IEEE802.11n/a/b/g Wireless LAN Access Point Board FXE3000-US Setup Guide

CONTEC CO., LTD.

The FXE3000-US is a wireless LAN board that conforms to IEEE 802.11n/a/b/g standards of various countries and features a wide input power supply (5 to 30 VDC) and can be configured either as an access point or station.

Packing List

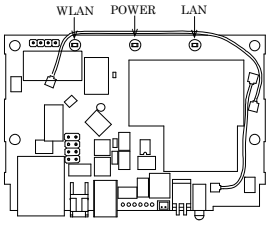
- Main unit (FXE3000-US)...1
- Setup Guide...1

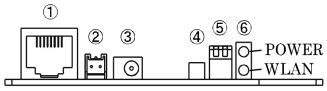
Default setting

This product is set up via a network using a Web browser. Connect this product to the PC with a LAN cable using the wired LAN connection and then access the default IP address in a web browser. This product's default settings are shown in the table to the right.

Setting Item	Default setting
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
ESSID	LocalGroup
Security	Disable
Username	admin
Password	pass

Component Locations





(1)	LAN port	(2)	Power connector
(3)	DC JACK	(4)	INIT connector
(5)	DIP Switches	(6)	DIP LED

LED display

LED name	Status	Indicator
POWER	ON	Indicates that the device is operating.
	Flashing	Indicates that the device is being started (This device turned on)
	OFF	Indicates that the device is power off.
LAN	ON	Indicates that a wired LAN has been connected.
	Flashing	Indicates that the product is transmitting/receiving data to/from the connected terminal through wired LAN.
	OFF	Indicates that a wired LAN not logged-in.
WLAN	ON	Indicates that the device has been connected.
	Flashing	Indicates data is being transmitted to or received from the device connected through wireless LAN.
	OFF	Indicates that the device has been no connected.
POWER/ LAN/ WLAN	Flashing (simultaneously)	Indicates that firmware has been reprogrammed. *1
POWER/LAN	Blinking twice / On	DHCP error

*1 Not include LogFile

DIP switches

No.	Name	Operation / function
1	INIT	Turning on this switch flashes the POWER, WLAN LEDs.If the switch is turned off before the LEDs change their status from flashing to ON (about 3 seconds), all the settings are restored to the default settings after the product is started next time. Reboot the product after the LEDs stop flashing. *1
2		-

INIT connector

No.	Name	Operation / function
1	INIT	Short the INIT signal with the GND so that the POWER, WLAN, and LAN LEDs will flash. Then if you open the INIT signal before the LEDs turn on (approx. 3 seconds), the settings are restored to the default settings the next time the product is started.
2	GND	GND

Pin header (JP2)

No.	Name	Operation / function
1	LAN port 4pin	The INIT (initialization) signal can be connected to via pin 4 on the LAN port by shorting pin 1 and pin 2.
2	INIT	
3	LAN port 5pin	The GND can be connected to via pin 5 on the LAN port by shorting pin 3 and pin 4.
4	GND	
5	LAN port 7pin	The power supply line can be connected to via pin 7 on the LAN port by shorting pin 5 and pin 6.
6	24VDC	
7	LAN port 8pin	The GND can be connected to via pin 8 on the LAN port by shorting pin 7 and pin 8.
8	GND	

LAN connector

No.	Name	Operation / function
1	TX+	Transmit (+)
2	TX-	Transmit (-)
3	RX+	Receive (+)
4	INIT/NC	Short the INIT signal with the GND so that the POWER, WLAN, and LAN LEDs will flash. Then if you open the INIT signal before the LEDs turn on (approx. 3 seconds), the settings are restored to the default settings the next time the product is started.*1 * Usable when JP2 No. 1 and No. 2 are connected.
5	GND	GND
6	RX-	Receive (-)
7	24VDC	Power Supply
8	GND	GND

*1 Usable when JP2 No. 1 and No. 2 are connected. When initializing the product by turning the INIT signal on and off, the LEDs will continue flashing for a short time after the signal is turned off. This indicates the internal memory files are being deleted. If the power is turned off while the LEDs are flashing, the internal memory files may be damaged and the product may no longer be able to start properly. Always restart the product after the LEDs stop flashing.

⚠ CAUTION

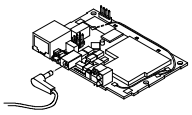
When supplying power via the LAN connector, do not use a combination of power supplied from the power connector and the AC adapter.

