Fitting Instructions

Before Proceeding please check you have received all the necessary components

Item	Quantity
Control Unit Assembly	1
Sensor Unit Assembly with 3metres cable	1
Transponder Proximity Cards	10
Electric Release Lock	1
Electric Release Mounting Plate (for RIM type)	1
2 Core Cable for electric release	3metres
Power Supply	1
Cable Clips	1
Rawlplugs	1
Screws Size 8	1

Tools needed to install this system

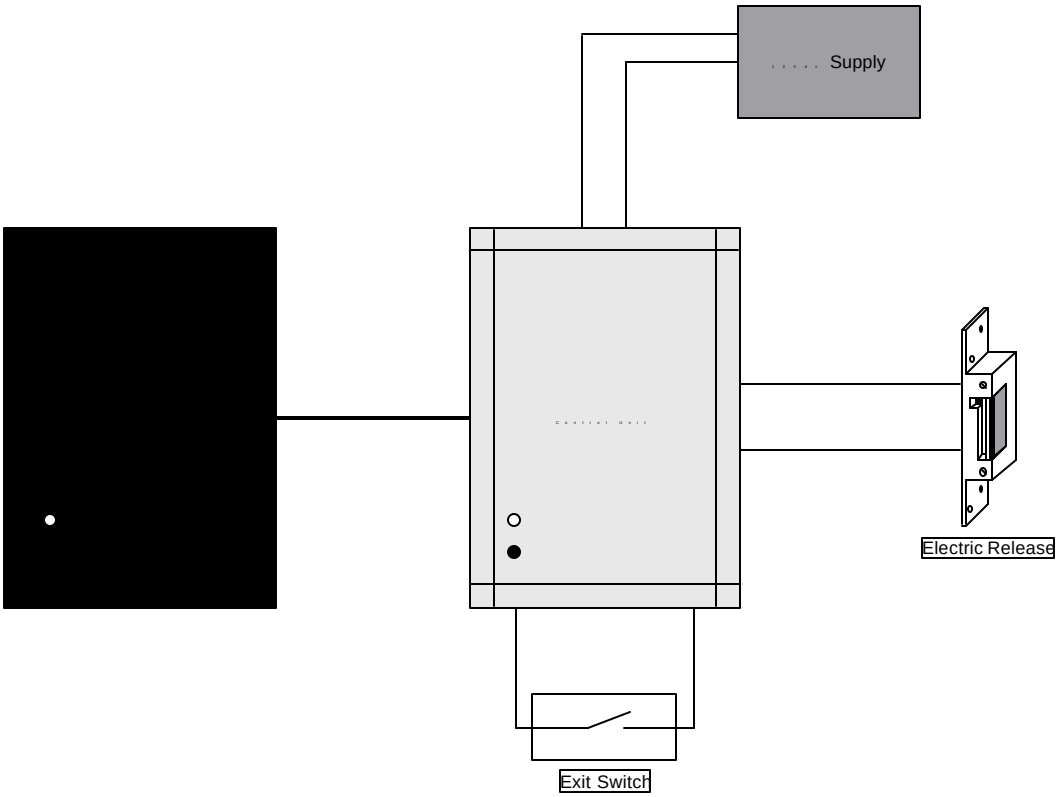
1. Drill with 8mm (masonry) drill bit
2. Philips screwdriver.
3. 230Vac Mains outlet.
4. Wire cutter and Stripper

5. The Product:

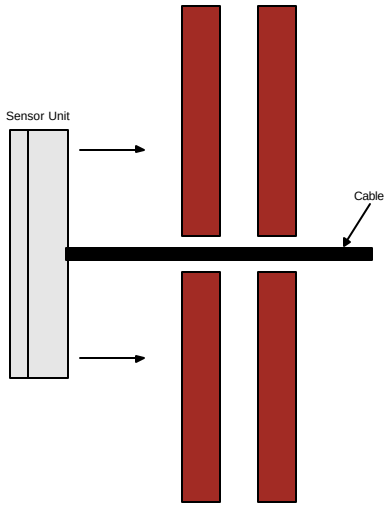
The RFID Proximity system is a door access control system operated by high security transponder card technology. The system consists of a control unit and a remote sensor unit that can be fitted to the outside of a building.

The control unit simply requires power and relay connections to operate.

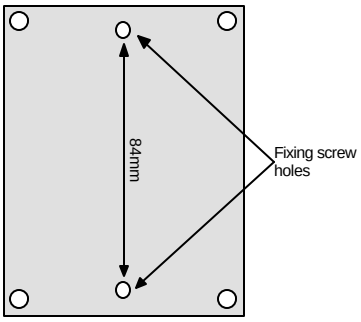
The sensor unit connects to the control unit with the cable provided. The RFID proximity control and sensor units are IP65 rated.



