MM-202BX
Installation Manual

PLC Master Unit

Plug into the future
Powerline Communication by Xeline

Xeline Co., Ltd.

ATTENTION

CE

This equipment conforms with the following CE standard(s):

(1) EN55022

(2) EN60950-1

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

◎ Reorient or relocate the receiving antenna.
◎ Increase the separation between the equipment and receiver.
◎ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
◎ Consult the dealer or an experienced radio/TV technician for help.

Modifications not expressly approved by the manufacturer could void the user's authority to operated the equipment under FCC rules.

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 This document is subject to change without prior notice.

1. Introduction

Powerline Communication (PLC) technology uses the existing powerline infrastructure to transfer high-speed data, eliminating the need for expensive and complicated cable installation. Because the home or office is already a 'wired network' through powerlines, Xeline's PLC system offers a cost-effective and easy-to-install Internet access solution from any electrical outlet.

Xeline's XPAS-200B PLC Internet Access System supports data rates of up to 24Mbps and is targeted for effective Internet access over powerlines in residential houses or high-rise building configurations.

The XPAS-200B system supports both Master/Slave or Ad-hoc topology and is based on Xeline's proprietary Cell-structured MAC (CMAC), which offers virtually unlimited number of nodes per physical network.

Remote configuration and firmware upgrade are also supported for efficient setup and maintenance of the PLC units in mass-usage environments.

Xeline's XPAS-200B system supports EMS (Element Management System) for effective remote monitoring and management of the PLC networks.

2. Before Installing the MM-202BX

2.1 Package Contents

Before installing, first verify that you have all of the following items.

◯ MM-202BX PLC Master Unit

◯ 1 AC power cable

◯ 1 Installation manual

◯ 1 RJ-45 cable (CAT 5)

Figure 1 MM-202BX Package Contents

If there is a missing item or any visible damage, notify your service provider or dealer immediately.

2.2 Installation Environment

In order to install the MM-202BX, the following conditions must be met:

(1) Power supply for the MM-202BX

(2) Convenient access to the local backbone network

(3) Sufficient space to install the MM-202BX and CU-100A (PLC Coupler)

Note: In indoor configurations, one of the optimal locations for the MM-202BX is near the distribution station.

(4) 1 Laptop PC 1

(5) RJ-45 direct cable (Core manufactured by: E-Tech Electronics Co., Ltd. Model No. cu1330b)

(6) 1 SU-200BX (test unit) to check the PLC connection with the MM-202BX

(7) 1 Switch Hub for connecting multiple MM-202BX and EU-200BX units *(optional)*

2.3 Guidelines for Installation

Please make sure to read the following guidelines before installation.

(1) Install the MM-202BX on the inner side of power-supplied distribution panel of a building. In case there is not enough space to install inside, install it on the external wall of the distribution panel.

(2) When installing on the external wall of the distribution panel, prepare a protective enclosure to protect the device and to prevent effects from external environment.

(3) Never install MM-202BX on a wall made of materials such as aged and rusted wood, etc.

(4) Use silicon compound to fix firmly when it is difficult to use only clamp screws when fixing the MM-202BX on the inner wall of the distribution panel.

(5) Avoid the following environments:

- Areas with extremely high or low temperatures
- Areas with high humidity or high risk of flooding
- Areas where sudden changes in temperature occur
- Under direct sunlight

(In outdoor configurations, install the MM-202BX in a shady area away from direct sunlight.)

(6) Install the MM-202BX at least 1m from the ground to avoid contact with children or small animals.

2.4 Safety Precautions

Please make sure to read the following instructions before handling the equipment.

(1) Read all instructions before installing or operating the equipment. Be sure to keep this manual for further reference.

(2) Please follow all the safety precautions and other installation procedures.

(3) Do not place heavy objects on top of the MM-202BX.

(4) If water or any other liquid is spilled on the device, turn off the power and unplug the cord. Contact your Internet Service Provider or Xeline's Technical Support Center. Continuing to use the device may cause fire or an electric shock.

(5) Do not open, disassemble, or attempt to repair the device. If service or repair is required, contact your service provider or Xeline's Technical Support Center. Incorrect reassembly can cause electric shock when the equipment is subsequently used.

