

Area of application

The CPR6900 series are suitable for continuous level measurement of bulk solids.

The sensors can also measure from the lightest to the heaviest bulk solids with absolute reliability, even in the presence of dust and noise, without being affected by buildup or noise.

Measuring principle

The radar uses 80GHz Frequency Modulated Continuous Wave. The FMCW radar emits a high frequency signal whose frequency increases linearly during the measurement phase (called the frequency sweep). The signal is emitted, reflected from the measuring surface and received with a time delay, t . Delay time, $t=2d/c$, where d is the distance to the product surface and c is the speed of light in the gas above the product. For further signal processing the difference Δf is calculated from the actual transmit frequency and the receive frequency. The difference is directly proportional to the distance.

Advantages and features

- **isoLens Technology (Patent technology)**

Isolated emitting and receiving signal enable full range measurement without dead zone. Unaffected by buildup near sensor.

- **EverCheck**

Real time self-monitoring on voltage, current and chip. Output warning when abnormality present.

- **WavesMemo**

Wave management concept. To help understand abnormal output, the CPR6900 stores echo automatically.

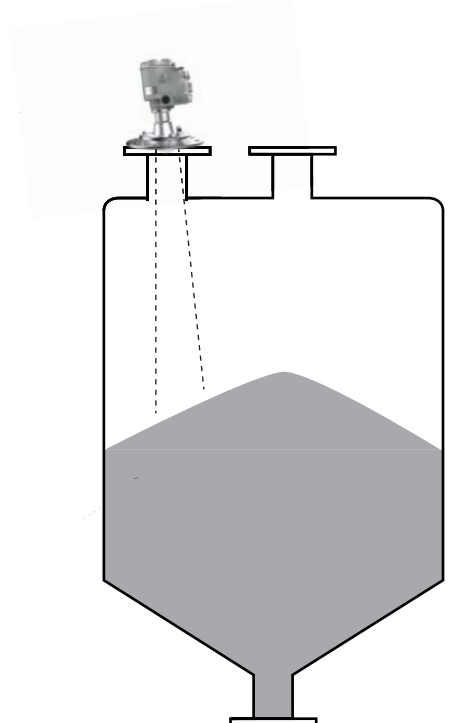
- **MultiTrack**

Due to new MultiTrack wave tracking algorithm, CPR6900 get highest reliability.

- **With swiveling holder and air purge connection**

With swiveling holder the antenna is adjustable which ensure accurate measurement for large silo.

Air purge ensure reliable measurement under extremely dusty condition.



CPR6900 80GHz RADAR LEVEL TRANSMITTER

CPR6900 with plastic horn



CPR6900 in thread version



Application	Applicable for continuous level measurement of bulk solid under simple conditions, open pile.	Applicable for continuous level measurement of bulk solid in high silos, large bunkers and segmented vessels.
Measuring range	0 ~ 70m	0 ~ 120m
Process fitting and beam angle	Flange from DN80,3" Mounting strap Beam angle 3°	Thread G1½, 1½ NPT ; Beam angle 7° Thread G3, 3 NPT; Beam angle 3°
Power	< 0.5 W	< 0.5 W
Response time	< 2 s	< 2 s
Frequency	76~81 GHz	76~81 GHz
Media-contracting materials	Process fittings: PP Antenna: PP Seal: PP,PTFE	Process fittings: 316L Antenna: PEEK, PTFE Seal: FKM, EPDM, KALREZ
Process temperature	-40 C ~ +130 C	-40 C ~ +200 C
Process pressure	-1 bar ~ 2 bar	-1 bar ~ 20 bar
Resolution	1 mm	1 mm
Accuracy	± 5mm	± 5mm
Repeatability	± 2 mm	± 2 mm
Signal output	4 ~ 20 mA/HART	4 ~ 20 mA/HART
Display and Adjustment	LCD display, tank side display and tank side hub	LCD display, tank side display and tank side hub
Protect level	IP67	IP67
Electrical connection	2 × M20*1.5(Cable diameter 9 ~ 13 mm) ½NPT	2 × M20*1.5(Cable diameter 9 ~ 13 mm) ½NPT
Ex information	EX ia IIC T6 Ga Ex d ia [iaGa]IIC T6/T2 Gb	EX ia IIC T6 Ga Ex d ia [iaGa]IIC T6/T2 Gb Ex iaD tD A21 IP67T80°C/T290°C

