

CTS-RFID-LF21

Operational Description

1. Power source circuit

1) The power source of DC24V inputted to CN1 is converted into the insulated DC9V through U12 insulation type DC to DC converter via input protection circuit, and the power source of TX9V is supplied by the DC9V.

DC9V is converted again into DC5V through U11, and 5V of Analog Board and the power source of RX5V are supplied by the DC5V.

2) In addition, the voltage converted into 9V is diverted again into DC3.3 through U14, and D3.3V of Digital Circuit and A3.3 V of Analog Circuit are supplied by the DC3.3.

2. Receiving section

1) The FSK signals of 123.2 ~ 134.2KHz received from ANT1 are come into the pin No.1 of U2 FSK Receiver IC through CS8, CS7, L1, IF4, and C10.

3) The signal come into the pin No.1 of U2 is outputted again to the pin No.20, and it is passed through the band pass filter which are constituted with C2,C3,C94, IF1,C1,IF3,C5,C12, and C95. This signal is inputted to and amplified at the pin No.18 of U2, and it is outputted to the pin No.16. And then, this signal is passed through the band pass filter constituted with C15, C16, C96, IF5, C14, IF7, C21, C25 and C97. This signal is inputted to and amplified at the limiter amplifier input of the pin No.14, and it is outputted to the pin No.11.

4) The FSK modulated signal outputted to the pin No.11 of U2 is inputted to the pin No.16 of quadrature demodulator which requires an external tank circuit constituted with IF8 and C26, and it is demodulated and come to the pin No.8 and 9.

5) The two analog demodulated signals with the phase difference of 180° outputted to the pin No.8 & 9 of U2, respectively, are passed through the U4A phase comparator and converted into the digital signal RXDT, and delivered to CPU.

3. Transmitting section

1) During the transmission, TXCT signal of 3.3V level is outputted from the pin No.78 of U10.

2) TXCT signal is passed through the dead time compensation circuit constituted with R23, D35, R25, C157 and C158 and inputted to U8, which is CMOS Gate Driver IC, and outputted as the level of 9V.

3) This signal is amplified by the series resonance circuit constituted with Power MOSFETs of Q2,Q3 and Q4, antenna and CS1~CS10, and the signal is delivered to TAG as it is radiated through the antenna.

4. Manually operating section and indicating section

1) Manually operating section is comprised of 3 switches, i.e., MODE, READ(+) and WRITE(-).

The appliance can be operated with these switches.

- MODE: When this button is pressed, 4 types of setup mode (TUNE, SENS, ID, BAUD) can sequentially be selected.

- READ(+) : 이 버튼을 누르면 수동으로 TAG를 읽을 수 있습니다. 다른 기능으로는 설정시 이 버튼을 누를 때마다 표시값을 1씩 증가합니다.

CTS-RFID-LF21

- WRITE(-) : 이 버튼을 누르면 수동으로 TAG에 데이터를 써넣기 테스트를 해 볼 수 있습니다. 다른 기능으로는 설정시 이 버튼을 누를 때 마다 표시값을 1씩 감소합니다.

2) Operation state of appliance is indicated with 5 LEDs located at the left side of manually operating section.

- READY : The LED which is lighted under the state of being able to read or write the tag
- TX TUNE : The LED which is lighted when it is the antenna tuning mode
- RX SENS : The LED which is lighted when it is the mode of measuring the peripheral noise deserted at the antenna under the state that the reader and antenna are installed in the actual using environment
- ID SET: The LED which is lighted when individual numbers are set up for each of the 4 antennas respectively
- BAUD SEL : 시리얼 통신 속도를 설정할 수 있는 모드입니다.

3) The 7 Segments located at the middle indicate ID number and a variety of states.

The segment is indicated so that the state of success and failure can be confirmed when reading or writing is performed.

