IMPROX EC

ImproX (EC) Ethernet Advanced Controller
INSTALLATION MANUAL

SPECIFICATIONS

Working Environment .... Designed to work in an indoor (dry) environment similar to IP30. The Controller is, therefore, NOT sealed against water.

Input Voltage .... 10 V DC to 30 V DC.

Power Requirements	**Current (mA)**	**Power (W)**
Supply Voltage 10 V DC Indicators all ON.....................	166	1.66
Supply Voltage 30 V DC Indicators all ON.....................	61	1.83

Memory

RAM (Non-volatile)................. 2 MBytes standard, 8 MBytes maximum.

Flash ROM .... 128 KBytes.

Battery Backup (for RAM)

    Battery Type .... 1 x 3 V, CR2032, Lithium cell Battery.

    Battery Life .... 5 Years (with power OFF).

Installer Interfaces

LCD Display Cover (Optional Extra)

    Characters .... 16 Characters by 4 lines.

    Character Sets................ English, Katakana.

    Contrast .... Preset.

    Back-lighting .... Turned on and off via the Communications Protocol.

LED Indicators

    Power-on Indicators........ Two Red LEDs (internally visible).

    Incoming RS485 Data...... Flashing Green LED (internally visible).

    Outgoing RS485 Data...... Flashing Red LED (internally visible).

INSTALLATION INFORMATION

Accessories

Find the following when unpacking the Controller:

- An ImproX EC Controller, fitted with two Memory Modules. The ImproX EC is supplied housed in a Black, powder coated, Aluminium extruded Cabinet. The Cabinet will consist of a Top Cover and a Base sealed at each end with a Mild Steel End Plate, secured with 5 Thread Cutter Screws (M3 x 8 mm).
- A 3 V, CR2032, Lithium cell Battery.
- Four Wood Screws (3.5 mm x 25 mm).
- Four Wall Plugs (7 mm).
- A MAC Address Label.
- An extra Fixed Address Label.

General

Remember the following when installing your ImproX EC Controller:

CAUTION: DO NOT connect Power Supply cables to Port 1 and Port 2 terminals, as this will cause serious damage to the Controller.

Communications Distance

Terminal Bus

The RS485 communications distance between the ImproX EC Controller and the LAST ImproX Unit in a cable run, MUST NOT exceed 1 km (1 090 yd). Achieve this by using good quality screened twisted 2-pair, twisted pair cable, EARTHED on one side.

Controller Bus

The Ethernet Controller plugs into an Ethernet Switch or Hub (or other network device), cable runs for this must conform to ethernet cabling specifications.

Termination Resistors for RS485 Bus Communications

Long transmission lines or multiple "star" connections, may cause communication problems. Placing the Terminating Resistor Jumper Link in the LAST UNIT AT THE END OF THE CABLE RUN should solve the problem (depending on the bus).

EARTH Connection

Connect the ImproX EC Controller to a good EARTH point. Using either of the RS485 Ports, connect the EARTH Lead to the "ETH" Terminal. Mains EARTH can be used, but electrical noise may exist. The EARTH Lead to the ImproX EC Controller should have a minimum cross-sectional area of 1 mm^2 (0.001 in^2) and can be either solid or stranded.

Blank Space

Installing the Battery

First Time Use

CAUTION: **Insert the Battery into the Battery Holder BEFORE powering up the ImproX EC Controller.**

The Battery Holder is located in the top left-hand side of the ImproX EC Controllers Printed Circuit Board (PCB), directly below the LCD Ribbon Cable Connector.

1. Remove the Controllers Top Cover.
2. Slide the supplied 3 V, CR2032, Lithium cell Battery under the metal clip of the Battery Holder, with the "+" Terminal facing UP.
3. Pull the plastic clip horizontally AWAY from the Battery Holder and press the Battery firmly into the Battery Holder.
4. Attach the Controllers Top Cover.

Replacement

CAUTION: **DO NOT disconnect Power from the ImproX EC Controller during this operation. Disconnecting the Power could result in the RAM loosing data.**

1. With the Controller powered up, remove the Top Cover. DO NOT disconnect the Ribbon Cable Connector.
2. Remove the Battery from the Battery Holder, by pulling the plastic retaining clip horizontally AWAY from the Battery Holder. The Battery Holder is spring-loaded, and will raise the Battery out of the Holder.
3. Slide the new 3 V, CR2032, Lithium cell Battery under the metal clip of the Battery Holder, with the "+" Terminal facing UP.
4. Pull the plastic clip horizontally AWAY from the Battery Holder and press the Battery firmly into the Battery Holder.
5. Attach the Controllers Top Cover.

