

## BM SERIES ULTRA COMPACT

### ULTRASONIC LEVEL INSTRUMENTS (Compact version)

#### DESCRIPTION

The ultrasonic impulses generated from transducers “antenna system”, which travel at the speed of sound, come reflected by the surface of medium and newly sent back to the transducer.

The period of time that passes between the emission of impulses and the reception of the same ones from the antenna, is proportional to the existing distance between the same antenna and the higher level of the medium to measure, therefore the principle of the ultrasonic measure can be illustrated with the following equation:

$S=CXT/2$ , where S: distance, C: velocity of sound, T: time lapse

Because of the wideband impulses, the overlap between the emission and the reception of the same impulses increases in particular zones, extending itself from the transducer to the bottom, causing a wrong measurement of the level. This error zone is defined “blanking zones” and its dimension vary based on the various models of ultrasonic meters that are used.

The use of an advanced microprocessor and the technology “EchoDiscovery”, allows the user of the instrument also in critical zones with heavy jobs. The function “False echo storage” assures the device to identify the correct echo also in presence of false ECHO, supplying correct measures. The integrated temperature sensor puts into effect a temperature compensation in real time.



#### PRODUCTS OVERVIEW – TECHNICAL DETAILS

##### ULTRA COMPACT UC551



##### ULTRA COMPACT UC552



##### ULTRA COMPACT UC553



#### DISPLAY

The instruments can be set up in 3 ways:

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



## SERIE BM ULTRA COMPACT

### TECHNICAL DETAILS

#### UC551

Application:

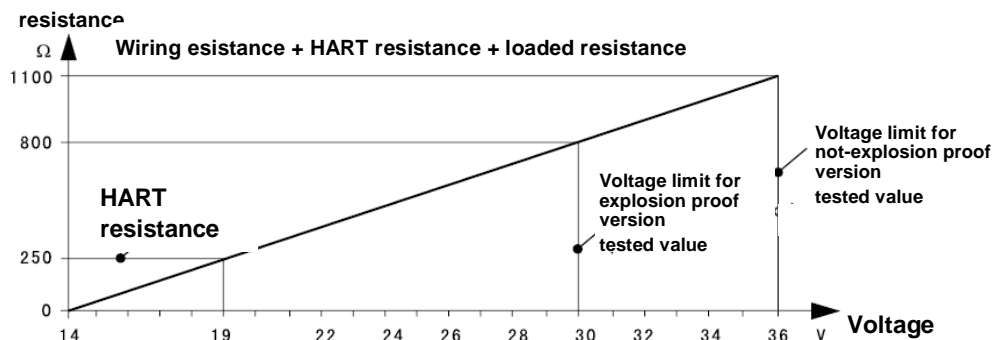
Level medium measurement, specially highly corrosive.

Flow measurement on open channel;

Range:	0.25...4m
Accuracy:	0.2 ... 0.5 % end scale
Process connection:	G1½ "A
Ultrasonic transducer:	Compact
Material: sensor:	PU/ PC - PVDF
housing:	plastic PBT-FR / Aluminium
Protection:	IP67
Working temperature:	-40 ÷ 70°C
Storage temperature:	-40 ÷ 80°C
Relative umidity:	<95%
Pressure of use:	-0.2... 1 bar
Resistance to vibrations:	mechanical vibrations 10m/s2, 10÷150Hz
Frequency:	46 KHz
Angle emission lobe:	5.5°
Interval of measure:	~2sec
Interval of updating:	~3sec
Resolution display:	1mm
Supply of 2 wires version:	
- Input voltage:	15÷36Vdc
- Absorption:	max. 22.5mA
- Ripple allowed:	<100Hz, U <sub>ss</sub> >1V; 100Hz÷100KHz, U <sub>ss</sub> <10mV
Supply of 4 wires version:	
- Standard input voltage:	24Vdc ±10%;
- Absorption:	max. 4VA, 2.1W
Output signal:	2/4 wires 4-20 mA, HART
Resolution:	1,6µA
Fixed signal for anomaly:	20.5mA; 22mA; 3.8mA
Resistance 2 wires version:	see following diagram
Resistance 4 wires version:	max 500 ohm
Integration time:	-----
Cables entry:	1x PG 13.5
Weight:	~1.8...3 kgs