Fitting the RFID Sensor Unit:



- Remove the 4 screw cover lugs from the Sensor Unit, unscrew the retaining screws and remove the lid.
- Drill two holes in the base of the Sensor Unit as shown below.

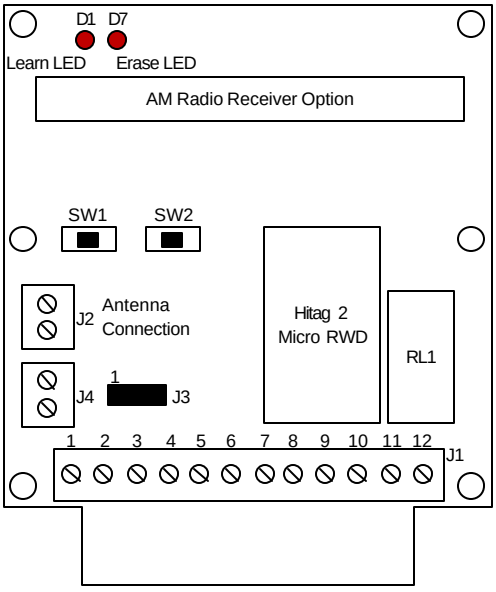


- Locate the Sensor unit on the desired position of the wall. Drill the two holes in the wall and insert the rawlplugs provided.
- Drill a third hole to enable the Sensor Unit Cable to feed directly through the wall.
- Feed the Sensor Unit Cable through centre hole and fix the The Sensor Unit to the wall with the fixing screws provided.
- Replace the lid, screw in retaining screws and replace the screw cover lugs.

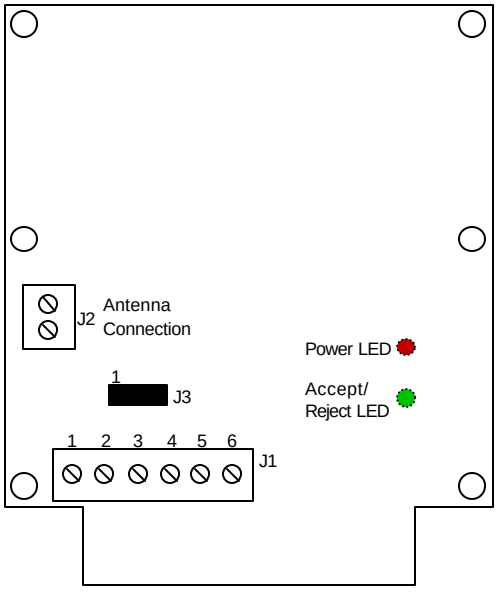
Note: This procedure may also be used for fixing the Control Unit to an internal wall.

Control Unit / Sensor Unit Connections

The diagrams below show the circuit boards for the Control and Sensor Units.
Please take a moment to familiarise yourself with the two boards.



Control Unit



Sensor Unit

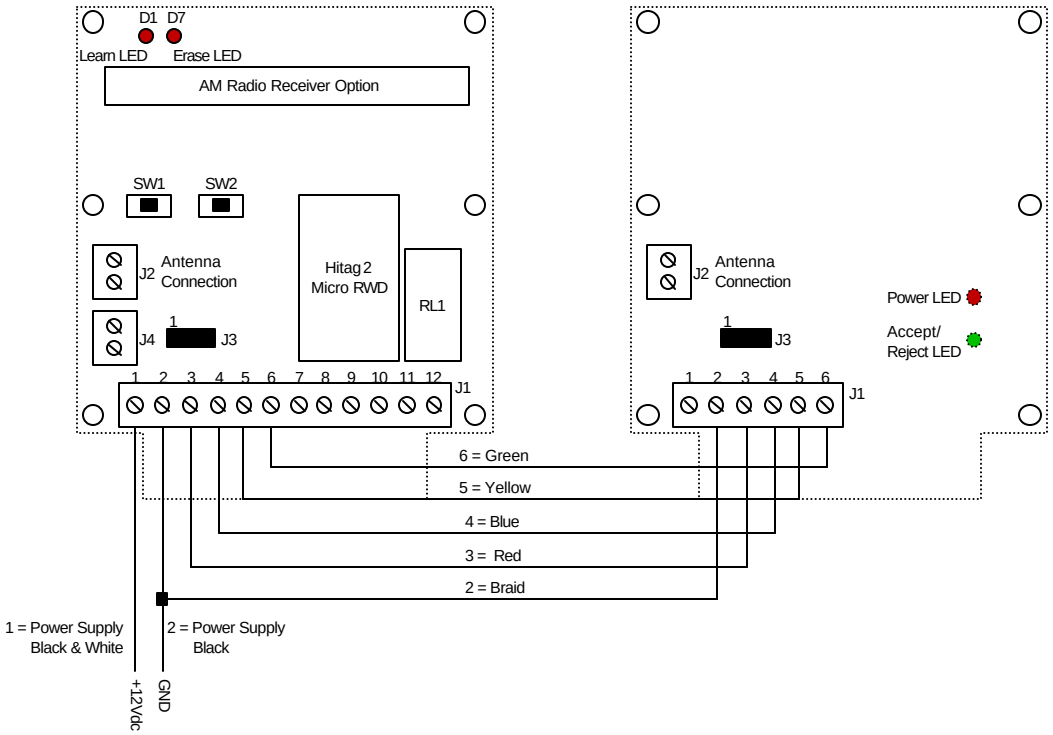
The table shows the connections for the Screw Terminal connectors for the Control and Sensor Units

