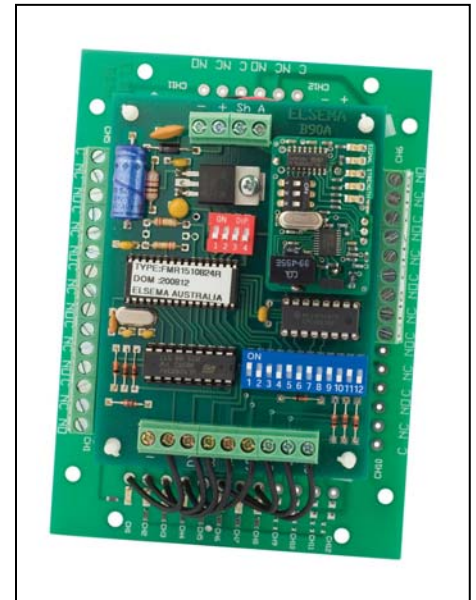


FMR1510812R, FMR1510824R

8-Channel, 151MHz Receiver with Relay Outputs

Features

- Wide supply connection – 11.0 to 14.0 Volts AC/DC for FMR1510812R or 21.0 to 28.0 Volts AC/DC for FMR1510824R
- Eight channel receiver with relay outputs
- Low current consumption
- Built-in noise or signal strength indicator
- User can select 8 different frequencies
- Momentary, Flip Flop and Latching modes are all user selectable
- 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 151MHz receivers use dual conversion, narrow band FM which makes it ideal for industrial applications. Built into the receiver is a noise and signal strength indicator. The user selectable frequency synthesizer allows for easy installation on a frequency that is not in use, allowing optimal performance in the receiving range.

The receiver outputs are relays that are voltage free allowing the user to connect any voltage up to 240VAC with currents of 8 amps.

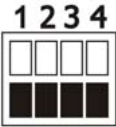





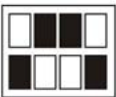
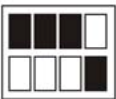

Case

The FMR1510812R, FMR1510824R can be supplied without a case, this allows the receiver to be integrated according to your needs.

The C160 case (weather proof) can be used to enclose the FMR1510812R, FMR1510824R receiver. The receiver with a case is known as FMR1510812RE, FMR1510824RE.

Different Modes for each Output









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

DIP Switch Mode Settings	
The output relay will respond in the following manner when receiving the correct signal from a transmitter	
	"All Momentary": Relay on, only while correct signal is received
	"All Flip-Flop": Outputs alternate at every correct incoming signal
	"Momentary & Flip-Flop": Outputs 1-4 are momentary & 5-8 are flip-flop
	"Latching on": Outputs will be on until supply to receiver is momentarily interrupted
	"Momentary & Flip-Flop": Outputs 1-6 are momentary & 7-8 are flip-flop
	"Momentary & Flip-Flop": Outputs 1-2 are momentary & 3-8 are flip-flop
	"Momentary & Flip-Flop": Outputs 1-3 are momentary & 4-8 are flip-flop
	"Latching on": Output 1 is latching & 2-8 are momentary
	"Latching on": Output 1-7 is latching & 8 is momentary. <i>Mode added on 21/05/07</i>

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.

Products in the Range

			
FMR15101 1-Channel	FMR15102 2-Channel	FMR15101240 1- Channel 240VAC Supply	FMR15102240 2- Channel 240VAC Supply
			
FMR15104 4-Channel	FMR15108 8-Channel	FMR1510812R 8-Channel, 12V Supply	FMR1510824R 8-Channel, 24V Supply

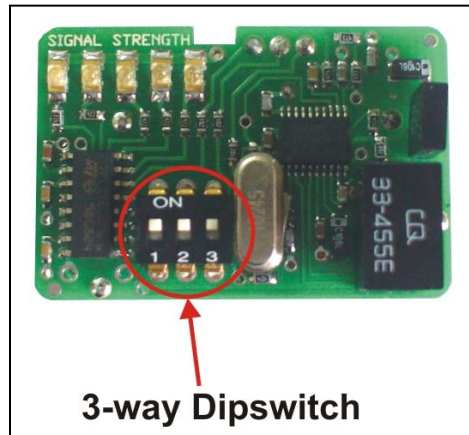
Signal Strength Indicator

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.



