DRW160535AE

Autonics

WiFi to RS485·USB Communication Converter
SCM-WF48
INSTRUCTION MANUAL

CE KC

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.
※⚠ symbol represents caution due to special circumstances in which hazards may occur.

Warning Failure to follow these instructions may result in serious injury or death.
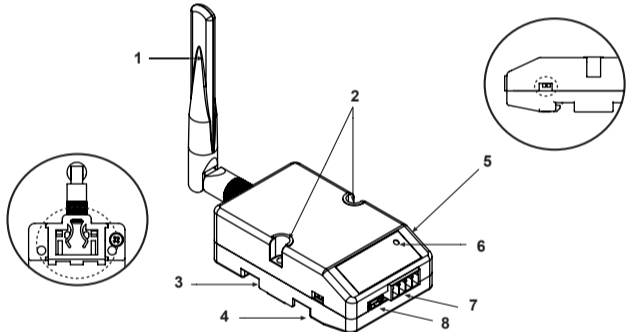**Caution** Failure to follow these instructions may result in personal injury or product damage.

⚠ 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 fire, personal injury, or economic loss.
2. **Do not disassemble or modify the unit.**
   Failure to follow this instruction may result in fire.
3. **Do not connect, repair, or inspect the unit while connected to a power source.**
   Failure to follow this instruction may result in fire.
4. **Check 'Connections' before wiring.**
   Failure to follow this instruction may result in malfunction and damage on the product or PC.

⚠ Caution

1. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in fire or product damage.
2. **Use dry cloth to clean the unit, and do not use water or organic solvent.**
   Failure to follow this instruction may result in fire.
3. **Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
   Failure to follow this instruction may result in fire or explosion.
4. **Keep metal chip, dust, and wire residue from flowing into the unit.**
   Failure to follow this instruction may result in fire or product damage.
5. **Do not disconnect connector or power, when the product is operating.**
   Failure to follow this instruction may result in fire or malfunction.
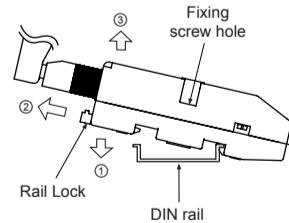
▣ Unit Description

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: Uses terminating resistances.
   OFF: Not use terminating resistance.
   RT ⟷ OFF
   ▢ (default)
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.

▣ 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	1GB+ of available hard disk space
VGA	Resolution: 1024×768 or higher
Others	RS232 serial port (9-pin), USB port

※The above specifications are subject to change and some models may be discontinued without notice.
※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

▣ Specifications

●Standard specifications

Power supply	24VDC⎓
Allowable voltage range	12-28VDC⎓
Power consumption	Approx. 3W
Communication type	RS485, USB, WiFi
Isolation resistance	Over 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 immunity	±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/s² (approx. 50G) in each X, Y, Z direction for 3 times
Environ-ment	Ambient temp.	-10 to 55°C, storage: -20 to 60°C
	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 parenthesis is for unit only.
※Environment resistance is rated at no freezing or condensation.

●RS-485 communication specifications

Connection	RS-485
Standard	EIA RS-485
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.
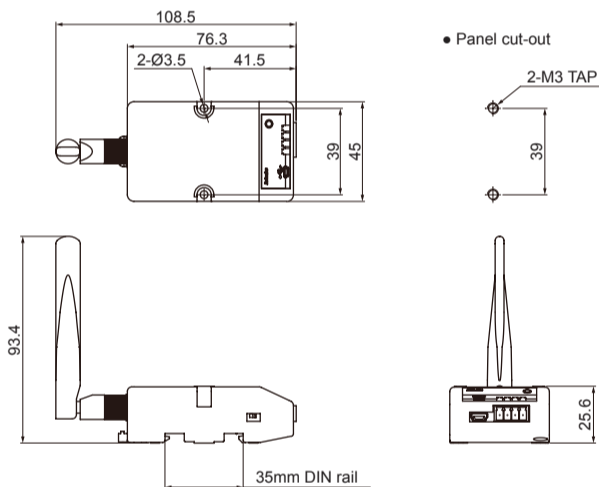
●WiFi communication specifications

