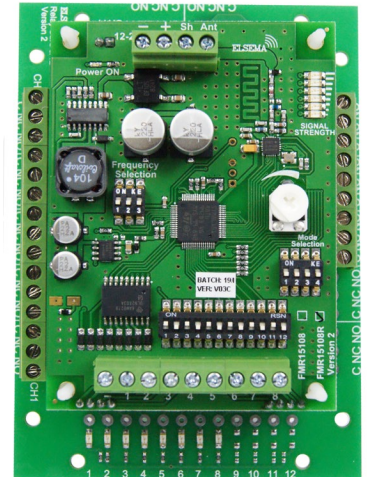


# FMR15108R and FMR15108

8-Channel, 151MHz Receiver

## Features

- Eight channel receiver
- Supply voltage can be 12 - 24 Volts AC or DC
- Low current consumption
- Built-in noise or signal strength indicator
- User can select 8 different frequencies
- Two versions available
  - FMR15108R relay output
  - FMR15108 open collector output
- Momentary, Latching and Delay Off
- Easy code setup with dip switch settings



## Applications

- Pump Control
- Long distance panic button
- On/Off applications in agricultural devices
- Basic Telemetry eg. Water level indication

## Description

The user can select 8 different narrow band frequencies and program unlimited number of transmitters to the receiver. With a narrow band FM 151MHz signal from the transmitter a line of sight operating range of 5000 metres is possible. The receiver uses a crystal oscillator circuit that ensures high frequency stability allowing optimal performance in the receiving range.












## Case

The FMR15108R is supplied without a case, this allows the receiver to be integrated according to your needs.

The C1217case (weather proof) can be used to enclose the FMR15108R. The receiver with a case is known as FMR15108RE.

## Different Modes for each Output

Modes are user selectable from the 4-way dip switch, shown below.

<b>DIP Switch Mode Settings</b>	
The output relay will respond in the following manner when receiving the correct signal from a transmitter	
1 2 3 4 	"All Momentary": Relay on, only while correct signal is received
	"All Latching": Outputs alternate at every correct incoming signal
	"Momentary & Latching": Outputs 1-4 are momentary & 5-8 are latching
	"Security Latching on": Outputs will be on until supply to receiver is momentarily interrupted
	"Momentary & Latching ": Outputs 1-6 are momentary & 7-8 are latching
	"Momentary & Latching ": Outputs 1-2 are momentary & 3-8 are latching
	"Momentary & Latching ": Outputs 1-3 are momentary & 4-8 are latching
	<b>"Instant OFF "</b> Same is <b>"Delayed Off "</b> except relay will switch "OFF" as soon as the transmitter input is deactivated. (All 8 outputs)
	"Delayed Off": Relay on, but delayed off for 2.5-150 seconds, adjustable by trimpot. (All 8 outputs)
	"Security Latching on": Output 1 is security latching & 2-8 are momentary
	"Security Latching on": Output 1-7 is latching & 8 is momentary.

**Momentary** - Output is active for as long as the transmitter button is pressed.

**Latching** - Output remains active until the next press of the transmitter button.

**Delayed OFF** - Once the output is activated, it will stay ON for 2.5-150 seconds (time adjusted by the trimpot)

**Security Latching** - Output remains active until the power to the receiver is removed. Similar to security alarms and fire alarms.

## Keeping the receiver ON indefinitely

Set the transmitter to transmit every 10 sec while the input is activated. Use Off-delay on the transmitter. At the receiver end, set the delay of more than 30 sec (more than x3). When the transmitter stops transmitting (*Input is deactivated*) the receiver will wait for 30 sec before turning Off. Every 10sec pulse from the transmitter will keep extending the 30sec delay on the receiver so the output stays ON. (If used in “**Instant OFF Mode**”, the transmitter will send an OFF signal to turn off the receiver as soon as the input is deactivated. Transmitter needs to have power supply connected to send the OFF signal).

The times are just examples and can be adjusted. The longer the delay on the receiver, the better it is. It means the receiver should miss multiple signals before turning OFF. This will also mean that when the transmitter stops, the receiver will wait for its delay time before turning off.

## Customised Software

Custom output modes can be programmed to do special functions. Call Elsema for more details.

## Coding

The 12 way dip switch on the receiver sets the 12 bit unique code for the system. This has to be matched to that on the transmitter.

## Signal Strength Indicator

The 151MHz receivers have five blue LED’s on the board. The table below indicates the level of the valid transmitted signal.

