

# FMR15104240

4-Channel 151MHz FM Receiver with Main AC supply

## Features

- Supply voltage 240VAC (also available in 110-120VAC supply for international markets)
- High efficiency toroidal transformer
- High capacity output relay
- Pluggable type terminal blocks for easy installation
- Test push buttons for the relay
- Momentary, Latching and Security Latching modes are all user selectable
- Optional QM150 bracket available for easy mounting to cases or walls
- Also available in an IP66 rated case (C1020 ) for outdoor installations.



## Applications

- Pump Control
- Long distance light control
- On/Off applications in agricultural devices
- Basic Telemetry eg. Water level indication
- Security alarm

## Description

This receiver can be connected directly to the mains supply, 240VAC. There are four relay outputs that can switch currents up to 8 amps at 240VAC. The relay mode can be set to momentary, latching or security latching.

The user can select 8 different narrow band frequencies and program unlimited number of transmitters to the receiver. With the 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.



The toroidal transformer on this receiver is 25-30% more efficient than the conventional types. It has a low operating temperature, low hum and low stray magnetic field.

Connecting wires to the receiver has been made easier by the pluggable type terminal block. An on board LED indicates when power is connected and an extra LED on the board to indicate when the relay is activated. There is a test button for the relay output to test your connections.

The receiver's high capacity output relay is capable of switching up to 16 Amps of resistive load and up to 8 Amps of inductive load. A world first for a standalone receiver.

The receiver can be mounted to a Quick Mount or in a weatherproof case with an IP66 rating.

## Available with Options

	
<p align="center"><b>FMR15104240</b> 4- Channel 240VAC Supply</p>	<p align="center"><b>FMR15104240E</b> 4- Channel 240VAC Supply in an IP66 rated Case</p>

## Output Modes

Relay output on the receiver can function in either momentary or latching mode. By default the mode is set to momentary. Modes selectable from the 4-way dipswitch. Dipswitch 1 corresponds to relay channel 1 and dipswitch 2 corresponds to relay channel 2 and so on.

### Factory Default = Momentary

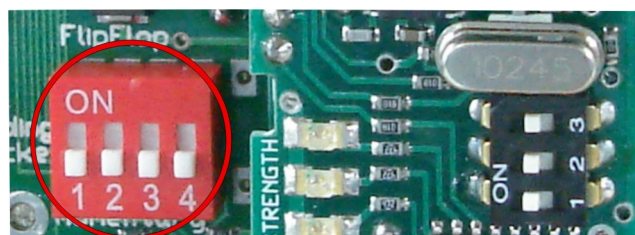
**Momentary** - Output is active for as long as the transmitter button is pressed.  
*This is a standard mode on most automatic gates or garage door openers.*

**Latching** - Output remains active until next press of the transmitter button.  
*Similar to switching "on" and "off" a light.*

**Security Latching** - Output remains active until power to the receiver is removed. Similar to security alarms and fire alarms. To activate the security latching mode, a link needs to be soldered into the hole marked as latching.

## 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.

Apart from the 12 way dip switch there is an additional 1 way dip switch :

This 1 way DIP switch on the right side of the 12 way dip switch denotes the channels. See table below.

Generally to use a 4 channel Tx to 4 channel Rx match all the 13 dip switch (12way + 1way just on the right side of the 12 way).

To use an 8 channel Tx to control 2 x four channel Rx match all the 12 dip switch and switch 13 “OFF” on the first Receiver and switch 13 “ON” on the second Rx.

To use 4 x single channel transmitter to control a 4-channel receiver, match all 13 dipswitches and change dip switch 14 & 15 on the transmitter as per below table.

SW14	SW15	Channel
OFF	OFF	1
OFF	ON	2
ON	OFF	3
ON	ON	4

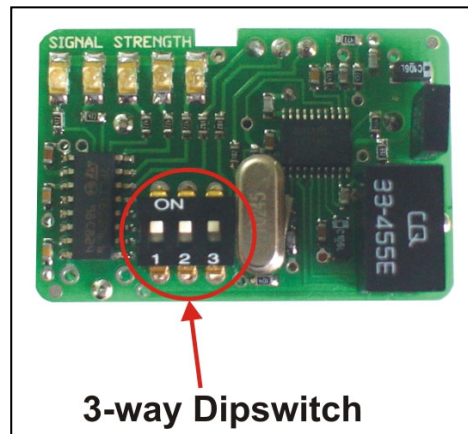
## Signal Strength Indicator

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.



