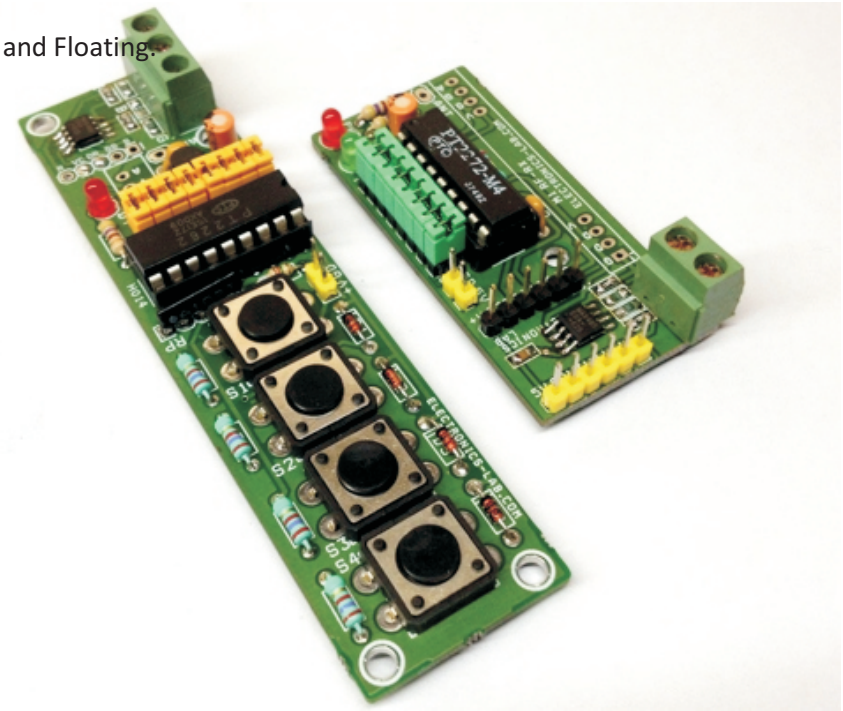
4 CHANNEL TWISTED PAIR CABLE Rs485 BASED REMOTE CONTROLLER

4 Channel 2 core twisted pair remote controller built using PT2262, PT2272-M4 IC from Princeton technology and MAX485 IC from Maxim. PT2262 is an Encoder (Transmitter), PT2272-M4 Decoder (Receiver) and MAX485 works as bridges as twisted pair communication between Encoder and decoder. The receiver provides 4 channel Momentary outputs. All outputs are TTL level can be interface with other circuits or relay board. Transmitter works with 5V to 12V DC. Receiver works with 5V DC.

When any of SW1-SW4 (S1-S4) tact switch is pressed the, power is applied to encoder IC and RS485 IC, the encoder then starts scanning Jumper J1-J8 and transmitting the status of the 8 bits address and data serially. The decoder IC receives the data from MAX485 and compares two times with J1-J8 address jumpers and provides outputs high and at same time VT(Valid Transmission) LED goes On, if the data is Valid and address of Transmitter and Receiver are same. It is important to have same jumper settings J1-J8 at transmitter and receiver to pair both.

Features

- Wide Range of Operation Voltage 5V to 12V **Transmitter**
- Supply 5V DC **Receiver**
- On Board Data Transmission LED
- Single Resistor Oscillator
- 4 Momentary Outputs
- 4 Outputs TTL Level
- Address setting 3 states HIGH, LOW, And FLOATING)
- Remote provides 6561 addressable combinations by setting up J1-J8 to High, Low, and Floating.
- On Board Power and Valid Transmission LEDS Receiver
- Twisted Pair RS485 Communication Between Transmitter and Receiver
- CMOS Technology
- Low Power Consumption
- It Can transmit data over 1000 Meters cable
- Very High Noise Immunity
- Up to 8 Tri-State Code Address Pins



Application

Garage Door Controller
Home Security
Automation System
Remote Control for Industrial Use

Encoder – Transmitter (PT2262)

PT2262 is a remote control encoder paired with PT2272 utilizing CMOS technology. Its encode data and address pins into a serial coded waveform. Circuit uses 8 bits of tri-state address pins providing up to 6561 address codes, thereby, drastically reducing any code collision and unauthorized code scanning possibilities.

