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Guided Wave Radar Level Transmitter

FineTek

Innovation · Quality · Sharing

PRODUCT INTRODUCTION

OPERATING PRINCIPLE

The guided wave radar level transmitter is a solid and liquid level measuring instrument commonly used in the industry. It transmits electromagnetic pulses along with the steel wire cable or rod ; when these encounter the surface of medium to be measured, the pulses will be partly reflected to form an echo wave and returned to the pulse transmission device along the same path, and the height of liquid level can be calculated.

The guided wave radar level transmitter uses advanced echo wave processing technology with a wide range of product applications that is capable of measuring the low dielectric constant of solid buck; and capable of measuring the solid level, liquid level and medium surface. The product models include coaxial, tube/rod, steel wire cable type for the customer's choice, suitable for high temperature and high pressure medium liquid level measurement.

FEATURES

- Applicable for various measurement requirements of different temperature, pressure and medium.
- Contact measuring, capable of overcoming the steam, foam and stirring effects.
- 4~20 mA / 2 lead wires, simple wiring, low power consumption (2.4W max.).
  128*64 LCM Display, easy on-site adjustment.
- Display distance, level, percentage, current 4~20 mA.
- Unique echo wave processing technology can be used under various types of complex work conditions.
- Echo wave graphics display function, to display the signal waveform inside the tank, can be used for background noise processing.
- Operation Interface Language Selection: Traditional Chinese, Simplified Chinese, English.
  Capable of simulating output current signal of 4mA, 20mA.
- Support save back ground noise function, it could help to eliminate fake echoes.
- Support internal automatic temperature compensation.

TEST STANDARDS

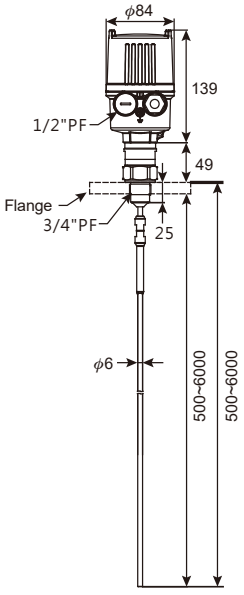
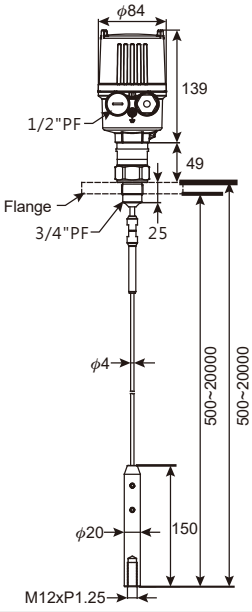
- High voltage :IEC60947-2
- Insulation resistance :IEC60092-504
- Power supply variation :IEC60092-504
- Power supply failure :IEC60092-504
- Electrical burst testing :IEC61000-4-4
- Voltage DIPS :IEC61000-4-11
- Humidity :IEC60068-2-30
- High/Low temperature test :IEC60068-2-38
- IP protection rating :IEC60529

APPLICATION AREAS

- Power plant
- Chemical plant
- Cement plant
- Water treatment
- Paper mill plant
- Steel plant
- Refinery plant

NEPSI Ex ia IIC T2~T4 Ga
IECEx Ex ia IIC T2~T6 Ga
ATEX Ex II 1G Ex ia IIC T2~T6 Ga
CSA Class I, Zone 0, AEx ia IIC T2~T6 Ga;
Class I, Division 1, Groups A, B, C & D, T2~T6

SPECIFICATION

Dimensions (Unit: mm)		
Model	**JTR301 Sandard type**	
Medium of the material	Liquid	
Min. Dielectric (constant)	2.0	
Measuring range	6m	20m
Accuracy	±5mm or ±0.1% F.S. Whichever is greater	
Repeatability	±3mm or ±0.05% F.S. Whichever is greater	
Ambient temperature	-40~80°C(Applied for Ex-proof, as: ATEX、CSA、IECEx, NEPSI:-40~60°C)	
Operating temperature	-40~150°C	
Operating pressure	0~60Bar(25°C)	
Power supply	16~30Vdc Loop Power, 16~30Vdc 4-Wire	
Analog output	4~20mA	
Current distinguishability	1.6uA	
Load impedance	(Vs-16)/0.022 Ohm for 2-Wire, 300 Ohm for 4-Wire>16V	
Digital communication	HART 7.0 for 2-Wire, RS485(Modbus) for 4-Wire	
Housing material	Aluminum alloy	
Protection rating	IP67	
Version	Rod type	Cable type
Minimum connection	3/4"PF	
Dead band	High constant coefficient (ε>10) : Upper dead band<100mm · Lower dead band<50mm Low constant coefficient (ε<10) : Upper dead band<500mm · Lower dead band<100mm	
Intrinsically safe parameters (option)	ATEX / CSA / IECEx / NEPSI, details please check chapter " Intrinsically safe parameters".	

※It shall combine with the ex-proof fence meeting level Ex ia to form the intrinsically safe system.

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ATEX Ex II 1G Ex ia IIC T2~T6 Ga
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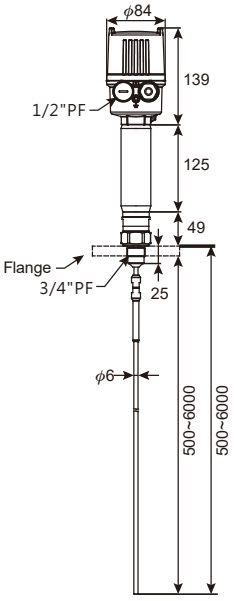
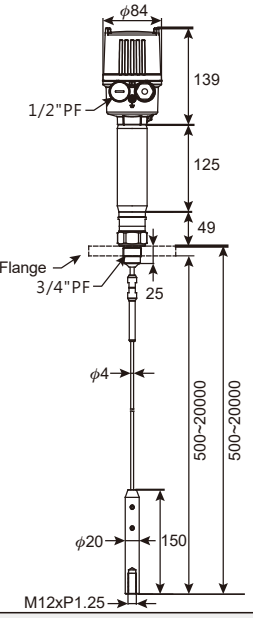
Dimensions (Unit: mm)		
Model	**JTR301 High temp. type**	
Medium of the material	Liquid	
Min. Dielectric (constant)	2.0	
Measuring range	6m	20m
Accuracy	±5mm or ±0.1% F.S. Whichever is greater	
Repeatability	±3mm or ±0.05% F.S. Whichever is greater	
Ambient temperature	-40~80°C(Applied for Ex-proof, as: ATEX、CSA、IECEx, NEPSI:-40~60°C)	
Operating temperature	-40~230°C	
Operating pressure	0~60Bar(25°C)	
Power supply	16~30Vdc Loop Power, 16~30Vdc 4-Wire	
Analog output	4~20mA	
Current distinguishability	1.6uA	
Load impedance	(Vs-16)/0.022 Ohm for 2-Wire, 300 Ohm for 4-Wire>16V	
Digital communication	HART 7.0 for 2-Wire, RS485(Modbus) for 4-Wire	
Housing material	Aluminum alloy	
Protection rating	IP67	
Version	Rod type	Cable type
Minimum connection	3/4"PF	
Dead band	High constant coefficient (ε>10) : Upper dead band<300mm · Lower dead band<50mm Low constant coefficient (ε<10) : Upper dead band<500mm · Lower dead band<100mm	
Intrinsically safe parameters (option)	ATEX / CSA / IECEx / NEPSI , details please check chapter "Intrinsically safe parameters".	

