



impro®

IXP200 Controller

Product Specifications Catalogue

www.impro.net

IXP200 LCD Keypad Controller



Overview

Introduction

The **IXP200 LCD Keypad Controller** is a fully featured Controller that forms part of the ImproX family of access control equipment.

The IXP200 Controllers applications include, access control, alarm control, time and attendance monitoring and job costing.

The Controller has a 20-key Keypad and a 16-character by 4-line alphanumeric Liquid Crystal Display (LCD). Both the Keypad and the LCD include back-lighting. The back-lighting for the Keypad and the LCD work in conjunction and are switched on or off via the Communications Protocol. The Controller offers 4 "Bus Activity LED Indicators" for the installer and 1 "Power-on Indicator". The "Bus Activity LED Indicators" indicate incoming and outgoing RS232 and RS485 Data.

The Controller is capable of communicating with other ImproX units via an RS485 Terminal Bus Port and with a PC via an RS232 or RS485 Host Bus Port.

Key Features

- Tag read/write capability: Slim Tags (read only), Omega Tags (read only), WriTag 128 (read/write) and WriTag 2048 (read/write).
- LEDs indicate transmit and receive line activity for diagnostics.
- A real-time clock.
- Remote Firmware download capability.
- An RS232 or RS485 Host Bus Port for connection to the system PC.
- An RS485 Terminal Bus Port for connection of other ImproX Terminal devices.
- An RS232 Serial Peripheral Port for connection of compatible Barcode Readers, Mag-stripe Readers, or Keypads.
- Operation from power inputs in the range 10 V to 30 V DC.

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- A 20-key Keypad with back-lighting.
 - A 16-character by 4-line alphanumeric Liquid Crystal Display (LCD) (English, Katakana) with back-lighting.
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Tag Read/Write Ranges

The range that the Controller can read from or write to a Tag is dependent on the type of Tag and material on which the Controller is installed.

Typical ranges are shown in Table 1.

Tag Type	Typical Range (Minimum) (Controller installed on non-metallic surface)	
	(mm)	(in)
ISO Credit Card Tag (Slim)	100	3.94
ImproX Credit Card Tag	100	3.94
ImproX Round Tag	80	3.15
ISO Credit Card WriTag 128	120	4.72
ISO Credit Card WriTag 2048	120	4.72

NOTE: Installing the Controller on a metallic surface will reduce the Tag read/write range slightly.

Table 1: Typical Read/Write Ranges

Approvals

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- CE Approved.
 - FCC Approved.
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Specifications

Physical

Dimensions	
Length	: 204 mm (8.03 in).
Width	: 121 mm (4.76 in).
Height	: 45 mm (1.77 in).
Approximate Weight	: 510 g (17.97 oz).
Cabinet Material	: ABS Plastic.
Colour	: Dark Grey.

Environmental

Temperature	
Operating	: -15°C to +60°C (+5°F to +140°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.
Approvals (Test Information)	
EMC	: EN 55022: Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment. EN 55024: Immunity Characteristics, Limits and Methods of Measurement.
Electrostatic Discharge	: IEC 61000-4-2: Electromagnetic Compatibility (EMC). Part 4: Testing and Measurement Techniques. Section 2: Electrostatic Discharge Immunity Test. Basic EMC Publication.
Radiated Susceptibility	: IEC 61000-4-3: Electromagnetic Compatibility (EMC). Part 4: Testing and Measurement Techniques. Section 3: Radiated, Radio-Frequency, Electromagnetic Field Immunity Test.
Electrical Fast Transients	: IEC 61000-4-4: Electromagnetic Compatibility (EMC). Part 4: Testing and Measurement Techniques. Section 4: Electrical Fast Transients / Bursts. Basic EMC Publication.
Surge Immunity	: IEC 61000-4-5: Surge Immunity.
Conducted Susceptibility	: IEC 61000-4-6: Conducted Susceptibility.
Power Frequency Magnetic Field	: IEC 61000-4-8: Electromagnetic Compatibility (EMC). Part 4: Testing and Measurement Techniques. Section 8: Frequency Magnetic Field Immunity Test.
Dust and Splash Resistance	: Designed to work in an indoor (dry) environment similar to IP40. The Controller is, therefore, NOT sealed against water.
Drop Endurance	: 2 m (6.56 ft) drop (in packaging).

