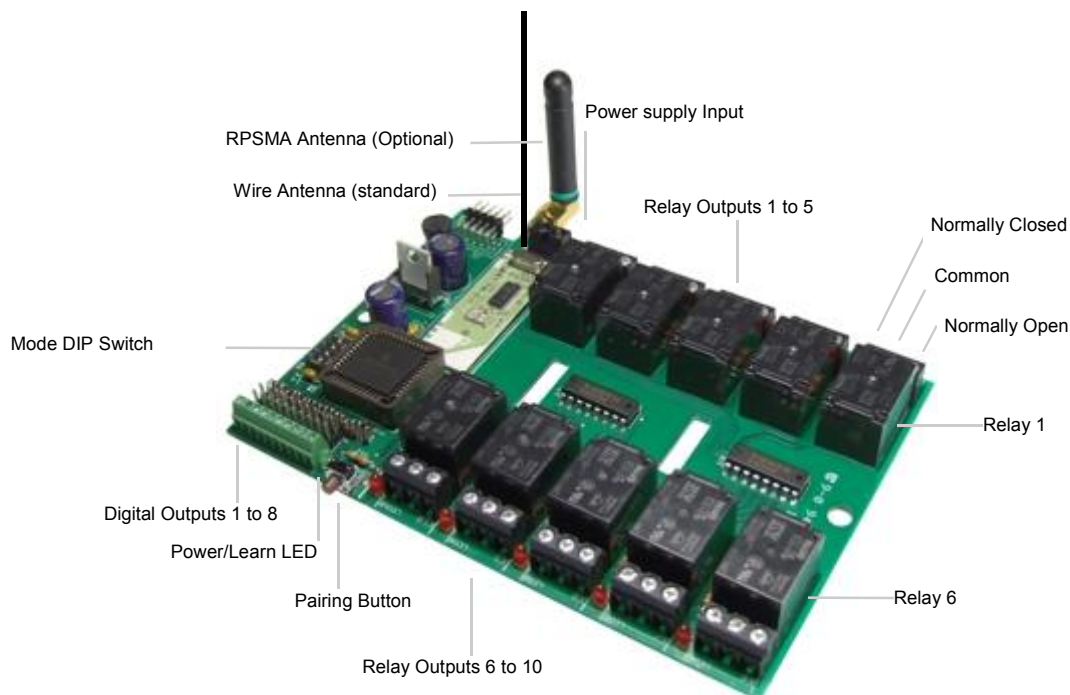![ABACOM Technologies]

10R8D 10 Relay plus 8 Digital Output Remote Control Receiver

Ten relay outputs plus 8 digital outputs

Features

- FM operation for high signal ntegrity
- Available on 433.92MHz or 868.35MHz bands
- 8 Active High Logic Level screw terminal outputs (5V / 20mA max.)
- 10 Form C Relay Outputs (10A/125VAC)
- Received Signal Strength Indication (RSSI) mode
- Normally open, normally closed and common screw terminals for each relay
- Relay Status LED's
- User configurable "transmitter button-to-relay output" mapping
- Selectable Momentary or Latched outputs
- Automatic transmitter pairing mode
- Protected digital outputs
- Wide power supply range: 8Vdc-16Vdc
- High current on-board switching regulator drives 10 relays simultaneously
- RPSMA antenna connector. (compatible with our RPSMA series antenna)
- Companion to 18CHTX and compatible with all ABACOM's FM RF remote control transmitters
- PCB size: 146.7mm(5.775 in.) x 101.3 mm (4 in.)
- Enclosure option available

Operation

The 10R8D remote control receiver is available in AM or FM versions and is companion to the 16CHTX and 18CHTX remote control transmitters. It is also suitable for operation with our other remote control transmitters such as the WCTL-TX4, WCTL-TX8, TX12E, and the 1&2CH-REML series. Configuring the system address is the first step that must be performed in order to pair a transmitter with the 10R8D receiver. This procedure is described in pairing mode section below. The next step is to select the mode of operation for output control. The 10R8D has 2 separate modes of operation for output control

1- Fixed (preconfigured) Mode: Digital plus Relay Output Mode

This mode is compatible with the 18CHTX transmitter to provide a remote control link with 10 relay outputs and 8 digital outputs. Inputs 1 to 8 of 18CHTX transmitter control 8 digital outputs and inputs 9 to 18 control the 10 relay outputs on 10R8D receiver. In addition, a combination of any 2 outputs (digital or relay) on 10R8D can be activated by simultaneously connecting 2 inputs on the 18CHTX to a common input.

