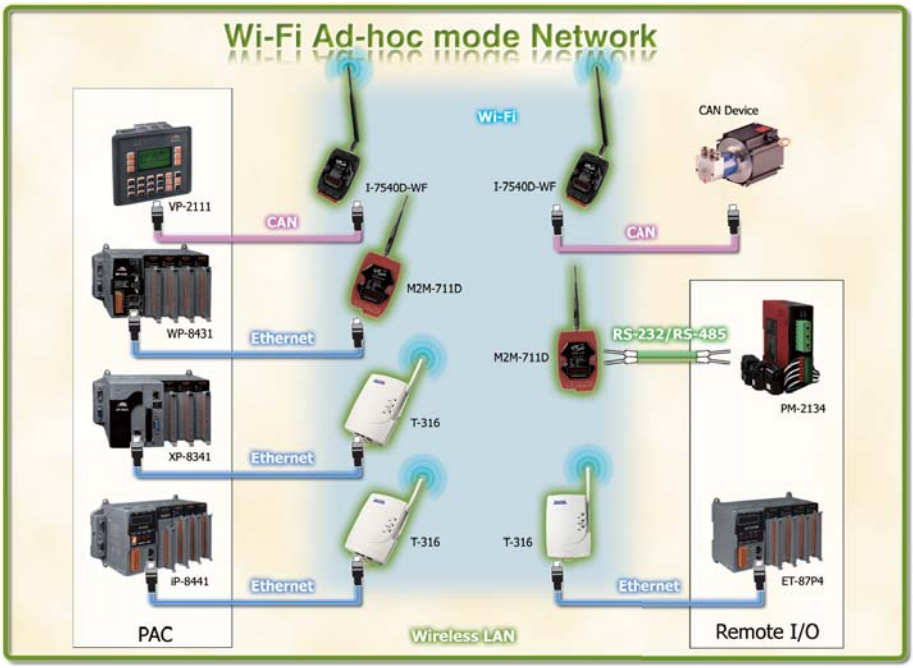
WLAN Products

2

2.1. Overview



WLAN (Wireless Local Area Network) links devices by wireless distribution method (spread-spectrum or OFDM radio), and generally provides a connection through an access point to the internet. WLAN allows users to move device within a local coverage area, and still be connected to the network. High-bandwidth allocation for wireless will make a relatively low-cost wiring possible.

Advantages & Benefits

- Build a wireless network via Wi-Fi technology. There is no need to build an expansive fixed line network.
- Enable CAN/Serial/Ethernet device to be connected to the same network via Wi-Fi without any cable.
- Use widely available IEEE 802.11 (Wi-Fi) or Ethernet network infrastructure.
- Support IEEE 802.11 b/g for Wi-Fi and Ad Hoc modes.
- Secure data access with WEP, WPA, WPA2.

WLAN Product Selection Guide

Nowadays, Wireless LAN applications are very popular. They're not only faster than traditional industrial transmissions, i.e. RS-232, RS-485, RS-422 etc, but are also able to minimize the need for troublesome wiring tasks and have a higher mobility than an Ethernet network. ICP DAS provides a great variety of WLAN products, which are compliant with standard of IEEE 802.11. The WLAN products have two modes: Ad-hoc and Infrastructure.

WLAN Remote Maintenance Device

Model Name	Standard	Data Rate	Page
M2M-711D	IEEE 802.11b DSSS (2.4 GHz ISM radio band)	11 Mbps, 5.5 Mbps, 1 Mbps (Auto scaling)	2-2-1

CAN to WLAN Converter

Model Name	Standard	Data Rate	Page
I-7540D-WF	IEEE 802.11b DSSS (2.4 GHz ISM radio band)	11 Mbps, 5.5 Mbps, 1 Mbps (Auto scaling)	2-3-1

LAN to WLAN Converter

Model Name	Standard	Data Rate	Page
T-316	IEEE 802.11b DSSS (2.4 GHz ISM radio band)	11 Mbps, 5.5 Mbps, 1 Mbps (Auto scaling)	2-3-3

2.2. WLAN Remote Maintenance Device

M2M-711D

Remote Maintenance Wi-Fi Device Terminal Unit

Features

- Supplie static IP/DHCP (Ad Hoc mode don't support DHCP)
- Ethernet Protocol: TCP, UDP, IP, ICMP, ARP,RARP
- Provide dynamic DNS function
- Support IEEE 802.11 b/g for Wi-Fi mode and Ad Hoc mode
- Support WEP-64,WEP-128, WPA-TKIP and WPA2-AES encryption for Wi-Fi mode
- Support WEP-64,WEP-128 encryption for Ad Hoc mode
- Support 1~13 RF channels
- Auto control channel in AP mode
- Ad Hoc mode transmission range up to 100 m(Line of sight)
- Accommodate with M-4132, M2M-720A, M2M-710D
- Web-based administration

