

## Area of application

The CPR6400 series can measure all kinds of liquids, even under high pressure and extreme temperatures, in simple as well as difficult processing conditions.

With compact antenna design it's particularly suitable for applications with tight space.

High focus make it possible for measurement for silos with high mounting nozzle or obstacle inside.

## 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  $\Delta f$  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

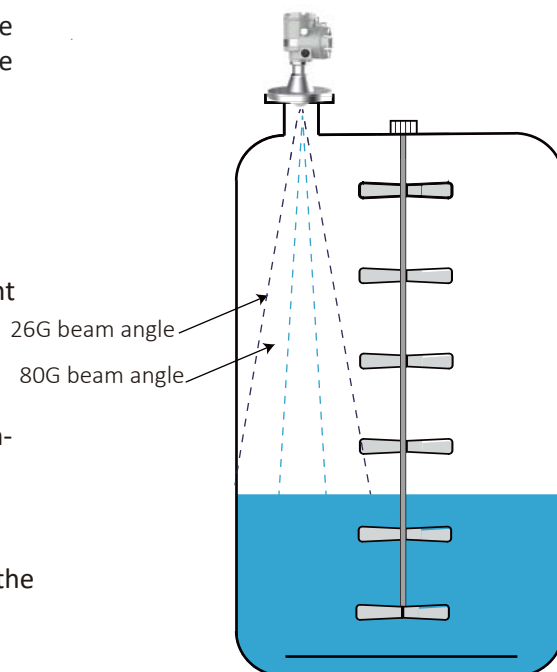
Real time self-monitoring on voltage, current and chip. Output warning when abnormality present.

### • WavesMemo

Wave management concept. To help understand abnormal output, the CPR6400 storages echo automatically.

### • MultiTrack

Due to new MultiTrack wave tracking algorithm, CPR6400 get highest reliability.



# CPR6400 80GHz RADAR LEVEL TRANSMITTER

## CPR6400 with rod antenna



## CPR6400 in thread version



<b>Application</b>	Applicable for continuous level measurement of aggressive liquids in storage containers, reactors or process vessels.	Applicable for continuous level measurement of liquids with slightly aggressiveness in storage containers, reactors or process vessels.
<b>Measuring range</b>	0 ~ 30m	0 ~ 30m
<b>Process fitting and beam angle</b>	Thread G1½, 1½NPT ; Beam angle 7° Thread G3, 3 NPT; Beam angle 3°	Thread G¾, ¾ NPT ; Beam angle 14° Thread G1½, 1½NPT ; Beam angle 7° Thread G3, 3 NPT; Beam angle 3°
<b>Power</b>	< 0.5 W	< 0.5 W
<b>Response time</b>	< 2 s	< 2 s
<b>Frequency</b>	76~81 GHz	76~81 GHz
<b>Media-contracting materials</b>	Process fittings: PP Antenna: PP Seal: FKM, EPDM, KALREZ	Process fittings: 316L Antenna: PEEK, PTFE Seal: FKM, EPDM, KALREZ
<b>Process temperature</b>	-40 C ~ +130 C	-40 C ~ +200 C
<b>Process pressure</b>	-1 bar ~ 3 bar	-1 bar ~ 20 bar
<b>Resolution</b>	1 mm	1 mm
<b>Accuracy</b>	± 2mm	± 2mm
<b>Repeatability</b>	± 1 mm	± 1 mm
<b>Signal output</b>	4 ~ 20 mA/ HART	4 ~ 20 mA/ HART
<b>Display and Adjustment</b>	LCD display, tank side display and tank side hub smart phone	LCD display, tank side display and tank side hub smart phone
<b>Protect level</b>	IP67	IP67
<b>Electrical connection</b>	2 × M20*1.5(Cable diameter 9 ~ 13 mm) ½NPT	2 × M20*1.5(Cable diameter 9 ~ 13 mm) ½NPT
<b>Ex information</b>	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

