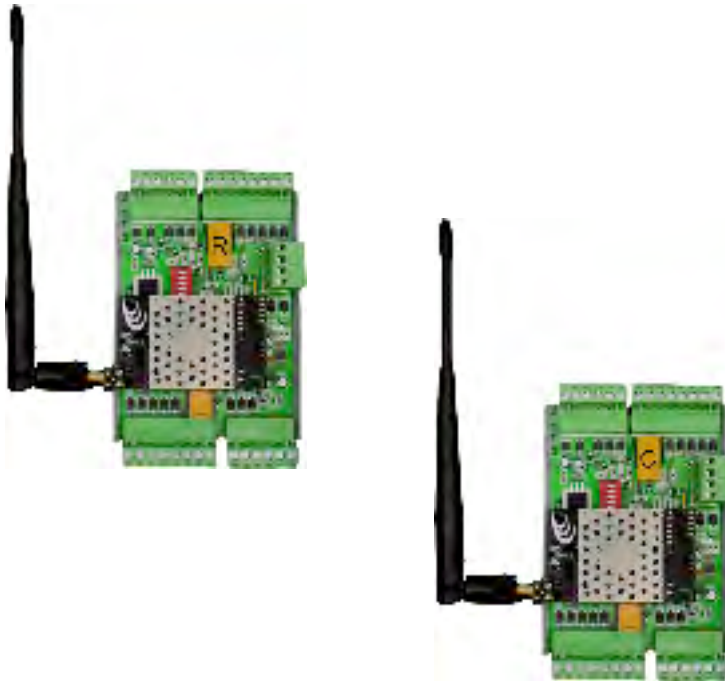


DPX-5500 Series

Wireless Reader Extenders

Operations Manual



Model DPX-5510 Shown

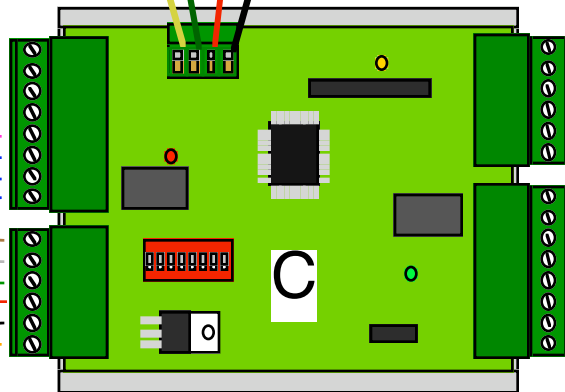
MAN-FA-DPX-5500 v1.00

Connector Terminal Identification- Quick Reference

Panel /Port # 1 Signals

- Alarm Programming Resistor
- Aux #3 Programming Resistor
- Aux Digital I/O #1 Input
- Aux Digital I/O #2 Output
- Aux Digital I/O #3 Output
- Alarm Relay N.O.
- Alarm Relay Com
- Alarm Relay N.C.
- LED
- Data 1 /Data
- Data 0 /Clock
- +5 VDC
- Ground
- +8 - 24 VDC

Line -
Line +
+V
Gnd



Panel/Port # 2 Signals

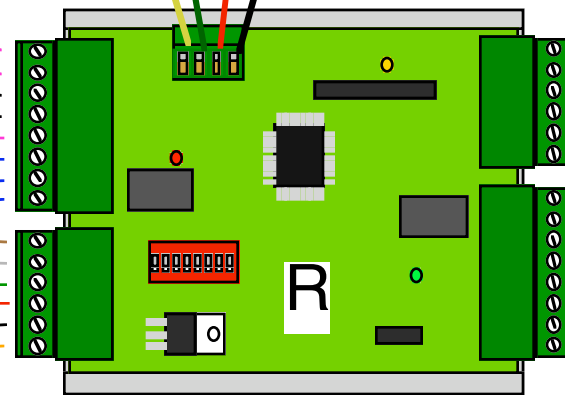
- +8 - 24 VDC
- Ground
- +5 VDC
- Data 0 /Clock
- Data 1 /Data
- LED
- Alarm Relay N.C.
- Alarm Relay Com
- Alarm Relay N.O.
- Aux Digital I/O #3 Output
- Aux Digital I/O #2 Output
- Aux Digital I/O #1 Input
- Aux #3 Programming Resistor
- Alarm Programming Resistor

