

Prox Mifare Series (Teardrop)



CAUTION

This equipment contains components that can be damaged by electrostatic discharge. Ensure both you and the equipment are earthed before beginning any servicing.

Before you Begin

Unpack the Prox Mifare Series (Teardrop) reader and check the shipment contains the following items:

- 1 x Prox Mifare Series (Teardrop) reader base
 - 1 x Prox Mifare Series (Teardrop) reader facia
 - 1 x printed circuit board (PCB) assembly
 - 1 x cable assembly
 - 1 x M3 Torx Post Security screw
 - 4 x self tapper pozi counter sunk fixing screws (two different lengths)
- WARNING:** You must use the screws provided, as using other types of screws could interfere with the electronics. (See the “Mounting” section later for further explanation.)



Power Supply Requirements

Power for the Prox Mifare Series (Teardrop) reader is usually taken from the incoming supply of the device to which it is connected. That is, from the:

- Cardax FT Reader I/O Interface
- Cardax FT Controller 3000
- Cardax FT Universal Reader Interface (Cardax FT URI)
- Cardax Commander Universal Reader Interface (Cardax Commander URI).

The supply at the reader should be 13.6 V DC \pm 15%. The current draw is 180 mA per reader. This is in addition to the requirements of any other device (for example, the URI) powered from the same supply.

Prox Mifare Series (Teardrop) readers require a good quality linear power source. If you do not use the recommended power supply, it may affect the performance of the reader.

Note: Switch mode power supplies are not recommended as they may reduce the read range of the Prox Mifare Series (Teardrop) reader.

Cabling

The Prox Mifare Series (Teardrop) reader uses the Cardax IV communications system. This means it can be connected to the following equipment:

- Cardax FT Reader I/O Interface
- Cardax FT Controller 3000
- Cardax FT URI
- Cardax Commander URI

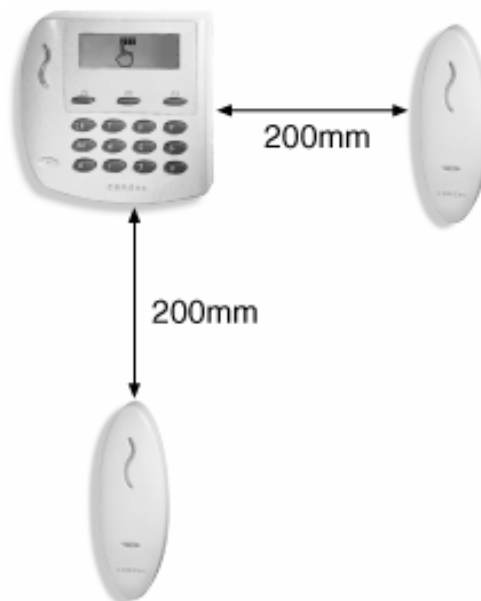
Use 4 core, 0.2 mm² (AWG 24) cabling with a maximum, nominal capacitance of 120 pf/m. The maximum external diameter of the cable must not exceed 5 mm (1/5 inch).

With this type of cable, the maximum distance between the Prox Mifare Series (Teardrop) reader and the device to which it connects is 200 m (650 ft).

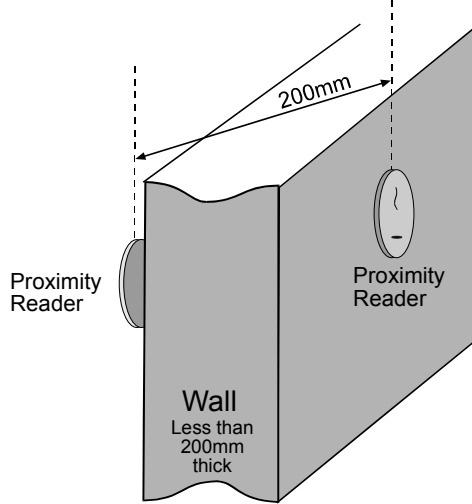
Note: You need a special cable terminating tool to connect the building cabling to the Prox Mifare Series (Teardrop) reader. The tool has a head (Part No. C861145) and handle (Part No. C861115). You also need a special tool (Part No. C41611) to open the Prox Mifare Series (Teardrop) reader if necessary.

Mounting Distance Between Proximity Readers

The distance between any 2 proximity readers must be greater than 200mm in all directions.



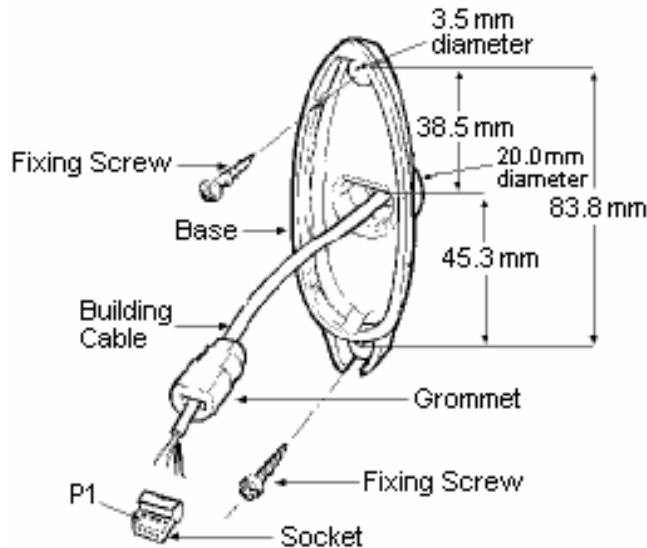
Please note that 200mm in all directions includes the distance through walls.