Diagram of loaded resistance, 2 wires version

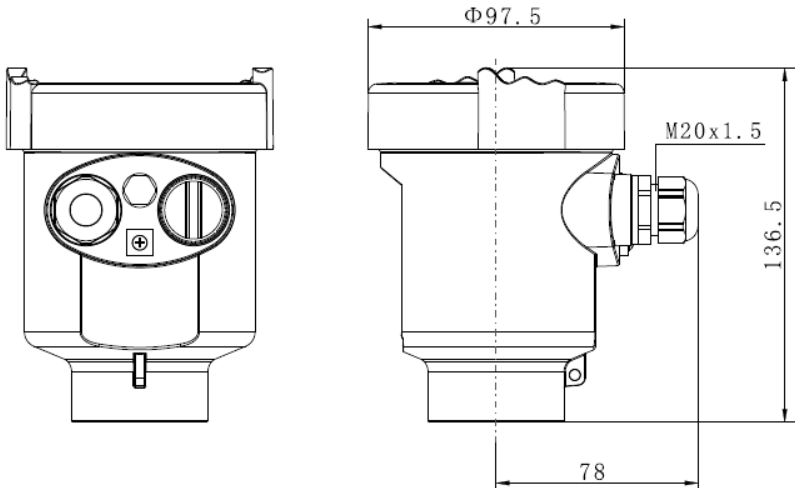




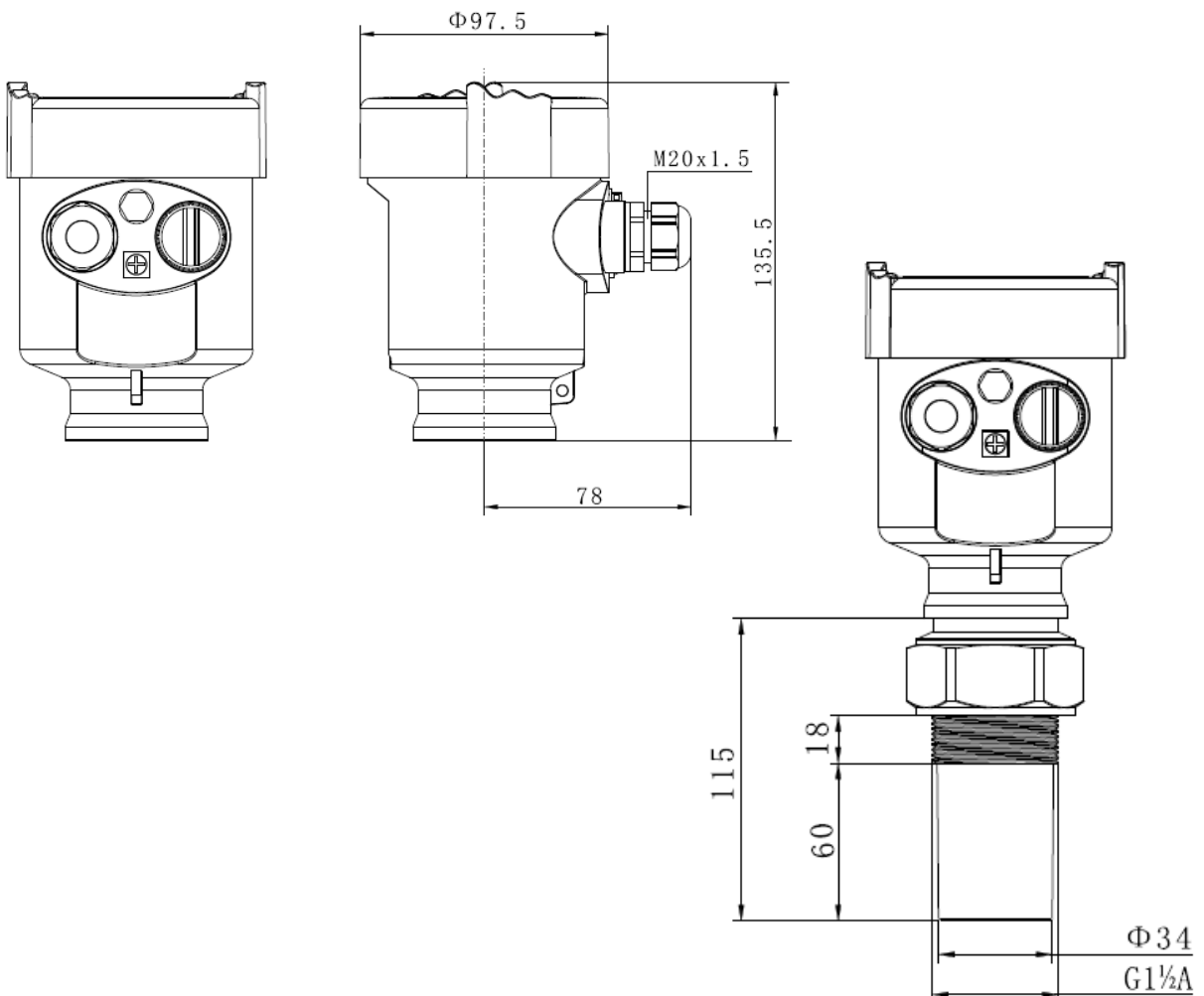
## BM SERIES ULTRA COMPACT

### DIMENSIONS UC551

Dimensions with AL frame



Dimensions with PBT-FR frame





## BM SERIES ULTRA COMPACT

ORDERING CODE UC551

### Certification anti-deflagration

P Standard (without certification)

I Intrinsically safe (Exia IIC T6)

### Material / Working temperature / Protection

A PU / PC / -40...70°C / IP66

B PTFE / -40...70°C / IP67

### Connection

GP Thread G 1½A

### Electronic

A 4...20 mA 2 wires

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

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

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

### Material of Housing / Protection

A Aluminium / IP67

B Plastic / IP66

D Aluminium 2 chambers / IP67

G Stainless Steel 316L / IP67

### Wiring

M M20x1.5

N ½ NPT

### Display / Programming

A YES

X NO

### NOTE:

**Intrinsically Safe version is under "C" Electronic and "A" Housing**

**4 wires is used only with "D" Housing**

## BM SERIES ULTRA COMPACT

### TECHNICAL DETAILS

#### UC552

Applications:

Level medium measurement, especially highly corrosive.

Flow measurement on open channel;

Range: 0.4...8m

Accuracy: 0.2 ... 0.5 % end scale

Process connection: G2" A

Ultrasonic transducer: Compact

Materials: sensor: PU/ PC - PVDF

housing: plastic PBT-FR / Aluminium

Protection: IP67

Working temperature: -40 ÷ 70°C

Storage temperature: -40 ÷ 80°C

Relative umidity: <95%

Pressure of use: -0.2...1 bar

Resistance to vibrations: mechanical vibrations 10m/s<sup>2</sup>, 10÷15C

Frequency: 35 KHz

Angle emission lobe: 5.5°

Interval of measure: ~2sec

Interval of updating: ~3sec

Resolution display: 1mm

Supply 2 wires version:

- Input voltage: 15÷36Vdc
- Absorption: max. 22.5mA
- Ripple allowed: <100Hz, U<sub>ss</sub>>1V; 100Hz÷100KHz, U<sub>s</sub>

Supply 4 wires version:

- Standard input voltage: 24Vdc ±10%;
- Absorption: max. 4VA, 2.1W

Output signal: 2/4 wires 4-20 mA, HART

Resolution: 1,6µA

Fixed signal for anomaly: 20.5mA; 22mA; 3.8mA

Resistance 2 wires version: see following diagram

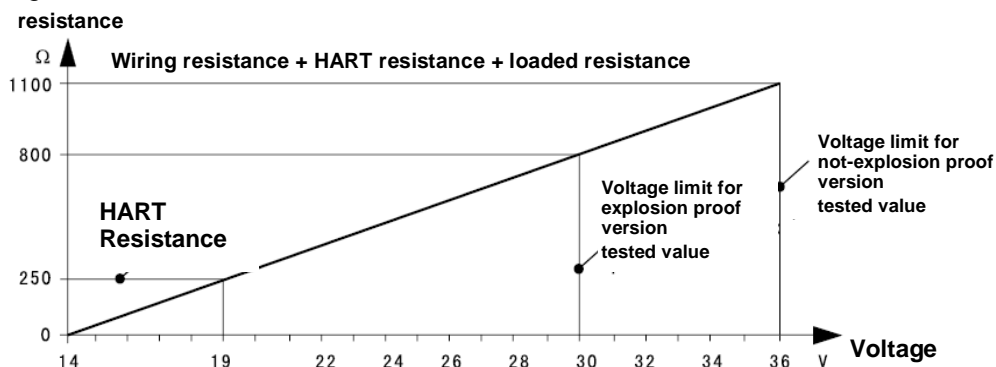
Resistance 4 wires version: max 500 ohm

Integration time: -----

Cables entry: 1x PG 13.5

Weight: 1.8...3 kgs

Diagram of loaded resistance, 2 wires version



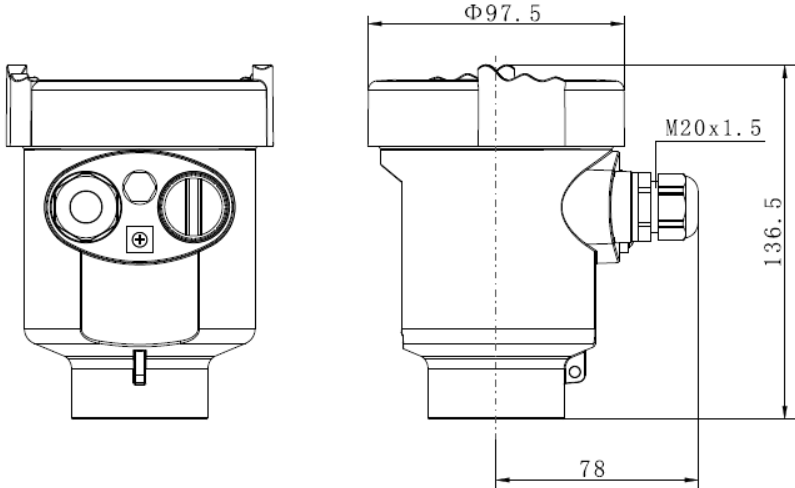




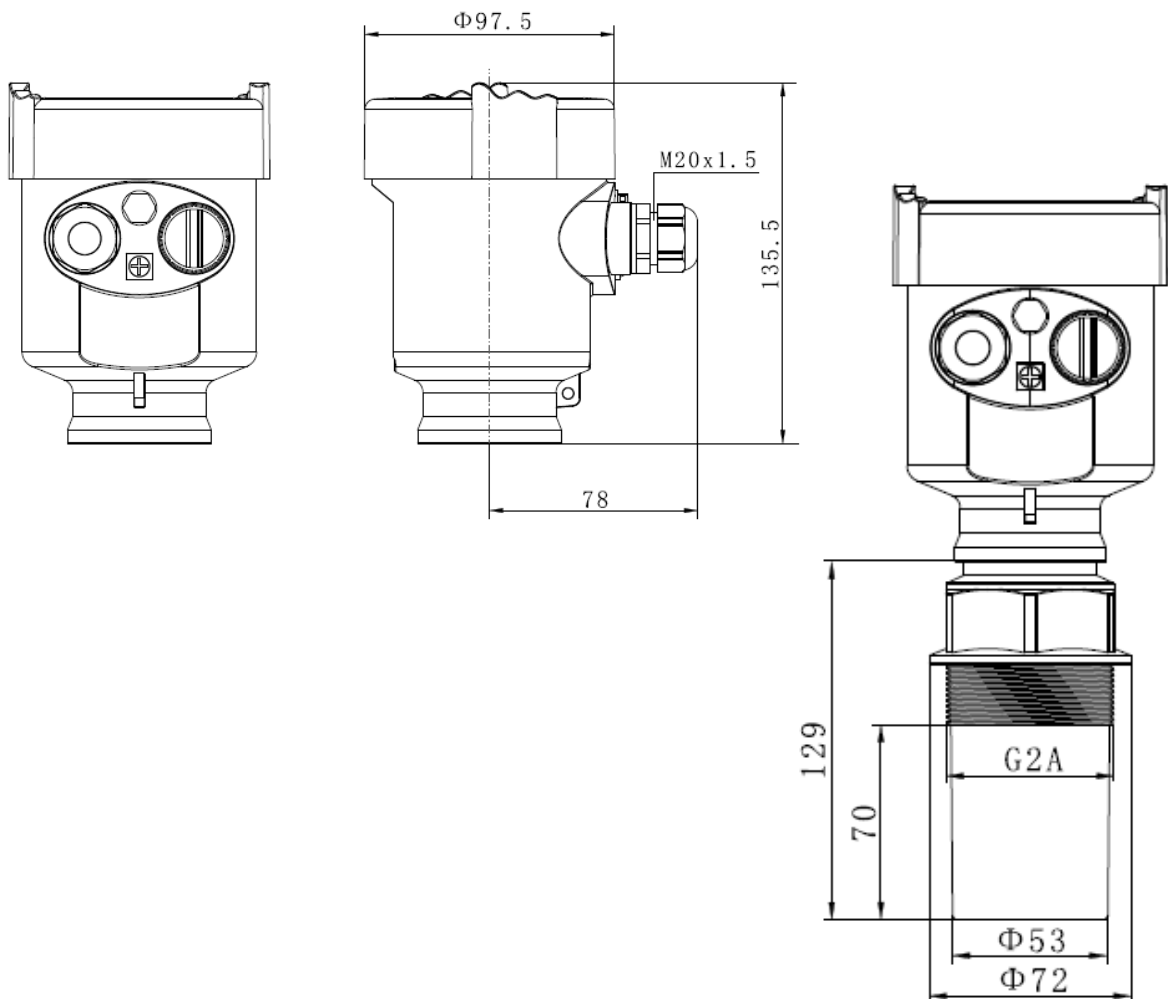
## BM SERIES ULTRA COMPACT

### DIMENSIONS UC552

Dimensions with AL frame



Dimensions with PBT-FR frame





## BM SERIES ULTRA COMPACT

ORDERING CODE UC552

### Certification anti-deflagration

P Standard (without certification)

I Intrinsically safe (Exia IIC T6)

### Material / Working temperature / Protection

A PU / PC / -40...70°C / IP66

B PTFE / -40...70°C / IP67

### Connection

GP Thread G 1½A

### Electronic

A 4...20 mA 2 wires

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

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

