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Reliant RLM120 120G Radar Level Meter Catalog
File Number: RII202007LM



**R120-H/M/P 120-130GHz FMCW Radar Level Meter
(THZ WAVE BAND)**

BEST MEASUREMENT PERFORMANCE

- High accuracy non-contact level measurement
- The first THZ band industry radar in the world, extremely narrow beam angle, Lens antenna, high penetration, extremely good reliability
- High accuracy, high reliability, high price-quality ratio
- 4 to 20mA standard current output
- Standard HART/MODBUS/PROFIBUS communication
- TFT colored LCD, which can be operated directly sunshine.

TYPICAL APPLICATION

- High temperature high pressure reactor, huge tank, wave-guided tube measurement
- High accuracy level metering, perspective measurement
- Available in the situation of heavy dust, vapour, or with mixing, heater etc.

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OVERVIEW

RLM120 120GHZ FMCW Radar Level Meter is especially suitable for high temperature and high pressure or high dust and more-blender industrial and mining environment. It can meet the needs of large range and high precision measurement.

The 120GHz frequency of RLM120 has the electromagnetic characteristics of terahertz band, which makes it have the characteristics that other measurement radar products do not have. For example, it has the ability to penetrate non-polar substances (like ray properties). In the industrial environment with strong adhesion and strong dust, it has ideal measurement stability and environmental anti-interference ability, and does not need any purging device.

RLM120 also has a very small antenna beam angle and strong adaptive automatic gain function, so it does not need to use the sight configuration in most cases. This makes the installation conditions of RLM120 very simple and economical, and the debugging is fast.

The 120GHz frequency modulated continuous wave radar adopts 10GHz sweep bandwidth, and the fast Fourier transform calculation is realized by FPGA chip hardware. Our engineers and technicians creatively apply the diffraction wave separation and spectrum thinning algorithm to achieve the measurement accuracy of 0.217mm (Theoretical value) within 50m, and the range resolution of the static vertical reflector is 8mm. RLM120 only needs 80ms to complete the measurement process of 100m distance range, which enables the system to have more time and resources to deal with various problems in the application of level meter, such as probability assessment / prediction / credibility analysis / input / output / communication, etc.

RLM120 adopts PTFE lens antenna hermetically sealed design, and solves the structural treatment of antenna near-field radiation suppression, which makes it has good directivity performance, and the beam angle is controlled within 1 degree (the deviation may be about ± 0.3 degree due to the manufacturing process difference of batch products)