PT2262 encodes the code address and data set into special waveform and outputs it to the DOUT when TE is pulled to low. The wave fed to RS485 IC for transmission. The transmitted RS485 IC data receive by receiver side of RS485 and PT2272 decode the waveform and set the corresponding output pin high. Thus completing a remote control encoding and decoding function.

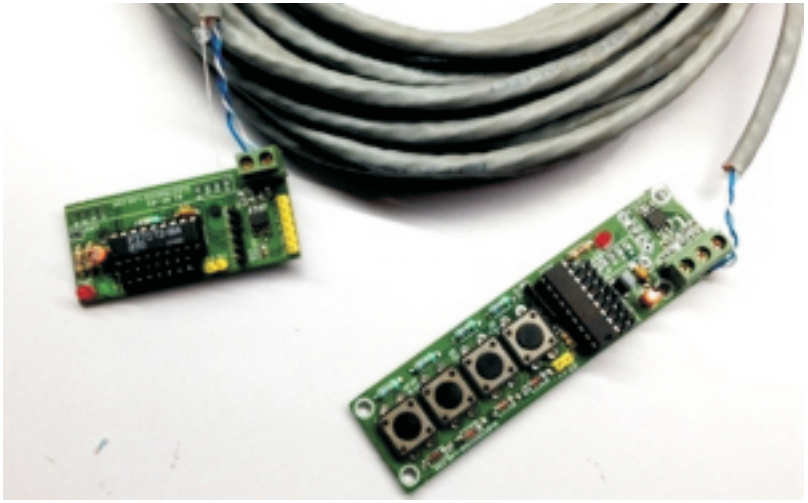
Decoder Receiver (PT2272-M4)

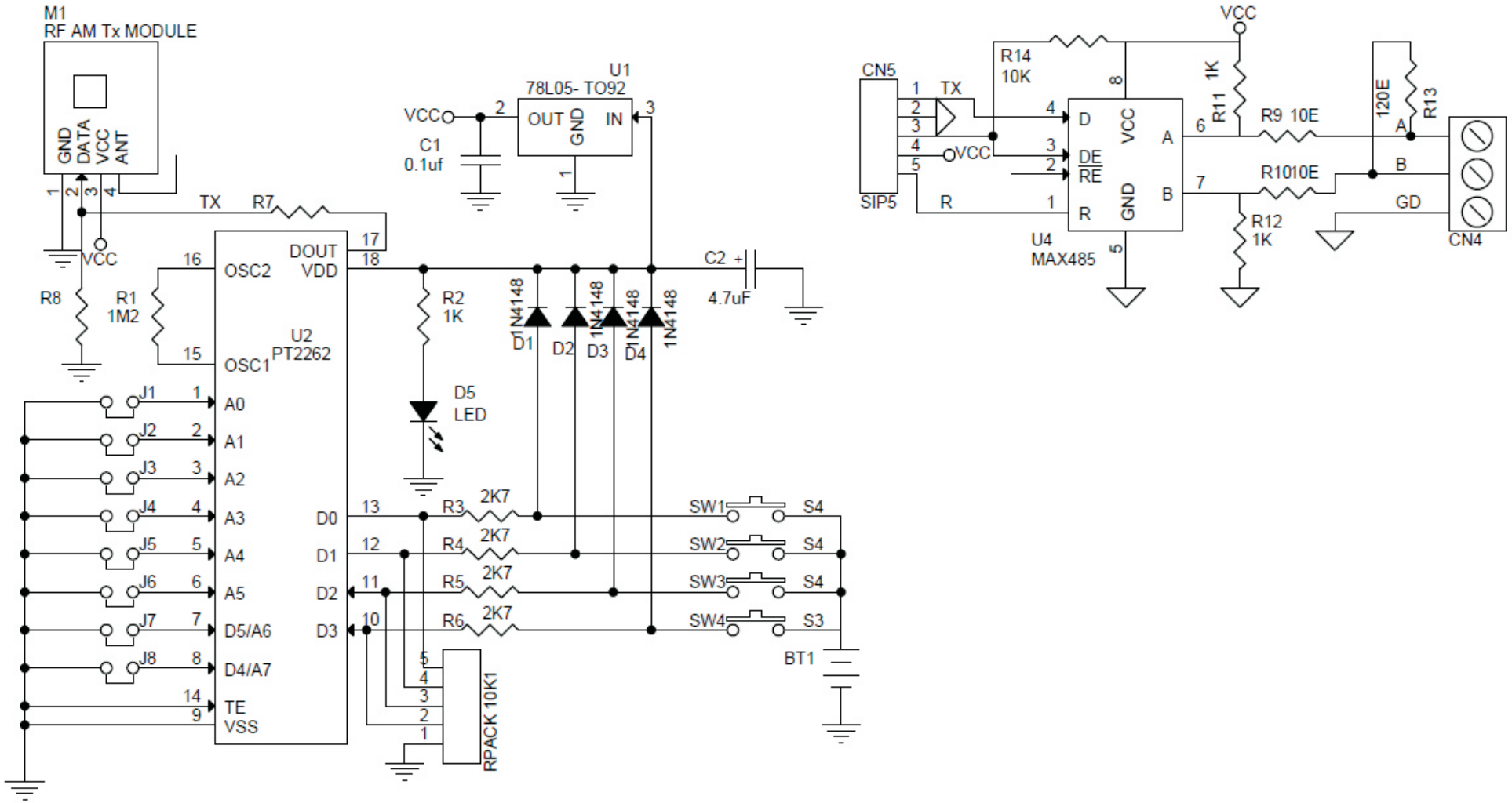
PT2272 decodes the waveform received and fed in to the DIN pin. The waveform is decoded into code word that contains the address, data and sync bits. The decoded address bits are compared with the address set at the address input pins. If both address match for 2 consecutive code words, PT2272 drives the data output pins whose corresponding data bits is the decoded to be a 1 bit, and (2) the VT output -- to high state.