Installing Extra Memory Modules (Optional Extra)

Add additional Memory Modules for applications where additional memory is required:

CAUTION: **It is very important that the Memory Modules are inserted correctly. Pin 1 as indicated on the Memory Module must correspond with Pin 1 on the ImproX EC Controller.**

1. Remove the power from the ImproX EC Controller.
2. Remove the Controllers Top Cover and the LCD Display Cover (if installed).
3. Carefully insert the Memory Modules into the positions JP3 to JP8 as indicated on the ImproX EC Controller.
4. Re-attach the Controllers Top Cover and if necessary the LCD Display Cover and re-apply power to the Controller.
5. On power-up a diagnostic test will run on the inserted Memory Modules added to the system. The diagnostic test will display on the LCD Display Cover (if installed).

Mounting the LCD Display (Optional Extra)

1. Remove the power from the ImproX EC Controller.
2. Remove the Controllers Top Cover.
3. Insert the Ribbon Cable Connector from the LCD Display Cover into the Box Header labelled LCD1 on the ImproX EC Controller.
4. Place the LCD Display Cover over the ImproX EC Controller so that the mounting holes in the Cover align with the securing holes on the Controllers Base.
5. Secure the LCD Display Cover to the standoffs using the supplied screws, washers and nuts (supplied with XAC903-0-0-GB-XX).
6. Re-attach the Controllers Top Cover.
7. Re-apply power to the Controller.

Mounting the Controller

CAUTION: Make certain that you mount the Controller on a vibration-free surface.

Select the mounting position of the ImproX EC Controller, considering accessibility and routing of wires.

Secure the Controller to the mounting surface, using four suitable screws and wall plugs (supplied), nuts and bolts or rivets.

Blank Space

ELECTRICAL CONNECTIONS

Connecting the ImproX EC Controller (using multicast UDP)

Figure 1 shows the Ethernet Controllers relationship with the rest of the ImproX product range.

Figure 1: Configuration Diagram

Figure 2 shows typical connection options for the ImproX EC Controller.
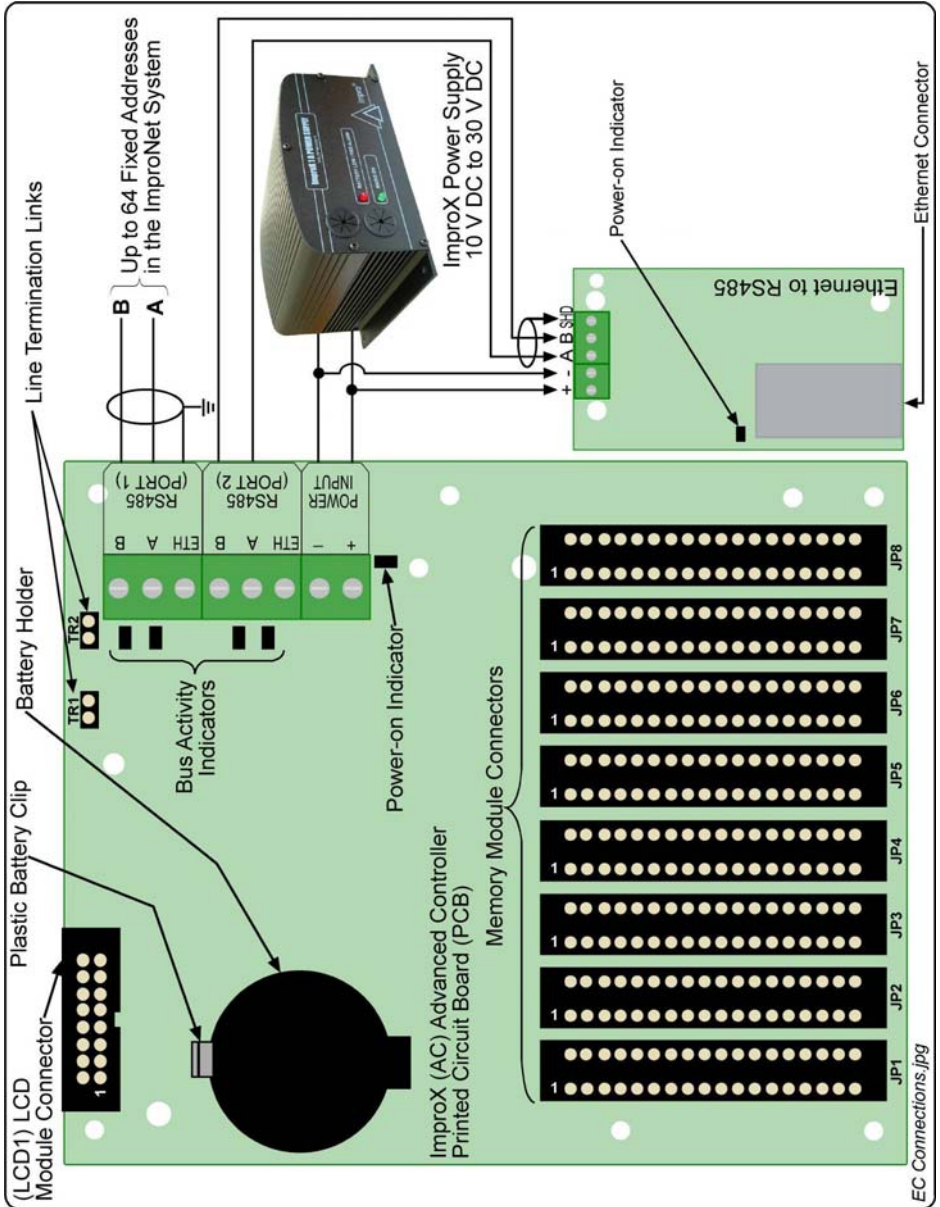
Figure 2: Typical ImproX EC Electrical Connections

