



**RKU R2 & R4
H-SERIES
RECEIVERS**

RKU Remote Control, Transmitters and Receivers

GENERAL DESCRIPTION

- The RKU series of FM transmitters and receivers operate in an allocated UHF band, and are extensively used for remote control, signals and alarm monitoring, using limited transmission time.

Typical applications are as follows:

- Stop and Starting of pumps and motors, for use in the control of irrigation, reservoir water levels and fire control equipment. Control of floodlights, emergency evacuation and mining applications.
- The receiver features 15 programmable output relay functions such as on/off, flip/ flop, latching and timing. The relay contacts have voltage free change over contacts.

There are two types of transmitters:

✳ Hand held remote control (T.G.) +/- 1km.

✳ Fixed transmitter (HOG) = 1 - 6 km.

Note: Reliable operation between transmitter and receiver is affected by physical obstructions such as buildings, hills, trees / bush which may be between the transmitter and receiver arrangement. The type of antennas used and their location will also determine the range.

Technical Specifications of Compatible Transmitters

	Hand held (T.G.)	Fixed transmitter (HOG)
FREQUENCY BAND	UHF 402 - 404 MHz	UHF 402 - 404 Mhz
POWER	NOMINAL 100 mW	NOMINAL 100mW
NUMBER OF CHANNELS	CH 1, CH 2, CH 4	4 CH
TRIGGERING	BY PUSHING BUTTON	BY APPLYING +12V TO ANY INPUT
CODE	1023 ON 4CH	1023 ON 4CH
CODE FORMAT	MAMI 10BIT	MAMI 10BIT
MODULATION	FM	FM
CHANNEL SPACING	12.5 KHz	12.5 KHz
WORKING TEMP	-10 TO + 60°C	-10 TO + 60°C
DIMENSIONS	55 X 100 X 20mm	145 X 135 X 45mm
ANTENNA	TELESCOPIC	BUILT IN DIPOLE OR EXT ANTENNA
POWER SUPPLY	INTERNAL 9v ALKALINE BATTERY	EXT 12V dc SUPPLY
HOUSING	ABS PLASTIC	ABS PLASTIC AND METAL HOUSING

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RKU R2 & R4 RECEIVER

Dipswitch programming (Read carefully):

NOTE: The transmitter must be programmed first (see transmitter's instructions).

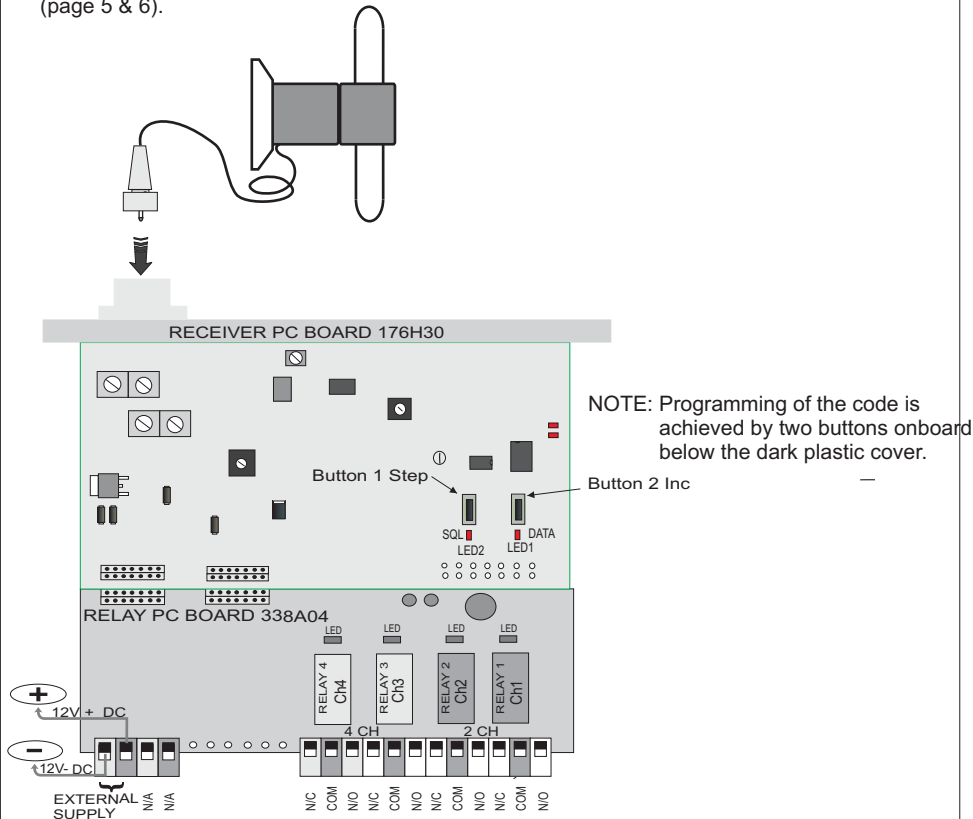
1. With power off remove the screws next to the connector.
2. Slide down the dark plastic plate to open.
3. The correct polarity must be observed before attempting to apply power on the receiver. Apply 12Vdc supply and the LED1 will start flashing at about 1sec intervals.
4. As the receiver is capable of "Learning" the code from the transmitter proceed as follows:
 - (a) While transmitting with a pre-programmed transmitter, press and hold the step or increment button on the receiver, observe that LED1 on the receiver stops flashing for a short period of time.
 - (b) Release the step button on the receiver and observe that a relay corresponding to transmitter's channel on the receiver PC board (Any Channel) pulls in .