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

### Material of Housing / Protection

A Aluminium / IP67

B Plastic / IP66

D Aluminium 2 chambers / IP67

G Stainless Steel 316L / IP67

### Wiring

M M20x1.5

N ½ NPT

### Display / Programming

A YES

X NO

### NOTE:

**Intrinsically Safe version is under "C" Electronic and "A" Housing**

**4 wires is used only with "D" Housing**

## BM SERIES ULTRA COMPACT

### TECHNICAL DETAILS

#### UC553

Applications:

Level medium measurement, especially highly corrosive.

Flow measurement on open channel;

Range: 0.5...15m

Accuracy: 0.2 ... 0.5 % end scale

Process connection: G1 1/2" A

Ultrasonic transducer: Compact

Materials: sensor: PU/ PC

housing: plastic PBT-FR / Aluminium

Protection: IP67

Working temperature: -40 ÷ 70°C

Storage temperature: -40 ÷ 80°C

Relative umidity: <95%

Pressure of use: -0.2...1 bar

Resistance to vibrations: mechanical vibrations 10m/s<sup>2</sup>, 10÷150Hz

Frequency: 35 KHz

Angle emission lobe: 3°

Interval of measure: ~2sec

Interval of updating: ~3sec

Resolution display: 1mm

Supply 2 wires version:

- Input voltage: 15÷36Vdc

- Absorption: max. 22.5mA

- Ripple allowed: <100Hz, U<sub>ss</sub>>1V; 100Hz÷100KHz, U<sub>ss</sub><10mV

Supply 4 wires version:

- Standard input voltage: 24Vdc ±10%;

- Absorption: max. 4VA, 2.1W

Output signal: 2/4 wires 4-20 mA, HART

Resolution: 1,6µA

Fixed signal for anomaly: 20.5mA; 22mA; 3.8mA

Resistance 2 wires version: to see following diagram

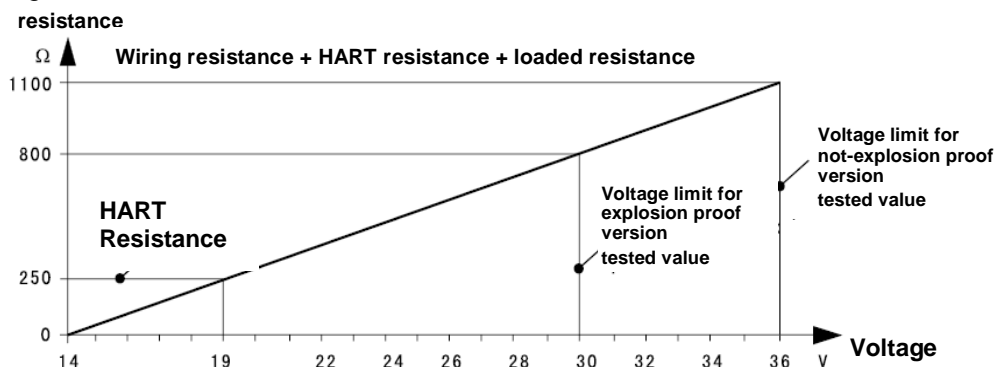
Resistance 4 wires version: max 500 ohm

Integration time: -----

Cables entry: 1x PG 13.5

Weight: 2.7...5 kgs

Diagram of loaded resistance, 2 wires version

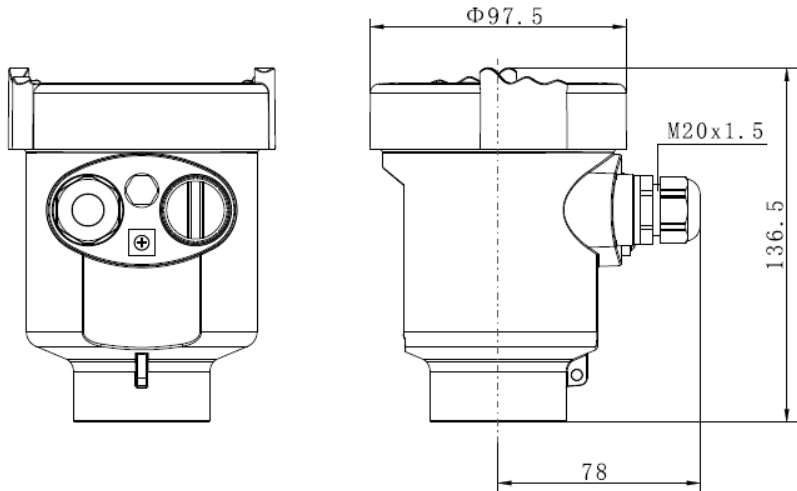




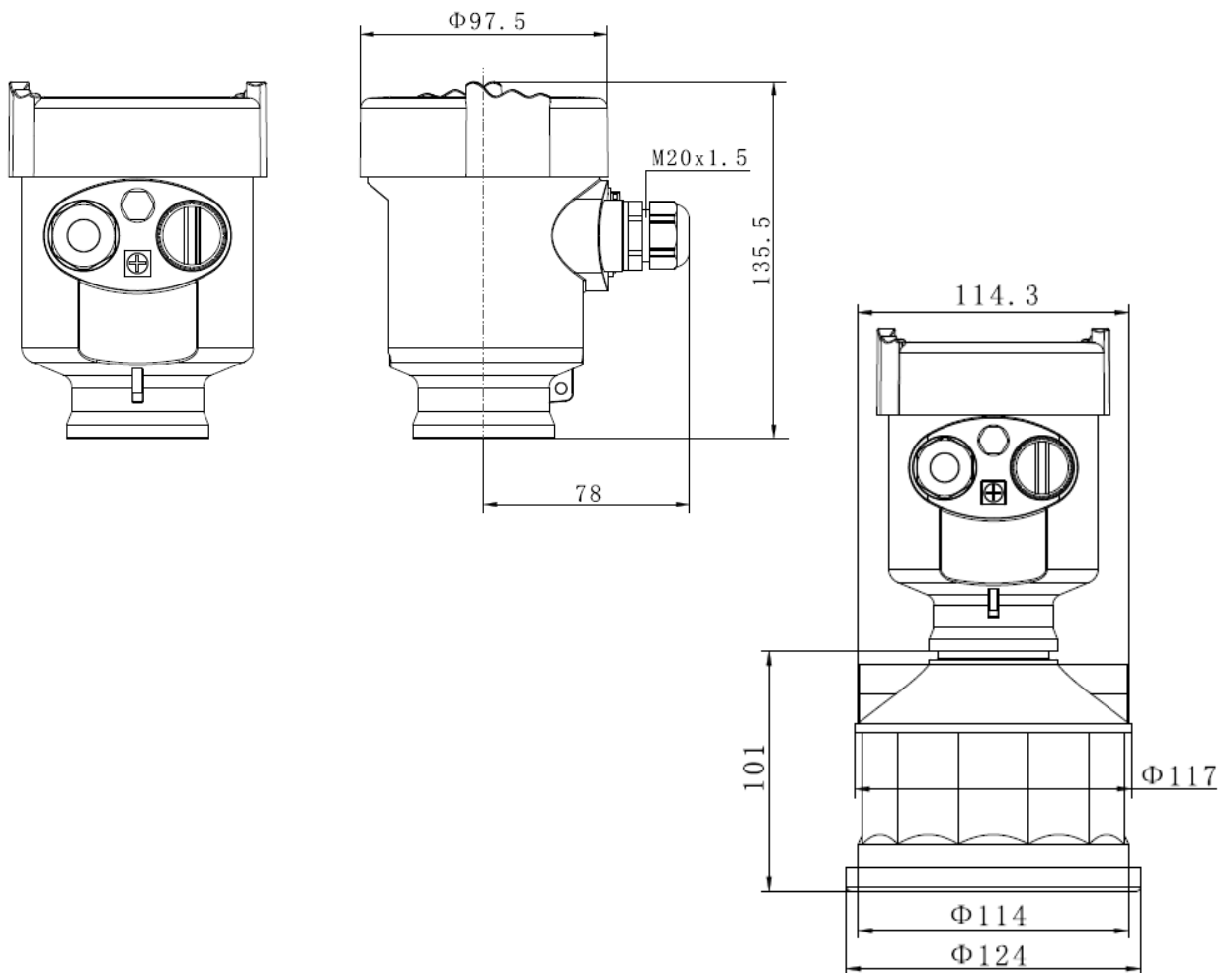
## BM SERIES ULTRA COMPACT

### DIMENSIONS UC553

Dimensions with AL frame



Dimensions with PBT-FR frame





## BM SERIES ULTRA COMPACT

ORDERING CODE UC553

### Certification anti-deflagration

P Standard (without certification)

I Intrinsically safe (Exia IIC T6)

### Material / Working temperature / Protection

A PU / PC / -40...70°C / IP66

### Process Connection

FL Flange

DJ Bracjet

### Electronic

A 4...20 mA 2 wires

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

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

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

### Material of Housing / Protection

A Aluminium / IP67

B Plastic / IP66

D Aluminium 2 chambers / IP67

G Stainless Steel 316L / IP67

### Wiring

M M20x1.5

N ½ NPT

### Display / Programming

A YES

X NO

### NOTE:

**Intrinsically Safe version is under "C" Electronic and "A" Housing**

**4 wires is used only with "D" Housing**