

**ELECTRICAL SAFETY
POWER QUALITY
ENERGY MANAGEMENT**

Eetarp GPQM144 Training Slide





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01 - PRODUCT INFORMATION

GPQM144





01 - PRODUCT INFORMATION

GPQM144



- IEC 62053-22: 0.2 S / DIN EN 50160 Class-A power quality analyzer
- High resolution Failure Record with 1024 point/cycle
- 20us circle wave transient capture
- 8 GB internal memory
- 8 digital input / 4 relay output
- 4 x Voltage Input – 3 phase 4 wires (690V), support continuous overload of 1.2x and 1sec of 4x
- 4 x CT secondary Input 1 / 5A selectable, support continuous overload of 4x and 1s of 10x
- Suitable for 2-,3- and 4 wire system for TN, TT, and IT system
- Ride through voltage sags / voltage interruption with built in energy storage
- 2 x RS485 Modbus RTU output / 1 x Modbus TCP / IEC61850(optional)
- Support settings with external applications



01 - PRODUCT INFORMATION

- During normal operation, voltages hazardous to life may be present at some of the terminals of this unit. Installation and servicing should be performed only by qualified, properly trained personnel abiding by local regulations. Ensure all supplies are de-energized before attempting connection or other procedures.
- Terminals should not be user accessible after installation and external installation provisions must be sufficient to prevent hazards under fault conditions.
- This unit is not intended to function as part of a system providing the sole means of fault protection - good engineering practice dictates that any critical function be protected by at least two independent and diverse means.
- The unit does not have internal fuses therefore external fuses must be used for protection and safety under fault conditions.
- **Never open-circuit the secondary winding** of an energized current transformer.
- This product should only be operated with CT secondary connections Earthed.
- If this equipment is used in a manner not specified by the manufacturer, protection provided by the equipment may be impaired.





