PMTR Series – Introduction

PMTR-3PH-OPT

-PRO : PROFIBUS
- OPT : Optical
-WRL : Wi-Fi

DESCRIPTION

The PMTR series are multifunction power meters manufactured by MTW. It is the ideal choice for monitoring and controlling of power distribution system. Some of the features and electric power parameters available on the PMTR are:

True-RMS Measuring Parameter
4-quadrant Energy
Power Quality Analysis
Over/Under Limit Alarm
Energy Pulse Output

TOU, 4 Tariffs, 12 Seasons, 14 Schedules

PMTR may be used as a data gathering device for an intelligent Power Distribution System or a Plant Automation System. All monitoring data is available via digital RS485 communication port running Modbus Protocol or with an optional communication module.

The quality of the power system is important with increasing use of electronic loads such as computers, ballasts or variable frequency drives. With the PMTR power analysis option, any phase current or voltage can be displayed and the harmonic content calculated. By knowing the harmonic distribution, action can be taken to prevent overheated transformers, motors, capacitors, neutral wires and nuisance breaker trips. Redistribution of the system loading can also be determined.

FEATURES

Metering

Voltage V1, V2, V3, V12, V23, V31
Current I1, I2, I3, In
Power P1, P2, P3, Psum
Reactive Power Q1, Q2, Q3, Qsum
Apparent Power S1, S2, S3, Ssum
Frequency F
Power Factor PF1, PF2, PF3, PF
Energy Ep_imp, Ep_exp
Reactive Energy Eq_imp, Eq_exp
Apparent Energy Es
Demand Dmd_I1, Dmd_I2, Dmd_I3, Dmd_P, Dmd_Q, Dmd_S

Monitoring

Power Quality
Voltage Harmonics 2^{nd} ~31^{st} and THD
Current Harmonics 2^{nd} ~31^{st} and THD
Voltage Unbalance Factor U_unbl
Current Unbalance Factor I_unbl
Max/Min Statistics
Meter Running Time and Load Running Time

Alarm

Two (2) parameters may be set within a specified time interval. If indicated parameter is over or under its setting limit and persists over the specified time interval, the event will be recorded with time stamps and trigger the alarm DO output.

Display

Clear and large character LCD Screen display with white back light; Wide environmental temperature endurance.

Outline

Small size 96×96×51mm (92×92 cutout) DIN or 4'' ANSI round

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PMTR Series – Specifications

REAL TIME METERING

Phase Voltage: U1, U2, U3
Line Voltage: U12, U23, U31
Current: I1, I2, I3, In (Acuvim-KL no neutral current measurement)
Power: P1, P2, P3, Psum
Reactive Power: Q1, Q2, Q3, Qsum
Apparent Power: S1, S2, S3, Ssum
Power Factor: PF1, PF2, PF3, PF
Load Nature: L/C/R
Frequency: F Hz

ENERGY & DEMAND

Energy: Ep_imp, Ep_exp
Reactive Energy: Eq_imp, Eq_exp
Apparent Energy: Es
Current Demand: Dmd_I1,Dmd_I2 Dmd_I3
Power Demand: Dmd_Psum, Dmd_Qsum, Dmd_Ssum
TIME OF USE Energy: 4 Tariffs, 12 Seasons, 14 Schedules

POWER QUALITY

Voltage Unbalance: U_unbl
Current Unbalance I_unbl
Voltage THD:THD_V1, THD_V2, THD_V3
Current THD: THD_I1, THD_I2, THD_I3
Individual Harmonics: 2^{nd} to 31^{st}

STATISTICS

Max Current Demand: Dmd_I1_max,Dmd_I2 _max,Dmd_I3_max
Max Power Demand: Dmd_Psum_max, Dmd_Qsum_max, Dmd_Ssum_max
Max & Min of Voltage
Max & Min of Current

HOUR

Running Time Hour
Load Running Time Hour

I/O

Energy Pulse Output
2 DO, configured as pulse output for kWh and kvarh, the pulse rate and width can be set
Alarm Output