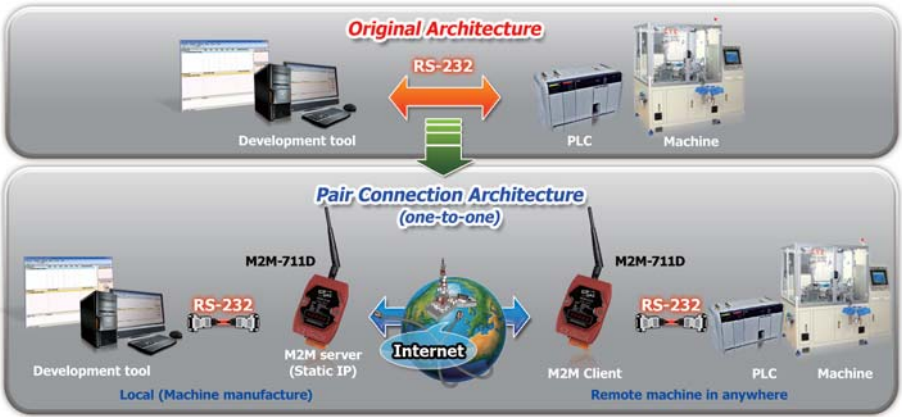
Introduction

The M2M-711D module is specially designed for the remote maintenance and upgrading the serial to network application solution. Users can choose Ethernet mode or Wi-Fi mode to do the pair connection, which provides TCP data tunneling between two serial devices.
In addition to M2M-710D original features, M2M-711D has the Ad Hoc mode of operation. This operation mode can be used to extend the distance of RS232/485 network without Wi-Fi AP and Ethernet Hub.

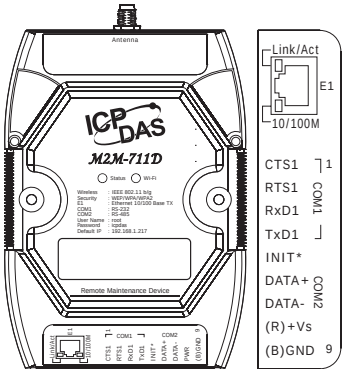
Specifications

Models	M2M-711D
System	
CPU	80186, 80 MHz
SRAM	512 KB
Flash	Flash ROM: 512 DB; Erase unit is one sector (64 KB); 100,000 erase/write cycles
EEPROM	16KB; Data retention: 40 years; 1,000,000 erase/write cycles
Built-in Watchdog Timer	Yes
Communication Interface	
COM1	RS-232 (RxD, TxD,RTS,CTS,DTR,DSR,GND); Non-isolation
COM2	RS-485 (DATA+, DATA-); Non-isolation
Ethernet Port	10/100 Base-TX
LED Display	
5-Digit 7 Segment LED	Yes
System LED Indicator	Yes
Wi-Fi Module	
RF channels	0~13; 0: Auto control channel in AP mode
Receiving sensitivity	-87 dBm(IEEE 802.11b) / -72 dBm (IEEE 802.11g)
Data encryption	WPA-TKIP / WPA2-AES / WEP-64 /WEP-128
Transmit Power	12 dBm(IEEE 802.11b) / 14 dBm(IEEE 802.11g)
Antenna	2.4 GHz - 2 dBi Omni-Directional antenna
Transmission range (LOS)	100M
Power	
Protection	Power reverse polarity protection
Required Supply Voltage	+10 VDC ~ +30 VDC
Mechanical	
Casing	Plastic
Flammability	Fire Retardant Materials (UL 94V-0 Level)
Dimensions (W x L x H)	123mm x 72 mm x 33mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-40 °C ~ +80 °C
Humidity	5% ~ 90% RH, Non-condensing

