

## ELS1010 (FMT-301) / ELS1015 (FMT-302) / ELS1035 (FMT-304)

27MHz REMOTE CONTROL DIGITAL TRANSMITTER

### Features

- Works in the 27MHz band
- Maximum reliability provided by Surface-Mount technology
- High security by 12-way code switch enabling 4096 codes
- Durable plastic case
- 2 Channel (**FMT-302**) and 4 Channel (**FMT-304**) are also available

### Application

- A remote control switching device for various uses e.g. garage doors, lights, gates, and automatic telephone dialers
- A personal security alarm activator for home safety or cash carrying businesses e.g. banks, shops, service stations, etc.
- A calling device for the elderly or handicapped



### Description

**Buzzer** indicates the status of the transmitter. To activate the transmitter, simply press the button at the front. Buzzer will be on when the transmitter is activated.

Working in the **27MHz band**, the FMT-301 achieves the highest possible standard of performance by employing a crystal-controlled, frequency modulated radio signal. The microcontroller with the latest **surface-mount technology** provides maximum reliability.

**High security** against false operation is achieved by a 12-way code switch (part of the digital encoding system) which is used in place of the usual 8 or 10 way systems from other manufactures. This enables the user to select any one of the 4096 codes available. The code can be easily changed at any time.

### Operating Distance

An operating distance (in conjunction with our FMR series receivers) of 200 metres is possible. The operating distance depends upon the receiver antenna and location. An independent test revealed the following ranges:

| Range (m) | Receiver Antenna | Receiver Type  |
|-----------|------------------|----------------|
| 40        | 250mm wire       | FMR-... series |
| Up to 200 | ANT27M           | FMR-... series |

Range tests were done in an open area test site with line-of-sight operation and the receiver antenna wire was fixed vertically, away from any metal objects.

When operating near its range limit, some improvements may be obtained by pointing the transmitter towards the receiver. This is due to its slightly directional properties.

**Accessories** (available separately)

The case of the transmitter has been designed to accept Elsema's leather covers. The leather covers have a belt clip.

The transmitter is also available without its front label (No Label, FMT-301NL). This enables customers to use their own labels.



**Stylish Leather Pouch  
(LP)**



**9V Alkaline  
Battery (6LR61)**

Pictures are for illustration purpose only; final product may differ

**Products in Range**

|  |                                     |
|--|-------------------------------------|
|  |                                     |
| <p><b>FMT-302</b><br/>2-channel</p>                        | <p><b>FMT-304</b><br/>4-channel</p> |
|  |                                     |
| <p><b>FMT-301NL, FMT-302NL, FMT-304NL</b><br/>No label</p> |                                     |

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**REGULATORY COMPLIANCE STATEMENTS****American Users**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

**FCC Notice**

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy and, if installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the computer and receiver.
- Connect the computer into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

**Canadian Users**

This Class [B] digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe [B] respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

**European Users**

This information Technology Equipment has been tested and found to comply with the following European directives:

