Instruction Bulletin

POWERLOGIC Ethernet Gateway
EGX200

Retain for future use.
Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

**NOTICE**

Electrical equipment should be serviced only by qualified electrical maintenance personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

**Class A FCC Statement**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designated to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

### DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

### WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.

### CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.

### CAUTION

CAUTION, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, can result in property damage.

**NOTE**: Provides additional information to clarify or simplify a procedure.
CHAPTER 1—INTRODUCTION ................................................. 1
CHAPTER CONTENTS .......................................................... 1
ABOUT THIS DOCUMENT .................................................. 1
PRODUCT DESCRIPTION .................................................. 1
EGX200 BOX CONTENTS .................................................. 3
EGX200 COMPONENTS .................................................. 4
CHAPTER 2—SAFETY PRECAUTIONS ........................................ 5
CHAPTER 3—GETTING STARTED ............................................. 7
CHAPTER CONTENTS .......................................................... 7
INTRODUCTION .............................................................. 7
EGX200 QUICK START CHECKLIST ...................................... 7
EGX200 INITIAL SETUP OVERVIEW .................................... 8
  Setup Using a Web Browser ........................................... 8
  Setup Using HyperTerminal .......................................... 11
  Accessing the Setup Utility .......................................... 11
CHAPTER 4—INSTALLATION .................................................. 15
CHAPTER CONTENTS .......................................................... 15
MOUNTING LOCATIONS AND INSTALLATION ......................... 15
  Dimensions .................................................................. 16
  Mounting Options ....................................................... 17
    Wall/Panel Mount .................................................... 17
    DIN Rail Mount ....................................................... 18
    Flat Surface Placement ............................................ 18
WIRING CONNECTIONS .................................................... 19
  Power Supply ............................................................ 19
  Control Power LED ..................................................... 19
  RS-485 Serial Ports .................................................... 19
  4-Wire Communication ............................................... 20
  2-Wire Communication ............................................... 21
  Daisy-Chain Maximum Distances .................................... 21
  Com 1 and Com 2 (RS-485) LEDs ................................... 22
  Ethernet Ports ......................................................... 22
  Ethernet LEDs .......................................................... 22
  Biasing and Termination .............................................. 23
    RS-485 Configuration ............................................... 23
    4-Wire Configuration ............................................... 23
    2-Wire Configuration ............................................... 23
CHAPTER 5—OPERATION ........................................... 25
CHAPTER CONTENTS ................................................ 25
ACCESSING THE EGX200 OVER A NETWORK ................. 25
  Logging in to the EGX200 .................................... 25
EGX200 EMBEDDED WEB PAGE OPTIONS ....................... 27
  Communication Settings ...................................... 27
    Ethernet Port Setup via LAN ................................ 28
    RS-485 Serial Port Setup .................................. 28
  Device List ..................................................... 29
  Diagnostics .................................................... 31
  Password Administration ..................................... 32
    Administrator Account .................................... 32
    User Account ................................................ 32
  Advanced Setup .............................................. 34
  Logging Out ................................................... 34
APPENDIX A—TROUBLESHOOTING ............................... 35
MAINTENANCE .................................................... 35
TROUBLESHOOTING ............................................. 35
APPENDIX B—SPECIFICATIONS ..................................... 37
APPENDIX C—COMMUNICATING WITH SMS USING THE EGX ... 39
CHAPTER 1—INTRODUCTION

CHAPTER CONTENTS
CHAPTER CONTENTS .......................................................... 1
ABOUT THIS DOCUMENT............................................... 1
PRODUCT DESCRIPTION............................................... 1
EGX200 BOX CONTENTS ............................................... 3
EGX200 COMPONENTS ............................................... 4

ABOUT THIS DOCUMENT
This document contains the necessary installation and operation instructions for the
POWERLOGIC Ethernet Gateway (EGX200). To install the EGX200, you should have
a general understanding of the POWERLOGIC Power Monitoring and Control System
related products and technology.

For more information about the POWERLOGIC system, see the following documents:

• POWERLOGIC System Manager (SMS) Software User's Guide
• Square D POWERLOGIC System Architecture and Application Guide

PRODUCT DESCRIPTION
The POWERLOGIC EGX200 is an Ethernet-based device that provides a transparent
interface between Ethernet based networks and field devices. Field devices include
meters, monitors, protective relays, PLCs, trip units, and other devices that
communicate over MODBUS, JBUS and POWERLOGIC protocol. The EGX200 lets
you use the existing Ethernet infrastructure for the following benefits:

• A high speed, high bandwidth network connectivity to maximize system
  performance on alarm annunciation and data transfers.
• Open architecture, wide range connectivity products.

The EGX200 uses MODBUS/TCP protocol to access power monitoring information
across a local area network (LAN) or a wide area network (WAN). Also, this capability
allows to use power monitoring software to access information from devices for data
collection, trending, alarm/event management, harmonic analysis, and other functions.
In addition, the EGX200 is fitted with a Web server, which lets you remotely configure and troubleshoot both Ethernet and Serial communication parameters. A typical application example is shown in Figure 1–1.

