GSM • PRODUCTS • SOLUTIONS

SED-901
Remote & Master
Wireless Wiegand / Cardax System
SEP 2014

WARNING: PLEASE READ INSTALLATION INSTRUCTIONS FIRST

PRODUCT WARRANTY

This product is covered by a 12 month, **back to base warranty** from date of purchase, and proof of purchase should be supplied. The warranty does not cover damage that has resulted in the improper installation or improper use of this product.
The warranty does not cover lightning damage, product misuse, electrical surges or acts of God.

LIMITATION OF LIABILITY

Sec Eng Systems Pty Ltd does not accept any liability for the loss or damage to property or persons in relation to goods supplied. This disclaimer is only limited to the warranty of the goods supplied and the intended use.

READ THIS PLEASE

The DO's and DON'Ts of installing our wireless equipment:-

1. **Always install the Antennas supplied - <u>OUTSIDE!</u>**

2. **Always install our Antennas a minimum of 3 metres away from each other or any other Antennas.**

3. **If you are installing multiple SED-901 systems in one location, call us, so we can assist you with the best possible installation process and set up.**

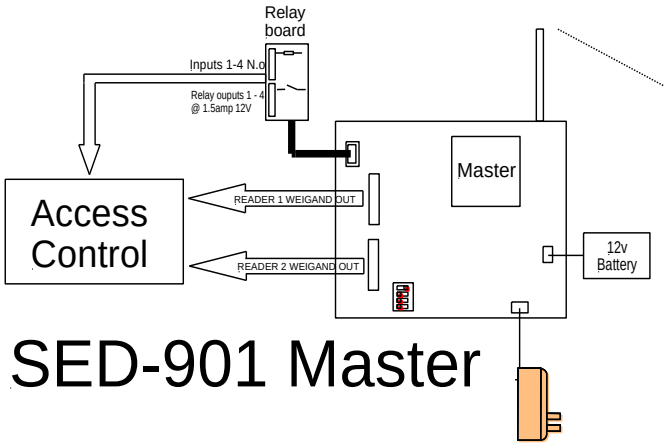
4. **The SED-901 MASTER / REMOTE is ready to use out of the box - there is**

<u>NO PROGRAMMING REQUIRED.</u>

Failure to follow installation instructions, may void your warranty.

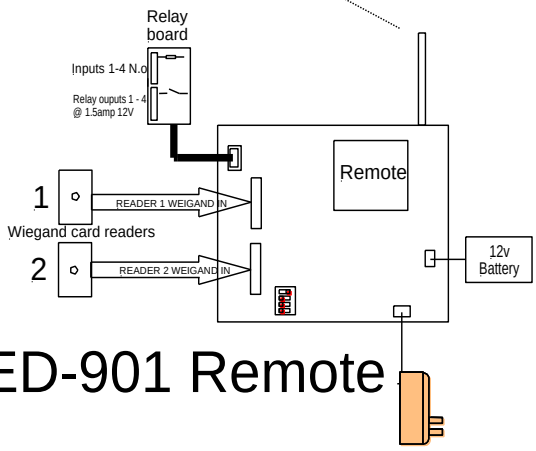
INTRODUCTION

The SED-901 wireless Wiegand / Cardax system is a combination of 2 devices - **SED-901 Master** and **SED-901 Remote.** This allows Wiegand / Cardax card and control information to pass over a 915 MHz low power link



SED-901 Master

900m line of sight



SED-901 Remote

The SED-901 series will accept only card information such as a Wiegand data stream from 23 to 80 bits and Cardax Mifare / 125 data.