- ETS 300 683
- I-ETS 300 220

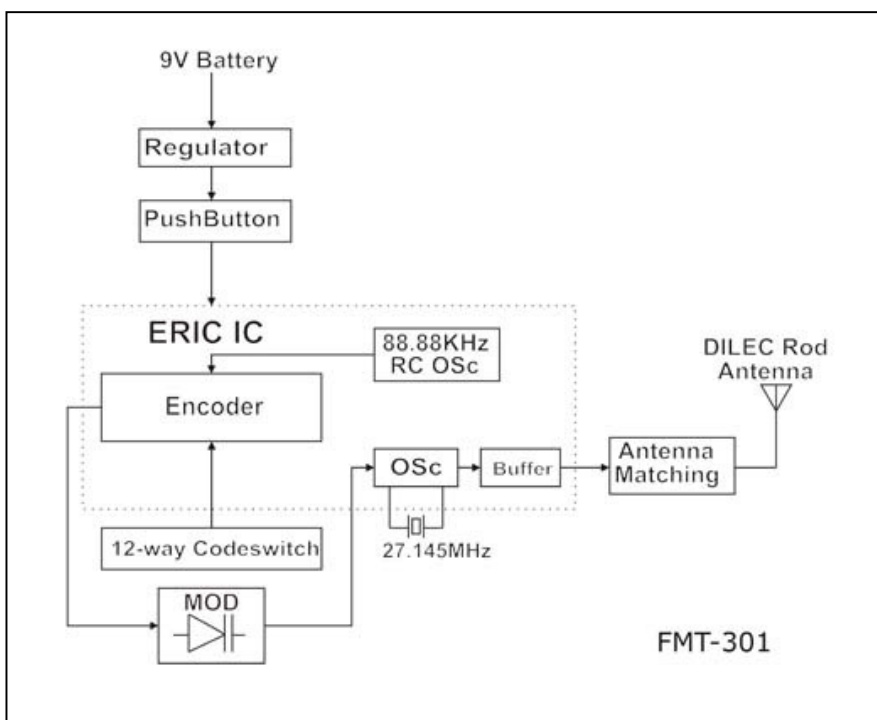
**Australian and New Zealand Users**

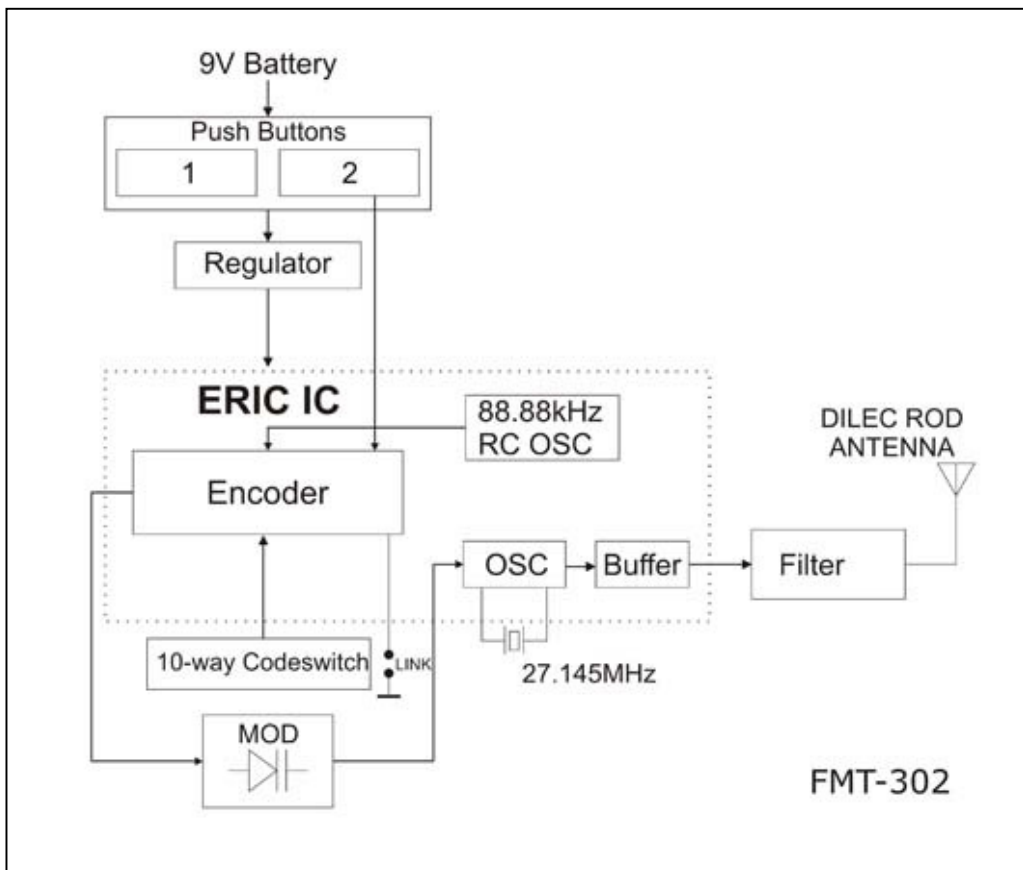
This device has been tested and found to comply with the limits for a Class [B] digital device, pursuant to the Australian/New Zealand standard AS 4268:2012 set out by the Spectrum Management Agency.