02 – DEVICE CONNECTION

02 – DEVICE CONNECTION

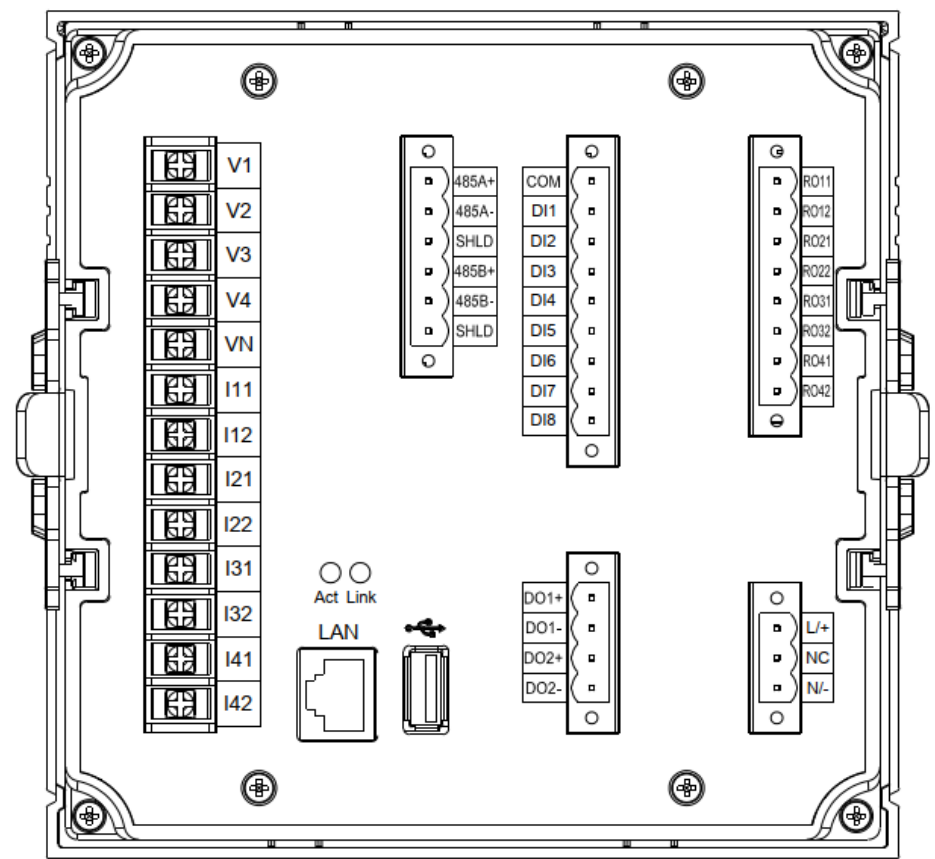
GPQM144





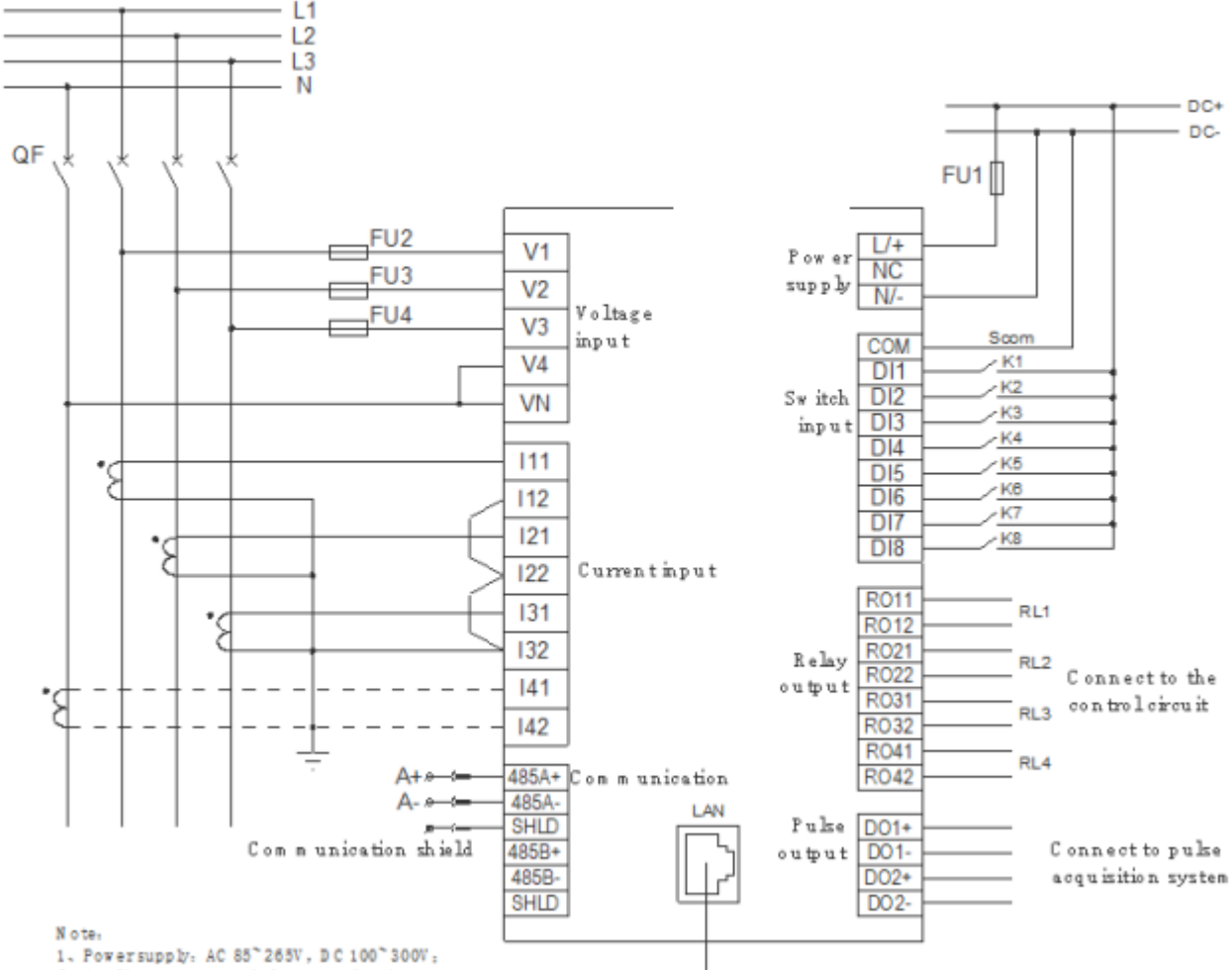
02 – DEVICE CONNECTION

Rear view



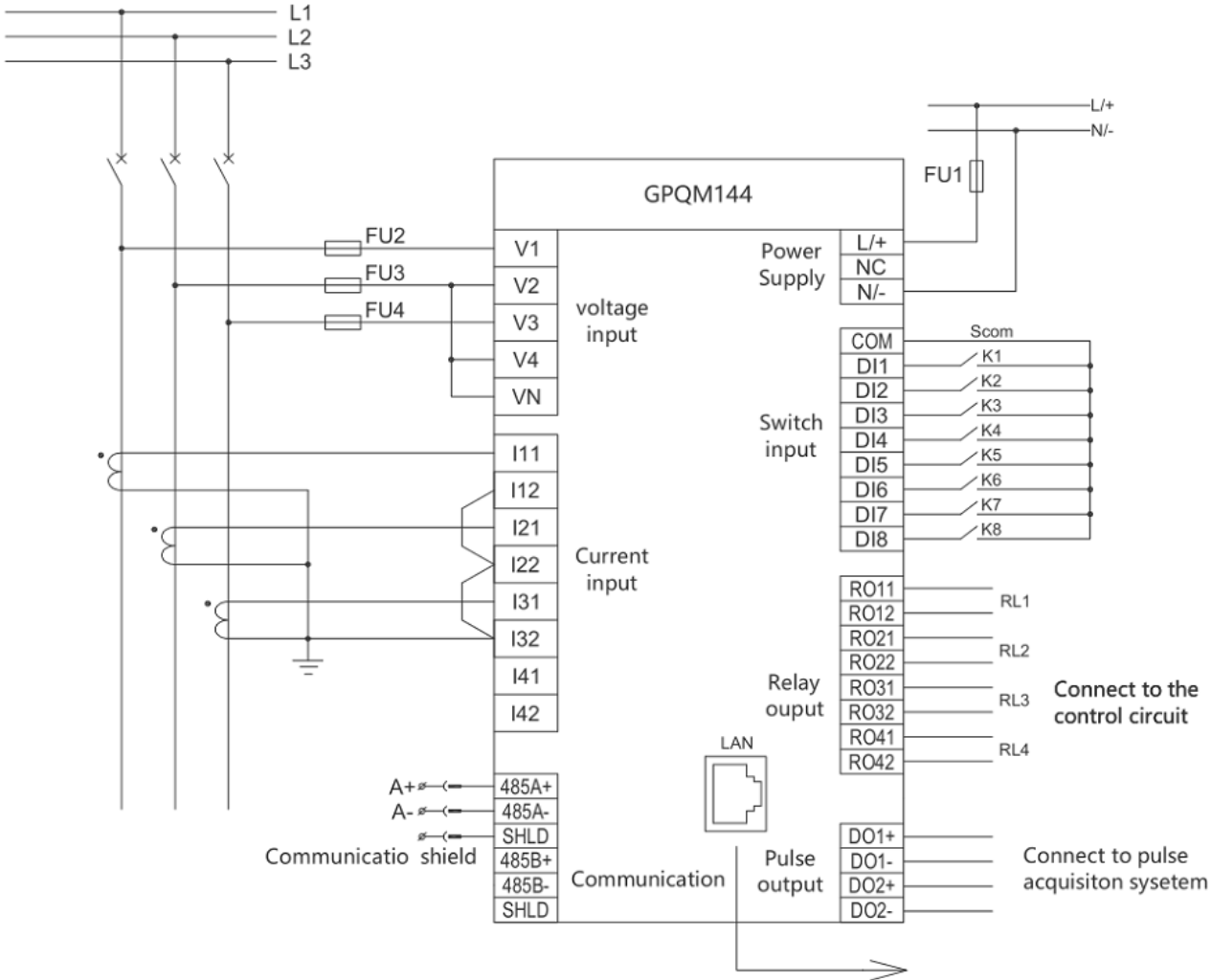


02 – DEVICE CONNECTION (3P4W3CT)