**Figure 1–1:** System architecture example showing EGX200 installed for Ethernet connectivity
EGX200 BOX CONTENTS

The following items are provided for installation and operation of the EGX200:

- EGX200 unit with all connectors plugged in
- 24Vdc switching power supply (wall mount with global plug kit)
- EGX200 mounting kit, containing rubber feet and DIN rail adapters
- Mounting template
- Installation/Instruction manual for EGX200 and power supply
- Registration card
EGX200 COMPONENTS

This section identifies EGX200 components. Figure 1–2 shows the components of the EGX200. Table 1–1 identifies those components and explains their functions.

Figure 1–2: Identifying EGX200 components

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Control Power Connector</td>
<td>3-Position Female Terminal Block</td>
</tr>
<tr>
<td>2</td>
<td>Ethernet Link LED</td>
<td>This LED illuminates yellow steadily when there is a proper Ethernet Physical connection.</td>
</tr>
<tr>
<td>3</td>
<td>Ethernet Port LEDs</td>
<td>A yellow LED illuminates when the EGX200 is receiving data (Rx), and a Green LED illuminates when the EGX200 is transmitting data (Tx).</td>
</tr>
<tr>
<td>4</td>
<td>10/100BaseT port (twisted pair)</td>
<td>This port drives a twisted pair cable up to 328ft. (100m). This port has a standard RJ-45 connector.</td>
</tr>
<tr>
<td>5</td>
<td>Power LED</td>
<td>This green LED illuminates steadily when applied control power is within acceptable range.</td>
</tr>
<tr>
<td>6</td>
<td>Com 1 (RS-485)</td>
<td>RS-485 port is used for connecting POWERLOGIC, Jbus or Modbus daisy-chained devices.</td>
</tr>
<tr>
<td>7</td>
<td>Com 1 (RS-485) LEDs</td>
<td>The yellow LED illuminates when the RS485 port 1 is receiving data (Rx); the green LED illuminates when the RS-485 port 1 is transmitting data (Tx). Both LEDs flicker intermittently if there is a configuration error.</td>
</tr>
<tr>
<td>8</td>
<td>Com 2 (RS-485)</td>
<td>RS-485 port 2 is used for connecting POWERLOGIC, Jbus or Modbus daisy-chained devices.</td>
</tr>
<tr>
<td>9</td>
<td>Com 2 (RS-485) LEDs</td>
<td>The yellow LED illuminates when the RS485 port 2 is receiving data (Rx); the green LED illuminates when the RS-485 port 2 is transmitting data (Tx). Both LEDs flicker intermittently if there is a configuration error.</td>
</tr>
<tr>
<td>10</td>
<td>RS-485 LEDs</td>
<td>If using Com 2 Rs-485, the RS-485 LED illuminates green; if using Com 2 RS-232, the RS-485 LED is dark.</td>
</tr>
<tr>
<td>11</td>
<td>RS-232 Com</td>
<td>DB-9 connector compatible with Null Modem cable. The port is used for initial EGX200 setup via HyperTerminal.</td>
</tr>
<tr>
<td>12</td>
<td>Dip Switches</td>
<td>Provide custom configuration options for COM 1 and COM 2 RS-485 communications.</td>
</tr>
</tbody>
</table>
CHAPTER 2—SAFETY PRECAUTIONS

This chapter contains important safety precautions that must be followed before attempting to install, service, or maintain electrical equipment. Carefully read and follow the safety precautions outlined below.

⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, BURN, OR EXPLOSION

- Only qualified workers should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all sources of electric power. Assume that all circuits are live until they have been completely de-energized, tested, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Turn off all power supplying the equipment in which the EGX200 is to be installed before installing and wiring the EGX200.
- Beware of potential hazards, wear personal protective equipment, and carefully inspect the work area for tools and objects that may have been left inside the equipment.
- The successful operation of this equipment depends upon proper handling, installation, and operation. Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.

Failure to observe these instructions will result in death or serious injury.
CHAPTER 3—GETTING STARTED

CHAPTER CONTENTS

CHAPTER CONTENTS .................................................. 7
INTRODUCTION ..................................................... 7
EGX200 QUICK START CHECKLIST ......................................... 7
EGX200 INITIAL SETUP OVERVIEW ........................................ 8
   Setup Using a Web Browser ........................................... 8
   Setup Using HyperTerminal ......................................... 11
      Accessing the Setup Utility ....................................... 11

INTRODUCTION

This chapter contains a quick reference that lists the steps necessary to install and operate the EGX200, as well as the initial instructions for setting up the EGX200 prior to installation.

EGX200 QUICK START CHECKLIST

Use the steps in Table 3–1 as a quick start checklist for the EGX200. For complete instructions, refer to the chapter listed:

Table 3–1: Quick Start Checklist

<table>
<thead>
<tr>
<th>Steps</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wire the control power.</td>
<td>Chapter 4—Installation</td>
</tr>
<tr>
<td>2. Set up the EGX200 for Ethernet communication via HyperTerminal or web browser.</td>
<td>Chapter 3—Getting Started</td>
</tr>
<tr>
<td>3. Install the EGX200.</td>
<td>Chapter 4—Installation</td>
</tr>
<tr>
<td>4. Wire RS-485 devices to serial ports.</td>
<td>Chapter 4—Installation</td>
</tr>
<tr>
<td>5. Launch browser to configure serial communication parameters.</td>
<td>Chapter 5—Operation</td>
</tr>
</tbody>
</table>
EGX200 INITIAL SETUP OVERVIEW

Before configuring the EGX200, obtain a unique IP address, subnet mask, and router IP address from your network administrator.