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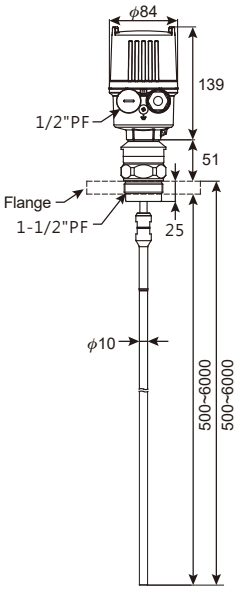
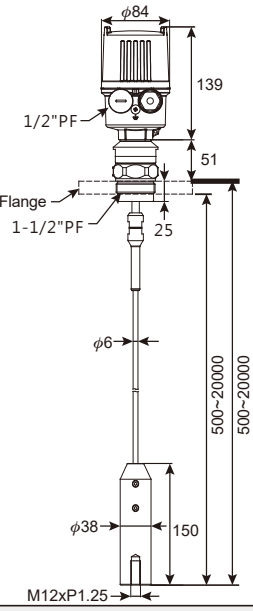
Dimensions (Unit: mm)		
Model	**JTR302 Sandard type**	
Medium of the material	Solid	
Min. Dielectric (constant)	2.0	
Measuring range	6m	20m
Accuracy	±5mm or ±0.1% F.S. Whichever is greater	
Repeatability	±3mm or ±0.05% F.S. Whichever is greater	
Ambient temperature	-40~80°C(Applied for Ex-proof, as: ATEX、CSA、IECEx, NEPSI:-40~60°C)	
Operating temperature	-40~150°C	
Operating pressure	0~60Bar(25°C)	
Power supply	16~30Vdc Loop Power, 16~30Vdc 4-Wire	
Analog output	4~20mA	
Current distinguishability	1.6uA	
Load impedance	(Vs-16)/0.022 Ohm for 2-Wire, 300 Ohm for 4-Wire>16V	
Digital communication	HART 7.0 for 2-Wire, RS485(Modbus) for 4-Wire	
Housing material	Aluminum alloy	
Protection rating	IP67	
Version	Rod type	Steel wire cable type
Minimum connection	1-1/2”PF	
Dead band	High constant coefficient (ε>10) : Upper dead band<100mm · Lower dead band<50mm Low constant coefficient (ε<10) : Upper dead band<500mm · Lower dead band<100mm	
Intrinsically safe parameters (option)	ATEX / CSA / IECEx / NEPSI , details please check chapter "Intrinsically safe parameters".	

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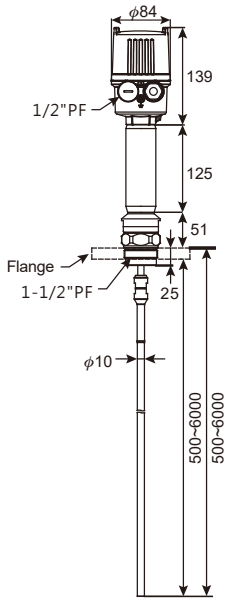
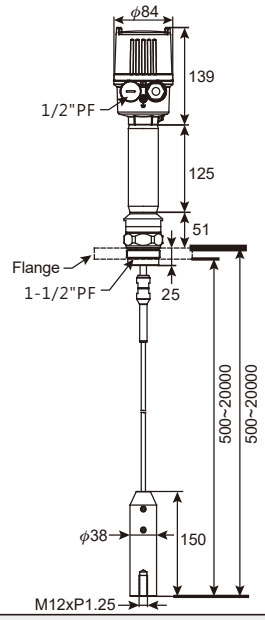
Dimensions (Unit: mm)		
Model	**JTR302 High temp. type**	
Medium of the material	Solid	
Min. Dielectric (constant)	2.0	
Measuring range	6m	20m
Accuracy	±5mm or ±0.1% F.S. Whichever is greater	
Repeatability	±3mm or ±0.05% F.S. Whichever is greater	
Ambient temperature	-40~80°C(Applied for Ex-proof, as: ATEX、CSA、IECEx, NEPSI:-40~60°C)	
Operating temperature	-40~230°C	
Operating pressure	0~60Bar(25°C)	
Power supply	16~30Vdc Loop Power, 16~30Vdc 4-Wire	
Analog output	4~20mA	
Current distinguishability	1.6uA	
Load impedance	(Vs-16)/0.022 Ohm for 2-Wire, 300 Ohm for 4-Wire>16V	
Digital communication	HART 7.0 for 2-Wire, RS485(Modbus) for 4-Wire	
Housing material	Aluminum alloy	
Protection rating	IP67	
Version	Rod type	Steel wire cable type
Minimum connection	1-1/2"PF	
Dead band	High constant coefficient (ε>10) : Upper dead band<300mm · Lower dead band<50mm Low constant coefficient (ε<10) : Upper dead band<500mm · Lower dead band<100mm	
Intrinsically safe parameters (option)	ATEX / CSA / IECEx / NEPSI details please check chapter " Intrinsically safe parameters".	

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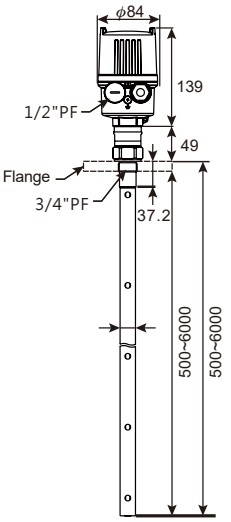
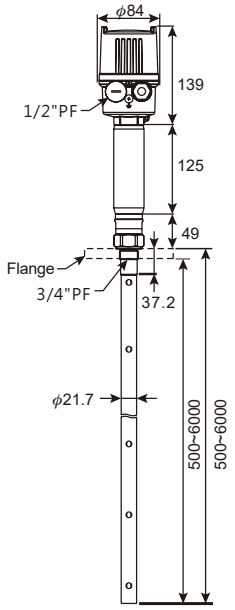
Dimensions (Unit: mm)		
Model	**JTR305 Sandard type**	**JTR305 High temp. type**
Medium of the material	Low Dielectric Liquid	
Min. Dielectric (constant)	1.6	
Measuring range	6m	
Accuracy	±5mm or ±0.1% F.S. Whichever is greater	
Repeatability	±3mm or ±0.05% F.S. Whichever is greater	
Ambient temperature	-40~80°C(Applied for Ex-proof, as: ATEX、CSA、IECEx, NEPSI:-40~60°C)	
Operating temperature	-40~150°C	-40~230°C
Operating pressure	0~60Bar(25°C)	
Power supply	16~30Vdc Loop Power, 16~30Vdc 4-Wire	
Analog output	4~20mA	
Current distinguishability	1.6uA	
Load impedance	(Vs-16)/0.022 Ohm for 2-Wire, 300 Ohm for 4-Wire>16V	
Digital communication	HART 7.0 for 2-Wire, RS485(Modbus) for 4-Wire	
Housing material	Aluminum alloy	
Protection rating	IP67	
Version	Coaxial type	
Minimum connection	3/4"PF	
Dead band	High constant coefficient (ε>10) : Upper dead band<100mm · Lower dead band<50mm Low constant coefficient (ε<10) : Upper dead band<500mm · Lower dead band<100mm	
Intrinsically safe parameters (option)	ATEX / CSA / IECEx / NEPSI , details please check chapter "Intrinsically safe parameters".	

