SALCOM 12-04-0000
UHF POCSAG Eight Channel Relay Output Receiver

Technical Manual

Description.
The SALCOM 12-04 receiver has been designed to receive and decode POCSAG data in the UHF frequency band. The receiver also provides the ability to control up to eight relay outputs using SALCOM paging systems or wide area public paging networks.

Operation.
The unit receives and decodes a numeric or alphanumeric pager call. If the received unit number matches the 12-04 unit number, the relay output is switched according to the ON/OFF command fields of the message.

The Receiver.
The receiver consists of a direct conversion receiver device IC1 with a crystal controlled local oscillator. The signal enters the unit through a BNC connector, and then passes through a band pass filter, before entering the receiver device.
The local oscillator is an internal circuit to IC1. The frequency is controlled by crystal X1, and can be adjusted by use of C4.
Two test point outputs are provided by the receiver device IC1, and can be accessed at P3 pins 1 and 2. These show the pre detected audio of the receiver, and can be used to tune the previous stages. Detected data comes from pin 27 of IC1 receiver device.

The Decoder.
The detected serial data from the receiver IC1 is fed into a microprocessor POCSAG decoder IC2 pin 12, and can be viewed with an oscilloscope on test point P3 pin 3.
The microprocessor device has the following functions:

- Decode the POCSAG data from the receiver.
- Output decoded POCSAG data via the serial port.
- Communicate to the user configuration software when needed.

The relays are driven by a buffes Q1,Q2, which are driven by the decoder outputs. An LED and resistor is wired across the relay coil to show status of the relay.

The microprocessor firmware is protected from latch up by an external watchdog circuit IC3. The configuration is held in non-volatile EEROM memory IC4, with a write protection link P1 to prevent accidental corruption in noisy electrical environments.
The decoder can be programmed by the user to interpret up to four RIC (CAP) codes.

Power conditioning.
The power input to the unit comes in via a 2-way screw terminal block. Input filtering and over voltage protection is performed by R27, F1, Z1, C34, C30. This supply is then used to power the relay coils, and can be measured on test point PAD 2.
The main supply is reduced to 3volts by the low dropout series regulator IC5, and can be measured on test point PAD 1. The 3 volt rail is used to power all the logic devices as well as the receiver device.

Specification

Enclosure.	115mm x 65mm x 40mm. ABS plastic case.
Supply Voltage	10v to 17v, Nominal 12V.
Current drain	Standby 7mA plus 18mA per energised relay.
Relay contacts	1Amp @24VDC or 120VAC (10A 240vAC optional special order)
Temperature limits	-10 to +50degC
Environmental protection	Weather proof. IP565
Frequency range	450-470MHz
Frequency selection method	Crystal.
RX sensitivity	Approx -120dBm
Aerial connection	BNC
Paging protocol	POCSAG 512 or 1200baud.