NOTE: It is possible to operate multiple receivers in a collective, individual or group mode.

5. Remove power from the RKU receiver.

The receiver is now configured to respond only to the correct code or codes.

6. Now proceed to program relay options (page 5 & 6).



RKU Receiver - Programming

Programming the output relay options (Read instructions carefully):

NB.: THIS OPERATION WILL OVERWRITE THE OPTIONS ON PAGE 6

1. With power off remove the screws next to the connector.
2. Slide down the dark plastic plate to access the two programming buttons (**Step/Increment**).
3. Press and hold down the **step** button, while holding down the **step** button apply power, **LED 1 will flash once**, then release **step** button and notice that **LED 1 flashes once** indicating programming mode.
4. With reference to the relay table below select the desired option by entering the TWO digit value of the desired option. (E.g programming option 07: Press 1 x 'STEP', 7 x 'INC' and 1 x 'STEP').

NOTE: For option 00 (default) only press Step button 2 times to select 2 zero's and exit programming, the LED 1 will flash 4 times.

5. The RKU R2/R4 receiver is now ready for installation and use. :

	Transmitter - Receiver -	Button 1 CHANNEL 1	Button 2 CHANNEL 2	Button 3 CHANNEL 3	Button 4 CHANNEL 4
● RELAY OPTION 00 (DEFAULT)		ON/OFF	ON/OFF	ON/OFF	ON/OFF
RELAY OPTION 01		ON/OFF	FLIP-FLOP	ON/OFF	FLIP-FLOP
RELAY OPTION 02		FLIP-FLOP	FLIP-FLOP	FLIP-FLOP	FLIP-FLOP
RELAY OPTION 03		ON/OFF	FLIP-FLOP	TIMER 30SEC	TIMER 1 MIN
RELAY OPTION 04		FLIP-FLOP	TIMER 1 MIN	FLIP-FLOP	TIMER 4 MIN
RELAY OPTION 05		TIMER 30 SEC	TIMER 1 MIN	TIMER 2 MIN	TIMER 3 MIN
RELAY OPTION 06		TIMER 1 MIN	TIMER 5 MIN	TIMER 10 MIN	TIMER 20 MIN
RELAY OPTION 07		TIMER 1 MIN	TIMER 10 MIN	TIMER 20 MIN	TIMER 40 MIN
RELAY OPTION 08		TIMER 1 MIN	TIMER 30 MIN	TIMER 60 MIN	TIMER 90 MIN
RELAY OPTION 09		ACTIVATE 1+2	DEACTIVATE 1+2	ON/OFF	ON/OFF
RELAY OPTION 10		ACTIVATE 1+2	DEACTIVATE 1+2	TIMER 1 MIN	TIMER 3 MIN
RELAY OPTION 11		ACTIVATE 1+2	DEACTIVATE 1+2	ACTIVATE 3+4	DEACTIVATE 3+4
RELAY OPTION 12		LATCH	LATCH	ACTIVATE 3+4	DEACTIVATE 3+4
RELAY OPTION 13		LATCH	LATCH	ON/OFF	ON/OFF
RELAY OPTION 14		LATCH	LATCH	TIMER 1 MIN	TIMER 5 MIN
RELAY OPTION 15		LATCH	LATCH	LATCH	LATCH
RELAY OPTION 16 (PUMP CONTROL)		TIMER 1 MIN	TIMER 5 SEC	TIMER 1 MIN	TIMER 5 SEC
RELAY OPTION 17 (PUMP CONTROL)		TIMER 2 MIN	TIMER 5 SEC	TIMER 2 MIN	TIMER 5 SEC
RELAY OPTION 18 (PUMP CONTROL)		TIMER 5 MIN	TIMER 5 SEC	TIMER 5 MIN	TIMER 5 SEC
RELAY OPTION 19 (PUMP CONTROL)		TIMER 10 MIN	TIMER 5 SEC	TIMER 10 MIN	TIMER 5 SEC