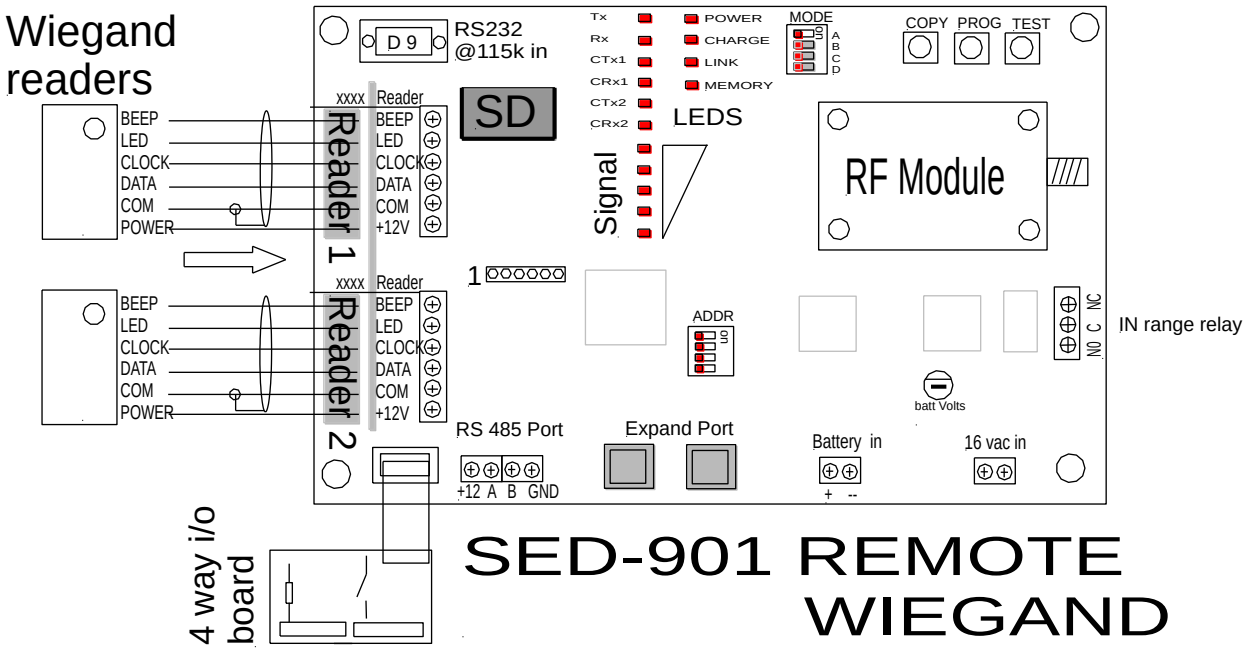
This will be processed and passed over the 900 MHz link. As well as the transposition of the 4 x normally open inputs crossed over to the 4 x dry relay contacts on the remote, and visa versa.

This can be used for separate control of devices, and works as, Input to follow Output.

NOTE: YOU MUST ALWAYS WIRE ALL CABLES SHOWN FROM THE SED-901 TO THE ACCESS CONTROL SYSTEM - FAILURE TO DO SO, WILL RESULT IN THE WIRELESS UNIT NOT WORKING CORRECTLY

SED-901 MASTER Board Layout & Connections

Note: The SED-901 has dual markings for MASTER & REMOTE



SED-901 REMOTE CONNECTION

DIP SWITCHES

NOTE: Mode switch sets Master or Remote and Wiegand or Cardax

1 A off = Remote
2 B off = Wiegand
3 C off = not used
4 D off = on for programing via Serial 8n115k

NOTE: Address switch used for expanders

READER 1 Connections

BEEP= card reader YELLOW
LED = card reader LED BROWN
CLOCK= card reader CLOCK / D0 WHITE
DATA = card reader DATA / D1 GREEN
COM= card reader GND or COMMON
+12V= DC power for card reader RED

READER 2 Connections

BEEP= card reader YELLOW
LED = card reader LED BROWN
CLOCK= card reader CLOCK / D0 WHITE
DATA = card reader DATA / D1 GREEN
COM= card reader GND or COMMON
+12V= DC power for card reader RED

- **Battery in** = 12v back battery 7 amp hr
- **16v AC in** plug pack where required
- **RS 485 Port** not used

