Autonics

WiFi to RS485·USB Communication Converter

SCM-WF48

INSTRUCTION MAUAL

Thank you for choosing our Autonics product.
Please read the following safety considerations before use.

▣ Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.

※Safety considerations are categorized as follows.
⚠**Warning** Failure to follow these instructions may result in serious injury or death.
⚠**Caution** Failure to follow these instructions may result in personal injury or product damage.

※The symbols used on the product and instruction manual represent the following
⚠ symbol represents caution due to special circumstances in which hazards may occur.

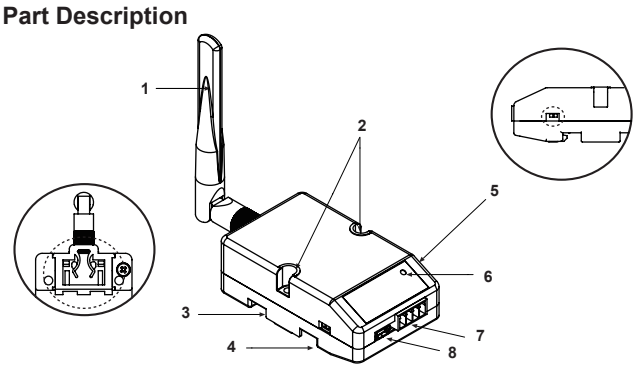
⚠ Warning

1. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**
   Failure to follow this instruction may result in personal injury, fire, or economic loss.
2. **Do not connect, repair, or inspect the unit while connected to a power source.**
   Failure to follow this instruction may result in electric shock or malfunction.
3. **Do not disassemble or modify the unit. Please contact us if necessary.**
   Failure to follow this instruction may result in electric shock or fire.
4. **Do not insert metal materials in the unit.**
   Failure to follow this instruction may result in electric shock or fire.
5. **Do not remove the connector while the unit is operating.**
   Failure to follow this instruction may result in personal injury, malfunction, or economic loss.
6. **Do not turn off the unit while the unit is operating.**
   Failure to follow this instruction may result in personal injury, malfunction, or economic loss.
7. **Separate the unit as industrial waste when disusing it.**

⚠ Caution

1. **Do not use the unit outdoors.**
   Failure to follow this instruction may result in shortening the life cycle of the unit, or electric shock.
2. **Do not insert any other connector except the dedicated connector.**
   Failure to follow this instruction may result in damage to the USB connector or RS-485 connector.
3. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in shortening the life cycle of the unit, or fire.
4. **Do not inflow dust or wire dregs to inside of this unit.**
   Failure to follow this instruction may result in electric shock, fire or mechanical trouble.
5. **When the connector is not inserted or disconnected easily, do not apply excessive force.**
   Failure to follow this instruction may result in product damage.
6. **Do not connect or remove the USB or RS485 cable repeatedly for a short time during communication.**
   Failure to follow this instruction may result in computer and the unit malfunction or product damage.
7. **Connect to the unit based on the connections and check that connection is correct.**
   Failure to follow this instruction may result in computer and the unit malfunction or product damage.
8. **Do not use water or oil-based detergent when cleaning the unit. Use dry cloth to clean the unit.**
   Failure to follow this instruction may result in electric shock or fire.
9. **Do not use the unit where flammable or explosive gas, humidity, direct sunlight, radiant heat, vibration, or impact may be present.**
   Failure to follow this instruction may result in explosion or a fire.

▣ Part Description



1. WiFi antenna
: Antenna for transmitting and receiving WiFi communication data.
It may be broken when excessive pressure is applied.
2. Fixing screw hole: Used for mounting the unit on a panel.
3. Rail Lock: Used for fixing this unit at DIN rail mounting.
4. Communication method switch
: Switch for select communication method.
USB ◀▬▶ RS485
▬ (default) ※For setting SCM-WF48 via DAQMaster, set USB.
5. Terminating resistance switch
: Switch for whether using terminating resistance (120 Ω, 1% (F) grade chip resistance, 1/4 W). (only when selecting RS485 communication method.)
RT ◀▬▶ OFF RT: Uses terminating resistances.
▬ (default) OFF: Not use terminating resistance.
6. Indicator: Indicator for statue of AP mode and Station mode.

