

# IXP 100 SERIES

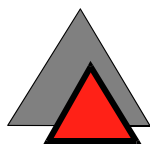
## SINGLE-DOOR ACCESS CONTROL SYSTEMS

SYSTEM 101 - IXP901-1-0-GB-XX

SYSTEM 102 - IXP902-1-0-GB-XX



## INSTALLATION MANUAL



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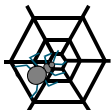
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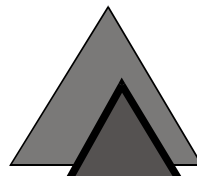
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# IXP 100 SERIES

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## SECTION 1 SYSTEM OVERVIEW

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# SECTION 1

## SYSTEM OVERVIEW

The IXP 100 series is a cost-effective, single door, standalone door access control system which is simple to install and maintain. It caters for up to 500 tagholders.

The IXP 100 series system comprises three major components:

- Door Entry Terminal (DEU) mounted outside the door.
- Door Control Terminal (DCU) mounted inside the door.
- PC Software.

The DEU is available in three versions as follows:

- A keypad version in a die cast housing suitable for use in harsh environments (IXP System 101 Keypad DEU).
- A non-keypad version in a die cast housing suitable for use in harsh environments (IXP System 102 Non-keypad DEU).

The DCU is housed in an aluminium extrusion.

The DCU is not available as a separate unit and forms an integral part of the two IXP 100 Series Systems, namely :

- System 101, comprising a DCU and a IXP System 101 Keypad DEU [Impro part number IXP901-1-GB-XX].
- System 102, comprising a DCU and a IXP system 102 Non-keypad DEU [Impro part number IXP902-1-GB-XX].

A low voltage power supply is required to operate each system and the electric latch which is fitted to the door. [These items are not supplied by Impro].

The DCU will accept either a DC or an AC power supply input. The unit also provides for the use of a lead acid backup battery to ensure normal operation during AC power failure. The DCU power supply circuit trickle charges the battery during normal operation.

This offers the benefit of only adding an AC transformer and battery which are readily available over the counter world-wide.

Each of the IXP 100 Series systems is intended to allow multiple users access through a single door.

Instead of the normal key, the door can only be opened from the outside when a valid tag is presented to the unit. The presentation of a valid tag may optionally also require a PIN number to be entered at the keypad (DEU keypad version only). Lost tags can be voided from the system without having to change locks or having any impact on other tag holders.

Advanced security features prevent the latch being operated from the outside even if the wiring is tampered with, and even if the outside unit is replaced with another unit.

In order to provide a variety of different features whilst maintaining simplicity of use, certain functions and facilities are only configurable using the PC software program. For typical installations where these more advanced facilities are not required, the use of a PC is not necessary, and the basic system set-up can be performed through the Door Entry Unit (keypad version only) should the default parameters need changing.

The IXP 100 Series systems provide functions including access time patterns for improved access control, reason codes to facilitate time and attendance systems, transaction logging, and interaction with installed alarm panels for arming / disarming. Default parameters ensure that system configuration is quick and straightforward. The ability to alter these parameters ensures system flexibility to cater for all types of installations. The IXP 100 Series also allows for individual transaction events to be selected for logging thus optimising the use of the transaction buffer memory. A particular transaction type indicates the number of lost transactions in the event of the buffer overflowing.

## **FEATURES**

- Three user-tag levels comprising "User", "Supervisor", and "Administrator".
- Reads Impro Slim Tags and Impro Omega Tags.
- Arming and disarming of a separate alarm panel by means of the DEU keypad and a DCU relay contact. Only authorised tagholders (Administrator & Supervisor) are able to disarm the panel by means of their tag and PIN.
- Where no alarm panel is used, the functionality of the System can change to operate as a simple intrusion alarm whereby a siren is activated when a door-open sensor is triggered.
- Definition of simple time patterns for "User" tagholders.
- The maximum number of Tagholders is 500 and the transaction buffer can store a maximum of 500 transactions. The available memory is utilised to provide the maximum possible number of tagholders and stored transactions.
- Unique, 4-digit PIN code per tagholder.
- Entry of Reason Codes to facilitate Time & Attendance systems. The Reason Code entry can be enabled / disabled and the length of the Reason Code can be adjusted to one or two digits.
- Each DCU will utilise a unique security code for purposes of replacing hardware items and special engineering functions.
- Detection of door left open, door not opened, and door forced events.
- Audio / visual indication of AC power failure.
- Firmware upgrade facility from a PC.

- Special function key assignments for arming, changing PIN codes, entering programming mode, and configuration functions.

## **SYSTEM COMPONENTS SUPPLIED BY THE USER**

Certain system components are to be supplied by the user (see Figure 1-1). These items are described below.

### **AC Power Supply**

An AC Transformer with a rating of 14V to 18V at 2A (min.) is required to operate the IXP 100 system correctly.

### **Backup Battery**

A 12 V sealed lead-acid battery of a suitable rating can be used. The IXP100 will trickle charge the battery under normal operating conditions. The amp-hour (Ahr) rating of the battery will determine the length of time for which the IXP100 will remain in operation. See maximum (Ahr) rating permissible.

### **Door latching Mechanism**

Door latching mechanisms with a DC voltage rating of 12 V can be used with the IXP100 system. Power for the door latching mechanism can be derived off the power output connection on the IXP100 DCU. The current rating of the door latch mechanism must not exceed the current output rating of the IXP100 DCU.