Fault relay

Used for RF signal link when in Range

DB 9 Serial

for PC configuration 8,n,1 @115k

RJ 45 EXPANDER Port

Used to link boards via RJ 12 jumper cable

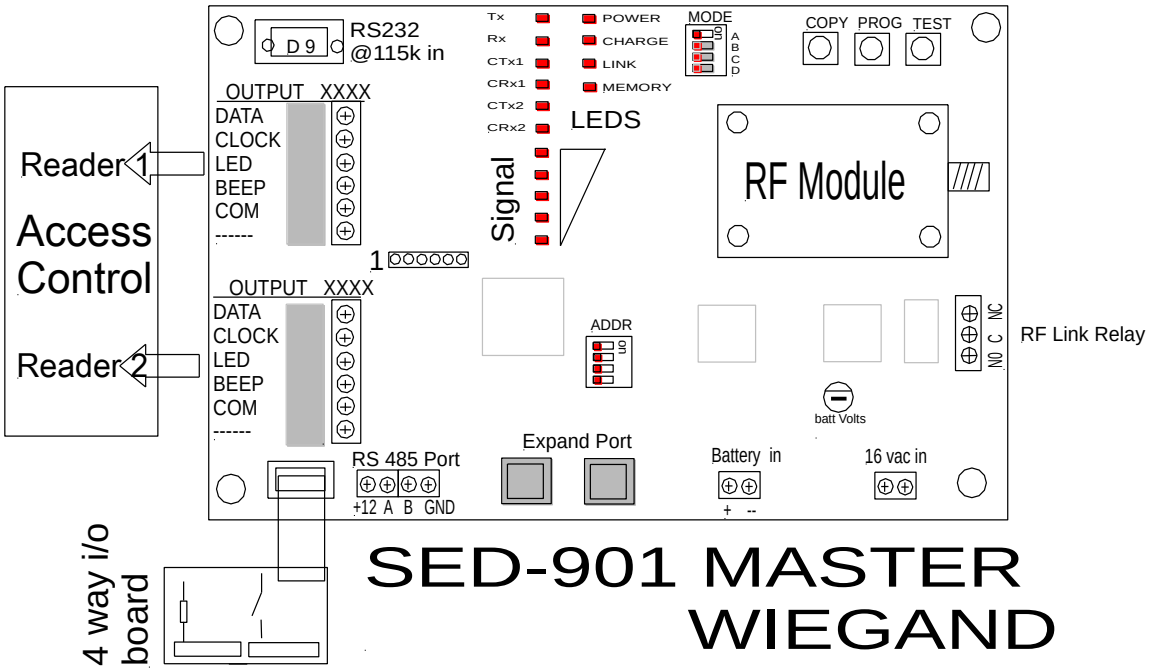
Relay Board Operation

The Relay System is simple - inputs on the Relay board follow outputs

Example: If you trigger Input 1 on either Relay board, it will then trigger Relay 1 on the opposite board

SED-901 MASTER Board Layout & Connections

Note: The SED-901 has dual markings for MASTER & REMOTE



SED-901 MASTER CONNECTION

DIP SWITCHES
NOTE: Mode switch sets Master or Remote and Wiegand or Cardax
1 A off = Remote
2 B off = Wiegand
3 C off = not used
4 D off = on for programming via Serial 8-n-115k
NOTE: Address switch used for expanders

ACCESS CONTROL 1 Connections

DATA =	DATA / D1 GREEN
CLOCK=	CLOCK / D0 WHITE
LED =	LED BROWN
BEEP=	YELLOW
COM=	GND or COMMON
+12V=	DO NOT WIRE

ACCESS CONTROL 2 Connections

DATA =	DATA / D1 GREEN
CLOCK=	CLOCK / D0 WHITE
LED =	LED BROWN
BEEP=	YELLOW
COM=	GND or COMMON
+12V=	DO NOT WIRE

- **Battery in** = 12v back battery 7 AHr
- **16v AC in =** plug pack where required
- **RS485 Port** not used