VT (Valid Transmission)

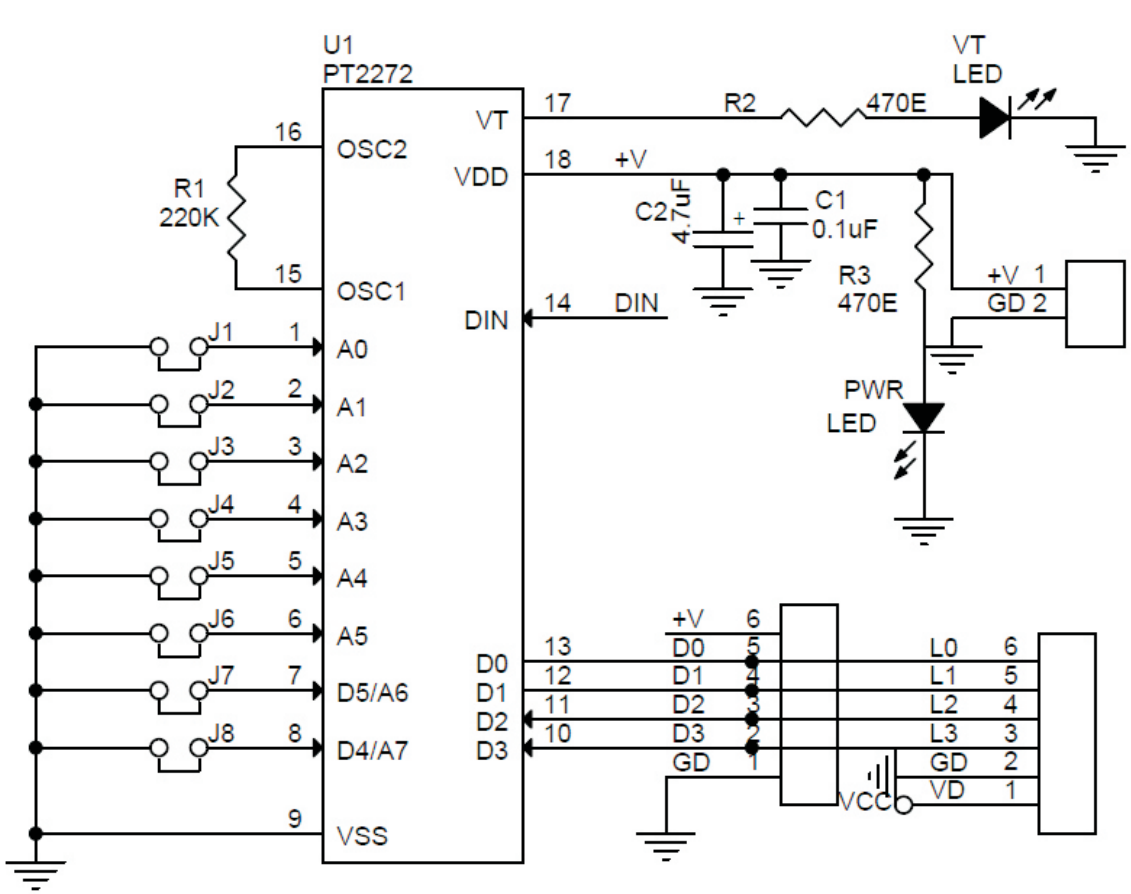
When PT2272 receive a transmission code word, it initially checks weather this is a valid transmission. For a transmission to be valid, (1) it must be complete code word, and (2) the address bits must match the address setting at the address pins. After two consecutive valid transmission, PT2272 (1) drives the data pins according to the data bits received, and (2) raises VT to high state.

