RFR400 433MHz Router

User Manual

Revision 02

User Manual

Revision	Date	Description
00	2009.1.15	Preliminary draft
01	2009.3.19	
02	2009.8.17	

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Introduction

RFR400 433MHz Router is an efficient and powerful data repeater suit for different applications. It supports both star and mesh topology that can significantly extend the coverage range. Besides, RFR400 have two mode of operation, one is auto-organized mode and the other self-assigned mode.

RFR400 is suitable for non-network environment to repeat the signal back to reader. It can be plug and play by setting auto-organized mode. There are failover and load balance functions to avoid failure or overload of single node.

Features

- Wireless configuration by reader
- Support Star and Mesh topology
- Alternative auto-organized and self-assigned mode
- Load balance function
- Plug and Play
- Programmable routing broadcasting period
- Data encryption
- Packet attached first node RSSI and ID for RTLS application.

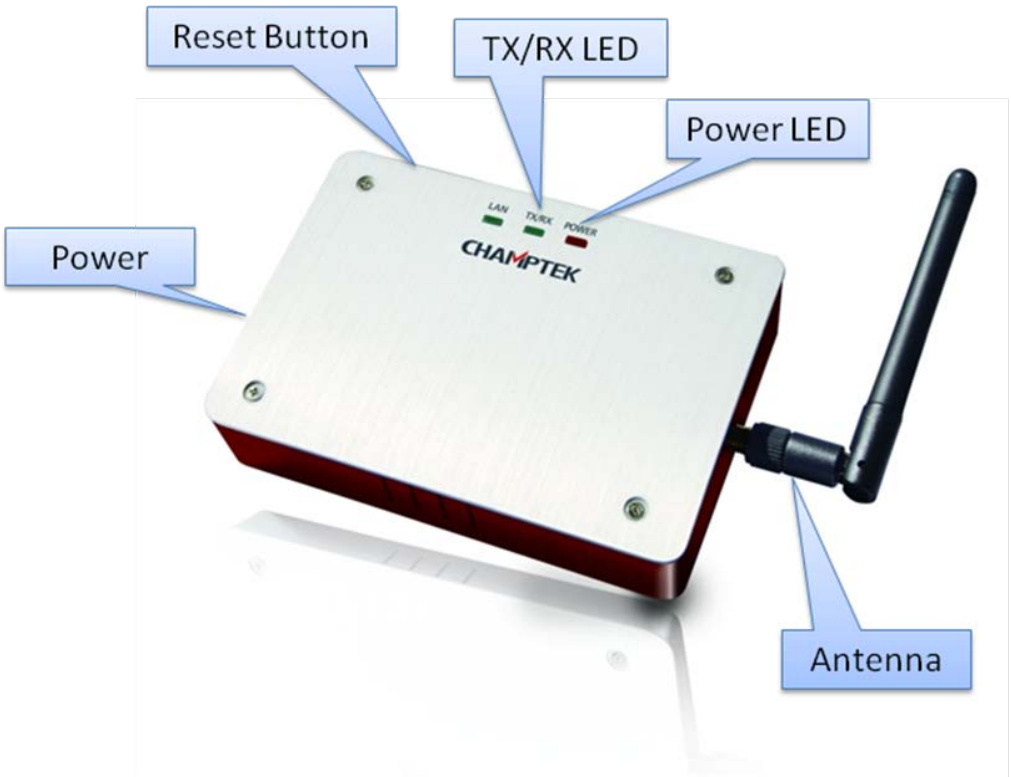
Specification

Reader Communication Protocol	
Operation frequency	433.92 MHz
Signal Strength	Default -30dbm
Range Control	Adjustable RSSI range (0 to -99dbm)
Modulation	GFSK
Read Range	
Omni Angle Antenna	90m
Physical Characteristics	
Length	4.6”
Width	3.1”
Height	1.1”
Case	Aluminum + ABS
Environmental	
Operation Temperature	-30℃ to 70℃
Storage Temperature	-40℃ to 80℃
LED Indicators	
Power LED	Power on indicator
TX/RX LED	TX/RX indicator
Electrical	
Power	5VDC, 50mA
Power Consumption	0.25W

Connectors	
Antenna	SMA

Mechanicals

TOP View



Power LED – On when reader is powered.
TX/RX LED – On while reader is transmitting or receiving a packet.
Antenna – SMA connector
Power – 5Vdc
Reset Button – Hardware Reset the Router

Packet Format

Head	Reader ID	First Router ID	Tag Group	Tag ID	Tag Status	First Router RSSI	Tag Data	End Code
#	000000 ~999999	000000 ~999999	0~63	000000 ~999999	*	00~99	**	0x0d 0x0a

* “Status” indicates the tag’s condition such as moving, still, etc.
** The content of “Data” depends on different groups of tag.

Implementation Notice

- Keep away from potential RF radiators such as electronic / radio equipments for minimizing interference, i.e. engine, monitor etc, utilize the channel clear detection feature to pre-scan the interference and then choose the best place to setup the reader. And readers should be mounted at reasonable height for better performance.
- RFR400 supports wide range of antennas for different coverage areas, high quality SMA coaxial cable may be use to separate the antennas from Reader.
- RFR400 is typical indoor used, for outdoor environment the Reader can be protected in a NEMA enclosure. The operation performance will be reduced the negatively impacted by nature weather conditions such as moisture, excessive temperature.