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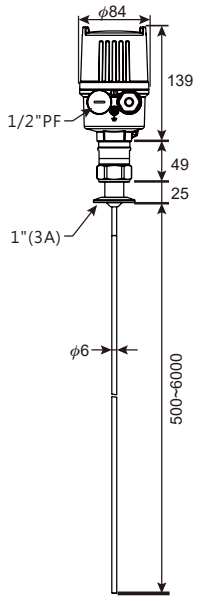
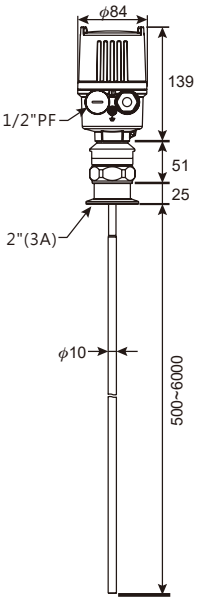
Dimensions (Unit: mm)		
Model	**JTR30A Sanitary type**	
Medium of the material	Liquid	Solid
Min. Dielectric (constant)	1.6	
Measuring range	6m	
Accuracy	±5mm or ±0.1% F.S. Whichever is greater	
Repeatability	±3mm or ±0.05% F.S. Whichever is greater	
Ambient temperature	-40~80°C(Applied for Ex-proof, as: ATEX、CSA、IECEx, NEPSI:-40~60°C)	
Operating temperature	-40~150°C	
Operating pressure	0~60Bar(25°C)	
Power supply	16~30Vdc Loop Power, 16~30Vdc 4-Wire	
Analog output	4~20mA	
Current distinguishability	1.6uA	
Load impedance	(Vs-16)/0.022 Ohm for 2-Wire, 300 Ohm for 4-Wire>16V	
Digital communication	HART 7.0 for 2-Wire, RS485(Modbus) for 4-Wire	
Housing material	Aluminum alloy	
Protection rating	IP67	
Version	Rod type	
Minimum connection	1”(3A)	2”(3A)
Dead band	High constant coefficient (ε>10) : Upper dead band<100mm · Lower dead band<50mm Low constant coefficient (ε<10) : Upper dead band<500mm · Lower dead band<100mm	
Intrinsically safe parameters (option)	ATEX / CSA / IECEx / NEPSI , details please check chapter "Intrinsically safe parameters".	

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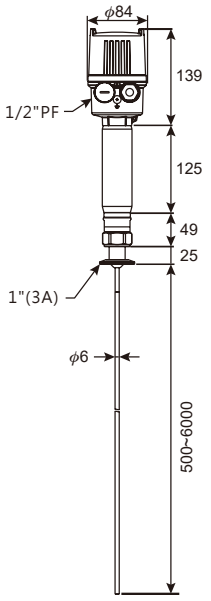
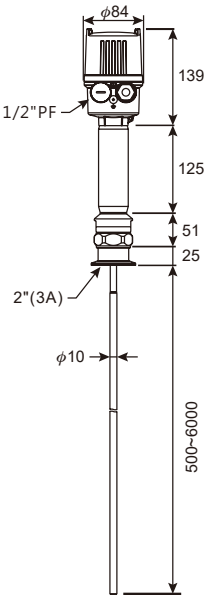
Dimensions (Unit: mm)		
Model	**JTR30A Sanitary High temp. type**	
Medium of the material	Liquid	Solid
Min. Dielectric (constant)	1.6	
Measuring range	6m	
Accuracy	±5mm or ±0.1% F.S. Whichever is greater	
Repeatability	±3mm or ±0.05% F.S. Whichever is greater	
Ambient temperature	-40~80°C(Applied for Ex-proof, as: ATEX、CSA、IECEx, EPSI:-40~60°C)	
Operating temperature	-40~230°C	
Operating pressure	0~60Bar(25°C)	
Power supply	16~30Vdc Loop Power, 16~30Vdc 4-Wire	
Analog output	4~20mA	
Current distinguishability	1.6uA	
Load impedance	(Vs-16)/0.022 Ohm for 2-Wire, 300 Ohm for 4-Wire>16V	
Digital communication	HART 7.0 for 2-Wire, RS485(Modbus) for 4-Wire	
Housing material	Aluminum alloy	
Protection rating	IP67	
Version	Rod type	
Minimum connection	1”(3A)	2”(3A)
Dead band	High constant coefficient (ε>10) : Upper dead band<300mm · Lower dead band<50mm Low constant coefficient (ε<10) : Upper dead band<500mm · Lower dead band<100mm	
Intrinsically safe parameters (option)	ATEX / CSA / IECEx / NEPSI , details please check chapter "Intrinsically safe parameters".	

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INTRINSICALLY SAFE PARAMETERS

ATEX、CSA、IECEx、TS:

