impro technologies®

MODEL NUMBER: XTT900-1-0-GB-XX
XTT910-1-0-GB-XX
XTT911-0-0-NN-XX
IPS910-1-0-GB-XX

IMPROX TT

ImproX (TT) Twin Antenna Terminal
INSTALLATION MANUAL

SPECIFICATIONS

Read/Write Capability..... Impro Tags: Slim Tags (Read Only), Omega Tags (Read Only), WriTag 128 (Read/Write) and WriTag 2048 (Read/Write).
HID 125 kHz Tags. (Read Only).

NOTE: HID is a registered trademark of HID Global Corporation (an ASSA ABLOY Group Brand).

Working Environment

Open Frame Construction (XTT900)..... Designed to work in an indoor (dry) environment. The Terminal is not sealed against water.

Aluminium Extruded Cabinet (XTT910)..... Designed to work in an indoor (dry) environment, similar to IP40. The Terminal is not sealed against water.

Power Supply Combo (IPS910)..... Designed to work in an indoor (dry) environment similar to IP20. The Power Supply Combo is not sealed against water.

Open Frame Construction (XTT900) and Aluminium Extruded Cabinet (XTT910)

Input Voltage..... 10 V DC to 30 V DC, polarity sensitive.

Power Requirements	**Current (mA)**	**Power (W)**
Input Voltage 10 V DC	180	1.8
Input Voltage 30 V DC	60	1.8

Power Supply Combo (IPS910)

Power Input

Input Voltage ..... 85 V AC to 265 V AC at 50/60 Hz.

Power Output

Output Voltage (Mains Power On)..... 13.8 V DC ±0.3 V DC.

Power Output (Continued)

Output Current..... 2 A continuous (Power Output Terminals).

NOTE: The Power Supply Combo includes a 3 A Switch Mode Power Supply which provides two outputs, both with a voltage of 13.8 V DC. The combined current supply from both outputs may not exceed 2 A. The remaining 1 A is used for battery charging and system requirements.

System Battery

Battery Type..... 12 V 7 Ahr (Max) Sealed Lead Acid Battery.
Length..... 151 mm (6 in) (Max).
Width..... 65 mm (3 in) (Max).
Height..... 99 mm (4 in) (Max) including the terminals.
Charge Voltage ..... 13.8 V DC.

The following specifications are common to all models of the ImproX TT:

Relays

Relay Output ..... 2 Independent, single-pole, double-throw (SPDT) Relays, each with NO, COM and NC contacts.
Relay Contact Ratings ..... 3 A at 24 V DC or 125 V AC.
1.5 A at 220 V AC.

Digital Inputs

Type ..... 4 Dry-contact Digital Inputs.
Protection Range ..... +50 V to -50 V continuous,
+80 V to -80 V surge.

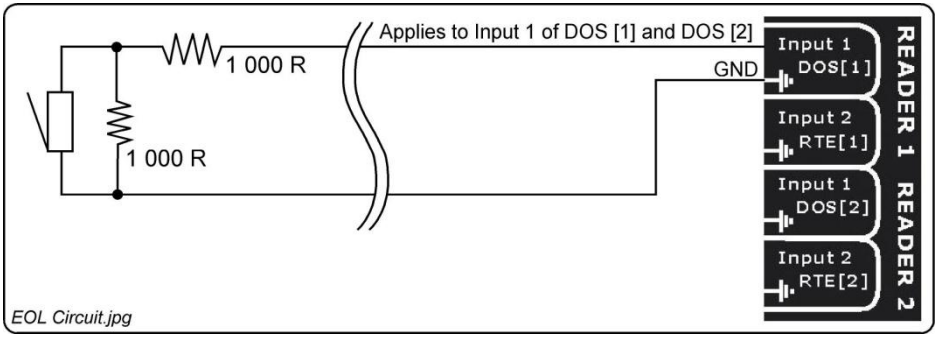

Figure 1: End of Line (EOL) Sensing Circuit

NOTE: End of Line (EOL) Sensing enables the Terminal to raise an alarm when somebody tampers with the circuit (that is, cutting or shorting the wires) between Input 1 (of DOS [1] or DOS [2]) and '⊣⊢' GROUND (GND).

In other words the Terminal distinguishes between tampering on the circuit, and the door being in an actual 'Normally Open' state.