**NOTE :** *If the latch operates at a voltage higher than that of the control unit, a separate power supply will be required.*

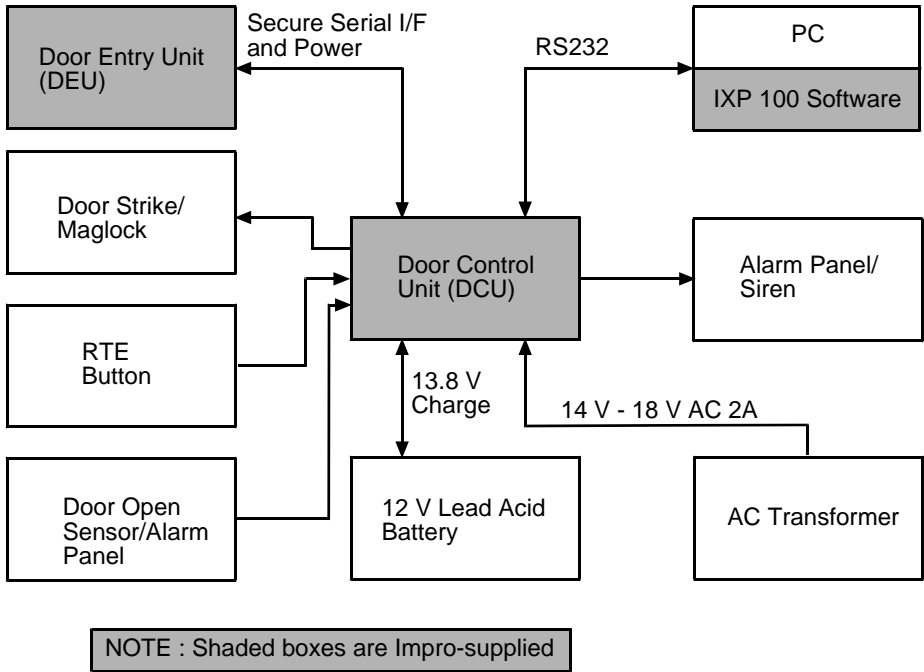
If a commonly available battery backed up power supply with a voltage output of 12 V to 14 V DC is used in place of the power supply described above, connection of this power supply must be made to the battery connection on the IXP100 DCU.

The IXP 100 series System is represented diagrammatically as shown in Figure 1-1.

## **INTERCONNECTION DIAGRAMS**

System interconnection diagrams for an Alarm Mode installation and an Intrusion Mode installation are shown in Figures 1-2 and 1-3 respectively.

*See next page*



**Figure 1-1 : System block diagram**

### **FUNCTIONALITY OF THE VARIOUS SYSTEMS**

The non-keypad version of the DEU (System 102) is not able to accept keypad entry and thus operate with reduced functionality. PIN code entry, Reason Code entry, alarm arming and disarming, DEU programming, and Special Function key-presses are not available on the non-keypad DEU.

In order to change the default operation settings of the non-keypad version of the DEU, a PC must be used together with the IXP100 Series System Program (for further details refer to the IXP100 Series Software Manual).

*See next page*

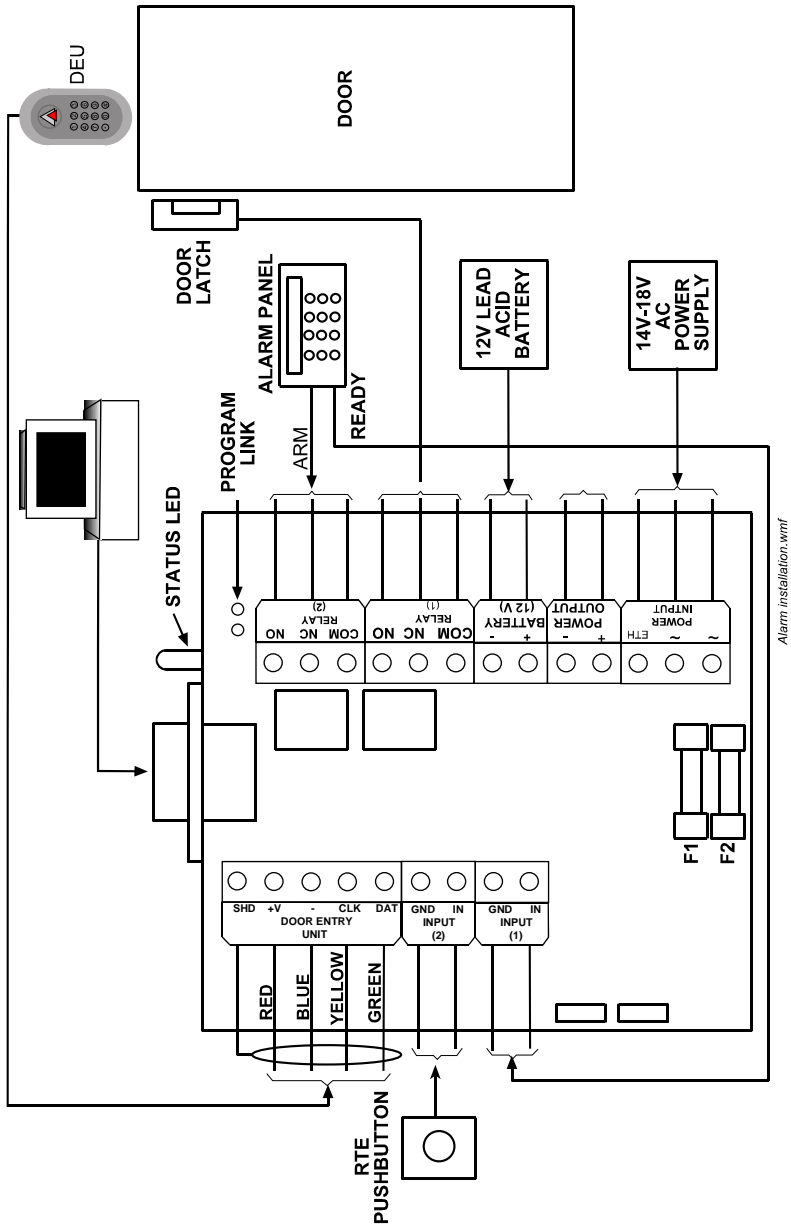
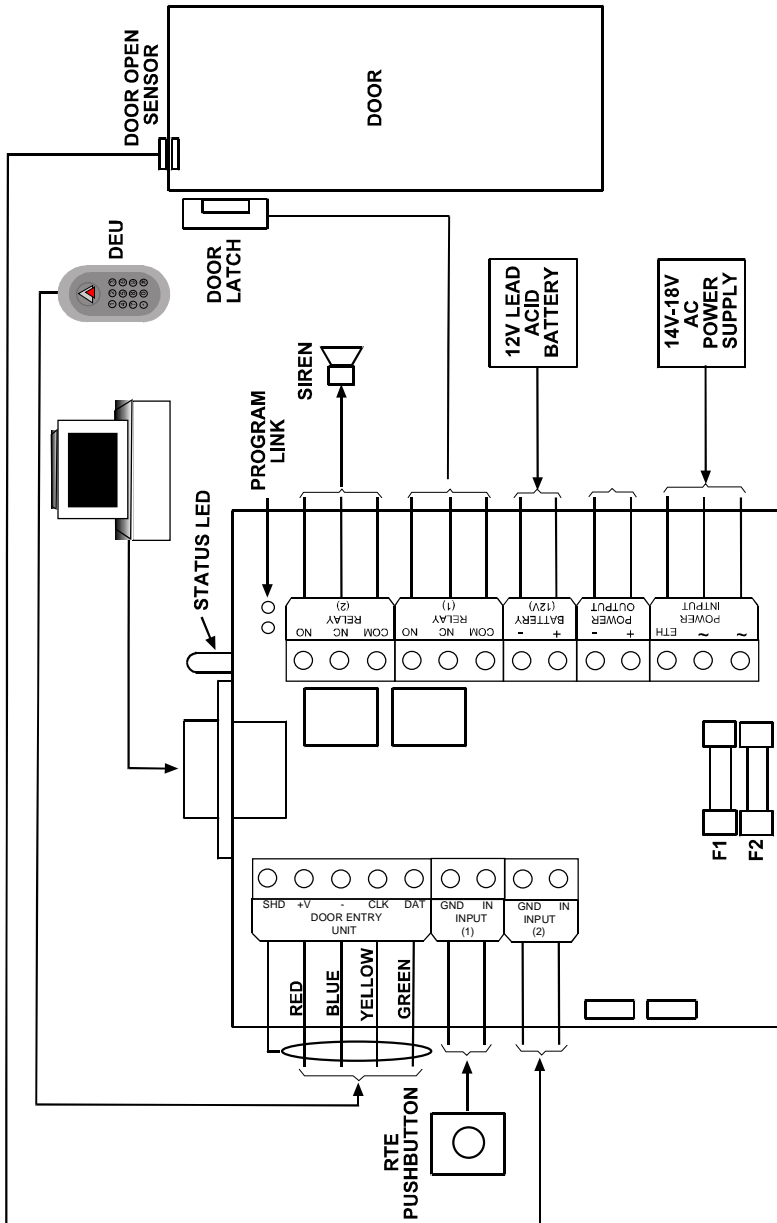


