

Antenna brochure

Smart meters



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The ideal module and antennas for smart metering

For the right balance of power consumption, throughput and size



BC660K-GL

Multi-band LTE Cat NB2 module



YSIS001AA

LPWA/ISM SMT mount spring + holder monopole embedded antenna



YECW000N1A

4G screw mount low profile PIFA external antenna



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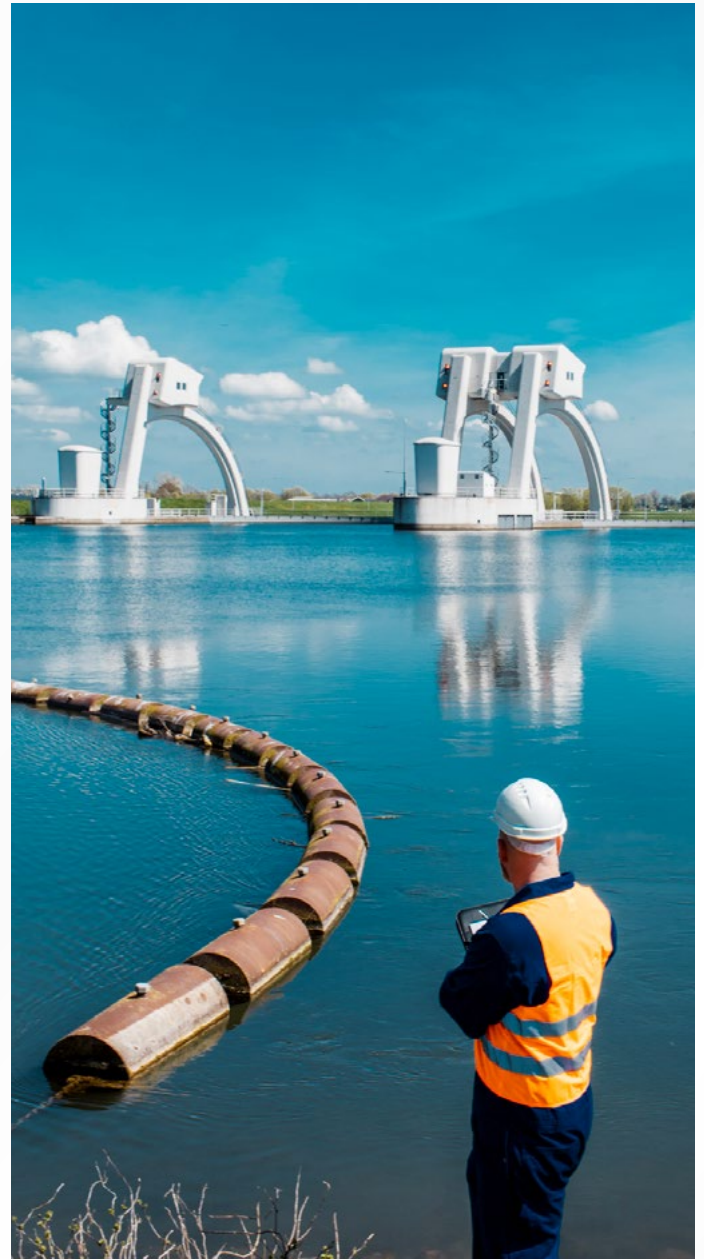
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NEW SMARTNESS FOR AN ECO-AWARE WORLD

Meters are fundamental enablers of minimizing human impacts on the environment. In water delivery, meters highlight leaks and excess consumption, in gas distribution, meters can help users control consumption and provide essential safety alerting in the event of leakage, and in electricity, meters are underpinning the two-way models enabled by renewables by adding intelligence at the edge to analyze, communicate and act on consumption data.

We're truly in the smart era now where meters have become smart by adding connectivity so human meter-reading visits can be eradicated. This saves costs, enables more timely and accurate billing and enables greater depth of data to be collected. That connectivity is typically enabled by wireless connectivity and some of the largest connected device deployments in the world are of smart meters. The Indian market alone is targeting deployment of 250 million smart meters by 2027.¹

There are significant differences to consider between water meters, which have very long lifespans of two decades or more and rely on batteries for power, and electricity meters, which have lifespans of about a decade and can be powered from the electricity supply they monitor. A common factor for all types of smart meters is that they are typically located in hard-to-reach places such as basements so their ability to connect to networks needs to be considered with care. The needs of meters appear to be most closely aligned with low power wireless connectivity such as LoRa or NB-IoT.

