

Application

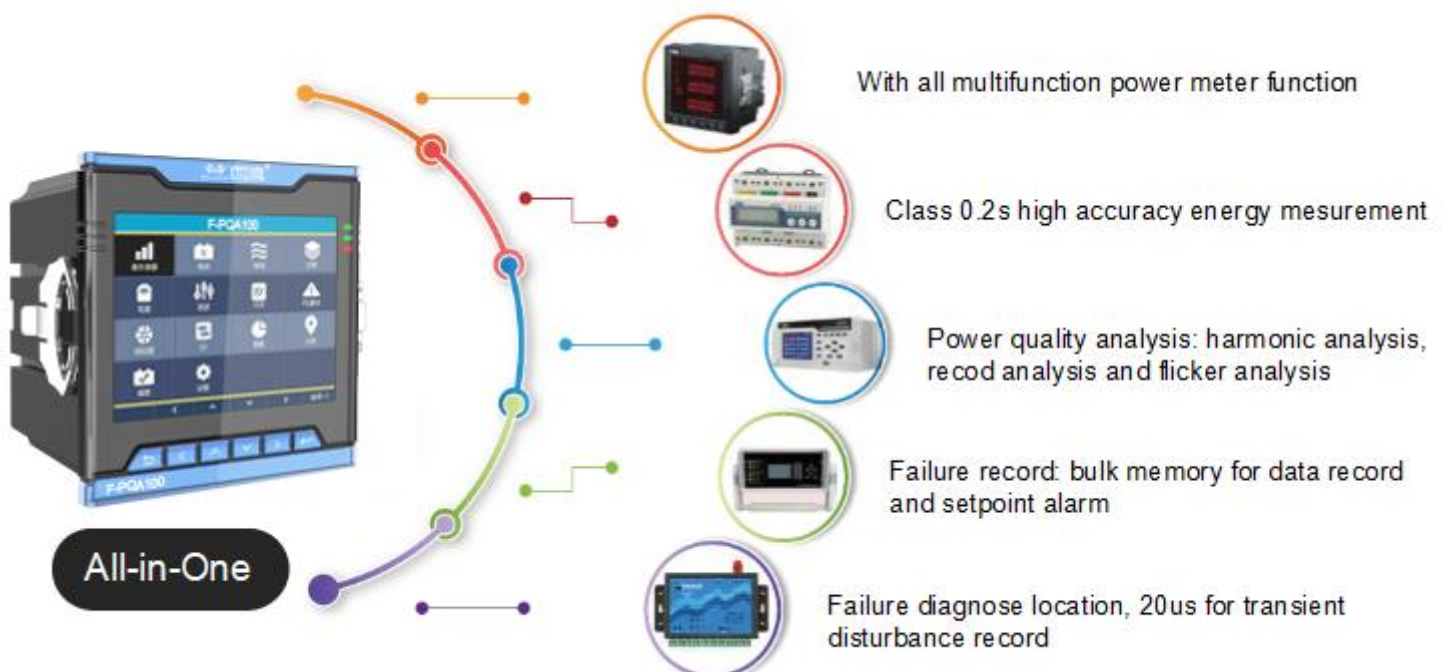
- Power Quality Management System
- Harmonic Analysis
- Energy Supply failure analysis
- Voltage Sag Source Location
- Transient disturbances location



Main Function

- **Class A Power Quality Measurement:** Harmonic and inter-harmonic, voltage deviation, frequency deviation, unbalance, fluctuation and flicker, transient disturbances, EN50160 statistics
- **Class 0.2s Accuracy:** Harmonic, fundamental harmonic, sub-harmonics energy
- **High Resolution Failure Record:** support 1024 point/cycle, Min.transient disturbance record for 20us
- **Failure Diagnose Location:** support voltage sag source, harmonic source, flicker source, asymmetric source location and power supply failure type diagnose
- **Full Real-time Data Measurement**

