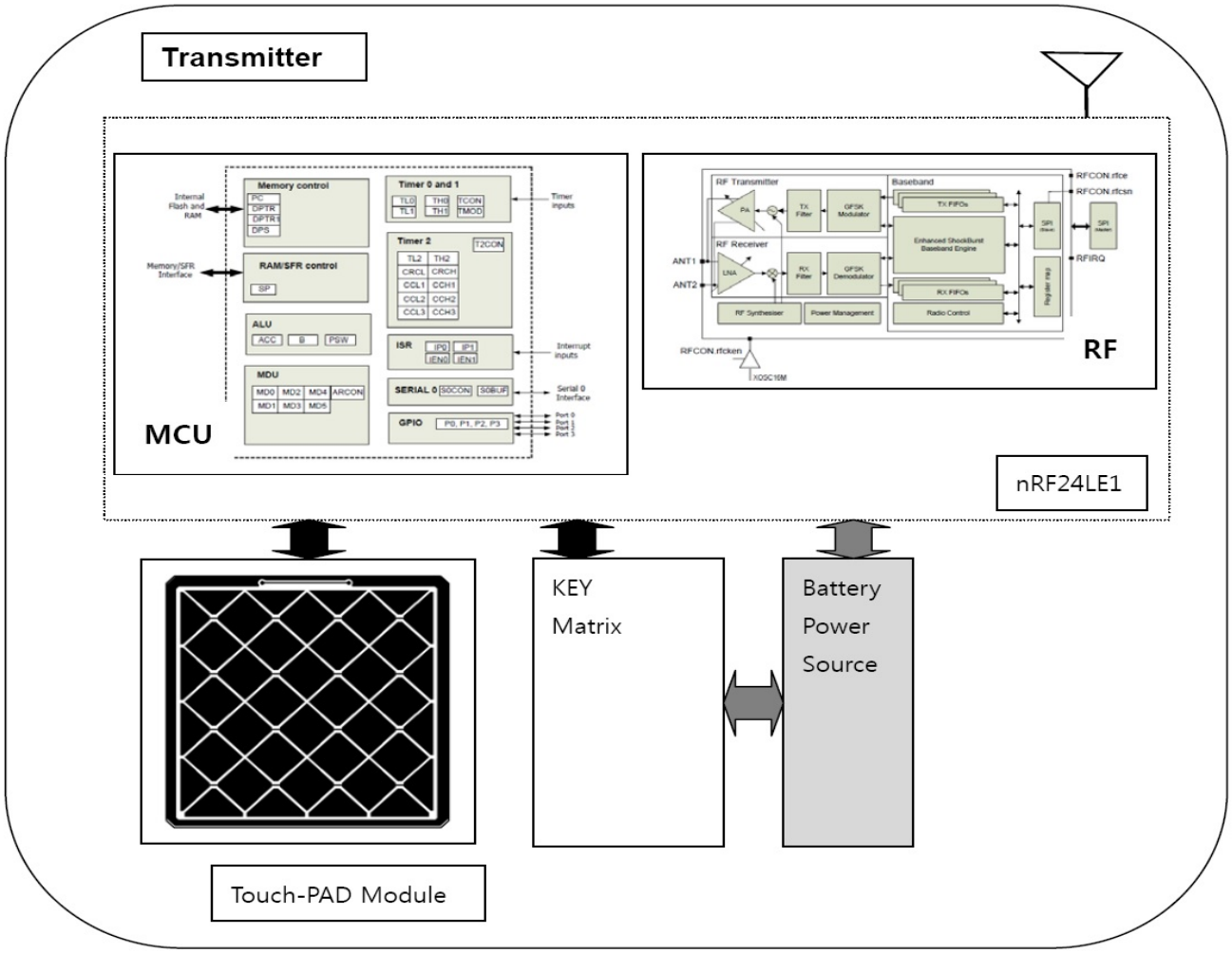
ITV-R01 Block Diagram & Circuit Explanation

- ITVR01 TX Remocon Block Diagram



Touch Air (ITV-R01) Remote Controller has configured Touch PAD Module, Key Function and nRF24LE1