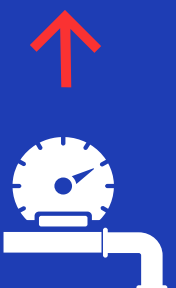


¹ <https://energy.economictimes.indiatimes.com/news/power/india-targets-250-million-smart-meters-by-2027-20-billion-opportunity-in-energy-management/114162408>



The Indian market alone is targeting deployment of

250 million
SMART METERS
by 2027





To overcome problems with communications in harsh environments or difficult to reach locations the metering industry in Europe in particular is using the 450MHz band with multiple radio access technologies including narrowband-IoT (NB-IoT), Cat M and LTE, with future introduction of 5G being planned in some markets. Generally, lower frequencies offer better propagation with lower power consumption.

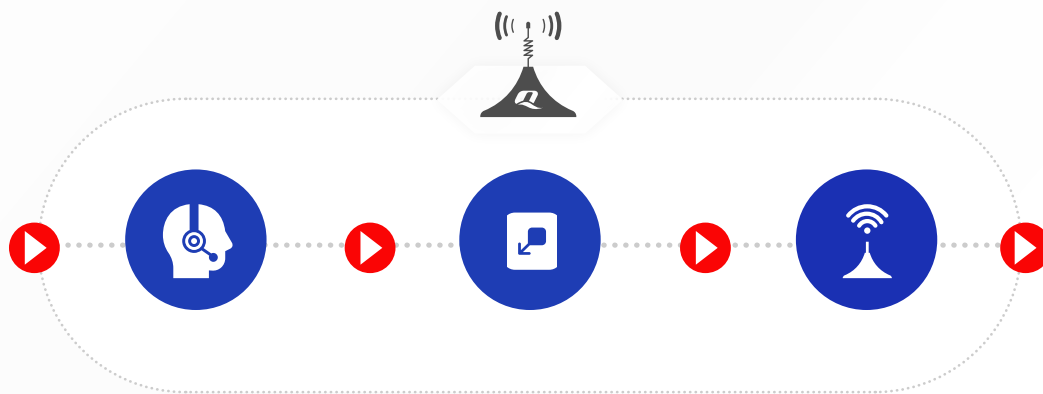
2G and 3G cellular networks are being retired across the globe, although in some markets the lifespan of 2G is being extended purely to support smart meter contractual obligations. That leaves 4G LTE as the most popular cellular option for smart metering.

Low power variants such as LTE-M provide the power efficiency, data throughput and cost blend that matches the needs of smart metering.

With the introduction of eDRX and PSM which help reduce the module power consumption the LTE the Cat 1 and Cat 1 bis modules are becoming of interest also for metering applications mainly for electricity meters and can serve use cases where more bandwidth is needed. Continued deployment of NB-IoT capacity will see it gain further traction but few expect 5G to be utilized because smart meters simply don't need the capacity 5G offers and its cost is therefore hard to justify.

Quectel's off-the-shelf and customized high-performance antenna portfolio boosts wireless connectivity significantly for smart meters by offering the highest quality antenna and module products in the industry. Our antennas fit a range of meter deployment scenarios, mounting options, combinations and environmental requirements with both embedded and external solutions.

As your smart meter development progresses, Quectel's engineers will help you through the cycle, making the antenna design journey easier and faster. Our well-established test facilities are equipped with the latest state-of-the-art equipment to perform any RF testing to assist and support you during antenna design and performance/qualification testing.



EXAMPLES

- Off-the-shelf and customized high-performance
- Highest quality antenna and module products in the industry
- Portfolio boosts wireless connectivity significantly for smart meters
- Antennas fit a range of meter deployment scenarios
- Multiple functions work together seamlessly out-of-the-box
- Established test facilities equipped with latest state-of-the-art equipment



APPLICABLE ANTENNAS

Quectel's comprehensive range of antennas includes both external and embedded antennas that support 450MHz and LTE.

