

# Radio Remote System Operation and Instruction Manual

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# 1 Introduction, Operation and Specifications

## 1.1 General description

This manual contains information for the installation and operation of the radio remote transmitter and radio remote control receiver system. The system comprises a hand held battery powered transmitter and one or more receiver boards. The transmitter is supplied in a hand held case. The receiver is supplied as a pcb with no enclosure and would usually be installed inside the display case using the supplied self adhesive pcb standoffs.

The transmitter can also be used to connect the transmitter keypad to the input board via an optionally available RJ12-6P6C 10 metre cable for direct wire connection when a radio receiver is not fitted. This method also requires that the RJ12 connector is fitted to the input board.

## 1.2 Operation

The remote control system allows the **P**, **F**, **▲** and **▼** setup pushbuttons to be operated at the transmitter and received at a receiver inside the display case.

If the transmitter is supplied with a fixed address output then the receiver will be supplied with its address selector DIP switches set to the same address. In this system the transmitter will only communicate with receivers set to this address.

If the transmitter is supplied with an address selector rotary switch then this switch can be used to select one of 16 addresses (0 to 15). This allows multiple receivers to be set to individual addresses via DIP switch and the transmitters address selector switch can be used to select which address is to be transmitted.

The receiver address is set via the SW2 DIP switch settings, see page 4. Unless the receiver address matches the transmitter address any transmissions received will be ignored. If the receiver is set to address 0 it will accept transmissions from any transmitted address. If the receiver address does not match the transmitter address the “ERR.” red light on the receiver board will flash when a transmission is sent. If the receiver address is changed whilst the receiver is powered up it will be necessary to switch on and off again in order for the new address to be accepted.

## 1.3 Model details

Model: LD-RC10-F

Description: Radio remote transmitter with fixed address.

Model: LD-RC10-A

Description: Radio remote transmitter with address selector.

Model: RAD-RX-REM-P

Description: Radio remote receiver with pcb antenna.

Model: RAD-RX-REM-W

Description: Radio remote receiver with SMA socket for use with optional wire or whip antenna.

Model: ANT-RAD-RX-WHIP

Description: Optional external whip antenna with coax cable and SMA plug (Note: Antenna is not fitted to case). Also supplied with PG20 cable gland.

## 1.4 Specifications

### Radio transmitter

**Power supply:** Internal 3.6V lithium battery 1/2 AA size.

Battery life approx. 5 years in normal use

**Frequency:** 433MHz

**Range:** Typically 60m in free space if optional external receiver whip antenna is used

Typically 30m in free space if external receiver wire antenna is used

Typically 20m in free space if pcb loop antenna is used (suitable for non metallic enclosures only)