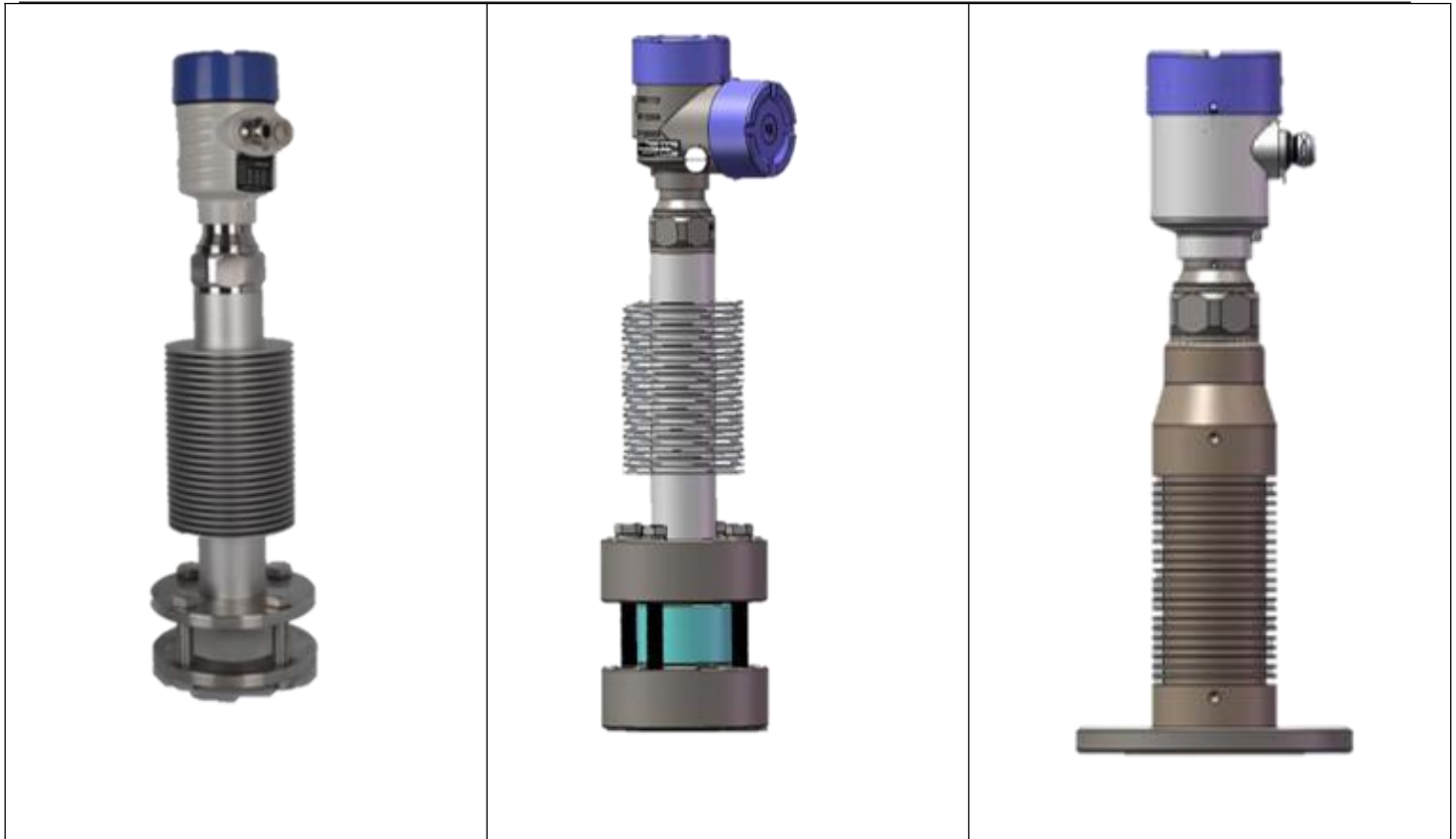


Standard Type



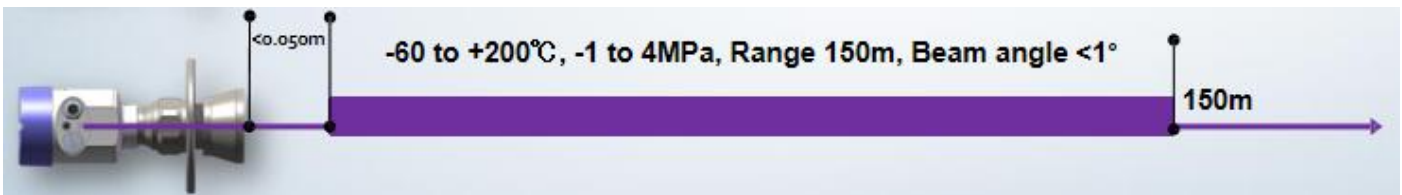
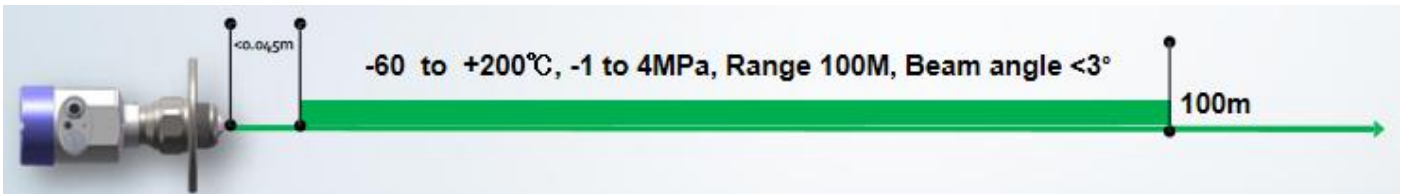
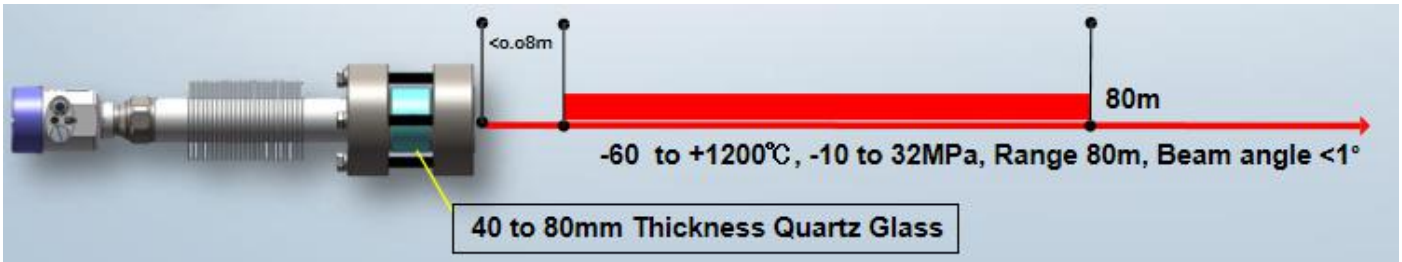
Aiming Type

Sanitary Type



