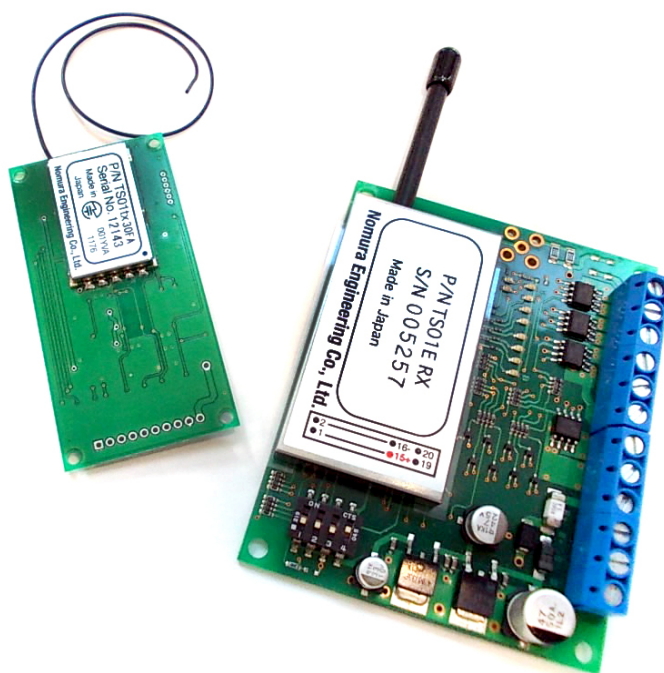


TS01E 8sw communication system

TS01E 8sw communication system

It is a communication system of 8 contacts
using TS01E (426MHzband 1 mW).



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Since 1997

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TS01E 8sw communication system

1. Overview

TS01E 8sw communication system is a remote control system of ON/OFF control of 8 switches by unidirectional communication, which is a combination of a transmitter (TS01Etx8swBD) equipped with a specific low power radio 426 MHz band module TS 01 E and a receiver (TS 01 E rx 8 sw RXBD).

Register the ID of the transmitter in the receiver, pair it and use it. In addition, since frequency channels can be selected from 7 channels, multiple systems can be used within the same area.

The communication distance is about 100 m in the forecast. * There is also a long distance type (LDM).

When the 8 switch input of the transmitter is grounded(GND), it enters the transmission and the output of the corresponding receiver module goes to H level.

The receiver has a hold function that outputs H level for 2.5 seconds each time valid data is received.

Therefore, when you instantly press the button of the transmitter, a pulsed output of 2.5 seconds is obtained from the receiver, and if you hold down the button of the transmitter, the output of the receiver will remain on.

Since the transmitter has a transmission time limit of 5 seconds transmission and 2 seconds pause due to the Radio Law, transmission stops for 2 seconds, but this 2.5 second supplement enables continuous transmission operation.

The time it takes for the receiver to turn off after releasing the transmitter's button is about 2.5 seconds.

The TS01E receiver application board is common to TS 02 E.

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2. Product composition

Transmitter (module with board): TS01Etx8swBD

Input 8 contact ON / OFF input Active L power supply 2.1 to 7 V Flexible antenna

Receiver (module): TS 01 Elx 8 sw - *

Output 2 V CMOS level active H

*: Antenna selection F (flexible) · S (whip)

P (Substrate) · EXT (SMA Connector for External)

Receiver (application board): TS01E · 8swRXBD (S) · #

TS02E · 8sw receiving board is available.

#: Output selection P (when power supply output is on: + B output)

N (when open drain output is ON: ground)

The terminal block can be selected from the insertion type RXBD and the screw type RXBDS.

There is also a type (RX · # · NWP) that entered the waterproof case.