**Weight:** 120gms

**Dimensions:** See Mechanical installation chapter.

### Radio receiver

**Power supply:** External 12-24VDC required if using RJ12 connector.

If using ribbon cable then no external power is required

**Current consumption:** Typically 16mA @ 12V or 8mA @ 24VDC when external power is used

**Frequency:** 433MHz

**Weight:** 50gms

**Dimensions:** See Mechanical installation chapter.

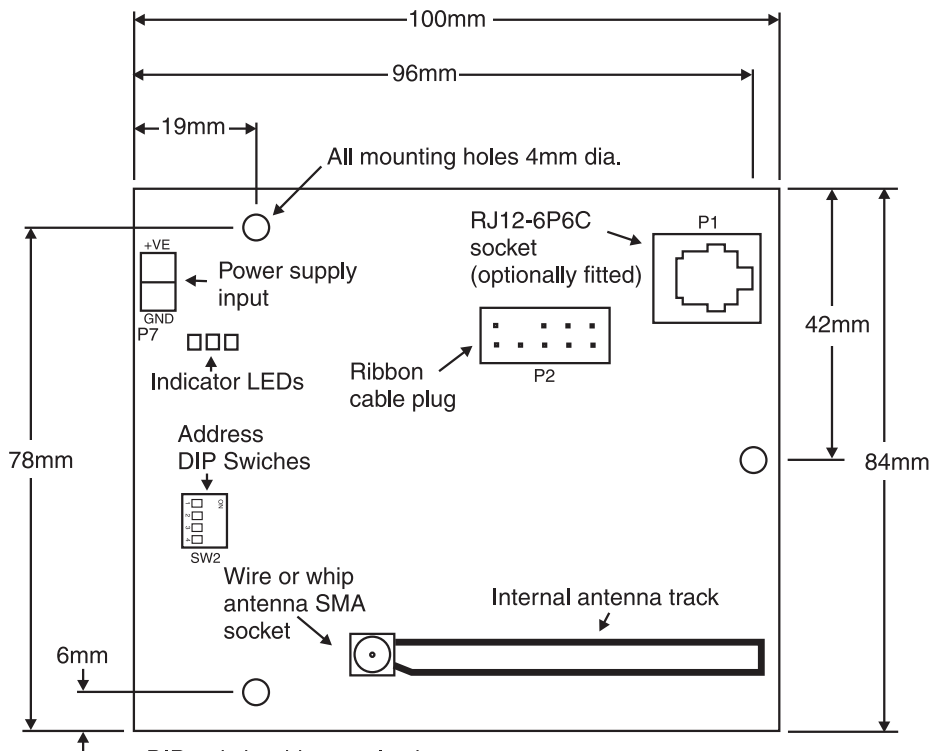
## 2 Mechanical Installation

### Radio receiver

The receiver is supplied as a printed circuit board and will be fitted at the interior base of the enclosure. If supplied for retrofitting to a display it should be mounted inside a display or other appropriate enclosure.

Layout, dimensions and mounting hole locations are shown in the drawings below.

Self adhesive standoff pads are provided to allow the board to be mounted in a suitable location such as the bottom of the display case. Fit the standoffs to the board then peel off the cover from the pads and place in the required position.