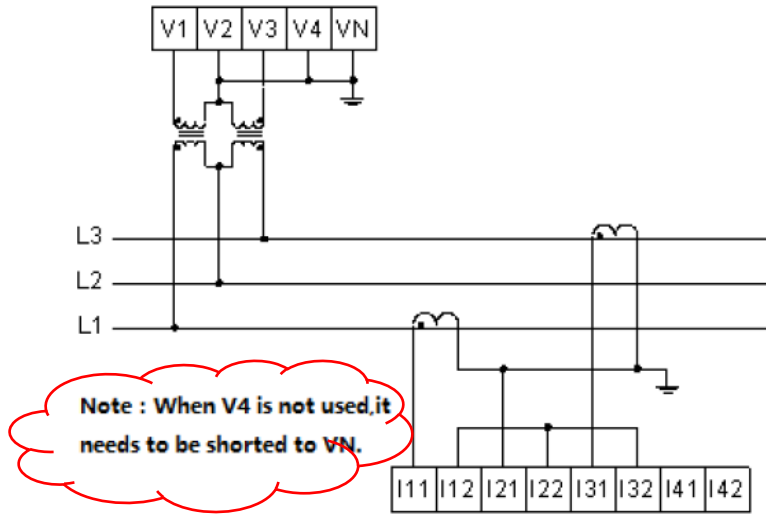


02 – DEVICE CONNECTION (3P3W3CT)

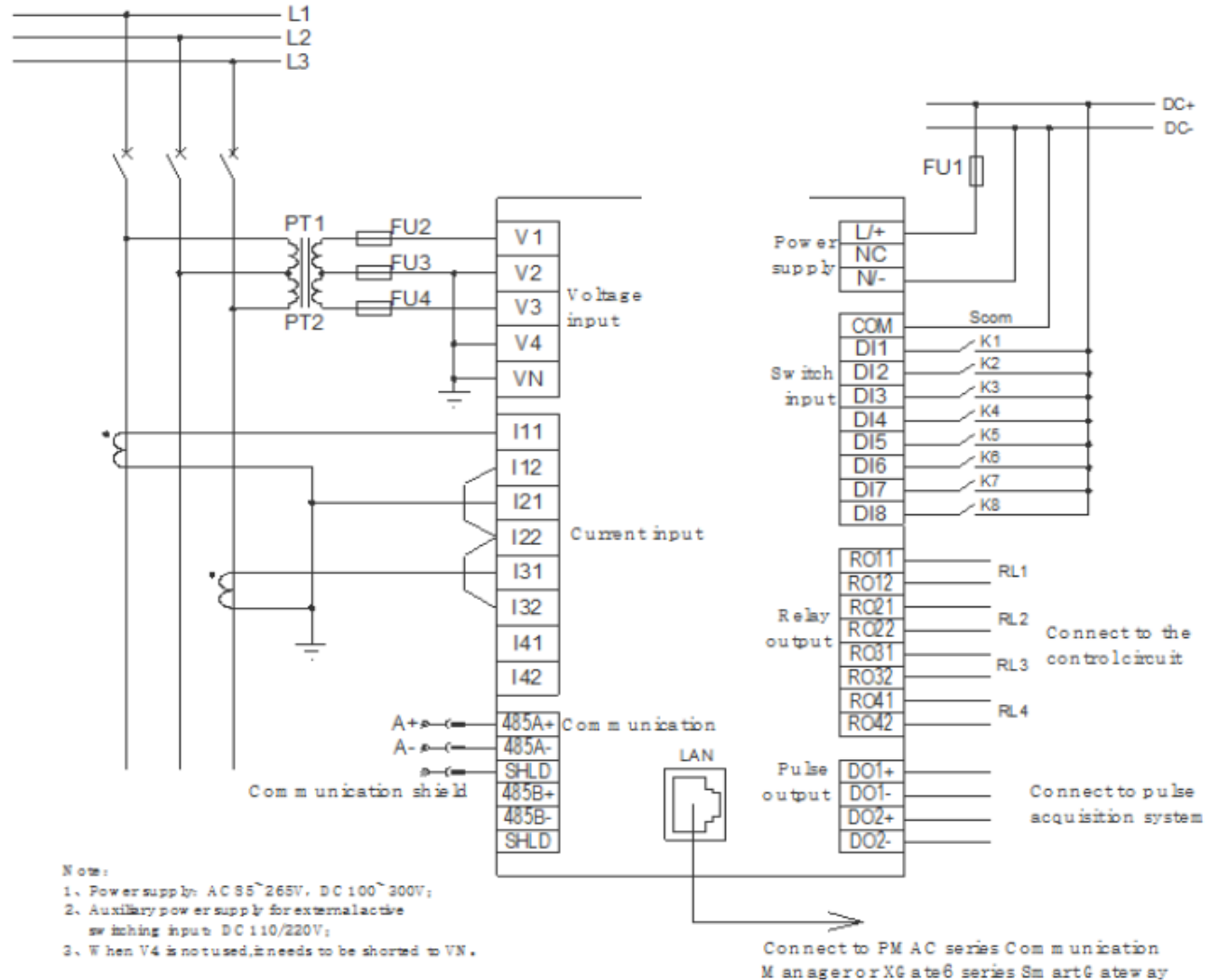




02 – DEVICE CONNECTION (3P3W2CT)



High-voltage delta system (2PT, 2CT)