Applications

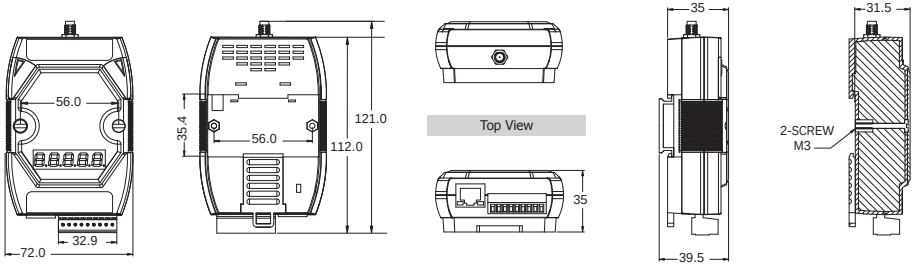


Appearance



Pin	Name	Description
1	CTS	CTS of RS-232
2	RTS	RTS of RS-232
3	RxD	Rx of RS-232
4	TxD	Tx of RS-232
5	INIT*	Init Pin
6	DATA+	DATA+ of RS-485
7	DATA-	DATA- of RS-485
8	PWR	V+ of Power Supply (+10 ~ +30 VDC)
9	GND	GND of Power Supply

Dimensions (Units: mm)



Ordering Information

M2M-711D CR	Remote maintenance Wi-Fi Device Terminal Unit

2.3. WLAN Converter

I-7540D-WF

CAN to WiFi Converter

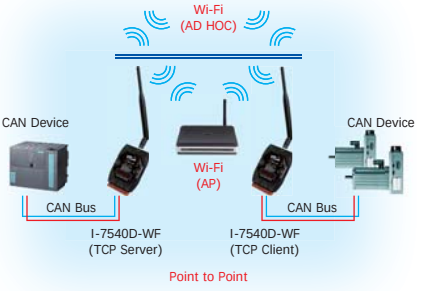
Features

- IEEE 802.11b/g compliant
- Wireless data transmission via WLAN
- Two different operation modes: infrastructure and ad-hoc
- Point to point or point to multi-points connection via wireless LAN
- Support WEP, WPA and WPA2 encryption for wireless LAN
- CAN 2.0A/2.0B compliant
- Connect CAN networks via a WLAN bridge
- Communication efficiency: one-way is up to 700 fps (client->server, server->client), two-way 350 fps (client<=>server)
- Wireless communication: 100m(Without PA) / 300m(With PA)

Introduction

I-7540D-WF supports the wireless transmission of CAN data between various CAN networks or a CAN network and a WLAN network according to the 802.11b/g standard. I-7540D-WF is highly suitable for connecting mobile (e.g., vehicles or machines) or stationary CAN networks and often used for short ranges up to 100 or 300 m.(TCP data protocols are available.) Using an appropriately configured router, CAN data can be transmitted over the Internet. There are two operating modes in the I-7540D-WF: access point mode and ad-hoc mode. In the access point mode, the data connection takes place over one or several WLAN access points that are often part of the company's internal IT infrastructure. In the ad-hoc mode, a direct connection is established between a single I-7540D-WF device and a PC or laptop (with an integrated WLAN interface), or with a second I-7540D-WF device. In this way, the I-7540D-WF can be used as a CAN diagnosis interface. The wireless connection that is established between two I-7540D-WF units can be used instead of a cable, and enables the connection of CAN networks.

Applications

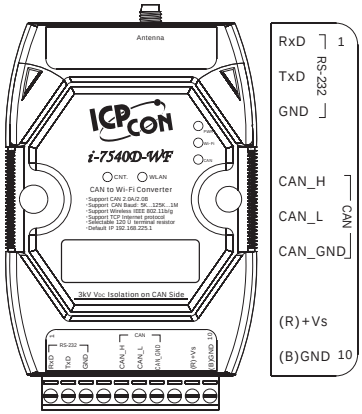


Specifications

Models	I-7540D-WF
Hardware	
CAN Port Channels	1
CAN Interface	
Controller	CAN Controller inside
Transceiver	NXP 82C250
Connector	10-pin screw terminal connecter
Bause Rate (bps)	5K ~ 1 Mbps
Isolation	3000 V_{DC} power protection on CAN side, 2500 V_{rms} photo-couple isolation on CAN bus
Terminator Resistor	Selectable 120 Ω terminator resistor by jumper
Specification	ISO-11898-2, CAN 2.0A and CAN 2.0B
Pin Assignment	CAN_H, CAN_L
Max. Data Flow	700 fps (one-way)
UART Interface	
Connector	10-pin screw terminal connecter
COM	RS-232 (TxD, RxD, GND)
Baud Rate (bps)	115200
Wi-Fi Module	
RF channels	0~13; 0: Auto control channel in AP mode
Receiving sensitivity	-87 dBm(IEEE 802.11b) / -72 dBm (IEEE 802.11g)
Data encryption	WPA-TKIP / WPA2-AES / WEP-64 /WEP-128
Transmit Power	12 dBm(IEEE 802.11b) / 14 dBm(IEEE 802.11g)
Antenna	2.4 GHz - 2 dBi Omni-Directional antenna
Transmission range (LOS)	100M