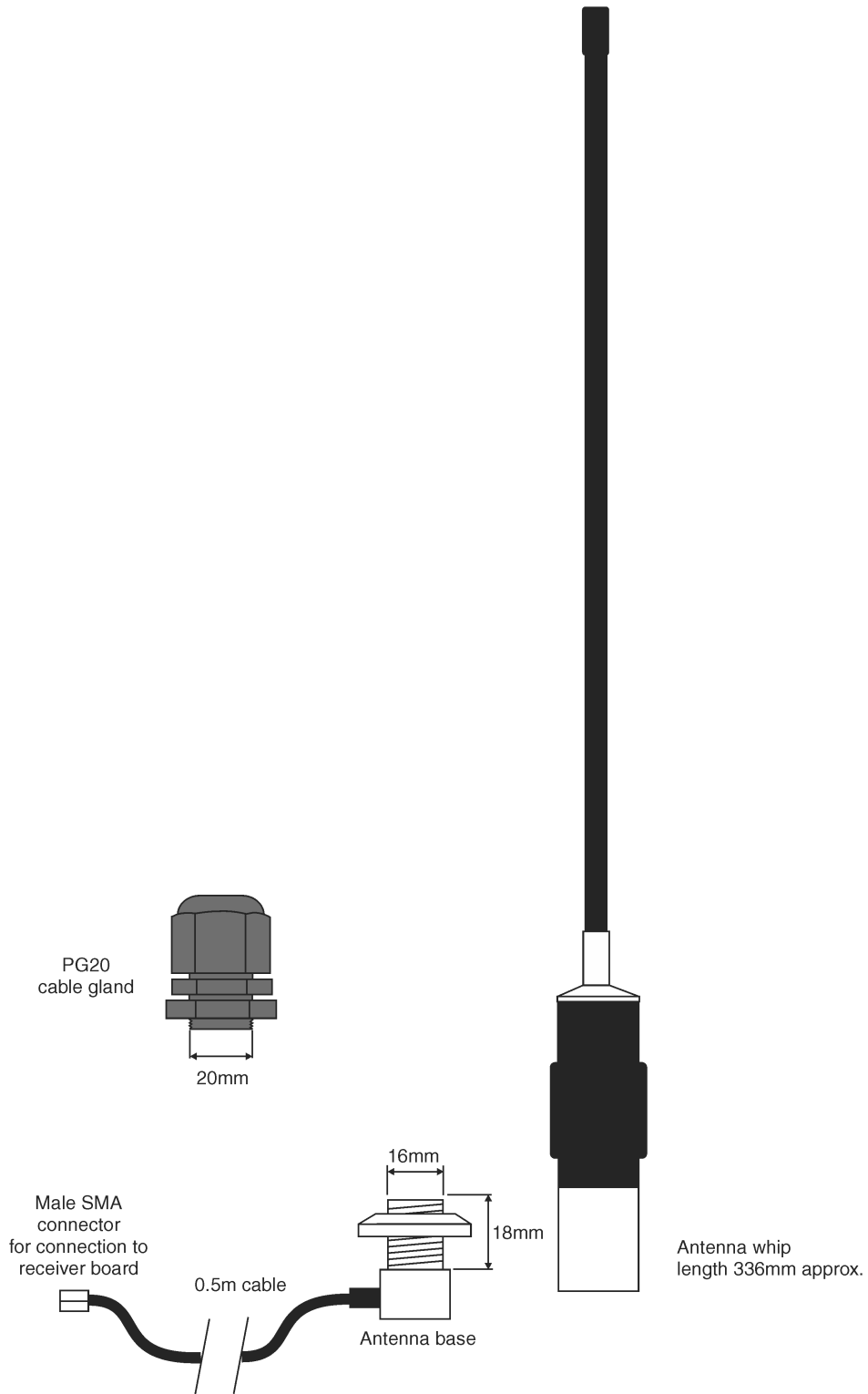
DIP switch address selection:

Note: if set to address 0 the receiver will respond to any transmitted address.

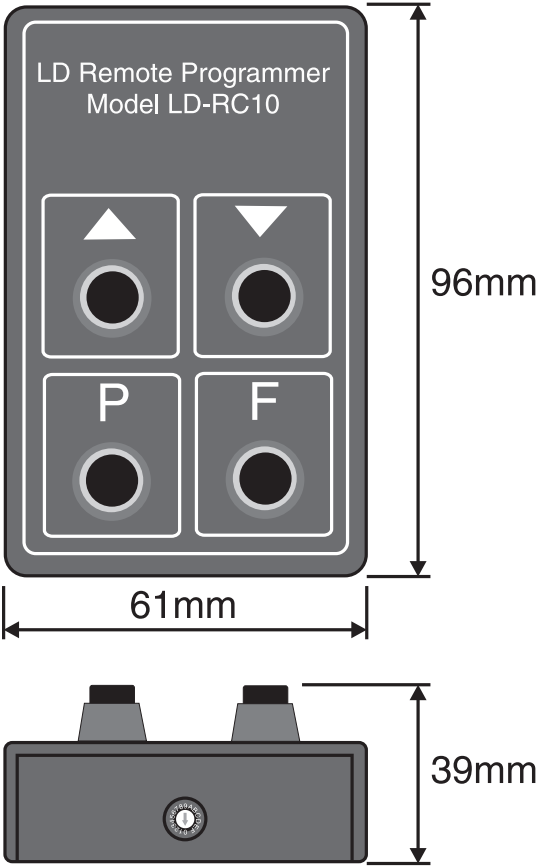
Switch 1	Switch 2	Switch 3	Switch 4	Address
OFF	OFF	OFF	OFF	0
ON	OFF	OFF	OFF	1
OFF	ON	OFF	OFF	2
ON	ON	OFF	OFF	3
OFF	OFF	ON	OFF	4
ON	OFF	ON	OFF	5
OFF	ON	ON	OFF	6
ON	ON	ON	OFF	7
OFF	OFF	OFF	ON	8
ON	OFF	OFF	ON	9
OFF	ON	OFF	ON	10
ON	ON	OFF	ON	11
OFF	OFF	ON	ON	12
ON	OFF	ON	ON	13
OFF	ON	ON	ON	14
ON	ON	ON	ON	15

