## SPECIFICATIONS

Installation environment should be maintained at a temperature of 0º C to 49º C (32º F to 120º F) and 15% to 85% Relative humidity (non-condensing)

| | |
|---|---|
| Enclosure dimensions: | 166mm (Width) x 150mm (Height) x 32mm (Depth) (Not including antennae) |
| Power Supply Input: | 11V to 14V DC |
| Current Consumption. | 65mA. |
| Zone Inputs: | 32 Wireless zones. |
| System Inputs: | Transmitter Low Battery, Transmitter Poll Fail and RF Jam Cabinet Tamper, Module Low Volts, LAN Fail and Module Low Battery |
| RF Frequency Band: | 433 MHz (default for AU/NZ) or 868 MHz |

## LAN MODULE PCB FAULT LEDs

| L1(RX) | L2 (TX) | EXPLANATION / REMEDY |
|---|---|---|
| ON | ON | Module is un-addressed. Check LAN 0V, A & B connections. |
| OFF | ON | Module type unknown. Firmware upgrade required to Control Module. *Refer to 'Compatibility' table on page 1.* |
| Flash | ON | Duplicate Module. This module number is already in use by another module of the same type. |
| Flash | Flash | Module number selected is too big for Control Module memory size or memory configuration. Select a lower Module number. |
| ON | OFF | Too many modules on the Network for Control Module memory size &/or configuration. |

**L3 (SYS)**

| | |
|---|---|
| ON | Connector T3 (4-way cable) not connected to RTX3 Serial Port, or RTX3 Receiver board not operational. |
| Fast Flash | RTX3 communications OK. |

## PARADOX RTX3 RECEIVER PCB INDICATOR LEDs

| LED | OFF | ON |
|---|---|---|
| POWER | Off | OK (10.5V to 16V DC) |
| BUS | No clock or data exchange. | Clock and data are OK. |
| RF - RX | Not receiving data. | Flashes green when receiving data. |
| RF - TX | Not transmitting data. | Flashes green when transmitting data. e.g. To REM2 or REM3 remote. |





# Inner Range

# Paradox™ RF Expander Module.

## P/N: 995025

## INSTALLATION MANUAL

## Overview

The Paradox™ RF Expander Module, designated as an "F" Type module, provides a reliable interface for Paradox™ RF Detection devices, General purpose transmitters and the Wireless Remote Fobs REM1, REM2, REM3, REM15, REM25 and REM101.

**NOTE:** The Paradox RF Expander is not designed to work with Repeaters such as the MG-PRT1 or the Water Detector. For compatability with other devices consult your supplier.

The Module is powered from the LAN or an External Supply. There are 4 Auxiliaries assigned to the Module, but no physical Auxiliary outputs are provided on the board.

Detectors are processed as Zone Inputs and the Fobs as User remote/personal alarm devices. Each Module supports up to 32 Detectors. Fobs can be monitored and actioned by any Paradox RF Expander Module in the system. Detection devices and Fobs are registered with the system via a simple procedure from an LCD Terminal, Management Software (Integriti/Concept) or Browser Web Page (Inception). An RF Zone indicates an Alarm state when the device is in alarm, and a Tamper state when the housing is opened. Restoral will occur when the housing is secure and the device is sealed (Restoral is automatic for "alarm only" devices). Integriti & Concept 3/4k provide Review logging options in the Module programming to log information including transmitter signal strength which can assist in commissioning and troubleshooting. The number of RF Expanders, Inputs & Fobs supported is determined by the host Controller.

| Product | Document | Notes |
|---|---|---|
| Integriti | Integriti Controller Memory and Database Configuration. | Number of Zone Inputs and Users is set by Controller Smart Card Licence. |
| Inception | Inception Data Sheet. | |
| Concept 3/4k | Concept Programming Manual. Section 3 Memory V8_21 | Number of Modules & RF Fobs is set by memory size and configuration. |

## Compatibility

| | |
|---|---|
| Integriti Controller Firmware: | V1.0 or later. (V17 or later recommended) |
| Integriti Software: | V1.0 or later. (V17 or later recommended) |
| Inception Controller Firmware: | V1.0 or later. |
| Concept 3/4k Controller Firmware: | V7.62 or later. |
| Insight Software (For Concept 3/4k): | V4.2.0 Beta 3 or later. See Note 2 on page 7. |