Figure 1-2 : Alarm Mode installation connections





Intrusion mode installation.wmf

Figure 1-3 : Intrusion mode installation connections

## USER'S NOTES

# IXP 100 SERIES

## INSTALLATION MANUAL

### SECTION 2 DOOR CONTROL UNIT (DCU) INSTALLATION

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## INTRODUCTION

This section covers the installation and wiring of the IXP100 Series Door Control Unit (DCU).

## ACCESSORIES

The following accessories are provided with the DCU.

- Mounting Screws.
- Wall plugs.

## SYSTEM COMPONENTS SUPPLIED BY THE USER

Some system components are not supplied by Impro, but must be purchased by the user. (Refer to Section 1 of this manual for details).

## DCU SPECIFICATIONS

### PHYSICAL SPECIFICATIONS

	L= 103 mm (4.05").
<b>DIMENSIONS</b>	: W= 116 mm (4.57").
	H= 50 mm (1.97").
<b>WEIGHT</b>	: 300 g. (10.57 oz).
<b>HOUSING MATERIAL</b>	: Aluminium.
<b>COLOUR</b>	: Matt black.

### ENVIRONMENTAL SPECIFICATIONS

#### TEMPERATURE

- **Operating** : -25°C to +80°C (- 13°F to +176°F).
- **Storage** : -40°C to +80°C (-40°F to +176°F).

<b>HUMIDITY RANGE</b>	: 0 to 95% relative humidity at +40 °C (+104° F) non-condensing.
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<b>EMC</b>	: EN 55024.
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<b>ELECTROSTATIC DISCHARGE</b>	: IEC6 1000-4-2.
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<b>ELECTRICAL FAST TRANSIENTS</b>	: IEC6 1000-4-4.
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<b>SURGE IMMUNITY</b>	: IEC6 1000-4-5.
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<b>VOLTAGE DIPS AND INTERRUPTIONS</b>	: IEC6 1000-4-11.
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<b>RADIATED SUSCEPTIBILITY</b>	: IEC6 1000-4-3.
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<b>CONDUCTED SUSCEPTIBILITY</b>	: IEC6 1000-4-6.
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## ENVIRONMENTAL SPECIFICATIONS

- DUST AND SPLASH RESISTANCE** : Indoor unit.
- DROP ENDURANCE** : 2m drop (in packaging).

## ELECTRICAL SPECIFICATIONS

### POWER REQUIREMENTS

- **Voltage** : 14 V to 18 V AC or 18 V to 24 V DC.
- **Current** : 45 mA (relays off, no lead acid battery connected).
- **Permissible Input Supply Ripple Voltage (maximum)** : 1 V<sub>PP</sub> at 50 Hz.

- POWER INPUT PROTECTION** : Metal oxide varistor, Transient voltage suppressor, not polarity sensitive.

