



Principle

Frequency modulated continuous wave (FMCW) is adopted for radar level instrument (80G). The antenna transmits the high frequency and frequency modulated radar signal.

The frequency of the radar signal linearly increases. the transmitted radar signal is reflected by dielectric to be measured and received by antenna. at the same time, the difference between the frequency of transmitted signal and that of the received signal is proportional to the measured distance.

Therefore, the distance is calculated by the spectrum derived from the analog-to-digital conversion frequency difference and the fast fourier transform (FFT)



Features

01 Based on self-developed millimeter-wave radio frequency chip to achieve a more compact radio frequency architecture.

02 Higher signal-to-noise ratio, almost unaffected by level fluctuations.

03 The measurement accuracy is millimeter-level accuracy (1mm), which can be used for metrology-level measurement.





04 The measurement blind area is small (3cm), and the effect of measuring the liquid eve of small storage tanks is better.

05 The beam angle can reach 3° and the energy is more focused, effectively avoiding false echo interference.

06 High frequency signal, can effectively measure the level of medium with low dielectric constant ($\epsilon > 1.5$).

07 The antenna adopts PTFE lens, which is effective anti-corrosion and anti-hanging material.

Technical Specification

Picture							
Model	QTRD-81	QTRD-82	QTRD-83	QTRD-84	QTRD-85	QTRD-86	QTRD-87
Application	Slightly corrosive liquid, stirring, condensation	Slightly corrosive liquid, stirring, condensation	Strong dust, Solid, Block, Powder	Strong corrosive liquid, stirring, condensation	High temperature, strong corrosive liquid, stirring, condensation	Strong corrosive liquid, stirring, condensation	High temperature and high pressure liquid and solid
Process Connection	1.5" Thread, Flange	3.5" Thread, Flange	Flange with purging	Flange	Flange	Flange	Flange
Standard Process Temperature	-30~+100°C	-30~+80°C	-30~+100°C	-30~+80°C	-40~+200°C	-30~100°C	-40~+1000°C
Process Pressure	-0.1~0.3 MPA	-0.1~0.3 MPA	-0.1~0.3 MPA	-0.1~0.1 MPA	-0.3~2 MPA	-0.1~2 MPA	-0.5~3 MPA
Beam Angle	8°	3°	3°	5°	5°	8°	3°
Measuring Range	10m, 20m, 30m	10m, 20m, 30m, 80m, 120m	10m, 20m, 30m, 80m, 120m	10m, 20m, 30m, 80m, 120m	10m, 20m, 30m, 80m, 120m	10m, 20m, 30m	10m, 20m, 30m, 80m, 120m
Accuracy	±1 mm(≤30mm) ±3 mm(≥30mm)		±5 mm	±1 mm(≤30mm), ±3 mm(≥30mm)			
Wetted Parts	PTFE						Carbon steel, SS304, SS316
Blind zone	0.15-35m for 0~35m, 0.4-85 for 0~85m, 0.6-120 for ~ 120m						
Frequency	76~81GHz, FM scanning frequency width 5GHz						
Ambient Temperature	-30~+70°C						
Shell Material	Cast Aluminium, SS304, SS316						
Power Supply	18~28 VDC, 85~265 VAC						
Signal Output	Two-wire / four-wire 4~20mA, HART / RS485 Modbus / Bluetooth						
Structurer	Compact, remote						
Ex-proof	Ex d IIC T6 Gb optional						
Protect Grade	IP67						
Language	English, Spanish, Russian, Portuguese, Korean						