 Part No: 635025

## Paradox RF Expander Module Parts List

- Paradox RF Expander Module consisting of LAN Module PCB & RTX3 Receiver PCB assemblies interconnected in a plastic enclosure.
- 1 x 175mm Antennae.
- Installation Manual. (This document)
- Installation Kit in Plastic bag containing: - 1 x 4 Way Plug on Screw Terminal.
  - 2 x Jumper Link. - 1 x 6.3mm Quick Connect for Earth Lug.

## Mounting the Unit

The Paradox RF Expander Module is supplied in a plastic enclosure which can be mounted in an appropriate location using countersunk fasteners through the 4 mounting holes in the base.

1. Choose a location that meets the RS485 LAN cabling limits and provides adequate signal strength for all devices to be associated with the Receiver. Transmitter ranges are quoted as 40 to 70 metres in a typical residential environment, depending on the product. *Refer to relevant transmitter instructions for details of RF range.*
2. Fit the anntenna as per the drawing on pages 4 and 5, then secure the enclosure to the mounting surface.
3. Set the Module Number using DIPswitches 1 to 7 as required. DIPswitch 8 must be Off. *See table on page 3.*
4. Connect the LAN, test, then fit the enclosure cover.

### FCC (North America)

This device complies with Part 15 of the FCC Rules and Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:
1. This device may not cause interference; and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

**Class B product:**
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses & can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off & on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Warning: Any changes or modifications not expressively approved by Inner Range Pty Ltd could void the user's authority to operate this equipment

### ISED Canada

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CAN ICES-3 (B)/NMB-3(B)

## Module, Input and FOB Programming Summary

### INTEGRITI

Programming is performed via the following menus:
- Hardware > Radio Expander Modules. Set Module options and register Sensors.
- Hardware > Control Module > Default Modules. Choose the default RF Reader for enrolling Remotes.
- Access Control > RF Remote Templates. Define RF Remote operations.
- Access Control > RF Remotes. Register Remotes, set options for individual Remotes & assign a Remote Template.
- Home > Users. Assign Remotes to Users and define User permissions.
- Intruder > Inputs. Name RF Zone Inputs and set Input options.
- Intruder > Areas. Assign Zones &/or System Inputs to Areas & define relevant Area operations.
- Intruder > Process Groups. Edit or Add Process Group/s to customize RF Zone processing. e.g. 'Low Battery' and/or 'Poll Fail' states may need to be added to processing options if these states are to be monitored for individual transmitters for alarm messaging, reporting or siren activation.

*See the Integriti Programming Reference Manual V17 or later for details.*

### INCEPTION

Programming is performed via the following menus:
- Configuration > Hardware > IR-Paradox RF Module. Set Module options and register Sensors.
- Configuration > Access Control > Remote Fob Templates. Define RF Remote operations.
- Configuration > Users > Credentials. Register/assign a Remote & set the Template.
- Configuration > Users > Define User permissions.
- Configuration > Inputs. Name RF Zone Inputs and set Input options.
- Configuration > Areas. Assign Zones to Areas & define relevant Area operations.

*Use the information fields at the top of each page (click on 'Read More...) and the info buttons ( ) provided in the web browser pages for programming details.*

### CONCEPT 3000/4000 & INSIGHT SOFTWARE

**NOTE:** Prior to Insight 4.2.0 Beta 3, any attempt to program an RF Fob with Insight corrupts the Fob programming in the Panel, and it will need to be re-programmed from an LCD Terminal. Only Fob options are affected, Uploads/Downloads and RF Module programming are OK.

Programming is performed via the following menus:
- RF Expander programming. MENU, 7, 2, 0, 2.
- Device Registration: RF Expander Module Zone registration. MENU, 7, 2, 0, 0, 1.
  RF Expander Module Fob registration. MENU, 7, 2, 0, 0, 2. OR MENU, 2, 7.