3. Getting to Know the MM-202BX

3.1 Front View

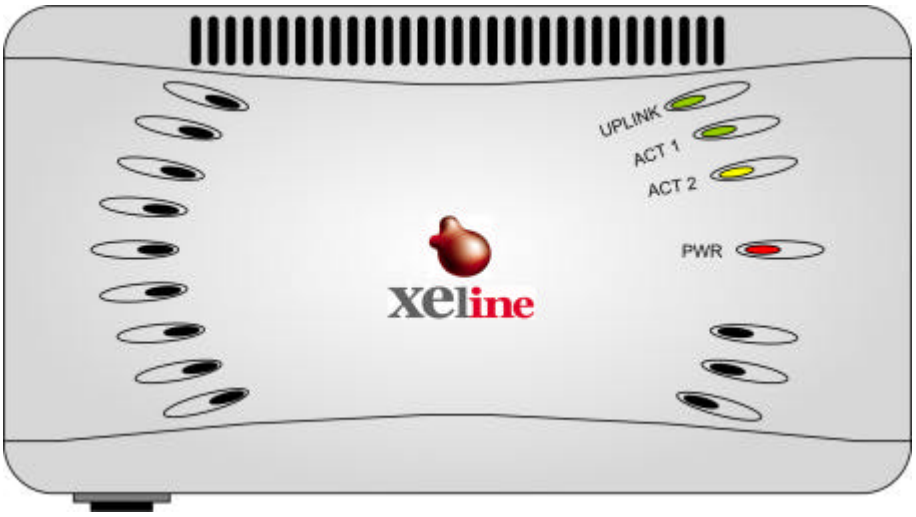

Figure 2 MM-202BX Front View

UPLINK	Activates when the MM-202BX's UPLINK port is connected to the Backbone. Blinks during data transmission between the MM-202BX and backbone.
ACT1	(PCS) Blinks when PLC signals are detected.
ACT2	(LINK) Blinks when the detected PLC signals are valid.
PWR	Activates when power is turned on.

3.2 Top View

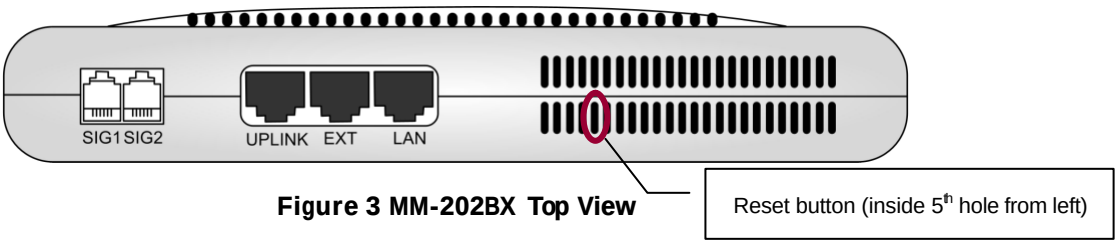

Figure 3 MM-202BX Top View

UPLINK	RJ-45 Ethernet port (WAN port)
EXT	RJ-45 Ethernet port (LAN port 1)
LAN	RJ-45 port for UART signal (optional use)
SIG1	RJ-11 port for connection to CU-100A PLC Coupler
SIG2	RJ-11 port for connection to CU-100A PLC Coupler
RESET	Resets the MM-202BX to factory default mode. *(Caution!)*

3.3 Bottom View

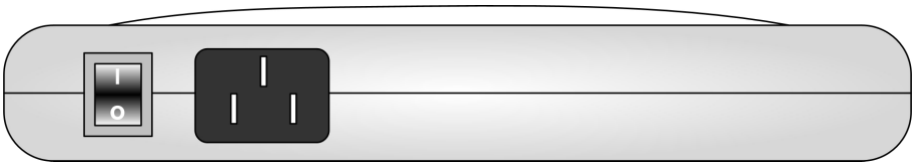

Figure 4 MM-202BX Bottom View

Power Switch	Switch for turning power ON/OFF
AC Inlet	For connection to power cable.

3.4 Product Specifications

	Specifications	Remarks
Data rates	Up to 24Mbps	
Interface	RJ-45 Ethernet 2 port	For connection with backbone
	RJ-45 UART 1 port	Optional use
	RJ-11 PLC 2 port	For connection with CU-100A
Power	AC 110V - 240V, 0.5A, 50/60Hz	
Dimensions	260mm × 154mm × 35mm	(W x D x H)
Weight	505g	
operational temperature	40 ºC	

4. Installing the MM-202BX

4.1 Connecting the Power

Plug the power cable of the MM-202BX into an available power outlet in the distribution station or panel[1].