Drawing

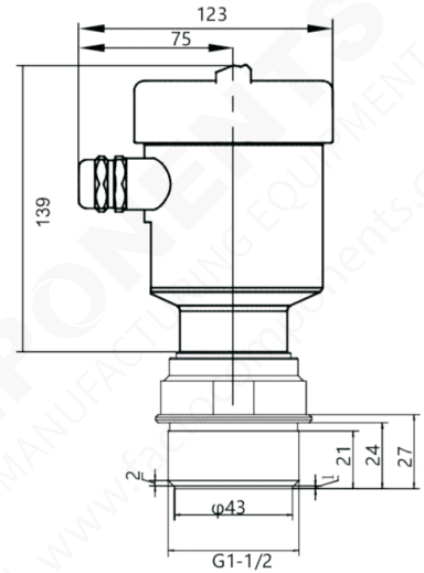
QTRD-81



Thread Connection



Flange connection



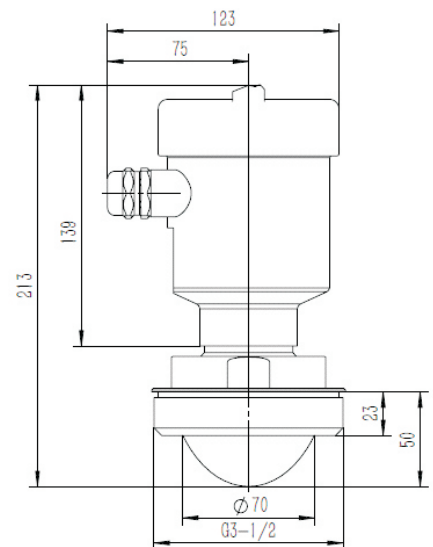
QTRD-82



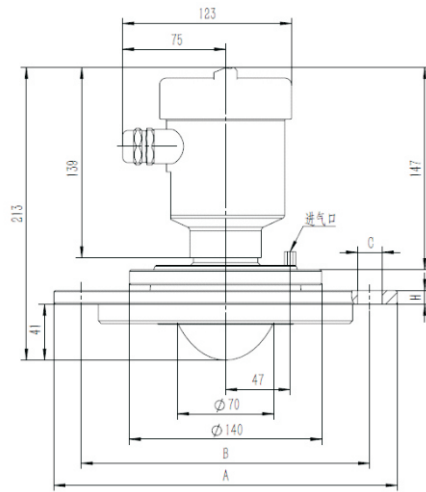
Thread Connection



Flange connection

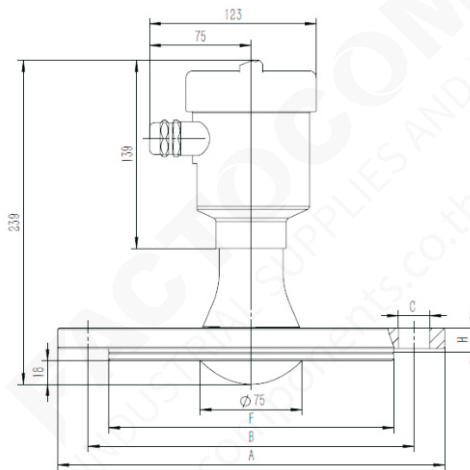


QTRD-83



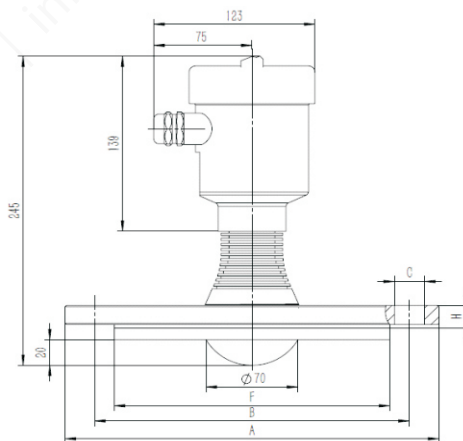
	A	B	C	H
DN80	190	150	4-φ18	15
DN100	210	170	4-φ18	15
DN125	240	200	8-φ18	17
DN150	265	225	8-φ18	17
DN200	320	280	8-φ18	19

QTRD-84



	A	B	C	F	H
DN80	φ190	φ150	4-φ18	φ128	18
DN100	φ210	φ170	4-φ18	φ148	18
DN125	φ240	φ200	8-φ18	φ178	20
DN150	φ265	φ225	8-φ18	φ202	20
DN200	φ320	φ280	8-φ18	φ258	20