3. Frequency and setting channel

<u>Frequency (MHz)</u>	<u>CH Designation</u>
426.02500	0 channel
426.03750	1 channel
426.05000	2 channels
426.06250	3 channels
426.07500	4 channels
426.08750	5 channels
426.10000	6 channels
426.11250	7 channels
(426.12500)	8 channels)
(426.13750)	9 channels)

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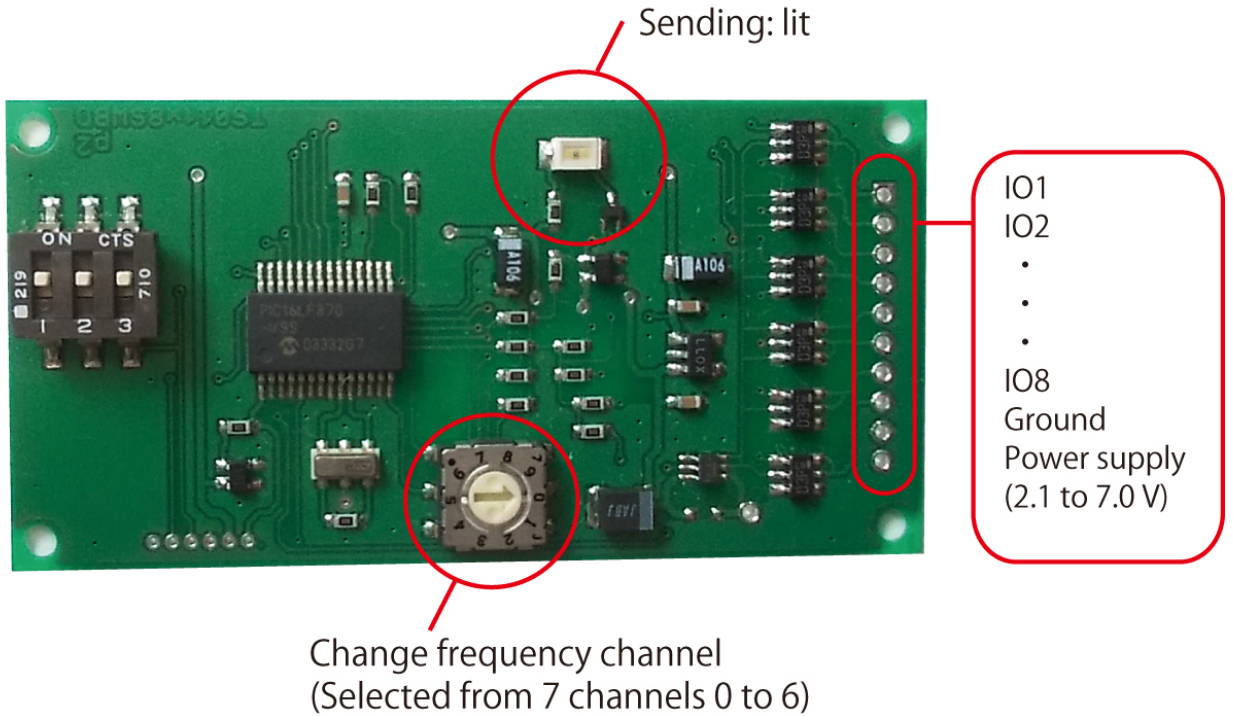
TS01E 8sw communication system

4. About the transmitter (TS01Etx8swBD)

Input 8 contacts active L

When the input of the transmitter is dropped to the ground(GND), the transmission state is entered and the LED is lit.

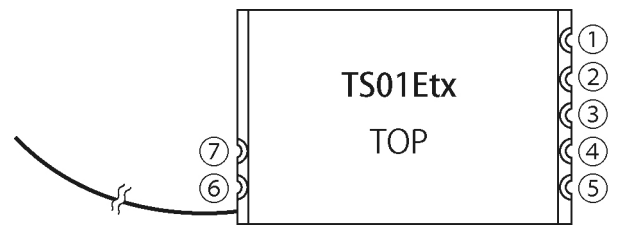
The frequency channel can be changed from 0 to 6 channels with the rotary switch.



• TS01tx pin assignment

Terminal name function

1 Ready	transmission data input enabled, active L (can be input with L)
2 TXdata	transmission data input series.
3 Vcon	power control, active L (power on with L)
4 GND	Ground
5 Vcc	power supply input, 2.1 V to 7.0 V
6 GND	Ground
7 NC	



★ Do not neither reverse supply of power supply nor apply absolute supply beyond 7.0 V.
 If no logic is specified, 2 V CMOS logic (L: 0 to 0.3 V, H: 1.6 to 2 V) is assumed.

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Please refer to the reference circuit diagram on the next page.

