RCM3000 Relay Board Control

The Relay Control Board provides 27 relays which may be controlled from a PDT3000/ PDR3000 or directly from a PC or other serial device. Multiple relay boards may be daisy chained to add additional relay outputs.

There are three methods of control:

1. Capcode	Any one relay can be programmed to activate on any message received on a particular capcode. Note: multiple instances of the same capcode can be setup to control multiple relays.
2. Message text	Any one relay can be programmed to activate on any message received containing specified Text. Note: multiple instances of the same Text can be setup to control multiple relays.
3. Direct protocol	A standard message protocol that directly controls the relay board without any additional programming setup. This protocol, described below, enables relays to be activated via specific text contained in alphanumeric messages without presetting in PDT.

Direct Protocol Commands:

There are 4 commands to control the relay board:

1. Set relay x	Sxx%
2. Clear relay x	Cxx%
3. Timed set relay x	Txx,yyyy%
4. Clear all relays	A%

Where xx is the relay number. When x is between 1 and 27 it corresponds to a local relay, when it's 28 or above it corresponds to a relay further down the chain; (for relay numbers higher than 27 the relay control board subtracts 27 from the relay number and sends the command on to the next RCB.) yyyy is time in msecs.

For example:

S12%	Set relay 12
C01%	Clear relay 1
T5,4000%	Timed set of relay 5 for 4000ms, i.e. 4s
A%	Clear all relays

Programming the PDT3000/PDR3000

There are 2 serial port output settings for the PDT as follows:

Output to Relay Board is used for methods 1 & 2 above and Direct To Relay Board is used for method 3.

If methods 1 or 2 is used then the other settings must be set in Capcodes and Message Relay Options. Method 3 only requires that the output to serial is selected for the capcode.

Serial port settings: 57600,8,n,1

Connections:

A. PDT Com2 Output to Relay Board: RJ10(4P4C) - RJ45(J3/S1):

(RCM J3 serial port 1 MUST be setup as "Chain Input")

PDT	Relay Board
RJ10(Serial 2)	**RJ45(J3/S1)**
Pin4(RxD2) --- Pin3(TxD1)	
Pin3(TxD2) --- Pin2(RxD1)	
Pin1(Ground) --- Pin8(Ground)	

B. Daisy Chaining from one Relay Board to Another: RJ45(J2/S2) – RJ45(J3/S1):

(RCM J3 serial port 1 MUST be setup as "Chain Input" and the J2 serial port 2 MUST be setup as "Chain Output")

First Relay Board	Second Relay Board
RJ45(J2/S2)	**RJ45(J3/S1)**
Pin2(RxD2) --- Pin3(TxD1)	
Pin3(TxD2) --- Pin2(RxD1)	
Pin8(Ground) --- Pin8(Ground)	

Notes: For RCM3000 V3 board, the serial2 is default at the J12(pin11—TxD2 and pin12---RxD2). To make the serial port 2 available on the J2 the jumps must be connected on the JP2(pin1---pin3, pin2---pin4).

C. PC Com Port to Relay Board: DB9(F) – RJ45(J3/S1):

(RCM J3 serial port 1 MUST be setup as "Chain Input")

PC	Relay Board
DB9(Female)	**RJ45(J3/S1)**
Pin2(Rx) --- Pin3(TxD1)	
Pin3(Tx) --- Pin2(RxD1)	
Pin5(Ground) --- Pin8(Ground)	

Specifications

No. Relay Outputs per board	27
Relay Load Capacity	25 x 250VAC 5A/30VDC 7A, 2 x 250VAC 10A/30VDC 16A
Serial Ports	2 (command input and daisy chain output)
Relay Connectors	Screw terminals rated 300V/20A
Serial Connectors	RJ45 (3 pins used)
Power	12Vdc
Current	50-100mA + 16-20mA per relay activated,
	Max 800mA
Dimensions	194x147x35mm (approx7.5"x6"x1.25")