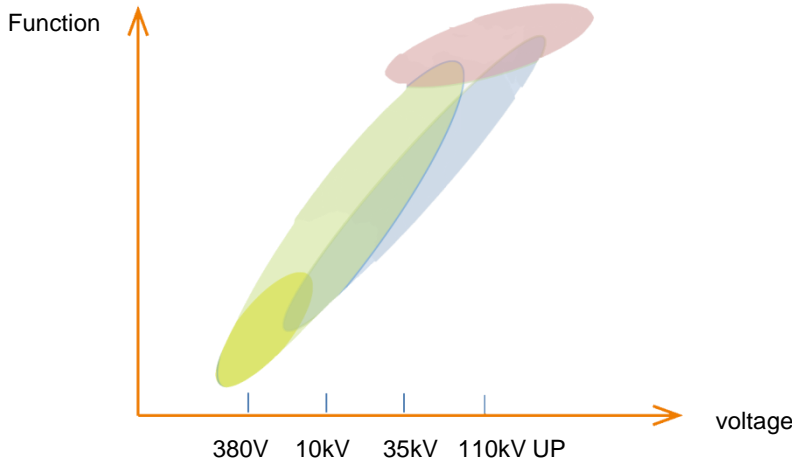
Feature



Measurement Parameters

Measurement Parameters		
Power Quality Analysis and location	Wave Sampling	1024 points/cycle wave
	Harmonic	2~63rd Harmonic, harmonic ratio, phase angle, total harmonic distortion (THD), total odd / even harmonic distortion
	Inter-Harmonics	2~63rd Inter-harmonic, harmonic ratio, Total inter-harmonic distortion
	Voltage Sag/Swell/Stop	Waveform record, DO alarm, timing record, record voltage sag/ swell's start time, stop time, duration time and their Max. and Min. value and voltage variation depth
	Transient Capture	Capture 20us circle wave transient, trigger/ DO port, waveform record, record voltage transient happen time, amplitude and duration time etc.
	Unbalance	Voltage, current unbalance and zero sequence unbalance
	Voltage / Frequency Deviation	Setpoint alarm and record
	Rapid Voltage Alteration	Trigger DO point, waveform record
	Voltage Fluctuation and Flicker Analysis	Calculate long time flicker Plt and Short time Pst
	Sag Source Location	Can locate power supply side or load side abnormal and fault
Measurement Channel	Voltage	4 Channels
	Current	4 Channels
Real-time Data	Voltage	Phase / line / average voltage, phase angle, refresh time : 1s, 0.5s circle waveform
	Current	Phase / average current, phase angle, refresh time: 1s, 1 circle waveform
	Active power, Reactive power, Apparent Power	Phase & total power, refresh time: 1s, 1 circle waveform
	Power Factor	Phase & total power factor, refresh time: 1s, 1 circle waveform
	Frequency	50/60Hz, refresh time: 1s, 1 circle waveform
Energy	Energy	Positive / Negative active, reactive, apparent energy ; Positive / Negative base wave active, reactive energy
	Harmonic Energy	2~31st positive active, reactive harmonic energy, Negative active, reactive harmonic energy
	History Energy	Storage latest 30 days and latest 12 months history energy data
	Multi-tariff energy	4 tariff, 8 time period, 2 time zone
Demand	Real-time Demand	Has fixed window and slid window record value including: three phase current, total active power, total reactive power, total apparent power, support real-time demand and predict demand, Max. demand and happen time, support DI demand synchronization
	Predict Demand	Predict next demand circle value according to present real-time active power value. Interval demand fixed circle: 15min.
Data and Event Record	Memory	8G
	Max. / Min Record	This month and last month Max./Min. value and happen time
	SOE Record	1024 records, time resolution: 1ms
	PQ Record	1024 records, time resolution: 1ms
	Waveform Record	Circle wave before failure is settable, Waveform record mode as below: 1: 1024 points / circle wave @ 50 circle wave; 2: 512 points/circle wave @ 100 circle wave; 3: 256 points/circle wave @ 200 circle wave; 4: 128 points/circle wave @ 400 circle wave; 5: 64 points/circle wave @ 800 circle wave; 6: 32 points/circle wave @ 1600 circle wave; 7: 16 points/circle wave @ 3200 circle wave
	Transit Wave Record	256 piece
	ITIC Curve	1 Group
	EN50160 Statistics Function	In accordance with EN 50160 power quality standard, Statistics voltage, frequency, harmonic, flicker, deviation, unbalance and voltage disturbance passed rate and other power quality index
Mark Function	Mark voltage sag/ swell/ stop etc. transit event data, statistics by customer	
DI/ DO	Digital Input (DI)	8 Channels
	Relay Output (DO)	4 Channels
Display	Optocoupler Output	2 Channels
	Display	LCD colorful interface, display measurement value, harmonic bar chart, vectorgram, time record, I/O status, ITIC waveform etc. resolution: 640 * 480
Communication	RS485 Port	2, baud rate: 1200~38400bps, MODBUS-RTU protocol
	Ethernet Port	1, Modbus TCP/ IEC61850 (optional), support Ethernet Gateway
Time calibration	Software Time Calibration	SNTP, Modbus
	Hardware Time Calibration	GPS pulse, IRIG-B signal

Advantage



- F-PQA100
- Normal Power Meter
- Relay Protection Device
- Fault Recorder Device