Note:

TIME = Holding time since last transmission

ON/OFF = Momentary

FLIP/FLOP = Set/Reset. (Note: There is a delay between activations.)

LATCH = Permanent Latch. To reset, switch off the receiver.

RKU Receiver - Programming

Programming the Specific Relay Timer Options (Read instructions carefully):
NB.: THIS OPERATION WILL OVERWRITE THE OPTIONS ON PAGE 5

1. With power off remove the screws next to the connector.
2. Slide down the dark plastic plate to access the two programming buttons (**Step/Increment**).
3. Press and hold down **Increment** button. Apply power to the receiver while holding the **Increment** button.
 Notice that **LED 1** flashes once with the **Increment** button still held in indicating programming mode. Release the **Increment** button.
4. Select a relay from 1 to 4 into which the options are to be programmed by pressing the **Increment** button as many times as the relay number followed by the **Step** button. **LED1** should flash twice.
5. With reference table below enter 2 digits to select the desired option by pressing the **Increment** button as many times as the first digit followed by the **Step** button and do the same for the second digit. 1 flash will acknowledge the first digit and 3 flashes will acknowledge the second digit.
 The receiver will reset to normal running mode.

NOTE: Program option 01 to reset any of the relays to default values into the selected relay number.

●	TIMER OPTION	01 (DEFAULT)	MOMENTARY	TIMER OPTION	17	3 MINUTES
	TIMER OPTION	02	5 SECONDS	TIMER OPTION	18	4 MINUTES
	TIMER OPTION	03	6 SECONDS	TIMER OPTION	19	5 MINUTES
	TIMER OPTION	04	7 SECONDS	TIMER OPTION	20	10 MINUTES
	TIMER OPTION	05	8 SECONDS	TIMER OPTION	21	15 MINUTES
	TIMER OPTION	06	9 SECONDS	TIMER OPTION	22	20 MINUTES
	TIMER OPTION	07	10 SECONDS	TIMER OPTION	23	25 MINUTES
	TIMER OPTION	08	12 SECONDS	TIMER OPTION	24	30 MINUTES
	TIMER OPTION	09	15 SECONDS	TIMER OPTION	25	40 MINUTES
	TIMER OPTION	10	20 SECONDS	TIMER OPTION	26	50 MINUTES
	TIMER OPTION	11	25 SECONDS	TIMER OPTION	27	60 MINUTES
	TIMER OPTION	12	30 SECONDS	TIMER OPTION	28	75 MINUTES
	TIMER OPTION	13	40 SECONDS	TIMER OPTION	29	90 MINUTES
	TIMER OPTION	14	50 SECONDS	TIMER OPTION	30	105 MINUTES
	TIMER OPTION	15	1 MINUTE	TIMER OPTION	31	PERSONAL
	TIMER OPTION	16	2 MINUTES	TIMER OPTION	32 TO 80	FUTURE
	OPTION	81	FLIP/FLOP	OPTION	83	LINK RLY1 & RLY2
	OPTION	82	LATCH	OPTION	83	LINK RLY3 & RLY4

Note:

Anything above option 80 is not time related as indicated in the table above.
 When linking Ch1 to Ch2 or Ch3 to Ch4, option 83 must be programmed to all channels that are to be linked.
 LATCH operation can only be reset by removing and reapplying power.