Table 3–2: Options for Ethernet Communications Setup

<table>
<thead>
<tr>
<th>Option</th>
<th>Available Values</th>
<th>Selection Description</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td>255.255.255.255</td>
<td>The unique Ethernet IP network address of the EGX</td>
<td>10.10.10.10</td>
</tr>
<tr>
<td>Subnet Mask</td>
<td>255.255.255.255</td>
<td>The unique Ethernet IP subnet mask address of your network</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>Router</td>
<td>255.255.255.255</td>
<td>Designates the router used for wide area network (WAN) communications</td>
<td>0.0.0.0</td>
</tr>
</tbody>
</table>

There are two ways to initially set up and assign the EGX200 Ethernet parameters:

- Using a Web Browser
- Using Windows HyperTerminal

Setup Using a Web Browser

The EGX200 is equipped with a web server that includes five embedded pages that enable you to configure the Ethernet and serial communication parameters, add serial devices, enter passwords, and access diagnostics. The EGX200 is shipped with a default IP address (10.10.10.10) and a sub-net mask default address (255.255.255.0) that can be used to access the embedded web pages. The Communication Settings web page is used to set up the desired IP address, subnet mask, and router IP to match the network configuration.

To access the EGX200 Communication Settings web page using a browser, follow these steps:

1. Connect a cross-over cable from the EGX200 to the PC, as shown in Figure 3–1.

![Figure 3–1: Laptop to EGX200 connection for configuration](image-url)
2. For the PC, force a static IP address. Use 10.10.10.11 (or any address except 10.10.10.10) and a subnet mask (255.255.255.0).
   
   **NOTE:** The IP address and sub-net mask settings for the EGX200 and PC must match.

3. Reboot the PC, if required.

4. From your PC, launch a standard web browser such as Internet Explorer or Netscape Navigator.

5. In the URL address field (see Figure 3–2), enter the EGX200 IP address: 10.10.10.10.

   ![Figure 3–2: IP address entered in URL address field](image)

   The EGX200 login page displays, as shown in Figure 3–3.

   ![Figure 3–3: EGX200 Login page](image)

6. In the Language field, select the desired language.

7. To log in, enter password: `admin`. Click the Log In button.
   
   The EGX200 Home page displays, as shown in Figure 3–4 on page 10.
8. Click Communication Settings to set up Ethernet and RS-485 communication. The Communications Settings page displays, as shown in Figure 3–5.

9. Enter the desired IP, Subnet Mask, and Router IP address.
10. Click Update.
11. Log out
12. Reset your PC back to its original Ethernet LAN configuration.
Setup Using HyperTerminal

The EGX200 has a setup utility in its memory that can be accessed using any HyperTerminal program for the Windows operating system, or an equivalent terminal emulator (after connecting a null modem cable between the RS-232 ports of the PC and EGX).

When you turn on an EGX200, the green RS-485 LED illuminates for a few seconds and then turns off. When this LED turns off, you have 5 seconds to enter setup mode. If you do not enter setup mode within 5 seconds, the EGX200 will continue to boot up normally and bypass the setup utility.

Accessing the Setup Utility

To access the setup utility, follow these steps:

1. Attach a null modem cable between the RS-232 Com port of the EGX200 and a Microsoft Windows based laptop or a PC, as illustrated in Figure 3–6.

![Figure 3–6: Laptop to EGX200 connection for configuration](image)

2. From your laptop, open the HyperTerminal accessory. To do this, from the Windows Explorer task bar, click Start > Programs > Accessories > Hyperterminal > HyperTerminal.

   The HyperTerminal program opens to the Connection Description page, as shown in Figure 3–7 on page 12.
3. In the Name field, enter a descriptive name for your new HyperTerminal connection, and click OK.
   The Connect To page displays, as shown in Figure 3–8.
4. In the Connect using field, select the desired Com port (Com 1 or Com 2), and click OK.

The Com Port Properties page displays, as shown in Figure 3–9.

![HyperTerminal Com Port Properties page](image)

**Figure 3–9: HyperTerminal Com Port Properties page**

5. In the Com Port Properties screen, set the values listed in Table 3–3.

**Table 3–3: Communications Settings**

<table>
<thead>
<tr>
<th>Settings</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baud Rate</td>
<td>19200</td>
</tr>
<tr>
<td>Data Bits</td>
<td>8</td>
</tr>
<tr>
<td>Parity</td>
<td>None</td>
</tr>
<tr>
<td>Stop Bits</td>
<td>1</td>
</tr>
<tr>
<td>Flow Control</td>
<td>None</td>
</tr>
</tbody>
</table>
6. Enter the EGX Setup Utility by doing the following steps:

   a. Apply power to the EGX200 by wiring the 24Vdc connector to a power source, or recycle power by unplugging the 24Vdc power connector and plugging it back in.

      \textit{NOTE: After applying or recycling power, the green power LED briefly turns ON and then turns OFF. You only have 5 seconds to press Enter to access the EGX200 setup utility.}

   b. While the green LED is OFF, Press Enter.