Note: Area means function relation

- Specially for 380V~35kV voltage level's industry and commercial building
- High-density sampling frequency, can record instantaneous, transient voltage disturbance
- Bulk memory function, can dynamic record each even
- Class A harmonica content function, harmonic measure times with high accuracy
- Powerful function, combine multifunction power meter + energy meter + power quantity analyzer + failure recorder into one

Interface



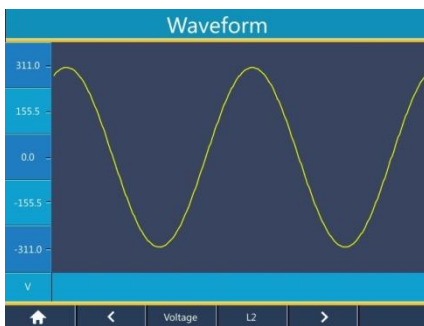
Home Page

Phase Voltage			
	Value	Min. Value	Max. Value
L1-N	2.200 kV	274.3 v	2.211 kV
L2-N	THD-V 0.00% PF 0.999 Frequency 50.00Hz	275.3 v	2.201 kV
L3-N	2.200 kV	272.9 v	2.201 kV
Ln	22.00 kV	2.732 kV	22.01 kV

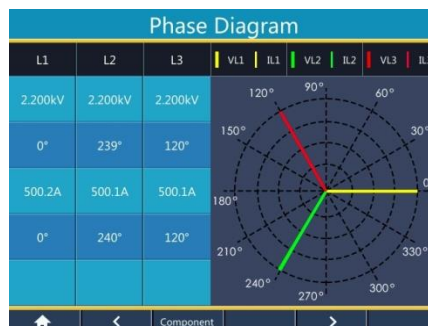
Real-time Monitoring

Evaluation Report				
	2018-01-02 00:00 - 2018-01-03 00:00	(P 1/28)	Conclusion	
1	Frequency		Qualified	Qualified
2	Supply		Qualified	Qualified
3	Flicker		Qualified	Qualified
4	Harmonic	Range (%) 99.0 - 101.0, Tolerance (%) 99.50, Pass (%) 100.00	Qualified	Qualified
5	Rapid	94.0 - 104.0, 100.00, 100.00	Qualified	Details
6	Supply	Range of Frequency 49.997Hz~50.000Hz	Details	Details
7	Voltage		Details	Details
8	Voltage		Details	Details
9	Transient overvoltage		Details	Details
10			Details	Details

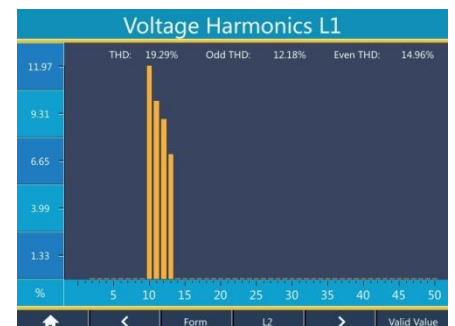
Evaluation Report



Real-time Waveform

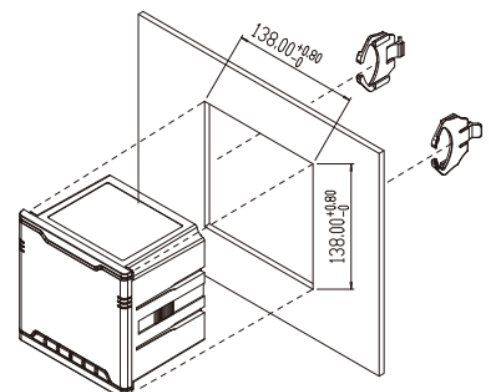
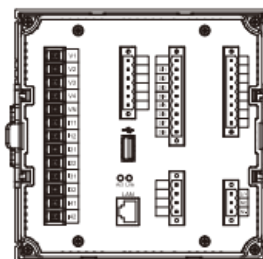
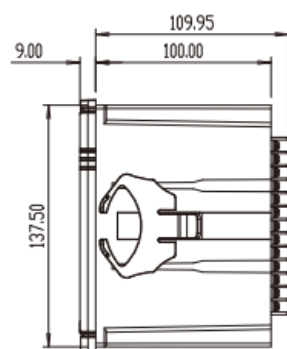
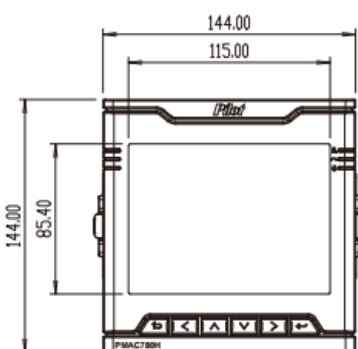


