PLT-M1501-BB Broadband Smart-Meter Powerline Tester

Datasheet

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Main features

- measurement and testing of physical level of PLC communication in both narrowband and broadband frequency range (up to 50MHz)
- designed for analyzing broadband frequencies up to 50MHz while at the same time covering also narrowband PLC standards: G3-PLC, CELENEC-S-FSK or PRIME communication technology (within Cenelec A-band) and FCC band performing spectral analysis in 20kHz-50MHz
- a web browser used for data monitoring and data logging operations on a PC or mobile device
- time based roll-oscilloscope analysis (option) available for much easier immediate transmit/receive PLC signal recognition
- data logging made inside the device through a triggering mechanism either on-demand or based on a timer
- data logs done in csv or animated gif format at configurable time intervals either on-board as data logger (no supervision required) or as in-browser downloading
- remote operation via LTE modem enabling operation from the office
- used for specific outdoor and high voltage environment
- solid construction and design with ABS plastic enclosure in robust rubber or textile casing
- power related issues:
    - 230V AC LINE input voltage, power supply included
    - Embedded rechargeable Li-Ion battery
    - Up to 4h standalone battery operation
- communication capabilities:
    - WiFi operating in access point mode
    - LTE USB modem option enabling remote device access from the office via a self-established VPN connection (modem can be provided)

Device Application

The One Phase Broadband PowerLine Tester PLT-M1501-BB represents the diagnostic instrumental equipment in the form of a spectrum analyzer and/or oscilloscope enabling the observation of communication signal levels through measuring PLC signal communication directly on-site where either a problem has been detected or simply the level of broadband signal needs to be measured. The PLT-M1501-BB can either be used by utility companies dealing with PLC smart meter deployments or by companies who are dealing with PLC Broadband communication. The instrument offers a unique way of performing frequency and time-based analysis in the 20kHz-50MHz frequency ranges. The reason for its' usage can vary from detecting PLC disturbance sources or simply analyzing the throughput of the broadband PLC signal.

Through the OpenVPN server one or multiple PLT devices can be directly managed remotely via LTE or ethernet connection. Through an automatic VPN connection, the PLT-M1501-BB can be accessed directly via web browser on any mobile or static device.

It is therefore crucial for the utility company to have an effective system in place which can remove these disturbances. The PLT-M1501-BB offers all the necessary means to any utility company dealing with PLC meter rollouts to observe the communication issues at the physical level by performing voltage and current spectral analysis as well as time based oscilloscope monitoring in the 20kHz-50MHz frequency band. This enables the utility specialists to find out the reason which is causing the undesired disturbances in a very economic manner.

Device full functionality

- measurement and testing of physical level of PLC communication with broadband capability
- designed for analyzing broadband frequencies up to 50MHz while at the same time covering also narrowband PLC standards: G3-PLC, CELENEC-S-FSK or PRIME communication technology (within Cenelec A-band) and FCC band performing spectral analysis in 20kHz-50MHz
- A web browser used for data monitoring and data logging operations on a PC or any iOS or Android mobile device
- Online viewing of recorded data files through an integrated slider-based viewer and online browsing, deleting, and downloading of recorded data
- PC-based "Offline PLT Viewer" SW for analyzing recorded data is included with the device enabling 3D heatmap analysis and animated gif creation of multiple records at the same time
- Time based roll-oscilloscope signal analysis available for much easier immediate transmit/receive PLC signal recognition
- Remote operation via LTE modem (option) enabling operation from the office through a secure VPN tunnel
- Data recorder logging is implemented either on-board the device or at the server side either on-demand, amplitude/frequency trigger-based or timer based
- Data recording is done on an 8GB or (optionally) 32GB flash memory which is enough for over 400 thousand (8GB) or 1.5 million (32GB) stored spectrum frames
- used for specific outdoor and high voltage (up to 250VAC) environment
- solid construction and design with ABS plastic enclosure in robust rubber
- Simple (button-less) on-site usage (connect & go)
- Solid manufacturing and safe use in all demanding environments (CAT IV compliance for TS measurements)
- dimensions: 29cm x 20cm x 6cm
- power related issues:
    - 230V AC LINE input voltage, power supply included
    - Embedded rechargeable Li-Ion battery
    - Up to 4h standalone battery operation
- communication capabilities:
    - WiFi operating in access point mode
    - LTE USB modem option enabling remote device access from the office - via a self-established VPN connection (modem can be provided)
- Interface
    - USB-A port (USB OTG)
    - Ethernet 1Gb/s

System components:

- FPGA signal processor-based processing unit with the following accessible interfaces:
    - 1 USB port (USB OTG) which is used for either WiFi dongle or LTE modem
    - Ethernet 1Gb/s – RJ-45 connector
- Galvanic decoupling and 10kHz-50MHz bandpass filter unit (inside the device)
- Li-Po battery pack with 10Ah capacity (allows up to 4 hour operation)
    - vMeasurement connection slots at front of device
- 2m Measurement cables
- Connection probes type FLUKE TP175E – CATIV or CAT III compatible
- Insulated BNC female input for Rogowski coil attachment

- Rogowski coil with 1MHz frequency range Type GMC- PROSYS ACP-2015 with 1,5m cable coax cable
- ON/OFF switch with LED indicator
- 4 LED battery charge indicator with button

Compliance with standards

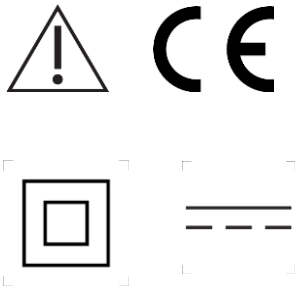
The PLT-M1501-BB unit complies with the following international standards:

Standard EN	Description
EN 61010-1:2010	*Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements*
CAT IV 300 compatible	*Device is suitable for origin of installation or utility level measurements on primary over-current protection devices and on ripple control units*

Table 1: List of applicable standards

MEASUREMENT INPUT
Input: CAT IV 300V
Input impedance: 31 – 482 Ohm
Frequency: 50, 60 Hz (measured 10 – 500kHz)
Connection type: phase-to-neutral

MAINS POWER SUPPLY
Input: 100-240VAC, 50-60Hz
Output: 3.6-6.5VDC, min. 1.2A
Maximum rated power: 20W



Ordering information

To order this product please follow the product ordering code guideline as:

PLT M1501-BB-[_ _X_ _]

[O] Roll Oscilloscope for time domain
[L] LTE USB modem with prepaid SIM
[M] 32GB Memory card (8GB is included)
[PS] External Power Supply

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