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

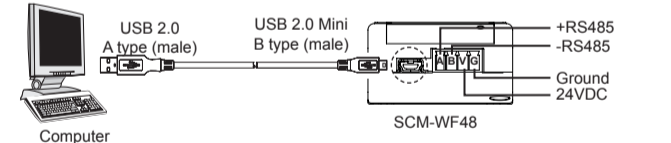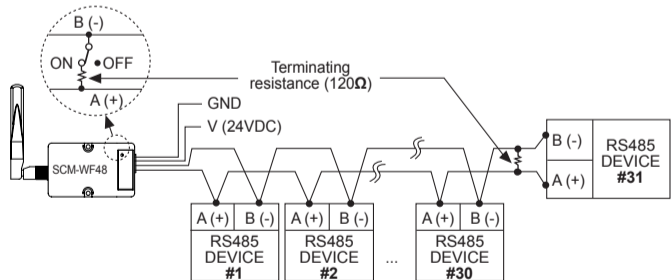| Power	5V, 500mA
Standard	USB 2.0 (compatible sub-transmission)
Communication method	2-wire half duplex
Connections	USB 2.0 Mini B type (male)
Communication distance	Max. 1m ± 30%

▣ Dimensions
(unit: mm)

▣ Connections

※When wiring the RS485 connector, use AWG 24 cable and tighten the connector screw with a tightening torque of 0.22 to 0.4N·m with the screwdriver for M2 screw.
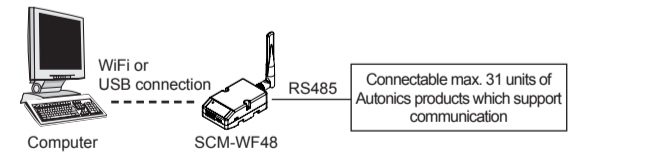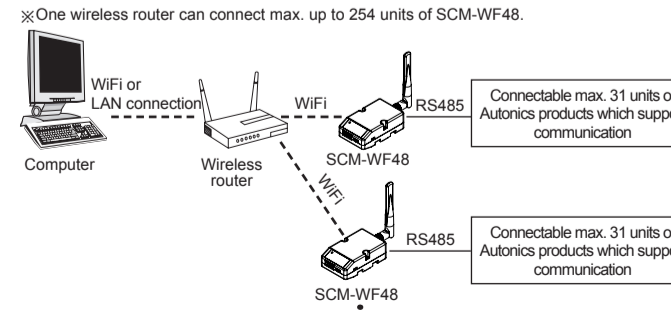
● Cable connections

●Connection of SCM-WF48 and Multi-drop

● AP mode

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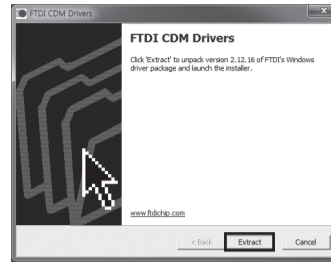

※Before using this unit, set the communication method switch of SCM-WF48 as USB, and connect this unit and a PC with USB cable. You can set the communication setting for SCM-WF48 by DAQMaster.
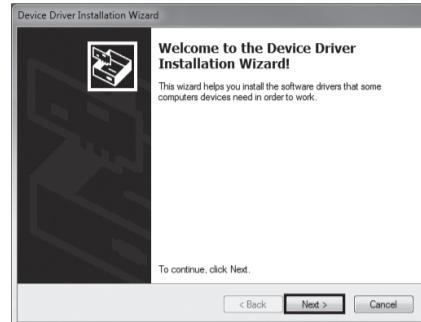
▣ USB Driver Installation