4.2 Configuring the MM-202BX

The MM-202BX is remotely configured by the EU-200BX through automatic process. Therefore there is no need to manually configure the MM-202BX[2].

4.3 Connecting the CU-100A to the MM-202BX

The CU-200A is usually installed near the circuit breaker of each subscriber's house. Use a straight RJ-11 cable to connect the MM-202BX and CU-100A. The RJ-11 cable is not included with the MM-202BX[3].

① Insert one end of the RJ-11 cable in the **SIG1 or SIG2** port of the MM-202BX.

② Insert the other end of the cable in the **INPUT** port of the CU-100A.

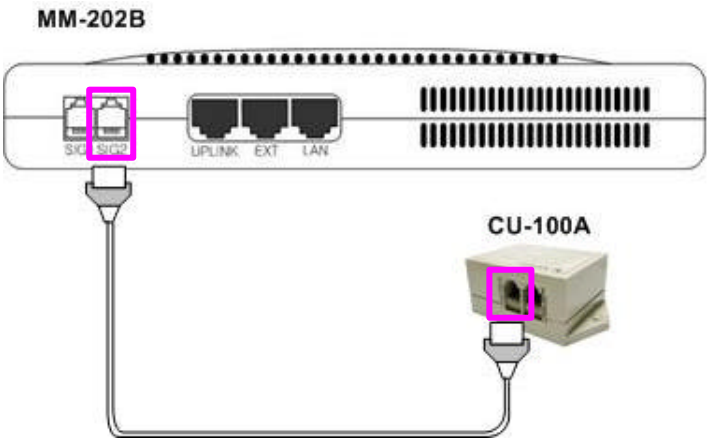

Figure 5 Connecting the MM-202BX to the CU-100A

[1] *If there is no available power outlet, connect the Hot line and Neutral line from the public power supply in order to provide power to the MM-202BX. Be careful not to use private powerlines.*

[2] *Please refer to the EU-200BX Installation Guide for more details.*

[3] *The RJ-11 cable is not included with the product because the distance to each subscriber's house varies widely according to the site configuration. The RJ-11 cable should be a straight cable with wires in the same sequence on both ends.*

4.4 Connecting the MM-202BX to the ISP Backbone

***Note**: To connect multiple MM-202BX units and the EU-200BX EMS unit, it is recommended to prepare a Switch Hub in advance for installation.*

① Check the connection between the backbone and Switch Hub.

② Connect the UPLINK port of the MM-202BX to the Switch Hub using the RJ-45 cable.

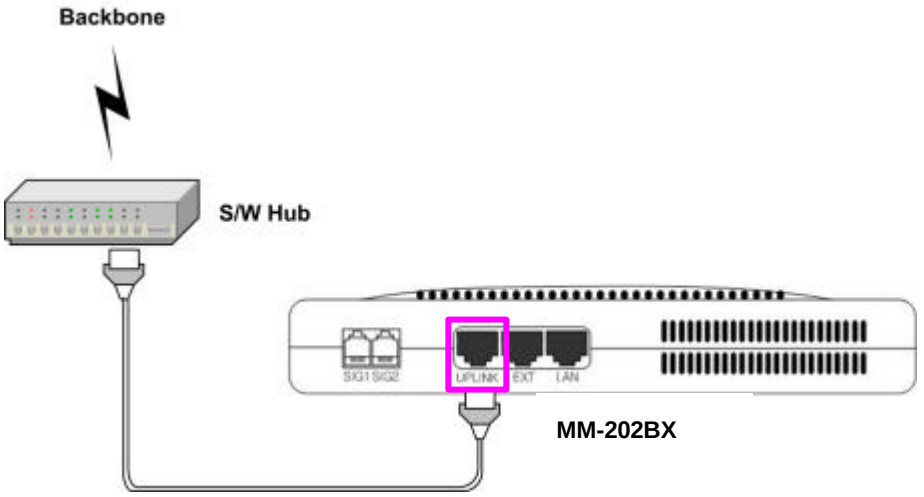

Figure 6 Connecting the MM-202BX to the ISP backbone

③ Once the MM-202BX is connected to the backbone, turn on the power of the MM-202BX.