5 LED’s on	-70dBm	Very Strong signal	Very Reliable operating conditions
4 LED’s on	-75dBm	Very Strong signal	Very Reliable operating conditions
3 LED’s on	-80dBm	Very Strong signal	Very Reliable operating conditions
2 LED’s on	-90dBm	Strong signal	Very Reliable operating conditions
1 LED on	-100dBm	Good signal	Reliable operating conditions

## Noise Strength Indicator

If more than 1 led is “ON” without a valid transmission, this indicates that there is noise on the frequency selected. Change the **3-way dipswitch** on the **receiver module** to select a different frequency.

Following is a table with the Dipswitch settings and the corresponding frequencies.



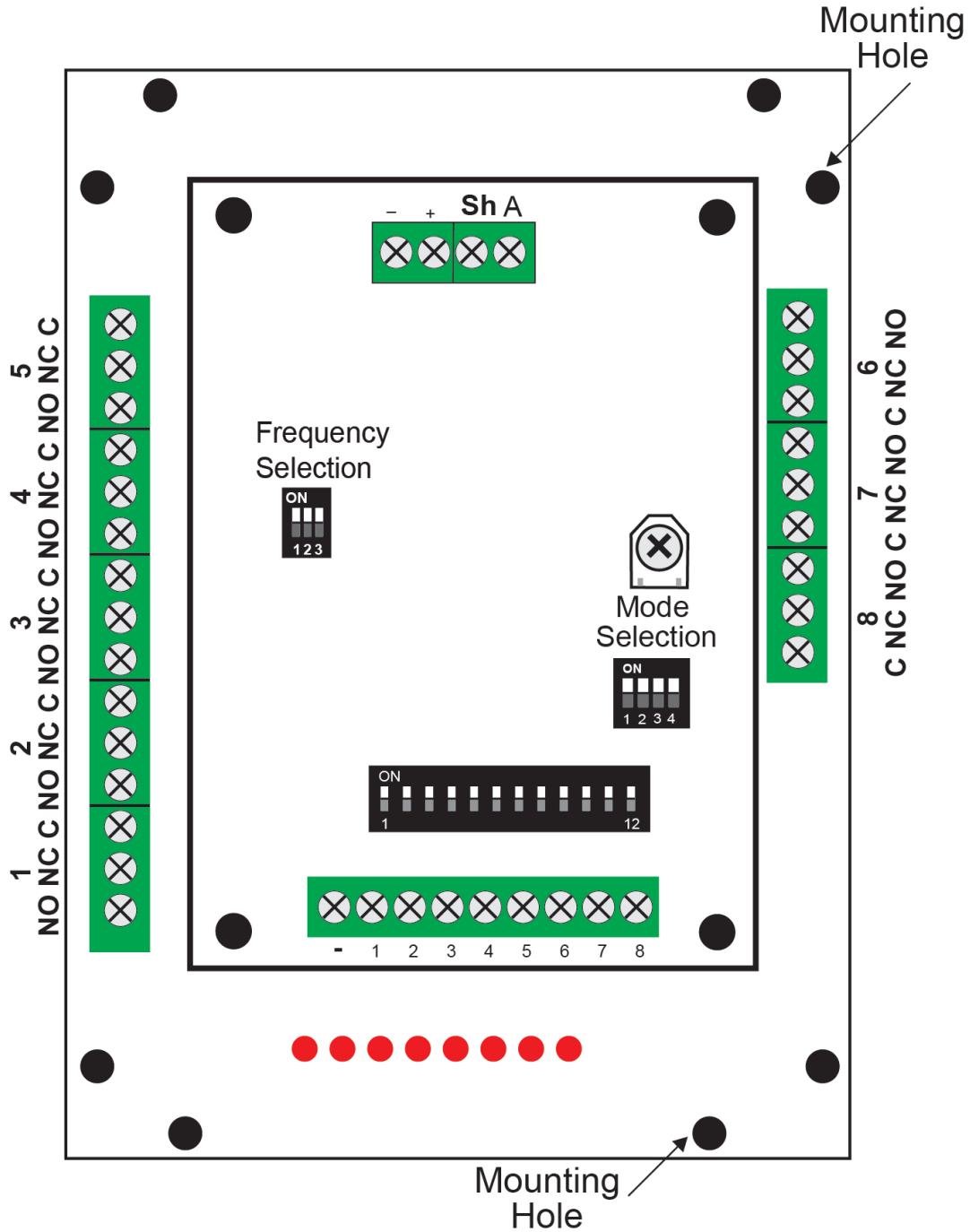
Frequency	1	2	3
151.600 MHz	On	On	On
152.375 MHz	Off	On	On
151.775 MHz	On	Off	On
151.400 MHz	Off	Off	On
151.175MHz	On	On	Off
151.025 MHz	Off	On	Off
150.900 MHz	On	Off	Off
150.825 MHz	Off	Off	Off