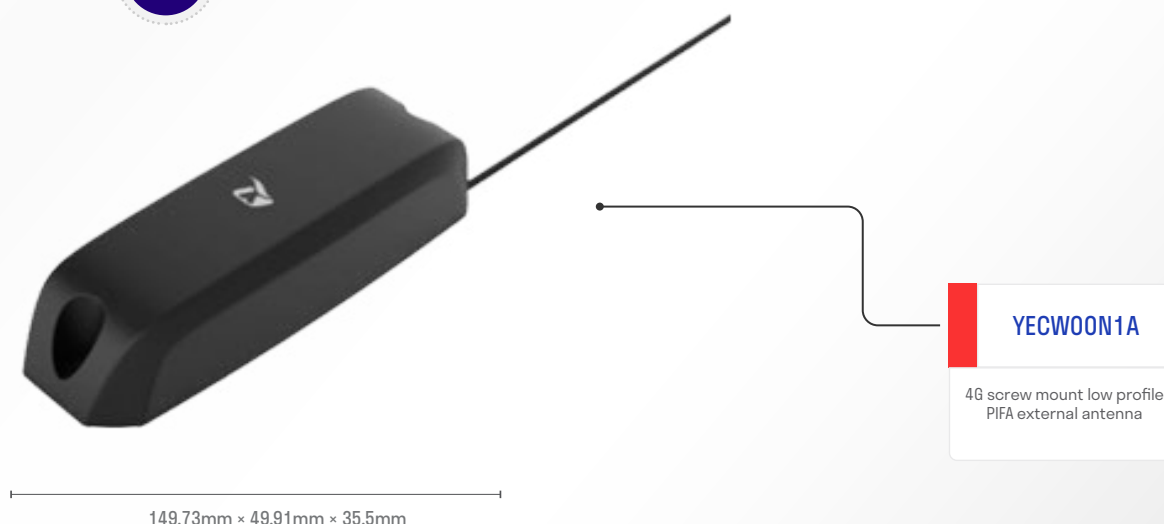
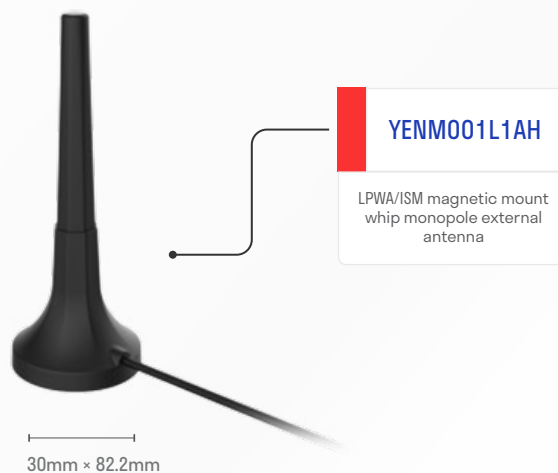
EXTERNAL ANTENNAS

The Quectel portfolio includes the YECN001L1A, YEMN117L1B, YECM000M5AH and YECW00N1A 450MHz and LTE antennas plus the YENM001L1AH 450MHz antenna.

The Quectel [YEMN117L1B](#) is a screw-mount, low-profile, monopole antenna that operates in the 410-470MHz and 700-2690MHz frequency ranges. With an IP67 rating and both REACH and RoHS compliant, the antenna has a diameter of 108mm and height of 45mm.

The Quectel [YECW00N1A](#) is a screw-mount, low-profile PIFA external antenna that operates in the 450-470MHz, 700-960MHz and 1710-2690MHz bands. RoHS compliant, the antenna has dimensions of 149.73mm x 49.91mm x 35.5mm.

The Quectel [YENM001L1AH](#) is an LPWA magnetic mount whip monopole external antenna that operates in the 433-435MHz and 450-470MHz bands. It is RoHS and REACH compliant with an IP67 rating. Dimensions are 30mm diameter by 82.2mm height.



EMBEDDED ANTENNAS

Quectel offers the YFCA010AA and YPCA006AA 450MHz and LTE antennas, the YSIS001AA 450MHz antenna, and the YMCP003AA and YFNP017WWA LTE antennas.

The Quectel [YFCA010AA](#) is a 450MHz and 5G adhesive mount FPC and cable dipole embedded antenna that operates in the 410-470MHz, 700-960MHz and 1400-6000MHz frequency ranges. Operating in the same frequency ranges, the Quectel YPCA006AA is a 450MHz and 5G adhesive mount PCB and cable dipole embedded antenna. Ground plane independent, both these antennas are designed to be mounted directly to the underside of a plastic or non-metallic enclosure and are optimized for 5G, LTE 450 and UWB networks.

The Quectel [YSIS001AA](#) is a 450MHz LPWA/ISM SMT mount spring and holder monopole embedded antenna. Operating in the 433-435MHz frequency band the antenna is REACH and RoHS compliant and has dimensions of 29mm x 7mm x 7mm.

Quectel's LTE antennas optimized for smart meter use cases include the [YMCP003AA](#) metal shrapnel antenna. Operating in the 790-960MHz frequency range, this high-efficiency antenna can be mounted to the host device PCB. It has dimensions of 40.99mm x 6.68mm x 3.99mm and is RoHS compliant.

The Quectel [YFNP017WWA](#) is an LPWA/ISM SMT mount PCB chip monopole embedded antenna. Operating at 868MHz, 915MHz and in the 790-960MHz frequency range, the antenna has dimensions of 25mm x 7mm x 3mm and is RoHS and REACH compliant.



YFNP017WWA

LPWA/ISM SMT mount PCB
chip monopole embedded
antenna



105.53 x 25mm x 0.8mm

YFCA010AA

5G adhesive mount FPC +
cable dipole embedded
antenna



138.8mm x 16.2mm

YSIS001AA

LPWA/ISM SMT mount
spring + holder monopole
embedded antenna



185mm x 90mm x 1mm



To find out more about any of our
products, please contact:

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↗ support@quectel.com



Build a smarter world