Mounting

Note: The Prox Mifare Series (Teardrop) reader has been designed to metric specifications. Therefore any imperial measurements provided are approximate only.

The Prox Mifare Series (Teardrop) reader is designed to be mounted on any solid flat surface. However installation on metal surfaces, particularly those with a large surface area will reduce read range. The extent to which the range is reduced will depend upon the type of metal used. To minimise this effect, plastic spacers which may be mounted between the reader and the metal surface are available (Part number C190980). Please contact your local Cardax dealer for more information.



Note: The grommet through which the cables feed into the base of the Prox Mifare Series (Teardrop) reader helps to keep the unit waterproof.

Using the mounting dimensions on the back of this Installation Note as a guide, drill a 20 mm ($\frac{3}{4}$ inch) diameter hole for the base extrusion through or into the

mounting surface to a minimum depth of 40 mm (1½ in).

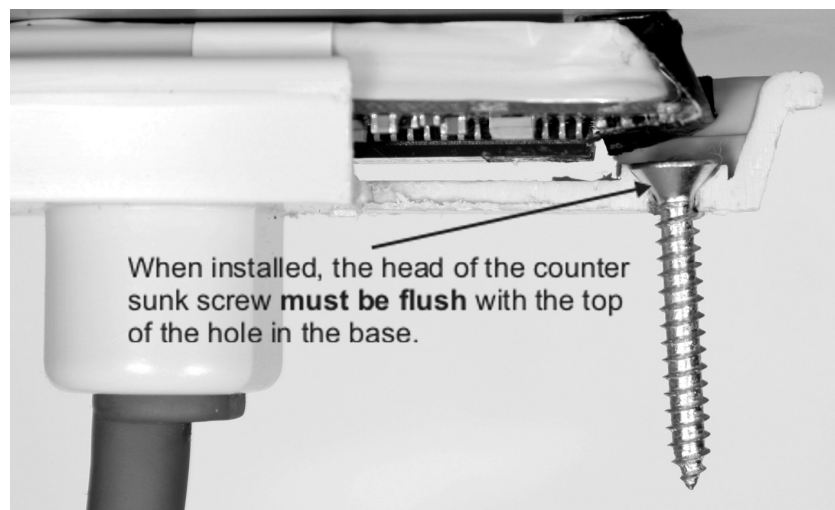
Drill two pilot holes for the fixing screws.

Run the building cabling through the base and grommet.

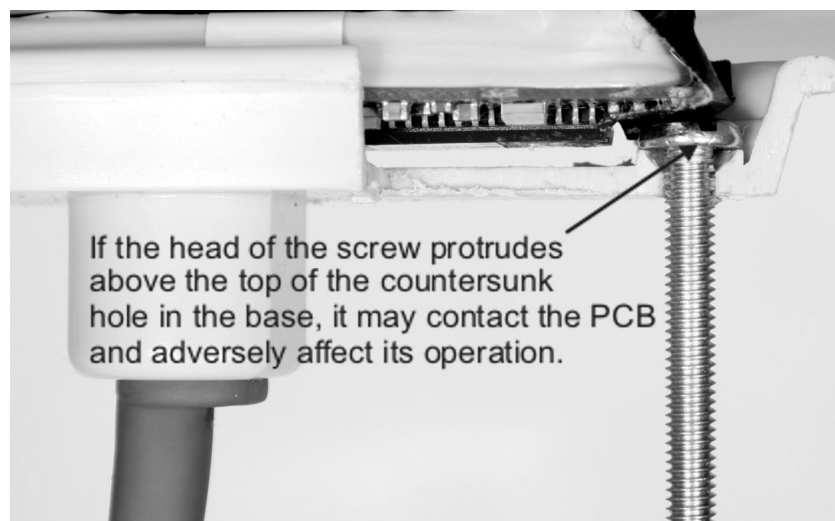
Fit the base to the 20 mm (¾ inch) hole and secure it to the mounting surface using two of the fixing screws provided.

Note: The surface the reader is being attached to will determine which length screws are most appropriate from those provided.

WARNING: You must use the screws provided, taking care not to over-tighten them. Make sure that the heads of the counter sunk screws are flush with the top of the holes in the base, and ensure there is clearance for the screw that closes the base and facia together.



Failure to do this, and/or using other types of screws could interfere with the electronics.