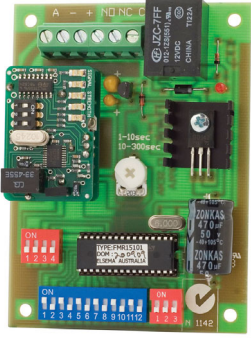
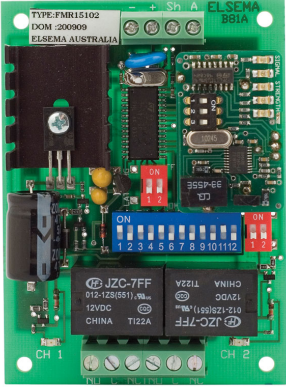


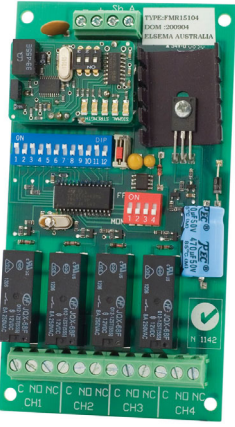

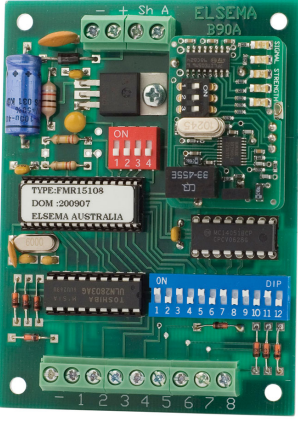
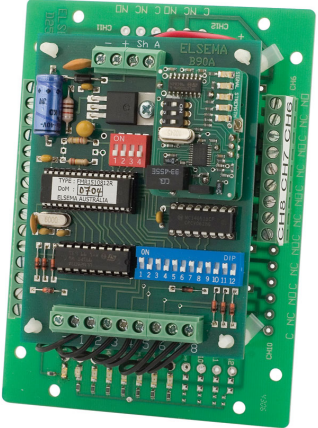
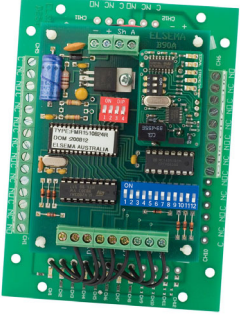
Frequency	1	2	3
151.600 MHz	On	On	On
152.375 MHz	Off	On	On
151.775 MHz	On	Off	On
151.400 MHz	Off	Off	On
151.175MHz	On	On	Off
151.025 MHz	Off	On	Off
150.900 MHz	On	Off	Off
150.825 MHz	Off	Off	Off