Connector	Description
J1-1	+12VDC
J1-2	GND
J1-3	Sensor Unit External Power LED Connection
J1-4	Sensor Unit External Accept LED Connection
J1-5	Sensor Unit External Antenna Connection
J1-6	Sensor Unit External Antenna Connection
J1-7	GND
J1-8	RS232 Tx
J1-9	RS232 Rx
J1-10	Relay Normally Open Contact
J1-11	Relay Common Contact
J1-12	Relay Normally Closed Contact
J2	Antenna Connection
J4	Control Unit Exit Switch Connection

Control and Sensor Unit Connections

The cable from the sensor box is used to connect the Control and Sensor Units.

- Fix the cable using the cable clips and cut to the required length
- Feed the cable into the Control Box via the Cable Gland and strip back the wires terminating them in the appropriate screw terminal, as the diagram below;
- Connect the power lead from the PSU to the Control Unit. Note that the +12V must go to terminal 1, and the 0V (GND) to terminal 2 or 7.



What Type of Door Release do I require?:

There are two groups of electric locks, fail open and fail closed. The only functional difference between these when there is a power failure to the system;

- A Fail Open Door release UNLOCKS when power fail occurs(generally used on fire escape doors)
- A Fail Closed Door release LOCKS when power fail occurs

A fail closed electric release is included with the RFID access control system.

Please note the fail closed release is not suitable for installation onto outward opening doors without a security plate.

The relay on the control unit can be used to switch as many different mechanisms, e.g. Solenoid, magnetic lock, Contactor, barrier, lift, providing that it draws no more than 2 Amps @ 12 volts.

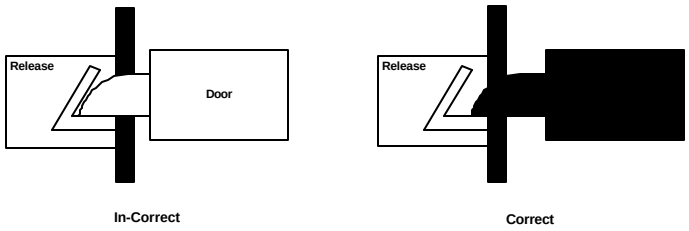
The relay provides COM / NO / NC connections for various connections.

There are many types of door and many types of Electric release, the release provided is a general purpose release. It is the installers responsibility to ensure that the release system used is appropriate to the application. Please seek help if you are unsure.

Fitting the Electric Release Provided :

The electric release provided may be mounted within the door frame (Mortice) so that it cannot be seen when the door is closed, or on the internal side of the door frame (RIM) for use with Lock mechanisms mounting on the surface of the door.

- Determine a suitable position for the electric release on the door frame.
- **Mortice Type Lock**: The Electric Release Mounting Plate may be discarded.
- **Rim Type Lock**: remove the mounting plate from the electric Release, fit the release into the Electric Release Mounting Plate provided.
- The electric release is connected to the Control Unit according to the wiring Instructions below.
- Screw the release to the door frame using the screws provided.
- The polarity of the wiring of the release does not matter.



