ImproX O16 16 Channel Output Terminal

Overview

Introduction

The **ImproX O16 16 Channel Output Terminal** is a general purpose module for use within the ImproNet Access Control System, and for OEM applications.

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

The Terminal communicates with a master host such as the ImproX DL LCD Keypad Terminal, ImproX IC LCD Keypad Controller or ImproX IL LCD Keypad Computer via an RS485 Terminal Bus Port.

The ImproX O16 is housed in a durable Aluminium, Black anodized Cabinet, sealed with ABS Plastic End Plates. The Terminal offers twenty LED Status Indicators; these Status Indicators are visible through the Front End Plate.

Key Features

- Sixteen Relays.
- An RS485 Terminal Bus Port.
- Operation from power inputs in the range 10 V DC to 30 V DC.
- An excellent user interface consisting of twenty LED Status Indicators.
- A Software utility to upgrade Firmware while installed on-site, without removal of the Terminal.
- A robust Aluminium Cabinet.

Approvals

- CE Approved.
- FCC Approval Pending.

Specifications

Physical

Dimensions		
Length	:	194 mm (7.63 in).
Width	:	119.60 mm (4.70 in).
Height	:	57.60 mm (2.26 in).
Approximate Weight	:	555 g (19.57 oz).
Cabinet Material	:	Aluminium.
Colour	:	Black anodized.

Environmental

Temperature		
Operating	:	-25°C to +60°C (-13°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	:	EN 61000-4-2: Electromagnetic Compatibility (EMC). Part 4: Testing and Measurement Techniques. Section 2: Electrostatic Discharge Immunity Test. Basic EMC Publication.
Radiated Susceptibility	:	EN 61000-4-3: Electromagnetic Compatibility (EMC). Part 4: Testing and Measurement Techniques. Section 3: Radiated, Radio-Frequency, Electromagnetic Field Immunity Test.

Electrical Fast Transients	:	EN 61000-4-4: Electromagnetic Compatibility (EMC). Part 4: Testing and Measurement Techniques. Section 4: Electrical Fast Transients / Bursts. Basic EMC Publication.
Surge Immunity	:	EN 61000-4-5: Surge Immunity.
Conducted Susceptibility	:	EN 61000-4-6: Conducted Susceptibility.
Dust and Splash Resistance	:	Mounted vertically, with the Cable Entry Glands at the lower side, the Terminal is designed to work in an indoor or outdoor environment similar to IP43.
Drop Endurance	:	2 m (6.56 ft) drop (in packaging).

Electrical

Power Requirements			
Input Voltage	:	10 V DC to 30 V DC, polarity sensitive.	
Power Requirements		**Current (mA)**	**Power (W)**
Input Voltage 10 V DC Relays and Indicators all OFF	:	35.40	0.36
Input Voltage 30 V DC Relays and Indicators all OFF	:	16.50	0.49
Input Voltage 10 V DC Relays and Indicators all ON	:	400	4
Input Voltage 30 V DC Relays and Indicators all ON	:	131	3.90
Permissible Input Supply Ripple Voltage (Max)	:	1 V_{PP} at 50 Hz.	
Power Input Protection	:	Reverse polarity and over-voltage protection are provided on the Terminal.	
Terminal Bus Port			
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 (default), 57 600 and 76 800 selectable via the Communications Protocol.	
Data Format	:	8 data bits, no parity, 1 stop bit.	
Communications Protocol	:	ImproX Secure Communications Protocol.	
Unit Status	:	Slave.	
Relays			
Relay Output	:	16 Relays, each with NO, COM and NC contacts.	
Relay Contact Ratings	:	1 A at 30 V DC. 2 A at 125 V AC.	
Anti-tamper Switch	:	Detects the opening of the Terminals Cabinet.	
Memory			
Flash ROM	:	128 KBytes.	
RAM	:	2 KBytes.	

Factory Default Settings

Default Baud Rate	:	Factory-set to 38 400.
Default Mode	:	Receive (Slave Mode).
Relays	:	Off.

