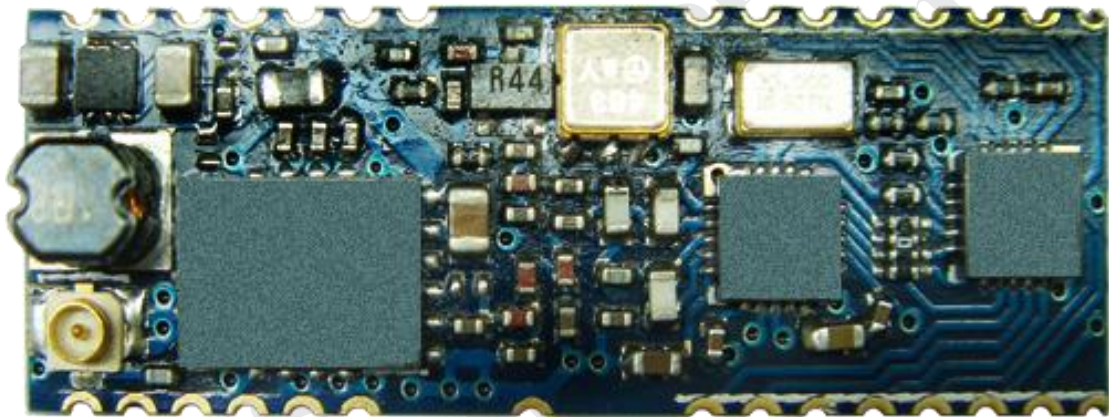

Wireless High Power Transceiver RF Module (2W)



Instruction Manual Revision History

Version	Date	Changes
V1.00	May 23, 2009	First Edition

Application

- AMR - Automatic Meter Reading
- Wireless Toys
- Wireless Network
- Multi-Channel Home Automation Standard
- Wireless RS232 & RS485 & USB
- Active RFID
- RFID Base Station Transmitter

Key Feature

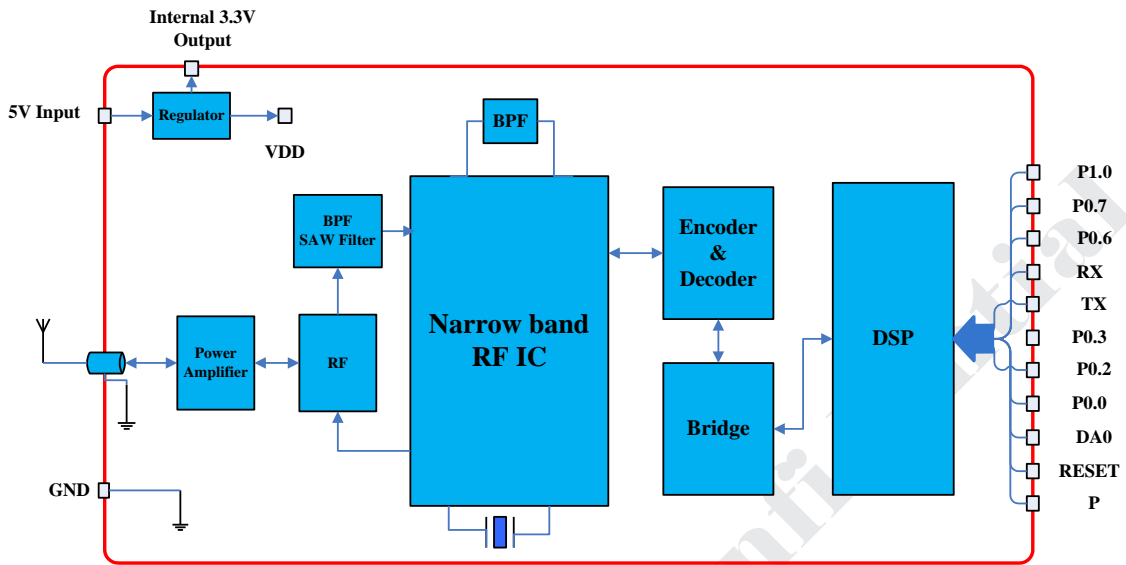
- UHF Band Wireless Data Transceiver
- RF Output Power up to 2W
- Sensitivity up to -120dBm
- Full-duplex UART Micro-controller Interface
- Transceiver Data Rate 1.6Kbps~128Kbps