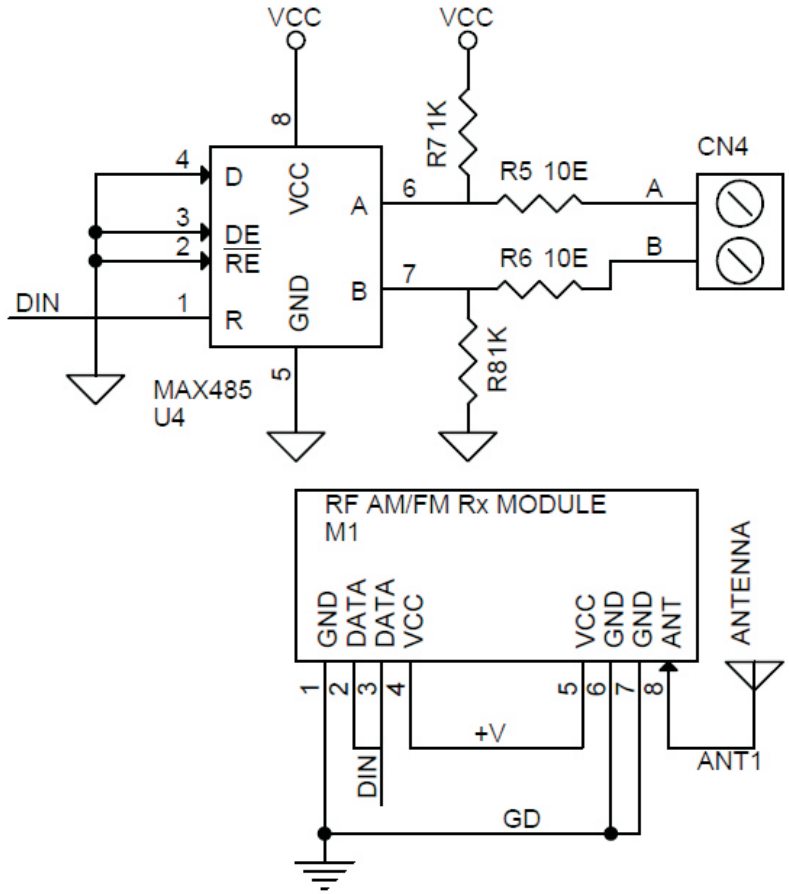
NOTE: J1 to J8 Jumper provided at Bottom layer of the PCB to set the address pins high. Top side of the PCB has Jumpers and closure to set the address pins low J1 to J8.