Duprex Central Unit

Reader # 1 Signals

- Alarm Digital Input
- Aux Digital I/O #3 Input
- Aux Digital I/O #1 Output
- Aux Digital I/O #2 Input
- N/C
- Strike Relay N.O.
- Strike Relay Com
- Strike Relay N.C.
- LED
- Data 1 /Data
- Data 0 /Clock
- +5 VDC
- Ground
- +8 - 24 VDC

Line -
Line +
+V
Gnd

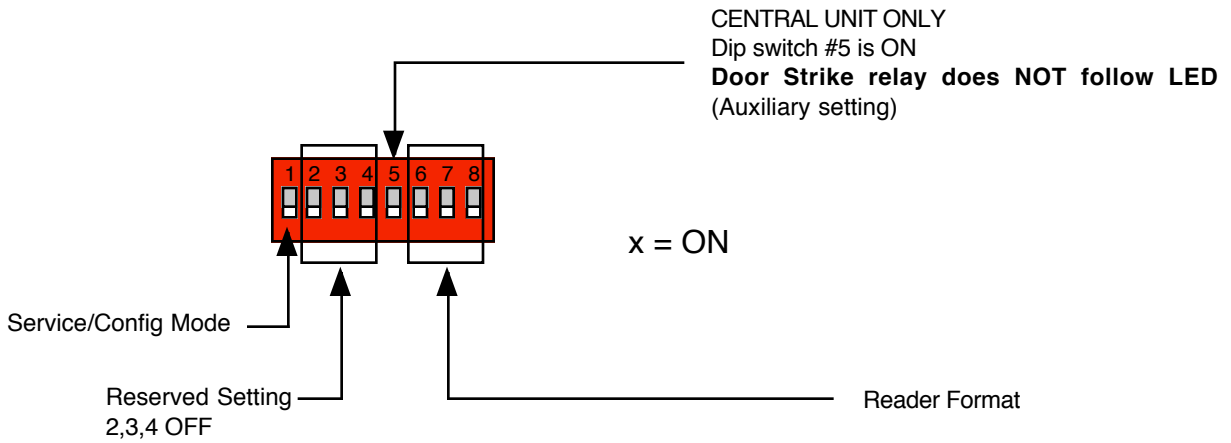
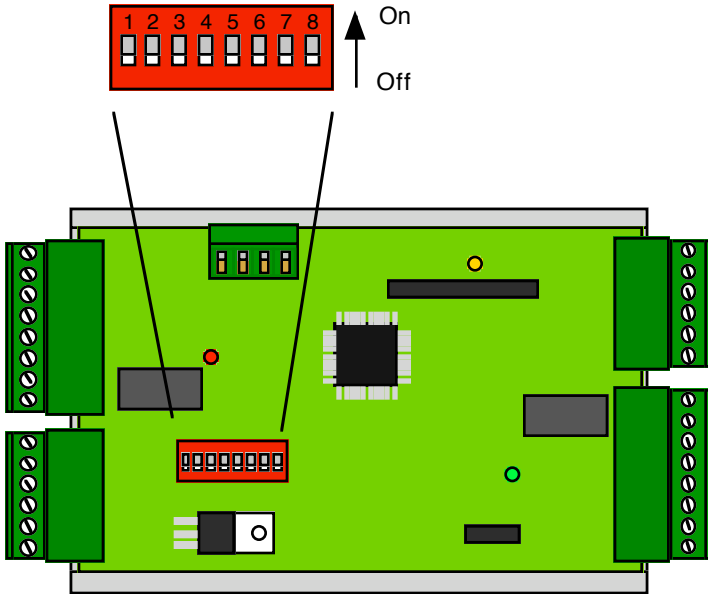


Reader # 2 Signals

- +8 - 24 VDC
- Ground
- +5 VDC
- Data 0 /Clock
- Data 1 /Data
- LED
- Strike Relay N.C.
- Strike Relay Com
- Strike Relay N.O.
- N/C
- Aux Digital I/O #2 Input
- Aux Digital I/O #1 Output
- Aux Digital I/O #3 Input
- Alarm Digital Input

Duprex Remote Unit

DIP Switch Settings- Quick Reference



	Switch		
	6	7	8
Wiegand	0		
Wiegand / No Filter	1	x	
Strobed Rising Edge (MR-5)	2	x	
Strobed Rising Edge (Dorado 644)	3	x	x
Strobed Rising (Mag-Tek)	4	x	
Strobed Falling Edge	5	x	x
Reserved	6	x	x
Reserved	7	x	x

All settings except Switch 5 are the same for Central and Remote units.