Please note that the manufacturers warranty is voided if the electronics are damaged as a result of the incorrect screws being used or installed incorrectly

to secure the base.

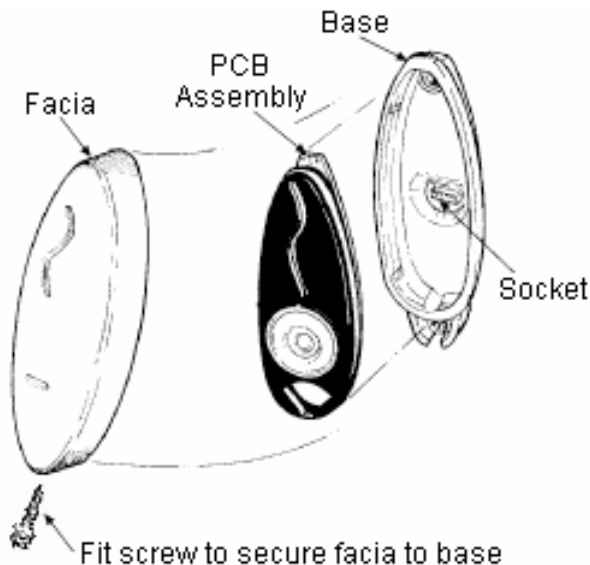
Push the socket back into the grommet.

Push the grommet and socket back into the Prox Mifare Series (Teardrop) reader base.

Check the tape covering the antenna wire solder joints is in position. Install the PCB assembly into the base, ensuring the connector on the back of the PCB assembly fits into the socket in the base. The PCB assembly should click into place.

Fit the fascia onto the base by clipping the small lip, inside the fascia, over the top edge of the base and holding the top, press the bottom of the fascia down over the base. Then insert the M3 x 16 Torx Security Screw (using an M3 Torx Post Security screwdriver) through the hole at the bottom of the fascia and into the threaded metal insert in the base to secure the fascia.

Removal of the fascia is a simple reversal of these steps.



FCC Compliance

For markets requiring FCC compliance, a ferrite (part number C190977) must be applied to the cable, with two-turns of the cable running through it. Position the ferrite as close to the entry point of the reader as possible, as shown:



Connections

The Prox Mifare Series (Teardrop) reader connects to one of the following:

- Cardax FT Controller 3000
- Cardax FT Reader I/O Interface
- Cardax FT URI
- Cardax Commander URI

Use the cable terminating tool to connect the cables to the socket as described in the following sections.

Pin number 4 of the Prox Mifare Series (Teardrop) reader connector feeds into the cable terminating tool first.

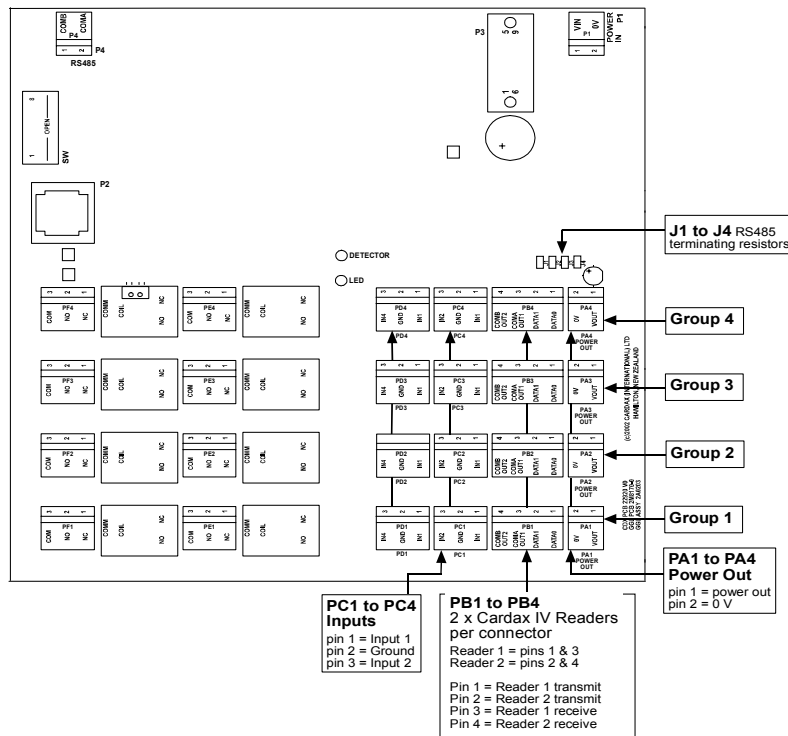
Connecting to the Cardax FT Controller 3000

The Cardax FT Controller 3000 interfaces the following types of reader into the Cardax FT Command Centre system:

- Cardax IV readers, including Prox Mifare Series (Teardrop) readers
- Wiegand readers

Each Cardax FT Controller 3000 can interface up to eight Prox Mifare Series (Teardrop) readers into the Cardax FT Command Centre system.