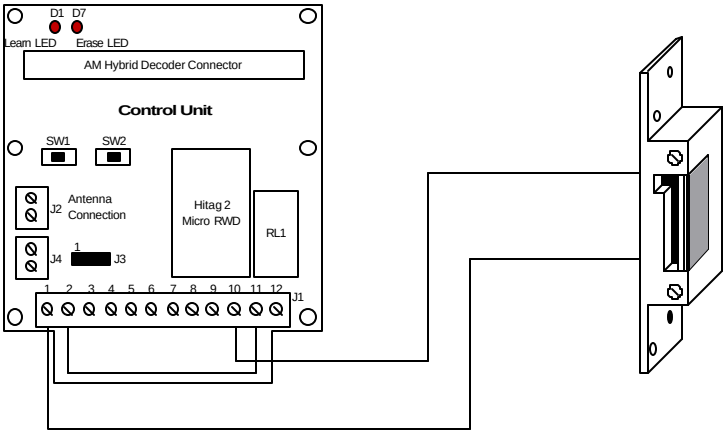
In-Correct Correct

If using an alternative electric release please follow the manufacture's fitting instructions.

Wiring the Electric Release

The control unit is suitable for use with virtually any type of electric release.
The Control Unit output is a standard Relay with Common / Normally Open / Normally Closed contacts.
The relay contacts switch power to or from the release when a valid card is presented or the exit button has been pressed

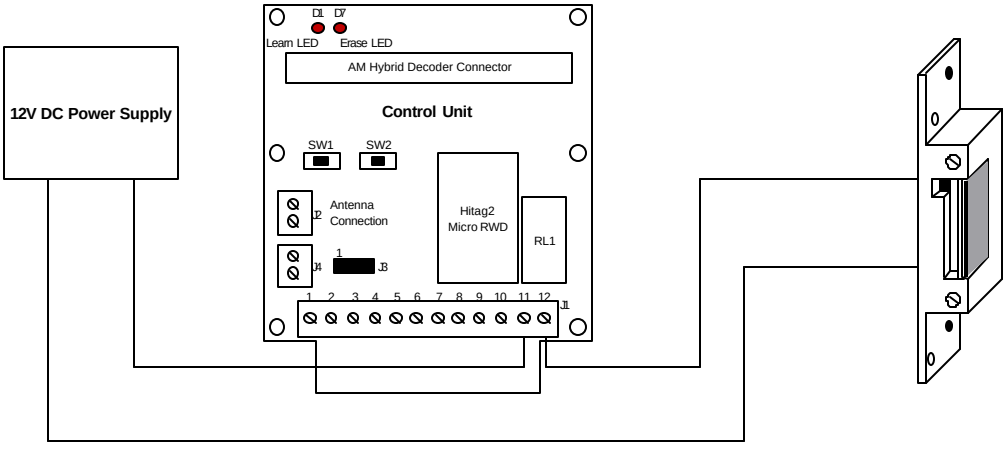
Fail Closed Release:



Fail Open Release (Rated at 500mA and Under):

Wire as shown in the diagram above but connect the wire terminal 12 instead of 10 as shown.

Fail Open Release (Rated at 500mA and Over):



Connecting a 'Door Exit Switch'

A remote Door Exit Switch may be connected to J4 on the Control Unit (polarity does not matter). This should be a momentary push switch which will activate the relay for the preset time period.

Control Unit and Sensor Unit Antenna Selector (J3)

Both the Sensor Unit and Control Unit can read proximity cards, but not at the same time! During normal operation the Sensor Unit will perform the Proximity Card Read function. When configuring the system, it is useful for the Control Unit to read the Proximity cards. This is set by jumper Link J3 within the Control Unit as the table below.

J3 Header Link	Valid Reader
Between 1-2	Sensor Unit reads Cards
Between 2-3	Control Unit reads Cards

Note: If no antenna is connected both LED's flash!

User Configuration of System

The System can be configured by either

1. Switches SW1 and SW2 inside the control Unit.
2. connection to a PC, (See later Section)

The first card taught to the system is referred to as the Master Card (this can be any standard card).

A Master Card must be used in order to learn other cards (but not to erase them).

A new Master Card can only be taught to the system by first erasing the memory of all cards (see below).

To set the Relay 'On' time:

1. Hold down the actuation delay switch SW2. The learn LED will light.
2. Keeping SW2 pressed, present a card which has previously been learnt by the system. The relay will operate, and will remain operated for as long as pushbutton SW2 is held. The Accept LED will also light.
3. After the required time (0.5 sec to 10 mins), release SW2. The learn LED and Accept LED will extinguish, and the relay will release.
4. All subsequent operations of the relay will now be of the preset time.

