

Technical Specifications

MONITORING

UNDERVOLTAGE MONITORING

Required voltage: 20 V applied
Pickup level: 0.50 - 0.99 in steps of 0.01 \times VT
Dropout level: 103% of pickup
Time delay: 0.5 - 600.0 in steps of 0.5 sec
Phases: Any one/any two/all three (programmable) phases have to go below pickup to operate
Level accuracy: Per voltage input
Timing accuracy: -0/+1 sec

OVERVOLTAGE MONITORING

Pickup level: 1.01 - 1.25 in steps of 0.01 \times VT
Dropout level: 97% of pickup
Time delay: 0.5 - 600.0 in steps of 0.5 sec
Phases: Any one/any two/all three (programmable) phases have to exceed pickup to operate
Level accuracy: Per voltage input
Timing accuracy: -0/+1 sec

UNDERFREQUENCY MONITORING

Required voltage: 20 V applied
Pickup level: 20 - 70.00 in steps of 0.01 Hz
Dropout level: Pickup +0.03 Hz
Time delay: 0.1 - 10.0 in steps of 0.1 sec
Level accuracy: \pm 0.02 Hz
Timing accuracy: \pm 3 cycles

OVERFREQUENCY MONITORING

Required voltage: 20 V applied
Pickup level: 20 - 70.00 in steps of 0.01 Hz
Dropout level: Pickup -0.03 Hz
Time delay: 0.1 - 10.0 in steps of 0.1 sec
Level accuracy: \pm 0.02 Hz
Timing accuracy: \pm 3 cycles

POWER FACTOR MONITORING

Required voltage: 20 V applied
Pickup level: 0.50 lag - 0.50 lead in steps of 0.01
Dropout level: 0.50 lag - 0.50 lead in steps of 0.01
Time delay: 0.5 - 600.0 in steps of 0.5 sec
Timing accuracy: -0/+1 sec

SAMPLING MODES

	SAMPLES/ CYCLE	INPUTS SAMPLED AT A TIME	DURATION (CYCLES)
Metered values	64	ALL	2
Trace memory	16	ALL	continuous
Harmonic spectrum	256	1	1

DEMAND MONITORING

Measured values: Phase A/B/C/N current (A)
 3 ϕ real power (kW)
 3 ϕ reactive power (kvar)
 3 ϕ apparent power (kVA)
Measurement type: Thermal exponential
 90% response time (programmable):
 5 - 60 min, steps of 1 min
 Block interval/rolling demand time in interval (programmable): 5 - 60 min, steps of 1 min
Pickup level:
 A: 10 - 7,500 in steps of 1
 kW: 0.1 - 6,500.0 in steps of 0.1
 kvar: 0.1 - 6,500.0 in steps of 0.1
 kVA: 0.1 - 6,500.0 in steps of 0.1

METERING

MEASURED VALUES

PARAMETER	ACCURACY (% of full scale)	RESOLUTION	RANGE
Voltage	\pm 0.2%	1 VOLT	20% of VT - 100% of VT
Current	\pm 0.2%	1 A	1% of CT - 150% of CT
Voltage unbalance	\pm 1%	0.1%	0 - 100.0%
Current unbalance	\pm 1%	0.1%	0 - 100.0%
kW	\pm 0.4%	0.01 kW	0 - 999,999.99 kW
kvar	\pm 0.4%	0.01 kvar	0 - 999,999.99 kvar
kVA	\pm 0.4%	0.01 kVA	0 - 999,999.99 kVA
kWh	\pm 0.4%	1 kWh	2^{32} kWh
kvarh	\pm 0.4%	1 kvarh	2^{32} kvarh
kVAh	\pm 0.4%	1 kVAh	2^{32} kVAh
Power factor	1%	0.01	\pm 0.0 - 1.0
Frequency	0.02 Hz	0.01 Hz	20.00 - 70.00 Hz
kW demand	\pm 0.4%	0.1 kW	999,999.99 kW
kvar demand	\pm 0.4%	0.1 kvar	999,999.99 kvar
kVA demand	\pm 0.4%	0.1 kVA	999,999.99 kVA
Amps demand	\pm 0.2%	1 A	0 - 7,500 A
Amps THD	\pm 2.0%	0.1%	0.0 - 100.0%
Volts THD	\pm 2.0%	0.1%	0.0 - 100.0%
Crest factor	\pm 0.4%	-	1 - 9.99

*Specifications subject to change without notice.

