≡Rapid

DATA SHEET

AM/FM System and Modules

Order code	Manufacturer code	Description
43-0284	n/a	1-SWITCH RADIO KEYFOB (RC)
43-0286	n/a	2-SWITCH RADIO KEYFOB (RC)
43-0288	n/a	3-SWITCH RADIO KEYFOB (RC)

- HIGHLY SECURE **KEELOQ** CODE HOPPING PROTOCOL

- AM Radio or Infra Red

- 1 – 3 SWITCH OPTIONS

- LED INDICATION OF TRANSMISSION

- DIRECTLY COMPATIBLE WITH KEELOQ DECODER

- POWER SAVING AUTO SHUT OFF FEATURE

- AUTOMATICALLY TRANSMITS BATTERY LOW CONDITION.

- USER CUSTOMISABLE HOUSING

- BOARD LEVEL PROGRAMMING OF ID

- RANGE:
  ⇒ AM-030 RADIO UPTO 45m
  ⇒ AM-110 RADIO UPTO 100m
  ⇒ INFRA RED UPTO 20 m
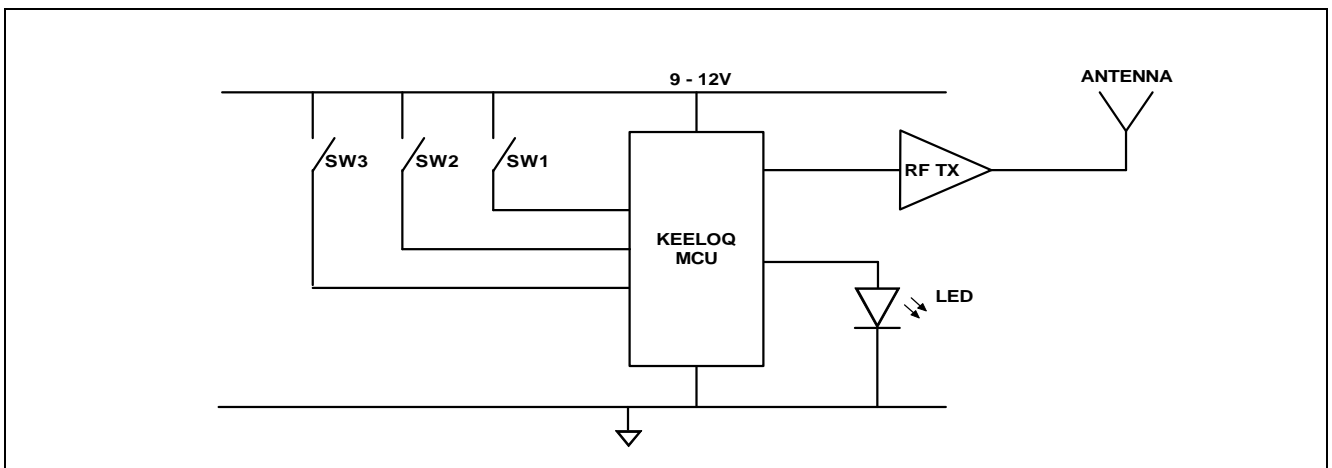
- RADIO EMC COMPLIANT

DESCRIPTION

The RF Solutions KEELOQ range of miniature pocket Keyfob encoders are available as Radio of Infra Red transmitters.

When paired with one of the KEELOQ Rx decoder boards, a complete remote control system may be achieved, with comprehensive interfacing capabilities. This may also be high security "code hopping"

The keyfobs are housed in a tough ABS enclosure and supplied with Battery ready to operate.

An membrane overlay sticker is used to indicate the switch positions which may be customised to incorporate a specific logo or mark.

BLOCK DIAGRAM

R.F. Solutions LTD.