The nRF24LE1 uses the same 2.4 GHz GFSK RF transceiver with embedded protocol engine (Enhanced ShockBurst™) that is found in the nRF24L01+ single chip RF transceiver. The RF transceiver is designed for operation in the world wide ISM frequency band at 2.402 - 2.478 GHz and is very well suited for ultra low power wireless applications.
The RF transceiver module is configured and operated through the RF transceiver map. This register map is accessed by the MCU through a dedicated on-chip Serial Peripheral interface (SPI) and is available in all power modes of the RF transceiver module.
The embedded protocol engine (Enhanced ShockBurst™) enables data packet communication and supports various modes from manual operation to advanced autonomous protocol operation. Data FIFOs in the RF transceiver module ensure a smooth data flow between the RF transceiver module and the nRF24LE1 MCU.
The rest of this chapter is written in the context of the RF transceiver module as the core and the rest of the nRF24LE1 as external circuitry to this module.

Touch PAD Module operates 3 step like this and communicate I2C with nRF24LE1 Main CPU

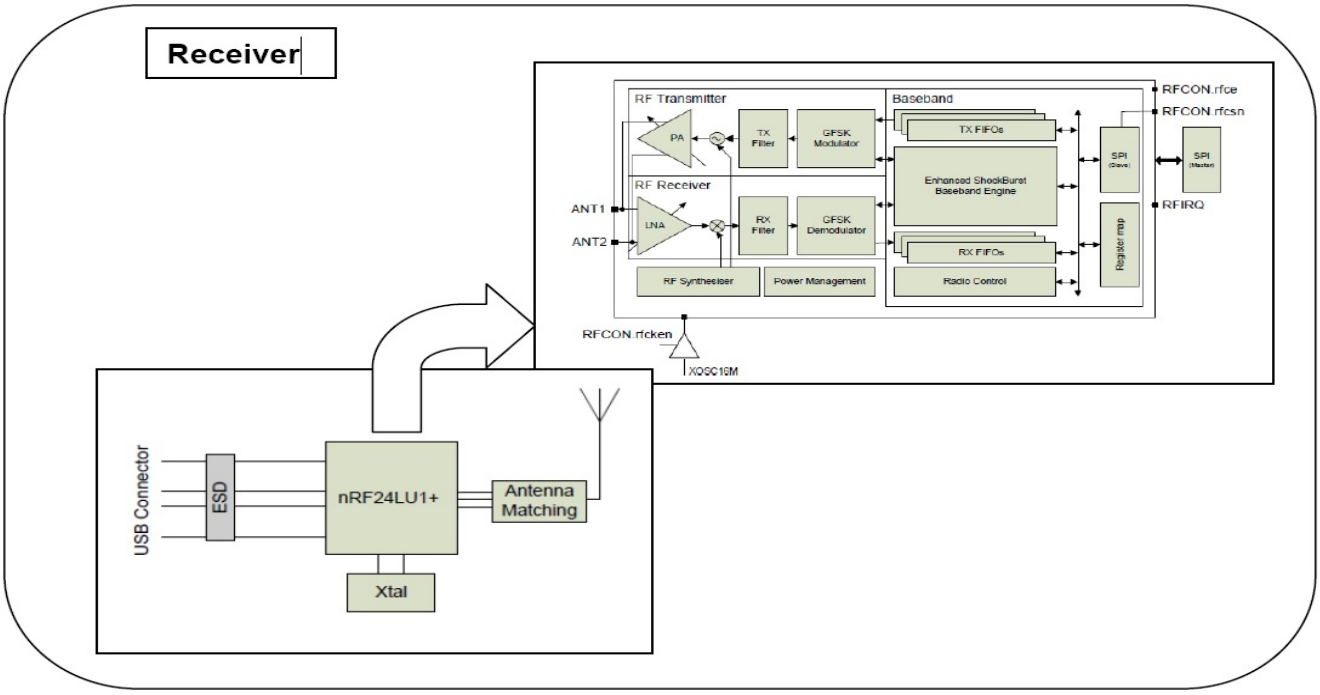
▶ ACTIVE mode Touch module stay in ACTIVE mode when it detected touch.
If Touch module detect touch then data transfer to RCU.

