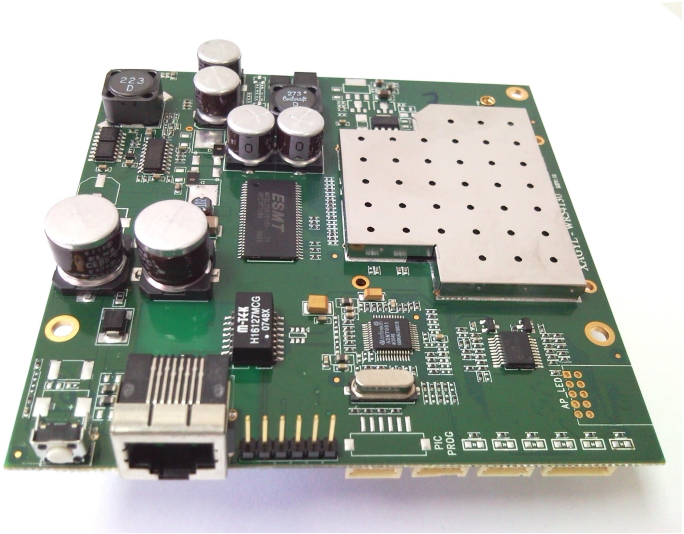
WR24G30 DATASHEET



The **WR24G30** is a 1000mW TX power IEEE 802.11b/g integrated radio system, designed for wide frequency of 2.3GHz to 2.5 GHz to support high value applications in both licensed & unlicensed bands. The **WR24G30** assures lowest EVM (Error Vector Magnitude) at higher modulation rates to maintain low packet errors that maximizes data throughput. The design uses highly linear output power amplifiers in balanced mode to deliver linear power even at 64 QAM radio modulations while maintaining EVM below 4%. With better RX sensitivity and high SNR (specs stated in field conditions), the WR24G30 is specially designed to deliver best performance in long range outdoor applications. The enhanced resilience to RF surges and integrated lightning protection on the Ethernet port makes it ideal for deploying in harsh environments.

Applications

- Long range outdoor broad band wireless applications
- Access points and high performance CPEs
- Mesh wireless infrastructure applications
- Industrial applications

Main features

- High power +30dBm (1000mW)
- Power over Ethernet up to 28V with over voltage and over current protection
- DC power connector
- Frequency range 2412Hz to 2484Mhz
- 5MHz / 10MHz / 20MHz channel bandwidth
- Compliant with IEEE 802.11 b/g standards
- Ethernet surge protection
- Factory defaults reset switch
- Signal strength indication LEDs
- On board Temperature sensor
- On board POE Voltage Sensor
- Accurate power control 0dBm – 30dBm range
- Integrated RF surge protection for enhanced ESD performance up to approximately 14 KV
- Compatible with OpenWRT, OS-Wave and other 3rd party wireless router operating systems
- Available preloaded with xSmart, OpenWRT or OSwave operating system
- Private labelling option with customizable hardware and software

Optional features

- Extended frequency support (2.3GHz ~ 2.5GHz)
- 16 MB Flash
- 32MB DRAM
- 40MHz channel bandwidth
- RS422 /RS485 interface for SCADA applications
- 48V POE
- Fan controller with speed modulation and thermal feedback
- POE Restore Default Switch
- IEEE 802.3af standard compliant
- Integrated GPS module
- External GPIO header

RADIO SYSTEM INFORMATION	
Model No	WR24G30
Chipset & CPU	Atheros AR2315
Operation Voltage	24V (10V to 28V), 48V optional
Radio Frequency Band	2412MHz to 2484MHz, 2300MHz to 2525MHz optional
Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps (Auto fall back)
Channel Bandwidth	5, 10, 20Mhz, 40MHz optional

PHYSICAL, ENVIRONMENTAL AND OTHER SPECIFCIFICATIONS	
Network Connection	10/100 Auto MDI/MDX Fast Ethernet
UART	RS232, RS422/RS485 optional
Antenna ports	Single MMCX port
Power consumption	24V (15W), 48V optional
Operating temperature	-4ºF to +158ºF (-20ºC to +70ºC)
Dimension & Weight	4.13" x 2.4.13" (105 x 105 mm)