By placing Resistors into the circuit between the Input 1 (of DOS [1] or DOS [2]) and '⊣' GROUND (GND), the Terminal's Digital Input monitors a constant resistance through the circuit. When the circuit is tampered with, the Resistors are bypassed; the Terminal detects the resistance change raising an alarm.

LED "Diagnostic Indicators"

Status LED

Power On.....	Continuous Red.
Upgrade Mode.....	Flashing Red (Steady).
RS485 Communications Failure	Flashing Red (Intermittent).
Incoming RS485 Data.....	Flashing Green LED.
Outgoing RS485 Data.....	Flashing Red LED.
Digital Inputs (1-4).....	Continuous Green on detected contact closure.
Relays (1 and 2).....	Continuous Red on activation of the Relay.

INSTALLATION INFORMATION

Accessories

Find the following when unpacking the ImproX TT Terminal:

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

Open Frame Construction (XTT900)

- An ImproX (TT) Twin Antenna Terminal with an open frame construction. The construction consists of a Trivalent Passivated Mild Steel Mounting Plate and a Biaxially-oriented Polypropylene Cover Plate.
- Two Metal-Oxide Varistors, 25 Vrms, 500 A, 77 V max clamping.
- Four Brass Wood Screws (3.5 mm x 25 mm).
- Four Wall Plugs (7 mm).
- An extra Fixed Address Label

Aluminium Extruded Cabinet (XTT910)

- An ImproX (TT) Twin Antenna Terminal 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).
- Two Metal-Oxide Varistors, 25 Vrms, 500 A, 77 V max clamping.
- Four Brass Wood Screws (3.5 mm x 25 mm).
- Four Wall Plugs (7 mm).
- An extra Fixed Address Label.

Power Supply Combo (IPS910)

- An ImproX (TT) Twin Antenna Terminal housed in a Black Mild Steel, powder-coated Cabinet. The Cabinet consists of a hinged Lid and a Base.
- Three Metal-oxide Varistors, 25 Vrms, 500 A, 77 V max clamping.
- Four Combi Screws (No. 4 x 10 mm).
- Four Wood Screws (3.5 mm x 25 mm).
- Four Wall Plugs (7 mm).
- An extra Fixed Address Label.

You will find the following when unpacking the optional extra Security Accessory Pack (XTT911-0-0-NN-XX):

- Two TORX® Fasteners (M3.5 x 10 mm).
- A T10 TORX® Key.

General

Remember the following when installing the ImproX TT Terminal:

Communications Distance

The RS485 communications distance between the first ImproX TT and the LAST ImproX unit in a cable run, MUST NOT exceed 1 km (1 090 yd). Achieve this by using good quality screened twisted 2-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 [TR1] in the LAST UNIT AT THE END OF THE CABLE RUN should solve the problem. See Figure 7 for the location of the jumper [TR1].

Antenna Reader Distance

The ideal cable distance between the ImproX TT 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 good quality screened, twisted pair cable.

Distance between Antenna Readers from the SAME Terminal

To avoid mutual interference, install the Antenna Readers alongside each other at least 150 mm (6 in) apart.

Distance between Antenna Readers from DIFFERENT Terminals

To avoid mutual interference, install the Antenna Readers alongside each other at least 500 mm (20 in) apart.

NOTE: ImproX TT Terminals can be mounted alongside each other.

EARTH Connection

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

FCC Compliance (XTT910)

For FCC compliance:

- Ensure the comms cable is routed through a separate grommet to the power cable.
- Ensure that you use a CE approved Power Supply Unit.