FCC Part 15 Notice of Compliance

This device operates under Part 15 of the FCC rules. There are several requirements that must be met to maintain compliance.

These devices can only be used with approved antennas.

Warning: This equipment has been approved for mobile applications where equipment should be used at distances greater than 20 cm from the human body (with the exception of hands, feet, wrists, and ankles). Operation at distances of less than 20 cm is strictly prohibited and requires additional SAR testing.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial 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.

FCC Part 15 COMPLIANCE

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

The Cypress Duprex RF is the newest member of the Suprex family of products.

The Duprex RF 5500 series supports a wide range of additional features from previous versions of the Suprex RF family.

Additional features:

- DES56 Encryption for secure communications
- No channel selection is required as the units are preconfigured at the factory.
- Diagnostic mode for setup and configuration
- “Quiet” RF protocol to conserve bandwidth and power
- Field configurable reader formats
- Additional indicators for determining operational status of the unit

Initial setup and configuration.

The Duprex RF unit operates as a matched pair of units that share the same communication channel. Each pair is configured at the factory to operate without the need to set channels.

A matched pair will have the same serial number.

Each pair communicates using an intelligent addressing algorithm. This allows multiple pairs of units to operate in the same environment without interfering with each other.

The #1 DIP switch is the Setup/Config switch. This switch has multiple functions. With the switch in the OFF position, the unit operates in Normal mode. When the switch is in the ON position, the unit is in the Service / Configuration mode.

When the switch is set to Service / Configuration mode, the unit will operate using a diagnostic protocol that will show communication activity between the Central and Remote units (The Yellow communication LED will flash rapidly).

When switching from Service / Configuration mode to Normal mode, the unit will reset and run with a “Quiet” RF protocol.

This Quiet protocol maintains communication between the Central and Remote units as necessary for I/O, Badge Activity, and Supervision without requiring continuous use of the RF channel.

Initial Setup;

This manual will cover the basic installation procedure for a typical Duprex RF system.

The first step will be to configure and test the units at a bench top location where both the Central and Remote units are close together. This will allow the setup and configuration process to occur with both sides of the operation in view.

Enclosure:

Weatherproof Polystyrene

10"H x 7" W x 3.5"

Specifications:**Environmental Specifications:**

Enclosure NEMA 4X Rating

Temperature Range -40 to 85 C

Electrical Specifications:

(Each Unit)

Supply Voltage 8-24VDC

Current 500mA

Wall plug power supply included

Radio Specifications:

Frequency 900 MHz ISM band

Type Frequency Hopping Spread Spectrum

Transmit Power 100mW

Receive Sensitivity -110 dBm

Interference Rejection 70dB

Antenna Options and typical range:

Internal - Up to 2500 feet

1/2 wave whip- up to 1 Mile

6 element Yagi - Up to 5 miles.

Distances given are typical line of sight. Actual distance will vary depending upon terrain, RF environment, and height of antenna.

Duprex Specifications:

Wiegand and Magstripe formats field selectable

See Duprex manual for details.

Unpack Units



Remove covers from units and check interior for any shipping damage. Remove any packing material if present.

BENCH TEST UNITS BEFORE INSTALLATION

Before installing the units in the field they should be assembled and tested at a convenient “Bench top” location. This will make it easier to verify / change settings and check operation when both units are visible at the same time.

It is also a chance to become familiar with the system if this is the first time using the Duprex system. It is much more difficult to configure and test the units when they are several thousand feet apart.

The units as shipped are configured as a matched pair and are ready to plug in and operate.

Both units need to have the antenna and a suitable power supply installed.

BENCH TEST UNITS - Configuration Mode

The RF units are capable of operating with multiple pairs of units in the same environment. Units on different channels can operate in the same area with minimal interference to each other.

Unit channel selection is made at the factory and no field settings are necessary.