INPUTS

AC CURRENT

Conversion: True RMS, 64 samples/cycle
CT input: 1 A and 5 A secondary
Burden: 0.2 VA
Overload: 20 \times CT for 1 sec
 100 \times CT for 0.2 sec
 150% of CT
Full scale: up to 32nd harmonic
Frequency: \pm 0.2% of full scale, true RMS
Accuracy:

AC VOLTAGE

Conversion: True RMS, 64 samples/cycle
VT pri/sec: Direct or 120 - 72,000: 69 - 240
 20 - 600 VAC
Input range: 150/600 VAC autoscaled
Full scale: <0.1 VA
Burden: up to 32nd harmonic
Frequency: \pm 0.2% of full scale, true RMS
Accuracy:

SWITCH INPUTS

Type: Dry contact
Resistance: 1,000 Ω max ON resistance
Voltage: 24 VDC @ 2 mA
Duration: 100 ms minimum

ANALOG INPUT

Range: 4 - 20 mA
Accuracy: \pm 1% of full scale
Relay output: Programmable 4 - 20 mA
Internal burden resistance: 250 Ω

PULSE INPUT

Max inputs: 4
Min pulse width: 150 ms
Min off time: 200 ms

COMMUNICATIONS

COM1/COM2 type: RS485 2-wire, half duplex, isolated
COM3 type: RS232, 9PIN
Baud rate: 1,200 - 19,200 bps
Protocol: ModBus[®] RTU and DNP 3.0 level 2
Functions: Read/write setpoints
 Read actual values
 Execute commands

POWER SUPPLY

CONTROL POWER

Input: 90 - 300 VDC
 70 - 265 VAC 50/60 Hz
Power: 10 VA nominal, 20 VA maximum
Holdup: 100 ms typical @ 120 VAC/VDC

ENVIRONMENTAL

Humidity: 95% non-condensing
Temperature: -10 $^{\circ}$ C to +60 $^{\circ}$ C ambient
Environment: IEC 68-2-38
 temperature/humidity cycle

PACKAGING

Shipping box: 8 1/2" L \times 6" H \times 6" D
 (215 mm \times 152 mm \times 152 mm)
Ship weight: 5 lbs (2.3 kg)
NOTE: LCD contrast impaired below -20 $^{\circ}$ C

OUTPUTS

ANALOG OUTPUTS

Accuracy: \pm 1% of full scale reading

	OUTPUT	
0 - 1 mA (F1 Option)	0 - 20 mA	4 - 20 mA (F20 Option)
Max load	2400 Ω	600 Ω
Max output	1.1 mA	21 mA

Isolation: 50 V isolated, active source

OUTPUT RELAYS

Voltage	Make/Carry Continuous	Make/Carry 0.2 SEC	Break
30 VDC	5	30	5
Resistive 125 VDC	5	30	0.5
250 VDC	5	30	0.3
30 VDC	5	30	5
Inductive 125 VDC	5	30	0.25
(Vr = 7ms) 250 VDC	5	30	0.15
120 VAC	5	30	5
Resistive 250 VAC	5	30	5
Inductive 120 VAC	5	30	5
PF = 0.4 250 VAC	5	30	5
Configuration	FORM C NO/NC		
Contact material	SILVER ALLOY		

PULSE OUTPUT

Parameters: +ve kWh, -ve kWh, +ve kvarh,
 -ve kvarh, kVAh
Interval: 1 - 65000 in steps of 1
Pulse width: 100 - 2000 ms in steps of 10 ms
Min pulse interval: 500 ms