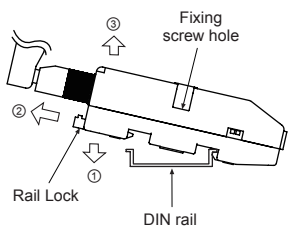
State \ Mode	AP mode	Station mode
Green ON	Power ON	Power ON
Red ON	AP ready	AP connection is complete
OFF	No power	

7. RS485 connector: Used for connecting RS485 communication cable.
8. USB connector: Used for connecting a PC, etc. with an USB cable.

▣ Installation

◎ Mounting to and removing from DIN rail
● Mounting
1) Hang up the backside holder on a DIN rail.
2) Press the unit toward ① direction until it snaps.
● Removing
1) Pull rail locks of the backside of this unit to ② direction.
2) Pull the unit to ③ direction.

◎ Mounting to panel
1) This unit is able to mount on a panel with two fixing screws at center of both sides.
2) For mounting the unit, use M3 screws.
Tighten screws with 0.4 N·m torque.



※**The above specifications are subject to change and some models may be discontinued without notice.**

▣ Specifications

●Standard specifications

Power supply		24VDC⎓
Allowable voltage range		12-28VDC
Communication type		RS485, USB, WiFi
Isolation resistance		Min. 200MΩ (at 500VDC megger between external terminal and case)
Protection circuit		Reverse polarity protection circuit, surge protection circuit
Dielectric strength		1,000VAC 50/60Hz for 1 min (between external terminal and case)
Noise resistance		±500V the square wave noise (pulse width: 1μs) by the noise simulator
Vibration		1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock		500m/s^2 (approx. 50G) in each X, Y, Z direction for 3 times
Environ-ment	Ambient temp.	-10 to 55℃, storage: -20 to 60℃
	Ambient humi.	35 to 80%RH, storage: 35 to 80%RH
Protection		IP20 (IEC standards)
Mounting		DIN rail or panel mounting
Accessories		USB 2.0 Mini B type cable (length: 1m): 1 Connector for RS-485 (4-pin, male type): 1
Approval		CE KC
Weight※1		Approx. 160g (Approx. 57g)

※1: The weight includes packaging. The weight in parentheses is for unit only.
※Environment resistance is rated at no freezing or condensation.

●RS-485 communication specifications

Connection	RS-485
Standard	EIA RS-485
Protocol	Modbus RTU
Communication method	2-wire half duplex
Synchronous method	Asynchronous
Effective com. distance	Max. 800m
Communication speed※1	4800, 9600 (default), 19200, 38400, 57600, 115200bps
Data bit※1	5-bit, 6-bit, 7-bit, 8-bit(default)
Stop bit※1	1-bit (default), 2-bit
Parity bit※1	None (default), Even, Odd
Multi-drop	Max. 31 multi-drop
Connection type	4-wire screw terminal (2-wire communication method)

※**1**: You can set communication speed and stop bit, parity bit by DAQMaster.

●WiFi communication specifications

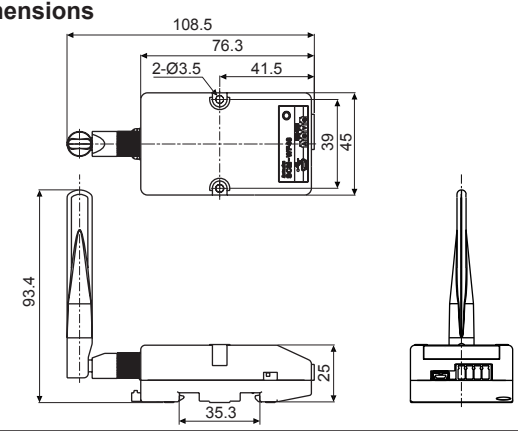
Protocol	TCP/IP (IPv4)
Standard	802.11b/g/n (IEEE 802.11b) compatible
Communication speed	Max. 11Mbps
Frequency range	2.4 to 2.497GHz
Security	WEP, WPA, WPA2-PSK, Enterprise
Antenna	2dBi external antenna
Communication distance	Max. 100m

