

All-round for both liquids and bulk solids

80GHz Radar Level Transmitter



User-friendly functions for various

User-friendly functions in the field



Easily confirmed by mobile

Easily confirmed by mobile or PC by bluetooth connection. No wiring required for adjustment. Can be operated from safe location even in difficult-to-reach sites.



Only Matsushima unique function

Easily angle adjustment after maintenance

Angle / dimension sensor system. After taking out the sensor for maintenance, it is easy to restore the sensor.



Acquired patent

Notification of adhesion alarm and inspection date

The adhesion alarm and inspection date are notified by making the beating signal of 4-20mA output, which avoids unstable measurement.



Adhesion prevention with 360° air purge mechanism

360° slit for purge contacting with the lens surface prevents adhesion to the lens surface.



Inspection facility "Wave Lab" convince performance

Large automatic inspection facility (simple anechoic chamber construction) named "Wave Lab" has been built for millimeter wave level transmitters.

It is a domestic largest class (20m) anechoic chamber facility.



Photo of the anechoic chamber in the Wave Lab

Remote maintenance

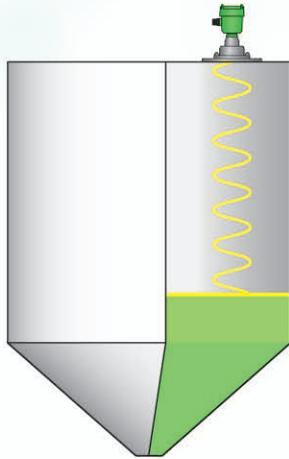
Supervising cost reduction and also emergent trouble-shooting by this remote maintenance/adjustment service.

- ① Cost reduction as transportation and accommodation fee for supervisor is not necessary.
- ② Safety training and entry permit process is not necessary.
- ③ Safe because no one need to be at the site.



industries! World top class quality hi

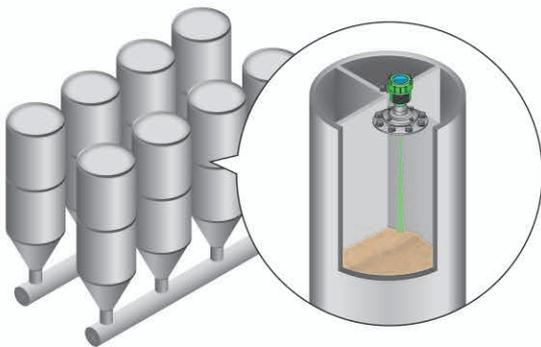
Operation principle



In the FM-CW method, the sensor transmits a high frequency radar signal while modulating the frequency at a constant cycle. When it is reflected and received by the target, the frequency deviation from the transmitted signal is converted into round-trip time and measured as distance.

Special features

Applicable to narrow space



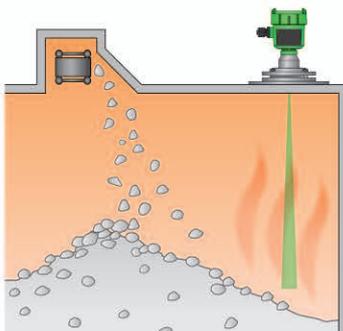
Measurement possible in narrow divided compartment of the silo (Food industry, etc.).

Stable under dusty or vapor conditions



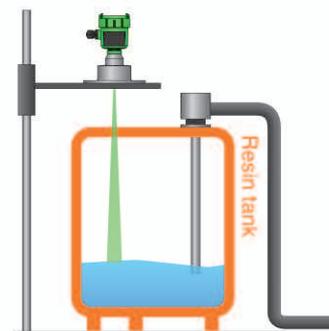
Stable measurement without influence of flying dust or vapor as millimeter wave can permeate objects smaller than $\frac{1}{4}$ size of the wavelength.

Applicable to high temperature target



No influence from temperature or gas on measurement performance and durable against max. 200degC ambient conditions.

Measurement through resin roof



Measurement through low permittivity material like resin is possible.
(ex. FRP tank, Plastic container, IBC container, etc.)

High frequency Radar Transmitter!

Options suitable for measurement conditions

Option

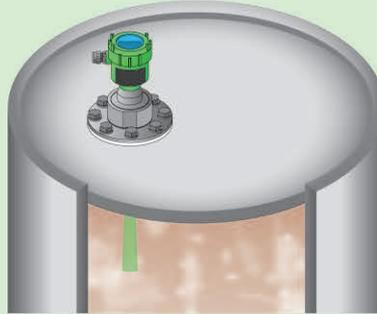
Corrosion Resistance Isolation Flange

Stable measurement under corrosive gas condition by protecting the antenna from the condition.