The EGX200 Setup Utility options display, as shown in Figure 3–10. Table 3–4 provides descriptions of these options, and press Enter during the 5 second window.

<table>
<thead>
<tr>
<th>Choose an option:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Change IP Address (10.10.10.10)</td>
</tr>
<tr>
<td>2 = Change Subnet Mask (255.255.255.0)</td>
</tr>
<tr>
<td>3 = Change Router Address (0.0.0.0)</td>
</tr>
<tr>
<td>4 = quit</td>
</tr>
</tbody>
</table>

\textbf{Figure 3–10: EGX200 Setup Utility options}

\textbf{Table 3–4: EGX200 Setup Utility descriptions}

<table>
<thead>
<tr>
<th>Option No.</th>
<th>Description</th>
<th>Default Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Allows you to enter a desired, unique IP address for the EGX200</td>
<td>10.10.10.10</td>
</tr>
<tr>
<td>2</td>
<td>Allows you to enter the desired Subnet Mask address of the EGX200 network</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>3</td>
<td>Allows you to enter the Router IP address for the EGX200 WAN</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>4</td>
<td>Saves the above configuration and exits the HyperTerminal utility</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 4—INSTALLATION

CHAPTER CONTENTS

MOUNTING LOCATIONS AND INSTALLATION ................................................. 15
Dimensions .................................................................................................... 16
Mounting Options. .......................................................................................... 17
Wall/Panel Mount ......................................................................................... 17
DIN Rail Mount ............................................................................................. 18
Flat Surface Placement .................................................................................. 18

WIRING CONNECTIONS ............................................................................... 19
Power Supply ................................................................................................ 19
Control Power LED ...................................................................................... 19
RS-485 Serial Ports ....................................................................................... 19
4-Wire Communication ................................................................ .................. 20
2-Wire Communication .................................................................................. 21
Daisy-Chain Maximum Distances ................................................................. 21
Com 1 and Com 2 (RS-485) LEDs ................................................................. 22
Ethernet Ports ............................................................................................... 22
Ethernet LEDs .............................................................................................. 22
Biasing and Termination ................................................................................ 23
RS-485 Configuration .................................................................................... 23
4-Wire Configuration ...................................................................................... 23
2-Wire Configuration ...................................................................................... 23

MOUNTING LOCATIONS AND INSTALLATION

The EGX200 is designed to be set on a shelf or desk, or mounted to a wall, a cabinet, or other surfaces. When choosing a mounting location, consider the following points:

• Allow for easy access to the front panel of the EGX
• Allow space for all wires to be neatly routed down the side or bottom of the EGX

Typical locations for mounting the EGX200 include the following:

• Power equipment instrument compartment
• Auxiliary cabinet
• Office or raised floor environment
• Factory floor environment

NOTE: Make sure you follow all equipment manufacturer's procedures and warnings while installing the EGX200.
Dimensions

Figure 4–1 shows the EGX200 dimensions, including the DIN rail mounting equipment.

Figure 4–1: EGX200 Dimensions
Mounting Options

Figures 4–2, 4–3, and 4–4 illustrate the various mounting options:

Wall/Panel Mount

Figure 4–2: Wall/Panel Mount Installation
DIN Rail Mount

Figure 4–3: DIN Rail Mount Installation

Flat Surface Placement

Figure 4–4: Mounting Feet Installation
WIRING CONNECTIONS

Power Supply

A universal 24 Vdc switching power supply (control power connector) rated for 8 Watts is included with the EGX200 (see Figure 4–5). The EGX200 must be connected to a true earth ground. If necessary, another power supply or cord can be used to power the EGX200, as long as it is rated for a minimum of 8 Watts at 24 Vdc. Refer to the section “EGX200 Components” on page 4 for more information.

Figure 4–5: Control Power Connector

Control Power LED

A green power LED on the EGX200 front remains ON to indicate it is receiving power within acceptable range. This LED is located above the COM1 (RS-485) RX and TX LEDs.

RS-485 Serial Ports

The RS-485 serial ports are used to communicate with daisy-chained devices. The Ethernet gateway has two RS-485 serial ports, of which COM1 is always set for RS-485 communication. COM2 is selectable between RS-485 and RS-232. By default, COM2 is set for RS-485 communication. For more information on resetting COM2, please refer to the Communications Settings web page on page 27.

Each port is designed to support up to 32 devices without a repeater (see Figure 4–6 on page 20). The RS-485 ports enable communications via a 4-wire plus shield cable (Tx+, Tx−, Rx+, Rx−, and Shld). It can also be configured for 2-wire plus shield.
For communication wiring, we recommend the following cables:

- For 4-wire communication, use Belden 8723 or 9842 cable or equivalent.
- For 2-wire communication, use Belden 9841 or equivalent.

### 4-Wire Communication

For 4-wire communication using Belden 8723 cable, connect the wires to the terminal block, as shown in Figure 4–7. If using Belden 9842 cable, see Figure 4–8.
2-Wire Communication

For 2-wire communication using Belden 9841, connect the white wire to the Tx- terminal and the blue wire to the Tx+ terminal, as shown in Figure 4–9. Then connect a jumper wire from terminal Tx- to terminal Rx- and another jumper wire from terminal Tx+ to terminal Rx+. Connect the shield wire to the shield terminal as shown.