CPR6900 80GHz RADAR LEVEL TRANSMITTER

CPR6900 with lens antenna



CPR6900 with rod antenna



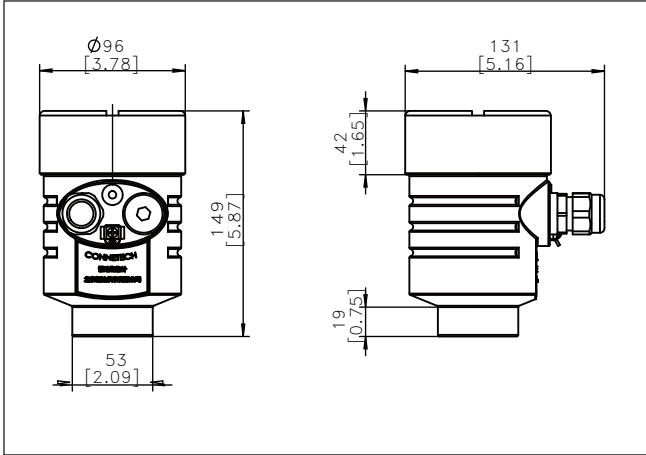
Application	Applicable for continuous level measurement of bulk solid in high silos, large bunkers and segmented vessels.	Applicable for continuous level measurement of bulk solid under simple conditions, open pile.
Measuring range	0 ~ 120m	0 ~ 70m
Process fitting and beam angle	Flange from DN80, Beam angle 3°	Thread G1½, 1½NPT ; Beam angle 7° Thread G3, 3 NPT; Beam angle 3°
Power	< 0.5 W	< 0.5 W
Response time	< 2 s	< 2 s
Frequency	76~81 GHz	76~81 GHz
Media-contracting materials	Process fittings: 316L,PP,PEEK Seal: FKM,EPDM	Process fittings: PP Antenna: PP Seal: FKM, EPDM, KALREZ
Process temperature	-40 C ~ +200 C	-40 C ~ +200 C
Process pressure	-1 bar ~ 2bar	-1 bar ~ 2bar
Resolution	1 mm	1 mm
Accuracy	±5mm	±5mm
Repeatability	± 2 mm	± 2 mm
Signal output	4 ~ 20 mA/HART	4 ~ 20 mA/HART
Display and Adjustment	LCD display, tank side display and tank side hub	LCD display, tank side display and tank side hub
Protect level	IP67	IP67
Electrical connection	2 × M20*1.5(Cable diameter 9 ~ 13 mm) ½NPT	2 × M20*1.5(Cable diameter 9 ~ 13 mm) ½NPT
Ex information	EX ia IIC T6 Ga Ex d ia [iaGa]IIC T6/T2 Gb Ex iaD tD A21 IP67T80°C/T290°C	EX ia IIC T6 Ga Ex d ia [iaGa]IIC T6/T2 Gb

CPR6900 80GHz RADAR LEVEL TRANSMITTER

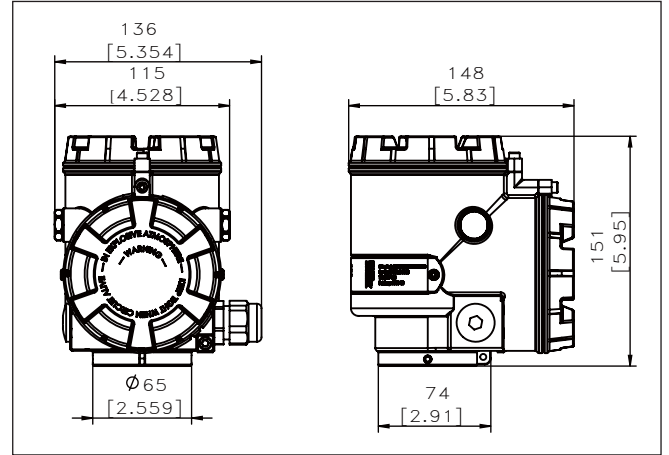
Housing version

The housings are available as double chamber version in plastic, stainless steel or aluminium. They are available with protection ratings up to IP 67 (1 bar).