High Temperature & High Pressure Type

MEASURING RANGE/PROCESS TEMPERATURE/PROCESS PRESSURE

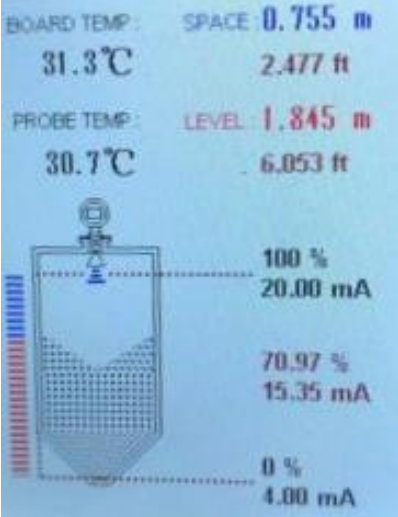
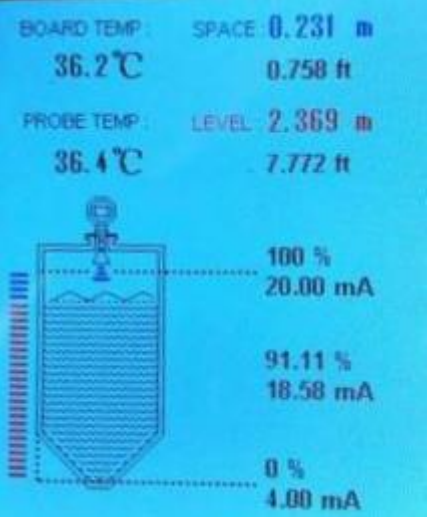
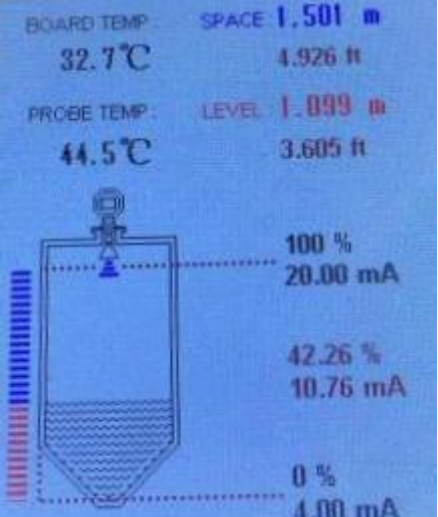