Arc Suppression

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

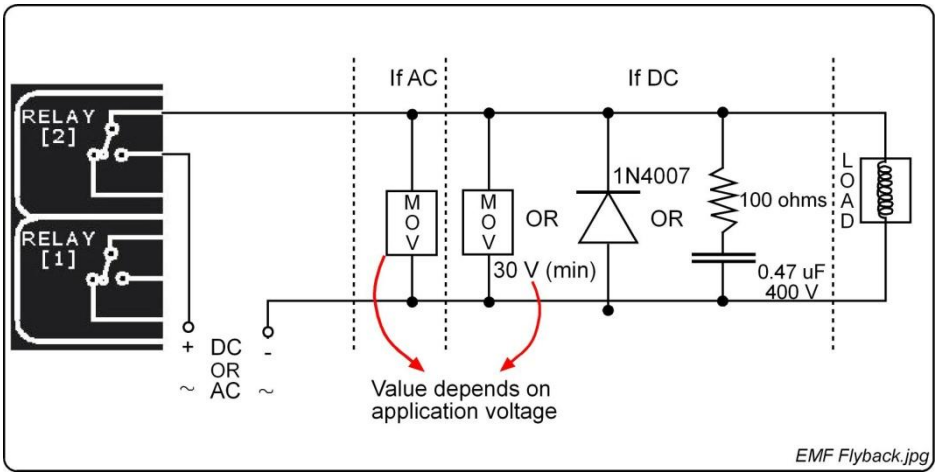

Figure 2: EMF Flyback and Arc Suppression

Installing the Battery into the Power Supply Combo (IPS910)

1. Open the Lid of the Cabinet.
2. Slide the Lid in an upwards direction and unhinge.
3. Place the Battery into the Cabinet with the Battery Terminals in an upwards position.
4. Connect the Red Battery Terminal Lead to the Positive Battery Terminal.
5. Connect the Black Battery Terminal Lead to the Negative Battery Terminal.
6. Re-hinge the Lid and slide it in a downwards direction.
7. Close the Lid of the Cabinet.

Blank Space

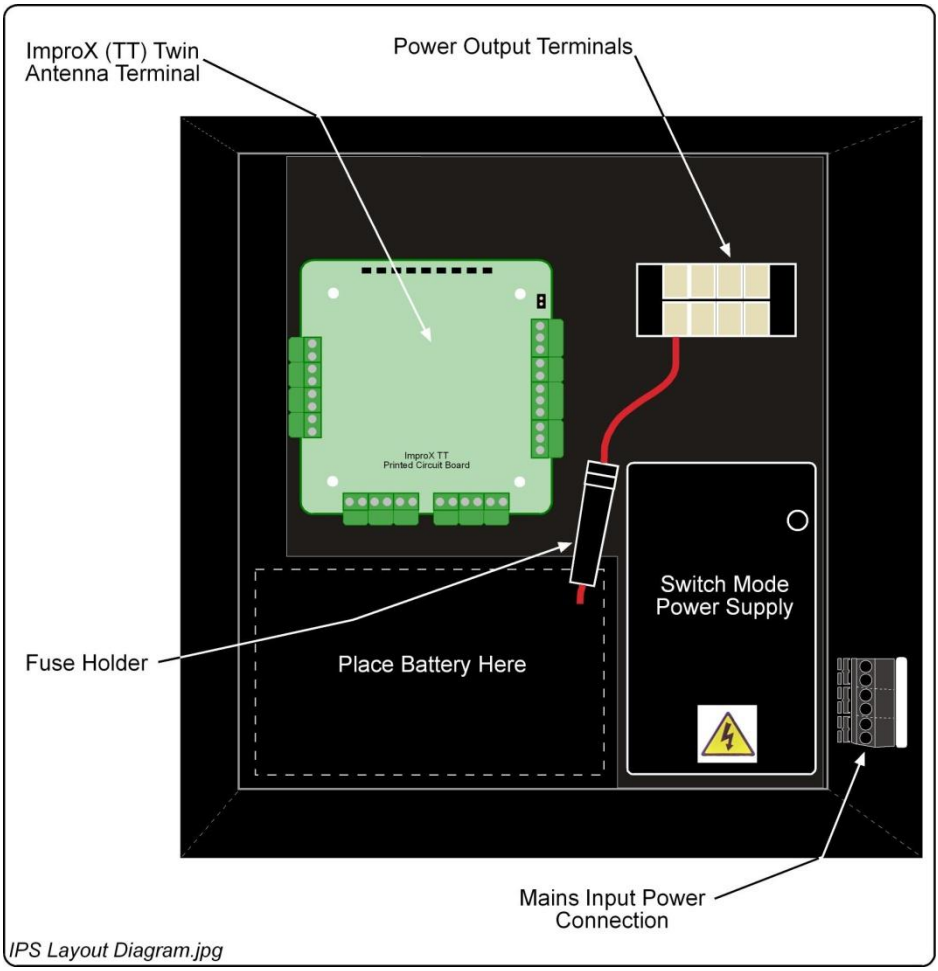

Figure 3: Layout Diagram – Power Supply Combo

Mounting the ImproX TT

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

NOTE: The ImproX TT can be mounted onto virtually any surface including metal.