Model series	Power circuit	Input entity parameters	Output entity parameters
JTR30XD	JLoop power 16~30Vdc X 2 with HART, by 2-core wire via terminal blocks J1 and J2	Loop power 1 In (V1+, V1-): Ui = 30V Ii = 100 mA Pi = 0.7W Ci = 0 Li = 0 Loop Power 2 In (V2+, V2-): Same as above	None
JTR30XB	Loop power 16~30Vdc with HART, by 2-core wire via terminal blocks J1	Loop power In (V+, V-): Ui = 30V Ii = 100 mA Pi = 0.7W Ci = 0 Li = 0	None
JTR30XH	4-Wire 16~30Vdc 4~20mA with RS485, by 2-core wire via terminal blocks J1 and J4 *Note: Feedback signal parameter for 'RS-485 In' is: Uo = 5.88V Io = 12.5mA Po = 18.5mW Co = 43μF Lo = 3555μH	RS-485 In (D+, D-)*: Ui = 12V Ii = 100mA Pi = 0.3W Ci = 0 Li = 0 Power In (V+, V-): Ui = 30V Ii = 100mA Pi = 0.7W Ci = 0 Li = 0	Analog Out 1 (I+, I-): Uo = 13.65V Io = 69mA Po = 0.236W Co = 0.79μF Lo = 7468μH Through 2-core wire via terminal block J2 Analog Out 2 (I2+, I2-): Uo = 13.65 V Io = 69mA Po = 0.236W Co = 0.79μF Lo = 7468μH Through 2-core wire via terminal block J3
JTR30XE	4-Wire 16~30Vdc 4~20mA with RS485, by 2-core wire via terminal blocks J1 and J4 *Note: Feedback signal parameter for 'RS-485 In' is: Uo = 5.88V Io = 12.5mA Po = 18.5mW Co = 43μF Lo = 3555μH	RS-485 In (D+, D-)*: Ui = 12V Ii = 100mA Pi = 0.3W Ci = 0 Li = 0 Power In (V+, V-): Ui = 30V Ii = 100mA Pi = 0.7W Ci = 0 Li = 0	Analog Out 1 (I+, I-): Uo = 13.65V Io = 69mA Po = 0.236W Co = 0.79μF Lo = 7468μH Through 2-core wire via terminal block J2
JTR30XF	4-Wire 5Vdc with RS485, by 2-core wire via terminal blocks J1 and J4 *Note: Feedback signal parameter for 'RS-485 In' is: Uo = 5.88V Io = 12.5mA Po = 18.5mW Co = 43μF Lo = 3555μH	RS-485 In (D+, D-)*: Ui = 12V Ii = 100mA Pi = 0.3W Ci = 0 Li = 0 Power In (V+, V-): Ui = 10V Ii = 300mA Pi = 0.7W Ci = 0 Li = 0	None

MEASURING RANGE

NEPSI:

Terminal Code (Power)	Max. Voltage Input Ui (V)	Max. Current Input Ii (mA)	Max. Power Input Pi (W)	Max. Internal equivalent parameter	
				Ci (μF)	Li (mH)
V1+ · V1- V2+ · V2-	30	100	0.7	0	0
V+ · V-	30	100	0.7	0	0
	10	300			

Terminal Code (RS485)	Max. Voltage Input Ui (V)	Max. Current Input Ii (mA)	Max. Power Input Pi (W)	Max. Internal equivalent parameter	
				Ci (μF)	Li (mH)
D+ · D-	12	100	0.3	0	0
	Max. Voltage Output Uo (V)	Max. Current Output Io (mA)	Max. Power Output Po (mW)	Max. External Parameter	
				Co (μF)	Lo (mH)
	7	15	25	See below	

Terminal Code (AO)	Max. Voltage Input Ui (V)	Max. Current Input Ii (mA)	Max. Power Input Pi (W)	Max. Internal equivalent parameter	
				Ci (μF)	Li (mH)
I+ · I- I2+ · I2-	15	70	0.25	0	0
	Max. Voltage Output Uo (V)	Max. Current Output Io (mA)	Max. Power Output Po (mW)	Max. External parameter	
				Co (μF)	Lo (mH)
	14	70	0.25	See below	

Terminal Code	Total	
	Co (μF)	Lo (mH)
D+ · D- I+ · I- I2+ · I2-	0.5	1.0

MEASURING RANGE

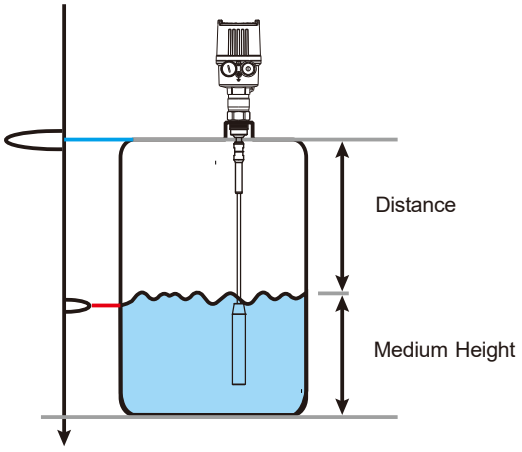
JTR301 / JTR305				
Dielectric constant (ε_r)	Typical liquids	Steel wire cable type	Rod type	Coaxial type
1.6~2.0	● Liquefied gas, e.g. propane ● Solvent ● Freon ● Palm oil	Need special model with S5 type float		6m
2.0~2.5	● Mineral oils, fuels	12m	6m	6m
2.5~4.0	● Benzene, styrene, toluene ● Furan ● Naphthalene	14m	6m	6m
4.0~7.0	● Chlorobenzene, chloroform ● Cellulose spray ● Isocyanate, aniline	16m	6m	6m
> 7.0	● Aqueous solutions ● Alcohols ● Ammonia	20m	6m	6m

JTR302			
Dielectric constant (ε_r)	Typical liquids	Steel wire cable type	Rod type
2.0~2.5	● Portland cement ● Plaster ● Plastic granulate	12m	6m
2.5~4.0	● Grain, seeds ● Flour ● Ground stones ● Sand	14m	6m
4.0~7.0	● Naturally moist stones, ores ● Salt	16m	6m
> 7.0	● Metallic powder ● Carbon black ● Coal	20m	6m

FUNCTIONAL PRINCIPLE

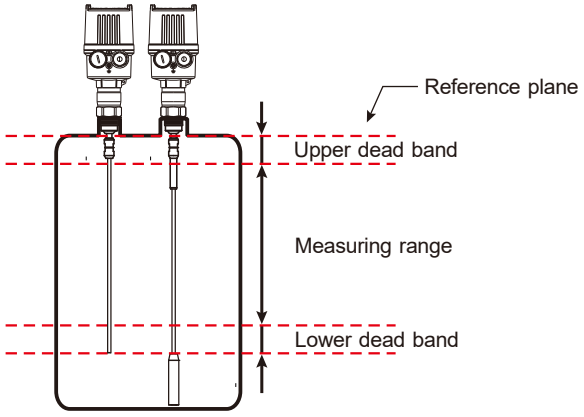
LIQUID LEVEL MEASUREMENT

High frequency microwave pulses travel along the steel wire cable or tube/rod. When they reach the medium surface, the microwave pulses are reflected. The pulse operating time is calculated and outputted by the electronic instrument of this meter as the liquid level height.



BLIND AREA

The bench-mark of the measuring range is the thread or flange contact surface of the sensor.
It should be noted that the measuring range is below the reference plane to the bottom of the induction rod and the upper and lower blind areas that cannot be measured. The default value, measuring range of this meter is set up with "water" as the test medium.



BOTTOM SIGNAL ENHANCEMENT & TRACKING TECHNOLOGY

This sensor is equipped with bottom sensing detection tracking mode, when the measured medium has a low dielectric constant, in order to increase the sensitivity. This feature is useful such as in the plastic particles, packing chips or in liquefied containers. When the dielectric constant is between 3 and 10, as long as the echo wave signal cannot be detected, the bottom sensing detection tracking function will be automatically activated.

