ImproX iTRT

Product Specification Catalogue

The **ImproX (iTRT) Intelligent Twin Reader Terminal** is the second generation of the highly successful ImproX TRT. Using the RS485 Bus Connection, the ImproX iTRT works within the ImproX range of Access Control Systems, as well as within OEM applications.

The ImproX iTRT is capable of working with a variety of ImproX Hardware. This includes the Multi-discipline Reader Range, the Wiegand Reader Range, the Multi-mode Remote Range as well as various Third-party Barcode and Magstripe Readers. In applications that require extended range, you can connect the ImproX (IR) Infrared Receiver and the ImproX RF 4-Channel Receiver to the ImproX iTRT. Each ImproX iTRT is designed to be used with up to two Readers or Receivers.

Major memory improvements allow the ImproX iTRT to store up to 10 000 Tags and 10 000 Buffered Transactions per channel as well as providing the added benefit of off-line validation. In this optional mode the ImproX iTRT allows access to Tags present in the Terminal's transaction buffer. This is valuable should communications between the ImproX iTRT and the Controller disrupt.

Other new features include a Software Utility which allows you to upgrade the Terminal while installed on site with zero down-time.

Key Features

General

- Cost effective solution that fits seamlessly into legacy Systems.
- Support for the following **Terminal Communication** options:
  - **Ethernet**—Door Controllers (XRT920 and IPS921 only) connect to your chosen System Controller using the existing IP infrastructure.
  - **RS485**—an ultra reliable method (not affected by network problems) of connecting to your chosen System Controller.
- ***Onboard intelligence*** means the Terminal can run off-line from the Controller.

ImproX (iTRT)

Intelligent Twin Reader Terminal

XRT910-0-0-GB-XX XRT920-0-0-GB-XX IPS920-0-0-GB-XX IPS921-0-0-GB-XX

General (Continued)

- Interfaces to the following ImproX Readers:
  - ImproX Multi-discipline Readers.
  - ImproX Wiegand Reader.
  - ImproX Multi-mode Readers.
- Offers full Wiegand Support.
- Interfaces to the ImproX IR, ImproX RF, and Third-party Wiegand Readers.
- Connection to up to two Readers or Third-party Devices at each ImproX iTRT. Allows Relaxed or Full Anti-passback (APB) access on a single Door or single entry on two Doors.
- End-of-line (EOL) Sensing on Door Open Sensor (DOS) Inputs.
- Operation from power inputs in the range 10 V to 30 V DC.
- An excellent user interface consisting of 14 LED "Diagnostic Indicators".
- Onboard memory for Off-line Redundancy supporting:
  - Up to 10 000 Tags.
  - Up to 10 000 buffered transactions per channel.
- Two 10 A independent single-pole, double-throw (SPDT) Relay Outputs that allow you to interface to door strikes, magnetic locks and other third party devices (for example alarm panels or lighting).
- Four Digital Inputs including two Door Open Sensor (DOS) and two Request to Exit (RTE) Inputs.
- A Software utility to upgrade Firmware while installed on-site, without removal of the Terminal and with zero downtime.

Power Supply Combo (IPS920 and IPS921)

- A 3 Amp Switch Mode Power Supply providing 13.8 V DC to charge a 12 V 7 Ahr Sealed Lead Acid Battery.
- Nominal output voltage of 13.8 V DC with a fully charged Battery.
- Automatic switch-over to Battery operation on Mains Failure.
- Compact, Mild Steel Cabinet, accommodating the Power Supply, Controller or Terminal and a Sealed Lead Acid Battery.
- Two 13.8 V Power Outputs for powering the Terminal and, for example, a lock. Together these Outputs have a maximum power output of 2 A (max) continuous at 13.8 V DC.
- Five Quick Click Glands for easy wiring.
- Fuses on mains in and low voltage out.

Use in an IXP220 or ImproNet System

- Relay functions are user configurable.
- Digital Inputs are user configurable and can perform specific tasks such as:
  - Door Open Sensing.
  - Request to Exit.
  - Scanner Inhibit.
  - Alarm Interface.
  - Action Request.

Physical Specifications

XRT910 and XRT920 Plastic Housing

Length	:	128 mm (5 in).
Width	:	166 mm (7 in).
Height	:	55 mm (2 in).
Approximate Weight	:	314 g (11 oz).

impro technologies® ACCESS CONTROL

XRT910 Plastic Housing (Continued)

Cabinet Material	:	ABS Plastic.
Colour	:	Black.

IPS920 and IPS921 Power Supply Combo

Length	:	305 mm (12 in).
Width	:	295 mm (11 in).
Height	:	77 mm (3 in).
Approximate Weight	:	3 kg (7 lb).
Cabinet	:	Mild Steel.
Colour	:	Black.