Characteristic

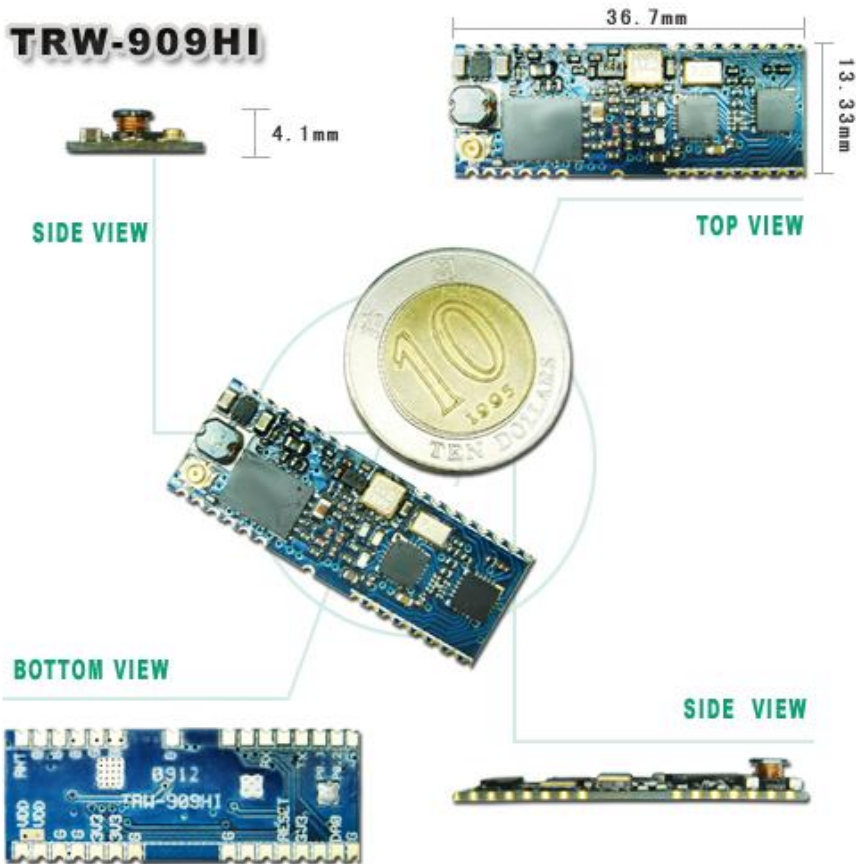
Parameter	Min	Type	Max	Unit	Condition
Operating Condition					
Operating Temperature Range	-10		+70	°C	
Operating Supply Voltage		5	5.5	V	
Current Consumption					
RX Mode			40	mA	
TX Mode			1500	mA	2W Peak
Sleep Mode			23	mA	
RF Characteristic					
Frequency Range	902		928	MHz	
Data Rate	1.6		128	Kbps	GFSK
TX Output Power	0	33	34	dBm	
RX Sensitivity			-120	dBm	
Modulation		GFSK			
Other					
ESD			2000	V	

