OPERATION DESCRIPTION

-. This product used 2.405~2.480GHz Custom RF protocol.

-. The ZR-2 is used to extend the operational range between Total Control products such as the TRC-780 and the MRX-10. Once joined to the MRX-10 it will wirelessly relay Communication between an TRC-780 and multiple ZR-2 repeaters.

-. Power LED: Indicates that the ZR-2 is powered on when illuminated.

-. Data LED: Indicates when the unit is transmitting or receiving data.

-. Status LED: Indicates the signal strength of the ZR-2 communication connection to the MRX-10

MRX-10 : Coordinator
TRC-780 : End device
ZR-2 : Repeater

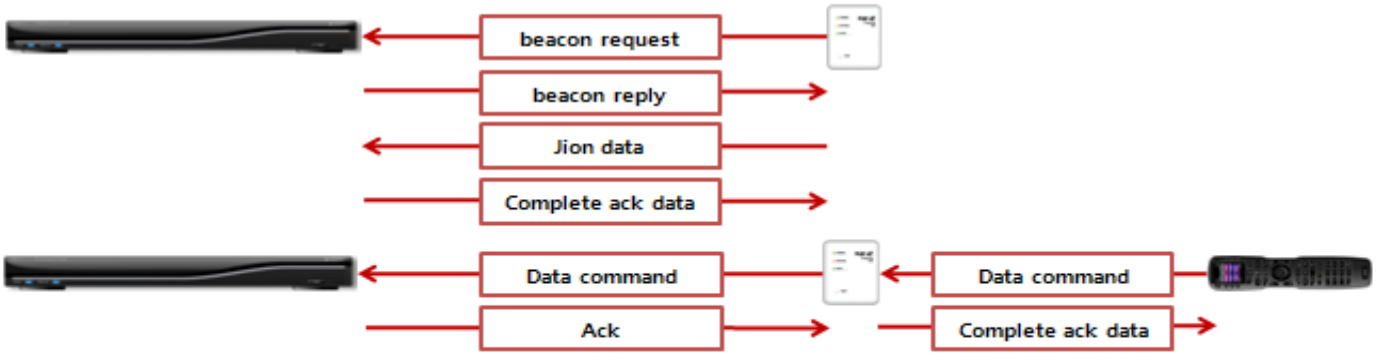
RF IC part name is MG2455 to radiopulse. It is used for RF communication
MG2455 is a full single-chip solution that is compliant to the specification of IEEE802.15.4 and ZigBee specifications and is a complete wireless solution for ZigBee applications such as home control and sensor network. It consists of RF transceiver with baseband modem, a hardwired MAC and an embedded 8051 microcontroller with internal flash memory for application program.

ZR-2 without MRX-10 and TRC-780 model is direct communication after join process.

The ZR-2 is used to extend the operational range between Total Control products that work on Total Control's 2.4 GHz RF network. Once joined to an MRX, it wirelessly repeats communication between a TRC-780 remote and an MRX Advanced System Controller.

ZR-2 model communication is not data modulation or demodulation.
The modulation data received from the TRC-780
It received packet accept and it is retransmit.

MRX-10 & ZR-2 communication method



Hardware Specification

1. **Product Power : Input 3.3V 300mA**
2. **Product Current**
   - **TX Mode : 100mA**
   - **RX Mode : 90mA**

RF Specification

1. **IC Maker and Partnumber is MG2455 to RadioPulse with SKY65352 to Skyworks**
2. **Tx Frequency : 2.405~2.480GHz**
3. **2.4GHz Transmit/Receive Front-End Module with Integrated**

   -[Power Amplifier / Low Noise Amplifier /RF Switch / Balun / Filter]

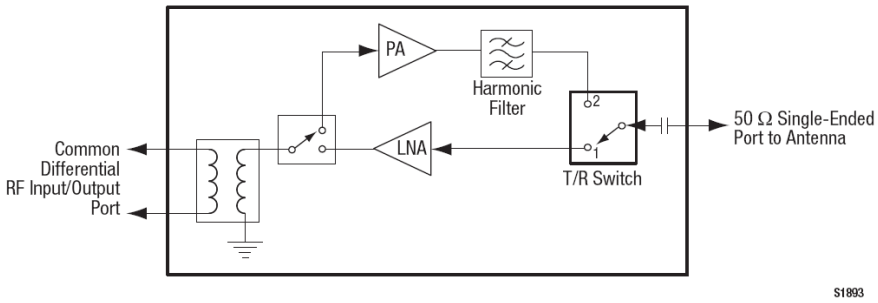


Figure 1. SKY65352 Block Diagram

Technology	Frequency	Modulation Type	Data Type	Power [dBm]
Transceiver	2.405~2.480GHz	O-QPSK	Packet	Conducted +17dBm

Sensitivity [dBm]	Maximum range		(Transfer) Data rate (전송 속도)	Number of Channel (채널수)	Applications
	Indoor	Outdoor			
-99dBm	~ 25meters	~ 40meters	250Kbps	16	2.4GHz RF Repeater

4. **RF IC 16MHz Crystal & The IC used Voltage Detector for 1.8V Reset.**
5. **The 2.4GHz antenna is chip type**