The calculation of the measured value uses the dielectric constant last recorded; the accuracy of the meter depends on the stability of the dielectric constant.

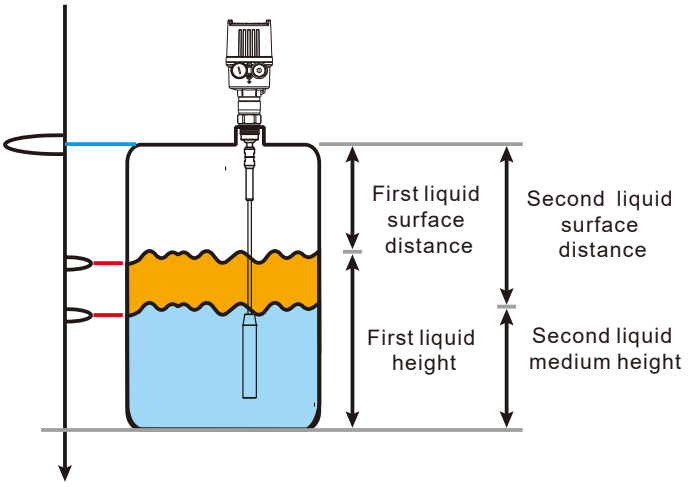
If the medium's dielectric constant is less than 3, the bottom sensing detection tracking function is automatically activated throughout the process. The medium's dielectric constant must be input as a stable dielectric constant is important in the measurement.

※ Please refer to product manual for details of setting.

FUNCTIONAL PRINCIPLE

DUAL LIQUID LEVEL INTERFACE MEASUREMENT

High frequency microwave pulses travel along the steel wire cable or tube/rod. When they reach the medium surface, part of the microwave pulses are reflected. The other part penetrates through the upper layer of medium and generates the second reflection at the interface between upper and lower layers of the medium. Two pulse operating time periods are calculated and outputted by the electronic instrument of this meter as the dual liquid level heights.



Dual Liquid Level Interface Measuring Condition:

Upper layer medium (L2):

The upper layer medium must be nonconductive dielectric; the dielectric constant of upper layer medium or the actual distance to interface must be known; the dielectric constant of the upper layer medium needs to be greater than 1.6.

The upper layer medium must be stable and the medium cannot be changed or mixed; the upper layer medium must be uniform, and the minimum thickness of the upper layer medium without layering shall be greater than 50 mm (1.97 inches) and clearly separated between the upper layer and lower layer mediums. If there is emulsion phase or debris layer, the maximum thickness shall not be greater than 50 mm (1.97 inches), better measuring results can be achieved without foam on the surface if possible.

Lower layer medium (L1):

The dielectric constant of lower layer must be 10 greater than the dielectric constant of lower layer, preferably conductive medium.

For example, if the dielectric constant of upper layer is 2, the dielectric constant of lower layer shall be at least 12.

Gas layer (L3):

This layer is the mixture of air or gas

Dual Liquid Level Interface Measurement output signal setting:

The meter shall be set up for using in "Separate layers interface measurement", used in interface measurement of two types of liquid, dual analog output version can be selected and adjusted in the setting menu.

INSTALLATION INFORMATION

Please note that when installing the JTR3 series product in a metal container, the spacing from the other devices in the container shall be at least 300 mm (12 in).

When installing in a non-metal container, the spacing from the container wall shall be at least 500 mm (19.7 in).

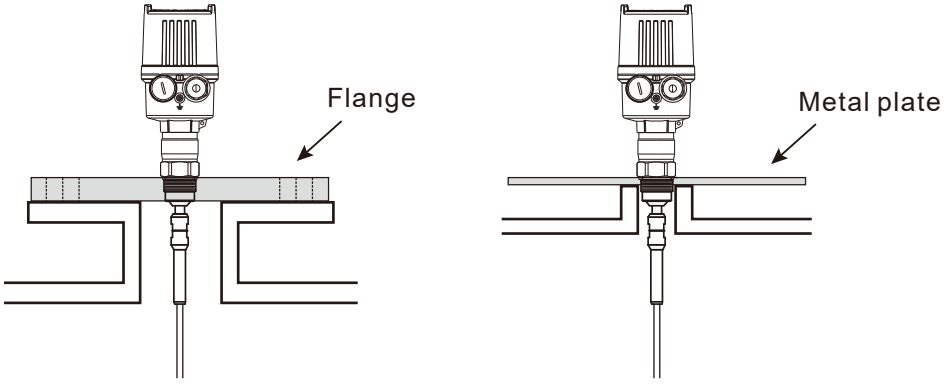
It is necessary to ensure the probe must not touch any device or tank wall during operation.

It is recommended to fix the bottom of the probe in the tank to reduce the probe shaking when using steel wire cable type induction probe.

Please note that this instrument has upper and lower blind areas that it is disable to measure the full end of probe..

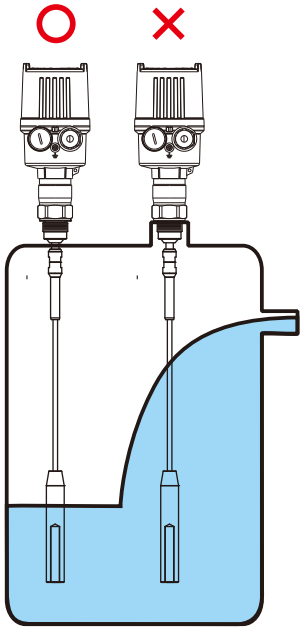
When the welding operation is required during the installation process, please remove the electronic module of the sensor from the terminal box before starting the welding work to avoid damage to the electronic equipment due to induction coupling or other failures.

When used in plastic/glass containers, it is necessary to use the meter type with flange or place a piece of metal plate (ø> 200mm / 8in) under the processing connection when mounted. The metal plate shall be directly contacted with the processing connection.



During installation, please avoid using the extended nozzle on the container. Please install the sensor leveled with the top of the container as possible. If this cannot be done, please use a shorter extended nozzle.

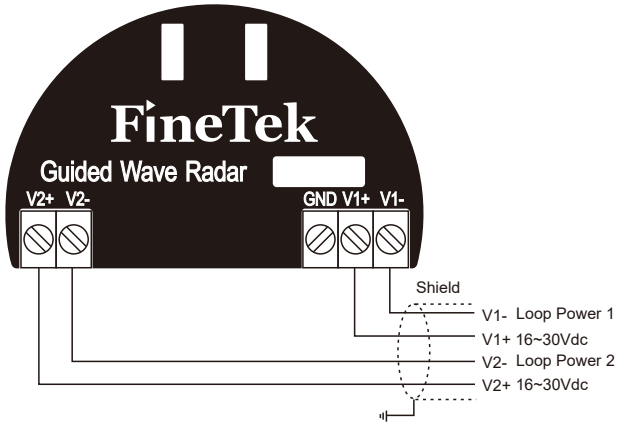
Please do not install this instrument at the inlet to ensure that the sensor is in a stable position in the medium and not in the inflow position of the liquid to avoid false measurements when the liquid flows in.