Interface Data Rate	1.2		115.2	Kbps	
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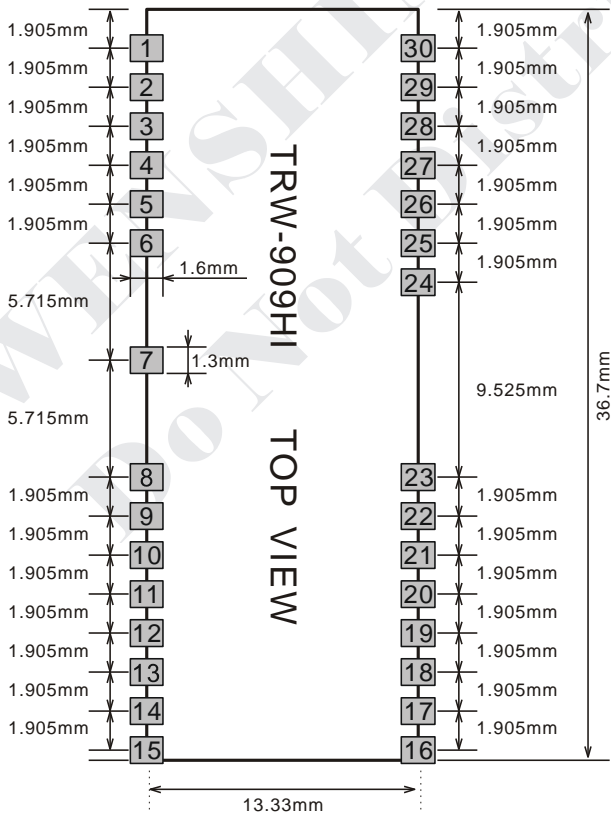
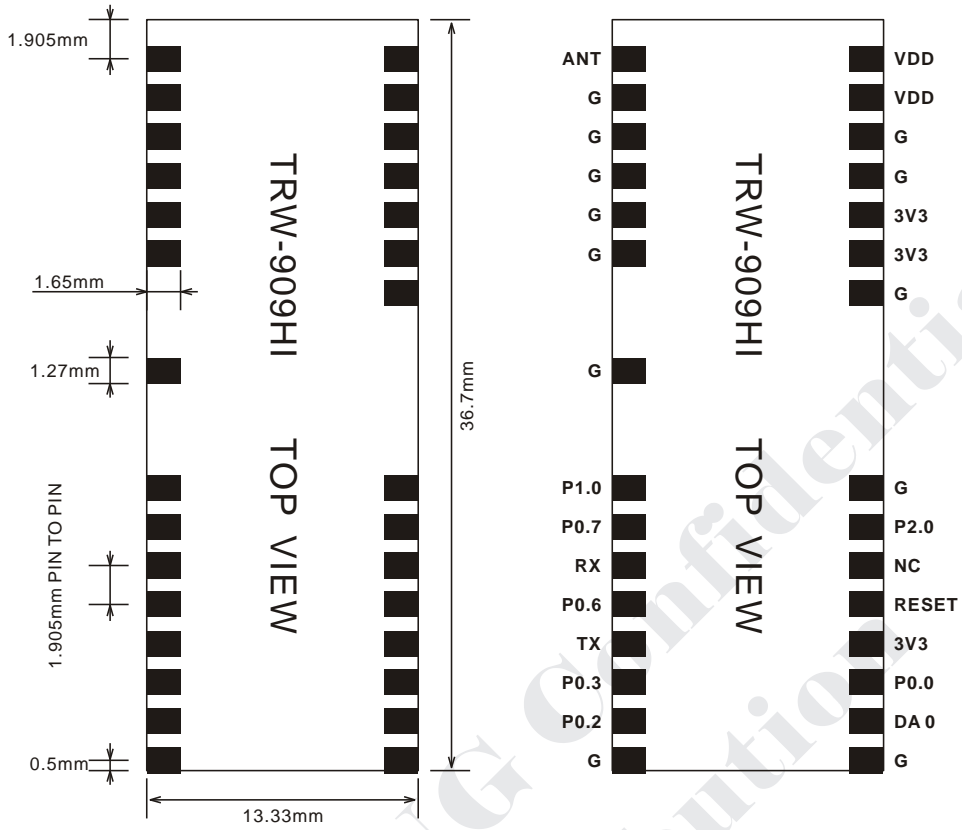
Block Diagram