**Technical Data**

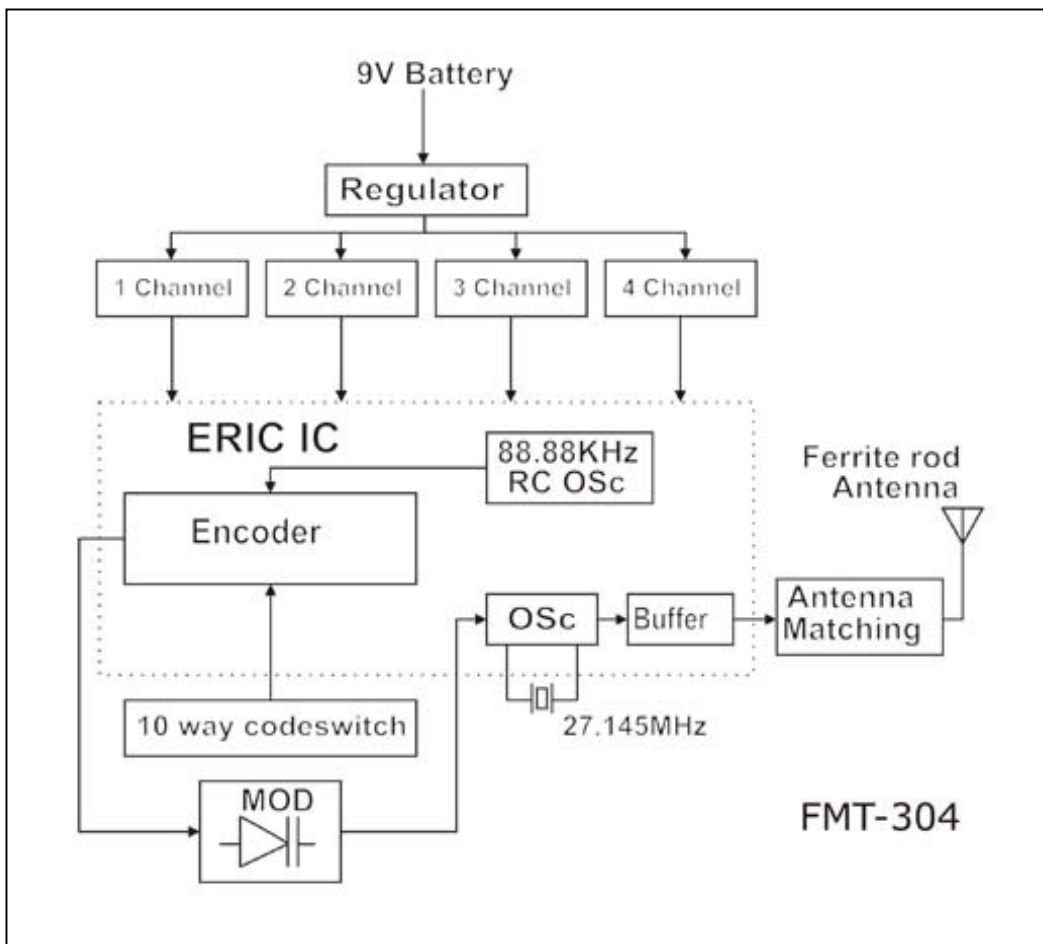
|                                |   |
|--------------------------------|---|
| <b>Power Source</b>            | 9Volt Alkaline Battery  |
| <b>Battery Life</b>            | Carbon: 1 year shelf life; Alkaline: 2 years shelf life   |
| <b>Supply Voltage</b>          | 6-16 VDC (for constant RF-output)   |
| <b>Current Consumption</b>     | 40mA (typical) at 8Volts DC supply during transmission  |
| <b>Operating Frequency</b>     | 27.145MHz (Other frequencies available: 27.045, 27.195 & 27.455MHz. NB. 27.455MHz is available for Europe Only) |
| <b>Carrier Freq. Tolerance</b> | Crystal controlled 30 parts per million (0-50°C)  |
| <b>Radiated Field Strength</b> | 70dB uV/m at 3m (±3dB) or 3uW   |
| <b>Antenna</b>                 | Built-in 50mm proprietary DILEC rod   |
| <b>Type of Emission</b>        | Narrow-bandwidth Frequency Modulation (5K00F1D)   |
| <b>Bits per second</b>         | 926bps  |
| <b>Spurious Transmission</b>   | Complies with FCC 15.227 (USA), MPT 1346 pt 4.5 (UK) and ETS 300220 (Europe)                                    |
| <b>Necessary Bandwidth</b>     | ±5.0kHz   |
| <b>Digital Coding System</b>   | Onboard 12-way coding switch (4096 codes) (FMT-404: 10-way)   |
| <b>Dimension</b>               | 96 x 55 x 20 mm   |
| <b>Weight</b>                  | 70g (excluding battery)   |
| <b>Useable Operating Range</b> | 200m (varies upon receiver antenna & location)  |
| <b>Compatible Receivers</b>    | All Elsema type FMR series  |

**Block Diagram**





FMT-302



FMT-304

**Using FMT-302 and FMT-304**

To Use FMT-302 with a 2 channel receiver, and FMT-304 with a 4 channel receiver, just match the 10 way dip switch on the transmitter to the receiver.

**Using 2 Different Receivers with FMT-302**

FMT-302 can also be used with 2 different single channel receivers e.g. FMR-212.

Make sure the 10 way dip switch on the transmitter board matches the first 10 dip switches on the receiver. Set the receivers dip switch 11 and 12 as described below.

