Q-PMU 9/18/36

Phasor Measurement Units (PMU)

A scalable and modular platform for substation hardened PMUs

- **Synchronized streaming support for maximum of 36 phasors and 64 digital inputs**
- **Modular and scalable platform with full compliance to IEEE C37.118 (2005)**
- **Simple configuration using standard web browsers**

Product Summary

Description **A scalable and modular substation hardened PMU for connection to up to ten three-phase circuits to calculate and stream phasors in compliance to the IEEE C37.118 (2005) specification**

Application **A distributed architecture for system wide PMU installations at various generation, transmission and distribution locations. Enables various wide area measurement, protection and automation applications based on streaming synchronized phasor measurements and digital status. Flexible and optimized channel utilization for effective high-speed transmission applications to low cost distribution synchronizing applications**

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Defining Reliability

Q-PMU 9/18/36 - Phasor Measurement Units (PMU)

A scalable and modular platform for substation hardened PMUs	• 9 analog and 32 digital channels (Q-PMU 9), 18 analog and 32 digital channels (Q-PMU 18), 36 analog and 64 digital channels (Q-PMU 36)
Synchronized streaming support for maximum of 36 phasors and 64 digital inputs	• The Q-PMU 9 device can be configured to monitor one full circuit (3 phase voltages and 3 phase currents) or two circuits if a common voltage source is assumed • The Q-PMU 18 device can be configured to monitor three or five circuits • The Q-PMU 36 device can be configured to monitor six or ten circuits • The digital status can be used in state estimators to determine network configuration
Modular and scalable platform with full compliance to IEEE C37.118 (2005)	• Measurements to less than 1% TVE over a wider dynamic range of current and voltage inputs than required by C37.118 (2005) • Flexible frame rates up to 50 / 60 Hz to optimize communications channel utilization • Analog values such as real, reactive, apparent power and sequence components can be appended to the phasor stream
Simple configuration using standard web browsers	• Complies to industry security requirements • No need for any other software package

TECHNICAL SPECIFICATIONS

Power supply	Voltage range	88 to 250 VAC, 88 to 300 VDC; option 35 to 65 VDC
	Power (max load)	40 VA (for Q-PMU 9). 80 VA (for Q-PMU 18 and Q-PMU 36)
Front panel	LED indicators	9 available indicating power on, unit healthy, comms in progress, clock synchronized, alarm and 3 general status
Analog channels	Quantity	9, 18 or 36 - can be voltage or current as required
	Resolution	20 bits for current and 16 bits for voltage inputs
	Accuracy	**Current:** 1% TVE maintained between 10% and 120% of nominal. Nominal can be 1 A or 5 A (FSD can be 10 or 20 times nominal) **Voltage:** 1% TVE maintained between 10% and 120% of nominal. Nominal can be 63.5 V (FSD 140 V), 120 V (FSD 270 V), 240 V (FSD 480 V) or 440V (FSD 800 V)
Digital channels	Quantity	32, 64 or - wide ranging input from 48 to 250 VDC (24 to 250 VDC optional)
Performance	Sample rate	512 samples / cycle
	Clock	Built-in real time clock synchronized by GPS module, IRIG-B (with 1pps), IRIG-J
	Accuracy	1µs when locked
Communication	Ethernet ports, Q-PMU 9 / 18	2 provided - RJ45 for local connection at the front. RJ45 (with option for fibre) on the rear port to stream phasors
	Ethernet ports, Q-PMU 36	4 provided - 2 x RJ45 for local connection at the front. 2 x RJ45 (with option for fibre) on the rear port to stream phasors
Phasors	To C37.118	Frame rates up to 50 or 60 Hz. Single phase phasors or sequence components
Environmental, Immunity and Mechanical	Temperature	Operating: -5 to +50° C [23 to 122° F]. Storage: -30 to +70° C [-22 to 158° F]
	IEEE, EU and IEC	Conforms to relevant specifications for monitoring / control equipment in HV substations
	Dimensions, Q-PMU 9	3U, 19" rack mount. Height 132.5mm [5.2"]; width 487mm [19.2"]; depth 362.2mm (14.3")
	Dimensions, Q-PMU 18 / Q-PMU 36	6U, 19" rack mount. Height 265.8 mm [10.5"]; width 487 mm [19.2"]; depth 362.2 mm [14.3"]

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