

FMR15104

4-Channel 151MHz Receiver

Features

- Four channel receiver with relay outputs
- Supply voltage can be AC or DC
- Low current consumption
- Built-in noise or signal strength indicator
- User can select 8 different frequencies
- Momentary and Flip Flop modes are all user selectable
- Easy code setup with dip switch settings
- Optional QM150 bracket available for easy mounting to cases or walls. C160 case is also available.

Applications

- Pump Control
- Long distance panic button
- On/Off applications in agricultural devices
- Security alarm
- 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.

Modes

The four dip switches correspond to the respective relays. Switch 1 for relay output 1, switch 2 for relay output 2 and so forth.

1. Momentary Mode

If the dipswitch is off the relays will be in momentary mode.

2. Flip Flop Mode

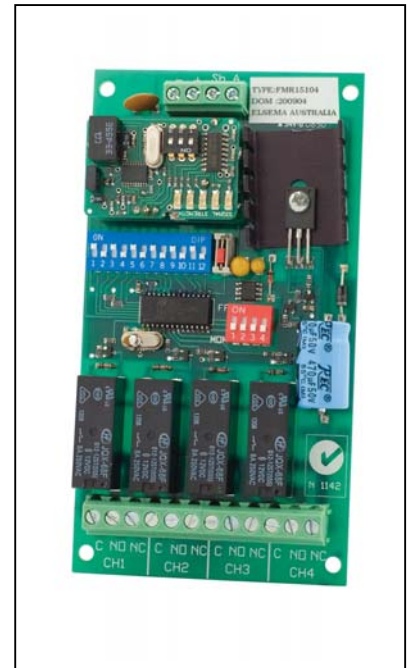
If the dipswitch is on the relays will be in flipflop mode.

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 will 1 Tx and switch 13 on will use the other Tx.

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1-Way DIP Switch & Four Relay Outputs

SW13	SW14	SW15	Channel
OFF	OFF	OFF	1
OFF	OFF	ON	2
OFF	ON	OFF	3
OFF	ON	ON	4
ON	OFF	OFF	5
ON	OFF	ON	6
ON	ON	OFF	7
ON	ON	ON	8