TYPE TESTS

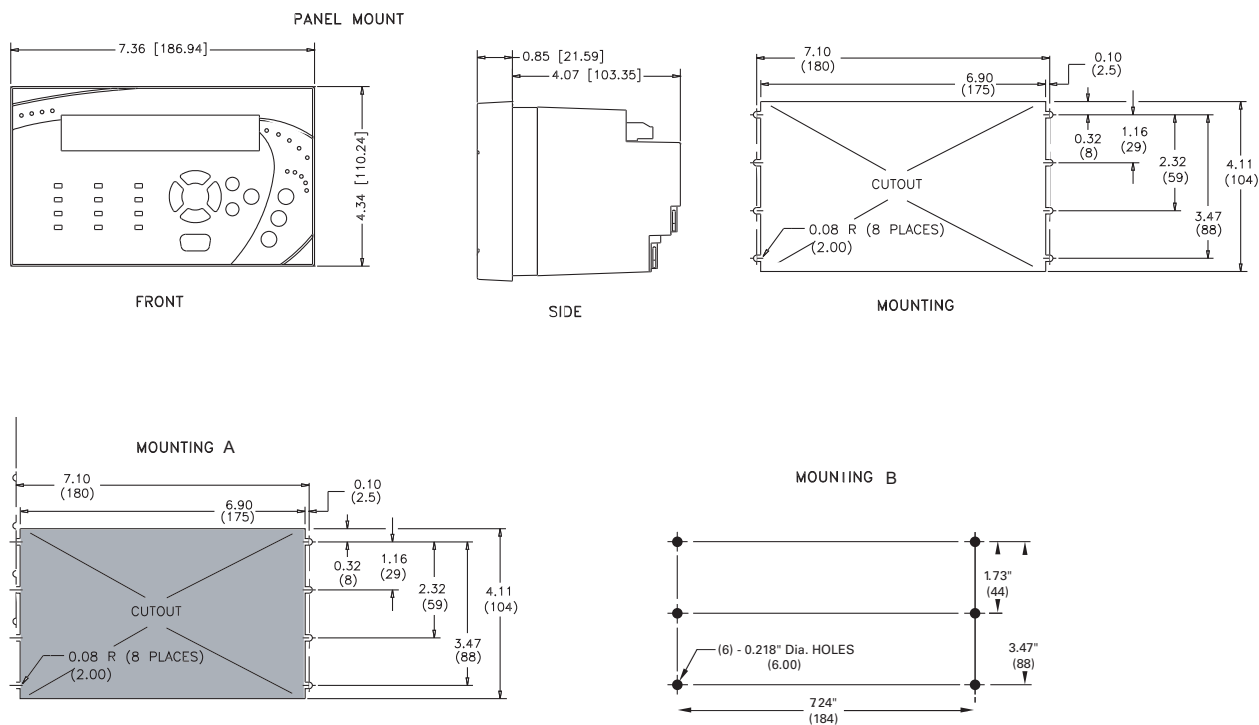
Dielectric strength: 2.0 kV for 1 min to relays, CTs, VTs, power supply
Insulation resistance: IEC255-5 500 VDC
Transients: ANSI C37.90.1 oscillator
 2.5 kV/1 MHz
 ANSI C37.90.1 fast rise
 5 kV/10 ns
 Ontario Hydro A-28M-82
 IEC255-4 impulse/high frequency disturbance
 Class III Level
Impulse test: IEC 255-5 0.5 J 5 kV
RFI: 50 MHz/15 W transmitter
EMI: C37.90.2 electromagnetic interference
 @150 MHz and 450 MHz, 10 V/m
Static: IEC 801-2 static discharge

Note: Type test report available upon request.

APPROVALS

ISO: Manufactured to an ISO9001 registered program
UL & cUL: Recognized under E83849
 Conforms to EN 55011/CISPR 11, EN 50082-2
CE: Conforms to IEC 947-1, IEC 1010-1

PQM II Dimensions



Ordering

PQM II	*	*	*	Description
PQM II				Basic unit with display, all current/voltage/power measurements, 1-RS485 comm port, 1 RS232 comm port
T20				Transducer option; 4 isolated analog outputs 0 – 20 mA and 4 – 20 mA, assignable to all measured parameters, 4 – 20 mA analog input, 2nd RS485 comm port
T1				Transducer option; 4 isolated analog outputs 0 – 1 mA, assignable to all measured parameters, 4 – 20 mA analog input, 2nd RS485 comm port
C				Control option; 3 additional programmable output relays (total of 4), 4-programmable switch inputs
A				Power analysis option; harmonic analysis, triggered trace memory waveform capture, event record, data logger, voltage disturbance recorder (VDR)

Modifications:

MOD-501:	20 – 60 VDC/20 – 48 VAC control power
MOD-502:	Tropicalization
MOD-504:	Removable terminal blocks
MOD-507:	-40 to +60° C temperature operation

Control Power:

90 – 300 VDC/70 – 265 VAC standard
~~20 – 60 VDC/20 – 48 VAC (MOD-501)~~

Accessories for the PQM II:

Multilink Ethernet Switch	ML1600-HI-A2-A2
Multinet	Multinet-FE
Viewpoint Monitoring	VP-1

Visit www.GEMultilin.com/PQMII to:



- View Guideform Specifications
- Download the instruction manual
- Review applications notes and support documents
- Buy a PQM II online