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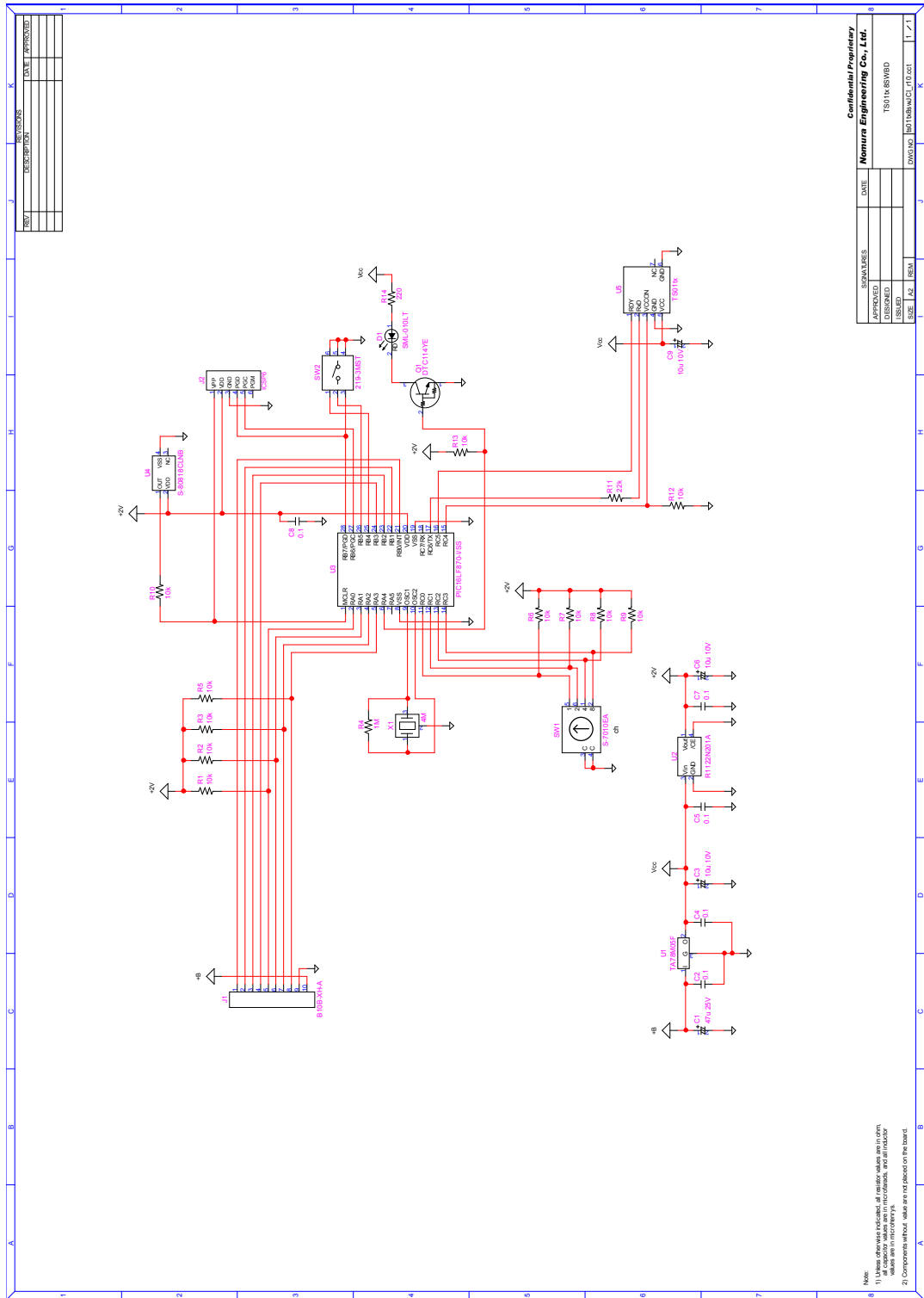
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- Transmitter reference circuit diagram



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5. About the receiver (TS01ErX8sw- * RXBD (S) - #)

When the transmitter is turned on, the receiver application board of TS01E (common with TS 02 E) activates the corresponding output terminals IO 1 to IO 8 and the LED lights up.

