



## ALPHA WAVE NARROWBAND RADIO MODEMS WIRELESS SOLUTIONS

# AW900BT



AW900BT radio transceiver is designed as universal license-free modem. It uses 902-928 MHz ISM (industrial, scientific and medical) license free USA band frequency hopping transmission techniques for excellent reliability in noisy plant environments and European CEPT license free 868-870 MHz band, allocated for narrow band telemetry, alarms and data transfer applications.

Thanks to its small size, and multiple functions, the AW900BT is specifically well suited for amount of applications within industrial complexes, for various indoor as well as medium-range applications.

The unmatched features of AW900BT include data scrambling, frequency hopping, user selectable transmit output power level, low power consumption sleep modes, repeater mode, and plug-and-play installation for remote terminals.

AW900BT supports two separate Application Data and Maintenance modes of single RS-232 serial port. The built-in software tools provide the wireless link testing, unit's status and error statistics monitoring as well as unit's settings change over the air. The firmware of the AW900BT radio transceiver resides in a flash memory. The updating of the radio modem programs is entirely software-based. The flash memory is re-programmable through an RS-232 interface, USB, Bluetooth, or over the air.

# AW900BT

## General Radio Specifications

Parameter	Specification
Operating Frequency Range	902-928 MHz (USA) 915-928 MHz (Australia) 868-870 MHz (EU) with 25/12.5 kHz CS
Link Rate, symbols/second	16000, 32000, 64000, 64000 USA/Australia)
Data Speed of Serial Interface	9600 - 115200 bps
Data Rate of Radio Interface (USA/Australia)	16000 bps – GMSK 32000 bps – GMSK 64000 bps – GMSK 4FSK <=> 2 GMSK
Data Rate Radio Interface (25 kHz CS)	9600 bps – GMSK 19200 bps – 4FSK
Data Rate Radio Interface (12.5 kHz CS)	4800 bps – GMSK 9600 bps – 4FSK
Carrier Frequency Stability	±1 ppm
Modulation	GMSK/4FSK
Nominal Impedance	50 Ohms
End to End delay	60 ms
Forward Error Correction (FEC)	Convolution Code R=1/2, Viterbi Decoding
Data scrambling	Yes
Communication Mode	Simplex, Half duplex, Repeater
Maximum Distance Range	3 miles / 5 km
Input/Output	Serial (RS232) up to 115200 bps
Bluetooth	Bluetooth V2.0 Class 2 supporting SPP Slave and Master Profiles
Bluetooth Antenna	External

## Compliance

Parameter	Specification
FCC	Part 15.247
ETSI	EN 300 220-1, EN 301 489-1

## DB15 Connector Specification

Pin #	Signal Name	I/O	Description
1	DCD_OUT	O	Data Carrier Detect (RS-232)
2	DTR_OUT	O	Data Terminal Ready (RS-232)
3	RX+/CTS_IN	I	Receive Data positive line (RS-422)/ Clear to Send (RS-232)
4	RX-/RX_IN	I	Receive Data negative line (RS-422)/ Receive Data (RS-232)
5	PWR_IN	I	+9 to +36 VDC Power Input
6	USB_PWR	I	Power Input line (USB)
7	Ground	-	Power Ground
8	PWR_IN	I	+9 to +36 VDC Power Input
9	DSR_IN	I	Data Set Ready (RS-232)
10	TX+/RTS_OUT	O	Transmit Data positive line (RS-422) / Request to Send (RS-232)
11	TX-/TX_OUT	O	Transmit Data negative line (RS-422) / Transmit Data (RS-232)
12	Ground	-	Power Ground
13	USB_D+	I/O	Positive line (USB)
14	USB_D-	I/O	Negative line (USB)
15	Ground	-	Power Ground

## Environmental Specifications

Parameter	Specification
Temperature	Operating -40°C to +70°C Storage -40°C to +85°C
Environmental	IP 66
Dimensions (H x W x D)	146 mm x75 mm x44 mm
Weight	488 g
Power Supply Voltage	+9 to +36 VDC nominal
Power Consumption (Average)	3W / 1W / 0.05W –Transmit / Receive / Sleep
Housing/Color	Aluminum / Two-tone Silver / Gray
Antenna Connector	RP-TNC, 50Ω

## Transmitter Specifications

Parameter	Specification
Transmitter Output Power	+10...+30 dBm in 1dB step/50 Ω (USA/Australia) +10...+27 dBm in 1dB step/50 Ω (EU)
Output Power Control Accuracy	±1.5 dB (at normal test conditions) +2.0 dB and -3.0 dB (under extreme test conditions)
Carrier Frequency Stability	±1 ppm initial stability over temp with ±3.0 ppm aging/year
Max. Frequency Error	±1.0 kHz (at normal test conditions) ±1.5 kHz (under extreme test conditions)
Spurious Emission (Conducted)	-36 dBm (9 kHz – 1GHz) -30 dBm (1GHz – 4 GHz)
Spurious Emission (Radiated)	-36 dBm (9 kHz to 1 GHz) -30 dBm (1 GHz to 4 GHz)

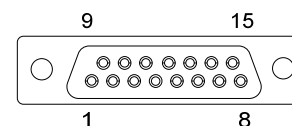
## Receiver Specifications

Parameter	Specification
Noise Figure	4 dB
Receiver Sensitivity for GMSK (BER 1x 10 <sup>-4</sup> )	-113 dBm for 25 kHz CS -113 dBm for 20 kHz CS -114 dBm for 12.5 kHz CS
Receiver Sensitivity for 4FSK (BER 1x 10 <sup>-4</sup> )	-110 dBm for 25 kHz CS -110 dBm for 20 kHz CS -111 dBm for 12.5 kHz CS
Dynamic Range	-119 to -10 dBm
Max. Input Signal Level	-10 dBm
Co-channel Rejection	-8 dB for 25 kHz Channel Spacing -8 dB for 20 kHz Channel Spacing -12 dB for 12.5 kHz Channel Spacing -16 dB for 6.25 kHz Channel Spacing
Adjacent Channel Selectivity	70 dB for 25 kHz Channel Spacing 70 dB for 20 kHz Channel Spacing 60 dB for 12.5 kHz Channel Spacing 50 dB for 6.25 kHz Channel Spacing

## DB15 (Fem)

This connector provides DB15 connectivity for the AW900BT with DTE.

About using and configuration RS-485 and RS-422 please contact support@arwestcom.com



Specifications are typical and subject to change without prior notice