- For PoE wire route only in the same building

Power Supply

Using the DC JACK

The power plug to be used must conform to EIAJ voltage classification 2.



⚠ CAUTION

When supplying power via the LAN connector, do not use a combination of power supplied from the power connector and the AC adapter.

Using the Power connector

The power connector in Figure 1 can be used to supply power from an external source. Use the following power cable or its equivalent.

⚠ CAUTION

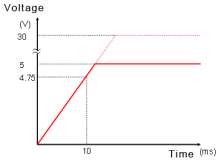
When supplying power from the power connector, do not use a combination of power supplied via the LAN connector and the AC adapter.

Power connector			
Housing: JST S02B-PASK-2(LF)(SN) Cable: AWG28-16(equivalent to it)			
Pin No.	Nome	Operation / function	 1 pin
1	Vi+	5-30VDC(±5%)	
2	Vi-	GND	

When supplying the LAN cable power

⚠ CAUTION

- Create the power cable correctly as specified. Using the power cable with the housing pins assigned wrong numbers may result in device faults or accidents.
- The input voltage range of this product is from 5 to 24 VDC ±5%. Supply power outside that range may result in device faults or accidents.
- Use the power supply whose supply voltage rises to at least 4.75VDC within the input voltage range within 10ms. Using a power supply which does not satisfy this condition may result in device faults or accidents.
- Input voltage range: 5 to 30 VDC ± 5%. Use a power supply that rises to 4.75 VDC or higher in the input voltage range within 10 ms. There is a risk of damage to the device or accident if a power supply outside this range is used.



Installation

Read and understand the following precautions before installation :

- Leaving a metal object in the vicinity of 30mm from the antenna board affects the antenna characteristics. Do not place metal objects near the antenna as possible.
- This product has a protrusion of up to 14mm on the front surface and a protrusion of up to 3mm on the rear surface. Allow clearance around this product and use it within the range of ambient temperatures satisfying the environment conditions for installation.
- Figure 2 shows the locations the mounting holes for installing this product and external dimensions.
- Use M3 screws for the mounting holes (φ2.3 mm).
- The lower right mounting hole is the FGND (grounding) hole. Connect it to FGND (ground).

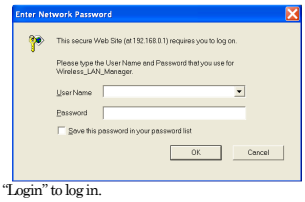
* 1 Always reboot the product after the flashing stops. The flashing continues for a little while after the product is switched off during initialization by switching on and off the INIT switch. This indicates internal memory files are being deleted. The internal memory files may be damaged and the product may not start up properly if the power is switched off before the flashing stops.

Connecting to This Product Using Web Browser

Start up a Web browser and enter the IP address of this product after "http: //" in the address bar. If connecting for the first time, enter the default IP address. When the default setting IP address is 192.168.0.1, enter as follows.

http://192.168.0.1/

Connecting to this product displays the "Wireless LAN Manager" login screen/ If the login screen is not displayed, the IP address setting for PC, browser settings, or the URL entered in the address bar of the browser may be incorrect.



Enter a password on the login screen and then click "Login" to log in.
When connecting for the first time, Default setting is Username="admin" & Password="pass" and just click "OK" .
If the login is successful, the following setup screen will be displayed after a little while.

Setup Using Web Browser

Select the desired setting items from the opened menu (1). Information such as setting items will be displayed in the right-hand frame.
For more information about a setting item, please refer to "help" (2).
Click "Submit" (3) after changing settings on each page to temporarily save the settings in this product.
The settings become enabled when the product is restarted after all the setup procedure is completed and the settings are stored. Click "Save & Reboot" (4) on the left-hand menu.

There will be no problem if you just save the settings now but reboot the product later when necessary. In this case, saving the settings does not actually change the settings of the product. Therefore, make sure to reboot the product later

⚠ CAUTION

It takes approximately 5 - 10 seconds to save settings (writing to internal flash memory). During that period, the LEDs for POWER, LAN and WLAN at the front part of the main unit blink simultaneously. Do not reboot or turn off the product until the screen indicates the completion of the saving process. The setup file data and firmware data may be damaged and the product may not operate properly if it is rebooted or switched off during the saving process.