03 – DEVICE SETUP










03 - BASIC DEVICES SETUP

GPQM144





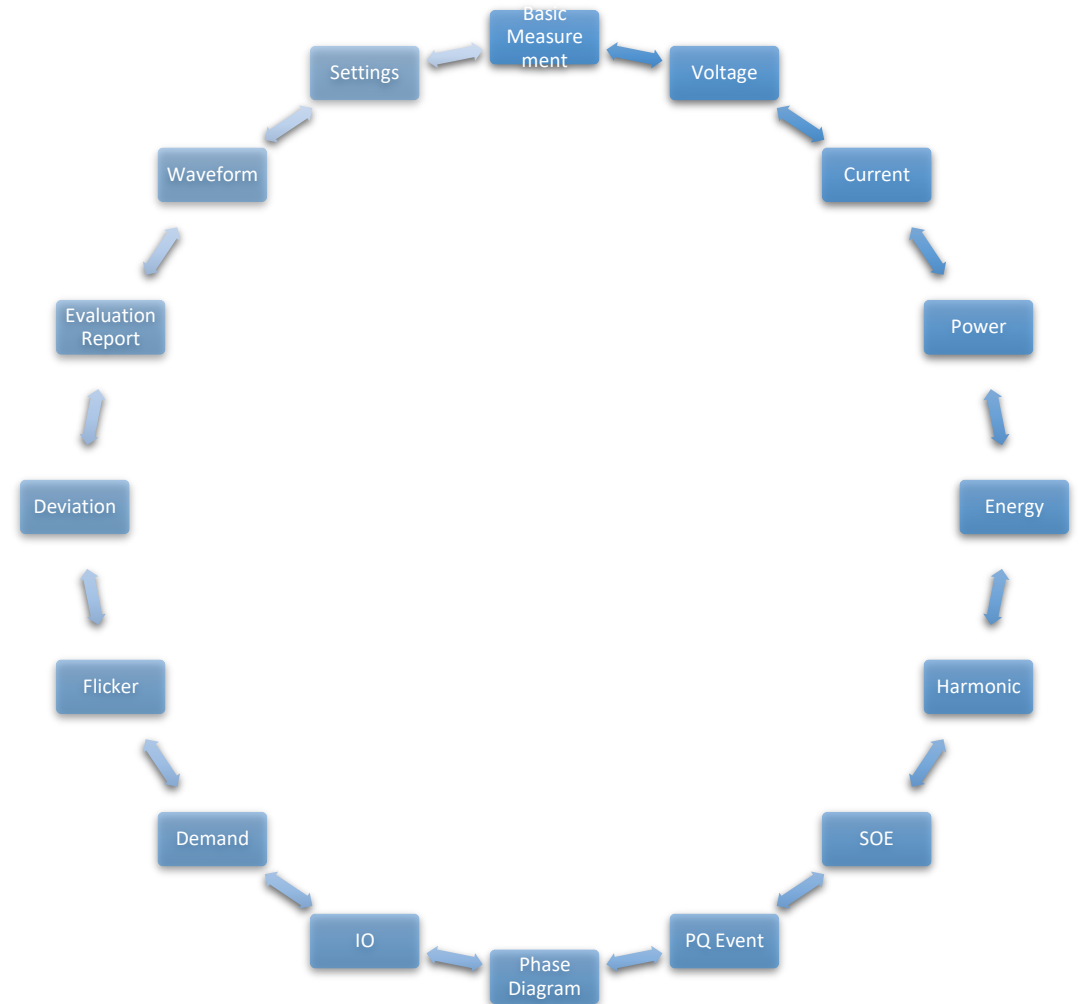
03 – DEVICE SETUP (Buttons & Indications)

Buttons	Click	Indications	Description
	➤ Exit to the previous menu ,or cancel the input value		➤ Indicates the running status of the device, and flashes when the device is normal
	➤ Move the cursor to left ,or page to left		➤ Indicates the status of serial communication, flashing when there is serial communication
	➤ Move the cursor up ,or add 1 to the position of the cursor		➤ Indicates the self-test status of the deviceand lights up when there is a device failure.
	➤ Move the cursor down ,or the number at the cursor position minus 1		
	➤ Move the cursor to right ,or turn the page to right		
	➤ Enter the next level menu ,or confirm the input value		



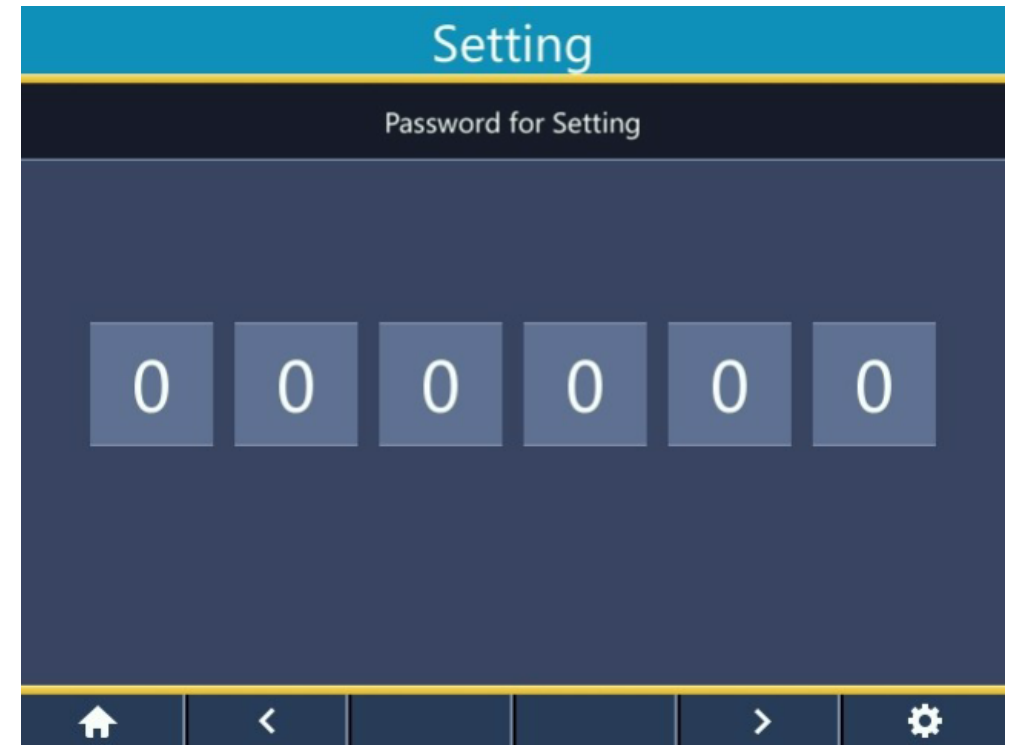
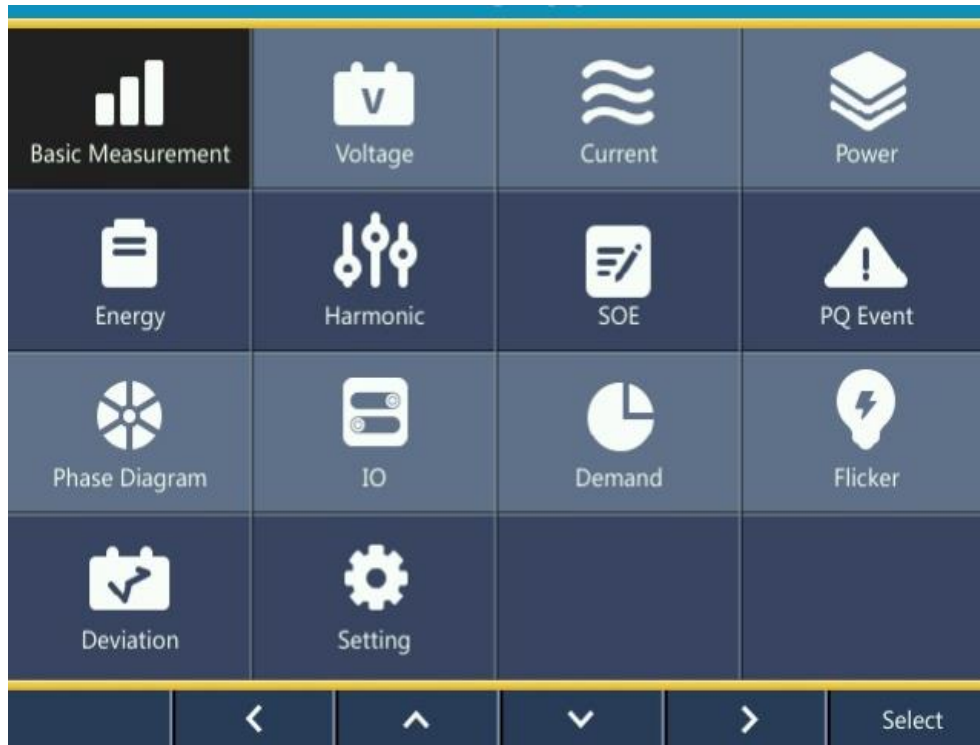
03 – DEVICE SETUP (Screen Rotation)