Technical Specifications of Receiver

FREQUENCY BAND	UHF 402 - 404 MHz
NUMBER OF CHANNELS	2ch (RKU - R2) / 4ch (RKU - R4)
SUPPLY VOLTAGE	+12VDC (13.8VDC)
RECEIVER TYPE	FM DOUBLE CONVERSION SUPER HETERODYNE
SENSITIVITY	≤ 0.3uV at 12 dB SINAD
FREQUENCY CONTROL	SYNTHESIZED
WORKING TEMPERATURE	-10 to + 60°C
ANTENNA CONNECTION	S0239 UHF FEMALE SOCKET
RELAY CONTACTS	SINGLE POLE CHANGE - OVER (VOLTAGE FREE)
RELAY CONTACT RATING	6A, 30Vdc / 6A, 220Vac
PROGRAMMABLE RELAY OPTIONS	15
DIMENSIONS	145 X 135 X 45 mm
HOUSING	ALUMINIUM

M.A.M.I STANDARD 10 BIT DIPSWITCH CODE

Programming the TG

1. Open the TG by removing the screw.
2. Fit the programming link P (The LED will flash twice indicating programming Mode.)
3. Press **INC** button once then **STEP** button, the led will flash once.

4. Now you have two choices :
 (1) Select a CODE at **Random** (by holding the INC button for a while).
NOTE : THE LED flashes at 1 sec intervals until you release the button, the RANDOM CODE is stored.

(2) OR enter the code in digital format (always 5 digits) according to the table on page 2.
NOTE : In this case the INC button increments the count and button STEP steps to the next digit.

E.g. For 10 bit code : 0101011100; the table on page 2 gives the binary sum of 00234 by adding the binary numbers where the dipswitch is on.

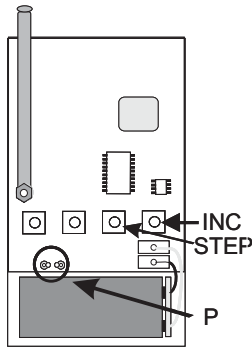
5. You can enter this number by pressing the INC and STEP as follows:
 { 0 0 2 3 4 }
 STEP - STEP - INC X2 & STEP - INC X3 & STEP - INC X4 & STEP

(LED flashes once after each press of STEP & a steady flash when finished)

NOTE: But 234 is only a three digit number so two zeros need to be added in front of the three digit number (234) to get a five digit number.
Therefore 0101011100 = 00234 (five digit number).

6. Remove programming link.

7. Close case , ready for use



1

M000052

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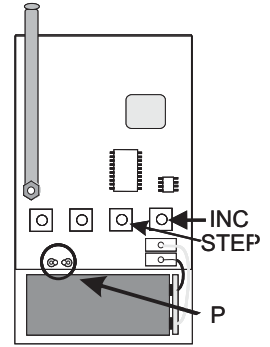
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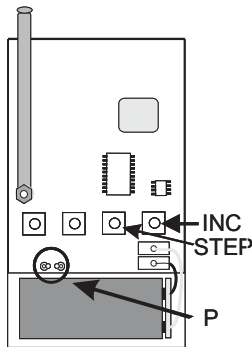
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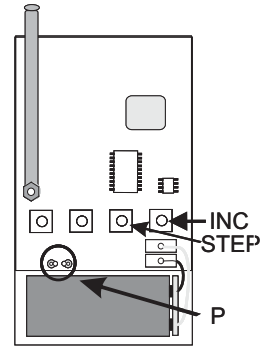
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Therefore 0101011100 = 00234 (five digit number).