RADIO SYSTEM INFORMATION				
Tx/Rx Specification	**DATA RATE**	**MODULATION**	**TX POWER**	**RX SENSITIVITY**
20MHz Channel Width	1 Mbps	DBPSK/DSS	30dBm ± 1dBm	-97dBm ± 1dBm
2412 MHz – 2484 MHz	2 Mbps	DQPSK/DSS	30dBm ± 1dBm	-95dBm ± 1dBm
	5.5 Mbps	CCK/DSS	30dBm ± 1dBm	-92dBm ± 1dBm
	11 Mbps	CCK/DSS	30dBm ± 1dBm	-90dBm ± 1dBm
	6 Mbps	BPSK/COFDM	30dBm ± 1dBm	-93dBm ± 1dBm
	9 Mbps	BPSK/COFDM	30dBm ± 1dBm	-93dBm ± 1dBm
	12 Mbps	QPSK/COFDM	30dBm ± 1dBm	-91dBm ± 1dBm
	18 Mbps	QPSK/COFDM	30dBm ± 1dBm	-89dBm ± 1dBm
	24 Mbps	16QAM/COFDM	30dBm ± 1dBm	-86dBm ± 1dBm
	36 Mbps	16QAM/COFDM	29dBm ± 1dBm	-82dBm ± 1dBm
	48 Mbps	64QAM/COFDM	28dBm ± 1dBm	-77dBm ± 1dBm
	54 Mbps	64QAM/COFDM	27dBm ± 1dBm	-74dBm ± 1dBm

RADIO SYSTEM INFORMATION				
Tx/Rx Specification	**DATA RATE**	**MODULATION**	**TX POWER**	**RX SENSITIVITY**
10MHz Channel Width	3Mbps	BPSK/COFDM	30dBm ± 1dBm	-95dBm ± 1dBm
2412 MHz – 2484 MHz	4.5Mbps	BPSK/COFDM	30dBm ± 1dBm	-95dBm ± 1dBm
	6Mbps	QPSK/COFDM	30dBm ± 1dBm	-93dBm ± 1dBm
	9Mbps	QPSK/COFDM	30dBm ± 1dBm	-91dBm ± 1dBm
	12Mbps	16QAM/COFDM	30dBm ± 1dBm	-88dBm ± 1dBm
	18Mbps	16QAM/COFDM	29dBm ± 1dBm	-84dBm ± 1dBm
	24Mbps	64QAM/COFDM	28dBm ± 1dBm	-79dBm ± 1dBm
	27Mbps	64QAM/COFDM	27dBm ± 1dBm	-76dBm ± 1dBm

RADIO SYSTEM INFORMATION				
Tx/Rx Specification	**DATA RATE**	**MODULATION**	**TX POWER**	**RX SENSITIVITY**
5MHz Channel Width	1.5Mbps	BPSK/COFDM	30dBm ± 1dBm	-97dBm ± 1dBm
2412 MHz – 2484 MHz	2.25Mbps	BPSK/COFDM	30dBm ± 1dBm	-97dBm ± 1dBm
	3Mbps	QPSK/COFDM	30dBm ± 1dBm	-95dBm ± 1dBm
	4.5Mbps	QPSK/COFDM	30dBm ± 1dBm	-93dBm ± 1dBm
	6Mbps	16QAM/COFDM	30dBm ± 1dBm	-90dBm ± 1dBm
	9Mbps	16QAM/COFDM	29dBm ± 1dBm	-86dBm ± 1dBm
	12Mbps	64QAM/COFDM	28dBm ± 1dBm	-81dBm ± 1dBm
	13.5Mbps	64QAM/COFDM	27dBm ± 1dBm	-78dBm ± 1dBm

Technical Information

The WR24G30 has a 10dB TX power offset from the internal system registers. As an example, in order to achieve a 30dBm transmit output power, the system should be set to 20dBm. It is also recommended not to override the calibrated power settings as this will increase the packet error rate due to increased EVM.