impro®

MODEL NUMBER: IXP904-1-0-GB-XX
IXP905-1-0-GB-XX
IXP906-1-0-GB-XX

IXP110 CONTROLLER

ImproX IXP110 Controller
INSTALLATION MANUAL

SPECIFICATIONS

Working Environment ..... Designed to work in an indoor (dry) environment similar to IP40. The Controllers are NOT sealed against water.

Power Requirements

Input Voltage using a Sealed Lead Acid Backup Battery, Connected to the Battery Input and or Strike Lock Connected to the Power Output .....
14 V AC to 18 V AC.
18 V DC to 24 V DC.

Input Voltage NOT using a Sealed Lead Acid Backup Battery and or Strike Lock.....
9 V AC to 18 V AC.
9 V DC to 24 V DC.

NOTE: Battery Charging Voltage and Power Output Voltage are set at between 13.6 V DC and 13.8 V DC.

NOTE: This current is measured using 18 V DC Input Voltage.

IXP110 with two Antenna Readers Connected ..... 135 mA (2.43 W).

NOTE: Each Relay draws an extra 120 mA.

NOTE: The IXP110 current limits the charging current into the Sealed Lead Acid Battery to a maximum of 350 mA.

NOTE: The maximum size Sealed Lead Acid Battery that can connect to the Battery Input is 12 V, 7 Ahr.

NOTE: The maximum current that can be drawn from the Power Output is 250 mA. (If using a Maglock or high current Strike Lock, connect the Lock to a separate power supply).

Ethernet Port

Configuration.....	Standard Ethernet RJ45 connector. 10/100 Mbps, half or full duplex.

RS232 Port

Configuration.....	9-Way, D-type, male connector at 115 200 Baud.

USB Port

Configuration.....	USB, Type-B, female connector, USB 2.0 compliant 12 Mbps.

Relays

Relay Output	2 Relays, each with NO, COM and NC contacts.
Relay Contact Ratings	5 A at 28 V DC, 1.5 A at 220 V AC, 5 A at 120 V AC.

Digital Inputs

DOS Input	Dry contact, non-potential sensing or 4 V to 30 V potential sensing. Input protection to 50 V DC (continuous).
RTE Input.....	Dry contact, non-potential sensing. Input protection to 50 V DC (continuous).

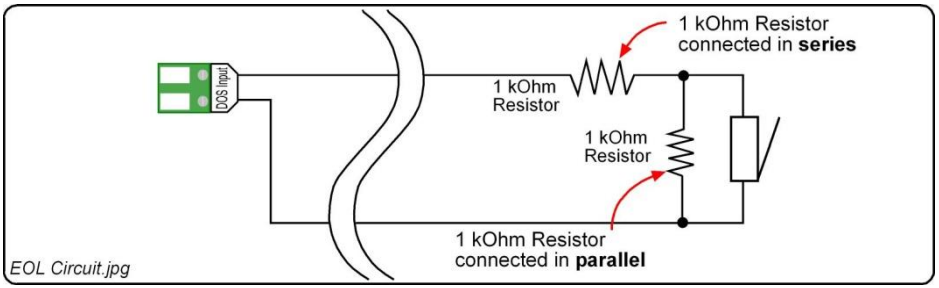

Figure 1: End of Line (EOL) Sensing Circuit

NOTE: These Inputs can be individually configured to have End of Line (EOL) Sensing in the Software via the Communications Protocol. With End of Line Sensing active, the Input detects when the input line has gone open or closed circuit. Connect a 1 kOhm Resistor either in series with, or in parallel to, the Dry Contact, mounted as close as possible to the Dry Contact for effective End of Line Sensing.

The recommended connection of the Resistor for Normally Closed (NC) and Normally Open (NO) contacts is shown in Figure 1. For Normally Closed Dry Contacts, connect the 1 kOhm Resistor in series with the contact; while for Normally Open contacts connect the Resistor in parallel with the contact, see Figure 1.

Controller Interfaces

Status LED	Green LED (externally visible).

Antenna Reader Interfaces

Status Indicator

Status LED	Bi-colour, Red or Green LED.

Buzzer

Volume and Tone	4-Step adjustable volume, single tone.