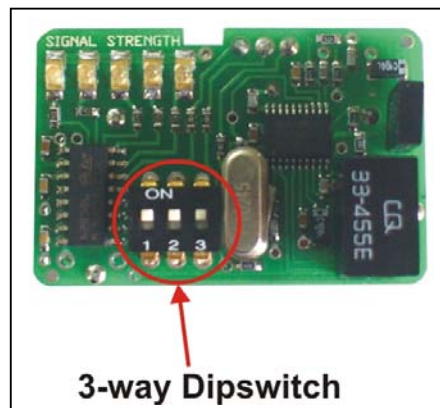
Signal Strength Indicator

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

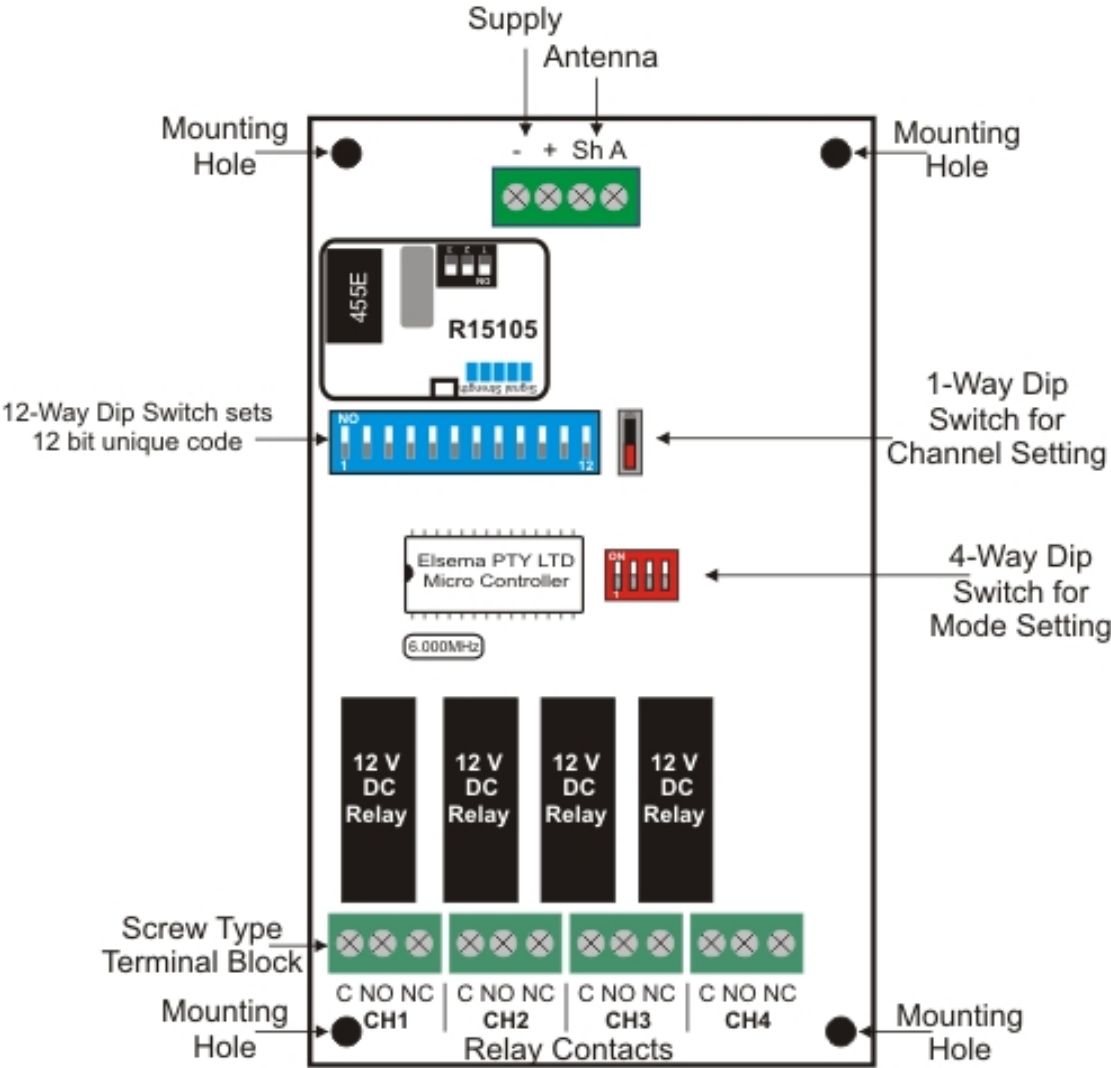
Technical Data

Supply Voltage	11.0 - 28.0 VDC 10.0 - 28.0 VAC Can use Elsema AC power pack (PP12 / PP24) Supply lines should be less than 3m long to comply with radio frequency authorities
Current Consumption	35mA Standby at 12VDC 110mA if both relay “ON” at 12VDC
Receiver Type	Single Conversion Superheterodyne
Receiving Frequency	151.6MHz (8 selectable frequencies. See table above)
Oscillation System	VCO with 10ppm crystal controlled reference oscillator
Operating Temperature Range	-5 to 50°C
IF Frequency	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
Outputs	Four change over relay outputs, each rated at 8 Amps/240 Volts
Connection	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	95 x 70 x 20mm
Mounting Hole Size	3.97mm or 5/32”
Weight	83g
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