PTFE Flange

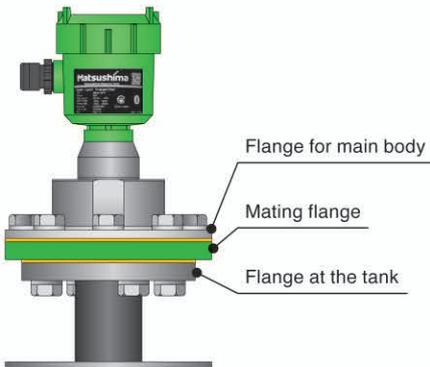
Applicable to corrosive gas environment



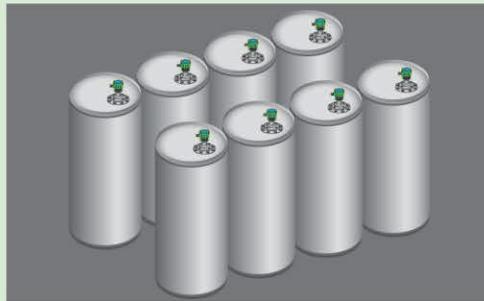
Option

Mating Flange

Mating flange to JIS65A (equivalent to 2-1/1") available for smaller liquid tanks.



Applicable to smaller tanks



Option

Sunshade Cover

The Sunshade Cover relieves influence of sunlight and may extend the product lifetime.



Cover material: SUS

For product lifetime extension



Specifications

Model	MWLM-FM79								
Version	F03	F06	F12	S03	S06	S12	B03	B06	B12
Power supply*1	DC 12V ~ DC 36V								
Power Consumption	800mW								
Mounting	Equivalent to JIS10K80A Flange Material:Equivalent to SUS316			Equivalent to JIS10K100A Swivelling Flange Material:SCS14A(Equivalent to SUS316)			Bracket 3-Φ10 Mtg.holes Material:SUS304		
Dead Zone	0.3m	0.4m	0.7m	0.3m	0.4m	0.7m	0.3m	0.4m	0.7m
Max Measurable Distance*2	30m	60m	120m	30m	60m	120m	30m	60m	120m
Transmitting Frequency	77GHz ~ 81GHz								
Accuracy*2	F03,S03,B03 : <1.1m : ±10mm, ≥1.1m : ±3mm F06,S06,B06 : <1.1m : ±20mm, ≥1.1m : ±5mm F12,S12,B12 : <1.1m : ±20mm, ≥1.1m : ±10mm								
Beam Angle	Approx.4°(including side beam approx. 8°)								
Measuring Cycle*3	Approx.0.5s - 4s(when 24VDC is supplied)								
Resolution	1mm								
Allowable level change rate	30cm/s								
Allowable Temp	Ambient Temp.*4	-20°C ~ +80°C (Without condensation)							
	Process Temp.	-40°C ~ +200°C (Without condensation)							
Allowable Pressure	Max.490kPa						Atmospheric air pressure		
Enclosure	IP67(Housing cover and lead outlet firmly fixed)								
Lead outlet	1-G1/2(Applicable size: φ8mm to φ12mm)								
Output Signal	DC 4mA ~ DC 20mA								
Load resistance	Approx.545Ω (when 24VDC is supplied)								
Communication system	Bluetooth 5.0								
Mass	Approx.4.3kg			Approx.3.6kg			Approx.2.3kg		

*1 The load resistance depends on supply voltage.

The wiring load cannot exceed the max.

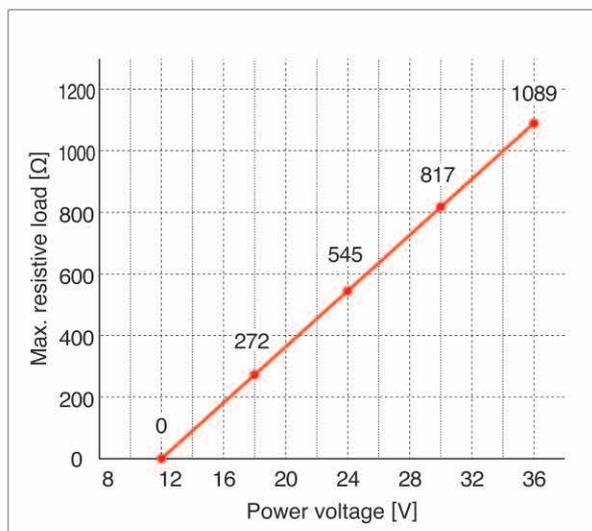
load resistance of the applying power voltage.(cf. Figure 1)

*2 Measuring range and accuracy specified above is of standard catalog specification and may change according to measurement conditions. Accuracy does not include analog error and temperature error.