INSTALLATION INFORMATION

Accessories

Find the following when unpacking the ImproX IXP110 Controller:

- An IXP110 Controller housed in a Black, Aluminium extruded Cabinet. The Cabinet consists of a Top Cover, a Base and two End Plates. Each End Plate is attached with four Thread Cutter Screws (2.2 x 5 mm).
- One copy of IXP110 Software on CD.
- A 3 V Lithium Battery (CR2032).

CAUTION: DO NOT use the Metal-oxide Varistors (25 Vrms, 500 A, 77 V max clamping) with mains power applications.

- Two Metal-Oxide Varistors, 25 Vrms, 500 A, 77 V max clamping.
- Four Wood Screws (3.5 mm x 25 mm).
- Four Wall Plugs (7 mm).
- IXP905-1-0-GB-XX includes a standard 2 m (7 ft) USB Printer Cable. The USB Cable will have a Type 'A' plug fitted at one end and a Type 'B' plug fitted at the other end.
- IXP906-1-0-GB-XX includes a MAC Address Label.
- An extra Fixed Address Label.

General

Remember the following when installing your IXP110 Controller:

Communications Distance

- The Ethernet version of the Controller plugs into an Ethernet Switch or Hub (or other network device), cable runs for this must conform to ethernet cabling specifications.
- The RS232 communications distance between the IXP110 Controller and the connected Host PC MUST NOT exceed 25 m (82 ft). Achieve this by using good quality screened 4-core cable.
- The USB communications distance between the Host PC and the IXP110 Controller MUST NOT exceed 5 m (16 ft). Please note, however, the SUPPLIED CABLE CANNOT BE EXTENDED.

EARTH Connection

Connect the IXP110 Controller to a good EARTH point. Using the Power Input Port, connect the EARTH Lead to the 'ETH' Terminal. Mains EARTH can be used, but electrical noise may exist.

Antenna Readers

Antenna Reader Distance

The ideal cable distance between the IXP110 Controller and its Antenna Reader ranges between 2 m to 16 m (7 ft to 53 ft). Optimal performance is not guaranteed outside of this range. Achieve optimal performance using a good quality shielded multi-strand **3-pair twisted cable. The cross-sectional area of the cable must not be less than 0.2 mm^2 (0.0003 in^2).

*NOTE: **When installing an ImproX RA, use 1-pair twisted cable.*

Cable Specifications

The cable specifications should be similar to the following:

Conductor Resistance:	< 2 ohms.
Capacitance, Core to Earth:	< 160 pF/m.
Capacitance, Core to Core:	< 100 pF/m.

Distance between Antenna Readers from the SAME Controller

To avoid mutual interference install the Antenna Readers no closer than 150 mm (6 in) apart.

Distance between Antenna Readers from DIFFERENT Controllers

To avoid mutual interference install the Antenna Readers no closer than 500 mm (20 in) apart.

Arc Suppression

Snubber devices are recommended for EMF Flyback and Arc Suppression when driving an inductive load with the Relay, see Figure 2.

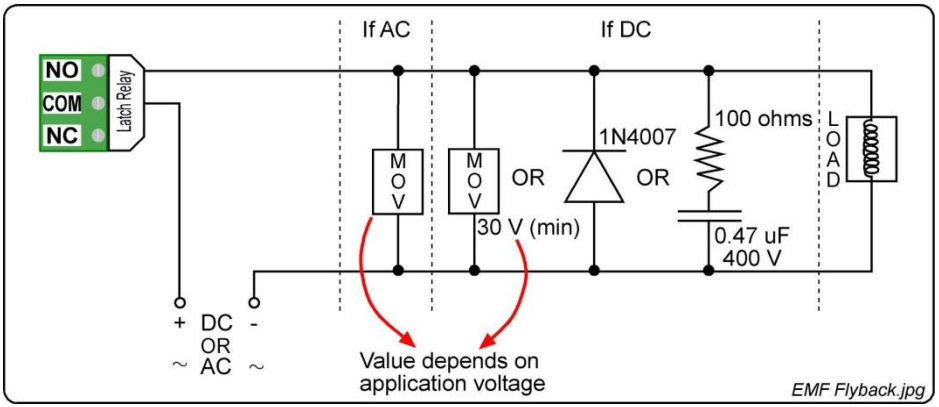

Figure 2: EMF Flyback

Mounting the Controller

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

Select the mounting position of the IXP110 Controller, considering accessibility, routing of wires and visibility of the LED.