# CPR6400 80GHz RADAR LEVEL TRANSMITTER

## CPR6400 with plastic antenna



## CPR6400 in flange version



<b>Application</b>	Applicable for continuous level measurement of aggressive liquids with lower demands on pressure and temperature ranges.	Applicable for continuous level measurement for extremely aggressive liquid in storage containers, reactors or process vessels.
<b>Measuring range</b>	0 ~ 30m	0 ~ 30m
<b>Process fitting and beam angle</b>	Flange from DN80,3" Mounting strap Beam angle 3°	Flange from DN50,2" ; Beam angle 6° Flange from DN80,3" ; Beam angle 3°
<b>Power</b>	< 0.5 W	< 0.5 W
<b>Response time</b>	< 2 s	< 2 s
<b>Frequency</b>	76~81 GHz	76~81 GHz
<b>Media-contracting materials</b>	Process fittings: PP Antenna: PP Seal: PP,PTFE	Process fittings: 316L Antenna:PTFE,PFA,PP
<b>Process temperature</b>	-40 C ~ +130 C	-40 C ~ +200 C
<b>Process pressure</b>	-1 bar ~ 3 bar	-1 bar ~ 16bar
<b>Resolution</b>	1 mm	1 mm
<b>Accuracy</b>	± 2mm	± 2mm
<b>Repeatability</b>	± 1 mm	± 1 mm
<b>Signal output</b>	4 ~ 20 mA/HART	4 ~ 20 mA/HART
<b>Display and Adjustment</b>	LCD display, tank side display and tank side hub smart phone	LCD display, tank side display and tank side hub smart phone
<b>Protect level</b>	IP67	IP67
<b>Electrical connection</b>	2 × M20*1.5(Cable diameter 9 ~ 13 mm) ½NPT	2 × M20*1.5(Cable diameter 9 ~ 13 mm) ½NPT
<b>Ex information</b>	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

# CPR6400 80GHz RADAR LEVEL TRANSMITTER

## CPR6400 with hygienic fittings



## CPR6400 compact radar

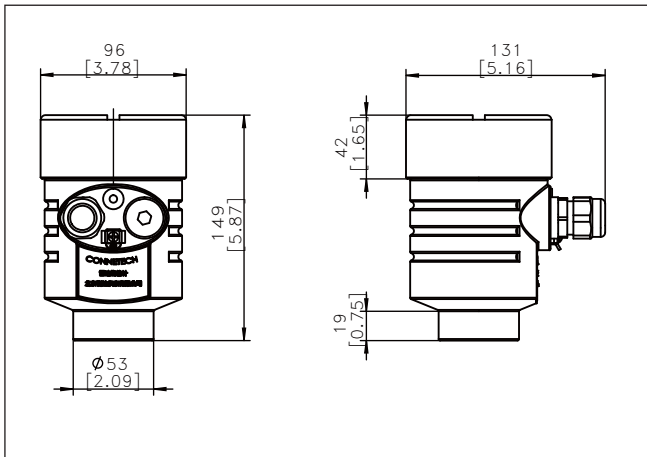


<b>Application</b>	Applicable for continuous level measurement of liquid in food and pharmaceutical sectors.	Applicable for continuous level measurement of liquid and solid under simple conditions. Like water, river, open channel, wet wells, lift station and simple chemical tanks
<b>Measuring range</b>	0 ~ 30m	0 ~ 30m
<b>Process fitting and beam angle</b>	Flange clamp 2" Mounting strap DRD connection Beam angle 6°	Thread G1½ Mounting strap Beam angle 8°
<b>Power</b>	< 0.5 W	< 0.5 W
<b>Response time</b>	< 2 s	< 2 s
<b>Frequency</b>	76~81 GHz	76~81 GHz
<b>Media-contracting materials</b>	Antenna: PTFE Seal: FKM, EPDM	Antenna: PP
<b>Process temperature</b>	-40 C ~ +200 C	-40 C ~ +80 C
<b>Process pressure</b>	-1 bar ~ 16 bar	-1 bar ~ 3 bar
<b>Resolution</b>	1 mm	1 mm
<b>Accuracy</b>	± 2mm	± 2mm
<b>Repeatability</b>	± 1 mm	± 1 mm
<b>Signal output</b>	4 ~ 20 mA/HART	4 ~ 20 mA /HART /RS485
<b>Display and Adjustment</b>	LCD display, tank side display and tank side hub smart phone	Standard: RS485 Optional: Bluetooth or HART
<b>Protect level</b>	IP67	IP68/IP67
<b>Electrical connection</b>	2 × M20*1.5(Cable diameter 9 ~ 13 mm) ½NPT	Thread G1
<b>Ex information</b>	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

