

## FMTR-2713

27MHz, 1Watt Repeater

### Features

- Ideal for increasing range to 3000m
- Weather proof case also available

### Application

- Transmission range extension

### Description

The FMTR-2713 is a **27MHz repeater**. With its highly sensitive receiver and a 1 Watt transmitter, it is ideal for increasing the range of a transmitted signal to 3000 metres. This transmitted signal can be any of Elsema's FMT-... series transmitters. For example the KEY-301 key chain transmitter has a maximum transmitted range of 80 metres, however when used with the FMTR-2713 repeater the effective range is increased up to **3000 metres**.

A suitable **27MHz antenna** should be connected to the SO239 socket. We recommend the Elsema ANT27L antenna.

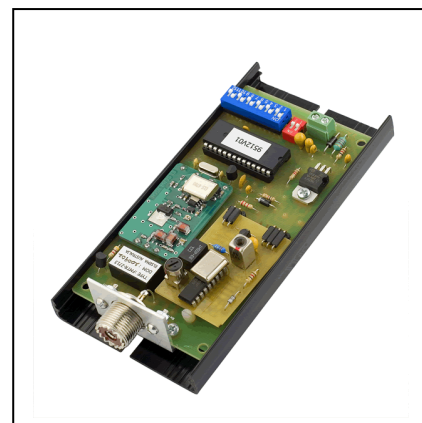
The FMTR-2713 can be ordered with a **weather proof plastic case (FMTR-2713E)** or as a **Printed Circuit Board** assembly (See picture). This PCB assembly enables customers to integrate the repeater into their own product or case.

The FMTR-2713 repeater comes in **three different models** i.e. 9510V..., 9511V... and 9512V... . The three models are determined by inserting the correct micro-processor on the repeater board.

Each repeater is **factory set** and the micro-controller is labelled with the correct model number. All micro-controllers are inserted into a 28-pin IC socket. This socket gives the added advantage of changing the repeater to a different model. Customers must specify which model they require when ordering the repeater.

### Compatibility

All Elsema type FMT-... series  
KEY-301, KEY-302, KEY-304  
FMT-301, FMT-302, FMT-304  
FMT-401, FMT-402, FMT-404  
FMT-312E, FMT-31202E, FMT-31204E  
FMT-2712



**Technical Data**

Supply Voltage	11-13.6VDC (for constant RF-Output), screw type terminal block. Do not use AC supply.
Current Consumption	Transmitting 370mA Receiving 16mA (standby)
Operating Frequency	27.145MHz (Other frequencies available: 27.045, 27.195 & 27.455MHz. NB. 27.455MHz is available for Europe Only)
Carrier Freq Tolerance	Crystal controlled, 30 parts per million (0-50 deg C)
RF Power Output	1W into 50 Ohms at 12VDC, SO239 Socket
Antenna	SO239 socket is provided. Optimum performance use Elsema ANT27L antenna
Type of Emission	Narrow-band-width Frequency Modulation (5K00F1D)
Transmitter	FMT-2712 (Refer for more information)
Type of Demodulation	Narrow-Bandwidth Frequency Modulation (FM)
Receive	FMR-05 (Refer for more information)
Mounting Hole Size	3.17mm or 1/8"
Mounting Hole Spacing	Length 120mm 4.72" Width 60mm 2.36"
Weight	106g (without weather proof case)
Useable Operating Range	Up to 2000m, depending on installation and type of antenna used. Recommended Antenna is Elsema ANT27L

**Instructions**

**FMTR-2712A** is using the **9510V...** Micro-Controller. The repeater is checking the first 8 bits of the received word and if it is matching its own 8-way code switch, will re-transmit these 8 bits together with the last 4 bits it received. This model can be used when a group of transmitters should be repeated (Not all transmitters). If a multi channel receiver (Such as FMR204-12) is used to receive the repeated transmission, each transmitter, which transmits into the repeater, can be identified. For example, a building with 16 transmitter smoke detectors (Elsema's TSD-1), a 16 channel receiver can indicate which smoke detector is transmitting.

The **2-way mode switch** (Between the supply terminal block and the 12-way code switch) has no function and is reserved for the future use.

**FMTR-2712B** is using the **9511V**... Micro-Controller. This model uses the 2-way mode switch (Between the supply terminal block and the 12-way code switch), allowing four different modes of repeating.

2-way Mode Switch Configuration of FMTR-2712B is as follows:

<b>Switch 1 - Repeat Modes</b>	
ON	It is comparing all 12 bits of the received word with the 12-way code switch and if matching, will re-transmit this unique code .
OFF	It is comparing the first 8 bits with code switches 1 to 8, and if matching, will re-transmit this 8 bits, together with the current data on code switch inputs 9 to 12.

<b>Switch 2 - Response Time</b>	
ON	Repeater will transmit as soon as correct received word is matching the 8-way or 12-way code.
OFF	Repeater will transmit after reception of correct code has ended .

**FMTR-2712C** is using the **9512V**... Micro-Controller. Repeater will repeat any received 12 bit code switch data. This model also uses the 2-way mode switch (Between the supply terminal block and the 12-way code switch), allowing four different modes of repeating.

This type of repeater will respond to any of Elsema's FMT-... series transmitters. It should not be used in an area or location where other transmitters for garage doors, alarms, etc. are expected since the repeater would splatter the 27MHz frequency.

2-way Mode Switch Configuration of FMTR-2712C is as follows:

<b>Switch 1 - Repeat Modes</b>	
ON	The repeated data is re-transmitted as opposite data. Therefore an “on” received, by the repeater, is repeated as an “off” and receiver is disabled for 4 seconds.
OFF	The repeated data is re-transmitted as normal data and receiver is disabled for 4 seconds.

<b>Switch 2 - Response Time</b>	
ON	Repeater will transmit as soon as a valid ELSEMA code is received.
OFF	Repeater will transmit after reception of the ELSEMA code has ended .

**Special Versions**

**9512V609A:** Same as 9512V, except data is opposite and receiver is disabled for 4 seconds.

**9512V05:** Same as 9512V, except data is not opposite and receiver is disabled for 4 seconds.

**Please Note:**

- After a valid reception, all 3 models are repeating the transmission for 0.5 seconds only (Optional times are available), after which they go back into receive mode to check for another valid reception.
- The 12-way code switch is inserted into a socket. This enables the user to replace the 12-way code switch with a 8-way code switch and use 9 to 12 for data. An 8-way code switch is available from Elsema.
- The repeater has an on board red LED which indicates that a code is repeated (transmitting).

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