The output can handle loads up to 1A, but when multiple IO1 to IO8 are on, the total should not exceed 2A.

5 V to 30 V can be supplied to power supply B +. The power supply contains anti-reverse diode and ignition noise absorbing element.

- output

Output 8 contact ON / OFF Active "H"

"H" period is 2.5 seconds. However, when a valid signal can be received, it is updated and the "H" period continues.

"L" after 2.5 seconds from receiving OFF

- LED indication

Operating: LED flashing

Received: LED lit

When registering ID: Flashing LED flashing → Blinking

- Change frequency channel

Change with DIP SW 1, 2, 3.

channel	DIP SW1	DIP SW2	DIP SW3
0	OFF	OFF	OFF
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON
5	ON	OFF	ON
6	OFF	ON	ON

DIP SW 4 is the power switch of the TS 02 E wireless module (circuits other than the module are turned ON / OFF externally).

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• ID registration

Change with DIP SW 1, 2, 3.

ID registration	DIP SW1	DIP SW2	DIP SW3
ON	OFF	ON	ON

- 1) With the DIPSW 1, DIPSW 2, DIPSW 3 ON, turn on the receiver.
 - 2) The LED flashes 4 times rapidly. Then it will slowly blink.
 - 3) Place the transmitter in the transmit state.
 - 4) The LED repeatedly flashes rapidly. (Temporary registration)
 - 5) Turn off the power of the receiver after turning off DIPSW 1, DIPSW 2, and DIPSW 3.
(Completion of registration)
- Up to 10 ID registration.
- 6) Turn on the power again.

• ID erase

- 1) With the DIPSW 1, DIPSW 2, DIPSW 3 ON, turn on the receiver.
- 2) The LED flashes 4 times rapidly. Then it will slowly blink.
- 3) Turn off DIPSW1, DIPSW2, DIPSW3.
- 4) The LED flashes 10 times rapidly. Then it will slowly blink.
- 5) Turn off the power of the receiver.

• Notes

To cancel ID registration / erasing procedure, please turn OFF the receiver power while turning on DIPsw 1, DIPsw 2, DIPsw 3.

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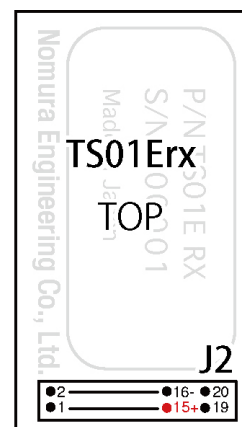
TS01E 8sw communication system

• TS01rx - 8SW pin assignment

This shows the name and function of the J2 terminal of TS01rx.

Logic is 2 V CMOS logic (L: 0 to 0.3 V, H: 1.6 to 2 V) unless otherwise specified.

J2	terminal name	function
1	IO1	output, active H
2	IO2	output, active H
3	IO 3	output, active H
4	IO4	output, active H
5	IO5	output, active H
6	IO6	output, active H
7	IO7	output, active H
8	IO8	output, active H
9	MCLR (external reset input active L), unused	open
10	SYS1 (output H during transmission), unused	open
11		unused open
12	IND	status display output, active H
13	Vdd in	Power supply 2.0 V input 14 short and short
14	Vdd out	Power supply 2.0 V output external use 10 mA or less
15	B +	Power supply input 2.1 V to 7.0 V ★ Inverse contact
Caution		
16	GND	Ground
17	SET 1	setting switch 1 input, active L
18	SET 2	setting switch 2 input, active L
19	SET 3	setting switch 3 input, active L
20	SYS 4	use prohibited open



★ Vdd out can be use the regulated 2.0 V power supply externally.

★ B + should never supply reverse voltage or voltage exceeding 7V.

★ Connect the DIP switch from SET 1 to SET 3.

★ In addition to B + of 15 pins, please never supply 2.0 V or more.

★ Be sure to short-circuit 13 and 14 pins and use them. Please note that it will not operate unless a short circuit is made.