Environmental Specifications

Operating Temperature	:	-25°C to +60°C (-13°F to +140°F).
Storage Temperature	:	-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		
CE Approval	:	EN301 489-1 and EN301 489-3.
FCC Approval	:	Pending.
Dust & Splash Resistance (XRT910)	:	Designed to work in an indoor (dry) environment similar to IP40. The Terminal is not sealed against water.
Dust & Splash Resistance (IPS920)	:	Designed to work in an indoor (dry) environment similar to IP20. The Power Supply Combo is, therefore, not sealed against water.
Drop Endurance	:	1 m (3.28 ft) drop (in packaging).

Electrical Specifications

Power

XRT910 and XRT920 Plastic Housing

Input Voltage	:	10 V DC to 30 V DC, polarity sensitive.	
Power Requirements		Current (mA)	Power (W)
12 V DC with no peripherals connected and relays off	:	75	0.90
24 V DC with no peripherals connected and relays off	:	40	0.96
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 Terminal.	

IPS920 and IPS921 Power Supply Combo

The Power Supply Combo includes a 3 A Switch Mode Power Supply which provides power for the (optional) internal unit and for charging the (optional) backup Battery. As the Power Supply Combo needs no more than 1 A, you may power extra devices using up to 2 A continuous current from the provided connector block. DO NOT exceed this 2 A limit on continuous current draw.

Devices with a high in-rush current demand, such as certain maglocks and other electromechanical devices, can momentarily draw more than 3 A. The Power Supply then effectively shuts down as directed by its built in protection as exceeding the 3 A rating is considered a short-circuit. Overcome this by installing the recommended 12 V 7 Ahr Battery to help supplement the in-rush current such a device may draw on activation.

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.
Output Current	:	2 A continuous (Power Output Terminals).
Battery		
Type	:	12 V Sealed Lead Acid Battery, 7 Ahr (Max).
Length	:	151 mm (6 in) (Max).
Width	:	65 mm (3 in) (Max).
Height	:	99 mm (4 in) including the Terminals (Max).
Charge Voltage	:	13.8 V DC.

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

Relay Power Requirements	:	An additional ~0.4 W per Relay used.
Real Time Clock Backup Battery (RTC)		
Battery Type	:	1 x 3 V, CR2032, Lithium cell battery.
Battery Life	:	1 Year with power OFF. 5 years with Power ON. 5 years Storage with Battery Tab in place.

Terminal Bus

Ethernet Port (XRT920 and IPS921 Only)

Ethernet Port	:	Standard Ethernet RJ45 connector. 10/100 Base T, half or full duplex.

RS485 Terminal Bus

Electrical Interface	:	RS485.
Baud Rate	:	38 400.
Data Format	:	8 data bits, no parity, 1 stop bit.
Communications Protocol	:	ImproX Secure Communications Protocol.
Line Termination	:	Provision is made for line termination.

Reader Options

Reader 1 Wiegand and Reader 2 Wiegand allow connection to the following hardware: ImproX Multi-discipline Readers, ImproX Multi-mode Remotes, Wiegand Readers, ImproX (IR) Infrared Receiver or the ImproX RF 4-channel UHF Receiver. The function is selectable via the DIP-switches.

Power Output	:	12 V DC and 5 V DC (selectable) at maximum 200 mA.
Modes Supported	:	Tag + PIN-code or Reason Code.
Baud Rate	:	9 600.
Data Format	:	8 data bits, no parity, 1 stop bit.
Electrical Interface	:	TTL Full Duplex.
Communications Protocol	:	ImproX Proprietary Protocol.

Digital Inputs

General

Input Type	:	2 Dry-contact inputs with End-of-line (EOL) Sensing and 2 Dry-contact inputs without End-of-line (EOL) Sensing.
Detection Resistance Range	:	< 2 kOhm.
Protection Range	:	+15 V continuous.

Relays

Relay Output	:	2 Relays, Form C, each with NO, COM and NC contacts.
Contact Ratings	:	10 A at 28 V DC, 5 A at 220 V AC, 10 A at 120 V AC.

Operations	:	100 000 Minimum.
Power Consumption (per Relay)	:	~ 0.4 W.

Processor

Type	:	32-bit ARM7TDMI operating at 72 MHz.
Total RAM	:	58 K Byte.
Flash	:	256 K Byte.

Other

Anti-tamper Switch (XRT910 and IPS920)	:	1 Internal Switch.

Factory Defaults

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

User Interfaces

LED Status and Diagnostic Indicators

Status LED	:	Continuous Red.
Upgrade Mode	:	Flashing Red (Steady).
RS485 Communications Failure	:	Flashing Red (Intermittent).
Relay [2]	:	Continuous Red on activation of the Relay.
Relay [1]	:	Continuous Red on activation of the Relay.
Reader 2, RTE [2]	:	Continuous Green on detected contact closure.
Reader 2, DOS [1]	:	Continuous Green on detected contact closure.
Reader 1, RTE [2]	:	Continuous Green on detected contact closure.
Reader 1, DOS [1]	:	Continuous Green on detected contact closure.
RS485 RX	:	Flashing Green as per incoming data.
RS485 TX	:	Flashing Red as per outgoing data.
Ethernet LEDs (XRT920 and IPS921 Only)		
Ethernet Activity	:	Flashing Red LED.
Ethernet Speed	:	Continuous Red for 100 Mbps (Default) Off for 10 Mbps.
Ethernet Link	:	Continuous Red on connection to network.