▶IDLE mode Touch module operation translate to idle mode when it detected no touch over 5s.
If Touch module detect touch then translate to Active mode immediately.

▶ SLEEP mode Touch module operation translate to sleep mode when it detected CS_IN high.
If Touch module detect CS_IN low then translate to Active mode immediately.

The DATA which created by Touch PAD Module is transferred by nRF24LE1 and It is received by the USB Dongle.
The Key Function Button has a Android OS version and Window OS version Mac OS Keyboard Function..

- Dongle RX Block Diagram



The nRF24LU1+ is a unique single chip solution enabling ultra compact USB dongles for wireless peripherals. The USB Dongle supports Full speed 2.0 compliant device controller

The nRF24LU1+ uses the same 2.4GHz GFSK RF transceiver with embedded protocol engine (Enhanced ShockBurst™) that is found in the nRF24L01+ single chip RF Transceiver and the nRF24LE1 on-chip solution.
The RF Transceiver is designed for operation in the world wide ISM frequency band at 2.402 - 2.478GHz and is very well suited for ultra low power wireless applications.
The RF Transceiver module is configured and operated through the RF transceiver map. This register map is accessed by the MCU through a dedicated on-chip Serial Peripheral interface (SPI) and is available in all power modes of the RF Transceiver module.

The embedded protocol engine (Enhanced ShockBurst™) enables data packet communication and supports
various modes from manual operation to advanced autonomous protocol operation. Data FIFOs in

the RF Transceiver module ensure a smooth data flow between the RF Transceiver module and the nRF24LU1+ MCU.

Equipment Identification Code

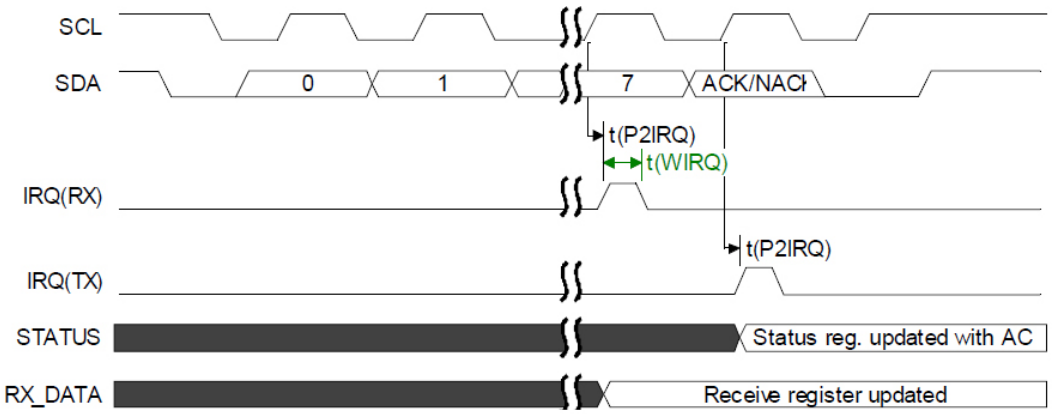


Figure 68. Interrupt request timing towards MCU

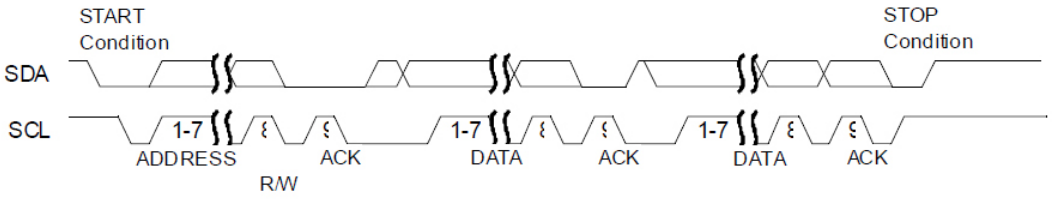


Figure 69. Complete data transfer

FCC NOTICE

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:
(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDERSIRED OPERATION.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit difference from that to which the receiver is connected.
- Consult the dealer of an experienced radio/TV technician for help.

NOTE : The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.