Select the mounting position of the ImproX TT Terminal, considering accessibility, routing of wires and visibility of the LEDs.

Open Frame Construction (XTT900)

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

Aluminium Extruded Cabinet (XTT910)

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. If installed, remove the two TORX® Fasteners, using the T10 TORX® Key (XTT911-0-0-NN-XX).
2. Remove the top two Thread Cutter Screws (2.2 x 5 mm) from each of the End Plates.
3. 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.
4. Insert the screwdriver in the gap (on the side of the ImproX TT) between the Top Cover and the Base. Swivel the screwdriver again, to release the Top Cover from the Base.

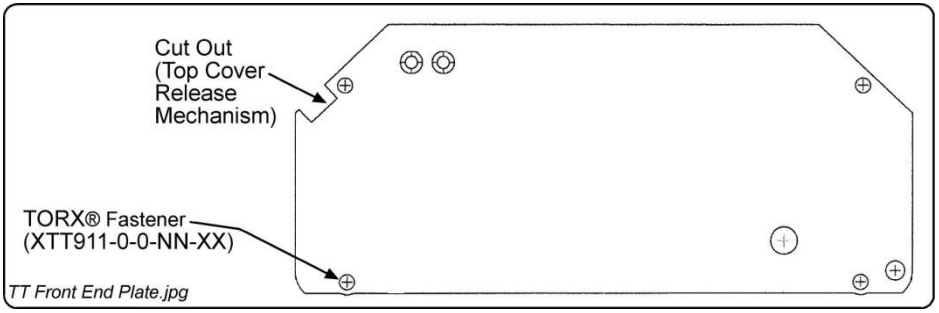

Figure 4: Front End Plate

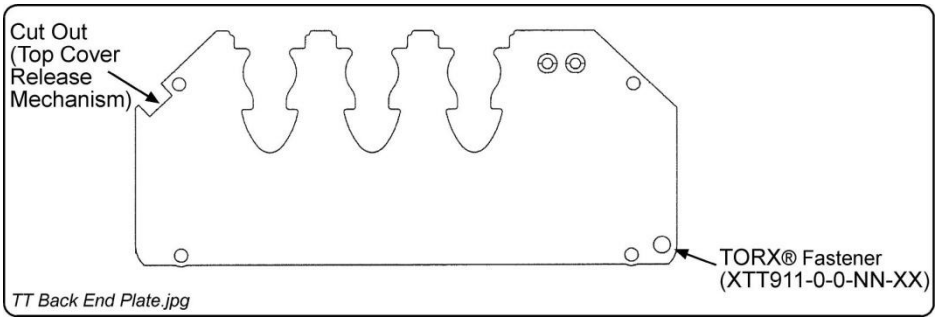

Figure 5: Back End Plate

Blank Space

Power Supply Combo (IPS910)

Base Mounting Details

1. Fix the Base to the wall using two of the supplied screws in the Mounting Key Holes.
2. Fix the third screw in the Mounting Slot, adjusting the position of the Base if necessary.