## Technical Data

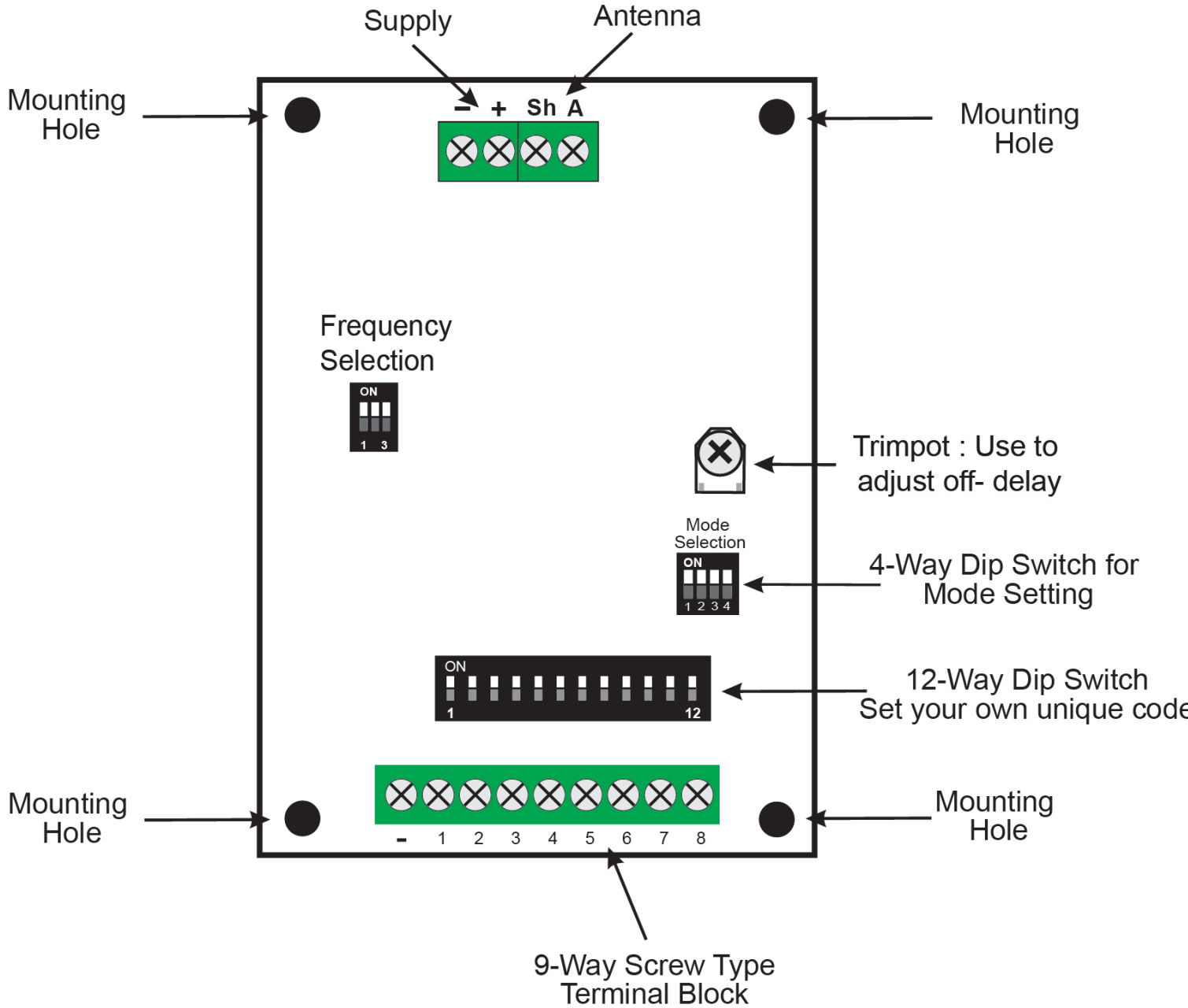
	FMR15108R	FMR15108
Supply Voltage	12 – 24 Volts AC or DC. (Recommended powerpack: 12PP-1000)	
Current Consumption	22 mA standby, 186mA all outputs “On”	22mA Standby at 12VDC, 35mA if all outputs “On”
Receiving Freq	151.6MHz (8 selectable frequencies. See table above) 161MHz for New Zealand 154MHz for United States of America and Canada	
Operating Temperature	-5 to 50°C	
Relay Contacts	Eight change over relay outputs, rated at 10 Amps 240 VAC	Open Collector Outputs
Connections	Supply, Antenna & Outputs - Screw type terminal block	
Antenna	50Ω, 151MHz Antenna, Elsema ANT151M for maximum performance	
Dimensions	130 x 94 x 42mm	90 X 70 X 15 mm
Useable Transmitters	All FMT151 series. See Transmitter datasheet for details.	