### POWER OUTPUTS

#### Power to Main Battery

- **Voltage** : 13.8 V DC
- **Current** : 1A (max)
- **Maximum (Ahr) Rating** : 6.5 Ahr

#### Power to DEU

- **Voltage** : 5 V DC
- **Current** : 35 mA

#### Power to PC Interface

- **Voltage** : 5 V DC
- **Current** : 100 mA (max)
- **Over-current Protection** : Yes

#### Power to Other External Devices

- **Voltage** : 13.8 V DC  
1 A (max)  
NOTE 1 : *If a fully charged lead - acid battery is connected this rating can be increased to 2 A*
- **Current** :

## ELECTRICAL SPECIFICATIONS

*(max) for short durations.*

NOTE 2 : *Although each output is rated to 1 A (max), the total continuous current for all the outputs must not exceed 1 A (max).*

<b>MAINS FAIL WARNING</b>	:	Audio – visual.
<b>CLOCK</b>	:	Real time clock.
<b>FLASH ROM</b>	:	32 Kbytes.
<b>Firmware Upgrade Facility</b>	:	Via the RS232 Port.
<b>PC INTERFACE</b>		
<b>Electrical interface</b>	:	RS232, 3-wire.
<b>Baud rates</b>	:	38 400.
<b>Data format</b>	:	8 data bits, no parity, 1 stop bit.
<b>Communications protocol</b>	:	
<ul style="list-style-type: none"><li>• <b>Authentication</b></li></ul>	:	The PC authenticates information from the DCU by sending it a challenge code along with its request for information. When the DCU responds it sends back a response code. The PC then verifies that the response code is correct before acting on the information received.
<b>RELAY OUTPUTS</b>		
<ul style="list-style-type: none"><li>• <b>Relay #1</b></li></ul>	:	1 x N/O, COM, N/C. Rating 2A @ 28 V DC.
<ul style="list-style-type: none"><li>• <b>Relay #2</b></li></ul>	:	1 x N/O, COM, N/C. Rating 2A @ 28 V DC.
<b>DIGITAL INPUTS</b>		
<ul style="list-style-type: none"><li>• <b>Input #1</b></li></ul>	:	Dry contact, non-potential sensing or 4 V to 30 V DC potential sensing. Input protection to 50VDC (continuous).
<ul style="list-style-type: none"><li>• <b>Input #2</b></li></ul>	:	Dry contact, non-potential sensing. Input protection to 50VDC

## ELECTRICAL SPECIFICATIONS

(continuous).

### ANTI-TAMPER PROTECTION

: Firmware

## INSTALLATION INFORMATION

### General

In a normal IXP 100 series installation the Door Entry Unit will be mounted inside or outside the door to be controlled and the Door Control Unit will be mounted on the secure side of the door.

### Power Supply Connections

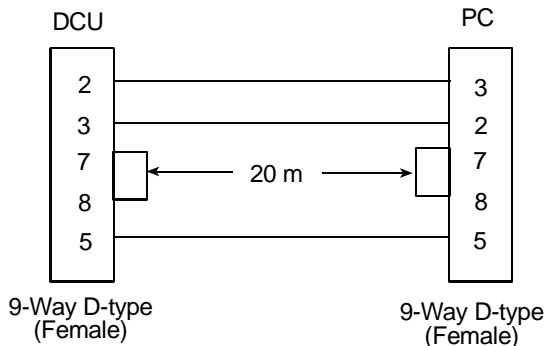
Power to the IXP100 DCU should be made using cable with an individual cross-section of no less than 0.5mm<sup>2</sup>. It is recommended that the neither the AC power supply nor the backup battery be situated at a distance greater than 5m from the DCU. A good mains EARTH must be connected to the DCU. The connection can be made to the ETH connector on the power input terminals. The cross section of this cable must be no less than 0.5mm<sup>2</sup>.

### DCU to DEU Communications

The distance between the DEU and the DCU can be increased to a maximum of 20 metres using a good quality screened 2-pair twisted cable. The cable individual cross section must not be less than 0.2mm<sup>2</sup>. The drain wire of the cable must be earthed by connecting it to the (SHD) terminal of the DEU connection on the DCU.

### DCU to PC Communications

The connection is made using a 3-wire RS232 interconnection cable terminated at both ends using female D-Type connectors. The one end is connected to the D-Type connector on the DCU and the other to the PC serial port. (Refer to Figure 2-1).



**Figure 2-1 : Cable terminations**

## **LED Indicators**

The IXP100 DCU contains one green LED indicator located on the connector end plate (refer to Figure 2-2). This indicates the status of the power supply within the DCU. If the indicator is solid then the DCU is operating off the AC power supply connected to the power input. If the indicator is blinking then the AC power supply has failed and the unit is operating off the lead-acid backup battery connected to the battery input. If the indicator is off then either the AC power supply has failed and no lead-acid backup battery is connected or the AC power supply has failed and the lead-acid backup battery has been drained to the extent that it will no longer support the operation of the system.

## **Fuses**

The IXP100 DCU has two fuses mounted within the case. The fuse labelled F1 protects the backup battery from overload as well as protects the DCU from a reverse polarity condition when connecting the backup battery. Should this fuse blow then replace it with a fuse of the same rating. The fuse labelled F2 protects the DCU from an overload on the power output. Should this fuse blow then replace it with a fuse of the same rating.

**NOTE :** *Do not replace either fuse with power applied to the DCU whether it be the AC power supply or backup battery.*

## **Remote Firmware Upgrade**

The IXP100 DCU has the ability to be upgraded in the field should further features be added to the functionality of the system at a later stage [Refer to the software manual]. This is done via the RS232 port. This function should occur without any hardware intervention. However should a fault occur such as a power failure during the upgrade process, and the upgrade fails, the following procedure needs to be followed :

- Power the DCU down.
- Place the link across the pins labelled PROG LINK located within the DCU case.
- Power the DCU back up.
- Restart the upgrade
- Once the upgrade has been completed successfully, power the DCU down again.
- Remove the PROGRAM LINK.
- Power the DCU back up and resume normal operation.

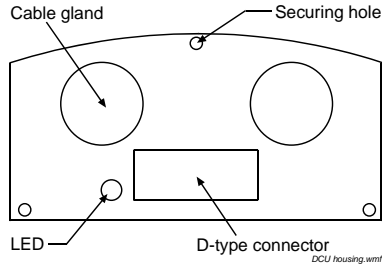
## **ENCLOSURE**

### **General**

The DCU is housed in an aluminium extrusion consisting of two parts, namely the case and the cover. The mounting holes are located in the flanges on either side of the case so it is not necessary to remove the cover for mounting purposes.

