

broadband PLC Solutions

The Power Connection



F
Plus

Power Line Ultimate System

m@in.net
Communication Ltd



Power Line Ultimate System

PLUS, Power Line Ultimate System, is an open flexible system, designed to provide a wide range of telecommunication services over power line grids. Main applications of Power Line Communications (PLC) are: Internet, telephony and AMR (automatic meter reading). Further applications, such as home automation may also be implemented over the same infrastructure. **PLUS** uses a sophisticated modem technology to achieve high data rates over noisy low voltage power lines. **PLUS** incorporates, as well, routing capabilities and sophisticated algorithms to optimize the use of the bandwidth provided by the PLC modem.

Where plain telephony is required, our **TeIPLUS** series can be implemented at low cost per subscriber.

The PLUS product line is not just a PLC system. It is a concept that provides a highly cost-effective telecommunication solution for high-speed transmission over the existing infrastructure of the power utilities networks.

PLUS building blocks include:

- **NtPLUS** - a home termination unit that provides a variety of communication services at any electrical wall socket.
- **RuPLUS** - a power line home network controller, located near the power meter.
- **CuPLUS** - a power line neighborhood network controller, located in the vicinity of the low voltage transformer.
- **RcPLUS** - a regional concentrator that ties in several neighborhood networks to the power utility telecom backbone.
- **NmPLUS** - the system manager to control the **PLUS** components of the entire network.

Based on M@in.net wide experience with conventional and power line communications, **PLUS** advanced product line incorporate unique technologies to provide distinctive competitive advantages.



PLUS Advantages

- **Full solution from the customer's power socket to the backbone**
- **Wide range of services**
- **Numerous interfaces available for each type of unit**
- **Fast and easy implementation**
- **Low maintenance costs**
- **No need for home wiring**
- **End-to-end management & control**
- **Remote configuration and software versions updates**
- **Integrated IP functionality**
- **Secured transportation over the power line**
- **Easily adapts to local regulations**

M@in.net keeps abreast of newly- introduced regulations and keeps track of any new developments in the field of high-speed PLC. Our system is designed to guarantee that it can be easily configured to meet specific regulations or any new requirements that might be needed.

Basic PL Units Specifications

Transmission method:

Direct sequence spread-spectrum (DSSS)

Transmission frequency:

4 to 25 MHz

Transmission rate:

Adaptive (according to transmission distance) up to 10 Mb/s

Operating power:

90 - 264 VAC @ 47 - 63 Hz

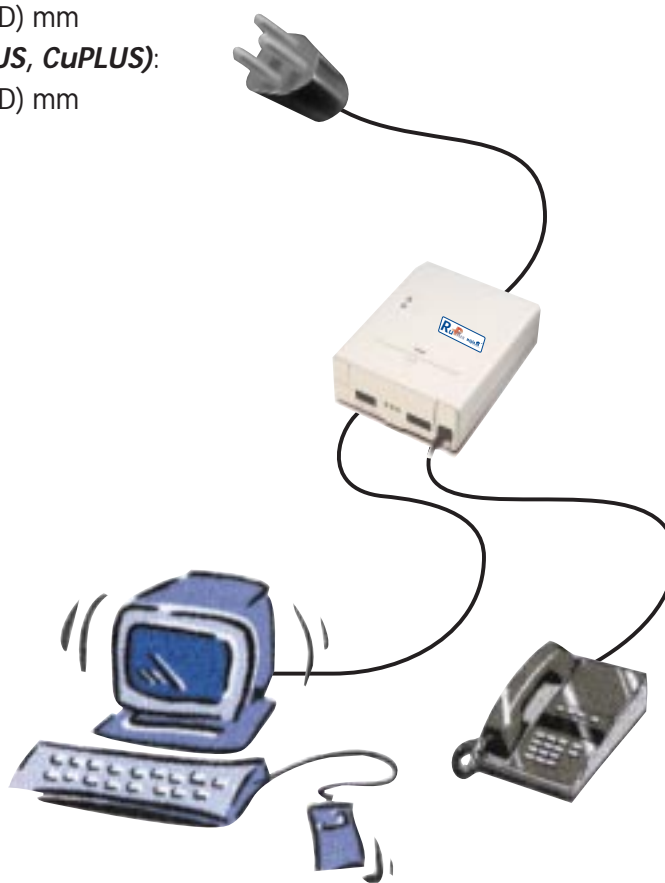
Dimensions:

Indoor Units (NtPLUS, RuPLUS):

108 (W) x 45 (H) x 152 (D) mm

Outdoor Units (RuPLUS, CuPLUS):

167 (W) x 60 (H) x 215 (D) mm



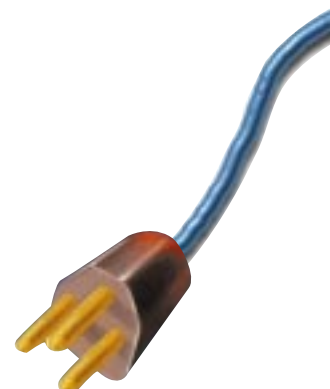
Joining you on the Power Highway



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PLUS Components

Ntplus

NtPLUS is a power line home network termination unit that provides communication services at any electrical wall socket. This unit communicates with the **RuPLUS** via all phases of the home electrical system.

NtPLUS supports the following optional interfaces towards the customer's equipment:

- 10BaseT to personal computers that do not have a PLC card
- RS-232 for AMR and other telemetry applications
- POTS for analog telephone
- USB

The unit (**NtPLUS**) may also be supplied as a PC PLC card

Ruplus

RuPLUS, is the access network termination unit at the customer premises. This unit interconnects each home or business location to the neighborhood-concentrating unit, via the power line. The **RuPLUS** can also function as a home PLC network manager if so desired. In this case, routing capabilities are combined to prevent home transportation from loading the neighborhood network. The unit is available in different configurations to support the required application such as 10BaseT interface to any non-PLC home network, automatic meter reading and others.



Rcplus

RcPLUS – A regional concentrator that connects a few neighborhood networks, via a variety of communication media, to the backbone telecom network of the power utility.

The purpose of these units is to enable an efficient cost effective gateway to the backbone. The gateway has concentration capabilities and is able to connect to IP and/or ATM and/or SDH networks.

These units are based on a third party development, but are adapted and supplied by **m@in.net**.

Cuplus

CuPLUS located in the vicinity of the low-voltage transformer. It controls the access to/from the **RuPLUS** units at customer premises. It applies Point-to-Multi-Point communication over the low-voltage power line. The **CuPLUS** includes as well, capabilities to preclude unnecessary data to reach the backbone.

PLUS offers a verity of interfaces to the **CuPLUS**. These interfaces may use fiber optic and/or copper and/or air for most cost-effective solution over the existing infrastructure.

Nmplus

NmPLUS is the **PLUS** Network Management System which manages and controls the **PLUS** access system and its various components. The **NmPLUS** may be situated anywhere in the network.

NmPLUS provides:

- Activation / deactivation of system components
- Control of activities and failures
- Raw data for billing and statistics
- Software remote downloads
- Failure detection for all system units

Alternatively, **PLUS** facilitates the integration of a high-level NMS originally planned to manage the overall power utility telecom network.