To run this mode of operation the Mode DIP switch 2 should be in ON position. For momentary outputs DIP switch 1 is OFF and for latched output DIP switch 1 is ON

2– Mapped Relay Output Mode

In this mode, the user is able to map single or multiple relay outputs to any of the transmitter switch inputs (or push buttons). The procedure to map an output is explained in relay assigning mode below.

To run this mode, Mode DIP switch 2 is set to the OFF position. For momentary outputs DIP switch 1 is OFF and for latched output DIP switch 1 is ON

RX/TX Pairing (Addressing)

The 10R8D receiver is supplied pre-programmed to communicate with our default transmitter address (which is DIP switches 2 and 4 set to ON, the rest set to OFF). If the transmitter address is changed, then the receiver will need to be paired with the new transmitter address, according to the following procedure:

- Press and hold the LEARN push button. The POWER/LEARN LED begins flashing to indicate the pairing mode is active .
- Whilst the receiver is in paring mode, the transmitter is momentarily keyed. Upon receiving a valid transmission the LEARN LED stops flashing, indicating the pairing process has completed successfully. The system address is now saved in non volatile memory of the receiver. The receiver will retain this address unless re-programmed later with a new system address.
- The transmitter and receiver will now communicate as a pair.

Relay Assigning Mode

To assign a specific relay (or relay's) to an associated button on transmitter, perform the following steps:

- Change the mode DIP switch 3 to ON position.
- Press the required button on the transmitter. The POWER/LEARN LED begins flashing.
- Pressing the LEARN push button repeatedly cycles through the relays one at a time.
- When the required relay output has been selected press the transmitter button again to assign to the selected relay. The Power/Learn LED will stop flashing indicating the button-to-relay assignment has been successful.
- Step 2 to 4 may be repeated to assign other transmitter buttons to one or multiple relays.
- Once the assignment has been completed, change the Mode dip switch 3 to OFF to revert to normal mode

Latch/Pulse Mode

Relay and digital output modes are configured with the MODE DIP switch. In LATCH mode, the relay outputs retain their active states until the next transmission. In PULSE mode the outputs will be activated momentarily for the duration of the transmission.
Set DIP Switch 1 to OFF for PULSE mode.
Set DIP switch 1 to ON for LATCH mode.

Received Signal Strength Indication (RSSI)

The 10R8D may be used to indicate the received signal strength from of the transmitter. To activate this mode proceed with the following steps:

- Power OFF the 10R8D receiver
- Disconnecting all external devices from the relay outputs is recommended as these outputs will be active when indicating received signal strength
- Position the Mode DIP switch 4 to the ON position
- Power ON the 10R8D receiver and keep the LEARN button pressed for approximately 8 seconds
- Upon releasing the button, the Power/Learn LED start flashing indicating that the unit is in Received Signal Strength Indication mode

Upon receiving a valid transmission in this mode, the signal strength will be indicated by triggering relay outputs 1 through 8.
Relay Output 1 indicates the weakest signal and relay output 8 indicates the strongest signal.

DIP Switch settings for different modes of operation

MODE	DIP SW ITCH 1	DIP SWITCH 2	DIP SWITCH 3	DIP SWITCH 4	COMMENTS
Fixed Operating Mode / Momentary Outputs	OFF	ON	OFF	OFF	8 Digital outputs and 10 relay outputs. One or 2 outputs active at a time, dependant on the command sent from the transmitter. Two simultaneous active inputs on the transmitter will provide 2 corresponding outputs on the 10R8D
Fixed Operating Mode / Latched Outputs	ON	ON	OFF	OFF	8 Digital outputs and 10 relay outputs
RSSI Operating Mode	OFF	OFF	OFF	ON	FM models only
Relay Assign Mode	OFF	OFF	ON	OFF	User maps relays to TX switch inputs
Assigned Relay Operating Mode / Momentary Relay Outputs	OFF	OFF	OFF	OFF	Digital outputs muted in this mode
Mapped Relay Operating Mode / Latched Relay Outputs	ON	OFF	OFF	OFF	Digital outputs muted in this mode

Antenna

The 10R8D receiver is supplied with a 1/4 wave wire antenna. An RPSMA (reverse polarity SMA) antenna connector is also present on the board for connecting a compatible external antenna. (see our website for suitable antenna options).
Note: If connecting an external antenna, the 1/4 wave wire antenna must be removed from the board.