*See next page*





**Figure 2-2 : DCU connector end-plate**

### **Cable entry points**

The cables are inserted through the grommets situated on either side of the D-type connector on the unit housing (See Fig. 2-2).

### **Mounting on a Concrete or Brick Wall**

- [1] Use the DCU as a template and mark off the required holes.
- [2] Drill the four mounting holes using a 5 mm diameter masonry drill bit, to the depth of the length of the wall plug.
- [3] Insert wall plugs into the mounting holes.
- [4] Secure the DCU to the surface using the four mounting screws provided.

### **Mounting on a Hard Wood Surface**

- [1] Use the DCU as a template and mark off the required holes.
- [2] Drill the four mounting holes using a 2,5 mm diameter drill bit to the depth of three-quarters of the length of the mounting screws.
- [3] Secure the DCU to the surface using the four mounting screws provided.

### **Mounting on Metal**

The unit may be mounted on metal using four suitable securing devices, such as screws, nuts and bolts, or rivets.

- [1] Use the DCU as a template and mark off the required holes.
- [2] Drill the four mounting holes using a suitable diameter drill bit
- [3] Secure the DCU to the surface using the chosen method.

### **ELECTRICAL CONNECTIONS**

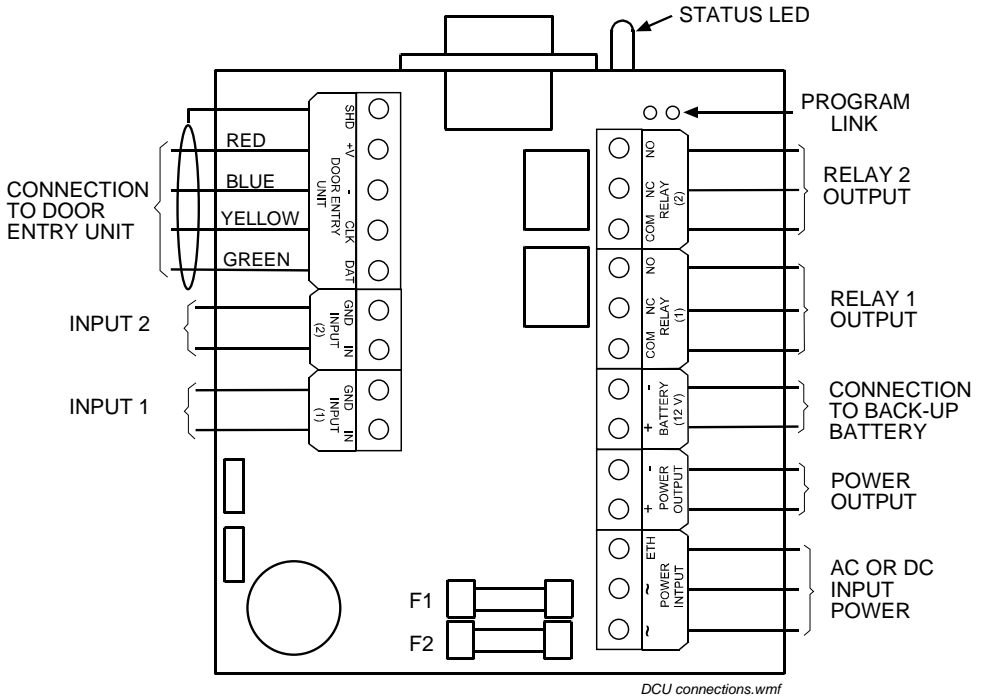
Remove the cover by removing the cover-securing screw at each end of the case (see Fig. 2-2). Insert the cables through the relevant grommet and connect to the DCU terminal blocks as shown in Figure 2-3.

*See next page*

## Interconnection Diagrams

System interconnection diagrams for an Alarm Mode installation and an Intrusion Mode installation are shown in Figures 1-2 and 1-3 respectively (see Section 1 of this manual).

After the wiring has been completed, replace and secure the cover by means of the screws at each end of the case.



**Figure 2-3 : DCU terminal block connections**

### Digital Inputs

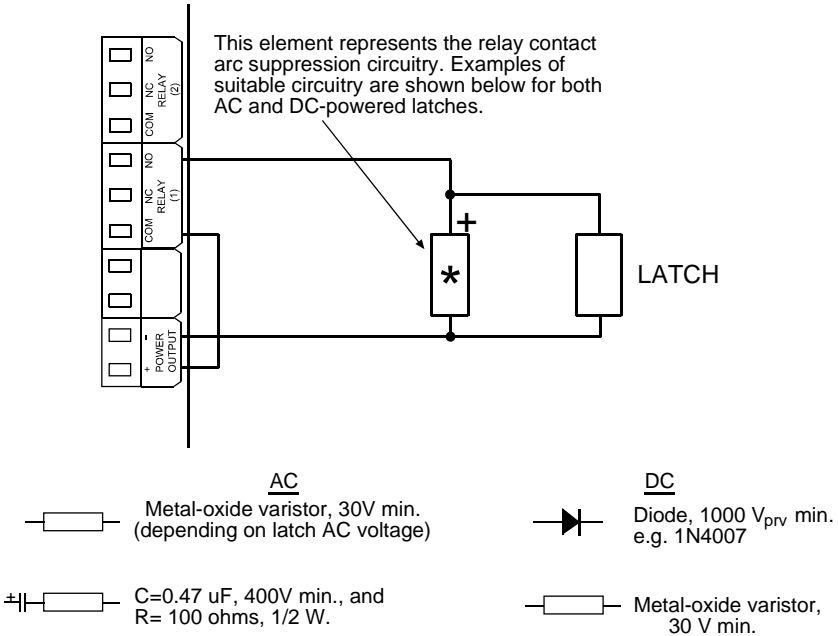
Input #1 is both a dry-contact, non potential-sensing input and a 4 V DC to 30 V DC potential-sensing input. This input is used as a “door open” sensing input in the Intrusion Mode, or as an “Alarm Ready” sensing input in the Alarm Mode.