Vector Analysis



63rd Real-time Harmonic Analysis

Dimensions



Technical specification

Power Supply	
Rated Voltage	AC85~265, DC100~300V, 45~65Hz
Power loss	<10W

AC Input		
Input Voltage	Rated voltage	0~400V (400V L/N / 690V L/L)
	Overload	1.2 Un, Continuous; 4Un, accept 1s
	Power loss	<0.1VA/Phase
Input Current	Rated Current	5A, 1A
	Overload	4In, Continuous; 10In, accept 1s
	Power loss	<0.5VA/Phase@5A, <0.1VA/@1A

DI / DO	
DI	8 Channel, time resolution 1ms
RO1-RO4	Relay, action / return time: <10ms
DO1-DO2	Breaking Capacity: 250VA/30VDC, 0.2A, L/R=20ms Max. voltage 30VDC Max. current 50mA

Accuracy			
Voltage/ Current	±0.1%	Harmonic	Class A
Active/ Reactive/ Apparant power	±0.2%	Voltage Unbalance Rate	±0.1%
Active Energy	Class 0.2s	Current Unbalance Rate	±0.5%
Reactive Energy	Class 2	Voltage Deviation	±0.1%
Power Factor	±0.5%	Frequency Deviation	±0.005Hz
Frequency	±0.005Hz	Fliker	±5%

Communication	
RS485 port	2 Port, 2400-38400bps, Modbus-RTU protocol
Ethernet Port	1 port, Modbus TPC / IEC61850 (optional) support Ethernet gateway

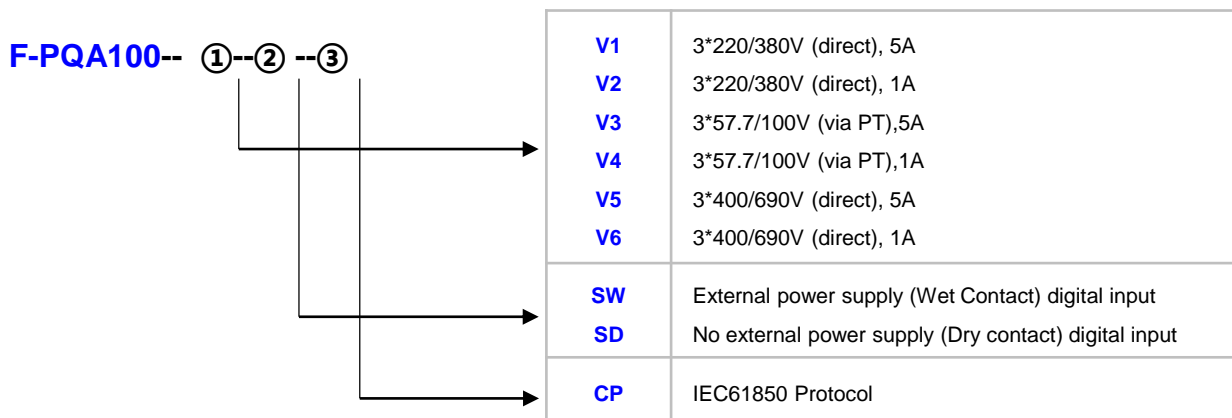
Electrical insulation performance	
Dielectric strength	2kV voltage, 1 minute (GB/T 14598)
Insulation resistance	No less than 100MΩ (GB/T 14598)
Impulse voltage	6kV, 1.2/50μs (GB/T 14598)

Environment			
Temperature	-10°C~+55°C	Humidity	5%~95%
Storage	-40°C~+85°C	Pressure	70kPa~110kPa
IP Index	Front: IP52 Side & Back: IP30	Measure mode	3 phase 4 wire 3 phase 3 wire

Electromagnetic compatibility		
Electrostatic discharge immunity	IEC 6100-4-2	Class IV
Radio frequency electromagnetic radiation immunity	IEC 6100-4-3	Class IV
Fast transient burst immunity	IEC 6100-4-4	Class IV
Surge immunity	IEC 6100-4-5	Class IV
Frequency magnetic field immunity	IEC 6100-4-8	Class IV

Mechanical Character	
Vibration response	Class I (GB/T 11287)
Vibration durable	Class I (GB/T 11287)
Impact response	Class I (GB/T 14537)
Collision response	Class I (GB/T 14537)

Order Information



Note: F-PQA100 default with Ethernet port, if select CP function, then support IEC61850 protocol, otherwise it won't support.