6. Remove programming link.

7. Close case , ready for use



1

M000052

BIT	1	2	3	4	5	6	7	8	9	10
DIPSWITCH	OFF	ON	OFF	ON	OFF	ON	ON	ON	OFF	OFF
CODE	0	1	0	1	0	1	1	1	0	0
BINARY VALUE	1	2	4	8	16	32	64	128	256	512
ADD		+2		+8		+32	+64	+128		

2

=234

NOTE : For 10 bit code the binary value can go up to 1024 combinations.

M000052

BIT	1	2	3	4	5	6	7	8	9	10
DIPSWITCH	OFF	ON	OFF	ON	OFF	ON	ON	ON	OFF	OFF
CODE	0	1	0	1	0	1	1	1	0	0
BINARY VALUE	1	2	4	8	16	32	64	128	256	512
ADD		+2		+8		+32	+64	+128		

2

=234

NOTE : For 10 bit code the binary value can go up to 1024 combinations.

M000052

BIT	1	2	3	4	5	6	7	8	9	10
DIPSWITCH	OFF	ON	OFF	ON	OFF	ON	ON	ON	OFF	OFF
CODE	0	1	0	1	0	1	1	1	0	0
BINARY VALUE	1	2	4	8	16	32	64	128	256	512
ADD		+2		+8		+32	+64	+128		

2

=234

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TG_ins.odr

BIT	1	2	3	4	5	6	7	8	9	10
DIPSWITCH	OFF	ON	OFF	ON	OFF	ON	ON	ON	OFF	OFF
CODE	0	1	0	1	0	1	1	1	0	0
BINARY VALUE	1	2	4	8	16	32	64	128	256	512
ADD		+2		+8		+32	+64	+128		

2

=234

NOTE : For 10 bit code the binary value can go up to 1024 combinations.

M000052



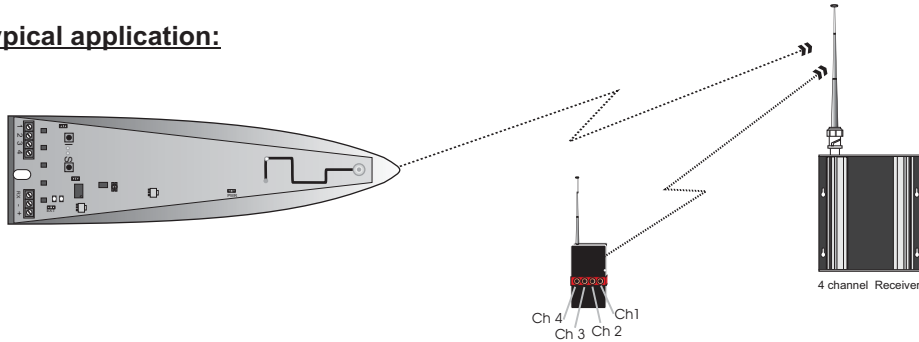
LONG RANGE REMOTE CONTROL (HOG) D1

HOG (LONG RANGE REMOTE CONTROL)

Description:

The **Hog** (long range remote control) is a UHF 100mW transmitter capable of activating up to 4 relay outputs in a receiver up to 6 km away (depending on terrain). The 4 inputs (channels) on the transmitter each correspond to a relay on the receiver. Each relay on the receiver can be individually programmed to perform different functions such as momentary, timer, toggle (see receiver instructions). The device (ID) codes may vary from 1 - 1023.

Typical application:



ID CODE PROGRAMMING

The **Hog's** basic functions are preprogrammed in the factory. The ID code **MUST** be programmed by the user. This can be done manually (see below) or using our standard universal programmer (Supplied separately).

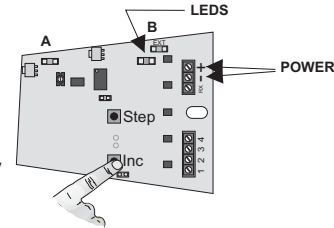
Manual programming:

This is accomplished by using the **Inc** and **Step** buttons. Please note that a five digit number is always required, no higher than 1023.