- Graphics are in a multi-directional cycle
- Use button “<” or “>” to cycle through





03 – DEVICE SETUP (Access to setup page)



- Default Password “1”
- Super Password “99”



03 – DEVICE SETUP (Com setup)

Communication Setup

- Once Password is entered, go to **communication** to change the desired IP (default : 192.168.0.100)
- Default IP could be use for device configuration

Communication Setting					
Ethernet					
IP	1 9 2 . 1 6 8 . 0 1 5 . 2 3 1				
Subnet Mask	2 5 5 . 2 5 5 . 2 4 0 . 0 0 0				
Gateway	1 9 2 . 1 6 8 . 0 0 1 . 0 0 1				
BUS					
RS485	<input checked="" type="radio"/> 1 <input type="radio"/> 2				
Mode	Modbus RTU				
Device IP	1				
Rate	9600				
Esc		^	v		Select



03 – DEVICE SETUP (Application)

Login window for application

- No password for account customer
- Click on settings after login

Login Window

Login GPQM144

Account Customer

Language English

Password

Login Exit



03 – DEVICE SETUP (Application)

GPQM144 Config SoftwareV1.0.0

System

Realtime Data Energy Data Energy Quality Demand Max/Min Value TOU SOE Record PQ Record History Energy Command Device Info Setting

About Equipment Info

General Data

Real Data

Type	Data	Unit	Type	Data	Unit
Vab		V	Pa		W
Vbc		V	Pb		W
Vca		V	Pc		W
Vllavg		V	P Total		W
Va		V	Qa		var
Vb		V	Qb		var
Vc		V	Qc		var
Vavg		V	Q Total		var
Ia		A	Sa		VA
Ib		A	Sb		VA
Ic		A	Sc		VA
Iavg		A	S Total		VA
V4		V	PFa		
I4		A	PFb		
F		Hz	PFc		
			PF tot		

Other Parameter

RunTime: 0.1H

SOE:

PQ:

Wave 1:

Wave 2:

SelfCheck State

Total State F Overrange

Voltage < 1% Current < 1%

PhaseU Dif PhaseL Dif

Ptot Neg Pa Negative

Pb Negative Pc Negative

Cta NEG Ctb NEG

Ctc NEG

D-Input

DI1: DI2: DI3: DI4: DI5: DI6: DI7: DI8:

D-Output

RO1: RO2: RO3: RO4: DO1: DO2:

Limit Status

No 1: No 2: No 3: No 4: No 5: No 6: No 7: No 8: No 9: No 10: No 11: No 12:

Data Read

Stop Refresh

ComSet

ModbusRTU ModbusTCP

RS485: 1

Port:

Paud: 9600

Parity: None

DataBits: 8

StopBits: One

IP Addr: 192.168.0.155

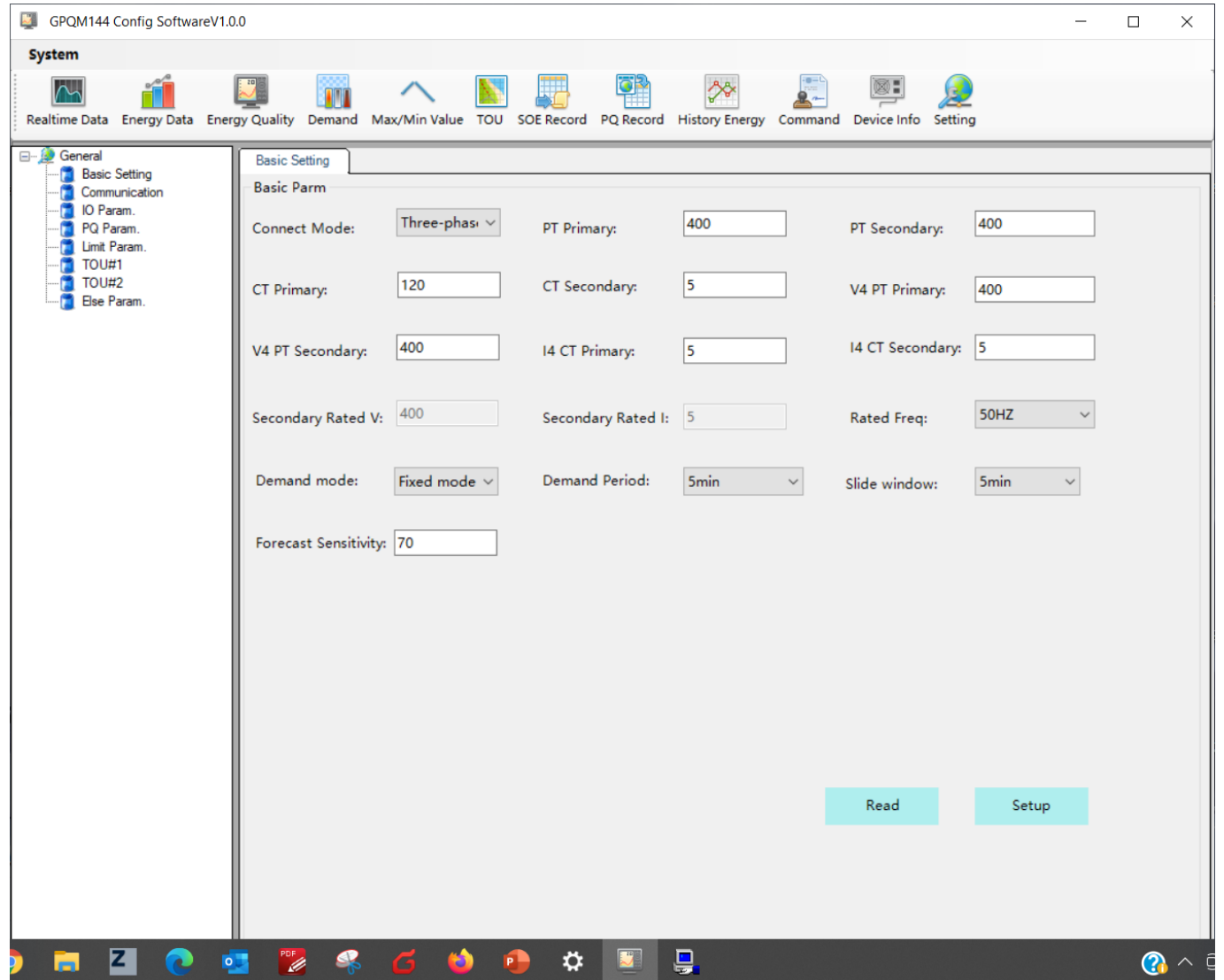
Connect Cancel

Input IP Address of meter then click "connect"



03 – DEVICE SETUP (Application – Basic Settings)

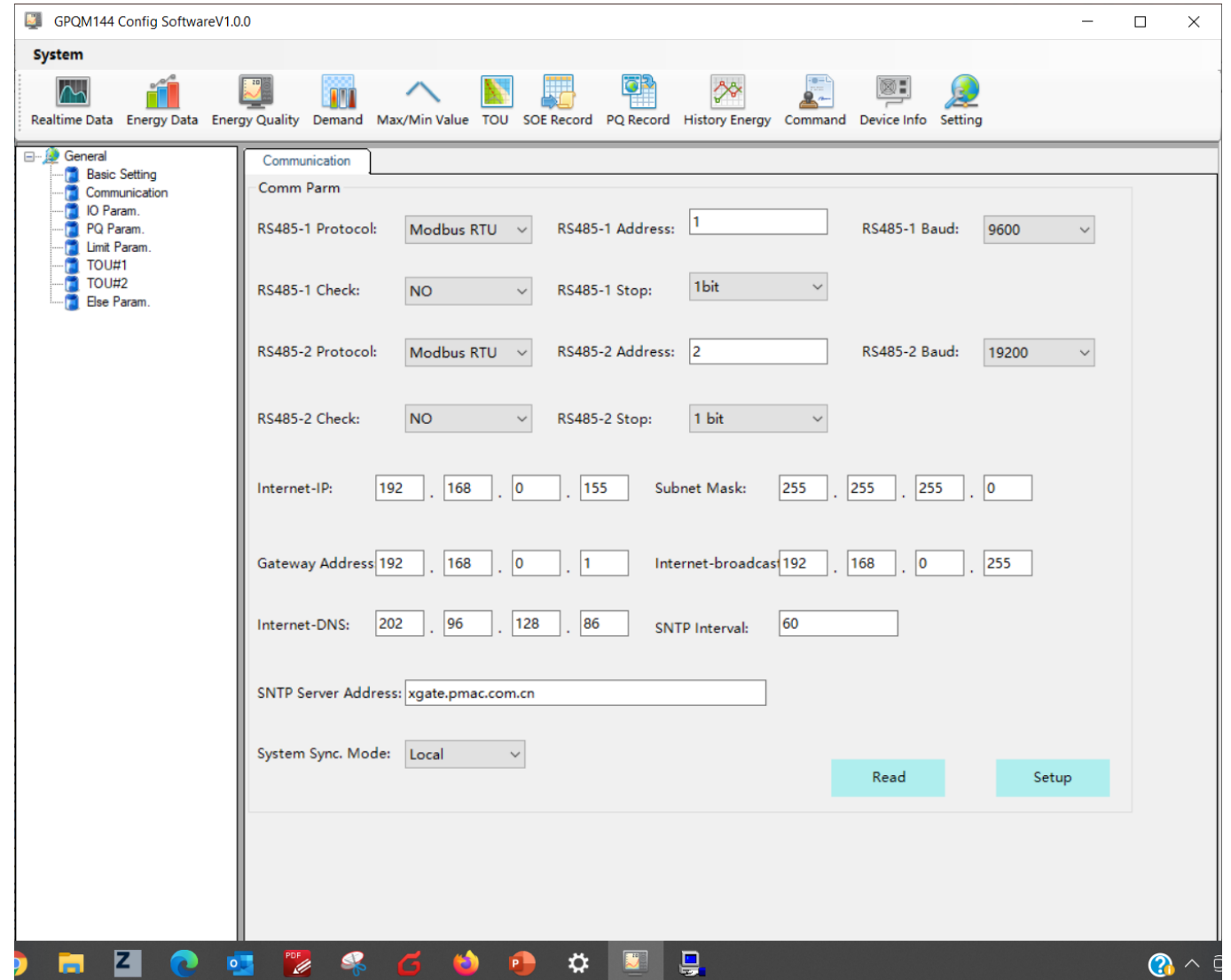
- CT & PT settings via application
- Click “Read” to read settings from meter
- Click Setup to send settings to meter