RF Link Relay

Used for RF signal link when in range

DB 9 Serial

for PC configuration 8,n,1 @115k

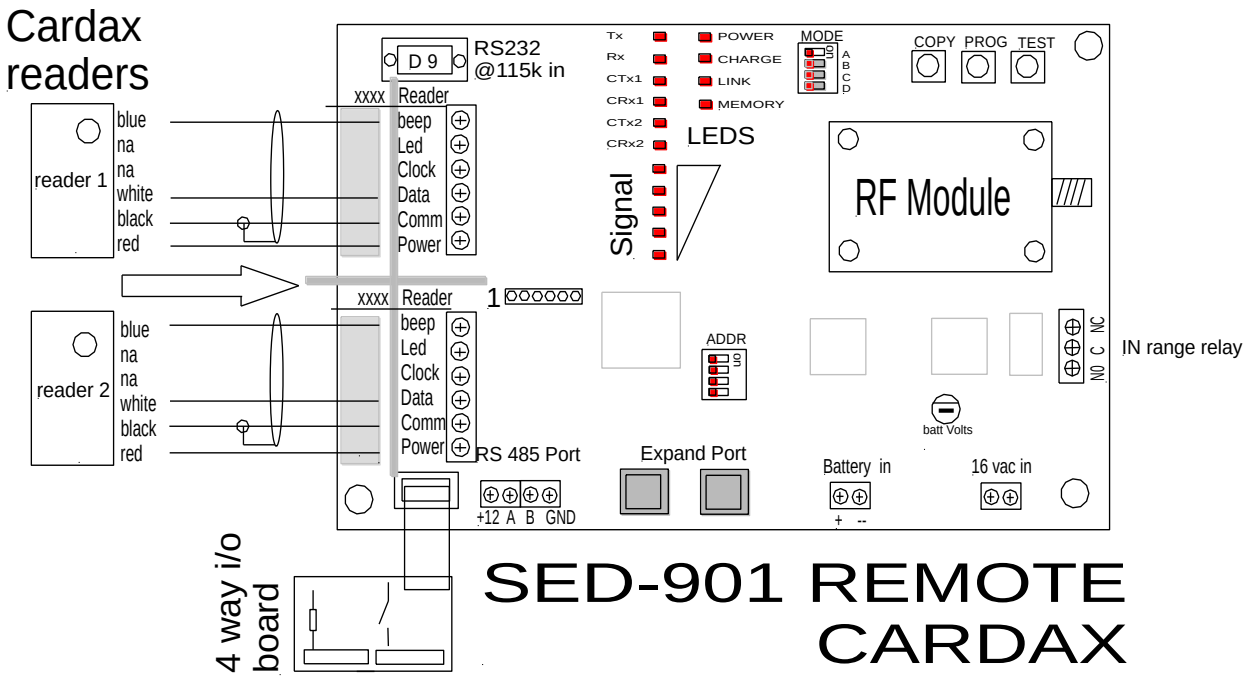
RJ11 EXPANDER Port

Used to link boards via RJ11 jumper cable

Relay Board Operation
The Relay System is simple - inputs on the Relay board follow outputs
***Example*:** If you trigger Input 1 on either Relay board, it will then trigger Relay 1 on the opposite board.

SED-901 MASTER Board Layout & Connections

Note: The SED-901 has dual markings for MASTER & REMOTE



SED-901 REMOTE CONNECTION

DIP SWITCHES
NOTE: Mode switch sets Master or Remote and Wiegand or Cardax
1 A off = Remote
2 B off = Wiegand
3 C off = not used
4 D off = Programming via Serial 8n115k
NOTE: Address switch used for expanders

Cardax READER 1 Connections

BEEP=	Cardax BLUE
LED =	N/A
CLOCK=	N/A
DATA =	Cardax white
COM=	card reader GND or COMMON
+12V=	DC power for card reader RED

Cardax READER 2 Connections

BEEP=	Cardax BLUE
LED =	N/A
CLOCK=	N/A
DATA =	Cardax white
COM=	card reader GND or COMMON
+12V=	DC power for card reader RED

- **Battery in** = 12v back battery 7 amp hr
- **16v AC in** plug pack where required
- **RS 485 Port** not used