Daisy-Chain Maximum Distances

The maximum number of devices that can be supported on a single daisy chain is determined by the combination of baud rate, length of daisy chain, and types of RS-485 devices (2-wire/4-wire) on the daisy chain. The RS-485 interface will support daisy chains that fall within the specifications shown in Tables 4–1 and 4–2 on page 22.
Com 1 and Com 2 (RS-485) LEDs

One set of LEDs is provided for each RS-485 port. A yellow LED illuminates when the corresponding RS-485 port is receiving data (RX). A green LED illuminates when data on the corresponding RS-485 port is transmitted (TX). Also, above the COM2 (RS-485) RX and TX LEDs, a third LED (green) illuminates steadily when the COM2 is selected to be active for RS-485 communication.

Ethernet Ports

The EGX200 has one on-board 10/100BaseT Ethernet port (twisted pair). This port supports a twisted pair cable up to 328 ft. (100 m). Use data grade twisted-pair wire. This wire must have a characteristic impedance of 100 ohms and meet the EIA/TIA Category 5 standard wiring specifications. The cable can be either Shielded Twisted Pair (STP) or Unshielded Twisted Pair (UTP).

Ethernet LEDs

The 10/100BaseT Ethernet port has one set of LEDs. The top LED is yellow and marked LK (Link) and illuminates when there is a proper Ethernet physical connection. The bottom LED is yellow and illuminates when the EGX200 is receiving data (RX). The middle LED is green and illuminates when data is transmitted (TX).

Table 4-1: 4-Wire Daisy Chain Maximum Distances

<table>
<thead>
<tr>
<th>Baud Rate</th>
<th>Max distance for 1–16 devices</th>
<th>Max distance for 17–32 devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>10,000ft (3,048m)</td>
<td>10,000ft (3,048m)</td>
</tr>
<tr>
<td>2400</td>
<td>10,000ft (3,048m)</td>
<td>5,000ft (1,524m)</td>
</tr>
<tr>
<td>4800</td>
<td>10,000ft (3,048m)</td>
<td>5,000ft (1,524m)</td>
</tr>
<tr>
<td>9600</td>
<td>10,000ft (3,048m)</td>
<td>4,000ft (1,219m)</td>
</tr>
<tr>
<td>19200</td>
<td>5,000ft (1,524m)</td>
<td>2,500ft (762m)</td>
</tr>
<tr>
<td>38400</td>
<td>5,000ft (1,524m)</td>
<td>1,500ft (457m)</td>
</tr>
</tbody>
</table>

\(^{1}\) Due to the volume of RS-485 devices in the field, this table is only to be used as a guide and was tabulated based on POWERLOGIC 4-wire devices and POWERLOGIC 4-wire devices capable of doing 2-wire.

Table 4–2: 2-Wire Daisy Chain Maximum Distances

<table>
<thead>
<tr>
<th>Baud Rate</th>
<th>Max distance for 1–8 devices</th>
<th>Max distance for 9–16 devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>10,000ft (3,048m)</td>
<td>10,000ft (3,048m)</td>
</tr>
<tr>
<td>2400</td>
<td>10,000ft (3,048m)</td>
<td>5,000ft (1,524m)</td>
</tr>
<tr>
<td>4800</td>
<td>10,000ft (3,048m)</td>
<td>5,000ft (1,524m)</td>
</tr>
<tr>
<td>9600</td>
<td>10,000ft (3,048m)</td>
<td>4,000ft (1,219m)</td>
</tr>
<tr>
<td>19200</td>
<td>5,000ft (1,524m)</td>
<td>2,500ft (762m)</td>
</tr>
<tr>
<td>38400</td>
<td>2,500ft (762m)</td>
<td>1,500ft (457m)</td>
</tr>
</tbody>
</table>

\(^{1}\) Due to the volume of RS-485 devices in the field, this table is only to be used as a guide and was tabulated based on POWERLOGIC 4-wire devices and POWERLOGIC 4-wire devices capable of doing 2-wire.
Biasing and Termination

RS-485 Configuration

On RS-485 daisy chains, correct biasing is required to ensure reliable communication. The EGX200 has dip switches for each RS-485 port to ensure correct biasing. Figure 4–10 shows the biasing and termination label, as well as the correct dip switch settings for both 4-wire and 2-wire configurations.

In addition, the RS-485 daisy chain will need to be terminated to ensure reliable communication. The last device on the daisy chain usually needs to have a multipoint communications terminator (part number MCT-485 or MCTAS-485). Please refer to the instruction bulletin for the last device on the daisy chain to determine whether an MCT terminator is required. If one is required, contact your local sales representative.

4-Wire Configuration

For RS-485 4-wire configuration, the biasing and the termination dip switches must be ON (switches 1, 2, 3, 4 for COM2 and switches 7, 8, 9, and 10 for COM1). The EGX200 is shipped with these dip switches all ON (default). Therefore, there is no need to reconfigure them unless you need to use a different termination or biasing scheme.