When **Button A** is pressed, dip Switch 11 is transmitted as “**ON**” (Dip switch 11 on the Receiver is up)  
 When **Button B** is pressed, dip Switch 11 is transmitted as “**OFF**” (Dip switch 11 on the Receiver is down)  
 When **wire link** is connected (Factory default), dip switch 12 is “**ON**” (Dip switch 12 on the Receiver is up)  
 When **wire link** is disconnected (cut), dip switch 12 is “**OFF**” (Dip switch 12 on the Receiver is down).  
 (see picture below for the location of the wire link)



**Using 4 Different Receivers with FMT-304**

FMT-304 can also be used with 4 different single channel receivers e.g. FMR-212. This can be setup as follows:

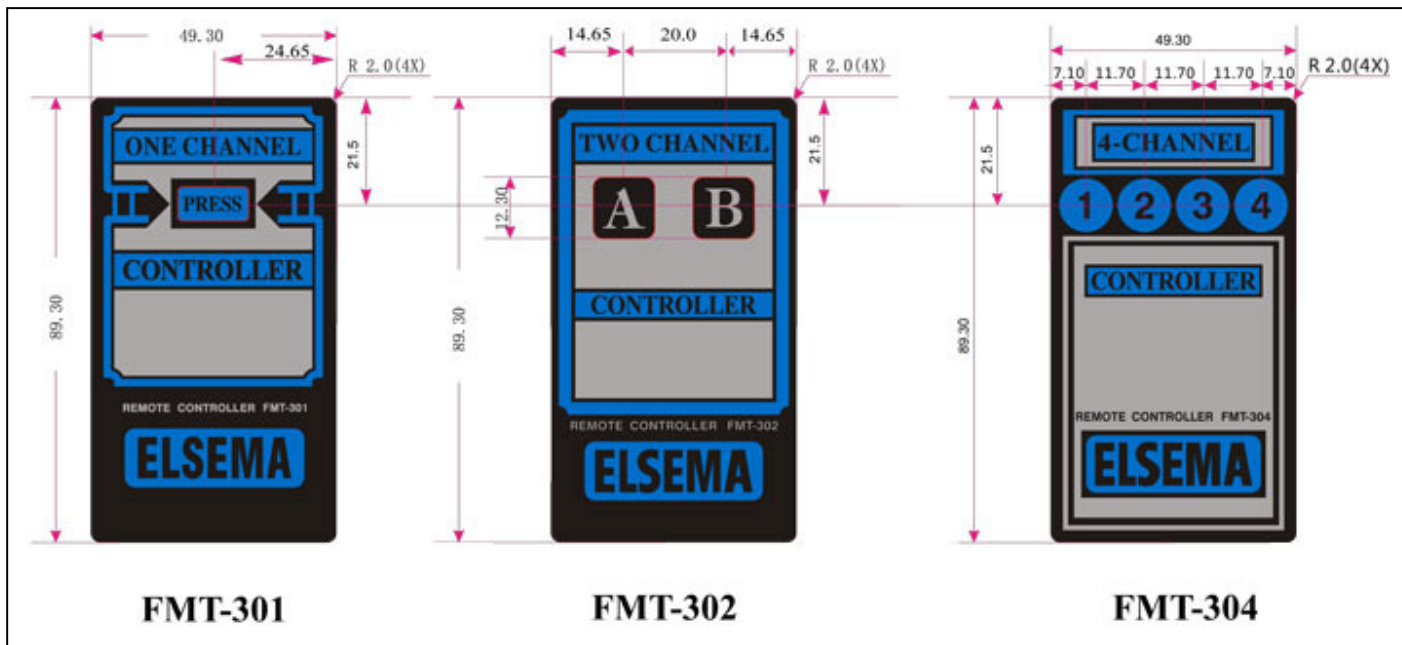
1. Make sure the 10 way dip switch on the transmitter board matches the first 10 dip switches of the receiver.
2. The receivers dip switch 11 and 12 configuration is illustrated below.



*The channel coding figure can be found at the back of the battery cover.*

**Customised labels**

The transmitters are available without the front labels. Customers can purchase the FMT-301NL, FMT-302NL, FMT-304NL, which is a hand held transmitter without the front labels. This enables the customers to fit their custom made labels. Details of label dimensions are given below.



Customers who wish to have their own membranes can contact us with their designs on (+61) 2 9609 4668

You can have your own company logo and specific text printed on the lexans. e.g. Up, Down, Right and Left or Start, Stop etc.

The minimum quantity for custom lexan is 50 pieces per order.



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VIC Unit 7, 170 Forster Road, Mt Waverley VIC 3149  
NSW Unit 5, 142 James Ruse Drive, Parramatta NSW 2150  
QLD 15-19 Hudson Road, Albion QLD 4010  
WA Unit 4, 200 Balcatta Road, Balcatta WA 6021  
ACT Unit 2, 157-161 Gladstone Street, Fyshwick ACT 2609

You're in very secure company 1300 366 851 | [seadan@seadan.com.au](mailto:seadan@seadan.com.au)