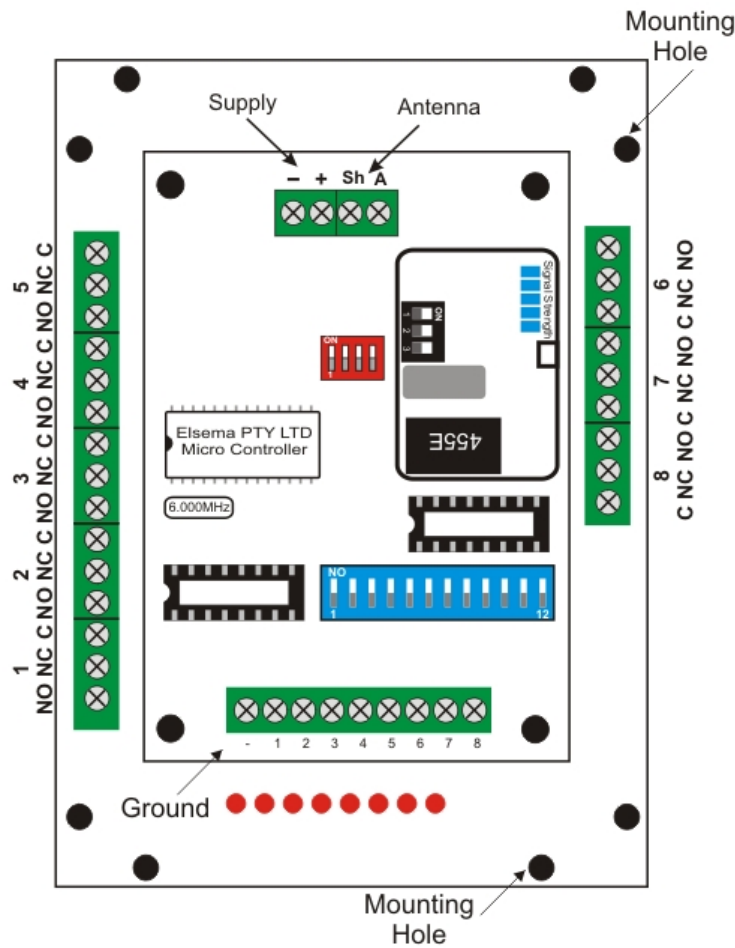
Frequency	1	2	3
151.600 MHz	On	On	On
152.375 MHz	Off	On	On
151.775 MHz	On	Off	On
151.400 MHz	Off	Off	On
151.175MHz	On	On	Off
151.025 MHz	Off	On	Off
150.900 MHz	On	Off	Off
150.825 MHz	Off	Off	Off

Technical Data

Supply Voltage	FMR1510812R : 11.0 to 14 V AC/DC Absolute maximum DC 18 Volts FMR1510824R : 21.0 to 28 V AC/DC Absolute maximum DC 35 Volts Can use Elsema AC power pack (12PP or 24PP) Supply lines should be less than 3 metres long to comply with radio frequency authorities					
Current Consumption	35 mA standby, 210mA if all outputs “On”					
Receiver Type	Single Conversion Superheterodyne					
Receiving Freq	151.6MHz (8 selectable frequencies. See table above)					
Oscillation System	VCO with 10ppm crystal controlled reference oscillator					
Operating Temperature	-5 to 50°C					
IF Freq	10.7MHz					
Sensitivity	Better than 0.5uV (For relay to activate)					
Selectivity	Better than -6dB at ±25kHz					
Type of Demodulation	Narrow-Bandwidth Frequency Modulation (FM)					
Occupied Bandwidth	25kHz at -20dB					
Relay Contacts	Common (C) Normally Close (NC) and Normally Open (NO)					
Output Modes	1	2	3	4	Mode	Description
	Off	Off	Off	Off	All Momentary	Outputs on, only while correct signal is received.
	On	Off	Off	Off	All Flip- Flop	Outputs alternate at every correct incoming signal.
	Off	On	Off	Off	Momentary and Flip-Flop	Outputs 1 to 4 are momentary and 5 to 8 are flip-flop.
	On	On	Off	Off	Latching on	Outputs will be on until supply to receiver is momentarily interrupted.
	Off	Off	On	Off	Momentary and Flip-Flop	Outputs 1 to 6 are momentary and 7 to 8 are flip-flop
	On	Off	On	Off	Momentary and Flip-Flop	Outputs 1 to 2 are momentary and 3 to 8 are flip-flop
	Off	On	On	Off	Momentary and Flip-Flop	Outputs 1 to 3 are momentary and 4 to 8 are flip-flop
	On	On	On	Off	Latching and Momentary	Output 1 is latching and 2 to 8 momentary
	Off	Off	Off	On	Latching and Momentary	Output 1-7 is latching and 8 is momentary
Connections	Supply, Antenna & Outputs - Screw type terminal block					
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 95 x 42mm
Mounting hole size	3.97 mm or 5/32"
Weight	240g
Microcontroller	Can be re-programmed to suit your customised needs
Useable Transmitters	All FMT151 series (with correct setting on the dip switch). See Transmitter datasheet for details.
Useable operating range	Up to 5000 metres, depending on installation and type of antenna used. Recommended Antenna is Elsema ANT151M

Block Diagram



Manufactured by
Elsema Pty Ltd
 3/10 Hume Rd, Smithfield
 NSW 2164
 Ph: 02 9609 4668
 Fax: 02 9725 2663
 Website: <http://www.elsema.com>