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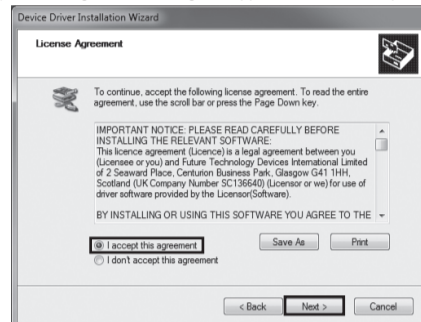If auto driver installation is fail, follow the below order to install the driver.
1) Visit our web site (www.autonics.com) and download 'SCM-WF48 Driver'.
2) Unzip the downloaded file at the desired directory.
3) Connect the unit at USB port of the PC and run CDM21216_Setup.exe at the directory.
4)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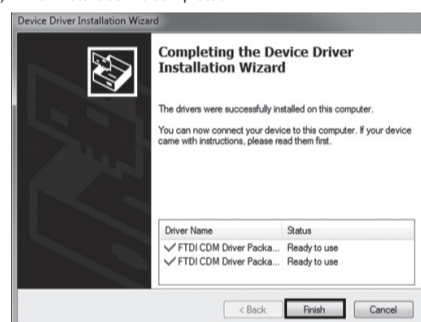

5) 'Device Driver Installation Wizard' dialog box appears. Click 'Next'.
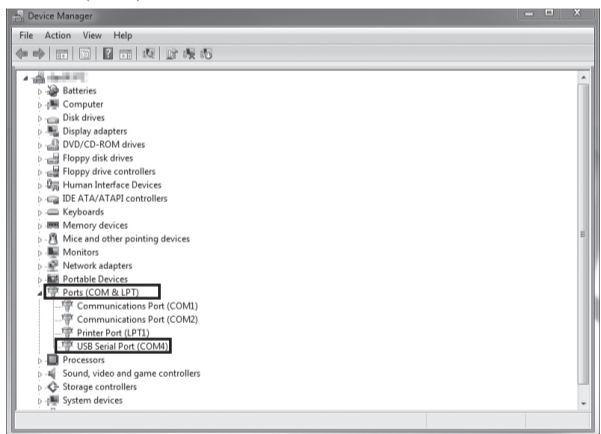

6) 'License Agreement' dialog box appears. Select 'I accept this agreement' and click 'Next'.

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.

※If USB port is changed, reinstall the USB driver.

▣ Caution during Use

1. Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
2. 24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
3. Use only designated connector and do not apply excessive power when connecting or disconnecting the connectors.
4. Keep away from high voltage lines or power lines to prevent inductive noise.
   In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line.
   Do not use near the equipment which generates strong magnetic force or high frequency noise.
5. Do not connect or disconnect the USB cable or RS485 cable quickly and repeatedly while communicating.
   It may cause damage or malfunction of the product and PC.
6. After supplying power, connect with the communication output product. When disconnect, communication output product first and power last.
7. When connecting multiple SCM-WF48 units to a PC, number of COM port goes up in sequential order and it takes some time to identify and assign number of COM port.
8. When connecting the RS485 communication output product, connect the terminating resistance (120Ω) at each end of the communication cable.
9. Use twist pair wire for RS485 communication. If not, use A(+) and B(-) cables in the same length.
10. Use USB cable of designated standard, and do not use extension cable.
11. This unit may be used in the following environments.
    ① Indoors (in the environment condition rated in 'Specifications')
    ② Altitude max. 2,000m
    ③ Pollution degree 2
    ④ Installation category I

▣ Major Products

■ Photoelectric Sensors ■ Temperature Controllers
■ Fiber Optic Sensors ■ Temperature/Humidity Transducers
■ Door Sensors ■ SSRs/Power Controllers
■ Door Side Sensors ■ Counters
■ Area Sensors ■ Timers
■ Proximity Sensors ■ Panel Meters
■ Pressure Sensors ■ Tachometers/Pulse (Rate)Meters
■ Rotary Encoders ■ Display Units
■ Connector/Sockets ■ Sensor Controllers
■ 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, CO₂, Nd:YAG)
■ Laser Welding/Cutting System

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