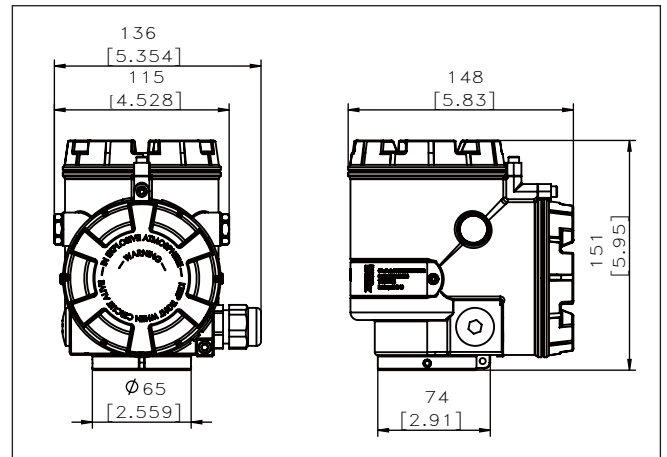
## Housing version

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



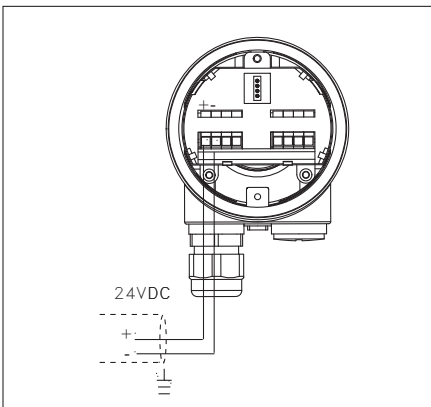
Double chamber housing



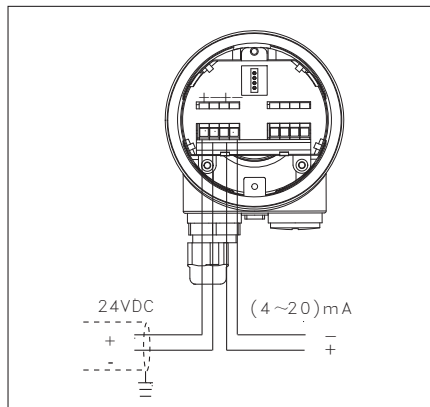
## Electric connection

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.