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

Top Cover Release Mechanism

1. Remove the top two Thread Cutter Screws (2.2 x 5 mm) from each of the End Plates.
2. Insert a flat head screwdriver (maximum 7 mm) into the cut out in either of the two End Plates. Swivel the screwdriver until the Top Cover makes a click sound.
3. Insert the screwdriver in the gap (on the side of the IXP110 Controller) between the Top Cover and the Base. Swivel the screwdriver again, to release the Top Cover from the Base.

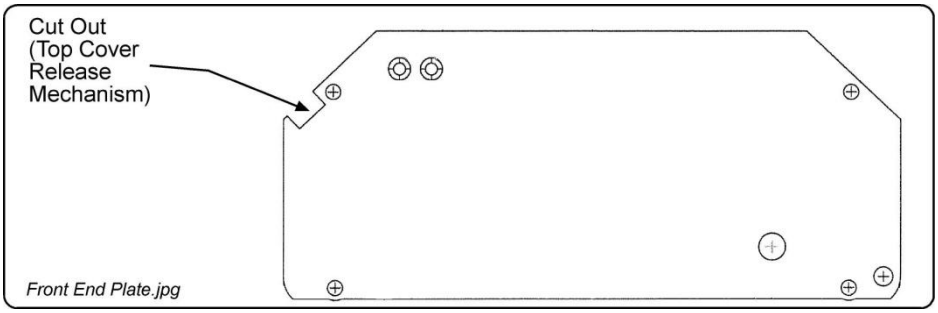

Figure 3: Front End Plate

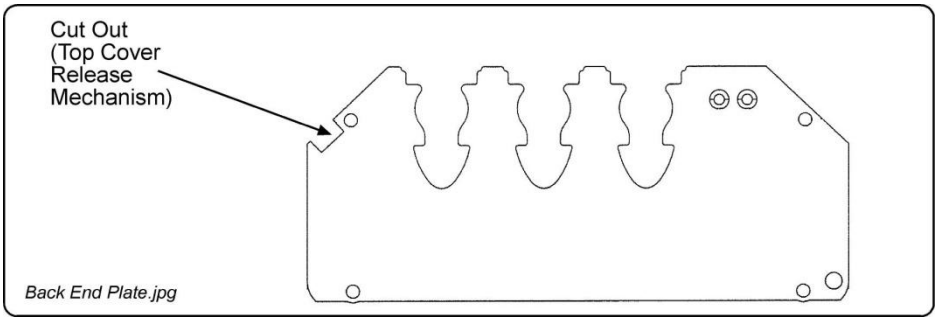

Figure 4: Back End Plate

Blank Space

Installing the Real Time Clock (RTC)/RAM Backup Battery

CAUTION: When handling the Real Time Clock (RTC)/RAM Backup Battery, be careful NOT to touch the Positive and Negative Poles simultaneously. Doing so will discharge the Battery.

The Battery Holder is located on the left-hand side of the Controller's Printed Circuit Board (PCB), alongside the RTE Input Terminal Block (see Figure 5).

First Time Use

1. Remove the Controller's 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. Press the Battery firmly into the Battery Holder.
4. Attach the Controller's Top Cover.

Replacement

1. Remove the Controller's Top Cover.
2. Remove the old 3 V, CR2032, Lithium cell 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. Press the new Battery firmly into the Battery Holder.
5. Attach the Controller's Top Cover.