2-Wire Configuration

For RS-485 2-wire communication, the biasing Rx+ and Rx- are ON. For the termination, either Rx or Tx will need to be OFF. Therefore, either switch 7 or 8 will need to be OFF for COM1, and either switch 1 or 2 will need to be OFF for COM2.

Figure 4–10: Biasing and Termination
ACCESSING THE EGX200 OVER A NETWORK

This section tells how to access the EGX200 over a network or the Internet. After you set up Ethernet parameters using either the HyperTerminal method or via a web browser, the EGX200 is accessible via a standard Ethernet LAN and standard web browser such as Internet Explorer. The following sections describe this process.

Logging in to the EGX200

To log in to the EGX200, follow these steps:

1. Launch your web browser (Microsoft's Internet Explorer v. 5.0 or higher is recommended).
2. In the URL address field (see Figure 5–1 on page 26), enter the IP address that you configured the EGX200 for (for example, 150.200.250.50), and press Enter. The password login page displays as shown in Figure 5–2 on page 26.
3. From the password login page, select the correct language, and then log in to the EGX200, using one of the four defined passwords, and press Enter. See Password Administration on page 32 for more information.

**NOTE:** The default password is "admin" (all lower case). For system security, if you are the administrator, we recommend that you change the password at this time (see "Password Administration" on page 29). The EGX200 Home page displays (see Figure 5–3). The list of available options on this page varies depending on the level of access assigned in the password administration option.

**Figure 5–3: EGX200 Home page**
EGX200 EMBEDDED WEB PAGE OPTIONS

The standard options shown on the EGX200 home page are summarized in Table 5–1. Following the table, each option is explained in more detail.

**Table 5–1: EGX200 setup options**

<table>
<thead>
<tr>
<th>EGX200 Setup Options</th>
<th>Description</th>
<th>See Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Settings</td>
<td>Set up or modify Ethernet and serial communication parameters.</td>
<td>27</td>
</tr>
<tr>
<td>Device List</td>
<td>Identify serial devices on the daisy chain.</td>
<td>29</td>
</tr>
<tr>
<td>Diagnostics</td>
<td>Troubleshooting and miscellaneous EGX200 information.</td>
<td>31</td>
</tr>
<tr>
<td>Password Administration*</td>
<td>Configure or modify user passwords and access levels.</td>
<td>32</td>
</tr>
<tr>
<td>Advanced Setup*</td>
<td>Change timeout values (User timeout, RS-485 Port 1, RS-485 Port 2), number of viewable devices, default language, and set time.</td>
<td>34</td>
</tr>
<tr>
<td>Log Out</td>
<td>Close EGX200 client session.</td>
<td>34</td>
</tr>
</tbody>
</table>

*Accessible by administrator only

Communication Settings

Figure 5–4 shows the Communications Settings page. You will set up Ethernet and RS-485 connections here. After changing a value, you must click the update button for changes to take effect.

![Communications Settings page](image)

**Figure 5–4: Communications Settings page**

*NOTE: If you change any Ethernet parameter on the Communications Settings page and click update, the EGX200 resets and the new settings immediately go into effect. Because of this reset, you must log in to the EGX200 again by typing the IP address into the URL address field of your web browser and pressing Enter.*
Ethernet Port Setup via LAN

After you assign the initial TCP/IP address to the EGX200 through the HyperTerminal or Web browser (refer to page 10), you can go to the Communications Settings web page via a standard web browser and change the EGX200 TCP/IP setup (Figure 5–4). Assuming that your PC is configured to access the EGX200 IP address. The following parameters are necessary for TCP/IP setup and must match your network LAN:

- IP address
- subnet mask
- router address

RS-485 Serial Port Setup

Two RS-485 ports need to be set up. The RS-485 setup information consists of the baud rate, parity, and port mode (see Table 5–2). The baud rate and parity you assign must match the settings for attached RS-485 devices (all devices must have the same baud rate and parity settings). Set the port mode according to whether your daisy chain is 2-wire or 4-wire. These ports are set independently from each other and can have different settings, but are consistent with their daisy chained device settings.

Table 5–2: RS-485 Setup Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Options</th>
<th>Default Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baud Rate</td>
<td>1200, 2400, 4800, 9600, 19200, 38400</td>
<td>9600</td>
</tr>
<tr>
<td>Parity</td>
<td>None, Even</td>
<td>Even</td>
</tr>
<tr>
<td>Mode</td>
<td>4-Wire, 2-Wire</td>
<td>4-Wire</td>
</tr>
</tbody>
</table>

In addition, in this page, COM2 is set for either RS-232 or RS-485 devices. Com 2 defaults to RS-485.
Device List

Figure 5–5 shows the Device List page.

Figure 5–5: Device List
In this page serial devices will need to be identified.

Keep in mind the following points when setting up the Device List:

- MODBUS/JBUS devices do not have to be defined in the Device List for Port/Com 1.
- POWERLOGIC protocol (SY/MAX) devices must be defined in the Device List for both RS-485 ports.

Table 5–3 shows the address range available for various protocols.