View



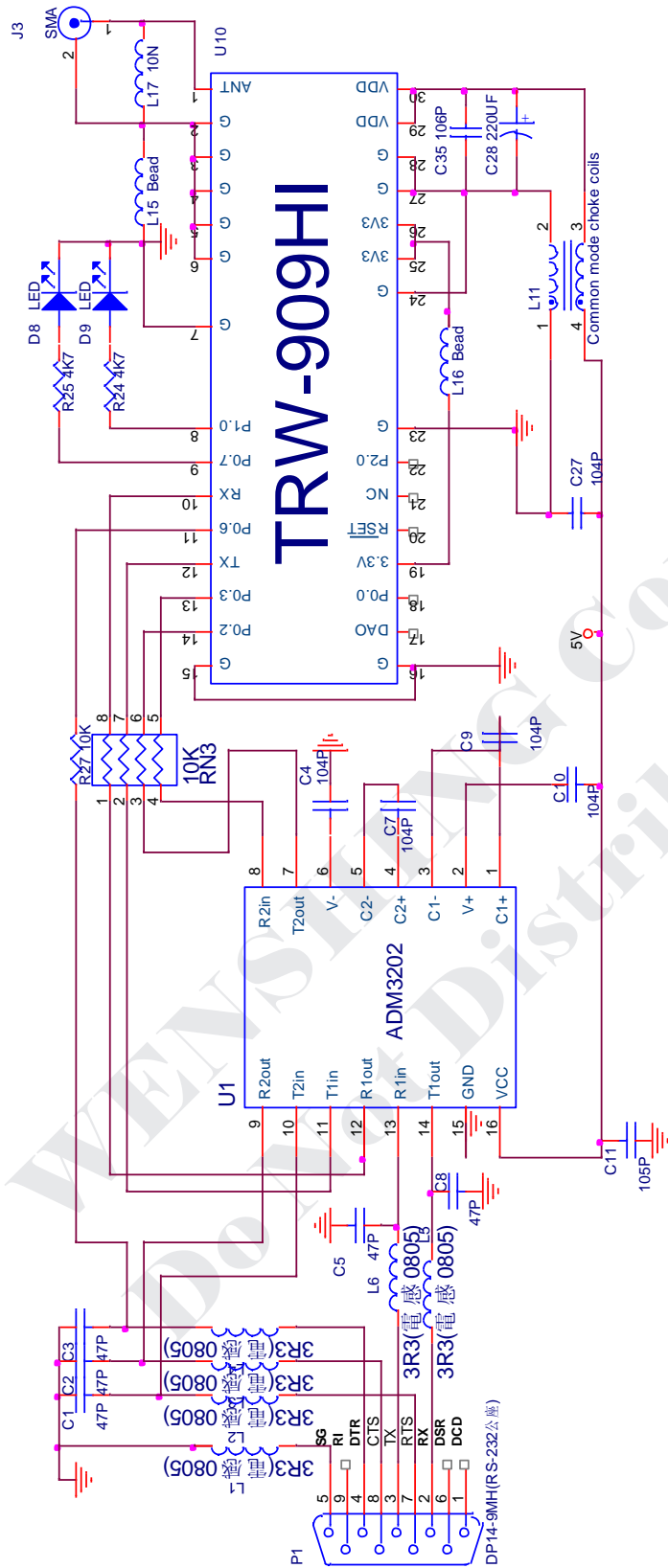
Pin & Size



Pin Assignment

Pin	Function	I/O	Description
1	ANT	ANT	Antenna Interface
2	G	G	RF Ground
3	G	G	RF Ground
4	G	G	RF Ground
5	G	G	RF Ground
6	G	G	RF Ground
7	G	G	RF Ground
8	P1.0	O	If send the data this pin will puller-high
9	P0.7	O	If receive the data this pin will puller-low
10	RX	I	RXD for RS232 interface
11	P0.6	O	DTR for RS232 interface
12	TX	O	TXD for RS232 interface
13	P0.3	O	CTS for RS232 interface
14	P0.2	I	RTS for RS32 interface
15	G	G	Data Ground
16	G	G	Data Ground
17	DA0	O	External PA Power control
18	P0.0	I	2-External Trigger (with WS-MRDD)
19	3V3	P	Input 3.3V
20	RESET	I	Low action
21	NC	NC	NC
22	P2.0	I	1-External Trigger (with WS-MRDD)
23	G	G	Data Ground
24	G	G	Data Ground
25	3V3	P	Internal 3.3V output
26	3V3	P	Internal 3.3V output
27	G	G	Power Negative
28	G	G	Power Negative
29	VDD	P	Power Cathode
30	VDD	P	Power Cathode

