HRX3000

Technical Manual

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Specification

The HRX3000 is a Proximity Card reading terminal with TCP/IP connection, Fire Alarm Printer and optional Modem.

Dimensions: 197mm (W) X 107mm (H) X 60mm (D)

Display: 16 X 2 Large character LCD with LED Backlight
Display area: 100mm X 25mm

Clockings: 15,000 in circular buffer

Employees: 25 to 1,000, remotely upgradeable

Firmware: Flash memory upgradeable over TCP/IP

Configuration: 1 Master, up to 15 Slaves

Reader:

Type:	125KHz HID type
Range:	80mm (ISO & Clamshell badges)
	30mm (Keyfobs)

Battery Backup: Lithium battery for data and clock for 3 years

Enclosure: Material – Flame retardant ABS
IP rating – standard purchase is unsealed
Optionally sealed to IP66 (hose down)

Weight: 0.5 KG.

UPS: Optional external

Connections:

Power	9-12v DC 350mA to 500mA
TCP/IP	10/100 Base-T
RS/232	Second, alternative, PC connection
RS485	Slave clocks. 2 connectors for buss
RS232	Fire Alarm printer
Digital IN	Fire Alarm Panel
Modem	Line connector

Modem Options: Internal PSTN type
Internal GSM type (data SIMM contract required)

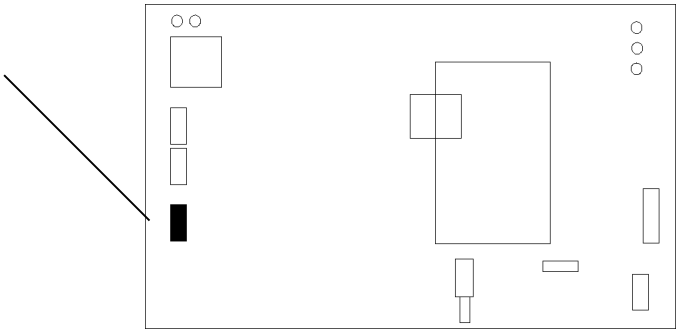
Power Supply: Wall Mount
IN: 240V AC
OUT: 9V DC
95mm X 45mm X 25mm

Connectors

Power (J21)

J21

Pin	Signal
1	9V DC
2	9V DC
3	0V
4	0V



Note: The power connector on the HRX3000 is on the left hand side of the unit, whereas on the HRX5000 the connector is on the right. In both units the power connector is adjacent to the regulator heat sinks.

Pin	Signal	Direction	Notes
1	9V DC	In	9 volts DC at up to 500mA
2	9V DC	In	Connected to Pin 1
3	0V		Signal Ground
4	0V		Connected to Pin 3

The unit requires 9 volts DC at up to 500mA depending on configuration.

Note: Due to the size of the regulator heatsink it is not possible to operate the unit from 12 volts for extended periods. A 12 volt supply should be used only with a suitable voltage drop component such as a reverse biased zener diode.

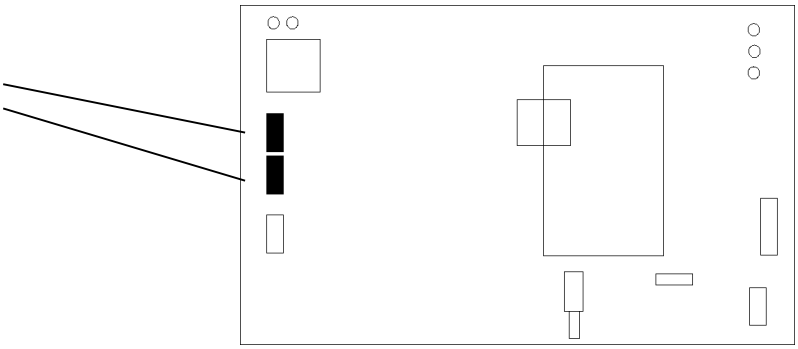
The unit is protected internally against reverse polarity connection.

It is only necessary to connect pin 1 or 2 and pin 3 or 4.

RS-485 Network Connectors (J6 and J7)

J6,J7

Pin	Signal
1	-ve
2	+ve
3	
4	Screen



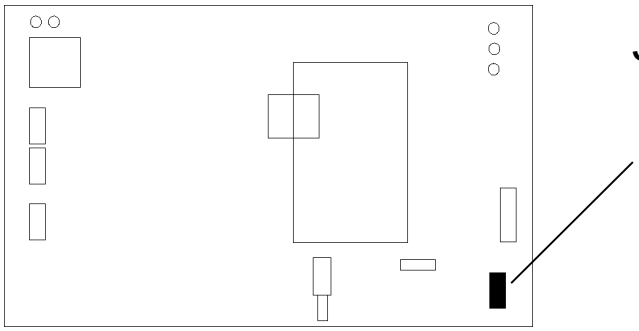
A Master HRX3000 is able to communicate with up to 15 Slaves over a twisted pair RS-485 bus. Two connectors are fitted in each terminal to make wiring easier in the field.

End to end cable length can be up to 1Km. The cable required is single twisted pair with shield.

A suitable cable is Belden 9501 which is 24 awg (7X32) stranded, single twisted pair with shield, PVC insulation. The RS Part Number 382-576 is for 1 box of 304 metres at £75.

J6 and J7 are connected pin to pin on the PCB. I.e. J6 pin 1 connects to J7 pin 1 etc. To connect 2 units together, wire pin 1 to pin 1 and pin 2 to pin 2. Keep the screen pigtail as short as possible.