QTRD-85

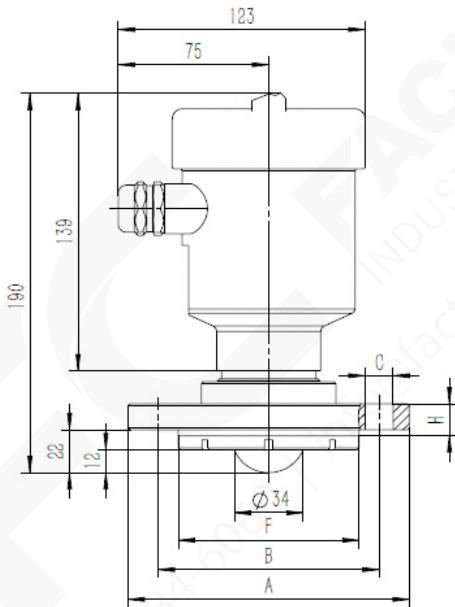


	A	B	C	F	H
DN80	φ200	φ160	8-φ18	φ138	20
DN100	φ220	φ180	8-φ18	φ158	22
DN125	φ250	φ210	8-φ18	φ188	22
DN150	φ285	φ240	8-φ22	φ212	24
DN200	φ340	φ295	12-φ22	φ268	26

QTRD-86

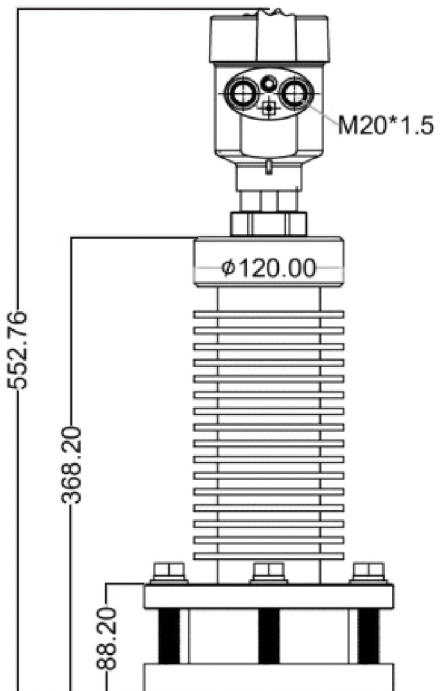


Radar Level Gauge
 Model: QTRD-86
 Working Temperature: (-40 ~120)°C
 Working Pressure: -0.1 ~0.6MPa
 Output: 4-20mA HART
 Power: 24VDC
 Range: 20M Serial No.: 23080101
 Protection Class: IP67
 Q & T INSTRUMENT CO.,LTD



	A	B	C	F	H
DN80	φ140	φ110	4-φ14	φ90	16
DN100	φ160	φ130	4-φ14	φ110	16

QTRD-87



Model Selection

QTRD-81

	QTRD-81	X	X	X	X	X	X	X	X
Measuring Range	10m	10							
	20m	20							
	30m	30							
Process Connection	G1½" thread		1						
	1½" NPT thread		2						
	DN40 flange		3						
	DN50 flange		4						
	DN80 flange		5						
	DN100 flange		6						
	DN125 flange		7						
Power Supply	18~28 VDC			D					
	85~265 VAC			A					
Medium Temperature	-30~100°C				T				
Signal Output	Two-wire 4~20 mA + HART						H		
	RS485 Modbus						RS		
	Bluetooth						B		
Shell Material	Cast Aluminium (standard)							A	
	SS304							4	
	SS316							6	
Explosion Proof	Without								N
	Ex d IIC T6 Gb								E
Structure	Compact								C
	Remote with 10m cable								R

Remark: If you require process connection in flange type, please indicate flange standard before order.

QTRD-82

	QTRD-82	X	X	X	X	X	X	X	X
Measuring Range	10m	10							
	20m	20							
	30m	30							
	80m	80							
	120m	120							
Process Connection	G3½" thread		1						
	3½" NPT thread		2						
	DN80 flange		3						
	DN100 flange		4						
	DN125 flange		5						
	DN150 flange		6						
Power Supply	18~28 VDC			D					
	85~265 VAC			A					
Medium Temperature	-30~80°C				T				
Signal Output	Two-wire 4~20 mA + HART					H			
	RS485 Modbus					RS			
	Bluetooth					B			
Shell Material	Cast Aluminium (standard)						A		
	SS304						4		
	SS316						6		
Explosion Proof	Without							N	
	Ex d IIC T6 Gb							E	
Structure	Compact								C
	Remote with 10m cable								R

Remark: If you require process connection in flange type, please indicate flange standard before order.