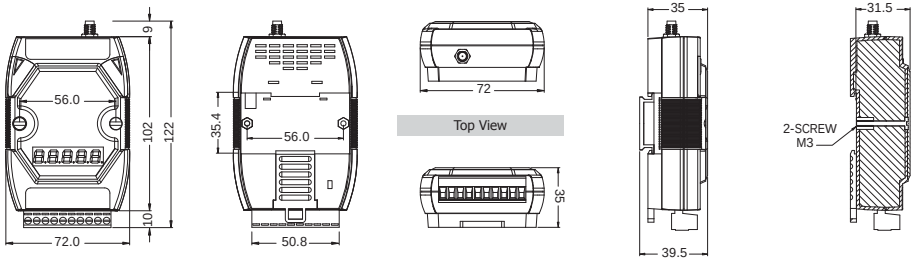
Models	I-7540D-WF
LED Indicators	
Round LED	PWR / Wi-Fi / CAN / CNT / WLAN
Power	
Required Supply Voltage	+10 VDC ~ +30 VDC
Power Consumption	1.5 W
Dip Switch	Init (Firmware Update) / Normal (Firmware Operation)
Mechanical	
Casing	Plastic
Flammability	Fire Retardant Materials (UL 94V-0 Level)
Dimensions (W x H x D)	72 mm x 121 mm x 35 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-40 °C ~ +80 °C
Humidity	5% ~ 90% RH, Non-condensing

Appearance



COM Port & Power Input		
Pin	Name	Description
1	GND	Power Input +10 VDC ~ +30 VDC
2	+Vs	
3	--	--
4	CAN_GND	CAN
5	CAN_L	
6	CAN_H	
7	--	--
8	GND	RS-232
9	TxD	
10	RxD	

Dimensions (Units: mm)



Front View | Rear View | Top View | Bottom View | Din-Rail Mounting Bracket | Side View

Ordering Information

I-7540D-WF CR	CAN to Wi-Fi Converter (RoHS)

T-316

Smart WLAN Ethernet Client

Features

- 802.11b Ethernet Client
- Web-based Configuration
- Web-based Firmware Upgrades
- 64/128-bit WEP
- No Driver Installation Required
- Plug and Play Operation
- Directional 6dBi Gain Antenna
- AP Priority List
- Small and Compact

Introduction

The T-316 is an Ethernet LAN to wireless LAN converter. It requires no software or drivers to be installed and the configuration process is very simple. The current hardware system or currently running programs do not need to be modified in order to enjoy the benefits of wireless transmission.

Operating Modes

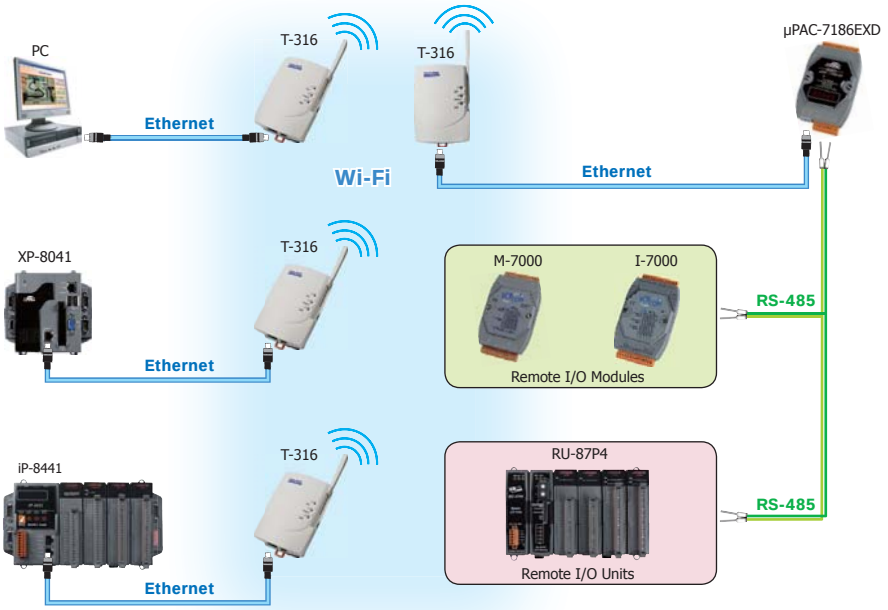
Ad-hoc Mode

An Ad-hoc network is formed using a number of wireless stations (without an Access Point) and communicates via radio waves. For the user, the shared resources on the wireless network appear exactly as they would on a regular wired network. The wireless operation of the network is totally transparent.