COMMUNICATION

PROFIBUS
Optical
Wi-Fi

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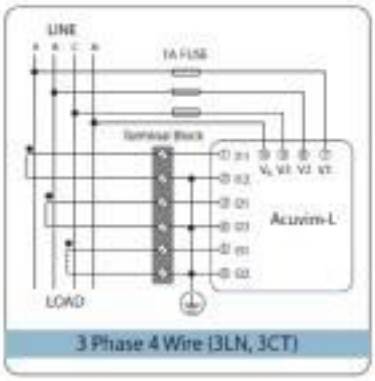
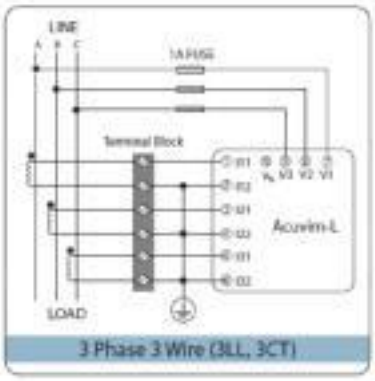
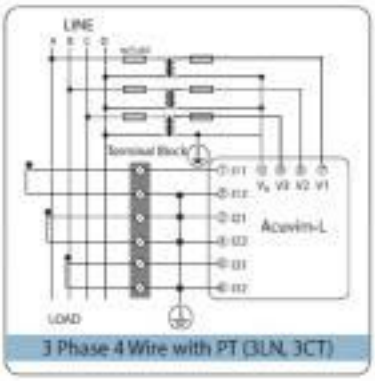
PMTR Series – Typical Wiring



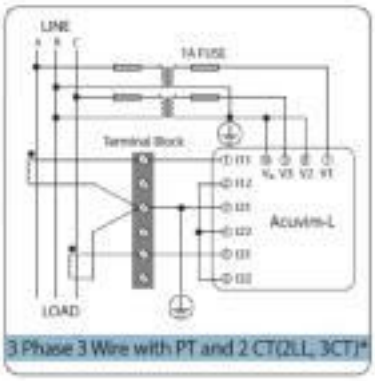
3 Phase 4 Wire (3LN, 3CT)



3 Phase 3 Wire (3LL, 3CT)

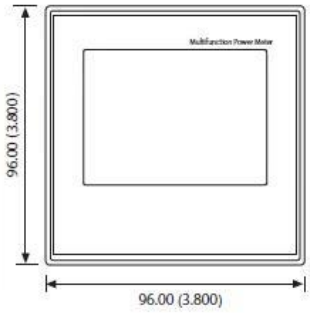


3 Phase 4 Wire with PT (3LN, 3CT)

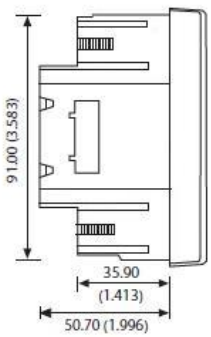


3 Phase 3 Wire with PT and 2 CT(2LL, 3CT)*

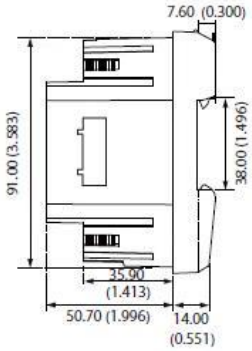
PMTR Series – Dimensions



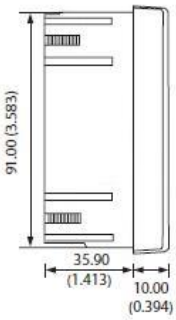
Front View of the Display Meter and Remote Display Unit