●USB communication specifications

Power	5V, 500mA
Standard	USB 2.0 (compatible sub-transmission)
Communication method	2-wire half duplex
Connections	USB 2.0 Mini B type (male)
Communication distance	Max. 1m ± 30%

▣ Dimensions

(unit: mm)



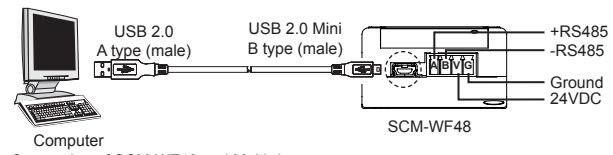
▣ Integrated Device Management Program [DAQMaster]

DAQMaster is the integrated device management program. **Set the communication method switch of SCM-WF48 as USB, and connect this unit and a PC with USB cable.**
You can set the communication setting for SCM-WF48 by DAQMaster.
Visit our website (www.autonics.com) and download DAQMaster.

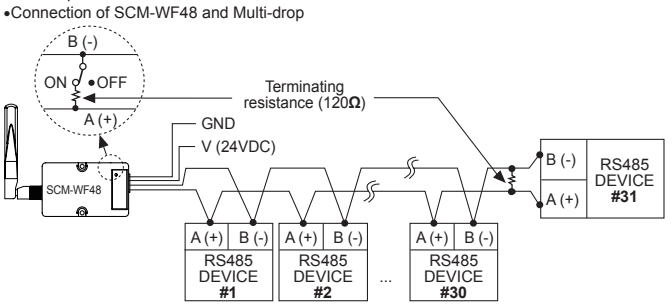
Item	Min. specifications
System	IBM PC compatible computer with Intel Pentium III or above
Operating system	Microsoft Windows 98/NT/XP/Vista/Window 7/8/10
Memory	256MB
Hard disk	Over 1GB of available space
VGA	Display resolution over 1024×768
Others	RS232 serial port (9-pin), USB port

▣ Connection

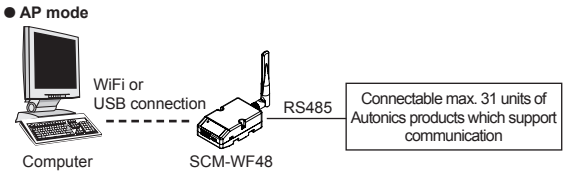
● **Cable connections**



•Connection of SCM-WF48 and Multi-drop

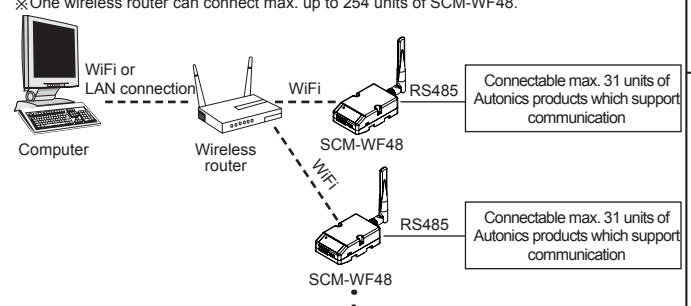


● **AP mode**



● **Station mode**

※One wireless router can connect max. up to 254 units of SCM-WF48.

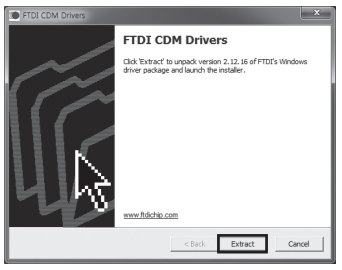


※Before using this unit, set the communication method switch of SCM-WF48 as USB, and connect this unit and a PC with USB cable. You can set the communication setting for SCM-WF48 by DAQMaster.

▣ USB Driver Installation

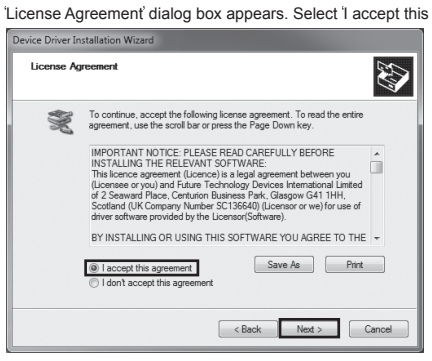
※It describes based on Windows 7 operating system.
Installation method may be different by operating system of PC.