Table 5–3: RS-485 Device Definitions Address Range

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Available Device Address Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODBUS, JBUS</td>
<td>1 through 247</td>
</tr>
<tr>
<td>POWERLOGIC</td>
<td>1 through 199</td>
</tr>
</tbody>
</table>

NOTES:

- Do not assign address 16 to any MODBUS or JBUS device if you have a mixed-mode daisy chain (for example, a single daisy chain with some RS-485 devices using POWERLOGIC protocol and other devices using MODBUS/JBUS protocol).
- Do not assign address 1 to any POWERLOGIC protocol device on a mixed-mode daisy chain.
- Do not use the same addresses for devices on the two ports.
- We recommend that you wire and define all Micrologic trip units to COM 1.
- By default, this page displays 16 slots to define devices. For information on increasing the number of slots to define devices in the Device List, see “Advanced Setup” on page 34.
- Each COM port device list must be updated separately. (In other words, defining devices in the COM1 device list and clicking “Update Com 1” will not affect the COM2 device list.)
Diagnostics

The EGX200 Diagnostics page is shown in Figure 5–6. In addition to displaying diagnostics data, this page may be helpful in troubleshooting network problems. This page also contains information about your specific EGX200, including the serial number, manufacturing date, and Media Access Control (MAC) address. Pressing Reset clears the accumulative readings counters.

NOTE: This page shows accumulated readings since the EGX200 was last activated. If power to the EGX200 is lost, all values reset to zero. The reset button will not display if a user has “view only” access.

The User Logins are shown at the bottom of the page. This tracks users since the EGX200 was last activated.

![Diagnostics table](image)

Figure 5–6: Diagnostics web page
Password Administration

Figure 5–7 shows the Password Administration page. There are four password accounts on the page, one administrator account and three user password accounts. The default passwords assigned to user accounts are "master," "engineer," and "operator" (Figure 5–7). The default passwords are configured by the administrator.

**Figure 5–7: Password Administration page**

### Administrator Account

The administrator account always grants the administrator full access to every web page available through the EGX200. The administrator account password is configurable, and only the administrator can access and change passwords. The administrator password can be from one to eight alphabetic characters and is case sensitive. The default administrator password is "admin."

For system security, if you are the administrator, we recommended that you change this default password the first time you log in.

### User Account

The default access levels for all user accounts are shown in Figure 5–7. The administrator can grant one of three access levels for each web page to each user: None (no access), Read Only, and Full (access).

*NOTE: Default values are displayed.*

Up to 10 concurrent users can be logged into the EGX200 at any given time, using any combination of passwords. The amount of time the EGX200 waits during an inactivity period before "expiring" access is configurable (see "Advanced Setup" on page 34).
During normal operations, we recommend that you return to the EGX200 home page and select "log out" when finished interfacing with the EGX200; doing so immediately releases that access privilege for another user.

The administrator can disable the password for any page. Disabling security for a page allows users to bookmark the page for quick access without receiving the password prompt.

Table 5–4 summarizes password accounts, default passwords, conventions, and access levels.

**Table 5–4: Password Administration Summary**

<table>
<thead>
<tr>
<th>Password Account</th>
<th>Default Password</th>
<th>Convention*</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator</td>
<td>admin</td>
<td>1–8 characters</td>
<td>Full access to all passwords and pages</td>
</tr>
<tr>
<td>User 1</td>
<td>master</td>
<td>1–8 characters</td>
<td>Choosing from the following options, the administrator assigns access levels for these pages: Communication Settings, Device List, and Diagnostics. Access levels are as follows:</td>
</tr>
<tr>
<td>User 2</td>
<td>engineer</td>
<td>1–8 characters</td>
<td>• None (no access)</td>
</tr>
<tr>
<td>User 3</td>
<td>operator</td>
<td>1–8 characters</td>
<td>• Read Only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Full (full access; same as Administrator)</td>
</tr>
</tbody>
</table>

* Case-sensitive, alphabetic characters only
Advanced Setup

The Advanced Setup page (see Figure 5–8) is accessible by the administrator password only. This setup page allows advanced users to change EGX200 timing values that normally should never be changed. EGX200 parameters and corresponding values are shown in Table 5–5.

![Advanced Setup Page](image)

**Figure 5–8: Advanced Setup page**

Also, the EGX200 has an on-board clock that can be set from this page, as shown in Figure 5–8.

**NOTE:** To change Advanced Setup values, you must use the drop-down menus.

**Table 5–5: Advanced communication setup parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range of Values</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Timeout</td>
<td>1 to 255 minutes</td>
<td>Maximum time allowed for a user to stay idle before the EGX200 expires that user's access to the web pages</td>
<td>10</td>
</tr>
<tr>
<td>Timeout for Com Ports</td>
<td>3 to 10 seconds</td>
<td>Maximum time the EGX200 will wait for requested information from the RS-485 daisy-chained devices</td>
<td>5</td>
</tr>
<tr>
<td>Number of Viewable Devices</td>
<td>2 to 96 devices</td>
<td>Number of viewable devices in the Device List page</td>
<td>16</td>
</tr>
</tbody>
</table>

Logging Out

To log out of the EGX200 configuration session, go to the EGX200 Home page and click Log Out. This ends your session. The Log In page displays so you will be able to quickly log back in when you are required.
APPENDIX A—TROUBLESHOOTING

MAINTENANCE

The EGX200 does not require maintenance, nor does it contain any user-serviceable parts. If the EGX200 requires service, contact your local sales representative, or call the POWERLOGIC Technical Support Center for assistance.