Electrical

Power Requirements		
Input Voltage	:	10 V DC to 30 V DC.
Power Requirements		Current (mA) Power (W)
Supply Voltage 10 V DC Relays all OFF	:	175 1.75
Supply Voltage 10 V DC Relays all ON	:	270 2.70
Supply Voltage 30 V DC Relays all OFF	:	65 1.95
Supply Voltage 30 V DC Relays all ON	:	90 2.70
Permissible Input Supply Ripple Voltage (Max)	:	1 V _{PP} at 50 Hz.
Power Input Protection	:	Reverse polarity, over-voltage and over-current protection are provided on the Controller.
Terminal Bus Port (Port 1)		
Electrical Interface	:	RS485, ASCII with 16-bit CRC checking.
Baud Rates	:	1 200, 2 400, 4 800, 9 600, 19 200, 28 800, 38 400, 57 600 and 76 800 selectable via the Protocol.
Data Format	:	8 data bits, no parity, 1 stop bit.
Communications Protocol	:	ImproX Secure Communications Protocol.
Line Termination	:	Provision is made for line termination.
Default Mode	:	Transmit Mode.
Host Bus Port (Port 2)		
Electrical Interface	:	RS232 (full duplex, no flow control) or RS485, ASCII with 16-bit CRC checking, selectable via the Protocol.
Baud Rates	:	1 200, 2 400, 4 800, 9 600, 19 200, 28 800, 38 400 and 57 600 selectable via the Communications Protocol.
Data Format	:	8 data bits, no parity, 1 stop bit.
Communications Protocol	:	ImproX Secure Communications Protocol.
Line Termination (RS485)	:	Provision is made for line termination.
Default Mode (RS485)	:	Receive Mode.
Unit Status	:	Slave.
Serial Peripheral Port (Port 3)		
Electrical Interface	:	RS232 (full duplex, RTS and CTS flow control available).
Baud Rates	:	1 200, 2 400, 4 800, 9 600, 19 200, 28 800, 38 400, 57 600 and 76 800 selectable via the Communications Protocol.
Data Format	:	8 data bits, no parity, 1 stop bit.
Interface Protocol	:	Determined by the peripheral device used.
Relays		
Relay Output	:	2 x Relays, each with NO, COM and NC contacts.
Contact Ratings	:	10 A at 28 V DC, 5 A at 220 V AC.

Digital Inputs	
Input Type	: 4 x Dry Contact Inputs.
Protection Range	: +15 V and -15 V continuous.
Anti-tamper Protection	: An internal infra-red beam detects when the Front Cover is removed from the Controller. This event detection is reported by the Controller via the Protocol.
Memory	
RAM (Non-volatile)	: 512 KBytes.
Flash ROM	: 128 KBytes.
Battery Backup (for RAM)	
Battery Type	: 1 x 3.6 V, size ½ AA.
Battery Life	: 5 Years (with power OFF).

Factory Default Settings

Test Modes	
Power-on Self-test	: RAM, Flash-ROM, Tag Read/Write, RTC and stuck keys.
Baud Rate	
Terminal Bus Port	: 38 400.
Host Bus Port	: 38 400.
Back-lighting	
LCD and Keypad	: On.
Contrast (LCD)	: Level 3.
Host Port Mode	: RS232.
Buzzer	
Tone	: 25.
Volume	: Level 4 (maximum).

Operator or Installer Interfaces

Liquid Crystal Display (LCD)

Characters	:	16 Characters by 4 lines.
Character Sets	:	English, Katakana.
Contrast	:	Adjustable in 8 discrete steps via the Communications Protocol.
Back-lighting	:	Turned on and off via the Communications Protocol.