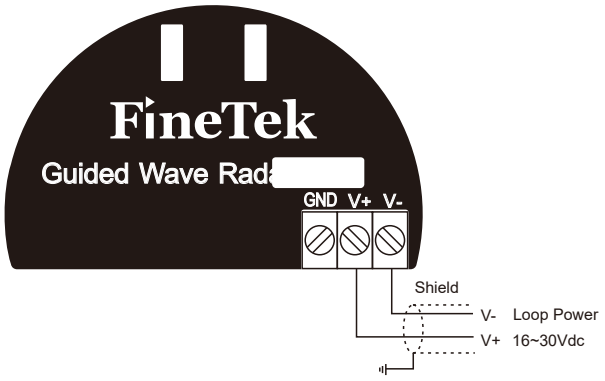
WIRING DIAGRAM

2-wire type

JTR30XD series



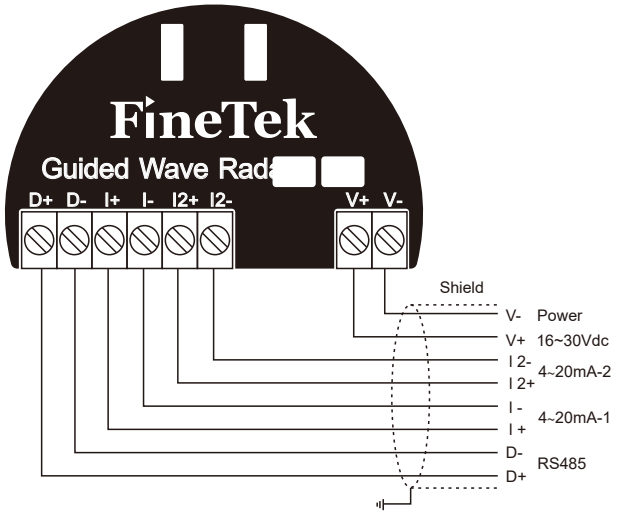
JTR30XB series



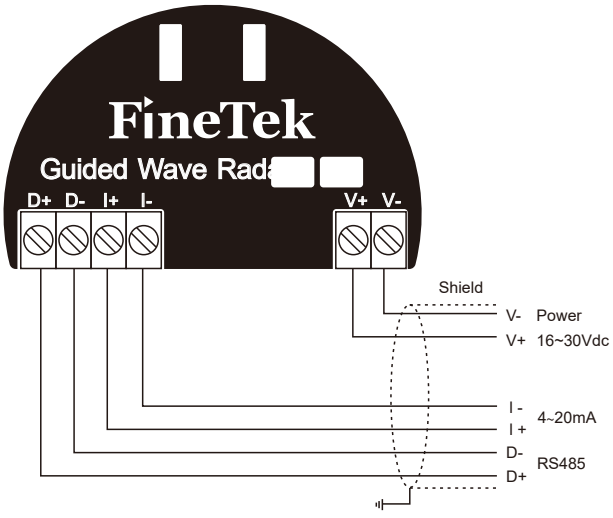
Note! For 2-wire loop power type: when equipped with two sets of analog outputs, each circuit should be operated independently.
Parallel connection of the two circuits will cause abnormal current output.

4-Wire type

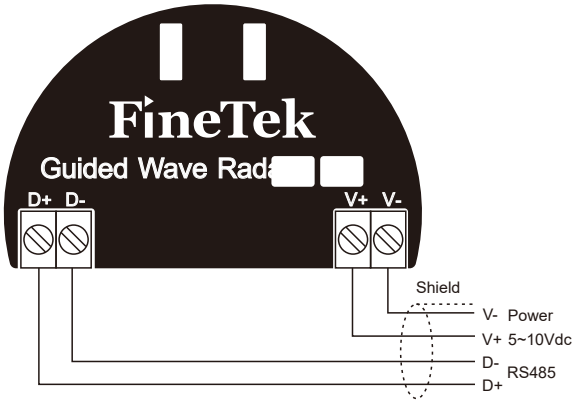
JTR30XH series



JTR30XE series



JTR30XF series

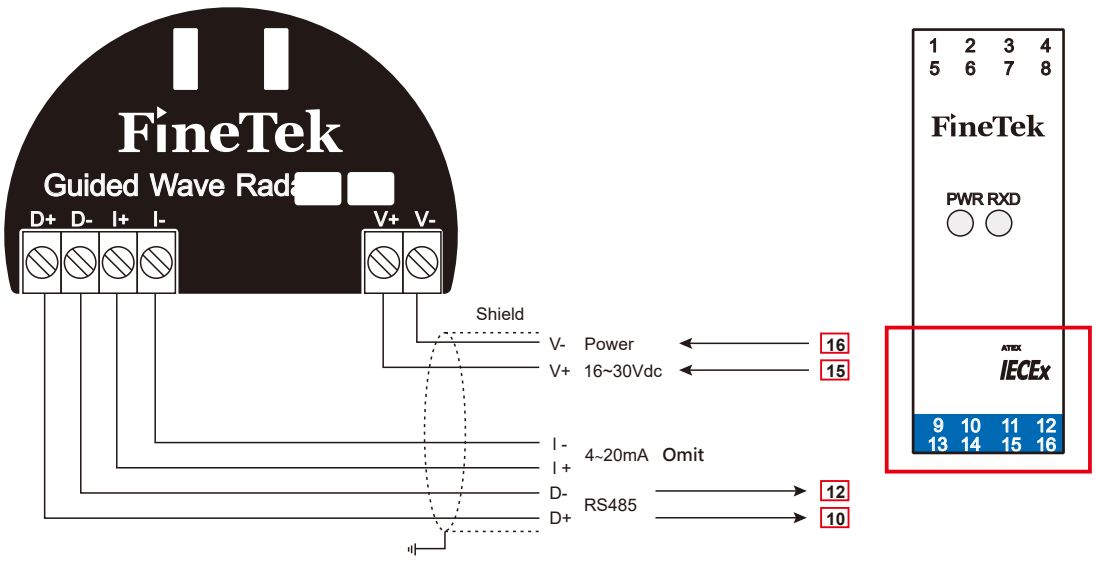


THE EXAMPLE FOR WORKING WITH SAFETY BARRIER:

Digital signal

JTR30XE series

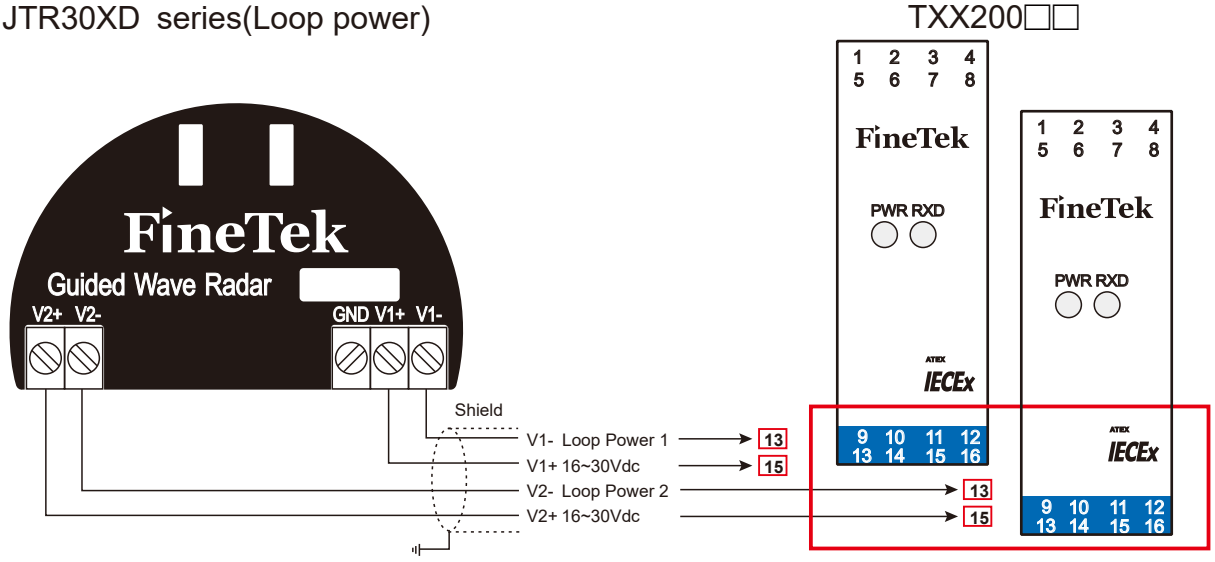
TXX200□□



Analog signal

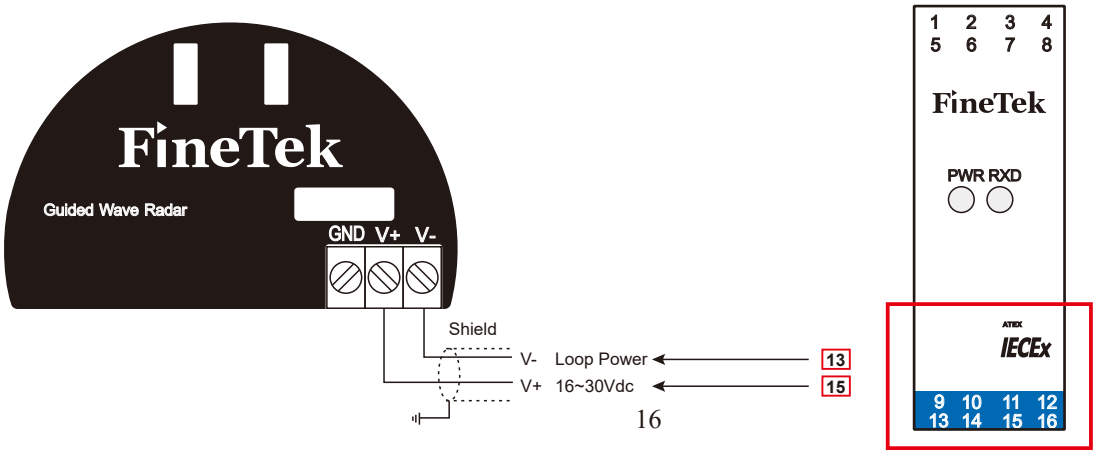
JTR30XD series(Loop power)

TXX200□□



JTR30XB series(Loop power)

TXX200□□



MODEL NUMBER / ORDER CODE COMPARISON TABLE

Model Number	Order Code
JTR301	JTR1□□□□-A1 JTR1□□□□-A2
JTR302	JTR1□□□□-B1 JTR1□□□□-B2
JTR305	JTR1□□□□-A3
JTR30A	JTR103□□-E1

ORDERING INFORMATION

⑤⑥ Model

00: Standard
02: Hi-temperature
03: Sanitary
32: Sanitary+ Hi-temperature type

⑦⑧ Certification

00: None
1B: ATEX-Ex ia
2B: IECEx-Ex ia
6B: CSA
7B: NEPSI-Ex ia

(Next page)

⑨⑩ Probe Type

A1: Rod type for liquid 6mm
A2: Steel wire cable type for liquid 4mm
A3: Coaxial type 21.7mm
B1: Rod type for solid
B2: Cable type for solid
E1: Sanitary rod

⑪⑫ Probe material

MA: SUS 304
MC: SUS 316L

Connection

⑬⑭

Flange
AJ: JIS-RF
AN: ANSI-RF
AR: DIN-RF
AI : 3A

Thread
AA: JIS
AC: ANSI

⑮⑯

A7: 3/4"
A8: 1"
B1: 1-1/2"
B2: 2"
B5: 3"
B7: 4"
E1: DN40

⑰⑱

00: None
01: PT male
03: PF male
07: NPT male
13: GAS male
40: 5 kg/cm²
48: 150 Lbs
56: PN 6
57: PN10
59: PN25

⑲ Output/input

B: Loop Power 16 ~ 30 Vdc with HART
D: Loop Power 16 ~ 30 Vdc X 2 with HART
E: 4-Wire 16 ~ 30Vdc 4~20mA with RS485
H: 4-Wire 16 ~ 30Vdc, 4~20mA X2 with Rs485
F: 5~10 Vdc, only RS485

⑳㉑㉒㉓ Length

Code	Probe Length
0500~6000	500~6000mm
0500~A200	500~20000mm

JTR Radar Level Transmitter

Customer Information

Prepared by: _____ Date: _____

Company: _____ Industry: _____

E-mail: _____ Phone Number: _____

Address: _____

Application Information

B.1 Measuring Material Information				
Application Description:				
Installation Area:	☐ Storage tank	☐ Process tank	☐ Open-air application	
Material Status :	☐ Liquid	☐ Slurry/ Sludge/ Paste	☐ Solid/ Granulate/Grain	☐ Powder
Material Name :		Dielectric Constant	☐ 1.4~1.9	☐ 4.0~10.0
			☐ 2.0~2.5	☐ >10
			☐ 2.6~4.0	☐ Unknow

B.2 Power Supply

☐ DC : _____ ☐ AC : _____

B.3 Output Signal

Analog : ☐ 4~20 mA-4 Wire ☐ 4~20mA 2-Wire ☐ Other

Digital : ☐ RS-485 ☐ HART ☐ Other

B.4 Measuring range

Measuring range: _____ meters

B.5 Measuring Condition

Operating Temperature

Max: _____ Min: _____ °C

Abient Temperature

Max: _____ Min: _____ °C

Operating Pressure

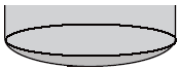
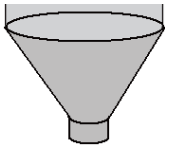
Max: _____ Min: _____ °C