Operator or Installer Interfaces

Status Indicators		
Relay Status	:	16 Red LEDs (On when Relay operates), (externally visible).
Power Polarity Indicator	:	Red LED (internally visible).
Incoming RS485 Data	:	Flashing Green LED (externally visible).
Outgoing RS485 Data	:	Flashing Red LED (externally visible).
Unit Status	:	Red LED (Software controllable) (externally visible).

Interface Details

RS485 Terminal Bus Port

The RS485 Terminal Bus Port lets you connect the ImproX O16 to other ImproX Terminals and the Controller in your ImproNet System. The interface is made by connecting the 'A' and 'B' lines on the ImproX O16 to the 'A' and 'B' lines on the other ImproX units. Incoming and outgoing information on this Port is shown on the RS485 'TX' and 'RX' LED Status Indicators on the ImproX O16.

Relays

The ImproX O16 has sixteen independent single-pole, double-throw (SPDT) Relay Outputs. These Relay Outputs let you interface to door strikes, magnetic locks and other third party devices (for example alarm panels or lighting).

Use in the IXP300/400 System

In the ImproNet System the Relay functions are user configurable.

Status Indicators

The Terminals LEDs indicate Bus activity, as an aid in fault finding. Green LEDs indicate incoming Bus activity and Red LEDs indicate outgoing Bus activity; the LEDs flash when data is being received or transmitted on the associated Bus. See Figure 1 for the positions of the various LEDs.

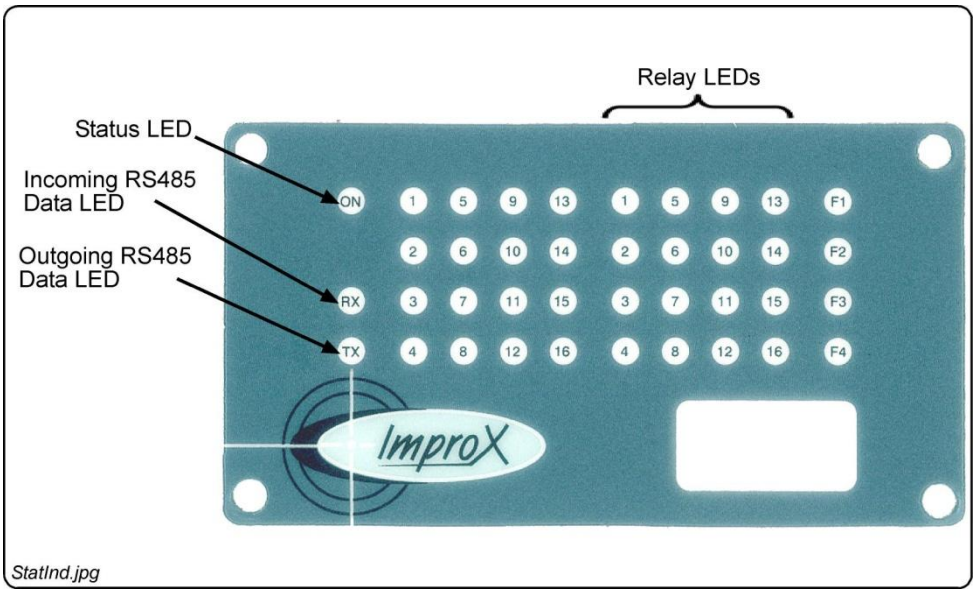

Figure 1: Position of the Status Indicators in the Front End Plate

Installation Information

Accessories

You will find the following when unpacking the Terminal:

- An ImproX O16 16 Channel Output Terminal housed in a Black powder-coated Aluminium extruded Cabinet. The Cabinet is sealed at each end with a Nylon End Plate, secured with 4 Allen Head Screws (M3 x 12 mm).
- Two Plastic Bushing Plugs (20.6 mm).
- A 2.5 mm Allen Key.
- Four Brass Wood Screws (3.5 mm x 25 mm).
- Four Wall Plugs (7 mm).
- An extra Fixed Address Label.