Single chamber housing



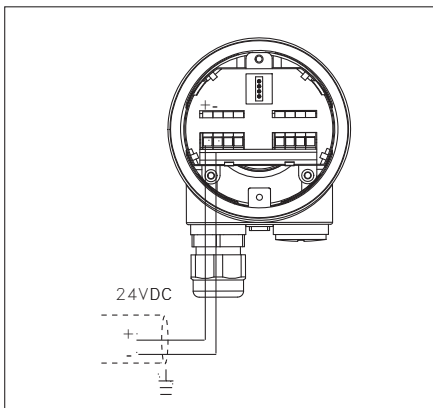
Double chamber housing



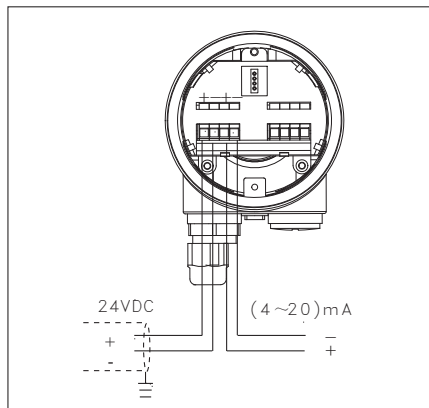
Electric connection

The instruments are available in different electronics versions. 4 ... 20 mA/HART in two and four-wire version with 24VDC and four-wire with 220VAC.

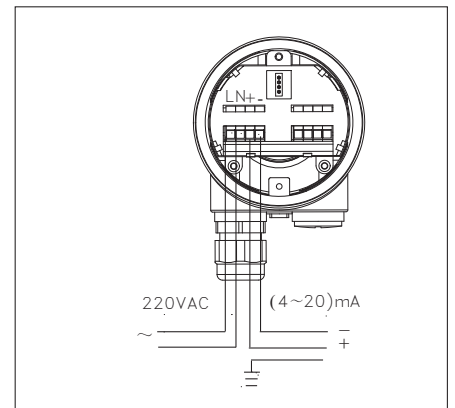
24V DC.Two-wire



24V DC.Four-wire



220V AC.Four-wire

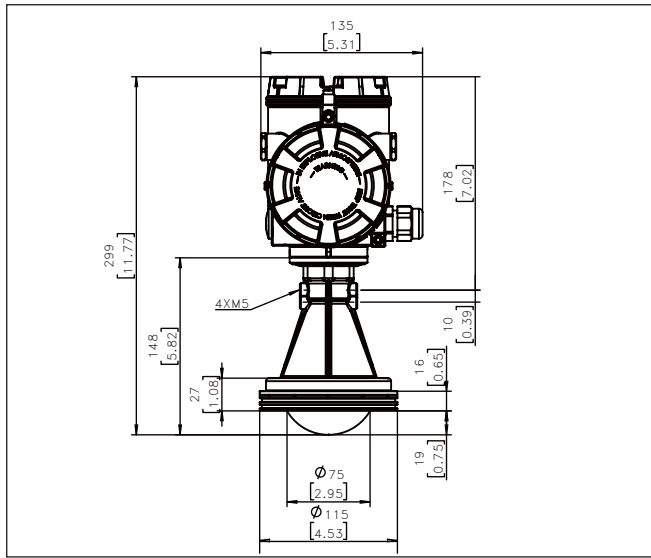


Operation

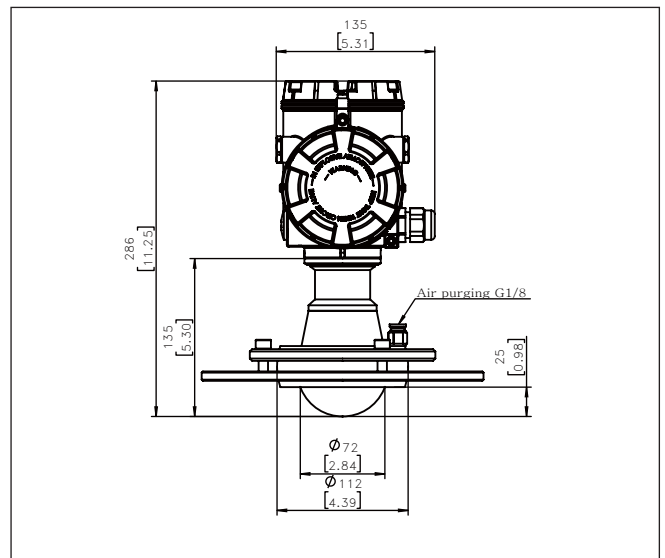
The adjustment of the instrument is carried out via the LCD display, tank side display, tank side hub and HART communicator.