Fault relay

Used for RF signal link when in Range

DB 9 Serial

for PC configuration 8,n,1 @115k

RJ 45 EXPANDER Port

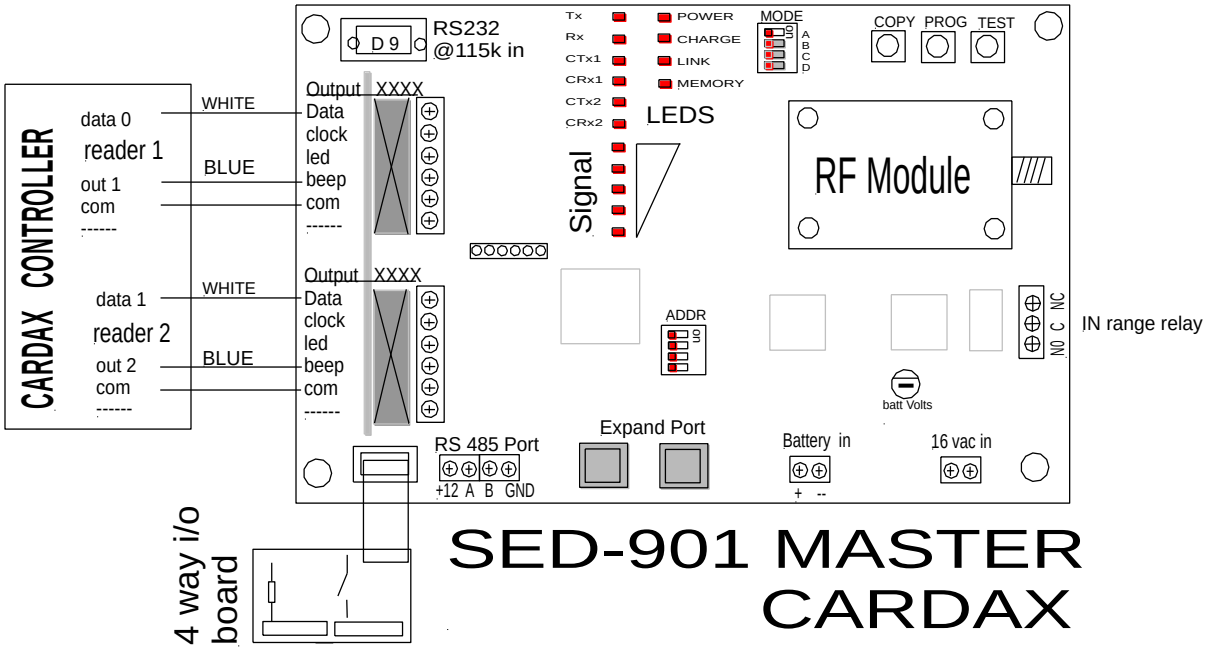
Used to link boards via RJ 12 jumper cable

Relay Board Operation

The Relay System is simple - inputs on the Relay board follow outputs
Example: If you trigger Input 1 on either Relay board, it will then trigger Relay 1 on the opposite board

SED-901 MASTER Board Layout & Connections

Note: The SED-901 has dual markings for MASTER & REMOTE



SED-901 MASTER CONNECTION

DIP SWITCHES
NOTE: Mode switch sets Master or Remote and Wiegand or Cardax
1 A off = Remote
2 B off = Wiegand
3 C off = not used
4 D off = on for programming via Serial 8n115k
NOTE: Address switch used for expanders

ACCESS CONTROL 1 Connections

DATA =	DATA 0 on Cardax (White)
CLOCK=	N/A
LED =	N/A
BEEP=	OUT 1 on Cardax (Blue)
COM=	GND or COMMON
+12V=	DO NOT WIRE

ACCESS CONTROL 2 Connections

DATA =	DATA 1 on Cardax (White)
CLOCK=	N/A
LED =	N/A
BEEP=	OUT 2 on Cardax (Blue)
COM=	GND or COMMON
+12V=	DO NOT WIRE

- **Battery in** = 12v back battery 7 amp hr
- **16v AC in** plug pack where required
- **RS 485 Port** not used

Fault relay

Used for RF signal link when in Range

DB 9 Serial

for PC configuration 8,n,1 @115k

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Relay Board Operation

The Relay System is simple - inputs on the Relay board follow outputs

Example: If you trigger Input 1 on either Relay board, it will then trigger Relay 1 on the opposite board

LED'S

Power LED = power on

Charge LED indicates battery charging (if fitted)

Link LED indicates that it can see RF link

Memory LED indicated SD card fitted

TX = packet being transmitted

RX= packet being received

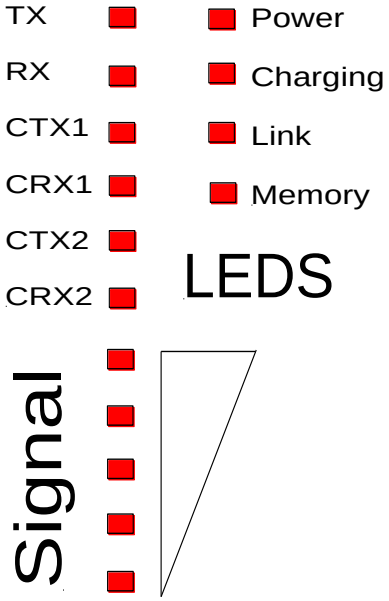
CTX1= reader 1 transmitting data

CRX1= reader 1 receiving data

CTX2= reader 2 transmitting data

CRX2= reader 2 receiving data

Signal LED's = 1-5 lowest to highest



MODE SWITCH / TOP OF BOARD

NOTE: Mode switch sets if the unit is a Master or Remote

Switch 1 = ON - 901 Master
= OFF - 901 Remote

Switch 2 = OFF - Wiegand
ON - Cardax

Switch 3 = not used

Switch 4 = ON - Program mode via serial port @115k 8n1
= OFF - GPS port data mode where fitted output 9600@8n1