NOTE: DO NOT connect (daisy chain) additional RS485 Controllers on Port 2, as the System will NOT Auto-ID these Controllers.

Power-on Self-test

The Power-on Self-test tests the RAM, Flash-ROM checksums and RTC.

The results of the Self-test are made available as diagnostic information via the protocol to the associated Controller or PC.

If any parameter in the Self-test fails, the Controller displays the fault on the LCD Display Cover (if installed).

Fixed Address Label

Once the ImproX EC Controller is installed attach the additional loose Fixed Address Label (packaged with the Controller) in position on the Unit Location Chart. When the system installation is complete and all the units are represented on the Unit Location Chart by their Fixed Address Labels, file the document for future reference.
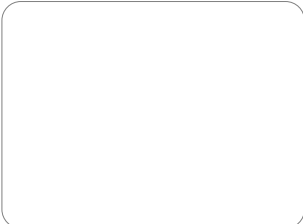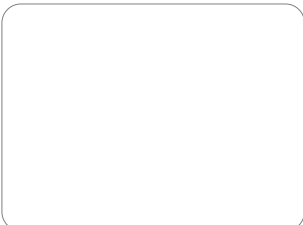
MAC Address
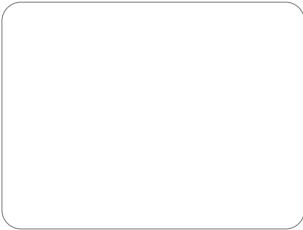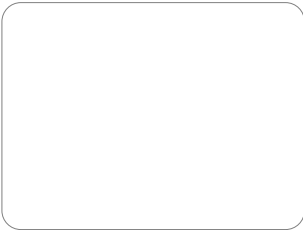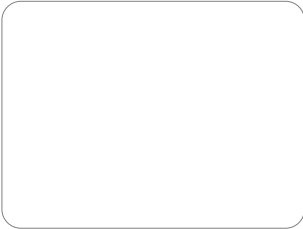
The MAC Address identifies the Lantronix® XPort™ component placed in each ImproX EC. The MAC Address and the description of the ImproX EC's location are required by the Software Installer to enable an IP Address to be assigned to the Controller.
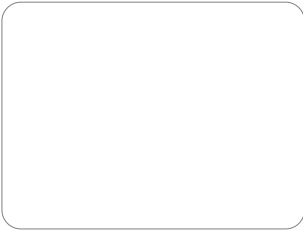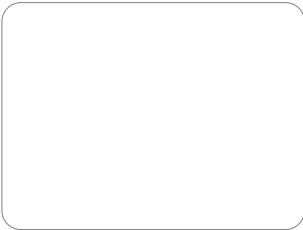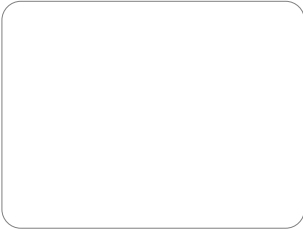
We recommend that you attach the MAC Address Label to the site plan in the Controller's installed location.
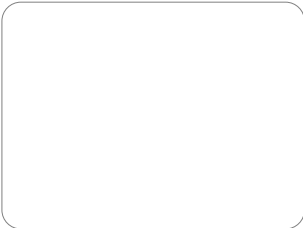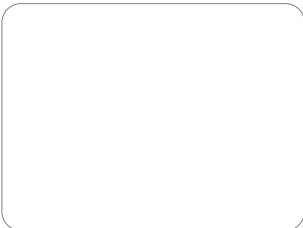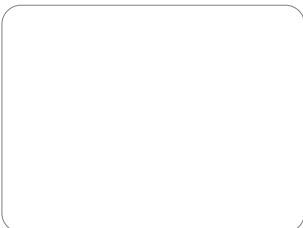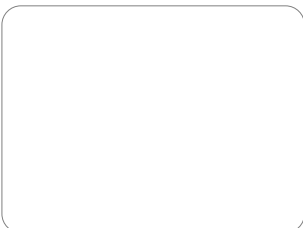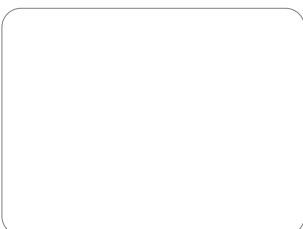
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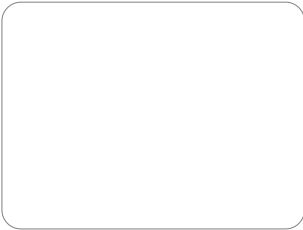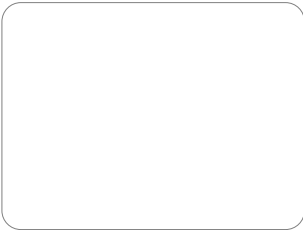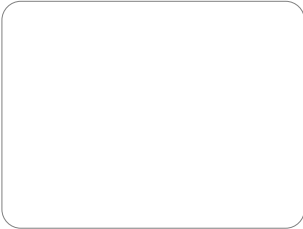
Unit Location Chart
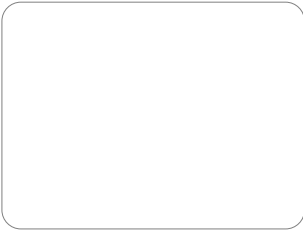
Fixed Address Label	Unique Location Description