Optional Enclosure

The 10R8D is supplied as a printed circuit board subassembly. For OEM's who require a packaged version, we offer the 10R8D complete in a black ABS enclosure with machined end panels and graphic overlay. For a nominal setup charge, the we can provide the enclosure with your own graphic overlay.


The 10R8D with the 18CHTX, 18CHTXu and 16CHTX transmitters

The 10R8D receiver is compatible with the 18CHTX and 18CHTXu RF remote control transmitters. The difference between these two transmitters is as follows:

- 18CHTXu is extended in length compared to the 18CHTX and includes a 16 key keypad. This transmitter provides the option of using either 4x4 keypad or 18 external switches connected to the screw terminals or a combination of the two. The 18CHTXu drops into an optional handheld enclosure. Note: 16 of the 18 screw terminal inputs are connected in parallel with the 16 key keypad.

- 18CHTX contains 18 screw terminal inputs for connection to external switches, is smaller in size (lengthwise) compared to the 18CHTXu and excludes the 16 key (4x4) keypad.

- The 16CHTX has the same PCB (LxW) dimensions as the 18CHTXu. It contains a 16 key (4x4) keypad and excludes the screw terminal inputs as found on the 18CHTXu transmitter. The maximum number of function on this transmitter is 16. With the 10R8D receiver set to fixed operating mode (DIP switch 2 ON), buttons 1 through 8 control the digital outputs and buttons 9 through 16 control relay outputs 1 to 8. Relays 10 and 11 are not controlled in this mode. With the 10R8D set to relay output assign mode (DIP switch 3 ON) the user's choice of transmitter keys can be individually mapped to relay outputs 1 through 10. A transmitter key can also be mapped assigned to multiple relays if desired. Digital outputs are muted (not used) in this mode.

10R8D Physical Outline Dimensions
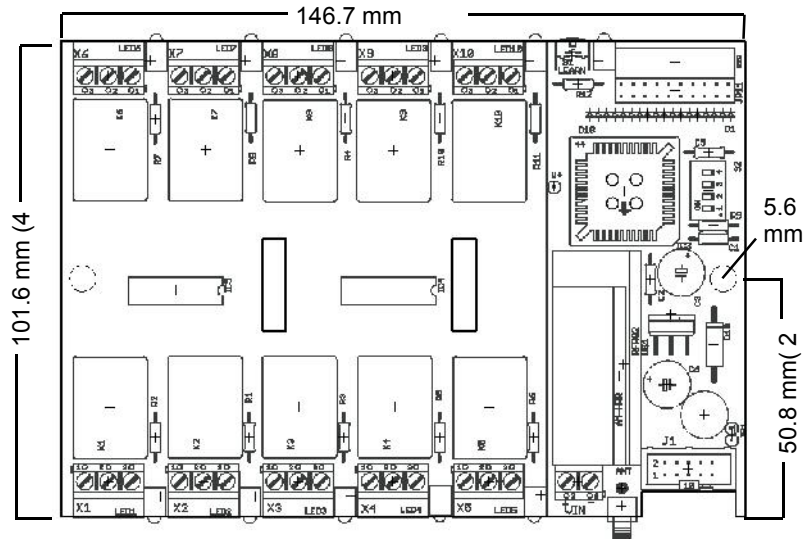
Technical Specifications

Operating Voltage	8Vdc-16Vdc
Operating Current (standby)	20mA
Operating Current (Max)	160mA
Relay Contact Rating	10A @ 125VAC
Relay Contact (single pole)	Form C
Relay Output Mode	Latched or Momentary
RF Receiver Section	
Operating Frequency	433.92MHz, 868.35MHZ
Sensitivity	-107dBm typical
RF bandwidth	+- 200KHz typical
FM Deviation	+- 25KHz typical

*version dependant