To Learn a new card using the Control Unit Switch SW1:

1. Press and release programming switch SW1. The learn LED will flash at a rate of once per second.
2. Within the next 10 seconds present the master card. The learn LED will light continuously.
3. Remove the Master Card at least 18 inches from the reader, and present the new card to be learnt. The learn LED will extinguish.
4. The new card will now operate the system.

Note: If an error occurs (e.g. the wrong Master Card is presented, or the new card is already recognised by the system), the learn LED will flash rapidly (4 times per second) for 2 seconds.

To Learn a new 'Master' card:

A brand new system, or one which has had its entire memory erased, will need to be taught a new master card. In this case, perform steps 1 to 3 above, but present the new Master Card both times (steps 1 & 3).

To Erase an individual card:

1. Hold down the programming switch SW1 for 4 seconds. The erase LED will light continuously.
2. Within 10 seconds, present the card to be erased.
3. The 'Erase LED' will extinguish confirming it has been removed from memory.
4. If the card was not already known to the system, the erase LED will flash rapidly for 2 seconds.
5. NOTE THAT THE MASTER CARD CANNOT BE ERASED IN THIS WAY. The unit will flash the erase LED rapidly if an attempt is made to erase the master card.

To Erase all cards known to the system (including the Master Card):

1. Hold down buttons SW1 and SW2 together for 5 seconds. The learn and erase LEDs will both flash at a rate of once per second.
2. Within the next 10 seconds, press and release SW1. The LED's will both light continuously.
3. When both LEDs go out, the memory has been erased.
4. The next card taught to the system will be the new Master Card.

Note: this operation will also reload the factory default for the time of the relay activation (1 second).

Interfacing the System to a PC

The control Unit can be connected to the serial port of a PC via the screw terminals provided. The diagram below shows the wiring configuration required.

Note: The cable between PC and the control Unit should be no longer than 15 metres.

A terminal emulation package may be used to interface and control the RFID Proximity Access System. The serial port of the PC should be configured as follows: 2400 Baud, 8 data bits, 1 stop bit, no parity, no handshaking. Half duplex is recommended.

PC Commands

The following commands may be used:

1. 'L' - Learn a new card (requires presentation of master card first).
2. 'D' - Disable card number n.
3. 'R' - Re-enable card number n.
4. 'E' - Erase a card (so it cannot be re-enabled)
5. 'S' - Report the status (enabled/disabled) and card number (1 to 50) and of all cards known to the system.
6. 'C' - Configure the data-logging output.
7. 'T' - Set time of relay operation in seconds (1 – 600)
8. 'O' - Open the door (for the preset time)
9. 'H' - Help (print list of commands available)

Data Logging Output

When enabled, the RFID Proximity Access System will output data in the following format each time a card is read:

***xnn**

Where:

x = a single letter operation code, which can take the following values:
‘R’ for a recognised card,
‘U’ for an unrecognised card,
‘D’ for a disabled card,
'L' when a new card is learnt,
'E' when a card is erased,
'S' if the exit switch is activated or
'O' if the serial open command is used.

nn is the 2-digit card number 00 to 49 (00 is the Master Card), or 99 if the operation code is 'U', 'S' or 'O'.

Note that all logging events begin with the asterisk ('*'), and each line is terminated by carriage return.

Technical Specification

Storage Temperature; -10 to +70° Celsius. Operating Temperature; 0 to +55° Celsius.

Dimension	Control Unit	Sensor Unit	Card
Length	110	110	As standard Credit card
Width	85	85	
Depth	35	35	

RFID Protocol – Hitag2

Control Unit

ELECTRICAL CHARACTERISTICS	MIN	TYPICAL	MAX	DIMENSION
Supply Voltage for +12 v	9	12.0	16.0	V
Control Unit Supply Current : Quiescent		40	50	mA
Control Unit Supply Current : Relay Operating		80	90	mA
Relay Type	BT47W/6 or Equivalent, Changeover contacts			
Relay Rating (12Vac)			2	A
Relay Rating (1A)			50	Vdc
Relay Operation Time Duration	2		600	Seconds

Sensor Unit

ELECTRICAL CHARACTERISTICS	MIN	TYPICAL	MAX	DIMENSION
Supply Voltage	Fed From Control Unit			

PART No	DESCRIPTION
RFID231C-SYS	RFID Proximity Access System with 10 Cards
RFCARDHITAG2	Spare RFID Card tag (Pack of 10)

Should you require further assistance, please call;

R. F. Solutions Ltd,

Unit 21, Cliffe Ind Est, South St, Lewes, E Sussex, BN8 6JL. England.

Tel +44 (0)1273 898 000. Fax +44 (0)1273 480 661.

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RF Solutions is a member of the Low Power Radio Association.