**Block Diagram**

**FMR15108R**



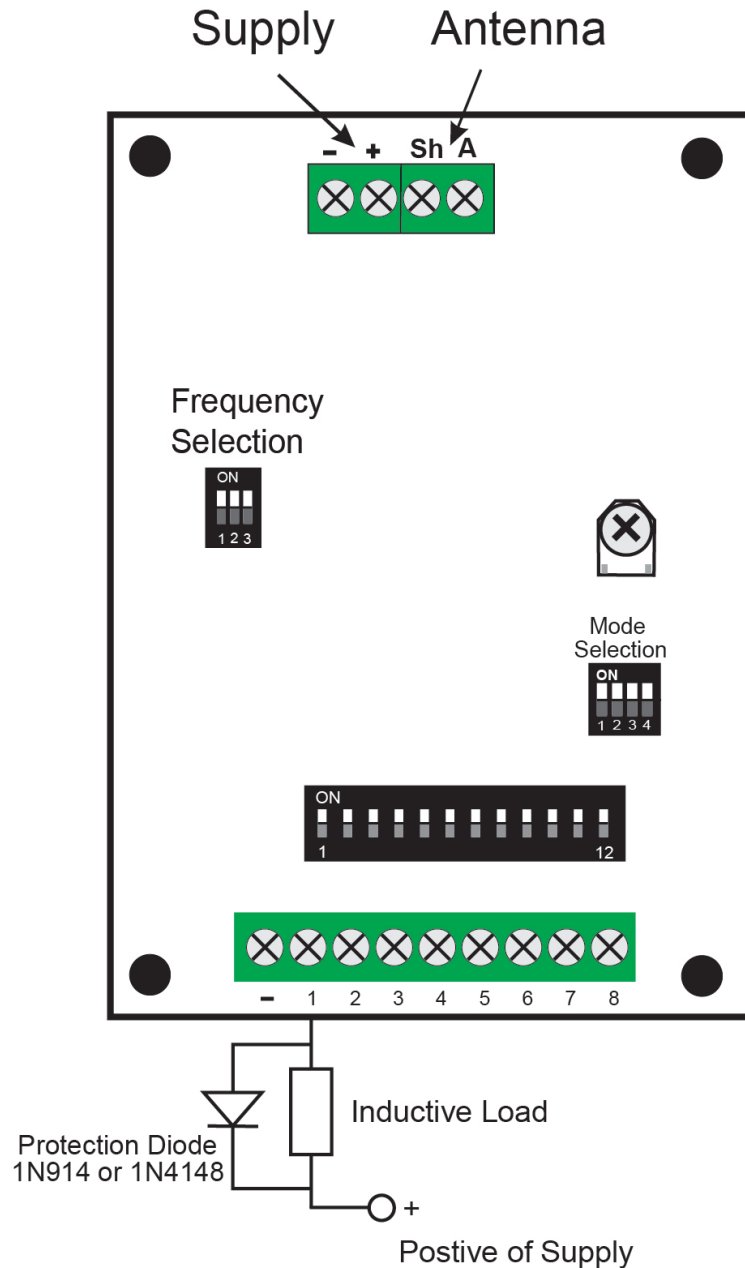
# FMR15108



**Application Notes**

Care should be taken with the solid-state outputs that they are protected from inductive loads. This is done by connecting diodes across your DC inductive load.

Inductive loads such as DC relays must be clamped with a diode across the relay coil. If this is not done the spikes generated by the DC relay can lock-up the receiver. When a lock-up occurs you will need to remove the power and re-connect it.

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