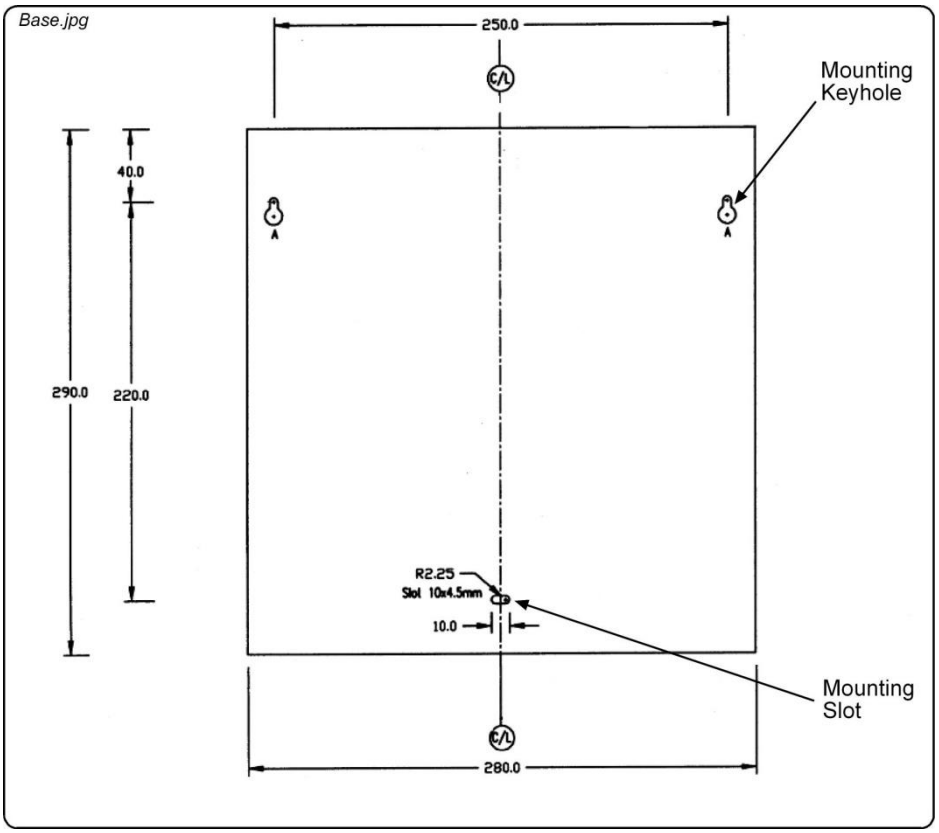

Figure 6: Base Mounting Details

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ELECTRICAL CONNECTIONS

Connecting the ImproX TT Terminal

Figure 7 shows a detailed electrical connection diagram for the ImproX TT Terminal.