Input #2 is a dry-contact, non potential-sensing input. This is used as a dedicated “Request to Exit” (RTE) input.

*See next page*

## RELAY OUTPUTS

The relay contact current rating should not be exceeded. To minimize damage to the relay contacts, it is recommended that one of the arc-suppression techniques shown in Figure 2-4 be used.



NOTE : The "+" symbol indicates the cathode of the diode when this option is used. The use of a diode is the recommended option.

*arc suppression.wmf*

**Figure 2-4 : Suppression circuitry**

## ORDERING INFORMATION

The IXP 100 series DCU can be ordered together with any of the two versions of the Door Entry Units under the following Impro codes:

System 101 IXP System 101 Keypad version	IXP901-1-0-GB-XX
System 102 IXP System 102 Non-keypad version	IXP902-1-0-GB-XX

The DCU cannot be ordered separately.

## USER'S NOTES

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# SECTION 3

## SYSTEM 101/102 DEU INSTALLATION

### INTRODUCTION

This section provides installation information for the Door Entry Unit (IXP System 101/102 Harsh Environment DEUs).

The System 101 DEU includes a keypad, while the System 102 DEU is the non-keypad version.

The IXP SYSTEM 101/102 is intended for indoor or outdoor use, and is designed for use in harsh environments, such as industrial areas. The unit is vandal resistant.

### ACCESSORIES

- IXP100 Series keypad door entry unit IXP System 101 Keypad / IXP100 Series no-keypad door entry unit IXP System 102 Non-keypad.
- Mounting hardware comprising screws and wall plugs.
- 2 metre cable.

### USER TAGS

These are used for entry through the door. Impro Slim tags (Code 04-6 only and Impro Omega tags (code 30-7 only) can be purchased.

### SYSTEM COMPONENTS SUPPLIED BY THE USER

Some system components are not supplied by Impro, but must be purchased by the user. (Refer to Section 1 of this manual for details).

### KEYPAD DEU SPECIFICATIONS (SYSTEM 101)

#### PHYSICAL SPECIFICATIONS

<b>Dimensions</b>	:	L	=	14.3 cm (5.63").
		H	=	2.8 cm (1.1").
		W	=	7.6 cm (3").
<b>Weight</b>	:	450 g.		(15.9 oz)
<b>Housing material</b>	:	Die-cast zinc alloy		
<b>Colour</b>	:	Natural die-cast metal finish		

*See next page*

## ENVIRONMENTAL SPECIFICATIONS

### TEMPERATURE

- **Operating** : -25°C to +80°C (+13°F to +176°F)
- **Storage** : -40°C to +80°C (-40°F to +176°F)

**Humidity Range** : 0 to 95% relative humidity at +40°C (+104°F) non-condensing.

**EMC** : EN 55024

**Electrostatic Discharge** : IEC6 1000-4-2

**Electrical Fast Transients** : IEC6 1000-4-4

**Surge Immunity** : IEC6 1000-4-5

**Voltage Dips and Interruptions** : IEC6 1000-4-11

**Radiated Susceptibility** : IEC6 1000-4-3

**Conducted Susceptibility** : IEC6 1000-4-6

**Dust and Splash Resistance** : This unit incorporates technology designed to provide dust and splash protection equivalent to that required by IP54.

**Drop Endurance** : 2m drop (in packaging)

## ELECTRICAL SPECIFICATIONS

### POWER REQUIREMENTS

- **Voltage** : 5 V DC, polarity sensitive.
- **Current** : 35 mA at 5 V DC –indicators all on.

**POWER INPUT PROTECTION** : Reverse polarity protection is provided on the unit.

**NOMINAL TAG READ RANGE** : 30 mm to 70 mm (tag type-dependent - see Table 1).

**FLASH ROM** : 4 Kbytes.

### PC INTERFACE

- **Data format** : 8 data bits, no parity, 1 stop bit.



## ELECTRICAL SPECIFICATIONS

**ANTI-TAMPER PROTECTION** : Firmware

## OPERATOR INTERFACES

### KEYPAD

**Keys** : 12 alphanumeric keys.

### BUZZER

**Volume** : Adjustable in four discrete steps (including off). Set via software configuration or keypad

**Tones** : Single tone.

**STATUS INDICATORS** : Tri-colour Red/Green/Amber LED.

## FACTORY DEFAULT SETTINGS

**Buzzer Volume** : Level 3 (loud).

TAG TYPE	TYPICAL RANGE (minimum) (Keypad DEU mounted on non-metallic surface)
Impro Credit Card Tag	70 mm
Impro Teardrop Tag	50 mm
Impro Pico Tag	30 mm
<b>NOTE</b> : <i>Mounting the Keypad DEU on a metallic surface may decrease the read range by up to 15%.</i>	

**Table 3-1 : Typical tag reading ranges - Keypad DEU**

*See next page*

## NON-KEYPAD DEU SPECIFICATIONS (SYSTEM 102)

### PHYSICAL SPECIFICATIONS

<b>DIMENSIONS</b>	:	D= 76 mm (2.99"). H= 28 mm (1.10").
<b>WEIGHT</b>	:	200 g. (7.05 oz).
<b>HOUSING MATERIAL</b>	:	Die-cast zinc alloy.
<b>COLOUR</b>	:	Natural die-cast metal finish.

### ENVIRONMENTAL SPECIFICATIONS

#### TEMPERATURE

• <b>Operating</b>	:	-25°C to +80°C (- 13°F to +176°F).
• <b>Storage</b>	:	-40° C to +80° C (-40° F to +176° F).