**Technical Data**

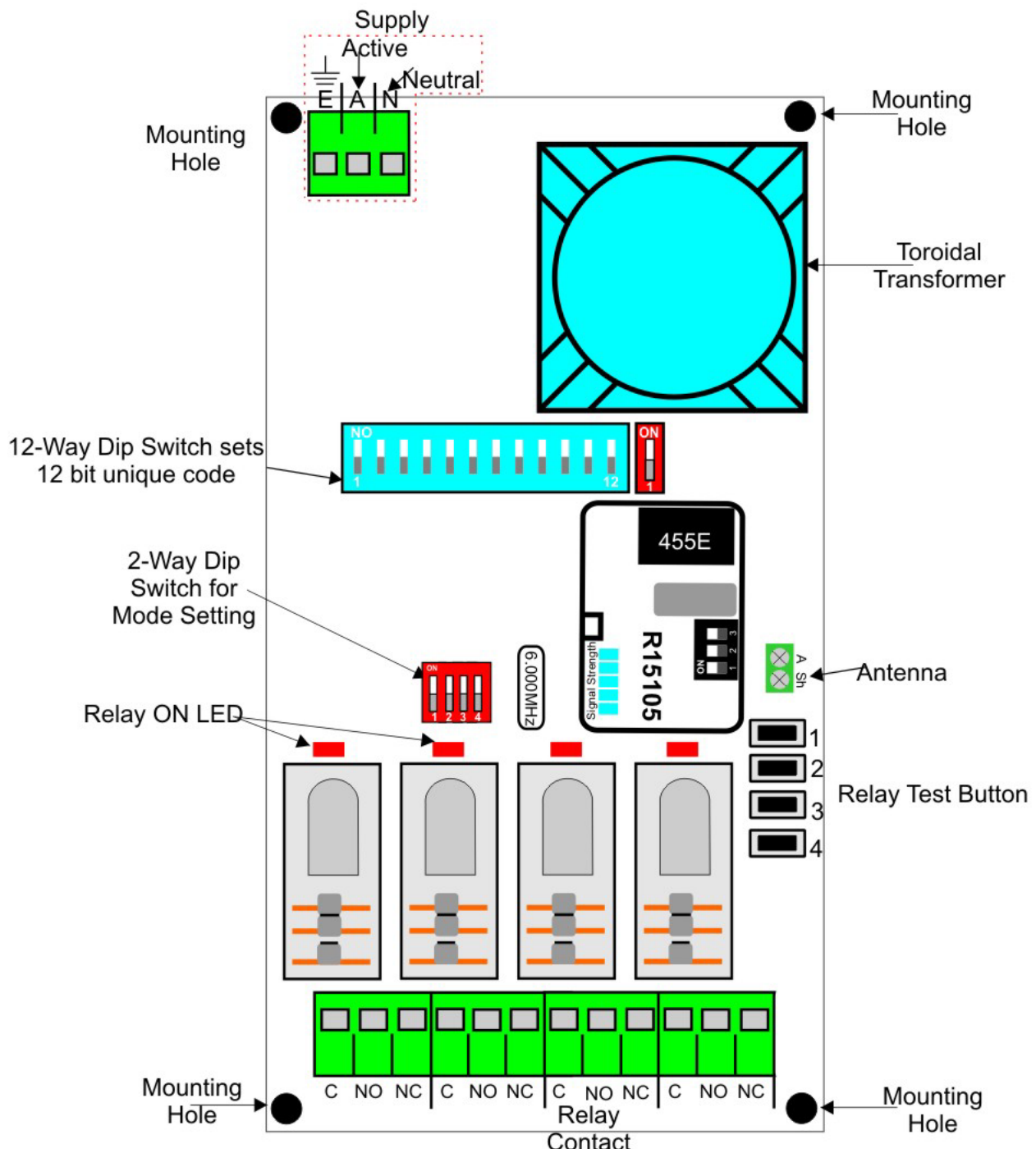
Supply Voltage	240Volts AC Mains (110-120VAC available on request)
Current Consumption	5.1 mA standby
Receiving Frequency	151.6MHz (8 selectable frequencies. See table above)
Operating Temperature Range	-5 to 50°C
Sensitivity	Better than 0.5uV (For relay to activate)
Type of Demodulation	Narrow-Bandwidth Frequency Modulation (FM)
Connection	Supply, Antenna & Outputs - pluggable type terminal blocks
Output	Change over relay output, rated at 16 Amps of resistive load and up to 8 Amps of inductive load.
Antenna	50Ω, 151MHz Antenna, Elsema ANT151M for maximum performance A piece of approximately 1metre wire can be used for short range applications
Dimensions	130 x 70 x 37mm
Mounting Hole Size	3.97mm or 5/32"
Weight	188g
Useable Transmitters	All FMT151 series (with correct setting on the two way dip switch) refer to the table above.
Useable operating range	Up to 5000 metres, depending on installation and type of antenna used. Recommended Antenna is Elsema ANT151M



# Products in the Range

			
<p><b>FMR15101</b> 1-Channel</p>	<p><b>FMR15102</b> 2-Channel</p>	<p><b>FMR15101240</b> 1- Channel 240VAC Supply</p>	<p><b>FMR15102240</b> 2- Channel 240VAC Supply</p>
			
<p><b>FMR15104</b> 4-Channel</p>	<p><b>FMR15104240</b> 4- Channel 240VAC Supply</p>	<p><b>FMR15108</b> 8-Channel</p>	<p><b>FMR1510812R</b> 8-Channel, 12V Supply</p>
			
<p><b>FMR1510824R</b> 8-Channel, 24V Supply</p>			

# Block Diagram



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