Refer to the Technical Support Contacts provided in the shipping carton for a list of support phone numbers by country. Do not open the Ethernet Gateway enclosure since this will void the product warranty agreement.

TROUBLESHOOTING

Potential problems, possible causes, and solutions are listed in Table A–1.

Table A–1: Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power light is not illuminated.</td>
<td>Source power is not applied or is not stable.</td>
<td>Apply power or check power source.</td>
</tr>
<tr>
<td></td>
<td>LED is burned out.</td>
<td>Check to see if other LEDs operate properly. If they do, contact Technical Support.</td>
</tr>
<tr>
<td>Ethernet link light is not lit.</td>
<td>Proper link is not established.</td>
<td>Make sure the proper cable is used and that the EGX200 TCP/IP parameters are properly connected.</td>
</tr>
<tr>
<td>SMS does not connect to the EGX200.</td>
<td>Incorrect IP address.</td>
<td>Enter correct IP address.</td>
</tr>
<tr>
<td></td>
<td>Incorrect subnet mask or IP router address.</td>
<td>Enter correct subnet mask and/or IP router address.</td>
</tr>
<tr>
<td></td>
<td>Bad Ethernet connection (look at Ethernet receive light, which indicates traffic on network).</td>
<td>Check cable connections.</td>
</tr>
<tr>
<td>SMS does not go online with devices on EGX200.</td>
<td>EGX200 is not functioning correctly or is having configuration problems.</td>
<td>Verify that the EGX200 communication configuration matches the SMS configuration. Verify EGX200 receives requests (ping EGX200 by going to c:\prompt and typing “ping” and the EGX200 IP address, e.g., ping 199.0.62.41). Your network administrator can help with this. Verify that the device address is entered correctly in SMS.</td>
</tr>
<tr>
<td>Forgot administrator password.</td>
<td></td>
<td>Call Technical Support for assistance.</td>
</tr>
</tbody>
</table>
# APPENDIX B—SPECIFICATIONS

## Table B–1: Specifications

<table>
<thead>
<tr>
<th>Control Power Input Specifications 125/250 Vdc Nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Input Range</td>
</tr>
<tr>
<td>Burden, maximum</td>
</tr>
<tr>
<td>Isolation</td>
</tr>
<tr>
<td>Ride-through on Power Loss</td>
</tr>
<tr>
<td>Operating Input Range</td>
</tr>
</tbody>
</table>

## Environmental Specifications

- Ambient Operating Temperature: -30 to 80 degrees C.
- Storage Temperature: -40 to 85 degrees C.
- Humidity Rating: 5–95% Relative Humidity (non-condensing) at 40°C
- Pollution Degree: Class 2
- Altitude Range: 0 to 3,048 m (10,000 ft)

## Physical Specifications

- Weight (approximate, without add-on modules): 1.5 lbs. (.68 Kg)
- Dimensions: Length (7.88), Width (4.81 in.), Depth (1.07 in.)

## Regulatory/Standards Compliance

### Electromagnetic Interference

- **Radiated Emissions**: EN 61000-4-3
  - 10V/m, 80MHz to 1000MHz, -1kHz (80%) modulation
- **Conducted Emissions**: EN 61000-4-6
  - 10V(rms unmodulated) [power and signal leads]
- **Electrostatic Discharge (Air Discharge)**: EN 61000-4-2
  - 2 & 4kV [contact discharge]; 2, 4, & 8kV [air discharge]
- **Immunity to Surge (Impulse Wave)**: EN 61000-4-5
  - 500V, 1kV, 2kV [power leads]; 250V, 500V, 1kV [signal leads]
- **Immunity to Electrical Fast Transients**: EN 61000-4-4
  - 500V, 1kV, 2kV [power leads]; 250V, 500V, 1kV [signal leads]
- **Power Frequency Magnetic Field**: EN 61000-4-8
  - 50Hz, 30A(rms)/m
- **Voltage Dips**: EN 61000-4-11
  - 30% for 6 periods; 60% for 5 periods; 60% for 50 periods
- **Voltage Interruptions**: EN 61000-4-11
  - 96% for 250 periods
- **Power Line Harmonics**: EN 61000-3-2

## Safety

- **USA**: UL
- **Canada**: cUL
- **Europe**: CE
APPENDIX C—COMMUNICATING WITH SMS USING THE EGX

This appendix provides instructions for using System Manager Software (SMS) to set up a PC interface with the EGX200.

NOTE: You must be running SMS version 3.2 or higher.

To communicate with SMS, follow these steps:

1. Launch SMS
2. Open an existing system or create a new system.
3. Add a communication connection (PC Interface).
   - For the communications connection name, type in a unique name for your EGX200 connection.
   - For the communications driver, select “MODBUS/TCP driver” for EGX200.
4. Input the EGX200 IP address in the communication connection (MODBUS/TCP).
5. After defining the communications connection, add the serial daisy-chained devices, using the previously defined EGX200 communication connection.

For more details, please refer to the SMS Help option in SMS by going to SMS > Quick Start > Quick start MODBUS/TCP device setup.
Ethernet Gateway EGX for POWERLOGIC® Systems