The ports to which the Prox Mifare Series (Teardrop) reader can connect are set up as four distinct groups (numbered 1 to 4). Each group provides connection for two Prox Mifare Series (Teardrop) readers or other Cardax IV readers. Refer to the following diagram for the location of the ports on the Cardax FT Controller 3000.

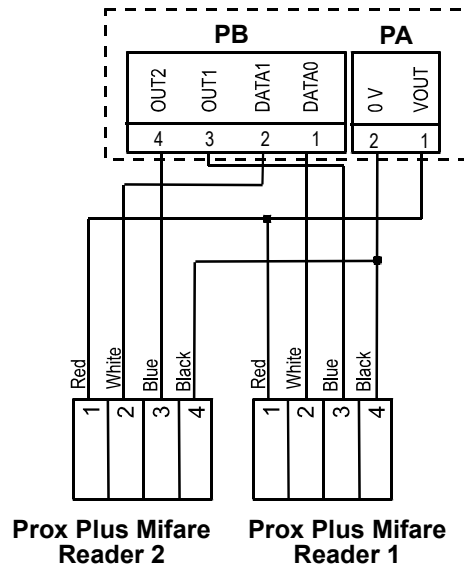


Make the connections from the Prox Mifare Series (Teardrop) reader to the Cardax FT Controller 3000 as shown:

Controller 3000

Group (x4)

PB1 and PA1... to... PB4 and PA4



Note:

Within each group, you cannot mix Cardax IV readers with Wiegand Readers. This is because connecting one Wiegand reader requires all four pins on plug PB. For example, if you connect a Prox Mifare Series (Teardrop) reader to Port 1 of Group 1, Port 2 of Group 1 can only connect to another Cardax IV reader.

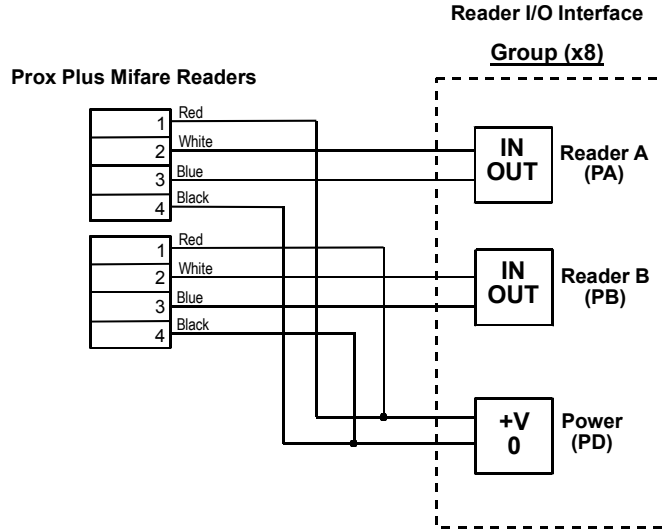
The terminating resistors (J1 for Group 1, J2 for Group 2, etc.) must NOT be fitted for those groups to which Prox Mifare Series (Teardrop) readers are connected.

Connecting to the Cardax FT Reader I/O Interface

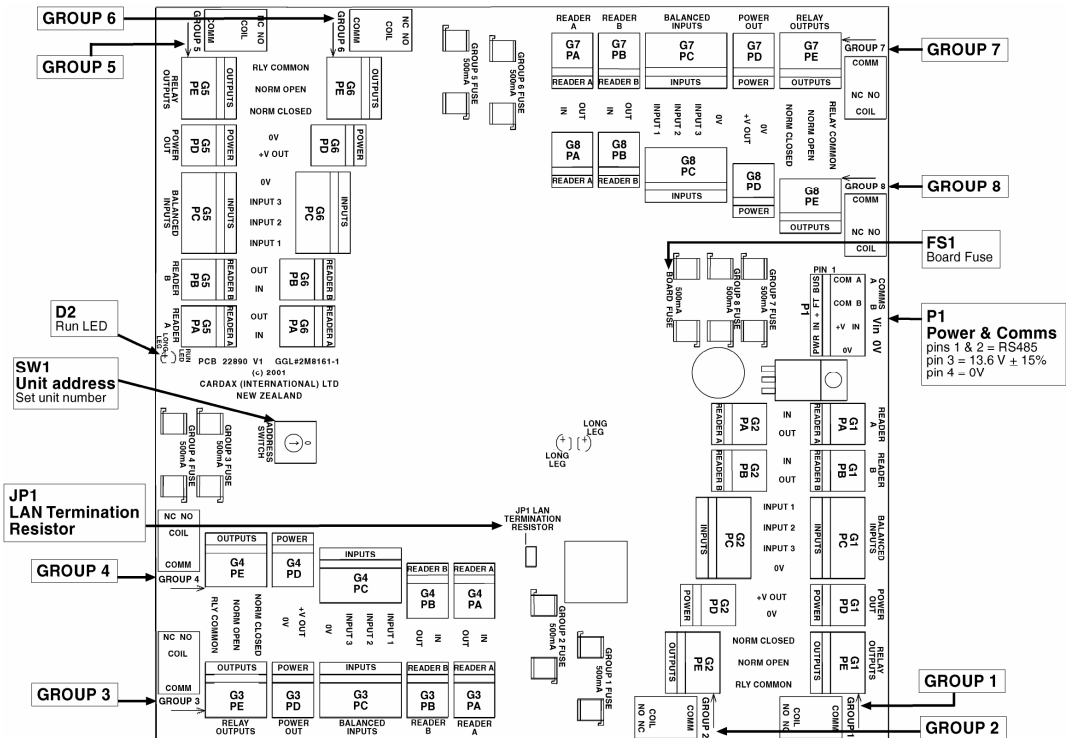
The Cardax FT Reader I/O Interface has connections for up to sixteen Prox Mifare Series (Teardrop) readers or other Cardax IV readers.