Dimensions

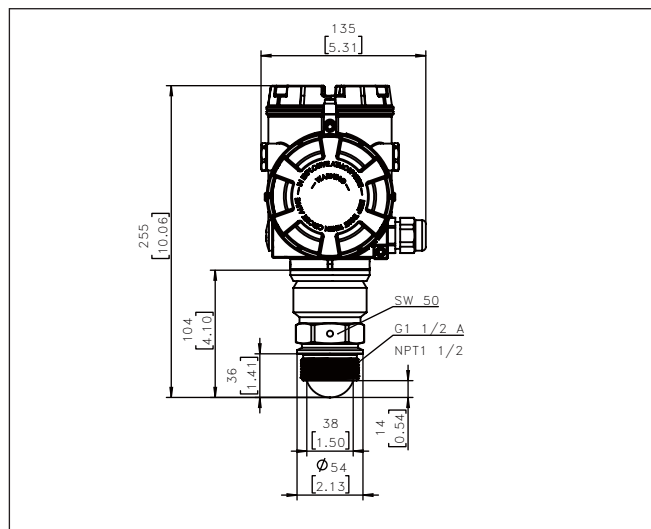
CPR6900 with plastic horn



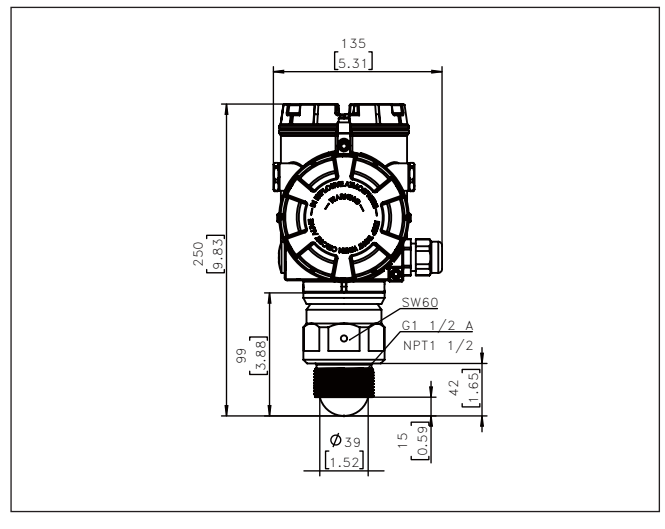
CPR6900 with flange antenna



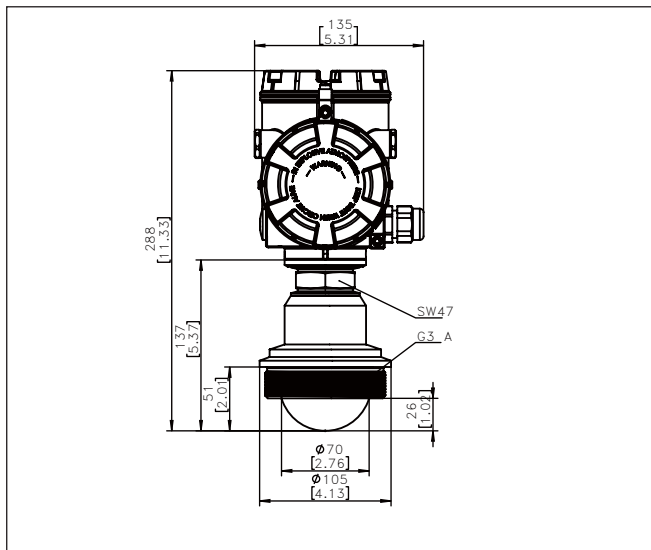
CPR6900 with thread G1½ version



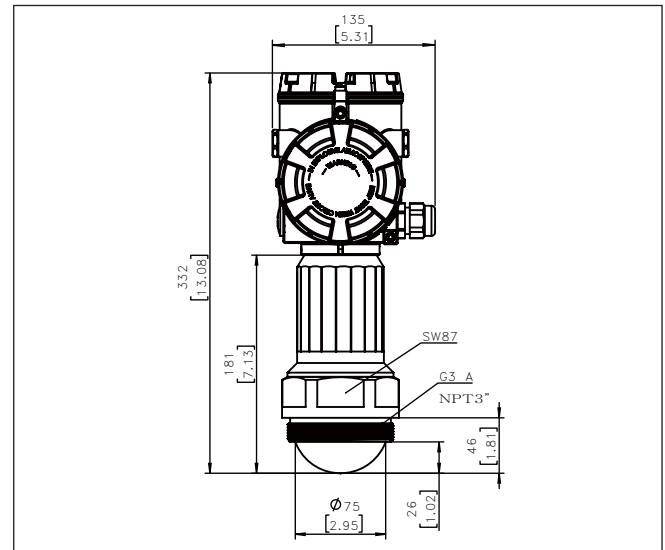
CPR6900 with 40 rod antenna



CPR6900 with thread G3 version



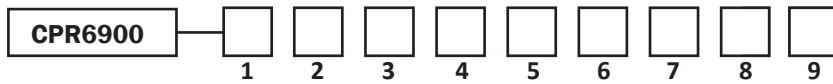
CPR6900 with 80 rod antenna



CPR6900 80GHz RADAR LEVEL TRANSMITTER

Ordering code

CPR6900 radar level transmitter with plastic horn antenna



1 | LANGUAGE

A	English
I	Chinese
S	Spanish
T	Customized

2 | APPROVAL

XX	Standard
CX	Ex ia IIC T6 Ga
DX	Ex d ia [iaGa]IIC T6/T2 Gb
TT	Customized

3 | ANTENNA VERSION / MATERIAL

B	Horn antenna ϕ 75mm/PP
U	Horn antenna ϕ 75mm/PTFE

4 | PROCESS FITTING

FD	Flange DN80
FE	Flange DN100
FK	Flange DN150
AN	Flange ASME 3"
AP	Flange ASME 4"
AR	Flange ASME 6"
TT	Customized

5 | SEALING MATERIAL/TEMPERATURE/PRESSURE

C	PP/-40...+80°C/-1...2bar
I	PTFE/-40...+130°C/-1...2bar
T	Customized

6 | ELECTRONICS

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	Customized

7 | HOUSING/PROTECTION

A	Single chamber/ Aluminum / IP67
B	Double chamber/ Aluminum / IP67
U	Single chamber/ 316L SS/ IP67
W	Double chamber/ 316L SS/ IP67