## Optional receiver whip antenna

The optional whip antenna part number ANT-RAD-RX-WHIP may be bolted directly to the case if space allows or a PG20 cable gland is provided if the antenna is to be mounted external to the case. If holes are drilled in the case the hole should be sealed with an appropriate sealer.



Radio transmitter



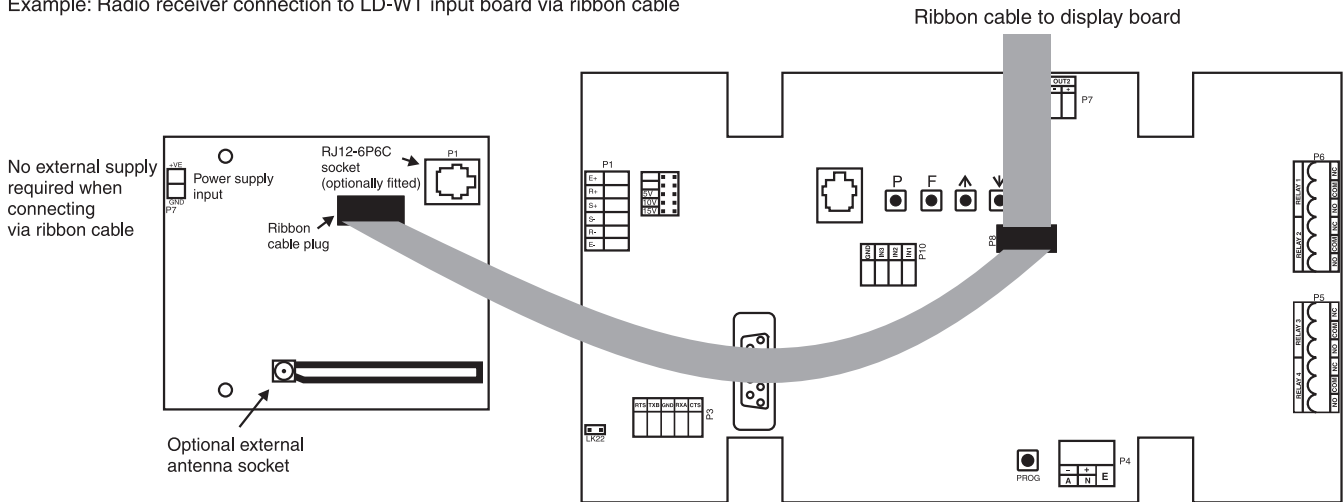
### 3 Electrical Installation

The connections between the radio receiver board and the input board can be made via the ribbon cable or via an RJ12 connection. Only one of these cables should be fitted at any one time.

#### Receiver connection to display input board via ribbon cable

The power for the receiver board is supplied via the ribbon cable. Note that a suitable software version must be present in the input board i.e. retro fitting a connector to an input board will only allow this method of connection if the input board has a suitable software version installed also. Displays ordered with the radio will be fitted with a suitable cable. Displays retrofitted with the radio may require a new ribbon cable.

