WE-2100T

Embedded Wireless Network Enabler for Serial Devices

Features

› **Easy IEEE802.11a/b/g connectivity for one serial device**

› **Real COM, TCP server, TCP slave, UDP, and RFC 2217 operating modes**

› **Windows COM, Linux Real TTY drivers**

› **Windows Vista Real COM driver**

› **Wireless security with WEP, WPA, and WPA2**

› **Configure through the serial port with serial command mode**

› **Supports nonstandard baudrates, such as 250K and 500K**

› **Nine programmable digital I/O channels**

› **SSL/SSH encryption for configuration**

› **Compact size and easily mounted housing**

: Overview

The WE-2100T is a secure and compact embedded wireless module for connecting serial devices to access points in infrastructure mode, or to other WE-2100T's in ad-hoc mode. When using the WE-2100T, complex RF know-how is not needed to connect serial devices to a wireless Ethernet network. Encryption for secure data transfer is supported, along with the 802.11a/b/g radio specifications.

: Operation Modes for Embedded Applications

The WE-2100T supports Real COM, TCP server, TCP client, UDP, and RFC 2217 operation modes, which are designed to fulfill the requirements of embedded module applications. Complete driver support for Real COM mode is included and easy to install.

: On-site Configuration with Serial Command Mode

• Easy on-site configuration of network settings
• Simple command frame format
• Comprehensive command set for serial and network configuration
• Easily switch between software and hardware triggers
• Software reset