Keypad

Buttons	:	20 Alphanumeric and function keys.
Back-lighting	:	Turned on and off via the Communications Protocol.

NOTE: The LCD and Keypad back-lighting operate in conjunction.

Buzzer

Volume and Tone	:	5-Step adjustable volume, 36 different tones. Selectable via the Communications Protocol.
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LED Indicators

Power-on Indicator	:	Red LED (internally visible).
Incoming RS485 Data	:	Flashing Green LED (internally visible).
Outgoing RS485 Data	:	Flashing Red LED (internally visible).
Incoming RS232 Data	:	Flashing Green LED (internally visible).
Outgoing RS232 Data	:	Flashing Red LED (internally visible).
Status Indicator	:	Bi-colour Red or Green LED (externally visible), function programmable via the Communications Protocol.

Installation Information

Accessories

Find the following when unpacking the IXP200 Controller:

- An IXP200 LCD Keypad Controller housed in a Dark Grey ABS Plastic Cabinet. The Cabinet will consist of a Front and Back Cover secured with an M4 x 10 mm Screw.
 - One copy of IXP200 Software on CD.
 - An M4 x 10 mm Screw.
 - A 3 m (9.84 ft) flat, 4-core RS232 Cable, with a 9-way, D-type female connector at one end.
 - A 3.6 V, >950 mAh, ½ AA Cylindrical Lithium Battery.
 - Four Wood Screws (3.5 mm x 25 mm).
 - Four Wall Plugs (7 mm).
 - An extra Fixed Address Label.
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General

Remember the following when installing your IXP200 Controller:

Communications Distance

- The RS485 communications distance between the IXP200 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, 2-pair, twisted pair cable, EARTHED on one side.
 - The maximum cable distance between the IXP200 Controller and the PC (or peripheral device) is 25 m (27.34 yd). Achieve this by using good quality screened, 4-core cable, with a cross sectional area not less than 0.2 mm² (0.0003 in²).
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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 IXP200 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 IXP200 Controller should have a minimum cross-sectional area of 1 mm² (0.001 in²) and can be either solid or stranded.

Installing the Battery

First Time Use

CAUTION: Insert the Battery into the Battery Holder **BEFORE** powering up the IXP200 Controller.

The Battery Holder is located in the middle right-hand side of the IXP200 Controllers Printed Circuit Board (PCB), directly below the "Bus Activity LED Indicators".

Insert the 3.6 V Lithium Battery into the Battery Holder, with the "+" Terminal facing AWAY from the Terminal Blocks.

Replacement

CAUTION: **DO NOT** disconnect Power from the IXP200 Controller during this operation. Disconnecting the Power could result in the RAM loosing data.

1. With the Controller powered up, remove the Controllers Front Cover. **DO NOT** disconnect the Ribbon Cable Connectors.
 2. Remove the Battery from the Battery Holder.
 3. Insert the new 3.6 V Lithium Battery into the Battery Holder, with the "+" Terminal facing AWAY from the Terminal Blocks.
 4. Attach the Controllers Front Cover.
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Mounting the Controller

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

Select the mounting position of the IXP200 Controller, considering accessibility, routing of wires and visibility of the externally visible LED.