TECHNICAL PARAMETERS

Frequency	120 to 130GHz, frequency sweep 10GHz
Range	0.01 to 50/100/150m (Min Near Range <0.05m)
Resolution	0.1mm
Accuracy	<+/-0.7mm
Beam angle	0.7°
Dimensions	253mm x 97mm x 97mm(without flange)
Connection	M48*2
Case Material	Casting Aluminum or stainless steel
Antenna	Lens, PTFE / PEEK / PE (It can be equipped with lens antenna shield / anticorrosive antenna / antenna heat sink / quartz isolation flange)
Signal output	1 way: 4 to 20mA output.....(option) 1 way: HART/MODBUS/PROFIBUS communication..... (option) 1 way: RS485 communication(connect to PC software)
Communication	4-20mA / HART / MODBUS / PROFIBUS Configurable computer setting software / Wi Fi / BT+ mobile app / Tank side monitor / IOT (LORA)
False Output	22mA or 20.5mA(can be adjusted)
Process temp.	-60 to 200 °C / -60 to1200 °C (With Antenna Radiator /Quartz isolation flange)
Process humidity	≤95%RH
Process pressure	-1 to 4MPa; -10 to 32MPa(With Quartz Isolation Flange)
Power supply	4-wire, 16 to 36VDC (typical 24VDC) / 110 to 250VAC/50Hz/60Hz or 2-wire
Adjustment	PC software/Keypad/Apps/Tank side meter 320*240Dot TFT colored LCD which can be operated in the sun / 4keys
Casing material	Aluminum
Connection	M20x1.5(φ5..9mm)
Protection	IP68