: Ordering Information

WE-2100T: 1-port wireless module with 802.11a/b/g

WE-2100T-ST: Starter kit for WE-2100T

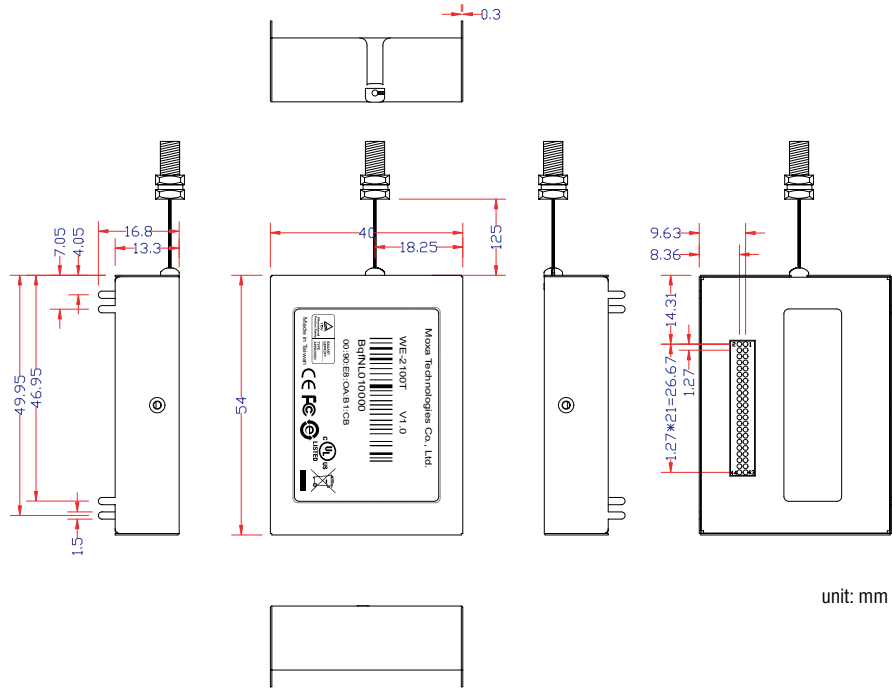### Package Checklist

WE-2100T

• WE-2100T Wireless Module x 1
• 2-DBi Dipole Antenna x 1

WE-2100T-ST

• Power Adaptor
• Warranty Statement
• Quick Installation Guide
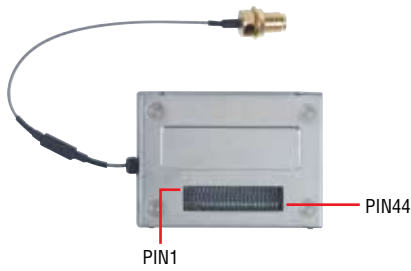• Document and Software CD-ROM
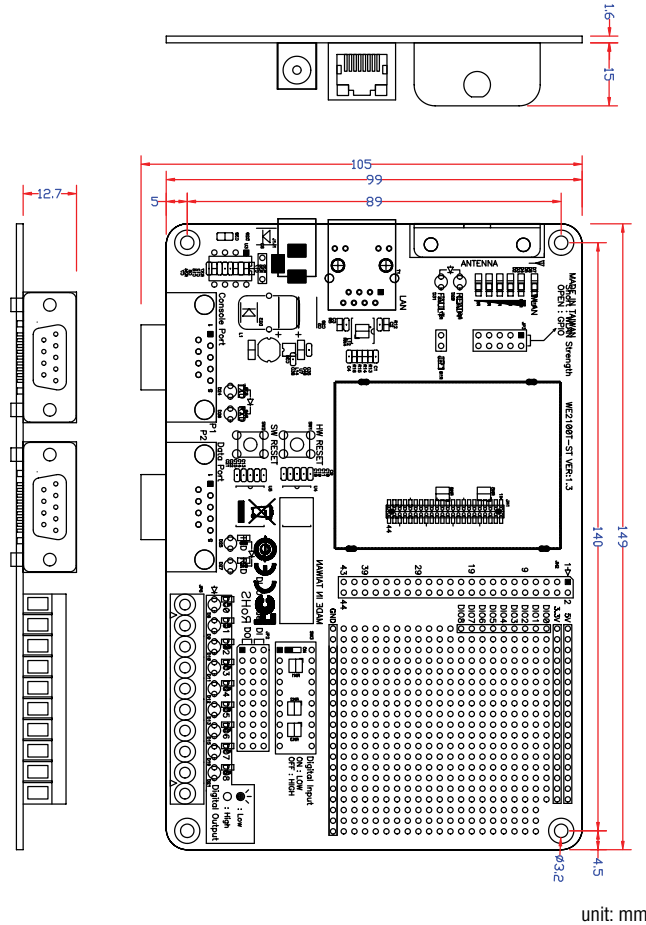
: Pin Assignment and Dimensions

WE-2100T

unit: mm

Pin Definitions

PIN44

PIN1

1	3.3V	2 GND
3	3.3V	4 GND
5	3.3V	6 GND
7	Console_TxD	8 Console_RxD
9	Console_RTS	10 Console_CTS
11	Console_DTR	12 Console_DSR
13	PIO0	14 Console_DCD
15	PIO1	16 PIO4 (WLAN strength 1)
17	PIO2	18 PIO5 (WLAN strength 2)
19	PIO3	20 PIO6 (WLAN strength 3)
21	Data_TxD	22 PIO7 (WLAN strength 4)
23	Data_RTS	24 Data_RxD
25	Data_DTR	26 Data_CTS
27	Ready_LED	28 Data_DSR
29	Fault_LED	30 Data_DCD
31	Eth_Tx+	32 WLAN_Act_LED
33	Eth_Tx-	34 SW_RESET
35	Eth_Center_TAP	36 HW_RESET
37	Eth_Center_TAP	38 Eth_100M_LED
39	Eth_Rx+	40 Eth_10M_LED
41	Eth_Rx-	42 Reserved
43	PIO8 (WLAN strength 0)	44 Reserved