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

Electrical Connections

Connecting the IXP200 Controller

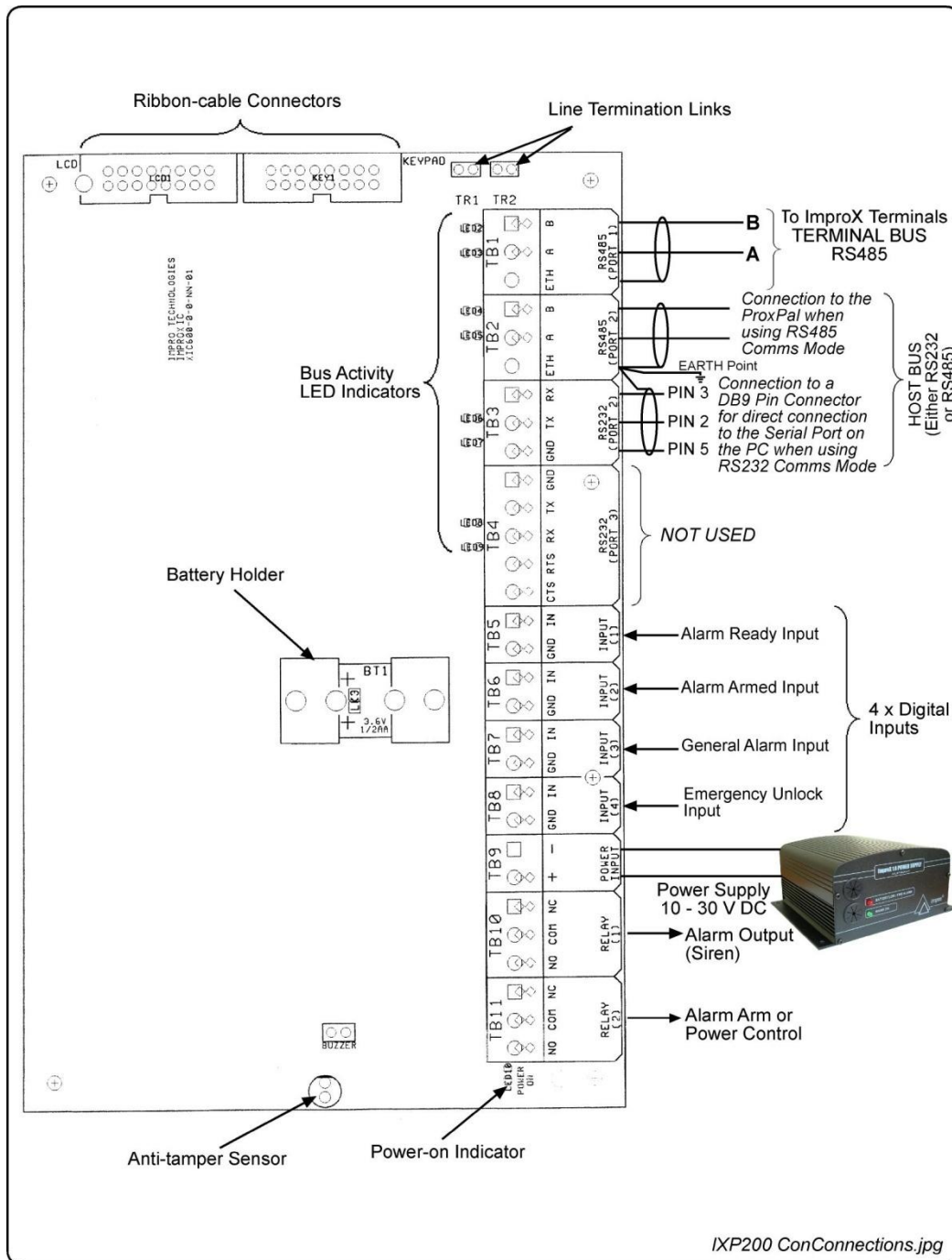


Figure 1: Typical IXP200 Controller Electrical Connections



Power-on Self-test

The Power-on Self-test tests the RAM, Flash-ROM checksums, RTC, read/write circuitry and stuck keys.

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 emits a continuous beep for 2 seconds.

When the Controller passes the Self-test, the Controller emits two short beeps of 200 ms duration, separated by a 200 ms inter-beep pause.

Fixed Address Label

Once the IXP200 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.

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.

Ordering Information

Order the IXP200 Controller using the following Impro part number: XIC902-1-0-GB-XX.

This manual is applicable to the IXP200 LCD Keypad Controller, XIC902-1-0-GB-01. (The last two digits of the Impro stock code indicate the issue status of the product).			
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