General

Remember the following when installing the Terminal:

Communications Distance

The RS485 communications distance between the first ImproX Controller and the LAST ImproX unit in a cable run, MUST NOT exceed 1 km (1 094 yd). Achieve this by using good quality screened twisted pair cable, with the screen EARTHED at one end.

Jumper Links

Long transmission lines or multiple ‘star’ connections, may cause communication problems. Placing a Jumper Link across the jumper [LNK1] in the LAST UNIT AT THE END OF THE CABLE RUN should solve the problem.

EARTH Connection

Connect the Terminal to a good EARTH point. Using the RS485 Port, connect the EARTH Lead to the ‘ETH’ Terminal. Mains EARTH can be used, but electrical noise may exist.

Arc Suppression

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

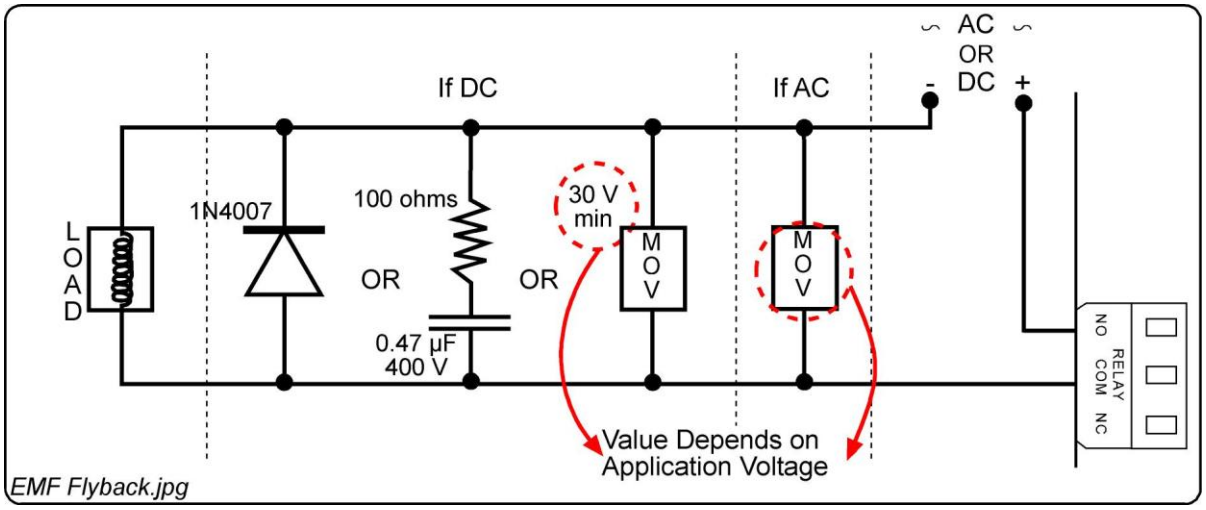

Figure 2: EMF Flyback and Arc Suppression

Mounting the Terminal

CAUTION: Make certain that you mount the ImproX O16 on a vibration-free surface.

Select the mounting position of the Terminal, considering accessibility, routing of wires and visibility of the externally visible LEDs.