WE-2100-ST

unit: mm

⠿ WE-2100-ST LED Indicators

Type	Color	Status	Meaning
Ready	Off	Off	Power is off
			Unit is booting up or rebooting
			IP error condition occurs
	Green	Steady On	Unit is functioning normally
		Blinking	Unit is responding to software locate function
			Reset button is being held down
Fault	Off	Off	Power is off
			Unit is functioning normally
	Red	Steady On	Unit is booting or rebooting
		Blinking	IP conflict, DHCP, or BOOTP server did not respond properly
WLAN	Off	Off	Unit was booted up with Ethernet cable plugged in
	Green	Steady On	Wireless LAN is activated (unit was booted up with Ethernet cable unplugged)
WLAN Strength	Off	Off	JP3 is open
	Green/Off	Steady On/Off	JP3 is shorted; each LED corresponds to 20% WLAN signal strength
Ethernet	Off	Off	Ethernet cable is unplugged
	Orange	Steady On	10M Ethernet connected
	Green	Steady On	100M Ethernet connected
Serial TXD	Off	Off	No data is being transmitted from unit
	Green	On	Data is being transmitted from unit
Serial RXD	Off	Off	No data is being transmitted to unit
	Yellow	On	Data is being transmitted to unit
DO0 to DO8	Off	off	GPIO mode is used for input
			JP2 DO is open
			GPIO mode is used for output, and state is high
	Green	Steady On	JP2 DO is shorted, GPIO mode is used for output, and state is low

⠿ DI/DO Voltage Specifications

		Min.	Max.	Unit
Low-level input voltage	Maximum voltage when DI is set to "Low" status	-----	0.8	V
High-level input voltage	Minimum voltage when DI is set to "High" status	2	-----	V
Low-level input voltage	Maximum voltage when DO is set to "Low" status	-----	0.4	V
High-level input voltage	Minimum voltage when DO is set to "High" status	2.4	-----	V

The output current for each digital output channel carries only 1 mA.

⠿ DI/DO Configuration and Layout on Starter Kit

DIO selectable jumpers

Digital output LEDs

Switches for setting digital input signals

Digital output terminal block
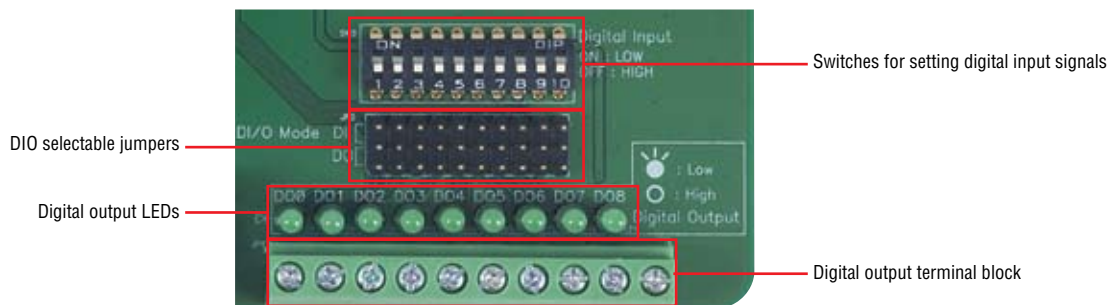
: Specifications

Standard Compliance: IEEE 802.11a/b/g

Transmit Power:

5.15 to 5.25 GHz: 15 dBm @ 6 Mbps; 12 dBm @ 54 Mbps
5.725 to 5.825 GHz: 15 dBm @ 6 Mbps; 12 dBm @ 54 Mbps
2.412 to 2.483 GHz: 17 dBm @ 6 Mbps; 15 dBm @ 54 Mbps
2.412 to 2.472 GHz: 18 dBm @ 1 to 11 Mbps

Receive Sensitivity:

5.15 to 5.25 GHz: 6 Mbps @ -90 dBm; 54 Mbps @ -72 dBm
5.725 to 5.825 GHz: 6 Mbps @ -89 dBm; 54 Mbps @ -72 dBm
2.412 to 2.483 GHz: 6 Mbps @ -90 dBm; 54 Mbps @ -73 dBm
2.412 to 2.472 GHz: 11 Mbps @ -87 dBm; 1 Mbps @ -94 dBm