*3 Measuring cycle depends on power supply and analog output signal.

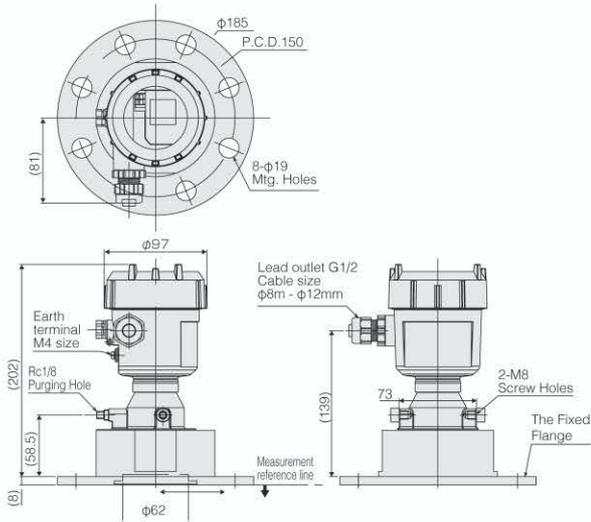
*4 The display turns off when the temperature is +70°C or higher.

Figure 1

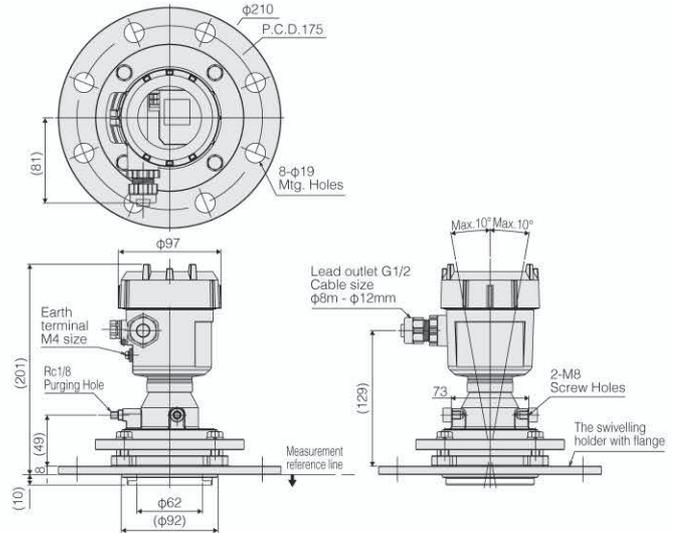


Dimensions(mm)

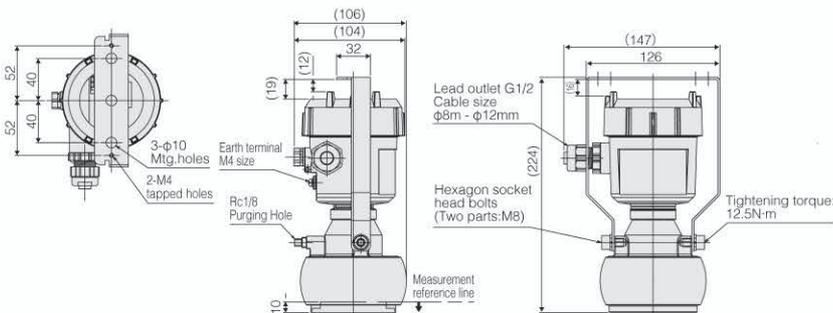
MWLM-FM79(F)



MWLM-FM79(S)



MWLM-FM79(B)



Every necessary information integrated in this one unit (Option)

Only 106mm width palm size unit fits in narrow space in the panel.



Signal Conditioner is generally used with 2-wire powered field instruments or current output units. It imports current signal and accordingly outputs DC4-20mA or DC1-5V and dry relay contacts. It is possible to check visual indication on the LCD digital panel.

Two kinds analog outputs

Analog outputs
- Current: DC4-20mA
- Voltage: DC1-5V

Alarm & Fault alert relay

Relay outputs x 4SPDT
- Alarm x 2, Fault alert x 1,
Sensor fault x 1

Specifications are subject to change without notice.
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Caution
•Read the instructions to ensure correct and suitable application of products.
•Contact our nearest sales office when using our products for any systems used in situations which may be life threatening.

Distributor



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