Up to 8 pairs of units can operate in the same area. . A serial number sticker will be present on the unit to indicate the paired units. Units matched as a pair will have the same serial number.

During initial setup it is helpful to use the Setup/Config mode. This allows a relative indication of the radio transmission and reception between units.

Here follows a description of the Setup / Config mode.

Setup / Config mode:

By setting DIP switch 1 to the ON position, the unit is placed in Setup / Config mode. This switch change can be made at any time. When the switch position is changed, the unit will reset and restart in the new mode. This is helpful for setup and diagnostic purposes.

In **Normal operational mode** (DIP switch #1 OFF) the units will remain quiet unless there is a status change, and will slowly poll each other about every 10 to 15 seconds to check the link integrity.

The **Setup / Config mode** places the units in rapid polling sequence to allow troubleshooting and setup of the communication link.

The Duplex RF units use a quiet protocol when operating in normal mode. Communication between the Central and Remote unit only occurs when an event requires data transmission or contact needs to be made to maintain supervision. The RF channel remains quiet most of the time.

During setup or troubleshooting it may be necessary to observe the communication link between the Central and Remote units. The rapid polling used in the Setup / Config mode can help indicate whether the units can "See" each other.

BENCH TEST UNITS

Testing the units under controlled conditions before installation will greatly simplify the installation procedure.

Quick bench test procedure:

Plug in the Remote unit power supply.

The Green power LED should illuminate

The Amber com LED should be off

The Diagnostic LED should illuminate a solid red color.

Plug in the Central unit power supply.

The Green power LED should illuminate.

The Amber com LED should flash and then go out.

After a short delay, the Diagnostic LEDs on both the Central and Remote units should flash green on and off about once per second.

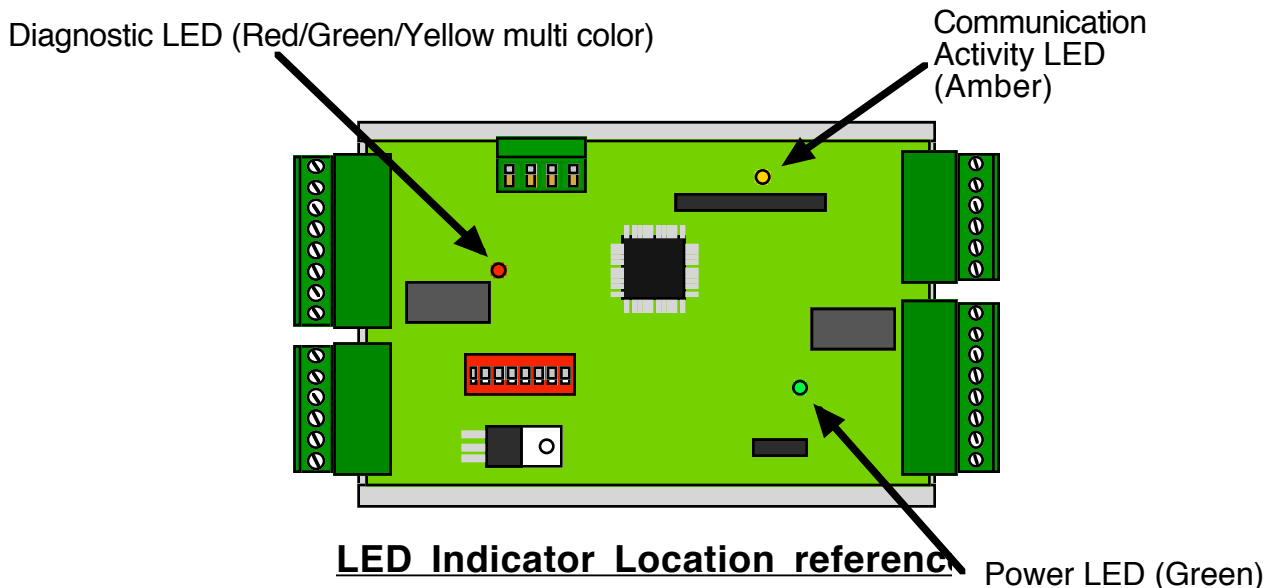
Now turn DIP Switch #1 ON on both the Central and Remote units.