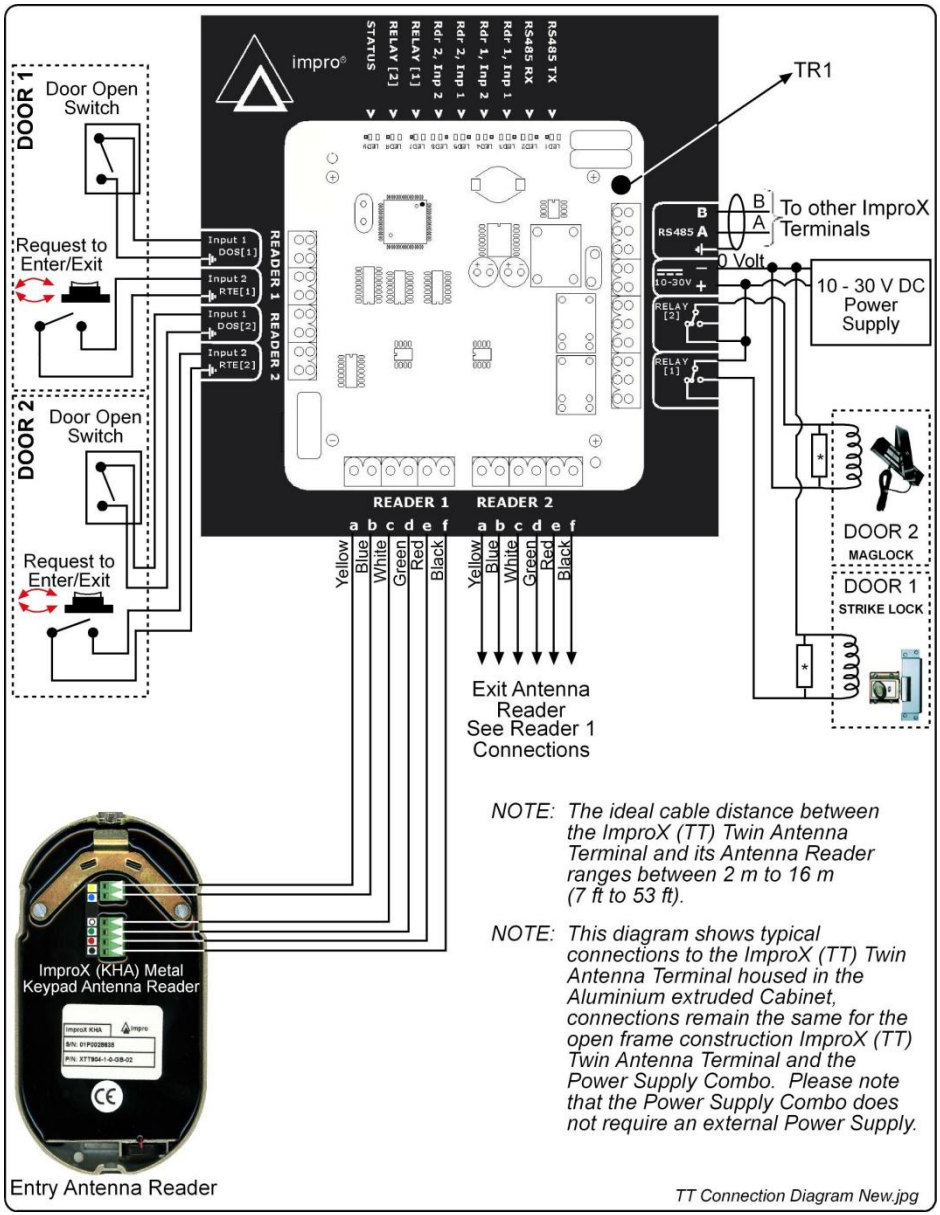

Figure 7: Typical ImproX TT Terminal Electrical Connections

Settings Specific to the Power Supply Combo

WARNING: DO NOT REMOVE THE PLASTIC COVER PROTECTING THE SWITCH MODE POWER SUPPLY. REMOVING THE COVER PUTS YOU AT RISK OF ELECTRICAL SHOCK.

CAUTION: DO NOT exceed the Input Voltage specified.

Use the supplied Connection Leads for the low voltage connections to the Power Supply Combo, see Figure 3. Using the supplied Quick Click Glands or Gland Breakouts, neatly lead the wires out of the Cabinet.

Wiring the Mains Input Power Cord

WARNING: DO NOT TOUCH ANY PART OF THE CIRCUIT ONCE YOU'VE APPLIED POWER TO THE POWER SUPPLY COMBO.

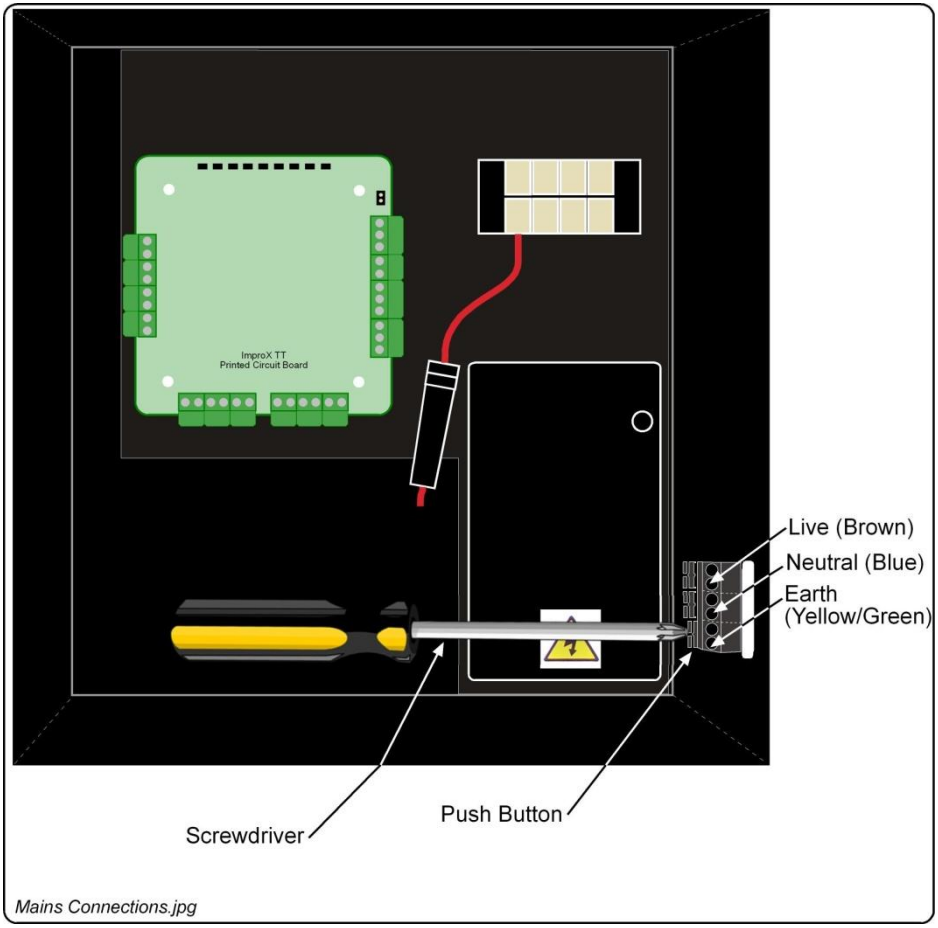

Figure 8: Mains Connections

Connect the Power Supply Combo to mains power as follows:

1. Using a suitable screwdriver, press and hold down the Push-button.
2. Insert the wire.
3. Release the Push-button.
4. Repeat steps 1 to 3 for each connection.
5. Attach a suitable Mains Input Power Plug using the following connections:
   - Live (Brown)
   - Neutral (Blue)
   - Earth (Yellow/Green)

Fuse Information

Fuse Type	Purpose	Rating
Slow-blow	This fuse protects the Battery from overload as well as incorrect polarity connection.	3.15 A 250 V (6 mm x 30 mm)

Table 1: Fuse Ratings

Replacing the Fuse

CAUTION: Ensure that you have disconnected the mains power supply to the Power Supply Combo, and removed the Positive Lead from the Battery before replacing the fuse.

1. Disconnect the mains power supply to the Power Supply Combo.
2. Open the Cabinet.
3. Disconnect the Positive Lead from the Battery.
4. Unscrew the Fuse Holder's Lid from the Base.
5. Remove the old fuse.
6. Insert a new fuse into the longer end of the Fuse Holder.
7. Screw the Fuse Holder's Lid onto the Base.
8. Reconnect the Positive Lead to the Battery.
9. Close the Cabinet.
10. Reconnect the mains power supply to the Power Supply Combo.

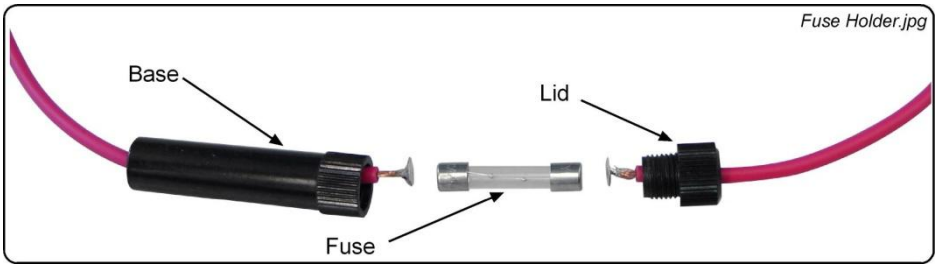

Figure 9: Fuse Holder

ImproX TT Address Information

Each ImproX TT Terminal is, in fact, two Terminals in one. The first "Terminal" Fixed Address is associated with Reader [1], and the second with Reader [2].

Each ImproX TT is allocated two unique Fixed Addresses at the factory. These addresses are stored in the Terminal's memory. When the Terminal is installed in an IXP120, IXP220 or IXP300/400 System, the System allocates two separate Logical Addresses to the Terminal for Communication purposes.

On release of the ImproX TT's Firmware V7.12 we imposed the following rules:

- If you have no Antenna Reader connected to the ImproX TT, the Terminal reveals both Fixed Addresses.
- If you connect only Antenna Reader 1, the Terminal reveals Antenna Reader 1's Fixed Address.
- If you connect both Antenna Readers, the Terminal reveals both Fixed Addresses.
- If you connect only Antenna Reader 2, the Terminal reveals both Fixed Addresses.

NOTE: If you are only using one Antenna Reader then use Antenna Reader 1. The ImproX TT will then reveal only one Fixed Address. In all other arrangements the Terminal reveals two Fixed Addresses.

Address Allocation – IXP120, IXP220, IXP300 and IXP400 Systems

IXP Software Suites allocate Logical Addresses 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 Terminal's Logical Addresses are allocated individually using commands available in the ImproX Secure Communications Protocol. Details of this process are described in the ImproX Secure Communication Protocol Document.

Fixed Address Label

1. Once the ImproX TT is installed, sketch a rough site plan.
2. Attach the loose additional Fixed Address Label, packaged with the Terminal, 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

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.

This manual is applicable to the ImproX (TT) Twin Antenna Terminal, XTT900-1-0-GB-05, XTT910-1-0-GB-03, IPS910-1-0-GB-01 and XTT911-0-0-NN-00. (The last two digits of the Impro stock code indicate the issue status of the product).			
XTT300-0-0-GB-13	Issue 14	Aug 2009	ImproX TT\English Manuals\LATEST ISSUE \ImproXTT-insm-en-14.docx