ADDRESS SWITCH

See page 7 for expander set up

PUSH BUTTON SWITCHES

COPY not used
PROG used to program
TEST N/A

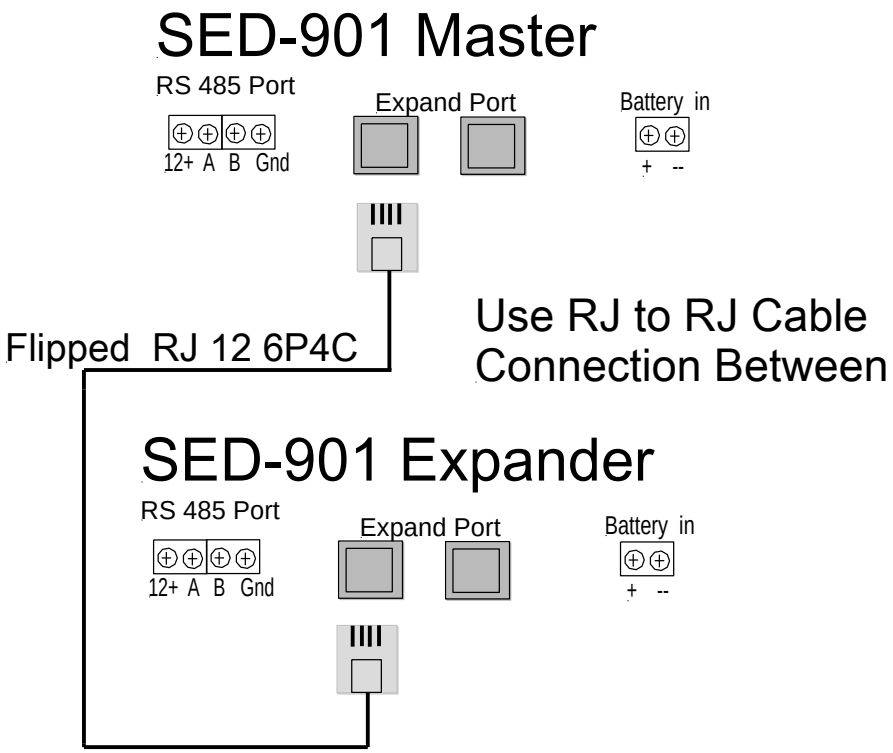
TO DEFAULT
(HOLD ALL 3 BUTTONS DOWN TOGETHER FOR 5 SECONDS)

The SED-901 system can support expanders **Set up Please Read**

1/ Ensure you set the **mode** switch on the SED-901 on your expander

2/ Set the address switch according to the number of expanders you have hanging off each SED-901 Remote or SED-901 Master see below

NOTE : POWER RESET IF YOU CHANGE OR SET DIP SWITCHES



Expander dip switch Address settings									
ADDR switch	1	2	3	4		1	2	3	4
Expander 1	**ON**				Expander 11	**ON**	**ON**		**ON**
Expander 2		**ON**			Expander 12			**ON**	**ON**
Expander 3	**ON**	**ON**			Expander 13	**ON**		**ON**	**ON**
Expander 4			**ON**		Expander 14		**ON**	**ON**	**ON**
Expander 5	**ON**		**ON**		Expander 15	**ON**	**ON**	**ON**	**ON**
Expander 6		**ON**	**ON**						
Expander 7	**ON**	**ON**	**ON**						
Expander 8				**ON**					
Expander 9	**ON**			**ON**					
Expander 10		**ON**		**ON**					

The Sed 901 Master & Remote Expanders

To enrol a board for self learning

1/ Ensure they are all wired and configured and set up also check dip switches

2/ On the (Master Expander) board the press the Copy & Prog buttons until the signal leds begin to flash , The unit is now in self learning and is waiting to link with a remote

3/ Press and hold the Copy & Prog buttons on your remote expander until its Signal led's begin to flash The unit is now in self learning and is waiting to link with a Master

Both the Master expander board and the Remote expander board should now communicate and link with one another . **If not repeat the process**

AC Power in
16V AC 1.5A

Battery in
12V Backup battery 7 AH gel cell (do not wire 12V DC into this)

RS485 Port (not used for coms)

RF Link Relay
Relay is active when the Master and Remote units are within range and linked

DB 9 Serial
For PC configuration 8,N,1 @115k

RJ11 EXPANDER Port
Used to link boards via RJ11 jumper cable

External Antenna Supplied
It is recommended that the external Antennas are mounted outside with clear line of sight between the two ends.
The Antenna should be mounted as high as possible and free of metal obstruction. By doing this, it will ensure the best possible operational range.