ELECTRICAL CONNECTIONS

Controller Layout

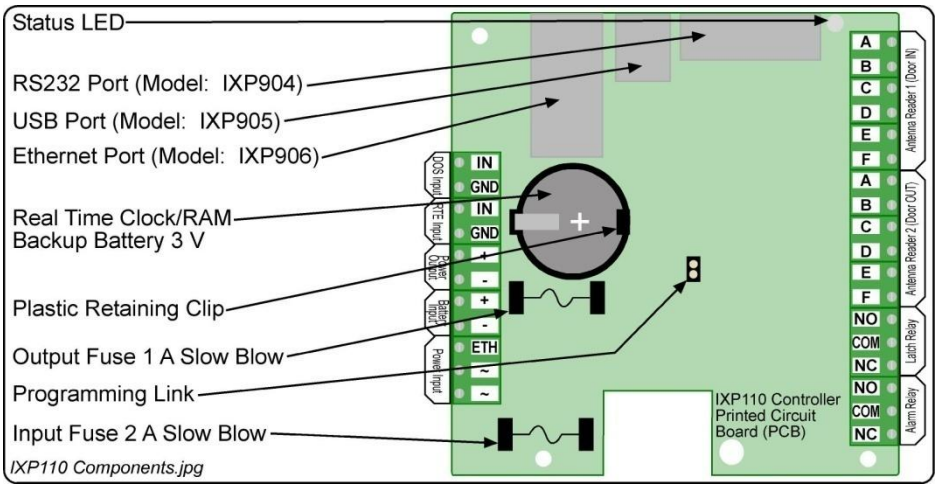

Figure 5: Key Component Positions

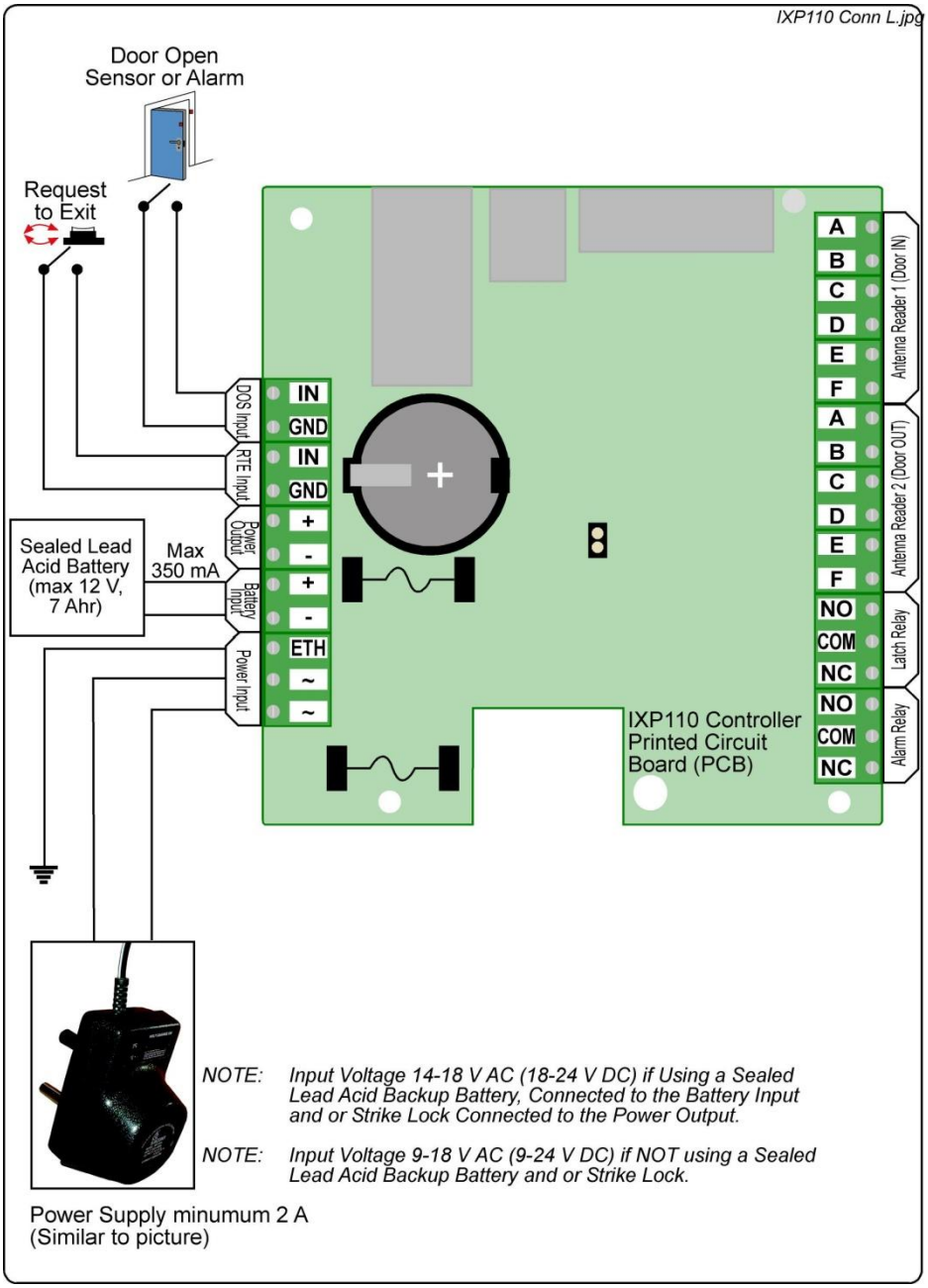

Figure 6: Input and Power Connections