The Prox Mifare Series (Teardrop) reader connects to either plug PA or PB in Groups 1 to 8.

Make the connections from the Prox Mifare Series (Teardrop) reader to the Reader I/O interface as shown:

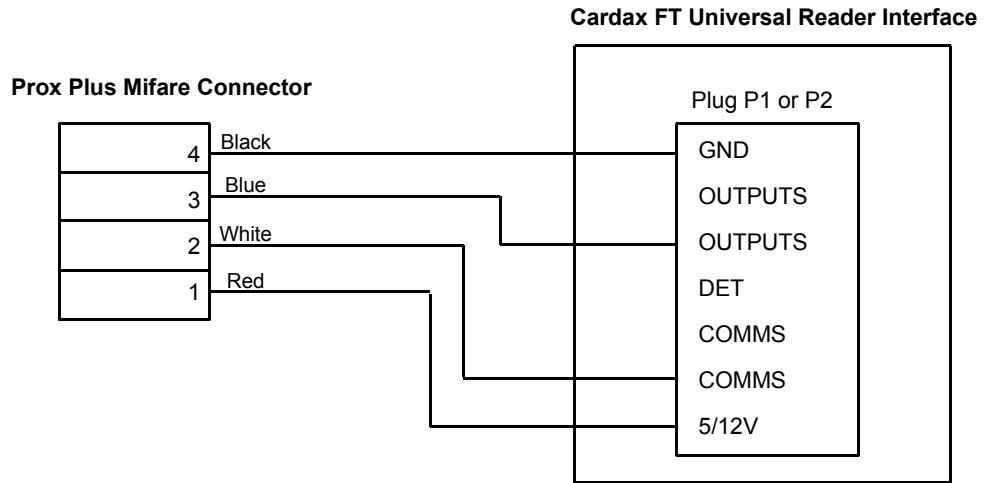


For the location of the plugs on the Reader I/O Interface, refer to the component layout diagram:

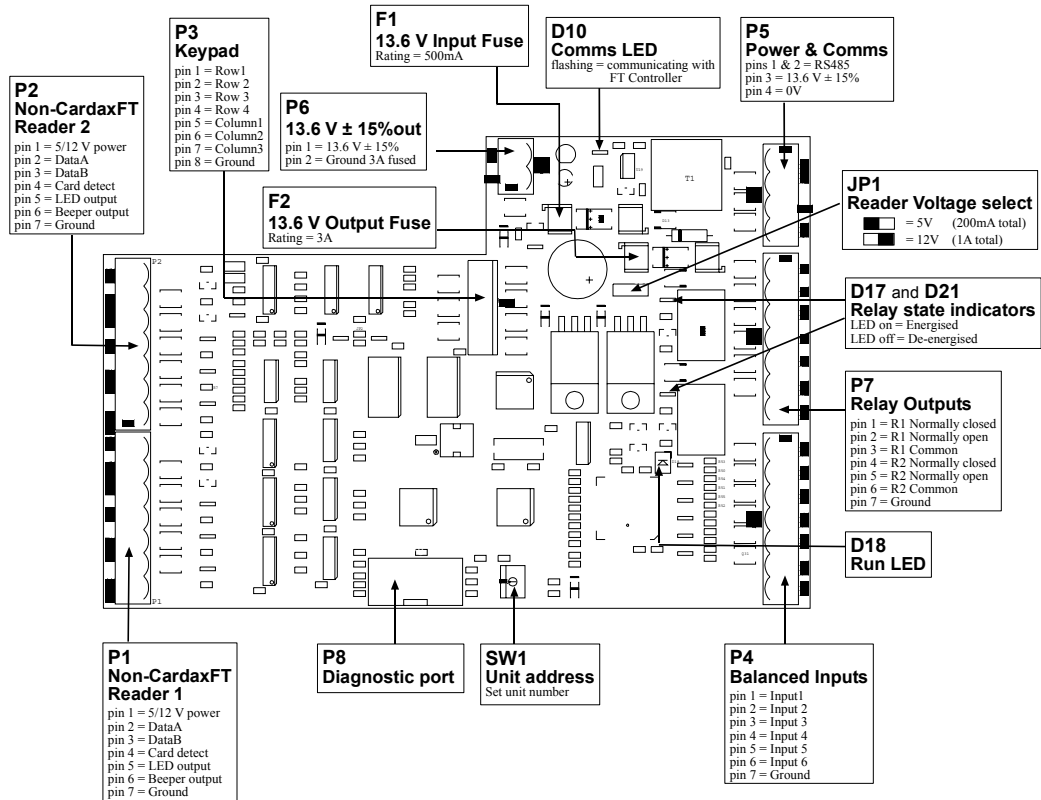


Connecting to the Cardax FT URI

Connect the cables to the socket as shown.