03 – DEVICE SETUP (Application – Communication)

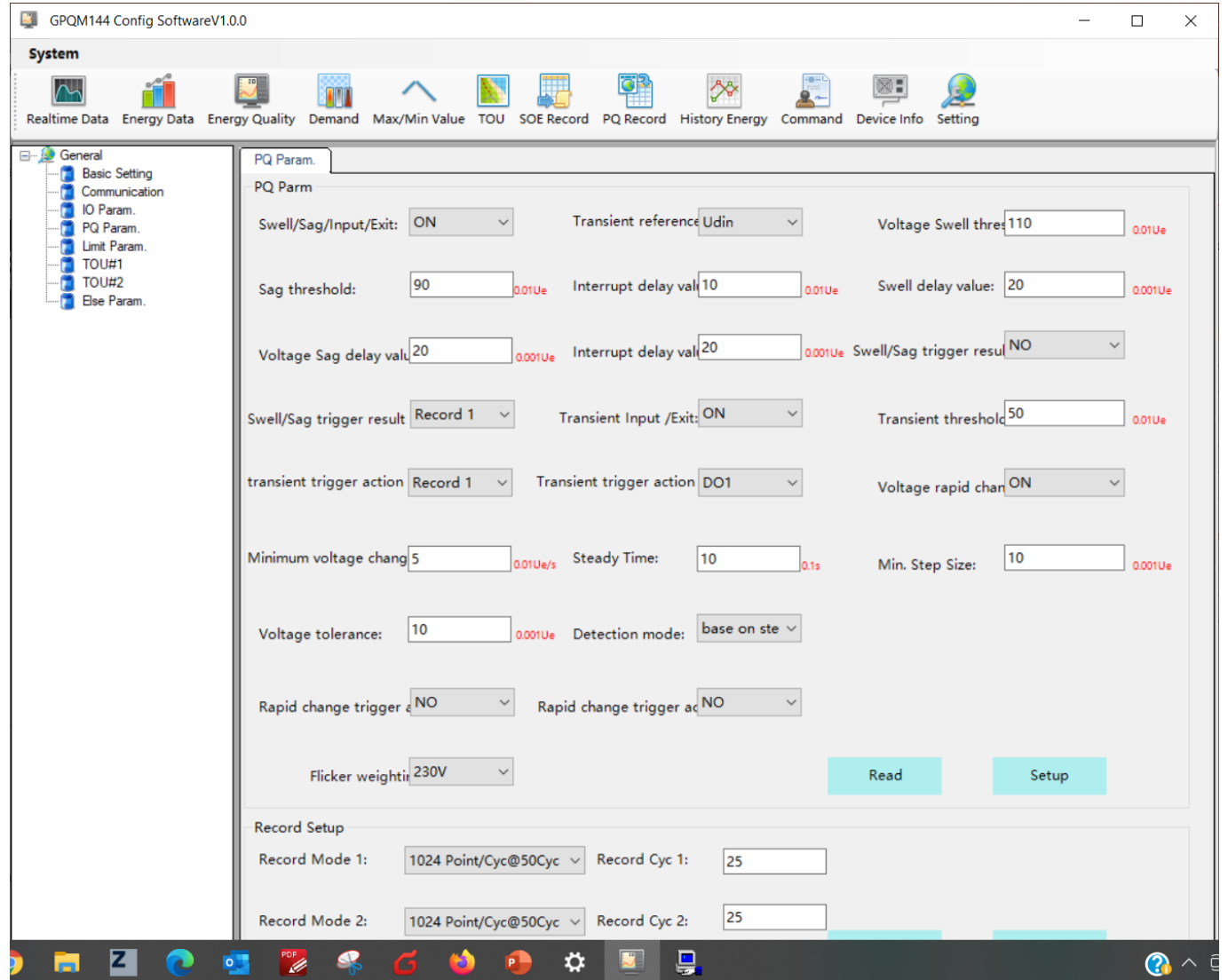
- Modbus RTU settings – Add , Baud rate , Parity Bit , Stop Bit
- Modbus TCP/IP settings





03 – DEVICE SETUP (Application – PQ settings)

- Recommended PQ settings as picture





04 – EETARP PQM SYSTEM

EETARP PQM System

admin | English | 2022-02-15 22:56

Current location > Manage

Communication Management

IOserver State: **Running** Start Time: 2022-02-15 11:13:53 [Restart](#)

Communication Config

[Add Sub Area](#) [Modify Area](#) [Delete Area](#) [Add Device](#)

Area	Device Name	IP	Port	Voltage Grade	Connection Mode	MAC	Authorization	Operation
EETARP DEMO Site	GPQM144	192.168.0.155	502	380(V)	Star		--	Modify Authorization Delete
BENDER	GPQM144-BENDER	1.1.1.1	502	0k(V)	Star		--	Modify Authorization Delete

EETARP PQM System



Optional Software for GPQM144

EETARP PQM System

admin | English | 2022-02-23 17:09

Overview

Count of GPQM144: 1

RT status: **Failed**

Yesterday qualified rate(%): 0 | Last week qualified rate(%): --

Last week data

- Wave (pcs): 0
- Fluctuation rate: --
- Swell (pcs): 0
- Sag (pcs): 0
- Interruptions (pcs): 0
- Transient Event (pcs): 0

Status overview

Classification	Real-Time status	Yesterday qualified rate	Last week qualified rate
Three-phase imbalance	Failed	0.32%	--
Voltage deviation	Failed	0%	--
Frequency deviation	OK	100%	--
Harmonic	OK	99.61%	--
Interharmonics	Failed	17.86%	--
Voltage flicker	OK	100%	--