<b>HUMIDITY RANGE</b>	:	0 to 95% relative humidity at +40 ° C (+104° F) non-condensing.
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<b>EMC</b>	:	EN 55024.
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<b>ELECTROSTATIC DISCHARGE</b>	:	IEC6 1000-4-2.
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<b>ELECTRICAL FAST TRANSIENTS</b>	:	IEC6 1000-4-4.
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<b>SURGE IMMUNITY</b>	:	IEC6 1000-4-5.
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<b>VOLTAGE DIPS AND INTERRUPTIONS</b>	:	IEC6 1000-4-11.
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<b>RADIATED SUSCEPTIBILITY</b>	:	IEC6 1000-4-3.
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<b>CONDUCTED SUSCEPTIBILITY</b>	:	IEC6 1000-4-6.
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<b>DUST AND SPLASH RESISTANCE</b>	:	This unit incorporates technology designed to provide dust and splash protection equivalent to that required by IP54.
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<b>DROP ENDURANCE</b>	:	2m drop (in packaging).
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### ELECTRICAL SPECIFICATIONS

#### POWER REQUIREMENTS

• <b>Voltage</b>	:	5 V DC, polarity sensitive.
• <b>Current</b>	:	35mA at 5VDC –indicators all on.

## ELECTRICAL SPECIFICATIONS

<b>POWER INPUT PROTECTION</b>	:	Reverse polarity protection is provided on the unit.
<b>NOMINAL READ/WRITE RANGE</b>	:	30 mm to 70 mm (tag type-dependent – see Table 1).
<b>FLASH ROM</b>	:	4 Kbytes.
<b>PC INTERFACE</b>		
• <b>Data format</b>	:	8 data bits, no parity, 1 stop bit.
<b>ANTI-TAMPER PROTECTION</b>	:	Firmware

## OPERATOR INTERFACES

### BUZZER

**Volume** : Adjustable in four discrete steps (including off). Set via software configuration.

**Tones** : Single tone.

**STATUS INDICATORS** : Tri-colour Red/Green/Amber LED.

## FACTORY DEFAULT SETTINGS

**Buzzer Volume** : Level 3 (loud).

<b>TAG TYPE</b>	<b>TYPICAL RANGE (minimum) (Non-keypad DEU mounted on non-metallic surface)</b>
ImproX Credit Card Tag	70 mm
ImproX Teardrop Tag	50 mm
ImproX Pico Tag	30 mm
<i>Mounting Non-keypad DEU on a metallic surface may decrease the read range by up to 15%.</i>	

**Table 3-2 : Typical tag read ranges - Non-keypad DEU**

## TAMPER-PROOFING

Anti-tamper protection is provided by means of special security screw, which cannot be removed with common tools.

Anti-tamper detection is also implemented by means of a communications break to the DEU from the DCU.

## INSTALLATION INFORMATION

### GENERAL

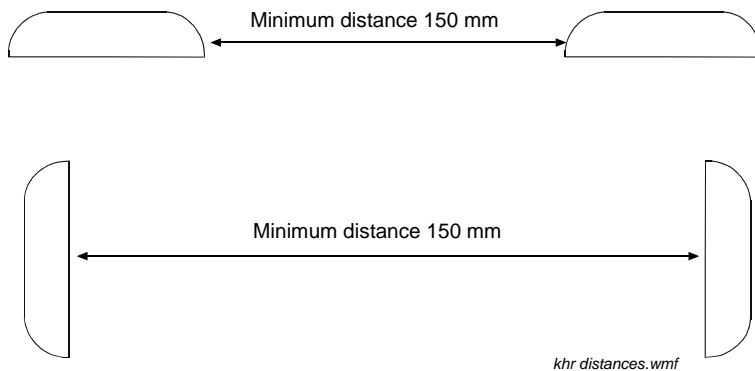
In a normal IXP100 series installation, the Door Entry Unit (DEU) would be mounted inside or outside the door to be controlled, and the Door Control Unit (DCU) would be mounted on the secure side of the door. The wiring details are shown in Figure 3-4.

### MAXIMUM DATA COMMUNICATIONS DISTANCE

The distance between the DEU and the DCU can be increased to a maximum of 20 metres using a good quality screened 2-pair twisted cable. The cable individual conductor cross-sectional area should not be less than 0.2 mm<sup>2</sup>.

### MINIMUM DISTANCE BETWEEN DOOR ENTRY UNITS

It is important to maintain a minimum distance between adjacent Units to avoid mutual interference. In installations where more than one IXP100 series system is being installed, **do not** install any two keypad units closer together than the distances shown in Figure 3-1.



**Figure 3-1 : Minimum distance between units**

### LOCATION OF THE IXP SYSTEM 101/102 DEU

Although the unit can be mounted on any surface, mounting it on a metal surface will decrease its Tag reading range. (See Table 3-1 for Tag read range details).

### ENCLOSURE

#### General

The unit enclosure consists of two parts, namely a die-cast front cover and a mild steel backing plate.

The front cover clips onto the backing plate, and is secured by a locking screw located at the bottom centre of the unit.

The backing plate incorporates two recessed panels designed for added strength. The front cover incorporates the keypad, electronic circuitry and an LED indicator.

### Cable Exit Points

The unit offers a choice of two cable exit points. These are :

- [a] Through the centre of the backing plate.
- [b] Through the bottom of the unit cover.

To access these exit points, remove the unit cover as follows :

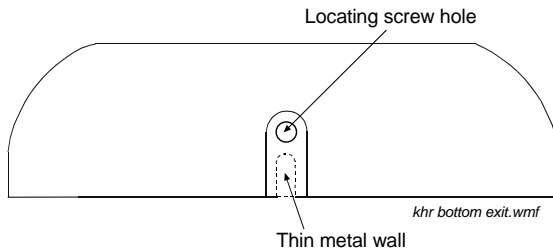
- [1] Remove the locking screw from the bottom of the unit.
- [2] Pull the bottom edge of the front cover away from the backing plate.
- [3] Pull down the front cover until it clears the top of the backing plate.

### Central exit point

If the cable exit point at the centre of the backing plate (see Figure 3-3) is to be used, a corresponding hole must be provided in the mounting surface. Use the backing plate as a template to mark the position for this hole.

### Bottom exit point

If this cable exit point (see Figure 3-2) is to be used, remove the thin metal wall using a sharp tool.