Application Circuit



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Title		Wenshing	
Size	Document Number	TRW-909HI Application Circuit	
A	A	A	
Date:		Saturdev_May 23, 2009	Sheet 1 of 1

Command Summary

COMMAND	Send Value	Back Value	Remark
0x80 (Product info)	0x80	TRW-909V100	
0x81 (Set RF transmission rate)	0x81+1 byte (0x00~07)	Correct setting will return send value; incorrect setting will have no back value.	1 byte setting, default value is 0x07.
0x83 (Set ID)	0x83+1 byte (0x00~FF)	Correct setting will return send value; incorrect setting will have no back value.	1 byte setting, default value is 0x00.
0x85 (Set RS232 rate)	0x85+1 byte (0x00~07)	Correct setting will return send value; incorrect setting will have no back value.	1 byte setting, default value is 0x07=115200bps.
0x86 (Set link mode)	0x86+1 byte (0x00 or 0x01)	Correct setting will return send value; incorrect setting will have no back value.	1 byte setting, default value is 0x01=RS232 Modem.
0x87 (Set group ID)	0x87+2 bytes (0x0000~FFFF)	Correct setting will return send value; incorrect setting will have no back value.	2 bytes setting, default value is 0x0000.
0x8D (Detect interface rate)	0x8D+72 bytes (Only 0x8D)	Correct setting will return send value; incorrect setting will have no back value.	Repeat 0x8D and total are 72 bytes, repeat sending and switch interface rate until it return send value.
0x8F (Cancel transfer station)	0x8F+72 bytes (Only 0x8F)	Correct setting will return send value; incorrect setting will have no back value.	Repeat 0x8F and total are 72 bytes,if you received return send value after sent value, it is meaning you already cancel transfer station.
0xC0 (Preset transfer station)	0xC0+1~11 bytes (0x00~FF)	Correct setting will return send value; incorrect setting will have no back value.	Min: 1 byte, Max: 10 bytes.

Command Description

- ❶ **Product info:** it will automatically reply product corresponding info after sent this command.

Address	Read/Write	Byte	Default
0x80	R	-	TRW909V100

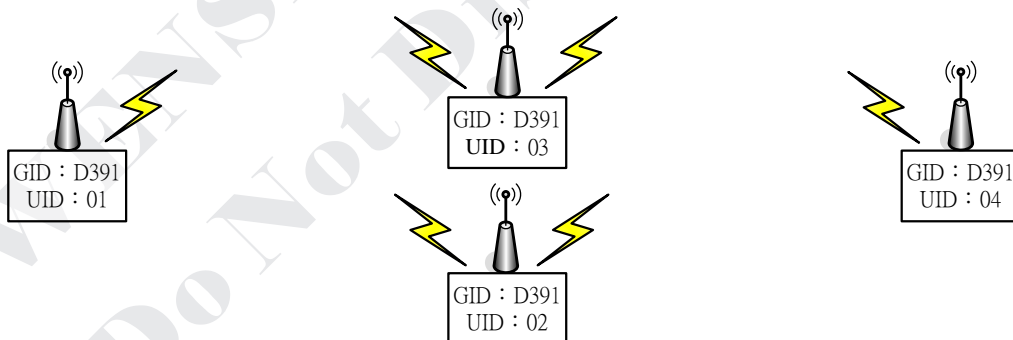
- ❷ **Set RF transmission rate:** we suggest you to collocate with interface rate as setting when you set wireless transmission rate. Normal setting, RF transmission rate must be bigger than interface rate to avoid error data.

Address	Read/Write	Byte	Default(Hex)	Range(Hex)				
0x81	W	1	07	00 ~ 07				
Rate (bps)	1600	3200	6400	12800	25600	51200	76800	128000
Code	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07

- ❸ **Set ID:** UID is for identification between equipment & equipment, user can specify the path of transmission, default value is 00.

Address	Read/Write	Byte	Default(Hex)	Range(Hex)
0x83	W	1	00	00 ~ FF

- ❹ Example : user just needs to send data from equipment which UID=01 to equipment which UID=04, it will receive data when UID=04.