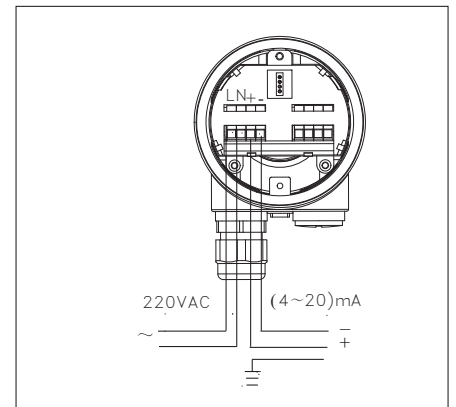
24V DC.Two-wire



24V DC.Four-wire



220V AC.Four-wire



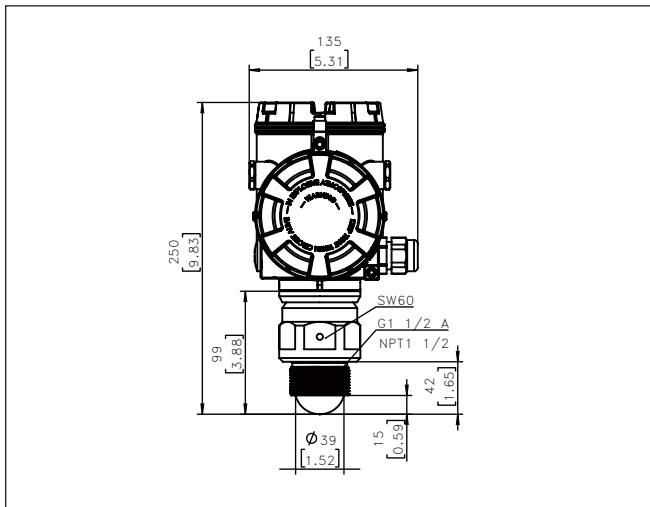
## Operation

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

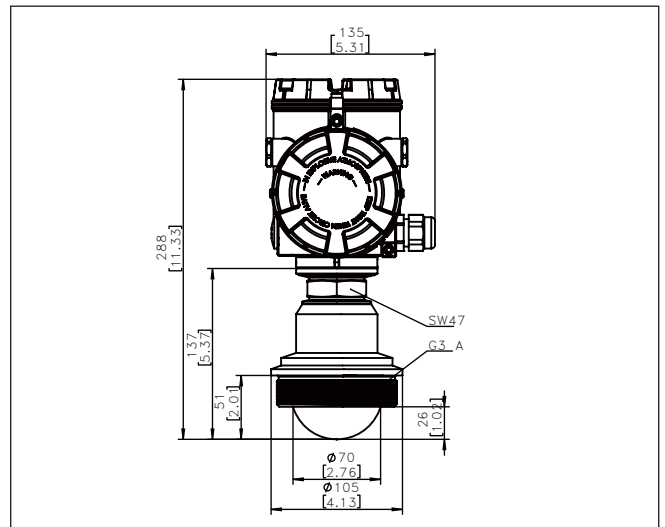
# CPR6400 80GHz RADAR LEVEL TRANSMITTER

## Dimensions

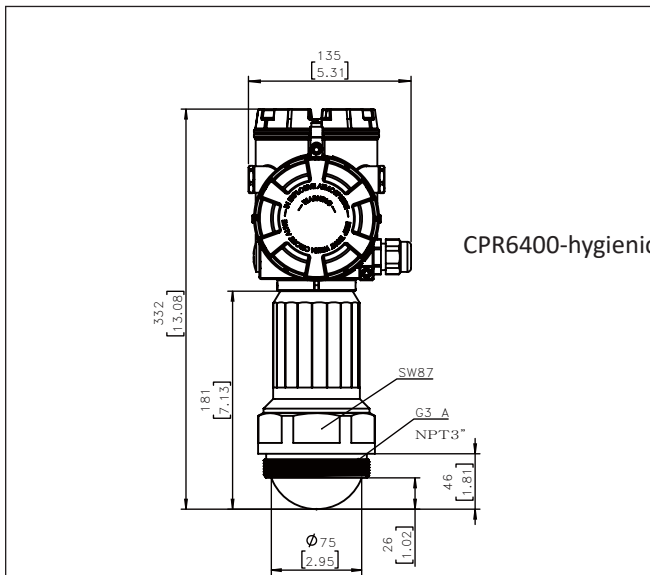
CPR6400 with 40 rod antenna



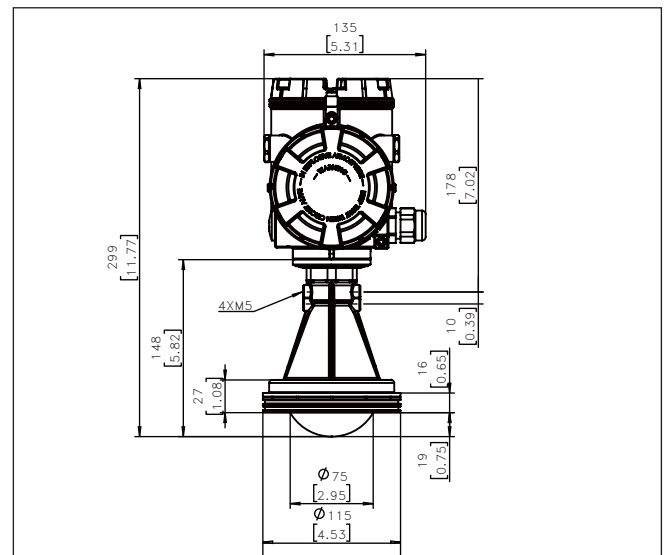
CPR6400 with thread G3 antenna



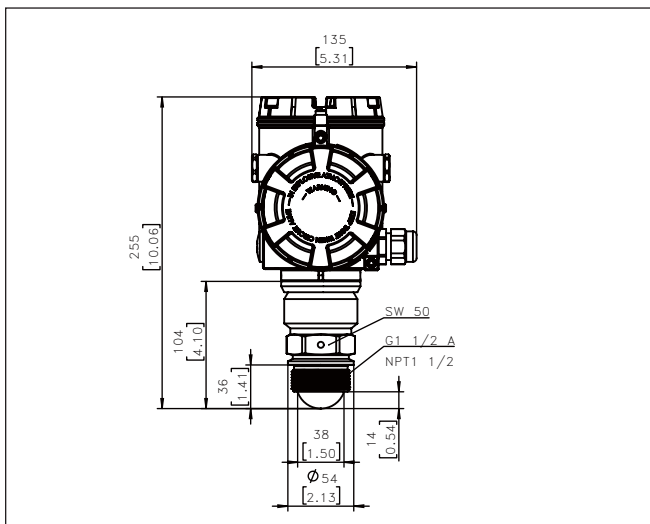
CPR6400 with 80 rod antenna



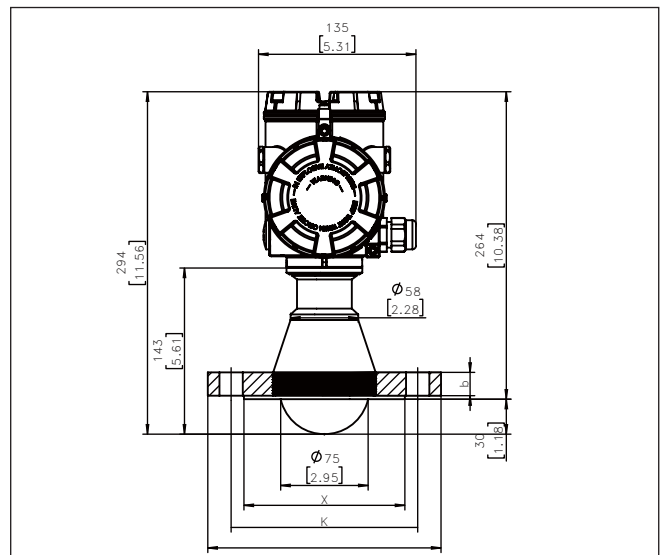
CPR6400 with plastic horn antenna



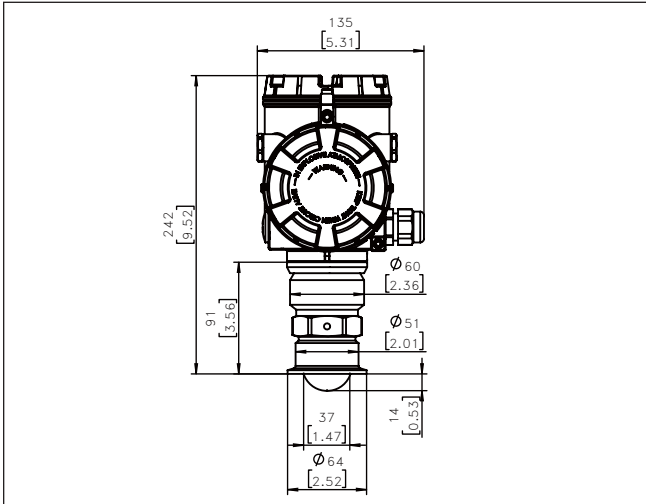
CPR6400 with thread G11/2 antenna



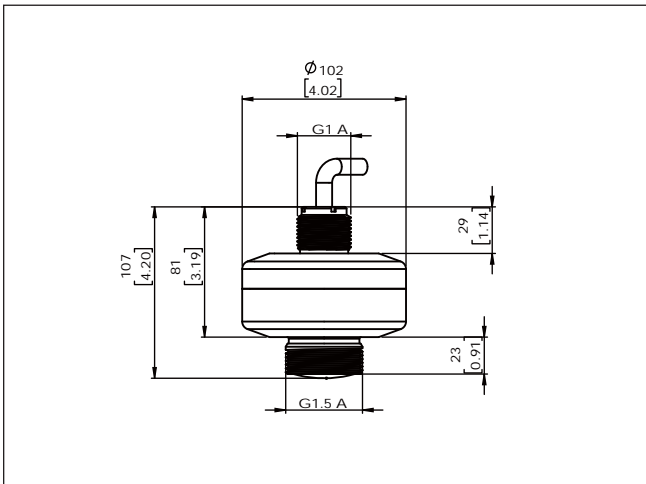
CPR6400 with flange antenna



## CPR6400 with hygienic antenna



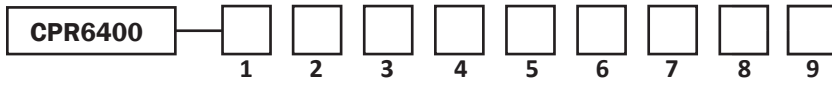
## CPR6400 wire type



# CPR6400 80GHz RADAR LEVEL TRANSMITTER

## Ordering code

### CPR6400 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
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



## Ordering code

### CPR6400 radar level transmitter with thread version antenna

CPR6400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5	6	7	8	9



