

K180V3. ROLLING CODE 4-CHANNEL UHF REMOTE CONTROL with RESET ON EACH CHANNEL

This kit is a significant improvement on a kit which was published in the Australian electronics magazine *Silicon Chip* in 7/2002. Please read this article as background. You can get it from <http://www.crowcroft.net/kitsrus/k180.zip>

The main addition is that we have added Reset to each channel when in **TOGgle** mode. Thus for example, a garage door motor could be started when the **TOGgle** relay is activated then it will automatically cut off when the door has travelled its full movement and it hits a switch which resets / turns off the corresponding relay. The user does not have to stand watching the door then press the button on the transmitter unit again when he thinks it has open 'enough'. We have also replaced the individual transistors of the original circuit by a ULN2003A IC.

Up to 15 Transmitter units can be learnt by one Rx unit. (The article says 16 but the technical manual says 15.) To electronically connect the Tx unit with the receiver board press button 1 (the button all by itself) while **simultaneously** pressing the **LEARN** tact switch on the main board. You only have to do this briefly for under a second. But note it takes about **15 seconds** for the two units to internally connect and recognize each other. (During this 15 seconds it seems that one and only one keypress of the Tx unit will be recognised. Just disregard this. Wait the full 15 seconds until the two units have connected. Do not press the LEARN button again. Just wait 15 seconds.)

Tx units attached to any Rx unit can be electronically **unattached** by pressing the LEARN button continuously for 8 seconds. The **VALID DATA** LED is on during these 8 seconds. As soon as the LED goes off then you know that all Tx units previously recognized by the Rx unit have now been unattached from the Rx unit. If you want more details about the Microchip technology behind these Tx & Rx's then get

<http://www.kitsrus.com/pdf/an662.pdf> and <http://www.kitsrus.com/pdf/an665.pdf>

Technical details about the Automicro devices can be got from <http://www.kitsrus.com/pdf/automicro.pdf>

We sell Tx units and Rx units separately as A16TX and A16RX.

Assembly. See **Components** listing below. Follow the overlay. Be careful on R3 & R5, do not put one leg in the via.

Go to our Kitforum at <http://www.beam.to/diyforum> if you have any problems.

COMPONENTS		
Resistors 5% 1/4W carbon:		
1K	R13 brown black red	1
2K2	R9 R10 R11 R12 red red red	4
1M	R2 R4 R6 R8 brown black green	4
10M	R1 R3 R5 R7 brown black blue	4
1N4004	D1	1
100nF	C1 2 3 4 5 6 7 8 10 11	10
100uF/16V ecap	C9	1
4013	IC1 IC2	2
ULN2003A	IC3	1
7805	IC4	1
14 pin IC socket		2
16 pin IC socket		1
3 pin SIL header	LK1 LK2 LK3 LK4	4
Jumpers		4
LED 3MM green	L5	1
LED 5MM red	L1 L2 L3 L4	4
12 volt relay	RL1 RL2 RL3 RL4	4
Zippy tact switch	PB1	1
2 pole t/block	ED	1
3 pole t/block	ED	2
3 pole t/block	EK	4
17cm aerial wire		1
4 button Tx unit	4312RSA(O1)	1
Receiver module	3302D4-15(2A1)	1
K180V3 PCB		1