The Amber LED on both the Central and Remote units should flash 2-3 times per second.

Disconnect power to the Remote unit

The Central unit alarm relay should activate, and the diagnostic LED should indicate RED.

Turn off DIP Switch #1 on both units to place them in normal operational mode.



BENCH TEST UNITS - Additional configuration informatior

With the units a the rapid polling (Setup/Config) mode, the Amber com LED can be used to determine whether the units are in communication with each other.

Further Bench testing:

If the reader and panel are conveniently located, it is advisable to connect the reader to the Remote unit, and the panel to the Central unit and test the units as a complete system. Use a test badge that has been programmed into the panel to test operation. See the DPX-7000 manual for electrical connections and further explanation of connecting readers and panels to the Duprex units.

Remember to disconnect any power supplies if you will be using the panel power supply or other auxiliary supply. Only one power supply should be used for each unit.

Connect the Central unit to the Access Control Panel (ACP)

Connect the reader to the Remote unit.

Provide power to both units and verify communication.

Use a test badge to verify operation of panel, reader, and connections.

Doing the setup and initial testing with both the Central and Remote units when they are close together will save time if there are any problems that need to be corrected or installation issues that need to be clarified.

Once the connection, setup, and configuration have been completed with both units, field installation and final commissioning can be done.

Mounting the units.

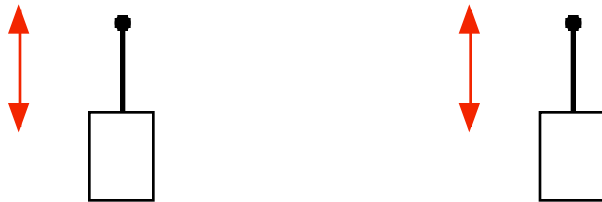
A site evaluation should have determined the optimal locations for the Central and Remote units, the type of antennas that would be needed, and the frequency band to be used. (See Cypress Application Note "Site Evaluation for Duprex RF products").

This section of the document covers units that utilize the enclosure mounted 1/2 wave whip antenna. For other types of antennas there will be specific documentation to cover their different installation issues.

We are now ready to physically mount the units and make the electrical connections to complete the installation.

The units should be mounted so that the length dimension of the antennas are in the same plane. The orientation of the antenna will determine what is referred to as the polarization of the signal. Significant reduction in range can result if the units are not of the same polarity.

See below.



Both Central and Remote units are arranged so the antennas are parallel in direction. As shown in this illustration we would say they are both vertically polarized. Since the polarity is in the same direction, the signal strength would be maximized.

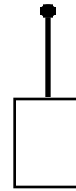
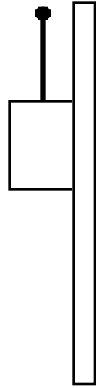


In this instance one of the units is vertically polarized, and the other is horizontally polarized. The signal would be greatly reduced thereby reducing the maximum distance between units.

The installer should make sure that both units are mounted so that the polarization will be the same for both units.

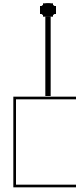
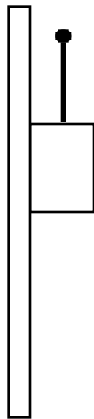
In all cases the antennas MUST be mounted at a distance of 20 cm or greater from any nearby persons

Mounting the units - Antenna Orientation

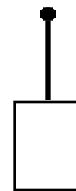


This orientation may reduce range. The metal pole is placed between antenna and other unit and the antenna is close to metal.

The units should be mounted in such a way that there is as clear of a path as possible between the 2 units. If mounting to a post or wall the unit should be placed where it has minimal interference with the antenna. Maximum signal and ranges are achieved when the antenna is clear of obstructions and is placed away from metal objects.



Better, improved range. Antenna has line of sight to other unit. Proximity to metal pole may reduce range.



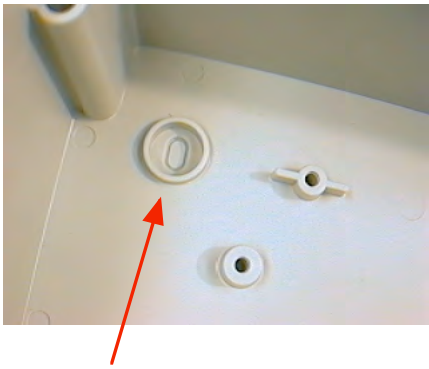
Best, antenna has line of sight to other unit and is clear of adjacent metal objects.