8 | CABLE ENTRY / CABLE GLAND/ CONNECT CABLE

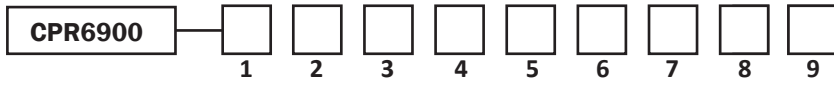
M	M20x1.5 / with/ without
N	1/2NPT/ without/ without

9 | LCD DISPLAY

X	Without display
A	With display

Ordering code

CPR6900 radar level transmitter with thread version antenna



1 | LANGUAGE

A	English
I	Chinese
S	Spanish
T	Customized

2 | APPROVAL

XX	Standard
CX	Ex ia IIC T6 Ga
DX	Ex d ia [iaGa]IIC T6/T2 Gb
EX	Ex iaD tD A21 IP67T80°C/T290°C
TT	Customized

3 | ANTENNA VERSION / MATERIAL

T	Thread with integrated horn antenna 316L+PTFE
V	Thread with integrated horn antenna/316L+PEEK

4 | PROCESS FITTING

TG	Thread G1½
TH	Thread G3
TD	Thread NPT1½
TI	Thread NPT3
TT	Customized

5 | SEALING MATERIAL/TEMPERATURE/PRESSURE

A	FKM/-40...+130°C/-1...20bar
B	FKM/-40...+200°C/-1...20bar
F	EPDM/-40...+130°C/-1...20bar
R	KALREZ 6230/-15...+130°C/-1...20bar
S	KALREZ 6230/-15...+200°C/-1...20bar
G	KALREZ 6375/-15...+130°C/-1...20bar
H	KALREZ 6375/-15...+200°C/-1...20bar
T	Customized

6 | ELECTRONICS

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	Customized

7 | HOUSING/PROTECTION

A	Single chamber/ Aluminum / IP67
B	Double chamber/ Aluminum / IP67
U	Single chamber/ 316L SS/ IP67
W	Double chamber/ 316L SS/ IP67