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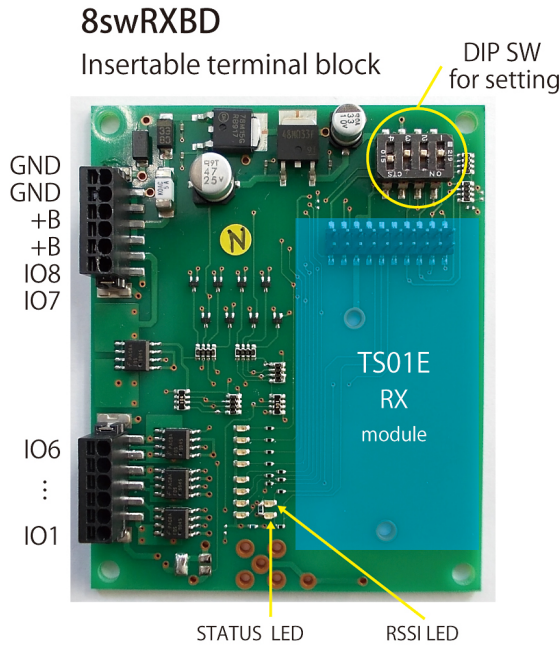
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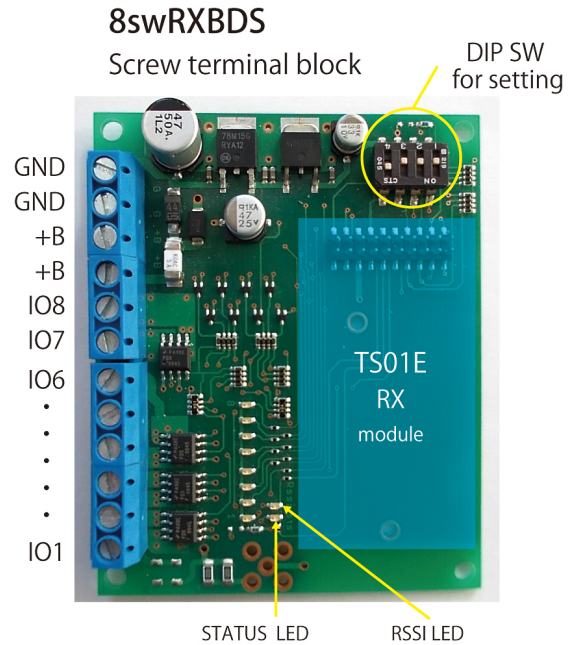
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- TS01rx-8SW RXBD(S)

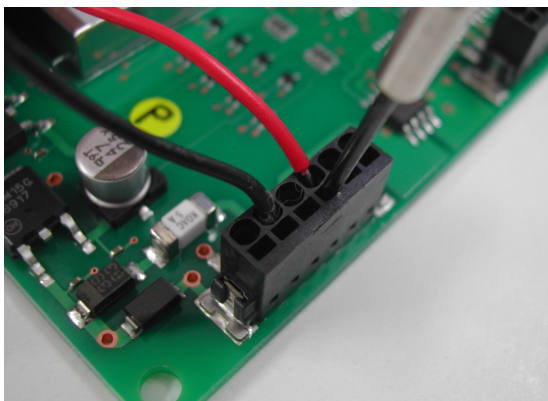
You can use TS02E's 8sw reception board.



Please use AWG # 26 ~ # 20.



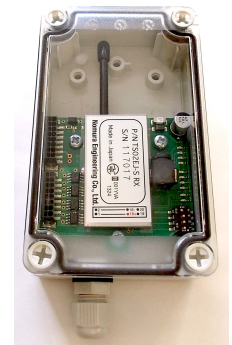
Please use AWG # 22 ~ # 14.



To connect the cable to the plug-in type terminal block, insert the thin (-) adjustment screwdriver into the horizontal square hole and lock / unlock it. (Corresponding to AWG 26 - 20)

Besides this, there is also an NWP type (RX - # - NWP) which is in a waterproof case.