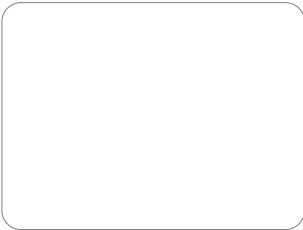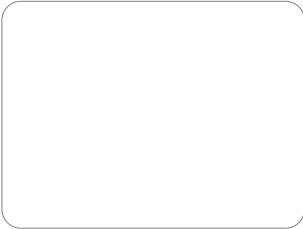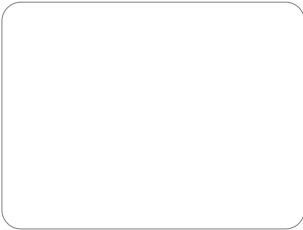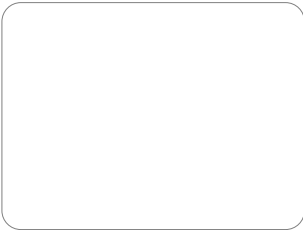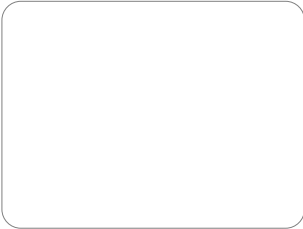| Fixed Address Label	Unique Location Description

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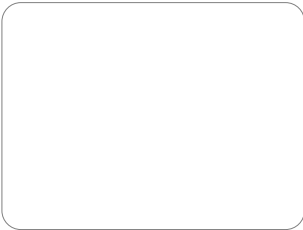| Fixed Address Label	Unique Location Description

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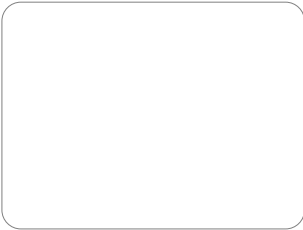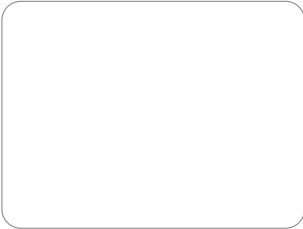
Fixed Address Label	Unique Location Description

Table 1: Unit Location Chart

GUARANTEE OR WARRANTY

This product conforms to our Guarantee or Warranty details placed on our Web Site, to read further please go to www.impro.net.

This manual is applicable to the ImproX (EC) Ethernet Advanced Controller, XAC906-1-0-GB-00. (The last two digits of the Impro stock code indicate the issue status of the product).			
XAC301-0-0-GB-02	Issue 03	Feb 2007	ImproX EC\English Manuals\LATEST ISSUE\ ImprX EC-insm-en-03.doc