ITIC

Power Factor

Power Factor: 0.000

Frequency Deviation

Frequency Deviation: 0.000

Current

Line voltage | Phase voltage | Frequency

unit :A

17:05:28 17:05:58 17:06:28 17:06:58 17:07:28 17:07:58 17:08:28 17:08:58 17:09:28 17:09:58 17:10:33

Legend: Ia Fundam Value (orange), Ib Fundam Value (green), Ic Fundam Value (red)



Optional Software for GPQM144

Current location > Transient

Please enter a keyword search

EETARP DEMO Site
GPQM144

Last Week
Number Of Events

Voltage Swell
0

Voltage Sag
0

Voltage Interruption
0

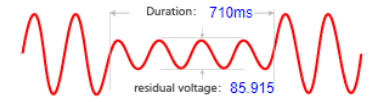
Transient Overvoltage
0

Event Query

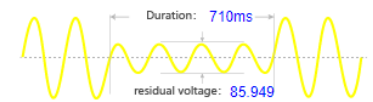
Time: 2021/08/01 - 2022/02/23 Event Subcategory: All

No.	Event Subcategory	Start Time	End Time	Duration(s)	A Phase Residual Voltage(%)	B Phase Residual Voltage(%)	C Phase Residual Voltage(%)	Record Wave
1	Voltage Sags	2022-01-14 17:12:37.128	2022-01-14 17:12:37.128	0.71	85.915	85.949	85.843	Open
2	Voltage Sags	2022-01-14 17:12:37.448	2022-01-14 17:12:37.448	0.27	85.915	85.953	85.908	
3	Voltage Sags	2022-01-14 17:12:37.448	2022-01-14 17:13:05.106	27.657	91.753	91.789	86.529	
4	Voltage Sags	2022-01-14 17:13:35.594	2022-01-14 17:14:05.372	29.778	82.576	82.607	82.557	Open
5	Voltage Swell	2022-01-14 17:14:35.810	2022-01-14 17:15:05.168	29.358	110.149	110.175	110.117	Open
6	Voltage Interruption	2022-01-14 17:16:06.104	2022-01-14 17:16:07.904	1.8	0	0	0	Open
7	Voltage Interruption	2022-01-19 11:43:18.788	2022-01-19 11:43:18.898	0.11	0	0	2.223	Open
8	Voltage Interruption	2022-01-19 11:43:18.948	2022-01-19 11:43:19.058	0.11	1.636	0	4.662	

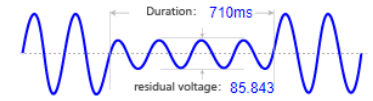
Voltage Sags(A Phase)



Voltage Sags(B Phase)



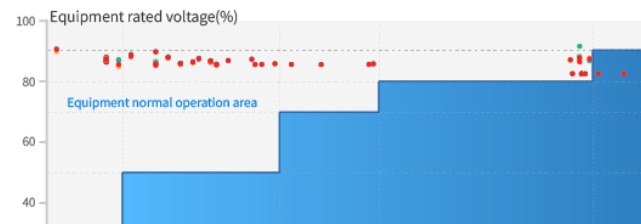
Voltage Sags(C Phase)



Total 208 items < 1 ... 19 20 21 > Goto 21

Analysis of ITIC Curve SEMI-F47 Curve SARFI Index

- Ua
- Ub
- Uc



Category	A Phase Point Number	B Phase Point Number	C Phase Point Number	Total Number Of Points
Normal Operating Area Of The Equipment	55	55	55	165
Area Where Equipment Can Be Shut	0	0	0	0



Optional Software for GPQM144





Optional Software for GPQM144

EETARP PQM System admin ▼
English ▼ 2022-02-23 17:10

Current location > Manage

Communication Management

I/O Server State: Running Start Time: 2022-02-22 15:56:21 Restart

Communication Config

Add Sub Area Modify Area Delete Area Add

[-] All

- EETARP DEMO Site
- BENDER

Area	Device Name	IP	Port	Voltage Grade	Connection Mode	MAC	Authorization	Operatio
EETARP DEMO Site	GPQM144	192.168.0.155	502	380(V)	Star	54A493C0008C	OK	Modify Authorizat
BENDER	GPQM144-BENDER	1.1.1.1	502	0k(V)	Star		--	Modify Authorizat

EETARP PQM System



05 – FREQUENCY ASK QUESTIONS

05 – FREQUENCY ASK QUESTIONS

GPQM144





05 – FREQUENCY ASK QUESTIONS

1) How many CTs required for GPQM144 for 3 phase 4 wires?

4 CTs required for neutral current monitoring

2) What is the accuracy of GPQM144 meter ?

It comply with IEC62053-22 Cl 0.2S and EN50160 Class A power quality analyzer

3) Is GPQM144 meter come with memory for data logging?

Yes , it have 8GB of internal memory to hold the waveforms and events

4) What is the sampling rate of GPQM144 ?

The sampling rate of power meter is 1024 sample/cycle

5) How to download the PQ event waveform to PC ?

A separate web client license required to download the events records.

6) For Digital Input Wet Contact , what is the voltage range for the wet input

110/200Vdc

7) How many GPQM144 can be daisy chain in 1 looping?

Theoretically is 32nos but recommend to be <20nos.



05 – FREQUENCY ASK QUESTIONS

8) What is the maximum length RS485 communication cables for GPQM144?

Theoretically is 1200 meters.

9) Does both the Modbus RS485 RTU connection and Modbus TCP/IP can be read simultaneously by different masters ?

Yes , the device supports different address output to different masters requesting simultaneously

10) Why BMS / PMS cannot read power meter reading?

Recommend to use Modscan software to connect to the power meter and read the data directly to confirm the connection and meter functionality

<https://www.youtube.com/watch?v=STBX1Nc2I0s>

11) Can I replace the power meter without shutdown the load?

It is possible but please do take note that voltage signal's fuses need to be pull out and CT secondary signals need to be short link. Whenever possible, we still recommend to replace the meter with system shutdown.

THANK YOU

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