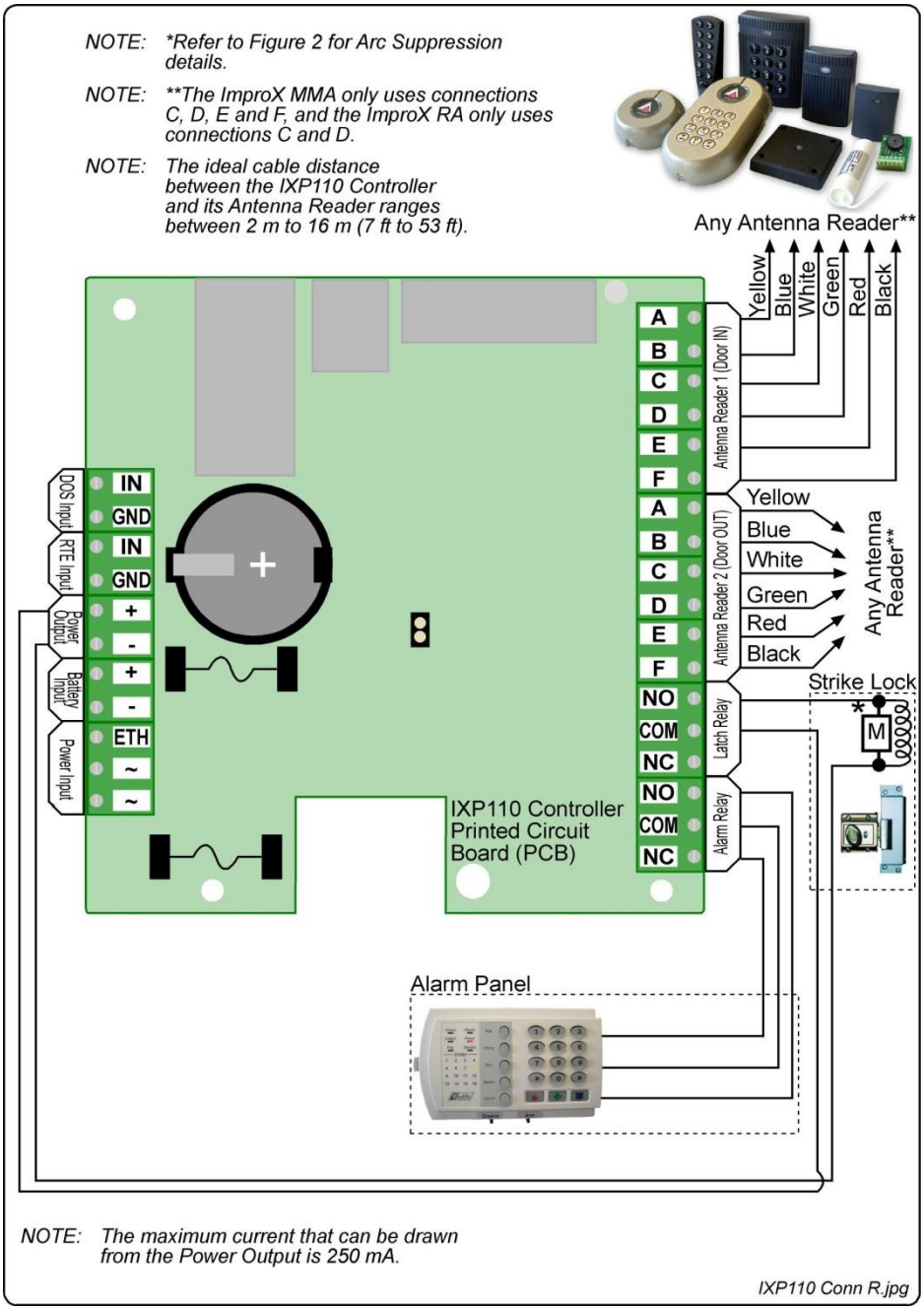

Figure 7: Antenna Reader and Relay Connections

Deleting the Database

If it becomes necessary to clear all Tagholders, including all Tagholder settings, follow these steps:

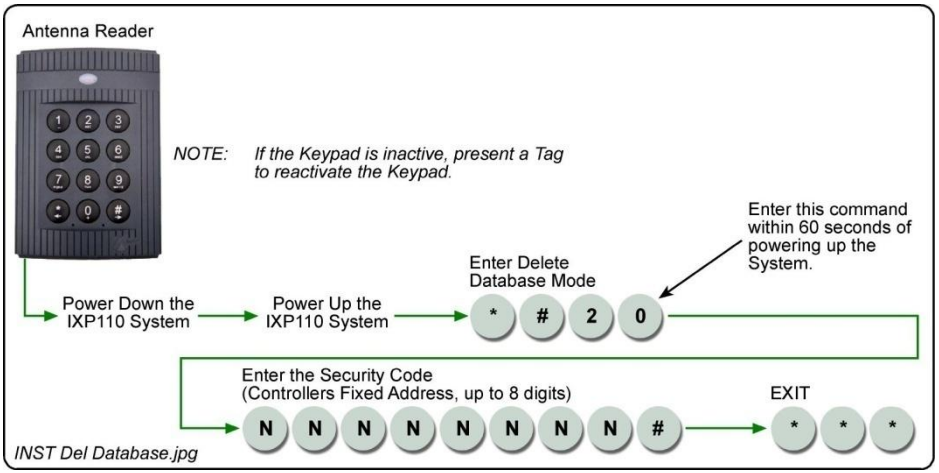

Figure 8: Deleting the Database

Restore Factory Defaults

If it becomes necessary to return the IXP110 System to its factory default settings, follow these steps:

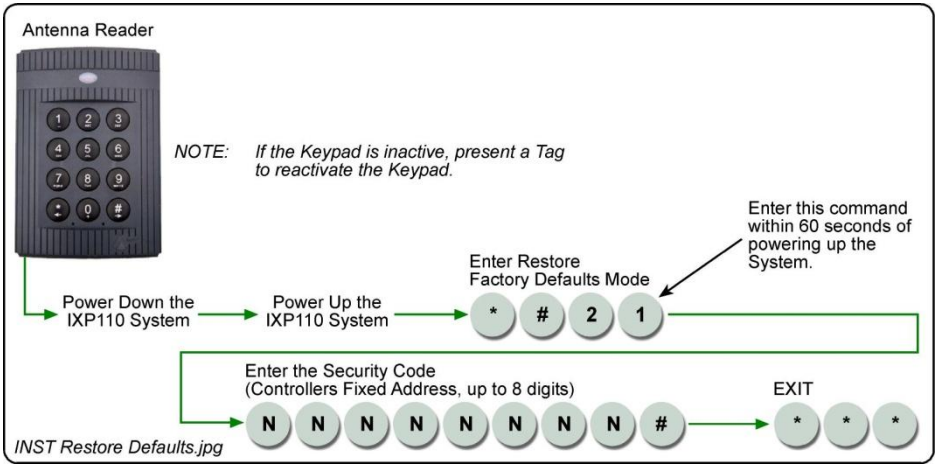

Figure 9: Restoring Factory Defaults

Blank Space

Power-on Self-test

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

Fixed Address Label

Once the IXP110 is installed, sketch a rough site plan. Attach the loose (extra Fixed Address Label packaged with the Controller) Fixed Address Label in the position of the Controller on the sketched site plan. When the system installation is complete and all the units are represented on the site plan by their Fixed Address Labels, file the site plan for future reference.

The Fixed Address is also used for system maintenance functions, including: deleting the database and restoring factory defaults.

MAC Address

The MAC Address identifies the Lantronix® XPort™ component placed in each Ethernet version of the IXP110 Controller (IXP906-1-0-GB-XX).

The MAC Address and description of the Controller'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.

GUARANTEE OR WARRANTY

CAUTION: We reserve the right to nullify the products guarantee or warranty where you have not properly installed the Metal-oxide Varistors.

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

USER NOTES

This manual is applicable to the ImproX IXP110 Controller, IXP904-1-0-GB-02, IXP905-1-0-GB-02 and IXP906-1-0-GB-03. (The last two digits of the Impro stock code indicate the issue status of the product).			
IXP343-0-0-GB-07	Issue 08	Apr 2009	IXP110\Controller\English Manuals\LATEST ISSUE\IXP110C-insm-en-08.docx