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

Electrical Connections

Connecting the Terminal

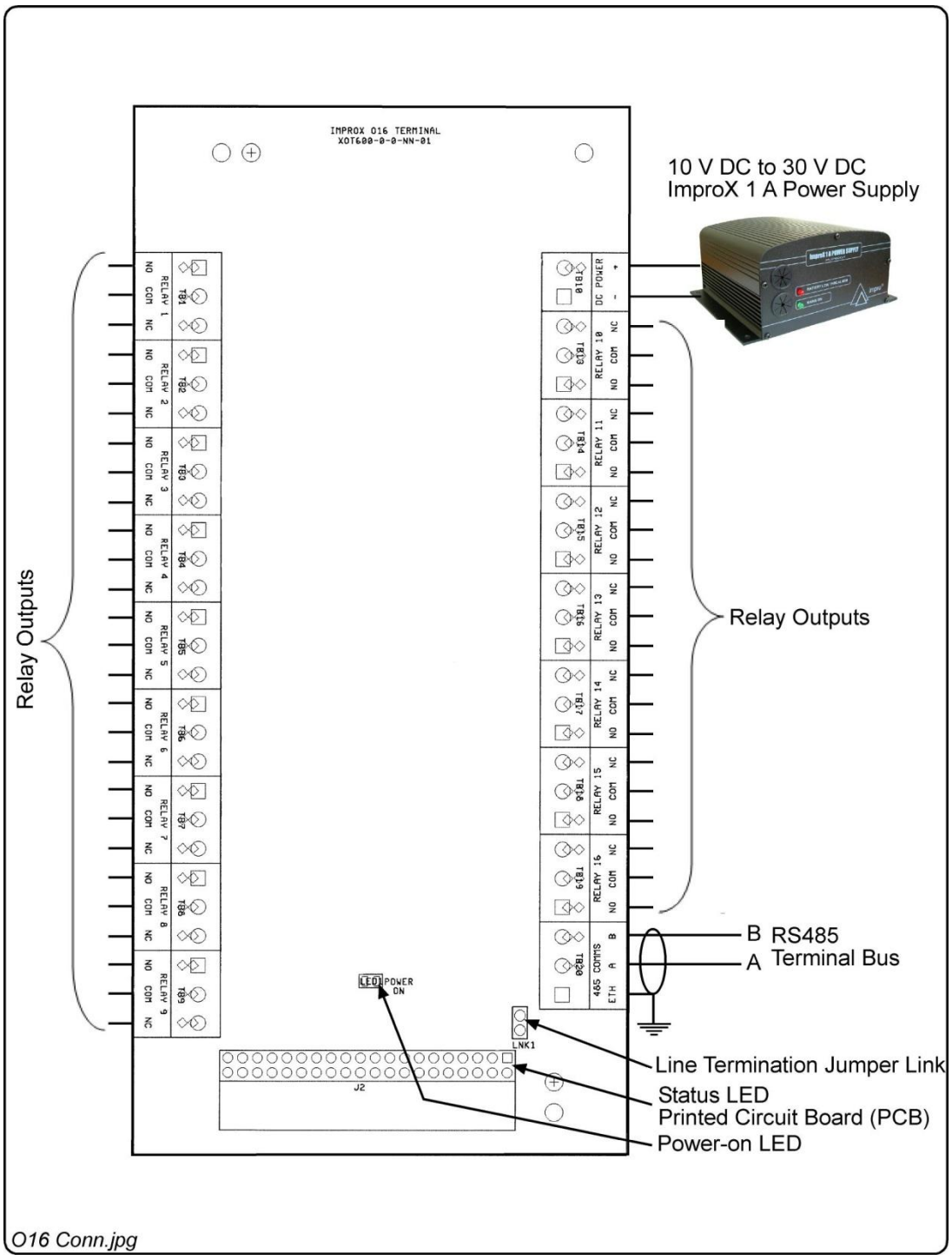

Figure 3: Typical ImproX O16 Electrical Connections

ImproX O16 Address Information

Each ImproX O16 is allocated a unique Fixed Address at the factory. This address is stored in the Terminals memory. When the Terminal is installed in the ImproNet System, the System allocates a separate Logical Address for communication purposes.

Address Allocation - ImproNet Systems

The ImproNet Software Suite allocates a Logical Address to the Terminal, either on initial software start-up, or on request, depending on the system configuration.

Address Allocation - OEM Systems

In an OEM system, the Terminals Logical Address is allocated individually using commands available in the ImproX Secure Communications Protocol. Details of this process are described in the ImproX Secure Communications Protocol document.

Fixed Address Label

Once the ImproX O16 is installed, sketch a rough site plan. Attach the loose (additional Fixed Address Label packaged with the Terminal) Fixed Address Label in the position of the Terminal 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.

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 ImproX O16 16 Channel Output Terminal by quoting XOT900-0-0-GB-XX.