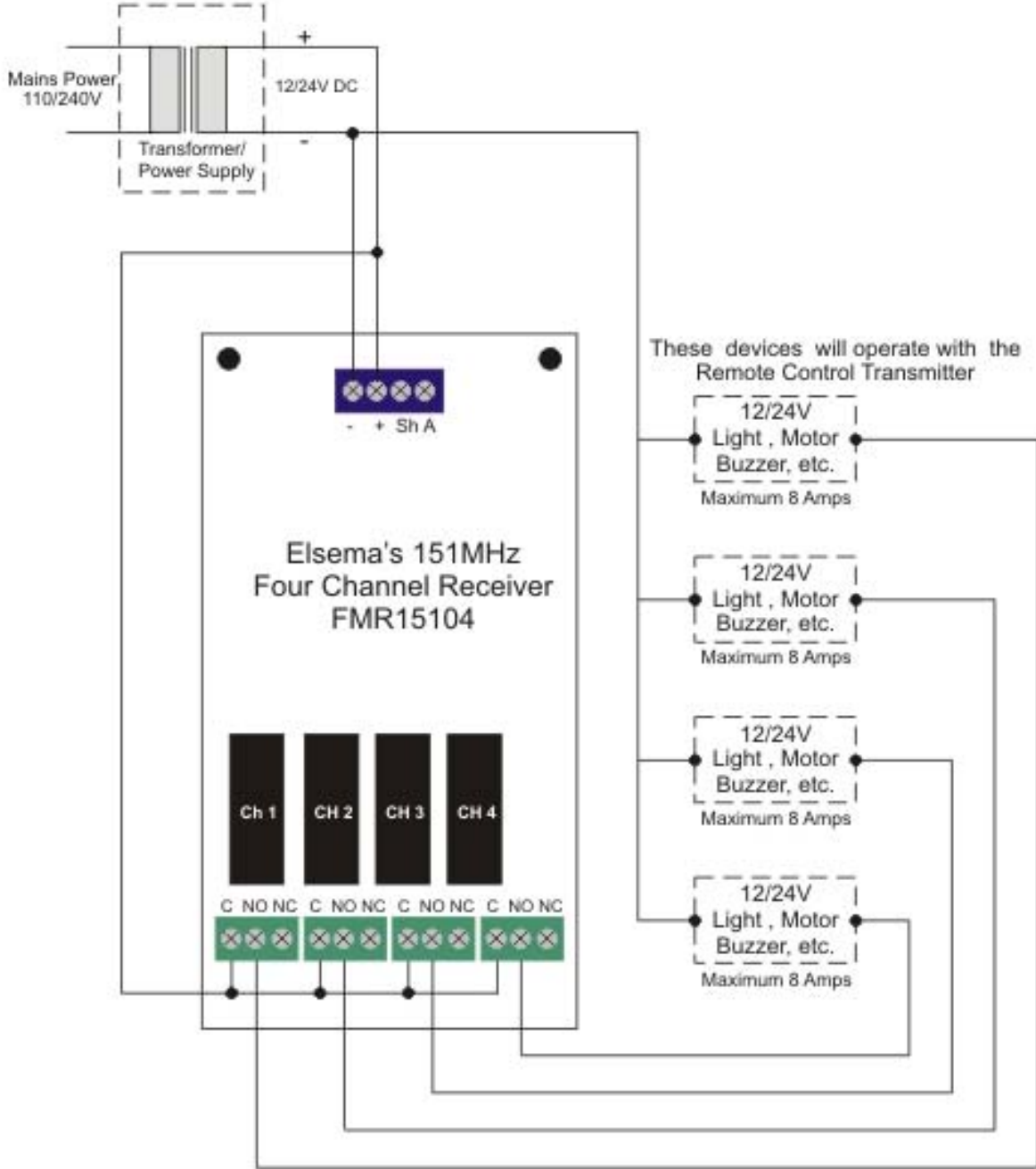
Products in the Range

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

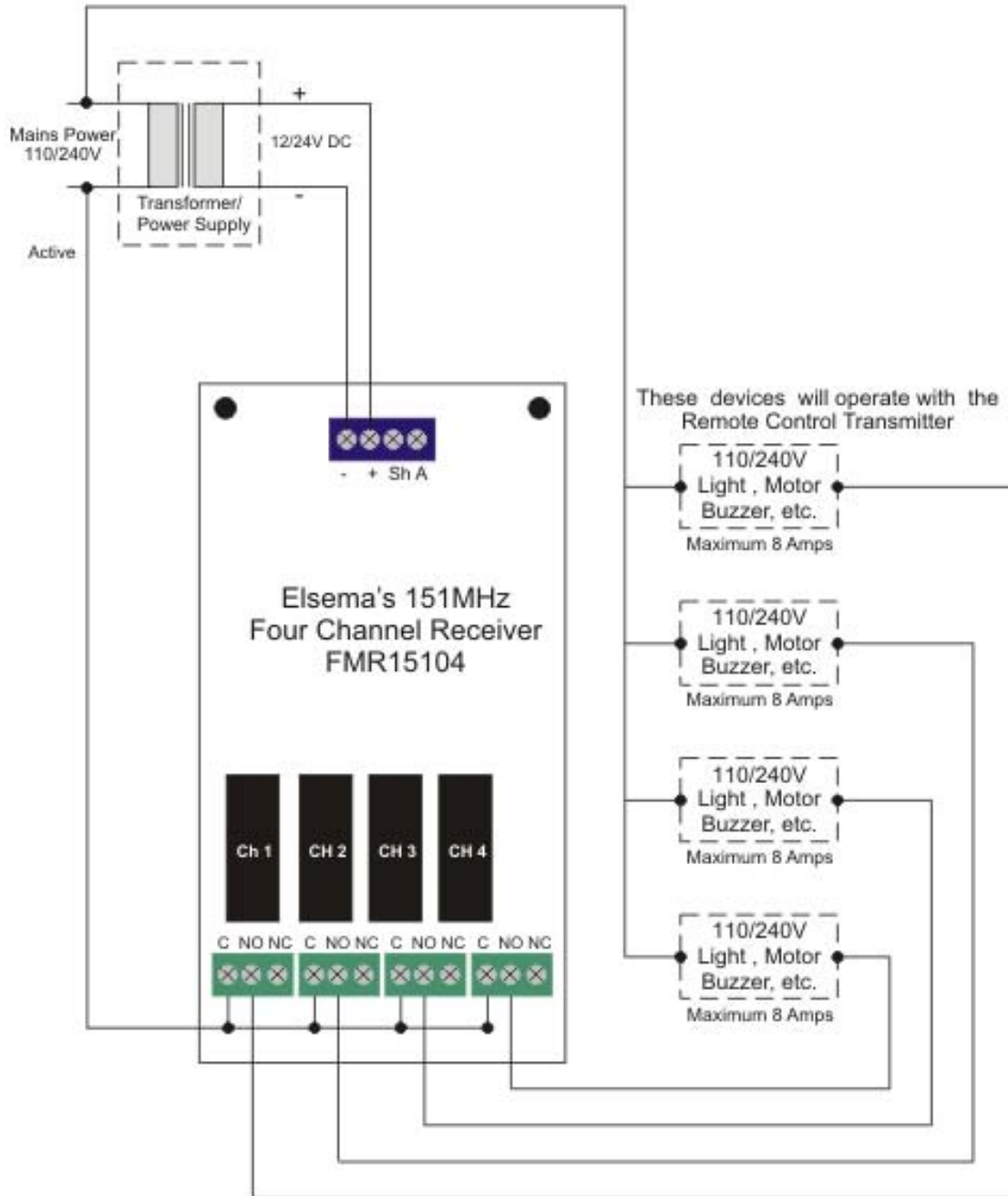
Block Diagram



FMR15104 12/24 VAC/DC Application



FMR15104 110/240 VAC Application



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