#### 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

T	Thread version antenna 316L+PTFE
V	Thread version 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

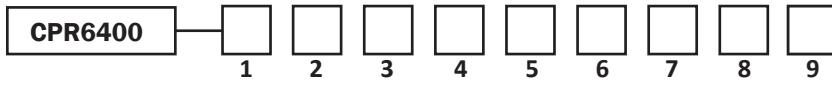
#### 9 | LCD DISPLAY

X	Without display
A	With display

# CPR6400 80GHz RADAR LEVEL TRANSMITTER

## Ordering code

### CPR6400 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 $\phi$ 75mm/PP
U	Horn antenna $\phi$ 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

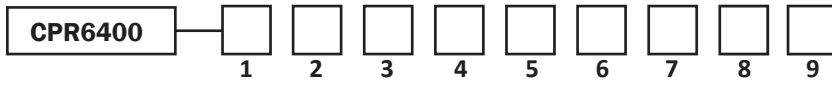
M	M20x1.5 / with/ without
N	½NPT/ without/ without

#### 9 | LCD DISPLAY

X	Without display
A	With display

## Ordering code

### CPR6400 radar level transmitter with flange 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
TT	Customized

#### 3 | ANTENNA VERSION / MATERIAL

F	Flange with encapsulated antenna/PP
D	Flange with encapsulated antenna/PTFE
G	Flange with encapsulated antenna/PFA

#### 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
D	PP/-40...+80°C/-1...16bar
I	PTFE/-40...+130°C/-1...16bar
Y	PTFE/-40...+200°C/-1...16bar
P	PFA/-40...+130°C/-1...16bar
Q	PFA/-40...+200°C/-1...16bar
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