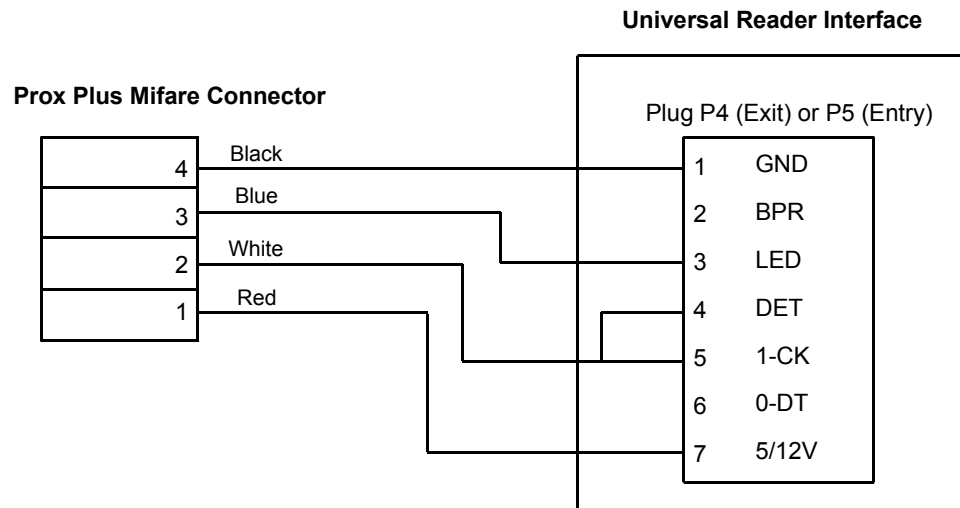


Connect the Prox Mifare Series (Teardrop) reader connector to either the P1 or P2 plug on the Cardax FT URI. Refer to the Cardax FT URI component layout diagram, next, for the location of the plugs.



Connecting to the Cardax Commander URI

Connect the cables to the socket as shown in the following diagram.



Note:

Refer to Cardax Commander URI Components, for the location of the Cardax Commander URI components.

Initialisation

Initialising with the Cardax FT Controller 3000

Refer to the *Cardax FT Controller 3000 Installation Note* (Part number 3E1089) for initialisation instructions.

Initialisation of the Cardax FT Controller 3000 does not require prior connection to the Prox Mifare Series (Teardrop) reader. The Prox Mifare Series (Teardrop) reader will be operational as soon as it is:

- connected to a Cardax FT Controller 3000, and
- configured as a Cardax IV reader within the Cardax FT Command Centre system.

Initialising with the Cardax FT Reader I/O Interface

Refer to the *Cardax FT Reader I/O Interface Installation Note* (Gallagher Part number 3E1016) for initialisation instructions.

Initialisation of the Cardax FT Reader I/O Interface does not require prior connection to the Prox Mifare Series (Teardrop) reader. The Prox Mifare Series (Teardrop) reader will be operational as soon as it is:

- connected to a Cardax FT Reader I/O Interface, and
- configured as a Cardax IV reader within the Cardax FT Command Centre system.

Initialising with the Cardax FT URI

Refer to the *Cardax FT Universal Reader Interface Installation Note* (Gallagher Part number 3C4518) for initialisation instructions.

Initialisation of the Cardax FT URI does not require prior connection to the Prox Mifare Series (Teardrop) reader. The Prox Mifare Series (Teardrop) reader will be operational as soon as it is:

- connected to a Cardax FT URI, and
- configured as a Cardax IV reader within the Cardax FT Command Centre system.

Initialising with the Cardax Commander URI

Type of Door Lock

Depending on the type of lock fitted to the door that the reader is controlling, you will need to initialise the URI with the door either closed or open.

If you initialise the URI with the door held open, it sets the door to unlock and remains unlocked until the door is fully closed again. If you initialise the URI with the door closed it sets the door to unlock and resets to lock as soon as the door is opened.

Note:

If you are installing the Prox Mifare Series (Teardrop) reader to control a turnstile you should consult the turnstile manufacturer for details of the locking mechanism used.

Push-Button Exit

If the door has a push button exit, ensure the URI Exit terminal has the push-button fitted and correctly terminated with a 10 kΩ resistor before you power on.