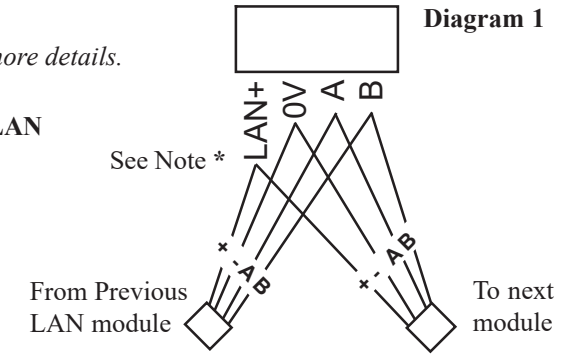
FOBs can only be registered through the nominated RF Expander module. The module is selected in the General System Options on the Control Module. The default 'RF module for Prog' is F01.
- RF Zone Input / System Input programming. MENU, 7, 0 (Fxx:Zxx and Fxx:Sxx)
- RF FOB Button programming (associated with a User). MENU, 2, 1.

NOTE: IF a FOB is used to turn an Area ON or an Area OFF, an Auxiliary can be programmed to provide visual or audible indication, (ALARM3 AUX) in Area programming. MENU, 7, 1
This option turns the assigned auxiliary on for 2 seconds when Arming and for 5 seconds when Disarming. REM2 and REM3 Fobs also provide visual and audible User feedback.
*See the Concept 3000/4000 Programming Applications & Reference Manual V7.6 or later for details.*

## LAN and Power Supply Wiring

*See Controller Installation Manual for more details.*

**Diagram 1**



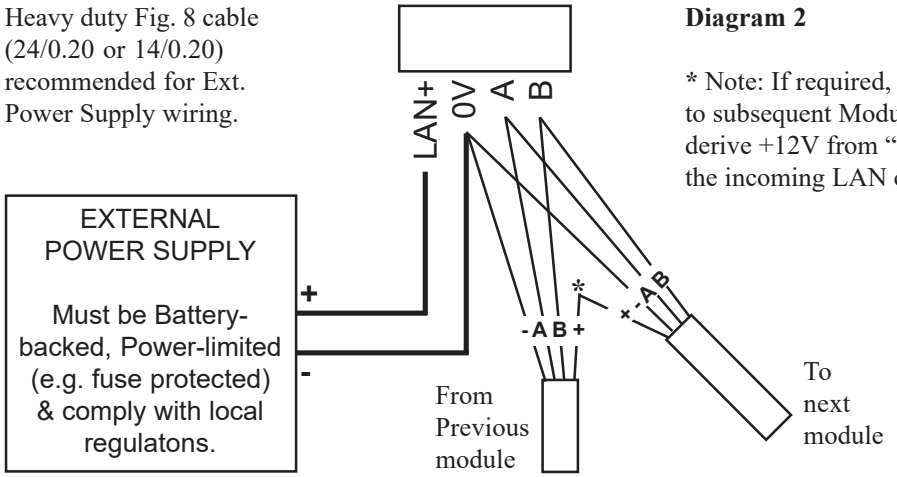

### MODULE POWERED FROM THE LAN

***** Note: If both "LAN +" wires provide a Power supply source, the one that is not required to power the Reader Module must NOT be connected.

### MODULE POWERED FROM EXTERNAL SUPPLY

Heavy duty Fig. 8 cable (24/0.20 or 14/0.20) recommended for Ext. Power Supply wiring.

**Diagram 2**




***** Note: If required, the LAN to subsequent Modules may derive +12V from "LAN+" or the incoming LAN cable.

## Earth Connection

The Module should always be installed away from areas of electrical interference and in a normal installation a connection to earth is not required.