Transmission Rate:

802.11a: 54 Mbps
802.11b: 11 Mbps
802.11g: 54 Mbps

Data Communication Distance: Up to 100 meters in open areas

Wireless Security: AES, WEP 64/128-bit, WPA, WPA2, 802.11i

802.11i Authentications:

TLS, PEAP/GTC, PEAP/MD5, PEAP/MSCHAPv2, TTLS/PAP, TTLS/CHAP, TTLS/MSCHAP, TTLS/MSCHAPv2, TTLS/EAP-MSCHAPv2, TTLS/EAP-GTC, TTLS/EAP-MD5, LEAP

Channels:

North America: CH1 to CH11, 5150-5825 MHz
Europe: CH1 to CH13, 5150-5875 MHz
Japan: CH1 to CH14, 5150-5350 MHz
Antenna Connector: Reverse SMA
Network Mode: Infrastructure mode (a/b/g), Ad-Hoc mode (b/g
Antenna Gain: 2 DBi

Ethernet Interface

Ethernet: 10/100 Mbps, Auto MDI/MDIX

Protection: Built-in 1.5 KV magnetic isolation

Network Interface

Wireless or Ethernet:

The WE-2100T will detect the Ethernet linkage at boot-up. If an Ethernet linkage is detected, the Ethernet interface will be active; if the linkage is not detected, the WE-2100T will choose wireless as communication interface.You can also fix the interface by configure by with software.

Serial Interface

Number of Ports: 1 data port, 1 serial console port

Interface: TTL

Parity: None, Even, Odd, Space, Mark

Data Bits: 5, 6, 7, 8

Stop Bit(s): 1, 1.5, 2

Flow Control: RTS/CTS, XON/XOFF, DTR/DSR

Baudrate Range: 50 to 921.6 Kbps (standard baudrates), 250 and 500 Kbps (nonstandard baudrates)

Configurable GPIO

9 software configurable GPIOs

CPU Architecture

ARM based 32-bit processor, 200 MHz computation frequency

Management and Configuration Interface

√ Windows utility
√ Web console
√ Telnet console
√ Serial console
√ Serial command mode (configure by data port)

Software Features

Operating Modes:

√ TCP Server
√ TCP Client
√ Real COM
√ UDP
√ RFC2217

Protocol Support: ICMP, IP, TCP, UDP, DHCP, Telnet, DNS, SNMP, HTTP, SMTP, SNTP, SSH, HTTPS

Windows Utility OS Support: Windows 98/ME/2000/XP/2003/Vista

OS Driver Support: Windows 98/ME/NT/2000/XP /2003/XP x64/2003 x64/Vista COM driver, Linux Real TTY driver, SCO Unix, SCO OpenServer 5, UnixWare 7, UnixWare 2.1.x, SVR4.2, QNX

Environmental Conditions

Operating Temperature: 0 to 55°C (32 to 131°F), 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F), 5 to 95% RH

Power Requirements

Power Input: 3.3V ± 5%

Power Consumption:
921.6 Kbps (full speed): 720 mA
Idle: 720 mA
Ethernet mode: 480 m
Inrush current: 2100 mA

Surface Temperature (at full speed of 921.6 Kbps)

Environment	Top Panel	Bottom Panel
25°C	46.7°C	45.7°C
55°C	60°C	68.4°C

Regulatory Approvals

EMC: CE EN550022 Class A
FCC Part 15, Subpart B, Class A

Safety: EN60950, CUL, TUV

Wireless: CE ETSI EN 301 489-17
CE ETSI EN 301 489-1
FCC Part 15, Subpart B, Class A
FCC Part 17, Subpart B, Class A

Packing

Dimensions: 54 x 40 x 13.3 mm

Weight (not including antenna): 50.1 g

Material: Metal

Warranty: 5 years