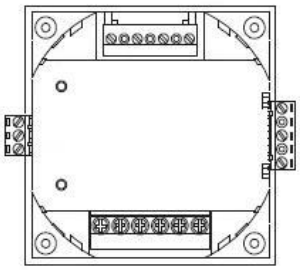
Side View of the Display Meter

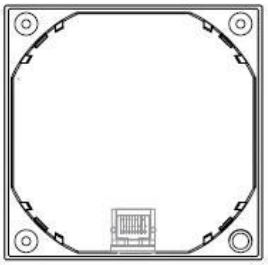


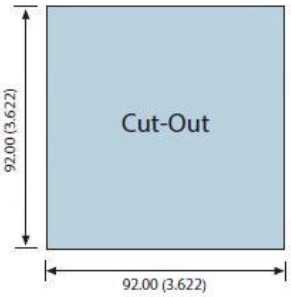
Side View of the DIN rail Meter

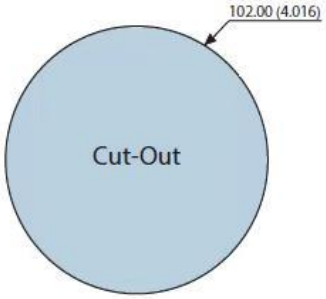


Side View of the Remote Display Unit


Rear View


Rear View of the Remote





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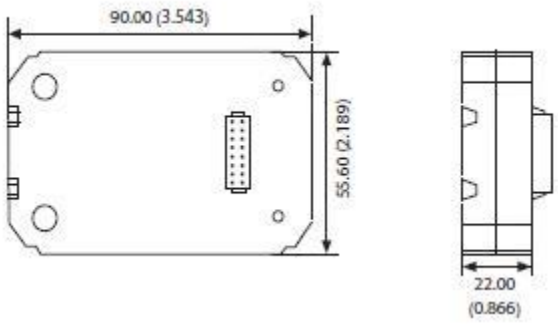
PMTR Series – Communications Modules Dimensions



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PMTR Series – Technical Specifications

METERING			
Parameters	**Accuracy**	**Resolution**	**Range**
Voltage	0.5%	0.1V	20V~1000kV
Current	0.5%	0.001A	0~50000A
Current Demand	0.5%	0.001A	0~50000A
Power	0.5%	1W	-9999MW~9999MW
Reactive Power	0.5%	1var	-9999Mvar~9999Mvar
Apparent Power	0.5%	1VA	0~9999MVA
Power Demand	0.5%	1W	-9999MW~9999MW
Reactive Power Demand	0.5%	1var	-9999Mvar~9999Mvar
Apparent Power Demand	0.5%	1VA	0~9999MVA
Power Factor	0.5%	0.001	-1.0~1.0
Frequency	0.2%	0.01Hz	45.00~65.00Hz
Energy	0.5%	0.1kWh	0~99999999.9kWh
Reactive Energy	0.5%	0.1kvarh	0~99999999.9kvarh
Apparent Energy	0.5%	0.1VAh	0~99999999.9kVAh
Harmonics	1.0%	0.01%	
Meter Running Time		0.1hrs	0~999999999.9hrs
Load Running Time		0.1hrs	0~999999999.9hrs

Communication	
RS-485 (Standard)	2-wire connection, Half-duplex, Isolated Modbus®-RTU Protocol
Optical (-OPT)	Optical Transmitter (ST Adaptor)
PROFIBUS (-PRO)	PROFIBUS-DP/V0 Protocol Work as PROFIBUS slave, baud rate adaptive, up to 12M
Wi-Fi (-WRL)	802.11b/g/n WiFi communication

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SPECIFICATION SHEET PMTR/GEMINI

201402B

Input

Current Inputs (Each Channel)

Nominal Current	5A/1A
Metering Range	0~10 A ac/0~2A ac
Withstand	20Arms continuous 100Arms for 1 second, non-recurring
Burden	0.05VA (typical) @ 5Arms
Pickup Current	0.1% of nominal
Accuracy	0.5%

Voltage Inputs (Each Channel)

Nominal Full Scale	400Vac0.5% L-N, 690Vac L-L (+20%)
Withstand	1500Vac continuous 2500Vac, 50/60Hz for 1minute
Input Impedance	2Mohm per phase
Metering Frequency	45Hz~65Hz
Pickup Voltage	10Vac
Accuracy	0.5%

Energy Accuracy

Active (according to IEC 62053-22) Class 0.5s (according to ANSI C12.20) Class 0.5s
Reactive (according to IEC 62053-23) Class 2

Harmonic Resolution

Metered Value 2nd~31st harmonics

OPERATING ENVIRONMENT

Operation Temperature	- 25ºC to 70ºC
Storage Temperature	- 40ºC to 85ºC
Relative Humidity	5% to 95% non-condensing
Pollution Degree	2

CONTROL POWER

Universal	AC or DC
AC/DC Control Power	
Operating Range	100~415Vac, 50/60Hz, 100~300Vdc
Burden	3W
Withstand	3250Vac, 50/60Hz for 1 minute
Low Voltage DC Control Power (Optional)	
Operating Range	20~60Vdc
Safety Standard	IEC 61010-1, UL 61010-1, IEC 61557-12
EMC Standard	IEC 61000-4/-2-3-4-5-6-8-11, CISPR 22, IEC 61000-3-2, IEC 61000-6-2/4
Outlines Standard	DIN 43700/ANSI C39.1

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