In all cases the antennas **MUST** be mounted at a distance of 20 cm or greater from any nearby persons

Mounting the units-Hardware

The other mounting method utilizes internal knockouts on the back of the unit. In some installations it may be easier to use these knockouts.

Inside Knockout Mounting Screws



Screw knockout



Knockout removed by pressing on it with screwdriver blade. Be careful not to damage interior components.



Screw placed in knockout.



Knockout end seal tabs



Seal tab placed over knockout after screw has been fastened in place.

Mounting the units-Hardware

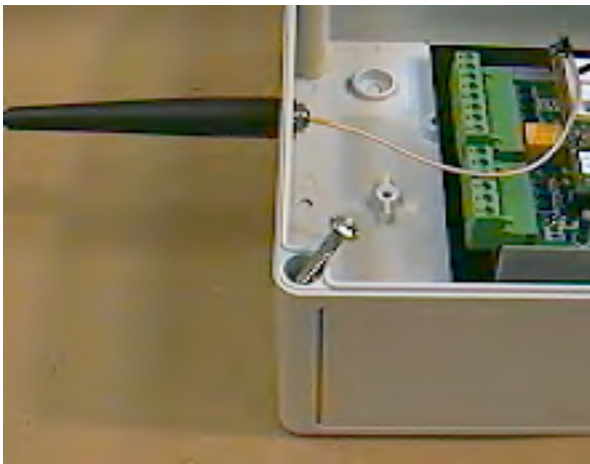
There are two sets of mounting holes provided.

The first set of mounting holes consists of the four corner channels that are also used to mount the cover plate screws.

Four mounting screws can be threaded through the corner holes. This also is advantageous in that the screws do not breach any of the environmental seals.

Mounting screws are not included due to the infinite variety of potential mounting surfaces. Select a type of mounting screw based on the type of material.

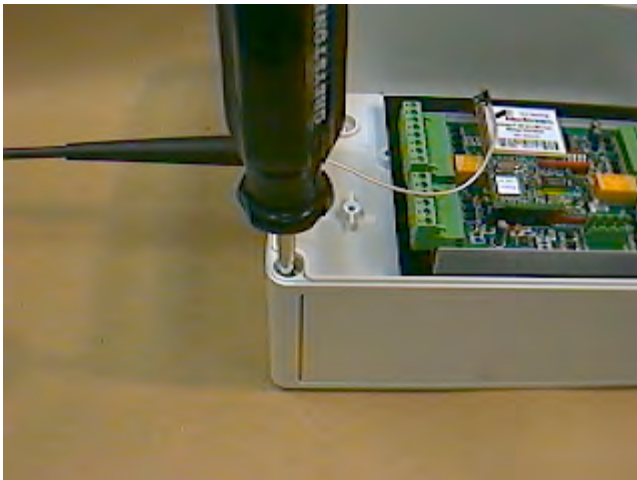
Corner Channel Mounting Screws



Placement of screw in corner channel.



Screw placed into channel.



Fasten screws in place with long handled screwdriver.

Final Checkout

The Green power LED should always be illuminated if power is applied. If this LED is not illuminated there is a power problem, or a problem with the unit.

It is a good idea to switch both Central and Remote units to Service / Config mode to verify the field installation.

Both units should be communicating. See bench test sequence for details for LED indicators when in Service / Config mode.

Check operation of Badge reader, LED and other I/O that is used in the installation while in Service / Config mode.

Once operation has been verified in Service / Config mode then the units can be placed in Normal Run mode. The Amber com LED will flash infrequently in Normal mode. It should flash each time a badge is swiped or any of the I/O changes status.

The Central unit diagnostic LED will be Red when the units are not communicating. This may be happen when the Central unit powers up without the Remote unit having power. Once both units are powered up the diagnostic LEDs should both enter a flashing green on and off mode. This should occur within 30 seconds of both units having power applied in Normal mode.

Check operation of Badge reader, LED and other I/O in Normal mode.



Insert cover mounting screws and tighten.
Installation is complete.