IMPROX I16/O16

ImproX I16/O16 Input/Output Terminal

INTRODUCTION

The ImproX I16 and ImproX O16 Terminals are general-purpose modules for use within ImproNet Access Control Systems, and for OEM applications.

The ImproX I16 is an Input Terminal, providing sixteen input sensors for door open/close sensing, alarm sensing and general control.

The ImproX O16 Unit is an Output Terminal, providing sixteen relays for controlling door strikes and other equipment.

The Units are optimised for ease of installation, and communicate with a master host such as the ImproX DL LCD Keypad Terminal, IC LCD Keypad Controller or IL LCD Keypad Computer via an RS485 Terminal Bus Port.

APPLICATIONS

Typical applications for these units include:

- Access Control Systems.
- OEM custom requirements.
- Use within ImproNet systems to sense door open/close sensing, alarm sensing and general control.

Use within ImproNet systems to control door strikes and other equipment.

FEATURES

Common Features
The unit provides the following common features:

- Operation from power inputs in the range 10V to 30V DC.
- LED indication of bus activity.
- Remote firmware upgrade facility.

Unique Features

The I16 and O16 Terminals have the following unique features:

ImproX I16 Terminal

- Sixteen input sensors.
- Each input can be set for E.O.L. (End of Line Sensing).
- LED indication of the input status.

ImproX O16 Terminal

- Sixteen relay contact outputs.
- LED indication of the relay status.

SPECIFICATIONS

PHYSICAL SPECIFICATIONS	**NOTE:** *The following electrical specifications apply to both I16 and the O16 terminals unless otherwise indicated.*	
	Dimensions	L=180 mm (7.09").
		W=119.6 mm (4.71").
		H=57.6 mm (2.27").
	Mass	
	I16 Terminal	465 g (16.40 oz).
	O16 Terminal	555 g (19.60 oz).
	Material	Aluminium.
	Colour	Black anodised.

ENVIRONMENTAL SPECIFICATIONS	**NOTE:** *The following electrical specifications apply to both I16 and the O16 terminals unless otherwise indicated.*	
	Temperature Operating	-25°C to +60°C (-13°F to +140°F).
	Temperature 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	IEC 1000-4-2.
	Electrical Fast Transients	IEC 1000-4-4.
	Surge Immunity	IEC 1000-4-5.
	Voltages Dips and Interruptions	IEC 1000-4-11.
	Radiated Susceptibility	IEC 1000-4-3.
	Conducted Susceptibility	IEC 1000-4-6.
	Dust and Splash Resistance	This unit is manufactured in accordance with a dust and splash environment similar to that of IP53.
	Drop Endurance	2m drop (in packaging).

ELECTRICAL SPECIFICATIONS	NOTE: *The following electrical specifications apply to both I16 and the O16 terminals unless otherwise indicated.*	
	Power Requirements	
	Voltage	10 V to 30 V DC, polarity sensitive.
	Current (O16 unit only)	60 mA at 8 V DC – relays and indicators all off.
		700 mA at 8 V DC – relays and indicators all on.
	Current (I16 unit only)	60 mA at 8 V DC – indicators all off.
		100 mA at 8 V DC – indicators all on.
	Power Input Protection	Reverse polarity protection, over-current protection.
	Permissible Input Supply Ripple Voltage (maximum)	1 V_{PP} at 50 Hz.
	Digital Input (I16 unit only)	
	Type	16 x dry contact inputs
	Protection Range	+80V and –80V single pulse; +35V and –30V continuous.
	Relays (O16 unit only)	

Relay Outputs	N/O, N/C and Common contacts on each relay.
Relay Contact Ratings	2 A at 30 V DC
	1 A at 125 V AC
Anti-Tamper Detection	Detects the opening of the unit enclosure.
Flash ROM	128 Kbytes
RAM	2 Kbytes
EPROM	2 Kbits for baud rates, serial numbers, encryption keys and addresses.
Terminal Bus Port	
Electrical interface	RS485, ASCII with 16 bit CRC checking.
Unit status	Slave.
Baud rates	1 200, 2 400, 4 800, 9 600, 19 200, 38 400, 28 800, 57 600 and 76 800. Selectable via the communications protocol.
Data format	8 data bits, no parity, 1 stop bit.
Default mode	Receive (Slave Mode)
Communications protocol	ImproX Secure Communications Protocol.
Authentication	A controller authenticates information from a terminal by sending it a challenge code along with its request for information. When the terminal responds it sends back a response code. The controller then verifies that the response code is correct before acting on the information received.
Test modes	
Power-On Self-test	RAM, ROM, EEPROM.
Factory Defaults	
Baud Rate	38 400
Relays	Off.
Status Indicators	
Power Polarity Indicator	Red LED (internally visible)
Relay (O16 unit only)	16 x Red LED's (on when relay operated) (externally visible).
Input Status (I16 unit only)	16 x Green LED's (software- controllable to indicate when input is high or low) (externally visible).
Incoming RS485 Data	Green LED (flashing) (externally visible).
Outgoing RS485 Data	Red LED (flashing) (externally visible).
Terminal Status Indicator	Red LED (steady or flashing) configurable via the communications protocol.

OPERATOR INTERFACES

There are no operator interfaces to this unit

INTERNATIONAL STANDARDS

EIA RS-485	Standard for Electrical Characteristics of Generators and Receivers for use in Balanced Digital Multipoint Systems.
EN 55024	Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment.
IEC 1000-4-1	Electromagnetic Compatibility (EMC). Part 4: Testing and Measurement Techniques. Section 1: Overview of Immunity Tests. Basic EMC Publication.
IEC 1000-4-2	Electromagnetic Compatibility (EMC). Part 4: Testing and Measurement Techniques. Section 2: Electrostatic Discharge Immunity Test. Basic EMC Publication.
IEC 1000-4-4	Electromagnetic Compatibility (EMC). Part 4: Testing and Measurement Techniques. Section 4: Electrical Fast Transients / Bursts. Basic EMC Publication.
IEC 1000-4-3	Electromagnetic Compatibility (EMC). Part 4: Testing and Measurement Techniques. Section 3: Radiated, Radio-Frequency, Electromagnetic Field Immunity Test.
IEC 1000-4-6	Conducted Susceptibility.
IEC 1000-4-5	Surge Immunity.
IEC 1000-4-11	Voltage Dips and Interruptions.

APPROVALS

CE approved

RELATED IMPRO PRODUCTS

The ImproX I16 andO16 Terminals can be used in conjunction with the ImproX IC Controller or the ImproX IL Computer.

OTHER INFORMATION

Address Allocation – ImproNet systems
ImproNet Systems automatically allocate addresses to units, either on initial software start-up, or on request, depending on the system configuration. Also, in a system configured for address allocation on software start-up, when the system software is started-up after adding a new unit to an existing system, a system address will automatically be allocated to that unit

Address Allocation – OEM Systems
In an OEM system, the unit logical addresses are allocated individually using commands available in the ImproX Secure Communications Protocol. Details of this process are described in the ImproX Secure Communications Protocol document.

ORDERING INFORMATION

The units can be ordered under the following codes:

ITEM	STOCK CODE
ImproX O16 Input Terminal	XIT900-0-0-GB-XX
ImproX I16 Input Terminal	XOT900-0-0-GB-XX