QTRD-83

	QTRD-83	X	X	X	X	X	X	X	X
Measuring Range	10m	10							
	20m	20							
	30m	30							
	80m	80							
	120m	120							
Process Connection	DN80 flange		1						
	DN100 flange		2						
	DN125 flange		3						
	DN150 flange		4						
Power Supply	18~28 VDC			D					
	85~265 VAC			A					
Medium Temperature	-30~80°C				T				
Signal Output	Two-wire 4~20 mA + HART					H			
	RS485 Modbus					RS			
	Bluetooth					B			
Shell Material	Cast Aluminium (standard)						A		
	SS304						4		
	SS316						6		
Explosion Proof	Without							N	
	Ex d IIC T6 Gb							E	
Structure	Compact								C
	Remote with 10m cable								R

Remark: If you require process connection in flange type, please indicate flange standard before order.

QTRD-84

	QTRD-84	X	X	X	X	X	X	X	X
Measuring Range	10m	10							
	20m	20							
	30m	30							
	80m	80							
	120m	120							
Process Connection	DN80 flange		1						
	DN100 flange		2						
	DN125 flange		3						
	DN150 flange		4						
Power Supply	18~28 VDC			D					
	85~265 VAC			A					
Medium Temperature	-30~75°C				T				
Signal Output	Two-wire 4~20 mA + HART					H			
	RS485 Modbus					RS			
	Bluetooth					B			
Shell Material	Cast Aluminium (standard)						A		
	SS304						4		
	SS316						6		
Explosion Proof	Without							N	
	Ex d IIC T6 Gb							E	
Structure	Compact								C
	Remote with 10m cable								R

Remark: If you require process connection in flange type, please indicate flange standard before order.

QTRD-85

	QTRD-85	X	X	X	X	X	X	X	X
Measuring Range	10m	10							
	20m	20							
	30m	30							
	80m	80							
	120m	120							
Process Connection	DN80 flange		1						
	DN100 flange		2						
	DN125 flange		3						
	DN150 flange		4						
Power Supply	18~28 VDC			D					
	85~265 VAC			A					
Medium Temperature	-30~200°C				T				
Signal Output	Two-wire 4~20 mA + HART					H			
	RS485 Modbus					RS			
	Bluetooth					B			
Shell Material	Cast Aluminium (standard)						A		
	SS304						4		
	SS316						6		
Explosion Proof	Without							N	
	Ex d IIC T6 Gb							E	
Structure	Compact								C
	Remote with 10m cable								R

Remark: If you require process connection in flange type, please indicate flange standard before order.

QTRD-86

	QTRD-86	X	X	X	X	X	X	X	X
Measuring Range	10m	10							
	20m	20							
	30m	30							
	80m	80							
	120m	120							
Process Connection	DN80 flange		1						
	DN100 flange		2						
	DN125 flange		3						
	DN150 flange		4						
Medium Temperature	18~28 VDC			D					
	85~265 VAC			A					
Power Supply	-30~100°C				T				
Signal Output	Two-wire 4~20 mA + HART					H			
	RS485 Modbus					RS			
	Bluetooth					B			
Shell Material	Cast Aluminium (standard)						A		
	SS304						4		
	SS316						6		
Explosion Proof	Without							N	
	Ex d IIC T6 Gb							E	
Structure	Compact								C
	Remote with 10m cable								R

Remark: If you require process connection in flange type, please indicate flange standard before order.

QTRD-87

	QTRD-87	X	X	X	X	X	X	X	X
Measuring Range	10m	10							
	20m	20							
	30m	30							
	80m	80							
	120m	120							
Process Connection	DN80 flange		1						
	DN100 flange		2						
	DN125 flange		3						
	DN150 flange		4						
Power Supply	18~28 VDC			D					
	85~265 VAC			A					
Medium Temperature	-40~1000°C				T				
Signal Output	Two-wire 4~20 mA + HART					H			
	RS485 Modbus					RS			
	Bluetooth					B			
Shell Material	Cast Aluminium (standard)						A		
	SS304						4		
	SS316						6		
Explosion Proof	Without							N	
	Ex d IIC T6 Gb							E	
Structure	Compact								C
	Remote with 10m cable								R

Remark: If you require process connection in flange type, please indicate flange standard before order.