# CPR6X00 PULSE RADAR LEVEL TRANSMITTER

## Ordering code

### CPR6400 radar level transmitter with hygenic antenna

CPR6400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5	6	7	8	9



#### 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

H	Hygenic antenna /316L+PTFE
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#### 4 | PROCESS FITTING

CA	Clamp 2" DIN32676 ISO2852
CB	Clamp 3" DIN32676 ISO2852
CC	Clamp 4" DIN32676 ISO2852
TT	Customized

#### 5 | SEALING MATERIAL/TEMPERATURE/PRESSURE

HY	PTFE/-40...+130°C/-1...10bar
HL	PTFE/-40...+200°C/-1...10bar
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

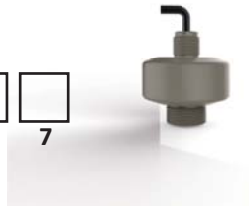
#### 9 | LCD DISPLAY

X	Without display
A	With display

## Ordering code

### CPR6400 compact radar level transmitter

<b>CPR6400</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5	6	7



#### 1 | VERSION

D	Max. 8m
R	Max. 15m
U	Max. 30m

#### 2 | APPROVAL

XX	Standard
CX	Ex ia IIC T6 Ga
TT	Customized

#### 3 | ANTENNA MATERIAL

Z	PP
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#### 4 | ELECTRONICS

H	18~36VDC/4...20mA/HART
U	18~36VDC/RS485/4...20mA/HART
T	Customized

#### 5 | COMMISSIONING

A	RS485/HART
B	RS485/HART/Bluetooth
T	Customized

#### 6 | CABLE LENGTH

M	5M
N	10M
T	Customized

#### 7 | PROTECTION

R	IP67
S	IP68