12V DC Operation

The Master and Remote boards can be power by a regulated 12V DC supply.
Wire the 12V rail into the RS485 +12V and GND (COM) terminals.

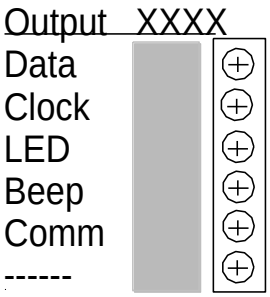
Do not use the battery input as its only for a GEL CELL BATTERY

1 Before connecting any card readers to the SED-901 ensure they currently work on or have been operating on the Access Control System
(do a test on the current access control port first with a known reader)

2 Set the SED-901 Remote and the SED-901 Master up, side by side
Eg. A minimum of 4m apart and connect the plug pack and stubby test antennas.
Connect either battery or plug pack to power
On the SED-901 Master - the signal light should be ON
On the SED-901 Remote - the signal light should be ON
This means that the link is established and functioning
Test an alarm input on the SED-901 Master Relay Board, this should trigger a relay on the SED-901 Remote.

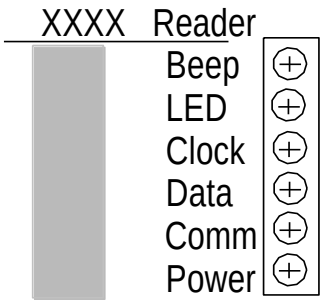
3 ## Wiring the SED-901 MASTER

Please note: The Wiring on the SED-901 Master requires wiring to be completed according to the legend, marked OUTPUT and wire according to this connection guide



4 ## Wiring the SED-901 REMOTE

Please note: The wiring on the SED-901 REMOTE requires wiring to be completed according to the legend, marked READER, and wire according to this connection guide



5 **Connect a reader to the Remote and wire the reader output from the Master to a Access Control input. Simply badge a known working card and the reader should work as if it had been hard wired to the Access Control unit**

NOTE: both the 900 MHz radio units require line of sight signal, they will work through buildings, however, this may effect signal coverage. Position the Remote at the location where you require to install it and do a field test to ensure you have a steady signal light

6 **If all tests worked ok, proceed to install into desired outdoor environment - ensure you install the High Gain Antennas supplied, this will ensure constant cover.**

FOR TECHNICAL SUPPORT

Phone 02-9524 9952

Mon – Fri 8.30AM to 5.00PM AEST

WWW.SECENG.COM.AU

Sydney, Australia

Each RF module is compliant under the following:

DECLARATION OF CONFORMITY

MANUFACTURER'S NAME/ADDRESS:

Max Stream, Inc 355 South 520 West Suite 180 Lindon, UT 84058 USA

LABORATORIES: UltraTech EMC Labs Inc. {ITI (UK)) accredited test facilities}

3000 Bristol Circle Oakville, Ontario, Canada L6H 6G4

EQUIPMENT TYPE/ENVIRONMENT: Radio Communications Equipment

TRADE NAME / MODEL NO.: 9XTEND, Model XT09

GRANTEE'S NAME: Max Stream, Inc

RF OUTPUT POWER: 29.83 dBm e.i.r.p peak maximum

Tx FREQUENCY RANGE: 915.750 – 927.265 MHz

Rx FREQUENCY RANGE: 915.750 – 927.265 MHz

Emission Designation: 221K1F1D Duty Cycle: 100%

YEAR OF MANUFACTURE: 2005

COUNTRY OF MANUFACTURE: USA

STANDARD(S) TO WHICH CONFORMITY IS DECLARED: Australian/New Zealand Standard AS/NZS 4771:2000 – Technical characteristics and test conditions for data transmission equipment operating in the 900 MHz, 2.4 GHz and 5.8 GHz bands and using spread spectrum modulation techniques.

SEC-ENG HARDWARE SPECIFICATIONS

- RF Security encryption: 128 AES key coded (key design Classified)
- Power pack 16v AC @ 1.5 amps output
- Card reader HID
- Australian Austel Compliance number **N3884**