KEYFOB ENCODERS RADIO / INFRA-RED

'110' Series Keyfob Encoders
These products use the HCS360 Keeloq Encoder Device

Part Number	Description	Freq (MHz)	Range** (Metres)	Compatible Decoders
AM-110C1-433	AM Transmitter Keyfob 1 Sw	433.92	100	AM-HiRK-433 AMS-001B-433 AMS-0011-433 AMS-008C3B-433 AMS-105C3A-433
AM-110C2-433	AM Transmitter Keyfob 2 Sw	433.92	100	
AM-110C3-433	AM Transmitter Keyfob 3 Sw	433.92	100	

'030' Series Keyfob Encoders
These products use the HCS301 Keeloq Encoder Device

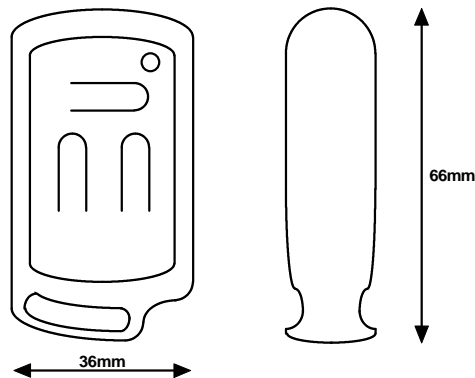| Part Number	Description	Freq (MHz)	Range** (Metres)	Compatible Decoders
AM-030C1-433	AM Transmitter Keyfob 1 Sw	433.92	45	AM-001B-433 AM-0011-433 AM-008C3B-433 AM-105C3A-433
AM-030C2-433	AM Transmitter Keyfob 2 Sw	433.92	45	
AM-030C3-433	AM Transmitter Keyfob 3 Sw	433.92	45	

'IR' Series Infra Red Keyfob Encoders
These products use the HCS360 Keeloq Encoder Device

Part Number	Description	Range** (Metres)	Compatible Decoders
AM-106C1-433	IR Transmitter Keyfob 1 Sw	20	IR-105C4A
AM-106C2-433	IR Transmitter Keyfob 2 Sw	20	
AM-106C3-433	IR Transmitter Keyfob 3 Sw	20	

** Range stated is optimum, direct line of sight. In worst conditions this can be reduced by upto 50%

Mechanical Details

66mm

36mm

Operation
The Tx encoder transmits the KEELOQ code for as long as any push-button switch is depressed. Operation of the Tx encoder buttons will cause either a momentary or a latching action at the Rx decoder, depending on the configuration of the Rx decoder.

Battery Supply
The keyfob is supplied with a standard cigarette lighter 12V battery type GP23A or equivalent.
Low Battery

When the unit measures a low battery voltage level, the transmit LED flashes during transmission, and the data transmitted includes a 'Low battery' status flag to the receiver decoder.

Auto Shutoff Feature

After 26seconds of continuous transmission the Keyfobs are programmed shut down. This is to prevent the battery being drained through accidental operation (i.e. if it is in the users pocket!).

License Exemption

The transmitter encoders use ECM compliant radio transmitter modules and complies with ETSI330-220 and ETSI300-683.

Technical Specification

Max Storage Temperature   -10°C to +70°C,   Max Operating Temperature   0°C to +55°C

ELECTRICAL CHARACTERISTICS	MIN	TYPICAL	MAX	DIMENSION
Supply Current (Transmitting)	9	12	16	mA
Frequency	432.90	433.920	434.100	MHz
Output Power (ERP) @ 418 MHz			0.25	mW
Output Power (ERP) @ 433.92 MHz			10	mW

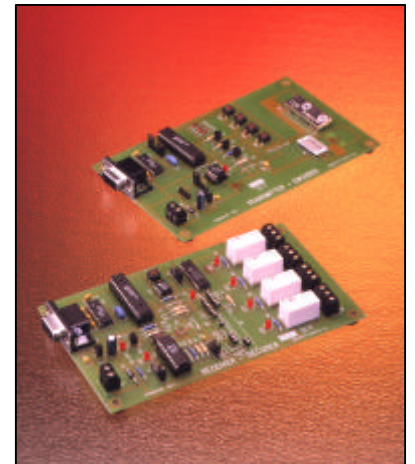## Further Information: Developing a Keeloq Based Decoder System

The RFEVAL1 is a Evaluation Kit consisting of a transmitter encoder board and receiver decoder board. Supplied with encoding I/C's and development software, this kit provides a hardware development platform capable of accepting a variety of radio modules and antennae.

The kit provides a hardware development platform and copy layout design antenna for:

- Range Testing

- Encoding / Decoding Testing

- Target Environment Testing

- Remote Switching

- Antenna Evaluation

This enables the engineer to select the optimum radio modules, antenna type and get a radio application working with the minimum time.

The boards are supplied as either bare boards (with a pre-tuned PCB antenna ready for use) or completely assembled (requiring radio modules only). Full schematics and parts list supplied.

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