Encoder Schematic

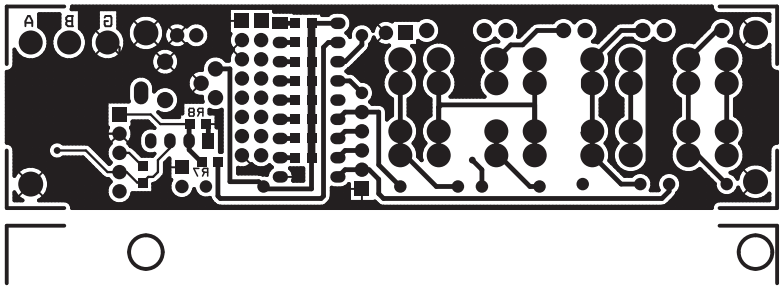




Decoder Schematic

BOM ENCODER-TRANSMITTER			
SR.	QNTY.	REF.	DESC.
1	1	BT1	12V BT
2	1	CN4	3 PIN SCREW TERMINAL
3	1	CN5	5 PIN HEADER CONNECTOR
4	1	C1	0.1uf
5	1	C2	4.7uF/25V
6	4	D1,D2,D3,D4	1N4148
7	1	D5	3MM LED
8	8	J1,J2,J3,J4,J5,J6,J7,J8	JUMPER
9	1	M1	RF AM Tx MODULE
10	1	R1	1M2
11	3	R2,R11,R12	1K
12	4	R3,R4,R5,R6	2K7
13	2	R7,R8	OMIT
14	2	R9,R10	10E
15	1	R13	OMIT
16	1	R14	10K
17	4	SW1,SW2,SW3,SW4	TACT SWITCH
18	1	U1	78L05- TO92
19	1	U2	PT2262
20	1	U4	MAX485
21	1	SC	18 PIN DIP IC SOCKET
22	1	RPACK	10K 5 PIN RESISTOR NETWORK

BOM-DECODER-RECEIVER			
SR.	QNTY.	REF.	DESC.
1	1	ANT1	OMIT
2	1	CN1	2 PIN HEADER CONNECTOR
3	2	CN2,CN3	6 PIN HEADER CONNECTOR
4	1	CN4	2 PIN SCREW TERMINAL
5	1	C1	0.1uF
6	1	C2	4.7uF/25V
7	8	J1,J2,J3,J4,J5,J6,J7,J8	JUMPER
8	1	M1	OMIT
9	2	VT,PWR	LED 3MM
10	1	R1	220K
11	2	R2,R3	470E
12	2	R5,R6	10E
13	2	R7,R8	1K
14	1	U1	PT2272
15	1	U4	MAX485
16	1	SC	18 PIN DIP IC SOCKET



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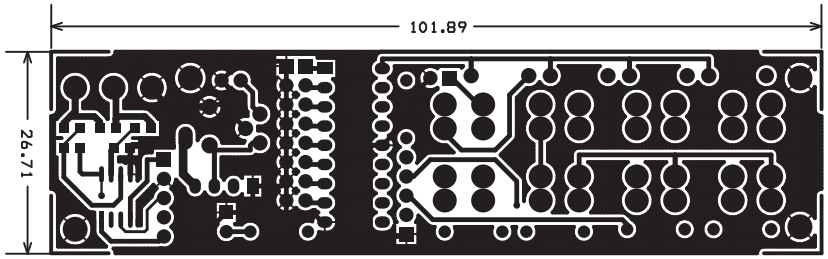
SILK BOTTOM



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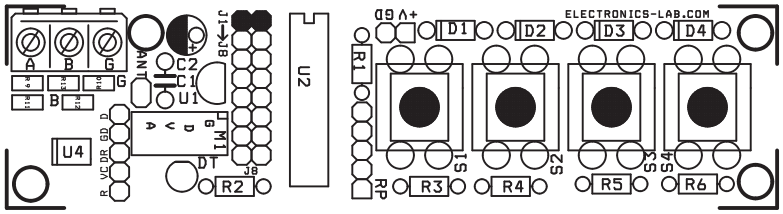

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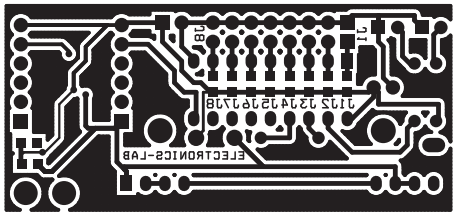

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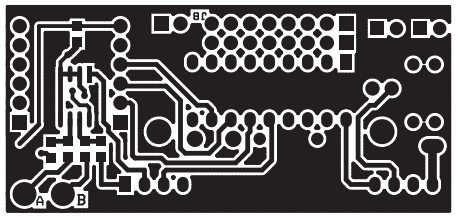

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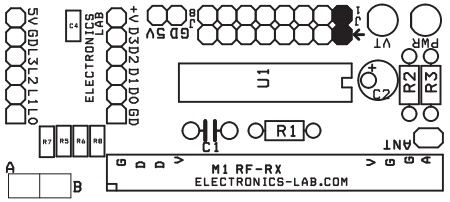

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Author Rajkumar Sharma