RS-232 to PC (J8)



J8

Pin	Signal
4	0V
3	RXD
2	TXD
1	Power

Note: Pin 1 on J8 is at the bottom of the HRX3000
Note: PC cable is the same as for the HRX5000

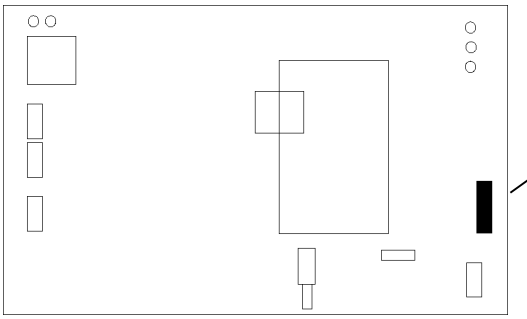
The terminal can communicate with the PC either by TCP/IP, RS-232 or Modem. The connection method is set up in the Focus **System | Clock Utilities | Connection Setup** screen. Here you specify a terminal name and a connection method.

Pin	Signal	Direction	Notes
1	Power	Out	5-9 volts available to power an external line driver. Current limited to approx 50mA
2	TXD	Out	Transmit data. 19,200 baud, 8 data, 1 stop, no parity
3	RXD	In	Receive data. 19,200 baud, 8 data, 1 stop, no parity
4	0V		Signal Ground

Connections:

Pin	Signal	Direction	PC 9 Way	PC 25 Way
1	Power	Out		
2	TXD	Out	RXD (pin 2)	RXD (pin 3)
3	RXD	In	TXD (pin 3)	TXD (pin 2)
4	0V		0V (pin 5)	0V (pin 7)

Printer and Fire Alarm Panel (J19)



J19

Pin	Signal
6	FA 0V
5	FA In
4	0V
3	CTS
2	TXD
1	Power

Pin	Signal	Direction	Notes
1	Power	Out	5-9 volts available to power an external line driver. Current limited to approx 50mA
2	TXD	Out	Transmit data. 9600 baud, 8 data, 1 stop, no parity
3	RXD	In	Hardware handshake from printer
4	0V		Signal Ground
5	FA In	In	Fire Alarm Input
6	FA 0V		Fire Alarm Ground

Note: Pin 1 on J19 is at the bottom of the HRX3000
Note: The Printer and Fire Alarm input are incorporated on the same connector on the HRX3000 to conserve space, unlike the HRX5000 where they are separate.

The terminal uses an RS-232 output to a printer for the Fire Alarm evacuation reports. The report is triggered by a contact closure on the Fire Alarm Input.

The data format of the transmitted data to the printer is:

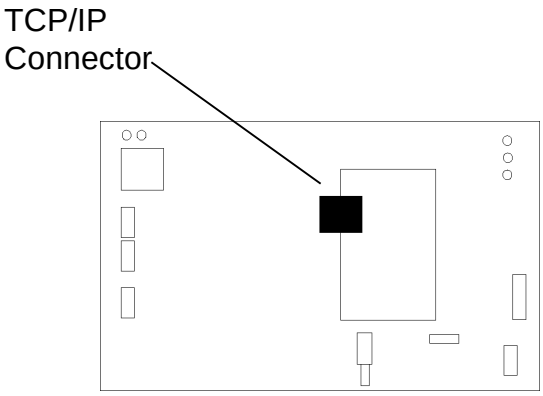
9600 baud, 8 Data bits, 1 Stop Bit, No Parity.

Using the Focus Software it is possible to command test printouts to be sent from the Terminal to the printer. It is also possible to inspect the state of the Printer's hardware handshake line. See menu option **System | Fire Alarm**.

The Fire Alarm Input triggers the Fire Evacuation Report to be printed via the RS-232 printer port. A voltage free pair of contacts wired across J19 pins 5 and 6 triggers the report on contact closure. If desired, a push button switch can be connected instead of the Fire Alarm. This will give a manual trigger input.

Pin 5 will normally show +5 volts with the input open circuit.

TCP/IP

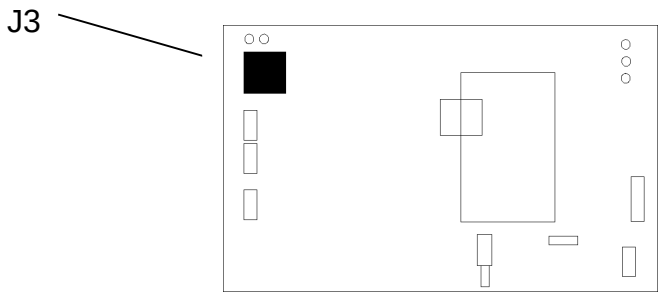


The TCP/IP connection supports Ethernet 10/100 Base-T. The connector sits underneath the LCD and is best accessed by following the procedure:

1. Disconnect the power to the HRX3000;
2. Remove the 4 screws securing the LCD;
3. Unplug the LCD backlight cable on the right hand side of the LCD from the main PCB;
4. Either remove the LCD completely or drop it down out of the way.

The IP address of the unit is set up via the Focus software using the **System | Clock Utilities | TCP/IP** Tab. A password is required to modify the TCP/IP address of the unit as inadvertent changes will cause loss of communication. You would normally modify the IP Address by communicating over the RS232 cable from the PC.

Modem (J3)



The unit can accept a plug in Modem which sits on the underside of the main PCB. The footprint is compatible with a PSTN landline modem or a GSM radio modem. To access the modem:

1. Disconnect power from the HRX3000;
2. Remove the 4 securing screws from the main PCB;
3. Remove the main PCB from the enclosure.

The PSTN Modem connects to the phone line via J3 which is a standard modem line socket.

The GSM modem has a flying lead connecting to an aerial which, for best results, should be mounted remotely from the clocking terminal itself.