Check Software Version

You should check the URI software version to ensure it is correct for your installation. The software version number is written on the label of the EPROM mounted at the bottom right of the URI processor board.

URI software versions that are compatible with the Prox Mifare Series (Teardrop) reader are shown below:

Software	Reader Type
vW3.61 to vW3.67 or vW6.xx series *	One door Cardax Prox or Swipe Readers
vW7.xx TC series	URI Special Options
vW4.74 to vW4.81 or vW9.xx series *	Two door Cardax Prox or Swipe Readers

Note: * These software versions will have one of the following suffixes:

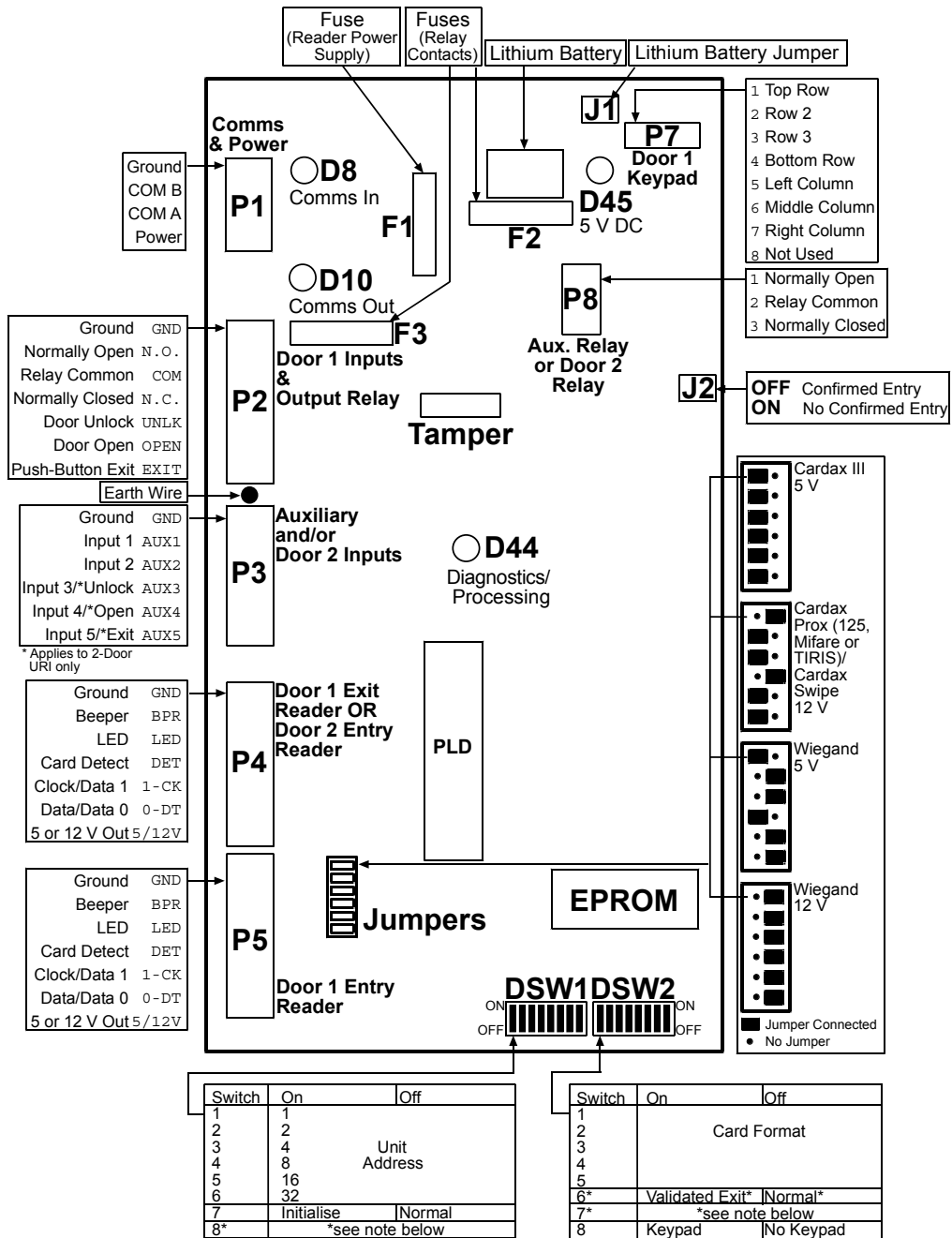
GT = 2 wire modem connection

G = 4 wire modem connection

// = direct connection via comms lines ie. no modem

Cardax Commander URI Components

Please refer to the diagram below for the location of the Cardax Commander URI components.