When PC is connected INTERNET and the unit is connected with PC via USB port, PC searches and installs the driver automatically.
If auto driver installation is fail, follow the below order to install the driver.
1) Visit our web site (www.autonics.com) and download 'SCM-WF48 Driver' .
2) Unzip the downloaded file at the desired directory.
3) Connect the unit at USB port of the PC and run CDM21216_Setup.exe at the directory.
4) 'FTDI CDM Drivers' dialog box appears. Click 'Extract' . Files are extracted.

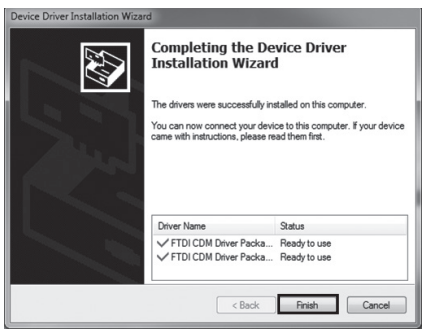


5) 'Device Driver Installation Wizard' dialog box appears. Click 'Next'.

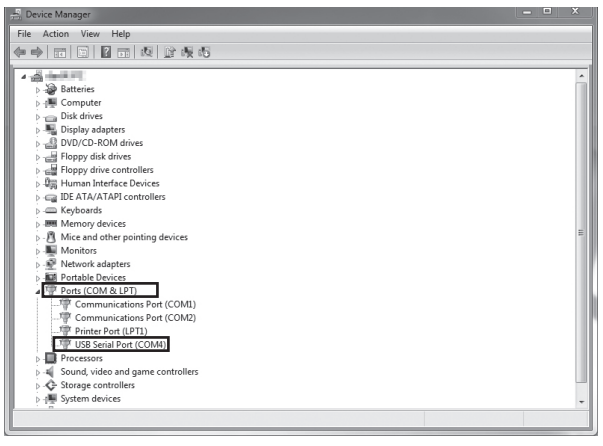
6) 'License Agreement' dialog box appears. Select 'I accept this agreement' and click 'Next'.



7) Driver installation is completed.



※After installing the driver, you can check the driver installation at Device Manager.
Enter [Start]-[Control Panel]-[Device Manager] and extend Ports (COM & LPT) and USB Serial Port (COM4) to check SCM-WF48 connection.



▣ Caution During Use

1. In case of connecting PC and this unit with USB, re-installation of USB Driver is not malfunction when changing another USB port of PC.
2. For RS-485 communication, it is recommended to use twisted pair (AWG24) cable proper to RS-485 communication. If not using twisted pair cable, the lengths of A (+) and B (-) should be the same.
3. Attach terminating resistances (120 Ω) at the both ends of communication cable when connecting RS485.
4. When connecting a PC and several SCM-WF48 units with an USB, COM port number of each unit is increased in order. (e.g.: COM14, COM15 ... COM256)
5. For USB communication, it requires a certain time for recognize this unit after connecting an USB connector. (it is not error)
6. Do not use extension cable to extend USB cable length when connecting this unit with USB.
7. Be sure that SCM-WF48 is non-isolated product.
8. Check the connection, disconnection and short of communication cable before supplying the power.
9. Observe the rated voltage.
10. 24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
11. To avoid malfunctions due to noise, do not place the unit close to a high-voltage power line.
12. Do not use this unit at below places because of product damage.
    ①Place where there are severe vibration or impact
    ②Place where strong alkali or acids are used
    ③Place where there are direct ray of the sun
    ④Place where strong magnetic field or electric noise are generated
13. Storage
    Keep the unit -20 to 60 ℃, 35 to 85%RH with avoiding direct rays of light.
    It is recommended to keep the unit package as it is.
14. Installation environment
    ①It shall be used indoor. ②Altitude max. 2,000 m
    ③Pollution Degree 2 ④Installation Category I

※**Failure to follow these instructions may result in product damage.**

▣ Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connector/Sockets
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Graphic/Logic Panels
- Field Network Devices
- Laser Marking System (Fiber, Co_2, Nd:YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometers/Pulse (Rate)Meters
- Display Units
- Sensor Controllers

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