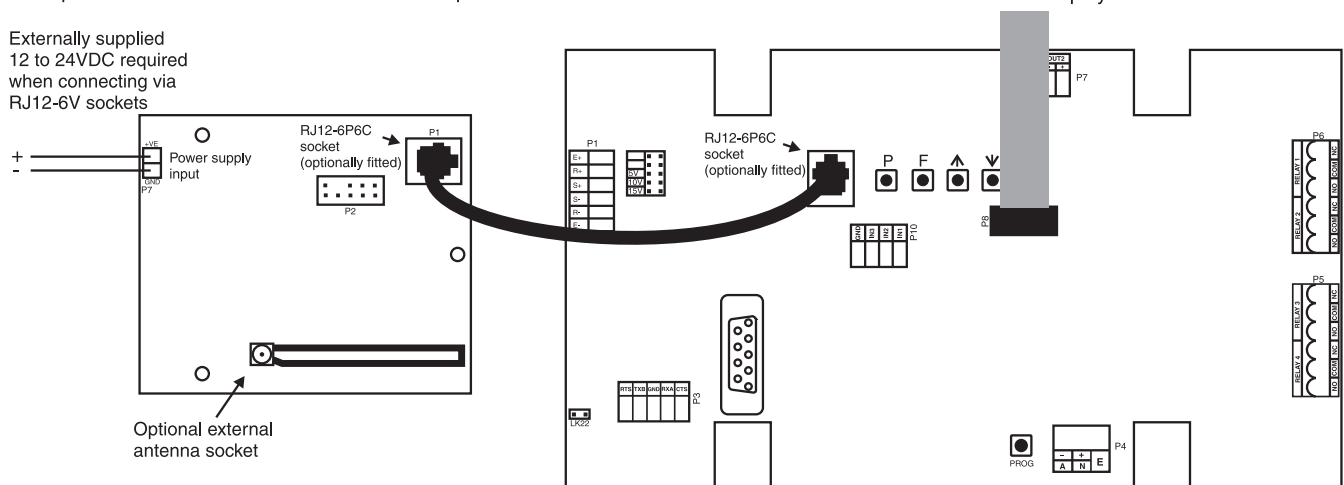
Example: Radio receiver connection to LD-WT input board via ribbon cable



#### Receiver connection to display input board via RJ12 cable

The power for the receiver board is supplied externally. This method of connection allows the radio remote to be used with instruments which will do not have the required software to allow use via the ribbon cable. Note that not all versions of the LD display range or receiver boards are fitted with RJ12 connectors, a connector must be fitted to the input board if it does not already have one.

Example: Radio receiver connection to LD-WT input board via RJ12-6P6C sockets



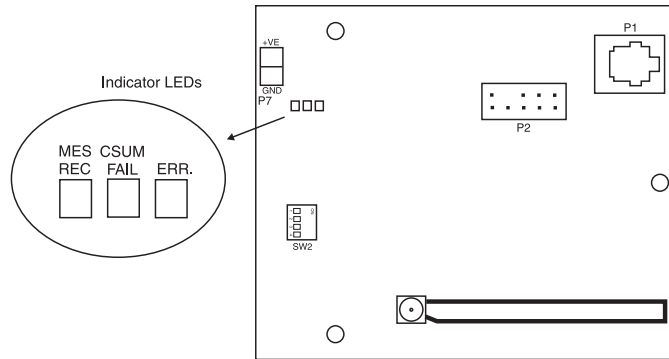
## Receiver indicator LEDs

Three LED indicator lights are located on the receiver board as shown below.

The Green “MES REC” LED will light briefly when a transmission has been received and checked.  
The Red “CSUM ERR” LED will light briefly if a transmission has been received but has failed the checksum error check.

The Red “ERR.” LED will light briefly if a transmission has been received but a different error is seen e.g. mismatch in addresses between transmitter and receiver.

All LEDs will light briefly when powering up.





## Transmitter details and address switch

If required the transmitter can be wire linked to a compatible display input circuit board fitted with an RJ12-6P6C socket via an optionally available 10 metre cable with RJ12-6P6C male connectors on each end i.e. direct wire connection control. Note that not all versions of the LD display range are fitted with RJ12 connectors, a connector must be fitted to the input board if it does not already have one.

