QUANTERRA

A Division of Kinemetrics

QUANTERRA MESH EXTENDER

QME

Quanterra Mesh Extender (QME)

ULTRA-LOW POWER, WIRELESS. MODULAR, ENCRYPTED INSTRUMENT INTERFACE

The QME is a secure wireless peripheral for the Quanterra® Q8 ultra-high resolution data acquisition system. The QME enables the mesh network capabilities of the Q8, wirelessly extending its reach to weather stations and other critical sensors.

The QME allows wireless connection of one or more weather stations and ancillary monitoring and control, improving signal integrity by eliminating ground loops. Each Q8 can monitor several QME peripherals, with each QME located up to 100 meters from the Q8 and/or each other via mesh network technology. This encrypted network can extend the range of Q8 connectivity, without the impact of long cables and the associated technical challenges of installation, such as trenching and conduits, while reducing lightning susceptibility. The QME also enables low-rate digital control, as well as low-rate digital and analog monitoring.

FEATURES

Extremely low power, light weight and small size
Increasing the capabilities of seismic stations in the world's most remote locations. QME has a low average power of 35mW with LEDs off, enabling fewer batteries, cables and solar panels, meaning lower costs and simpler logistics.

Fully Integrated into the Q8 System
Once paired with a Q8, control and data collection are handled through the Q8's interface, seamlessly integrated with the Q8 data collection, with NO ground loops, improving data quality.

Modular Expansion
Multiple QMEs may be incorporated into existing systems or form the backbone of new systems, with zero impact

Built-in Independent Monitoring
QME includes a high resolution, integrated pressure and temperature sensor, which complements measurements from a connected weather station. With its universal pressure connection, this allows pressure and temperature measurements to be collected by the QME alone.

Analog Monitoring
The QME allows low-rate wireless monitoring of low rate analog signals, such as motion detector, battery voltage, tiltmeter, extensometer, or water level. These data are seamlessly integrated into the Q8 data stream.

Digital Monitoring
QME allows monitoring of several digital signals. These data are seamlessly integrated into the Q8 data stream.

Digital Controls
QME enabled digital control of several channels, for remote operation of critical infrastructure.

Mesh Enabled
A Q8 may be paired with one or more QME units, with each QME connecting to the Q8 and/or through other paired QMEs. This mesh network may be extended in space through the placement of multiple QMEs, which will form a dynamic mesh network, passing data from each QME to the Q8 base station, requiring no user intervention.

Survivability
Physically separated instruments significantly improve station resilience.

Continued

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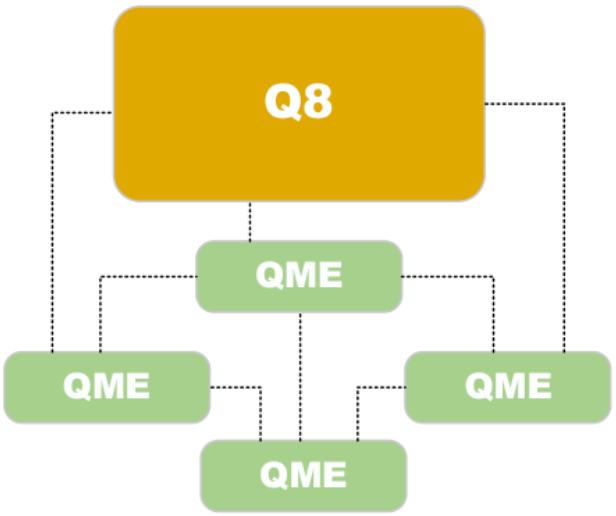
SPECIFICATIONS

Interfaces	Weather Station 4 Digital Inputs 4 Digital Output Relays 3 Analog Inputs, Single Ended 2 Analog Inputs, Differential
Weather Station	***Single cable, serial interface and WS power passthrough with:*** WS Heater Power Detection Wind Speed and Direction Temperature Humidity Hi-res Barometric Pressure Rain Intensity
Digital In/Out	Four isolated digital inputs Logic 1: 2-15 VDC Logic 0: 0-2 VDC Four isolated relay outputs (max 12V, 40mA)
Analog Input	3 single-ended inputs 64Vpp 2 differential inputs 64 Vpp 2mV resolution
Sample Rate	1 Sample Per Second
Time Accuracy	<1µs (connected to Q8 with GNSS lock)
Cross-talk	Typical better than -140dB
Temperature	Fully specified -40 to +60° C
Security	Over air 128-bit encryption

Internal Barometer	300-1200 hPa, (10dB improvement over QEP)
Power	12VDC nominal (10-24 VDC operational) Protection: resettable fuses, reverse polarity, and short circuit, 35mW with LEDs off
Auxiliary Data	Optional: Wireless Mesh Network for low baud rate communications, such as SOH output or meteo sensor input
Physical	Sealed, machined enclosure 4.8 x 4.9 x 2.9 in 500 grams IP67 or better
Mesh Capable	Up to 100 meters



*Specifications subject to change without notice

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01-27-25