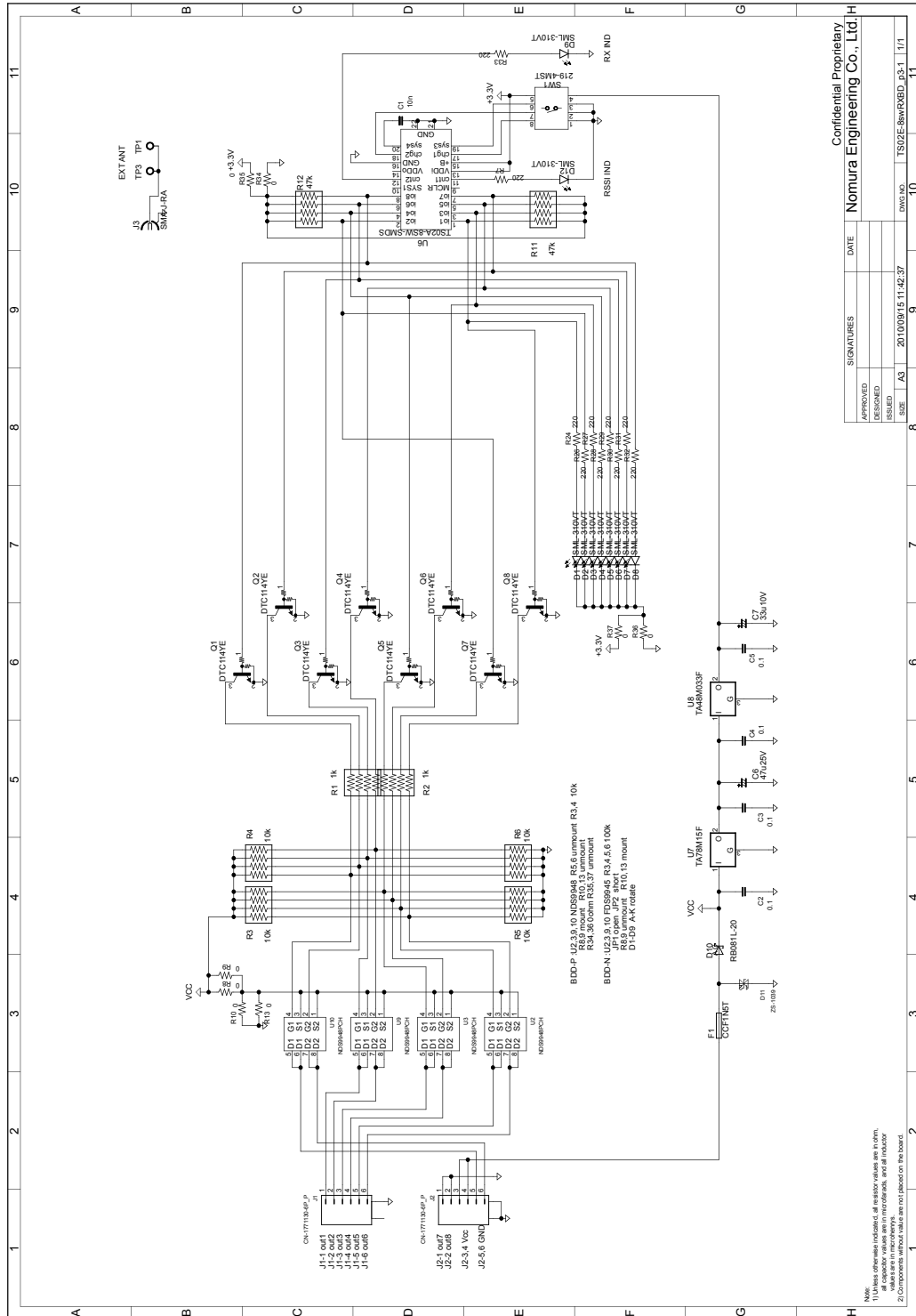
* For details, please refer to each 8sw reception board specification sheet of TS02E.



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TS01E 8sw communication system

- TS01rx-8SW RXBD(S) reference circuit diagram



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6. Precautions

★ Precautions on Radio Law

Never remove the antenna, open the case and remodel the device as it is prohibited by law
Do not peel off certification label conforming to technical standards. Those without a label are prohibited to use.

Since it does not conform to the radio wave law outside Japan, please use it in Japan.

★ Handling precautions

Never use such a way that product malfunction or malfunction directly relates to human life.

Never reverse the power supply as doing such will cause the equipment to malfunction.

Never put the device in strong shock or dipping it in water or other solution as doing that will cause damage.

Please do not disassemble and remodel it.

Please do not pull the antenna strongly.

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7. Change history

2016/08/09 Rev 2.0

Contents major revision

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