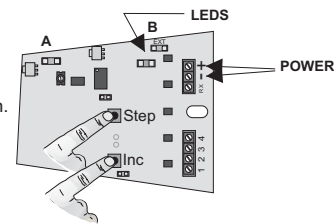
Transmitter code:

Please follow these simple steps carefully:

- 1- Apply power to the unit
- 2- Press and hold the **Inc** button until the green and red LED flash continuously



- 3- Using the **Inc** and the **Step** buttons enter a 5 digit number (**NO HIGHER THAN 01023**) which will be the Transmitter Code (ID).
- 4- After the fifth digit is entered the onboard LEDs will flash to indicate completion.
- 5- Press the **Step** button **TWICE** to exit programming or simply remove power.



Examples on next page

Examples:

1. To program the Transmitter (ID) Code to 00123 (5 digits with leading zero)

Hold the **I** button until the green and red LED flash continuously.

Now using **I** and **S** enter 5 Digits (00123) = **S** **S** **IS** **IIS** **IIIS**
 0 0 1 2 3

(Step) Steps you to the next digit and **(Inc)** Increments that digit

2. To program the Transmitter (ID) Code to 01132 (5 digits with leading zero)

Hold the **I** button until the green and red LED flash continuously.

Now using **I** and **S** enter 5 Digits (00132) = **S** **S** **IS** **IIIIS** **IIS**
 0 0 1 3 2

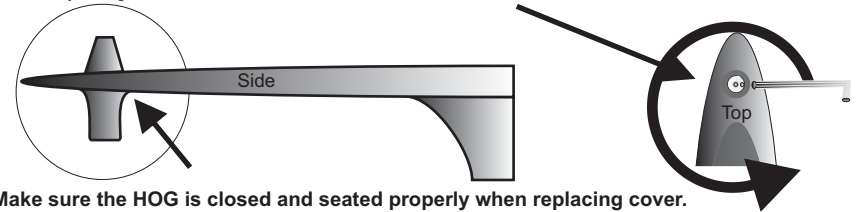
(Step) Steps you to the next digit and **(Inc)** Increments that digit

Connections:

Yellow: Channel 1
Green: Channel 2
Blue: Channel 3
White: Channel 4
Red: Positive 12v
Black: Negative 12v

How to open the HOG:

Insert allen key into grub screw and turn anti clockwise to unscrew.



NB: Make sure the HOG is closed and seated properly when replacing cover.

Permanent power

12v dc supply is permanently connected to the unit. Contacts are connected to the 4 inputs a small (20mA) current is constantly drawn

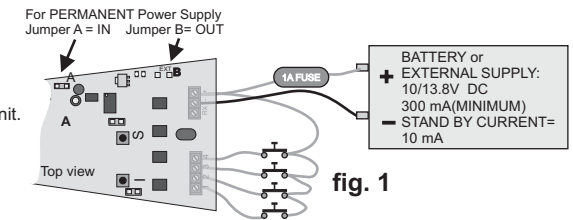


fig. 1

Power applied through the inputs

The negative is permanently connected power and trigger (+12v dc) is applied to any of the inputs (Normally Open contact may be used) no current is drawn but transmission stops on removing the trigger input.

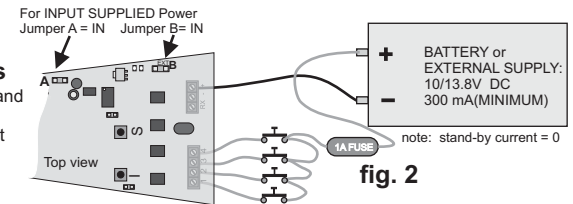


fig. 2

Technical Specifications

Parameter	Min.	Typ.	Max.	Unit	Application current consumption	Min.	Typ.	Max.	Unit
Power supply: Voltage D.C	10	13	13.8	V (dc)	Transmitter in permanent power mode (13vdc)	30	35	40	mA
		100		mA	Transmitter in Input powered mode (13vdc)	0	0	0	mA
		250		mA	Transmitter in Self-timed powered mode (13vdc)	0	0	0	mA
Transmitted power (link out) rms (50 Ohms)	80	90	100	mW	Transmission duty cycle = intermittent			50	%