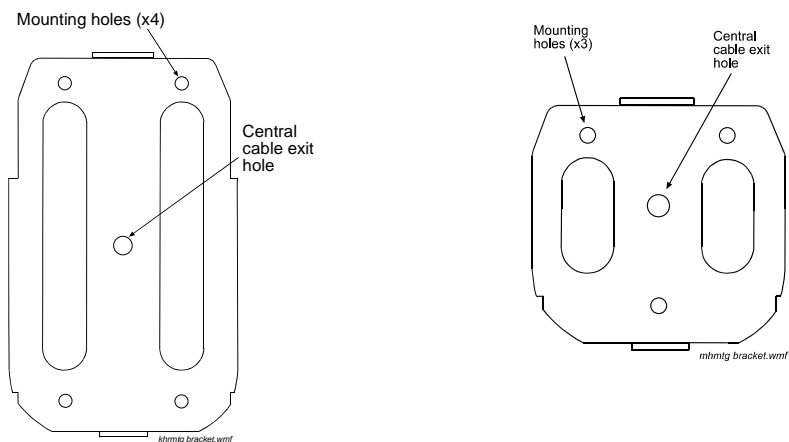
**Figure 3-2 : Bottom cable exit**

## INSTALLING THE BACKING PLATE

### General

The IXP System 101/102 DEU backing plate includes four (System 101), or three (System 102) four mounting holes and one central cable exit hole (see Figure 3-3).

*See next page*



**Figure 3-3 : Backing plates**

Refer to Figure 3-3, which shows the System 101 unit (left) and the System 102 unit (right) backing plates, and proceed as described below.

#### **Mounting on a Concrete or Brick Wall**

- [1] Use the backing plate as a template and mark off the required holes.
- [2] Drill the four mounting holes using a 5 mm diameter masonry drill bit, to the depth of the length of the wall plug.
- [3] If required, drill the centre hole through the wall [for the cable] using a 6 mm diameter [minimum] masonry drill bit.
- [4] Insert wall plugs into the mounting holes.
- [5] Secure the backing plate to the surface using the four mounting screws provided.

#### **Mounting on a Hard Wood Surface**

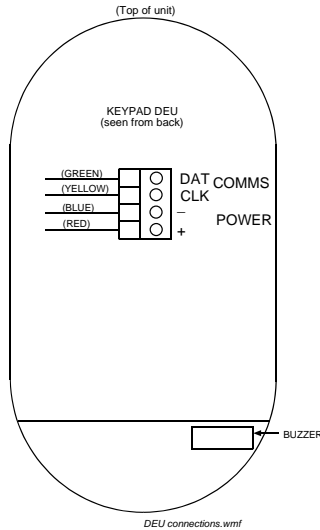
- [1] Use the backing plate as a template and mark off the required holes.
- [2] Drill the four mounting holes using a 2,5 mm diameter drill bit to the depth of three-quarters of the length of the mounting screws.
- [3] If required, drill the centre hole through the wood [for the cable] using a 6 mm diameter [minimum] drill bit. Secure the backing plate to the surface using the four mounting screws provided.

#### **Mounting on Metal**

The unit may be mounted on metal using four suitable securing devices, such as screws, nuts and bolts, or rivets.

- [1] Use the backing plate as a template and mark off the required holes.
- [2] Drill the four mounting holes using a suitable diameter drill bit

- [3] If required, drill the centre hole through the metal [for the cable], using a 6 mm diameter [minimum] drill bit.
- [4] Secure the backing plate to the surface using the chosen method.



**Figure 3-4 : Terminal block cable connections and colour codes**

## ELECTRICAL CONNECTIONS

The Remote cable connections are shown in Figure 3-4. The recommended cable is a shielded two-pair, twisted cable. A 2 m length of cable is supplied with the unit.

### Cable Colour Coding

The colour coding of a typical cable is also shown in Figure 3-4.

## MOUNTING THE IXP SYSTEM 101/102 DEU ONTO THE BACKING PLATE

### Using the Centre Cable Exit

- [1] Feed the cable through the centre hole in the backing plate, through to the other side of the mounting surface.
- [2] Pull the cable until the IXP System 101/102 DEU comes into contact with the backing plate.
- [3] Clip the unit front cover over the top of the backing plate.
- [4] Push the unit cover towards the backing plate until it is in position.
- [5] Insert the locking screw through the cover into the backing plate, and tighten it.

### Using the Bottom Cable Exit

- [1] Feed the cable to the bottom of the unit. The cable must be underneath the securing screw used.
- [2] Clip the unit front cover over the top of the backing plate.
- [3] Push the unit front cover towards the backing plate until it is in position.

[4] Insert the locking screw through the cover into the backing plate, and tighten it.

Refer to Section 2 of this manual for the installation and wiring of the Door Control Unit.

### **BUZZER VOLUME CONTROL**

The buzzer volume is adjustable in four discrete steps (off, soft, medium and loud). This can be adjusted via the PC software on all systems or via keypad on the IXP100 system 101 only.

### **LED INDICATOR**

The function of the externally visible tri-colour Red/Green/Amber LED is to provide a visual status indicator.

### **RELATED PRODUCTS**

The IXP100 Series IXP System 101/102 DEU is designed to be used in conjunction with the IXP100 Series DCU.

### **ORDERING INFORMATION**

The IXP System 101 Keypad DEU must be ordered together with an IXP100 Series DCU under the Impro code IXP901-1-0-GB-XX. Similarly the IXP System 102 Non-Keypad DEU must be ordered together with an IXP100 series DCU under the Impro code IXP902-1-0-GB-XX.

## **USER'S NOTES**



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## FCC APPROVAL NOTICE

**Warning :** Changes or modifications to these units not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**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 switching 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 the 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.

Shielded cables must be used with these units to ensure compliance with the Class B FCC limits.

### APPLICABILITY OF THIS MANUAL

The last two digits of the standard Impro stock code indicate the issue status of the item concerned. This manual is applicable to IXP Series 100 Systems 101, 102 and 103, stock codes IXP901-1-0-GB-02, IXP902-1-0-GB-02, IXP903-1-0-GB-00 onwards. The next issue of this manual will determine the final equipment issue to which this manual issue is applicable.

<i>Please advise us of any errors or omissions in this manual to enable us to improve our service to you.</i>
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