Safety Information

This document provides safety information using the following symbols to prevent accidents resulting in injury or death and the destruction of equipment and resources. Understand the meanings of these labels to operate the equipment safely.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

Specifications

Name			Specification
Wired LAN			
Ethernet standard			IEEE802.3(10BASE-T), IEEE802.3u(100BASE-TX)
Port Speed / Communication type / Number of ports			10/100Mbps/Half Duplex, Full Duplex/ 1
Wireless LAN			
Wireless Networking Standard			IEEE802.11n, IEEE802.11a, IEEE802.11b, IEEE802.11g
Channel*1			
USA (FCC) IEEE802.11n IEEE802.11a		Access point	5GHz: 9ch(36, 40, 44, 48ch[W52] 149, 153, 157, 161, 165ch [W58])
		Station	5GHz: 21ch(36, 40, 44, 48ch[W52], 52, 56, 60, 64ch[W53], 100, 104, 108, 112, 116, 132, 136, 140ch[W56] 149, 153, 157, 161, 165ch [W58]):]
IEEE802.11n IEEE802.11g IEEE802.11b			2.4GHz: 11ch (1 - 11)
IEEE802.11n			
Data transmission speed *2			300 - 6.5Mbps[MCS0 - 15, Short/Long GI] (Fixed/Auto)
IEEE802.11a			
Data transmission speed *2			54, 48, 36, 24, 18, 12, 9, 6Mbps (Fixed/Auto)
IEEE802.11b			
Data transmission speed *2			11, 5.5, 2, 1Mbps (Fixed/Auto)
IEEE802.11g			
Data transmission speed *2			54, 48, 36, 24, 18, 12, 9, 6Mbps (Fixed/Auto)
Security			
IEEE802.11n			WPA(AES), WPA2(AES), WPA-PSK(AES), WPA2-PSK(AES), WSL(combination mentioned above are possible)
IEEE802.11a/b/g			WEP(open/ Shared Key /Auto), WPA(AES, TKIP), WPA-PSK(AES,TKIP), WPA2(AES, TKIP), WPA2-PSK(AES,TKIP), IEEE802.1X(EAP-TLS, PEAP), WSL(combination mentioned above are possible)
Antenna			chip antenna × 2 MIMO
External dimension (mm)			60.0(W) x 89.2(D) x 17.5(H)
Weight			50g

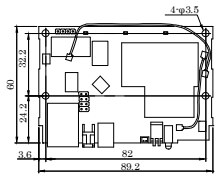
*1 Varies depending on the country in which the product is used

*2 These are theoretical values based on their respective wireless LAN standards; they do not indicate actual data transfer rates.

Environmental Specifications

Name	Specification
Input voltage range	5VDC±5% (DC Jack), 5 - 30VDC±5% (power connector), 24VDC±10% (PoE)
Rating input current	0.83A (5VDC input), 0.15A (30VDC input) (Max.), 0.18A (PoE input 24V)
Operating ambient temperature	0 - 50°C
Operating ambient humidity	10 - 90%RH (No condensation)
Floating dust particles	Not extreme
Corrosive gases	None

External Dimensions



Precaution on use

It is prohibited to modify the inside of this product. The product cannot be used in any country other than those authorized for use.

Security Precautions

Wireless LAN uses radio waves instead of LAN cables to send and receive data between a computer and a wireless access point, making it possible to freely establish a LAN connection within a range of the radio waves. However, radio waves can be received through obstacles, such as walls, when within the range. Therefore, if security settings are not made, the following problems may occur. Unauthorized viewing of data An unauthorized third party can intercept the radio waves and view e-mail messages and personal information, such as user ID and password or your credit card information. Unauthorized access An unauthorized third party can access a personal or corporate network and cause the following damage:

- Intercepting personal information and confidential information (information leak)
- Using a false identity to communicate and disclose information illegally (identity theft)
- Changing and transmitting intercepted data (tampering)
- Damaging data and systems by spreading a computer virus (destruction)

The wireless LAN card and wireless access point have security features to counter these problems. Using the security settings of the wireless LAN equipment can help prevent these problems from occurring. The security settings of the wireless LAN equipment are not configured at the time of purchase.

To reduce security problems, configure all security settings of the wireless LAN equipment according to the manual before using the wireless LAN card and wireless access point. Please be aware that the security settings do not provide complete security protection due to wireless LAN specifications. If you are unable to configure the security settings yourself, please contact your local authorized dealer. The customer is responsible for configuring the security settings and understanding the risks inherent in using the product without the security settings configured.

Notes on Radio Interface

The 2.4 GHz band used by this product covers the operating frequencies of mobile-identification local radio stations (requiring the license), specific low-power radio stations (requiring no license) and amateur wireless stations (requiring the license) as well as industrial, scientific, and medical equipment such as microwave ovens.