Infrastructure Mode

An Infrastructure network is formed using a number of stations together with one or more Access Points (APs), with the stations positioned within a set distance from the AP. This mode supports long distance transmissions.

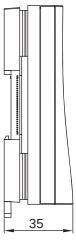
Applications



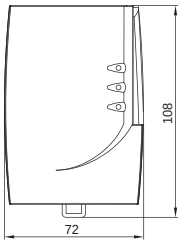
Specifications

Models		T-316
Wireless		
Standard		IEEE 802.11b DSSS (2.4 GHz ISM radio band)
Data Rate		11 Mbps, 5.5 Mbps, 1 Mbps (Auto scaling)
Transmit Power		+15 dBm (typical)
Data Rate Sensitivity	11 Mbps	-84 dBm
	5.5 Mbps	-87 dBm
	1 Mbps	-90 dBm
Modulation	11 Mbps	CCK
	5.5 Mbps	CCK
	1 Mbps	DBPSK
Antenna		Internal patch antenna with diversity
Transmission Range		100 m
General		
System Interface		Ethernet (RJ-45)
LAN		802.3 compliant for wired LAN
LED Indicators		
Power		Yes
RF Activity		Yes
LAN Activity		Yes
Power		
Operating Voltage		+3.3 VDC +/-5 % or +5.0 VDC +/-5 %
Current Consumption		500 mA (Max.)
Mechanical		
Dimensions (W x H x D)		72 mm x 108 mm x 35 mm
Weight		250 g
Environment		
Operating Temperature		0 °C ~ +55 °C
Humidity		10 ~ 95% RH, Non-condensing

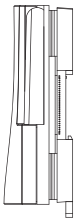
Dimensions (Units: mm)



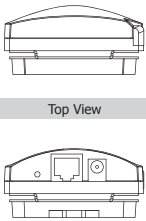
Left Side View



Front View

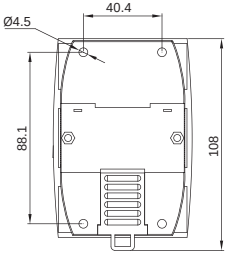


Right Side View



Top View

Bottom View



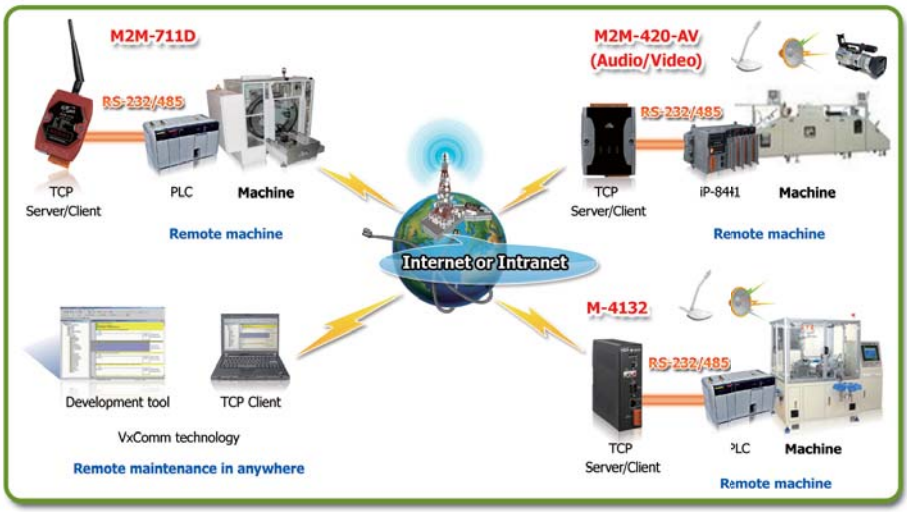
Rear View

Ordering Information

T-316	Smart WLAN Ethernet Client

2.4. Applications

Remote Maintenance Application



CAN to Wi-Fi Application

Wireless LAN Application