

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>

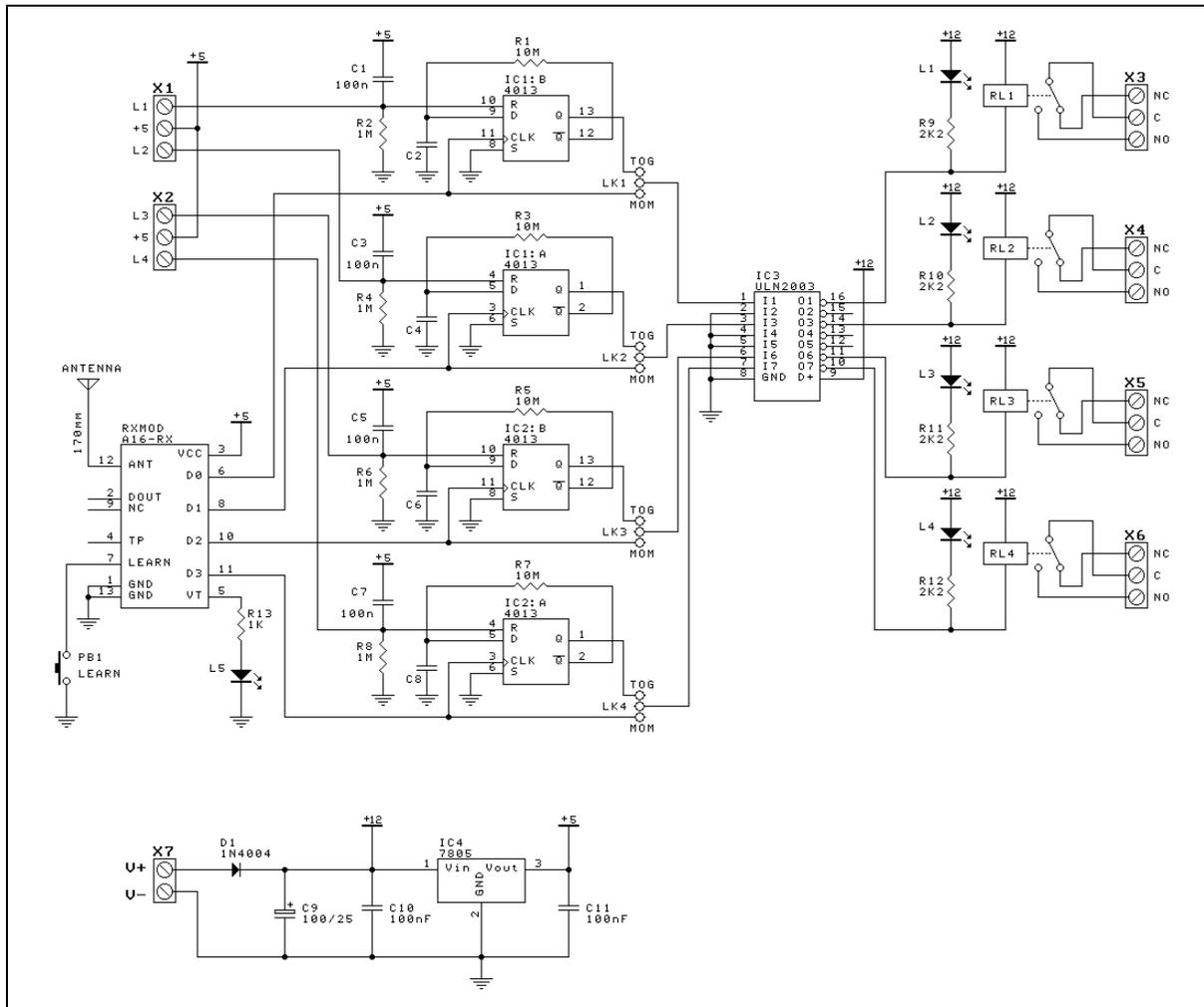
We sell Tx units and Rx units separately as A16TX and A16RX.

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

Email me at peterhk@kitsrus.com 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 |

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You may download the color photo from www.kitsrus.com/jpg/k180v3.jpg