1. Before using this product, make sure that there is no mobile-identification local radio station, specific low-power radio station and amateur wireless station operating near the product.
2. If the product should cause radio interface with any mobile-identification local radio station or specific low-power radio station, immediately change the operating frequency to avoid the radio interface.
3. Placing wireless terminals near each other may slows down their data rate because of their mutual interference. You should allow a minimum clearance of about 1m between stations, 3m between access point and station, and 3m between access points.
4. Contact your local retailer or CONTEC if the product has trouble such as recurrent radio interface with mobile-identification local radio stations or specific low-power radio stations

About the speed mark

The link speed shown for the transmission rate in this manual, the setup screens, and elsewhere is the theoretical maximum value based on the wireless LAN standard and does not represent the actual data transfer rate.

Usage limitation

This product has not been developed or manufactured to be used in systems including the equipment which is directly related to human lives *1 or the equipment which involves human safety and may significantly affect the maintenance of public functions *2. Therefore, do not use the product for such purposes. In addition, do not use the product within 20cm from a human body on a regular basis.

*1: Medical devices such as life-support equipment and devices used in an operating theater.

*2: Main control systems at nuclear power stations, safety maintenance systems at nuclear facilities, other important safety-related systems, operation control systems within group transport systems, air-traffic control systems, etc.

If using the IEEE802.11a standard, ensure that you comply with all relevant laws in the country of use. Outdoor use of IEEE802.11a is prohibited in some countries. It is not possible to use it by limiting Radio Law in Japan.

Handling Precautions

⚠ DANGER

Do not use the product where it is exposed to flammable or corrosive gas. Doing so may result in an explosion, fire, electric shock, or failure.

⚠ CAUTION

- This product contains precision electronic elements and must not be used in locations subject to physical shock or strong vibration. Otherwise, the board may malfunction, overheat, or cause a failure.
- Do not use or store this device in high temperature or low temperature surroundings, or do not expose it to extreme temperature changes. Otherwise, the board may malfunction, overheat, or cause a failure.
- Do not use or store this device where it is exposed to direct sunlight or near stoves or other sources of heat. Otherwise, the board may malfunction, overheat, or cause a failure.
- Do not use or store this device near strong magnetic fields or devices emitting electromagnetic radiation. Otherwise, the board may malfunction, overheat, or cause a failure.
- If an unusual smell or overheat is noticed, unplug the power cable immediately In the event of an abnormal condition or malfunction, please contact your retailer.
- The specifications of this product are subject to change without notice for enhancement and quality improvement. Even when using the product continuously, be sure to read the manual and understand the contents.
- Do not attempt to modify this device. The manufacturer will bear no responsibility whatsoever for the device if it has been modified.
- The product must always be associated with the instruction manual.
- Regardless of the foregoing statements, CONTEC is not liable for any damages whatsoever (including damages for loss of business profits) arising out of the use or inability to use this CONTEC product or the information contained herein.

Federal Communications Commission

FCC Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Data transmission is always initiated by software, which is the passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinue transmission in case of either absence of information to transmit or operational failure. Frequency Tolerance: 20ppm

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body.

End Product Labeling this transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users.

The final end product must be labeled in a visible area with the following: "Contains FCC ID: PQRFXE3000-US". The grantee's FCC ID can be used only when all FCC compliance requirements are met.

Users in Canada

Contains Transmitter Module IC: XXXXXX-YYYYYYYYYYY

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:(1) This device may not cause interference; and

(2) This device must accept any interference, including interference that may cause undesired operation of the device. This radio transmitter (IC Number(XXXXXX-YYYYYYYYYYY) identify the device by certification number or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Antenna Name	Antenna Type	Peak Gain(dBi)
FX-ANT-A8	CHIP	4
FXE3000-ANT	CHIP	4
MR-1700-W	Vehicle	4
MPR-6000	Vehicle	4

5150-5250 MHz band is restricted to indoor operation only. High-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices. Compliance with IC requirement RSS-210 A9.4.4 Data transmission is always initiated by software, which is the passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinue transmission in case of either absence of information to transmit or operational failure.

CONTEC CO.,LTD. January2016Edition
3-9-31, Himesato, Nishiyodogawa-ku, Osaka 555-0025, Japan
Japanese http://www.contec.co.jp/ English http://www.contec.com/ NA04034(LYSM171)
Chinese http://www.contec.com.cn/ [18012016]