The Module incorporates on-board LAN input Surge Protection components that can protect the internal circuitry from interference induced on the LAN cable (electrical surges). Even inside a building there can be sources of interference. e.g. Electric motors, welders, and their cabling. If Surge protection is required, the "EARTH" connection must be wired to an effective EARTH. Inner Range products that are mounted in a metal chassis and have transformers, provide an earth point on the chassis, while three wire plug packs provide connection to earth through the earth wire. The wiring in the chassis and the construction of the plug pack provide connection to the building earth via the mains power point. The building earth is an effective EARTH. Further information is available on the Inner Range Web site, *www.innerrange.com*



## Module Numbering

The RF Expander Module number is set to a value from 1 to 99 using DIPswitches 1 to 7. The Module number equals *n* + 1, where *n* is the binary number set on the DIPswitches. Sw 8 must be in the OFF position. Note that Concept 3/4k only suppports Module Numbers 1 to 64.

| **Module No:** | **DIPswitch:** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
|---|---|---|---|---|---|---|---|---|---|
| | Binary value: | 1 | 2 | 4 | 8 | 16 | 32 | 64 | n/a |
| 1 | | off | off | off | off | off | off | off | Always off |
| 2 | | ON | off | off | off | off | off | off | |
| 3 | | off | ON | off | off | off | off | off | |
| 4 | | ON | ON | off | off | off | off | off | |
| 5 | | off | off | ON | off | off | off | off | |
| 6 | | ON | off | ON | off | off | off | off | |
| 7 | | off | ON | ON | off | off | off | off | |
| 8 | | ON | ON | ON | off | off | off | off | |
| 9 | | off | off | off | ON | off | off | off | |
| through to | | | | | | | | | |
| 64 | | ON | ON | ON | ON | ON | ON | off | |
| 65 | | off | off | off | off | off | off | ON | |
| ...99 | | off | ON | off | off | off | ON | ON | |

## Installation Details

**Links:**

LK1 LAN Termination (TERM). **Concept 3000/4000 ONLY.** The LAN is only terminated on two modules in the system unless LAN Isolators are used. *See the Concept 3/4000 Control Module Installation manual for details.*

**Connectors:**

T1 LAN Connection
T2 Earth Connection
T3 Serial interface connection to RTX3 Serial Port.
T4 Tamper Switch Input. NOT CURRENTLY USED. (Tamper detection is provided by the Tamper switch on the RTX3 board)
JP3 Ancillary LAN connection.

**DIPSwitches:**

SW1 Module Number. *See table above.*

**LEDs:**

L1 LAN RX Data and FAULT INDICATION. *See table on page 8.*
L2 LAN TX Data and FAULT INDICATION. *See table on page 8.*
L3 SYSTEM STATUS. *See table on page 8.*

# THE PARADOX™ RF EXPANDER ASSEMBLY

**NOTE:** For the PCB layout of the RTX3 PCB used in earlier versions of this product, refer to Rev. 1.01 of this installation manual.