Related Information

For extra information relating to this product refer to the:

- ImproX iTRT Hardware Installation Manual (XRT300-0-0-GB-XX).

Ordering Information

Order the ImproX iTRT using the following Part Numbers:

- XRT910-0-0-GB-XX: ImproX (iTRT) Intelligent Twin Remote Terminal in an ABS Plastic Housing.
- XRT920-0-0-GB-XX: ImproX (iTRT) Intelligent Twin Remote Terminal with Ethernet in an ABS Plastic Housing.
- IPS920-0-0-GB-XX: ImproX IPS containing an ImproX (iTRT) Intelligent Twin Remote Terminal.
- IPS921-0-0-GB-XX: ImproX IPS containing an ImproX (iTRT) Intelligent Twin Remote Terminal with Ethernet.

Warranty Details

CAUTION: We reserve the right to nullify the product's warranty where you have not properly installed the Metal-oxide Varistors.

This product conforms to our Warranty details on ***www.impro.net***.

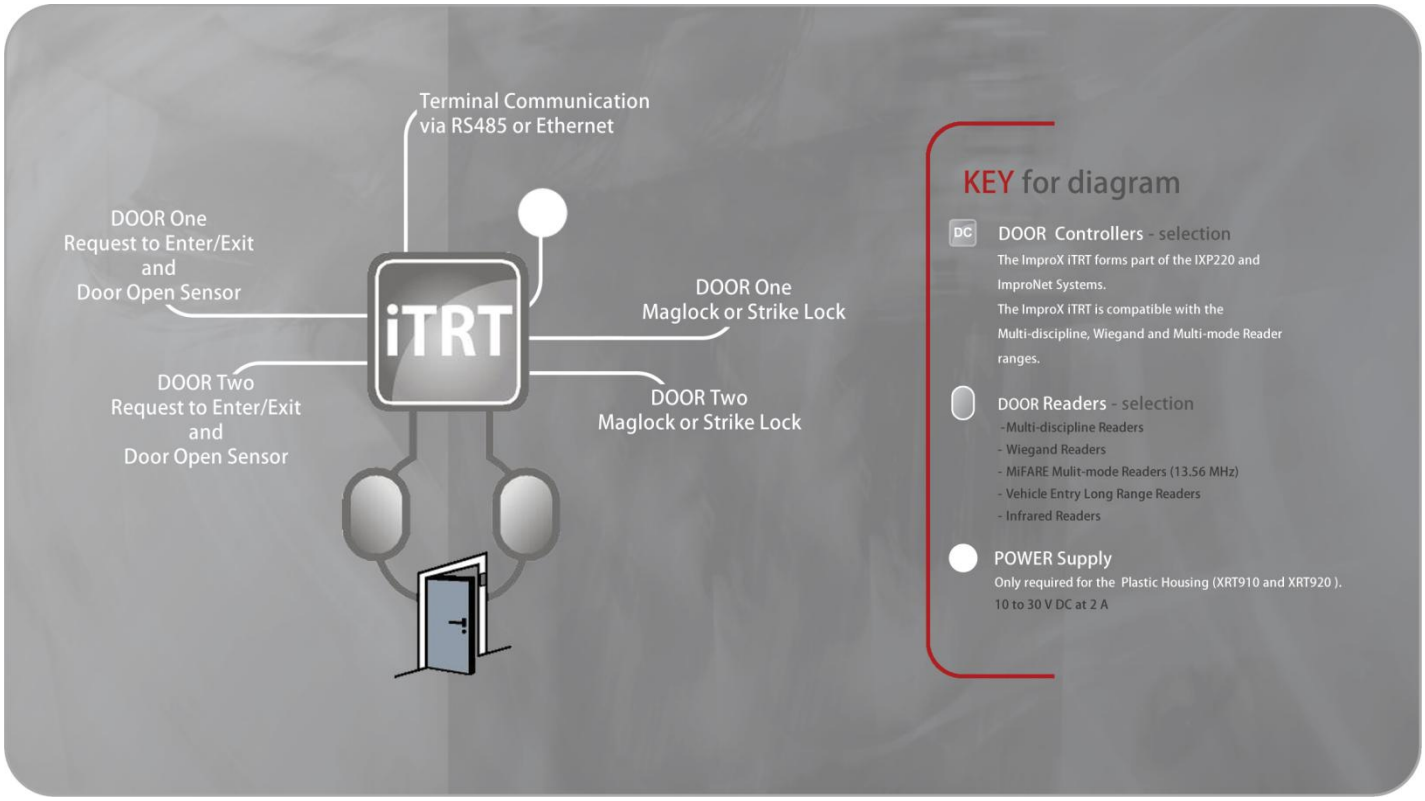

Figure 1: ImproX iTRT Overview