④ Wait approximately 3 minutes for the EU-200BX to finish the remote registration process.

4.5 Checking the Final Connections

***Note**: When using the SU-200BX test unit, make sure it is set to Factory Default mode.*[4]

4.5.1 Checking the Ethernet connection

① Connect the laptop PC to the LAN port of the MM-202BX using a RJ-45 cable.

② Configure the network properties of the laptop PC as provided by the ISP.

③ Confirm if the Internet connection is working properly.

4.5.2 Checking the PLC connection using the SU-200BX test unit

① Turn off the power of the MM-202BX.

② Disconnect ALL cables (including the RJ-11 cable) from the MM-202BX except for the

[4] *Please refer to the SU-200BX Installation Guide for details on resetting to Factory Default mode. The ACT LED of the SU-200BX will blink when successfully changed to the factory default mode.*

power cable.

③ Connect the SU-200BX test unit to the MM-202BX UPLINK port using a RJ-45 cable.

④ Connect the SU-200BX power cable to a power outlet from the same phase as the installed MM-202BX.

⑤ Turn on the power of the MM-202BX.

⑥ Using a long sharp instrument, push down on the reset button of the SU-200BX to.

⑦ Turn on the power of the SU-200BX while the reset button is pushed down.

⑧ Check if the ACT LED is blinking.

⑨ Disconnect the RJ-45 cable from the SU-200BX and MM-202BX.

⑩ Reconnect the MM-202BX cables to their original positions.

⑪ Reset the power of the SU-200BX.

⑫ Connect the laptop PC to the LAN port of the SU-200BX and configure the network properties.

⑬ Confirm if the Internet connection is working properly.

4.6 Resetting to Factory Default Mode

Use the reset button at the top side of the MM-202BX in order to reset the configuration into factory default mode.

① Turn off the power of the MM-202BX.

② Disconnect all cables (including CU-100A cables) from the MM-202BX except for the power cable.

③ Use a long sharp instrument (such as a tweezers) in order to push down on the reset button on the top side of the MM-202BX.

④ Turn on the MM-202BX while pushing down on the reset button.

⑤ Using the sharp instrument, push down on the reset button for 1 second. Wait at least 1 second before repeating the procedure at least 3 times or more.

⑥ The ACT 2 LED will blink when the MM-202BX is changed to the factory default mode.

⑦ Reset the power of the MM-202BX.

5. Trouble Shooting

Power	
Problem	**Checklist**
The PWR LED does not activate.	① Check if the power cable is firmly plugged into the MM-202BX and power outlet. ② Check if the Hot line and Neutral line is correctly connected to the power outlet.
Ethernet Connection	
Problem	**Checklist**
The UPLINK LED does not activate.	① Check if the RJ-45 cable is firmly plugged into the UPLINK port of the MM-202BX and the Switch Hub. ② Check if the Switch Hub is operating normally.
The network connection icon in the PC icon tray is disabled.	① Check if the RJ-45 cable is firmly plugged into the LAN port of the MM-202BX and NIC of the laptop PC. ② Check if the NIC connection is disabled in the Local Area Network window.
Internet access is not possible.	① Try connecting the laptop PC directly to the Switch Hub and recheck the Internet accessibility. ② Check the IP configuration of the laptop PC. If the IP configuration is correct, the problem lies in the ISP backbone.
PLC Connection	
Problem	**Checklist**
The ACT1 and ACT2 LEDs of the MM-202BX do not activate.	① Check if the RJ-11 cable is firmly plugged into the SIG2 port of the MM-202BX and the INPUT port of the CU-100A. ② Check the coupling procedures of the CU-100A are correctly done. For details concerning the coupling methods, refer to the *CU-100A Installation Guide*. ③ Check if the SU-200BX test unit is plugged into an outlet that is from the same phase as the powerlines coupled to the CU-100A. (This procedure is not necessary if multi-phase coupling method is used.)
Internet access is not possible.	This can occur when the SU-200BX test unit configuration has not been correctly downloaded. Reset the SU-200BX to the factory default mode and download the configuration again.

If the problem is still not solved, please contact Xeline's Technical Support Center.

6. Appendix

- **Xeline Technical Support Center**

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