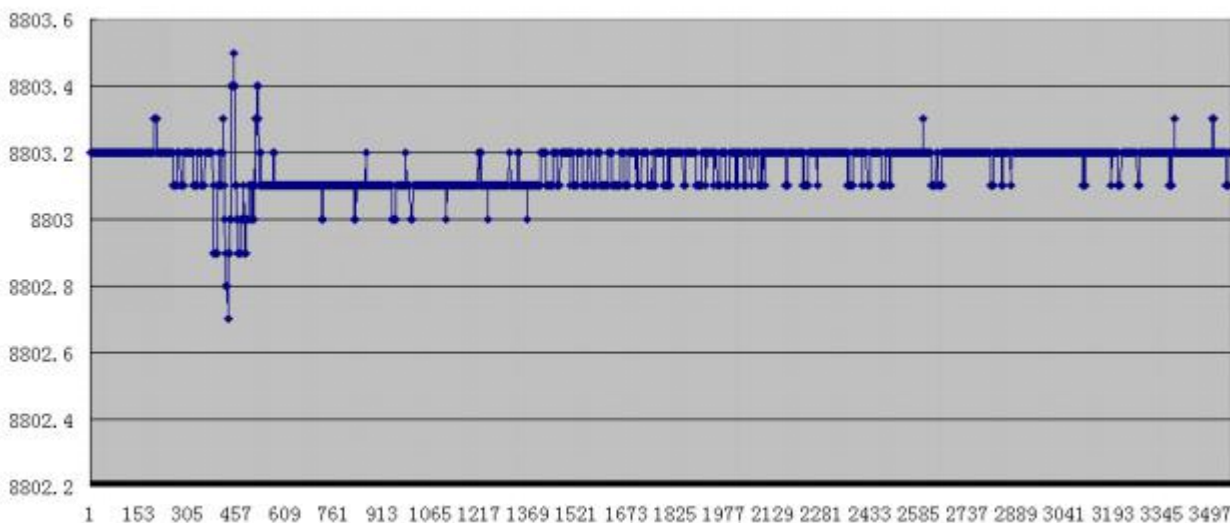
FRIENDLY GRAPHICAL USER INTERFACE

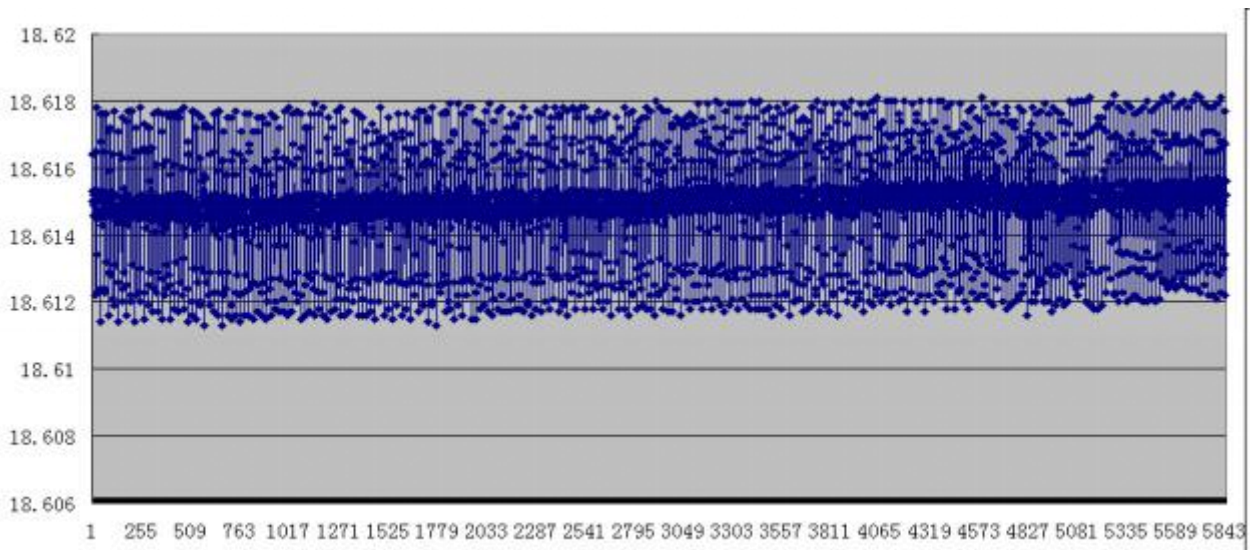
The 120GHZ THz FMCW Radar Level Meter Graphical User Interface (GUI) has a powerful and intuitive display interface, which can be directly to display all information: **level, space, 4-20mA current, Percentage, material properties, material characteristics and wastage line.**

 <p>BOARD TEMP: 31.3°C SPACE: 0.755 m / 2.477 ft PROBE TEMP: 30.7°C LEVEL: 1.845 m / 6.053 ft</p> <p>100% / 20.00 mA 70.97% / 15.35 mA 0% / 4.00 mA</p>	 <p>BOARD TEMP: 36.2°C SPACE: 0.231 m / 0.758 ft PROBE TEMP: 36.4°C LEVEL: 2.369 m / 7.772 ft</p> <p>100% / 20.00 mA 91.11% / 18.58 mA 0% / 4.00 mA</p>	 <p>BOARD TEMP: 32.7°C SPACE: 1.501 m / 4.926 ft PROBE TEMP: 44.5°C LEVEL: 1.099 m / 3.605 ft</p> <p>100% / 20.00 mA 42.26% / 10.76 mA 0% / 4.00 mA</p>
Powered Material	Foam Liquid	Oily Liquid

PRODUCT OUTPUT STABILITY

The under pictures are the distance and current output data record of the RLM120 at the temperature in the -35 to 80°C cyclic alternating environment for a continuous 72 hours.





APPLICATION

Industries

- ◆ Chemicals
- ◆ Food & Beverages
- ◆ Machinery
- ◆ Minerals & Mining
- ◆ Oil & Gas
- ◆ Pharmaceuticals
- ◆ Power Plant
- ◆ Pulp & Paper
- ◆ Water
- ◆ Waste Water

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