIDE WAVE

ORDERING CODE GW56

P Standard

Type of Detecting Component / Material

- A 2-Rope / AISI 316L / PTFE
- B 2-Rod / AISI 316L / PTFE

Connections / Material

- GP Thread G 1½ A AISI 316L
- KP Thread G 2A AISI 316L
- NP Thread 1½ NPT AISI 316L

Electronic

- B 4...20 mA HART (2 wires)
- C 4...20 mA / 22,8...26,4 VDC HART 4 wires
- D 4...20 mA / 198...242 VAC / HART 4 wires
- E 4...20 mA / 22,8...26,4 VDC HART 2 wires

Retained seal / Working temperature

- A Viton / -30...150°C
- B Kalrez / -40...250°C

Housing Material / General Protection

- A Aluminium / IP67
- B Plastic / IP66
- D Aluminium (2 chambers) / IP67
- G AISI 316L / IP67

Wiring

- M M20x1.5
- N ½ NPT

Display / Programming

- A YES

Cable length / pole

Enter a Five-Digit value in mm