8 | CABLE ENTRY / CABLE GLAND/ CONNECT CABLE

M	M20x1.5 / with/ without
N	½NPT/ without/ without

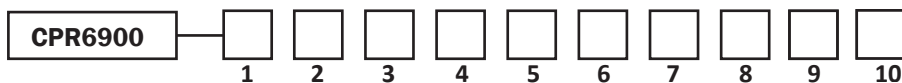
9 | LCD DISPLAY

X	Without display
A	With display

CPR6900 80GHz RADAR LEVEL TRANSMITTER

Ordering code

CPR6900 radar level transmitter with lens antenna



1 | LANGUAGE

A	English
I	Chinese
S	Spanish
T	Customized

2 | APPROVAL

XX	Standard
CX	Ex ia IIC T6 Ga
DX	Ex d ia [iaGa]IIC T6/T2 Gb
EX	Ex iaD tD A21 IP67T80°C/T290°C
TT	Customized

3 | ANTENNA VERSION / MATERIAL

I	Lens antenna/ 316L+PTFE
C	Lens antenna/316L+PEEK

4 | PROCESS FITTING

SD	Swiveling holder with flange DN80
SE	Swiveling holder with flange DN100
SK	Swiveling holder with flange DN150
SL	Swiveling holder with flange DN200
SO	Swiveling holder with flange DN250
SN	Swiveling holder with flange ASME 3"
SP	Swiveling holder with flange ASME 4"
SR	Swiveling holder with flange ASME 6"
SU	Swiveling holder with flange ASME 8"
ST	Swiveling holder with flange ASME 10"
TT	Customized

5 | SEALING MATERIAL/TEMPERATURE/PRESSURE

A	FKM/-40...+130°C/-1...20bar
B	FKM/-40...+200°C/-1...20bar
F	EPDM/-40...+130°C/-1...20bar
R	KALREZ 6230/-15...+130°C/-1...20bar
S	KALREZ 6230/-15...+200°C/-1...20bar
G	KALREZ 6375/-15...+130°C/-1...20bar

H	KALREZ 6375/-15...+200°C/-1...20bar
T	Customized

6 | ELECTRONICS

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	Customized

7 | HOUSING/PROTECTION

A	Single chamber/ Aluminum / IP67
B	Double chamber/ Aluminum / IP67
U	Single chamber/ 316L SS/ IP67
W	Double chamber/ 316L SS/ IP67

8 | CABLE ENTRY / CABLE GLAND / CONNECT CABLE

M	M20x1.5 / with/ without
N	½NPT/ without/ without

9 | LCD DISPLAY

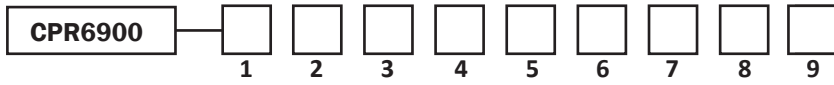
X	Without display
A	With display

10 | ACCESSORIES

X	Without
K	With air purge
V	With air purge and check valve

Ordering code

CPR6900 radar level transmitter with rod antenna



1 | LANGUAGE

A	English
I	Chinese
S	Spanish
T	Customized

2 | APPROVAL

XX	Standard
CX	Ex ia IIC T6 Ga
DX	Ex d ia [iaGa]IIC T6/T2 Gb
EX	Ex iaD tD A21 IP67T80°C/T290°C
TT	Customized

3 | ANTENNA VERSION / MATERIAL

A	Rod antenna/PTFE
J	Rod antenna/PFA

4 | PROCESS FITTING

TG	Thread G1½
TH	Thread G3
FC	Flange DN50
FD	Flange DN80
FE	Flange DN100
FK	Flange DN150
AM	Flange ASME 2"
AN	Flange ASME 3"
AP	Flange ASME 4"
AR	Flange ASME 6"
TT	Customized

5 | SEALING MATERIAL/TEMPERATURE/PRESSURE

M	FKM/-40...+130°C/-1...2bar
N	FKM/-40...+200°C/-1...2bar
O	EPDM/-40...+130°C/-1...2bar
X	KALREZ 6230/-15...+130°C/-1...2bar
Z	KALREZ 6375/-15...+130°C/-1...2bar
T	Customized

6 | ELECTRONICS

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	Customized

7 | HOUSING/PROTECTION

A	Single chamber/ Aluminum / IP67
B	Double chamber/ Aluminum / IP67
U	Single chamber/ 316L SS/ IP67
W	Double chamber/ 316L SS/ IP67

8 | CABLE ENTRY / CABLE GLAND/ CONNECT CABLE

M	M20x1.5 / with/ without
N	½NPT/ without/ without

9 | LCD DISPLAY

X	Without display
A	With display