B.6 Connection

Connection: ☐ Threaded ☐ Flange

Size and Standard: _____ Flange Material: _____

B.7 Tank Information

Tank Shape	☐ Vertical Cylinder	☐ Horizontal Cylinder	☐ Spherical	
	☐ Cubical/rectangular	☐ Other: _____		
Tank Material	☐ Metal	☐ Plastic	☐ Cement	☐ Other _____
Tank Bottom	☐ Flat			
	☐ Dish			
	☐ Cone			
	☐ Other (Please describe)	_____ _____		

Tank
Tank Height (H): _____ m
Tank Diameter (W): _____ m
Cone Height (H1): _____ m
(Ignore cone height with flat/disk bottom)

Radar
Distance to tank wall(D1): _____ m

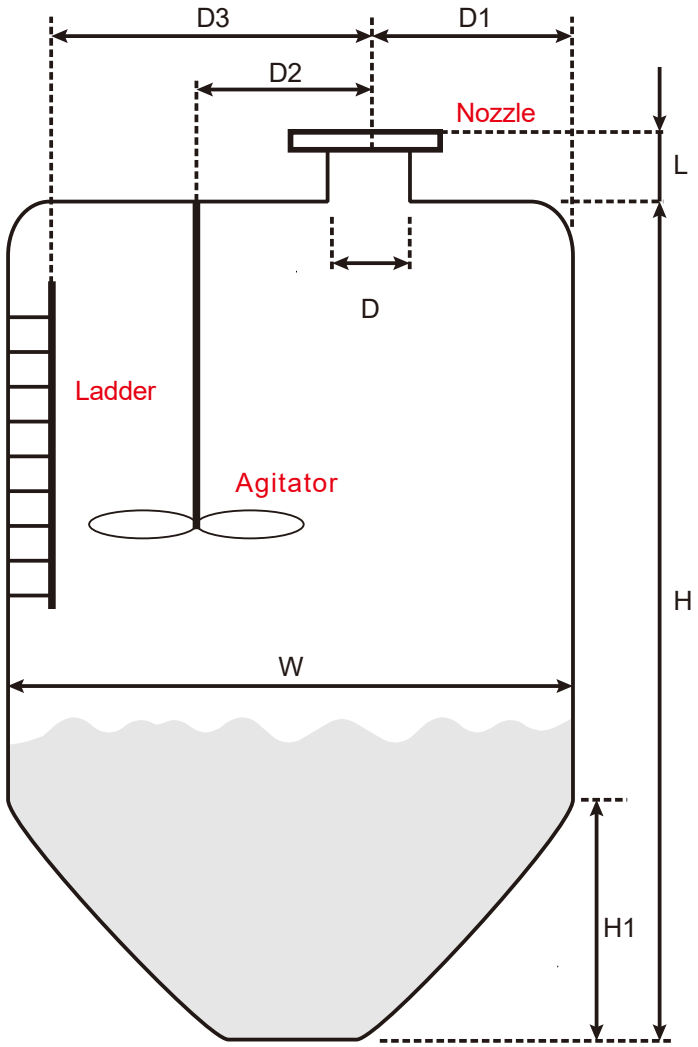
Nozzle
☐ Yes
Nozzle Diameter (L): _____ m
Nozzle Height (D): _____ m
☐ NO

Agitator
☐ Yes
Distance to rada (D2): _____ m
☐ NO

Ladder
☐ Yes
Distance to rada (D3): _____ m
☐ NO

Heater
☐ Yes
☐ NO

Other Internal Obstacles
☐ Yes
☐ NO



SUCCESS STORY

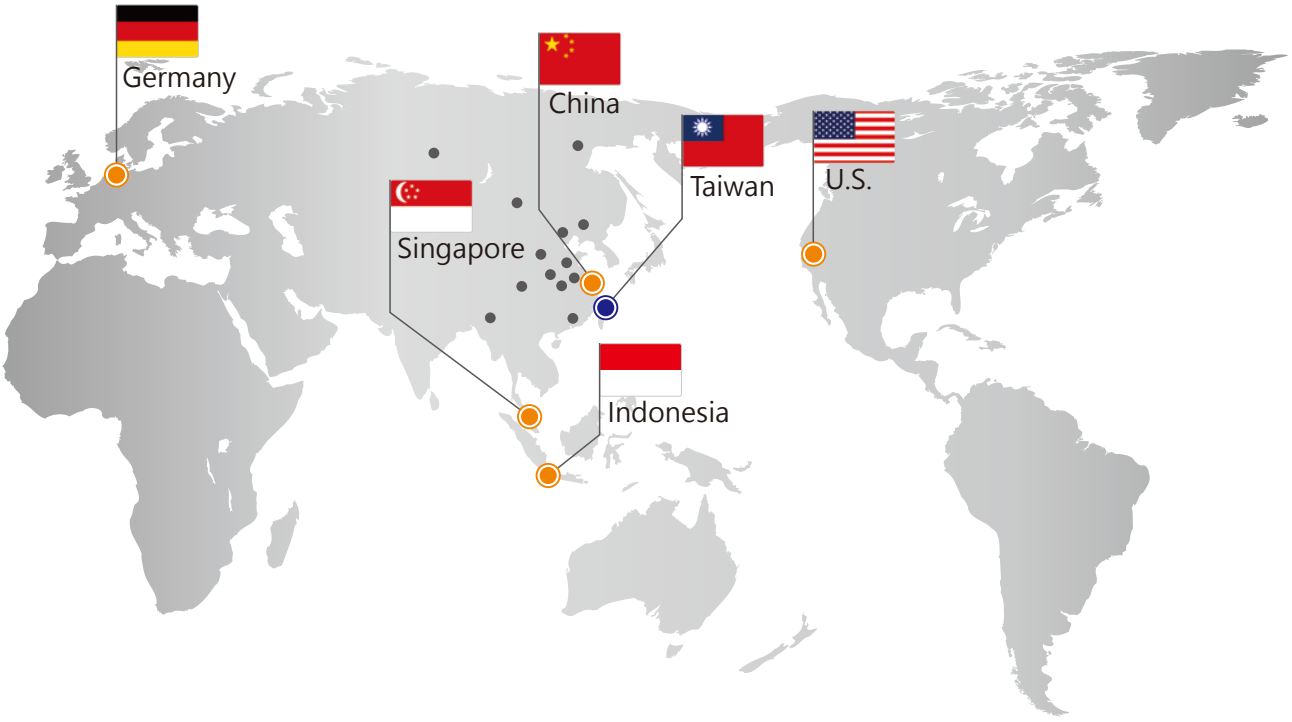
Water purification barrel

Copper sulfate storage tank

High temperature boiler

Food factory - bean dregs storage barrel

Global Network



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