## LAN MODULE PCB

**DIPswitches:**
**Switch 1-6.** Module number
*(See table on page 3)*

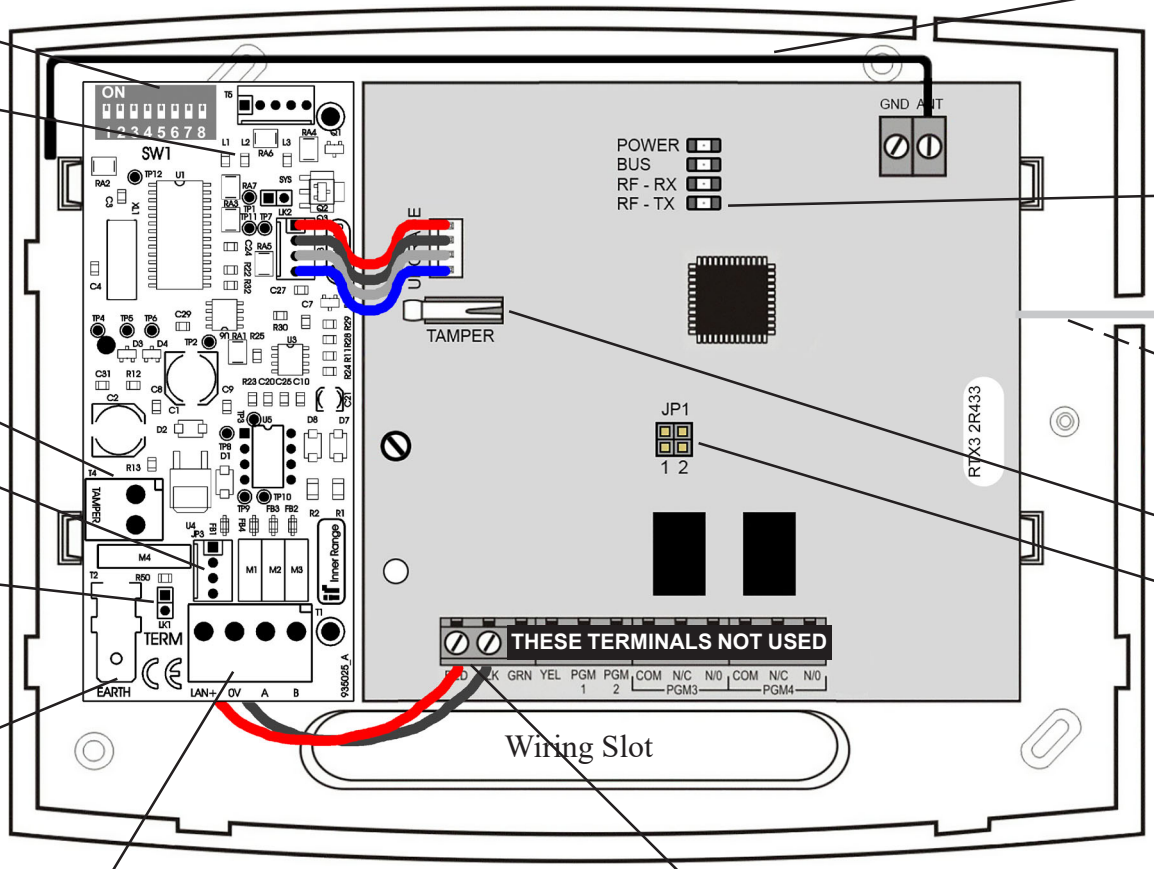
**Indicator LEDs.** *(See table on p 8)*
**L1 (Rx).** LAN Data Receive & FAULT Diagnosis
**L2 (Tx).** LAN Data Transmit & FAULT Diagnosis
**L3 (SYS).** System Status

**T3** Tamper Connection. NOT CURRENTLY USED.

**JP3** Ancillary LAN connection. For temporary connection of LCD Terminal for diagnostic purposes.

**LK2 (TERM)** LAN Termination.
**Concept 3000/4000 ONLY.**
The LAN is terminated on 2 Modules in the system unless LAN Isolation is used.
*See the Concept Control Module Installation manual for more details.*

**EARTH CONNECTION.**
*See "Earth Connection" on page 6.*




**T1. RS485 LAN & External Power Connections.**
LAN+ Connect LAN + IF Module is powered from the LAN *(see Diagram 1 on p6)*, OR +12V from local External Power Supply *(see Diagram 2 on p6)*. *
0V Connect LAN 0V. Also connect Negative (0V) from local External Power Supply if used.
A LAN Data A connection.
B LAN Data B connection.

*NOTE: LAN+ (Positive) connections from two different power supply sources must not be connected together. *See "LAN & Power Supply Wiring" on page 6.*

**RTX3 Power Input Connection.**
Pre-installed RTX3 power input connections sourced from LAN+/0V pins on the underside of the LAN Module PCB. (Earlier versions of the RTX3 were powered via the serial data connection & did not require these wires.)
**NOTE:** Do not use these terminals for any other purpose.

## RTX3 RECEIVER PCB

**Antenna.**
Must be fitted.

**IMPORTANT NOTE:**
The Antenna MUST be kept clear of any power or LAN wiring.

**Receiver Indicator LEDS**
**POWER / BUS**
**RF-RX / RF-TX**
*See details on page 8.*

Earlier versions of the RTX3 PCB had an optional horizontal antenna. If fitted, leave in place.

**Cabinet Tamper Switch**

**Frequency Band Selection.**
This option is set to the correct band for your region and should not need to be changed.
**Position 1** 433MHz
**Position 2** 868MHz
The link should only be changed by a suitably qualified person. (Earlier versions of the RTX3 PCB do not have these links)