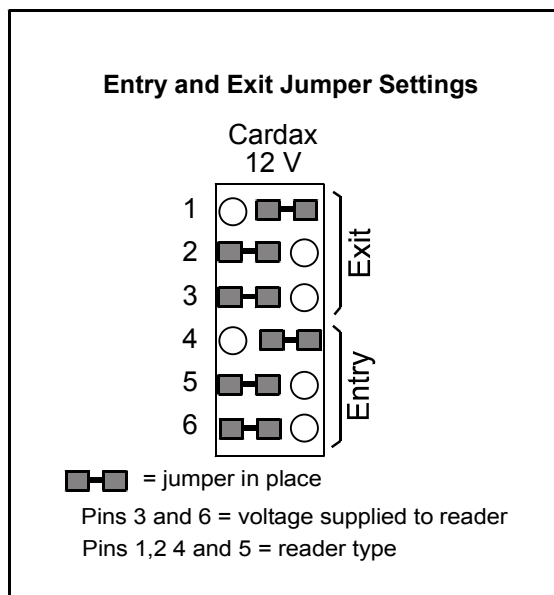
Setting the Jumpers

Tamper the URI by opening the door of the cabinet. This releases the tamper switch.

The URI has a set of six jumpers grouped into two sets of three. One group is labelled ENTRY and the other is labelled EXIT.

ENTRY jumpers set the voltage and card type of the reader connected to plug **P5**. EXIT jumpers set the voltage and card type of the reader connected to plug **P4**.

Set the Entry and Exit jumpers for the Prox Mifare Series (Teardrop) reader as shown below:



Confirmed Entry

Connector **J2** on the URI controls the Confirmed Entry function. If you initialise the URI with no jumper fitted on **J2** the Confirmed Entry function will be ON. To switch the Confirmed Entry function OFF, you must initialise the URI with a mini-jumper fitted across both pins of connector **J2**.

Connecting the Reader

Connect the Prox Mifare Series (Teardrop) reader to the URI Entry Plug **P5**.

Note:

If you are using two entry readers (2 door software) you must connect the second entry reader to URI Plug **P4** to initialise the URI. Ensure Entry and Exit jumpers are set to the same configuration.

If you are only using an Exit reader you must connect the reader to the Entry Plug **P5** to initialise the URI. After you have initialised the URI you should connect the Exit reader to URI Exit Plug **P4**.

Setting the Dip Switches

Set DIPSW1 as follows:

Switches	On	Off
1	1	
2	2	
3	4	
4	8	
5	16	
6	32	
	} Unit Addresses	
7	Initialise	Normal
8	1 door software = liftcar reader 2 door software = keypad on door 2	1 door software = door reader 2 door software = no keypad on door 2

Set DIPSW2 as follows, where 0 = OFF and 1 = ON:

URI Software	vW6.xx and vW9.xx	vW3.61 to vW3.67 and vW4.74 to vW4.81
	DIPSW2	DIPSW2
Reader	12345678	12345678
Prox Mifare Series (Teardrop) reader only, no authorised exit	00000000	00011000
Prox Mifare Series (Teardrop) reader only, with authorised exit	00000100	00011100
Prox Mifare Series (Teardrop) reader with external keypad and no authorised exit.	00000011	10011011
Prox Mifare Series (Teardrop) reader with external keypad and authorised exit.	00000111	10011111

For further details on software versions refer to *Check Software Version* earlier in this Installation Note.

Initialise Process



CAUTION

Do not fit the lithium battery jumper (J1) before powering up the URI. If the jumper is fitted you must remove it and wait 10 seconds.

Power up the URI.

The yellow LED (**D45**) should be permanently ON. This indicates that 5 V is present on the board.

The green LED (**D44**) should flash twice, pause, then flash twice again. This is a continuous sequence while the URI is initialised and indicates it is processing.

The red LED (**D8**) should flash if polls are received from the Commander.

Note:

A URI can be initialised without being connected to a Commander.

Set DIPSW1:7 to ON.

Present a Smart Card to the Prox Mifare Series (Teardrop) reader.

Note:

You must present the card within 30 seconds of setting DIPSW1:7 to ON. If you are initialising with two readers connected to the URI, you should present the card to the reader on URI plug **P5**.

Set DIPSW1:7 to OFF

The green LED (**D44**) will begin flashing continuously.

The other red LED (**D10**) will flash each time the URI replies to a poll from the Commander.

Replace the lithium battery jumper **J1**.

Restore the tamper by closing the door of the URI cabinet.

Technical specification

Note: All specifications are subject to appropriate installation.

Routine maintenance and serviceable parts:

Not applicable for a Cardax Prox Mifare Series (Teardrop) reader

Cleaning:

The Cardax Prox Mifare Series (Teardrop) reader should only be cleaned with clean, lint free, damp cloth

Power required:

Voltage	13.6 ± 15% V DC
Current	< = 180mA

Environmental:

Operating temperature	-10°C to +50°C
Humidity	95% non-condensing
Environmental Protection	IP54

Note: Direct sunlight may increase the internal reader temperature above the ambient temperature level.

Mounting Height:

1100mm (3 ft) to centre

Approvals and Standards

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 and 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 and 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.

Note: Changes or modifications not expressly approved by Gallagher Group Limited could void the user's authority to operate the equipment.



ACN: 002132943

Mounting Dimensions