- ❺ **Set RS232 rate:** 1200bps~115200bps; user can amend RS232 interface rate according to different application, default value is 115200bps.

Address	Read/Write	Byte	Default(Hex)	Range(Hex)				
0x85	W	1	07	00 ~ 07				
Rate (bps)	1200	2400	4800	9600	19200	38400	57600	115200
Code	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07

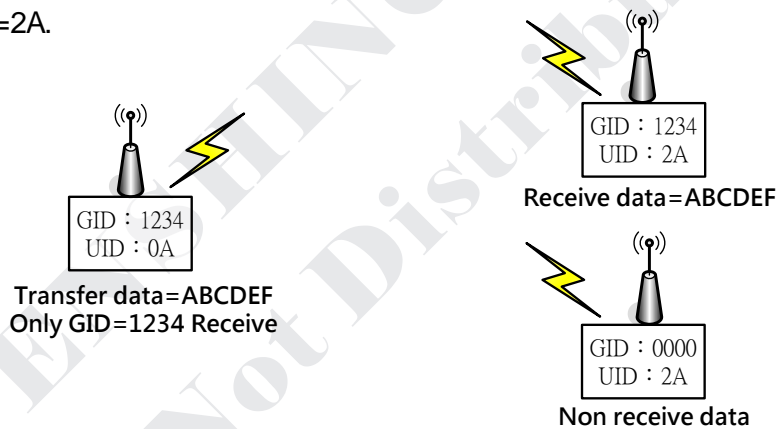
- ❶ **Set link mode:** RS232 Hi Power can collocate with RD-800HI and 3C message receive device. User can amend the link mode through command according to the product which you allocate with.

Address	Read/Write	Byte	Default(Hex)	Range(Hex)
0x86	W	1	01	00 ~ 02
Value	3C Message Receive Device		RS232 Hi power	RD-800HI
RS232 Hi power	00		01	02

- ❷ **Set group ID:** GID is for working group identification. When GID is different, both equipments can't send or receive data each other.

Address	Read/Write	Byte	Default(Hex)	Range(Hex)
0x87	W	2	0000	0000 ~ FFFF

- ❸ **Example:** when GID=1234 and transmitted side which UID=0A send data to receive side which UID=2A, GID=0000. But equipment which UID=2A can't receive any data, only GID=1234 can receive data from receive side which UID=2A.



- ❹ **Detect interface rate:** please switch interface rate and input 72 bytes of 0X8D when you can't make sure the interface rate. Equipment side will return same 0x8D, total are 72 bytes when interface rate is correct.

Address	Read/Write	Byte	Default(Hex)	Range(Hex)
0x8D	R	72	-	8D8D8D ~ 8D

- ❺ **Cancel transfer station:** input 72 bytes of 0X8F for one time when you need to cancel transfer station. When receiver side returns same 0X8F, total are 72 bytes, it is meaning you cancel preset transfer station.

Address	Read/Write	Byte	Default(Hex)	Range(Hex)
0x8F	W	72	-	8F8F8F ~ 8F

- 0 Preset transfer station:** this function needs to preset constant path of data transmission mode. After finish preset, every data doesn't need to add any command and path. Equipment will automatically transfer and send data according to preset path. Maximum transfer stations you can set are 10. Setting way is to add UID number on final receiver side behind the command. If you need to go through transfer station, you need to insert UID number of path in the middle.

Address	Read/Write	Byte	Default(Hex)	Range(Hex)
0xC0	W	1 ~ 11	-	00 ~ FF

- 0 Example:** there are various path setting ways when user need to sent data from equipment which UID=01 to equipment which UID=04.

- ✧ Method 1: command is 0xC00304 when UID=01→UID=03→UID=04.
 Or, command is 0xC00204 when UID=01→UID=02→UID=04.
- ✧ Method 2: command is 0xC0020304 when UID=01→UID=02→UID=03→UID=04.
 Or, command is 0xC0030204 when UID=01→UID=03→UID=02→UID=04.

