

SCM Series

SCM-WF48

Wi-Fi/RS485, USB wireless communication converter
(converting Wi-Fi to RS485, USB)

■ Features

- Converting USB or RS485 signal to Wi-Fi signal and wireless communication up to max. 100m
- Compact size (W48×H25×L76.3mm, except antenna)
- Built-in surge protection circuit, reverse polarity protection circuit
- Supports AP mode and station mode
- Various mounting methods (DIN rail, panel)



SCM-US48I

USB to Serial converter (converting signal USB to Serial)

■ Features

- Available to transmit signals to max. 1.2km by converting USB signal to RS485 signal
- Realizing electrical insulation (2500V RMS) between USB port and RS485 port through RS485 transceiver.
- Improved stability and durability with built-in protection circuit
- Easy connections between devices with bus power supplied from USB host controller without external power supply
- Offering USB 2.0 A/B type cable with built-in ferrite core for noise reduction
- Various operating systems supported (Windows 98, 98SE, ME, 2000, Server 2003, XP, Vista, 7)
- User friendly features through compatibility with USB 1.1 and USB 2.0



SCM-38I

RS232C to RS485 converter (converting signal RS232C to RS485)

■ Features

- Built-in surge protection circuit
- The insulation type of signal line (insulating RS232C and RS485)
- Create Tx-Enable signal automatically



SCM-US


USB to Serial converter (converting signal USB to Serial)

■ Features

- Applicable OS: Windows 98, 98SE, ME, 2000, Server 2003, XP, Vista, 7
- Both USB 1.1 and USB 2.0 compatible
- Data transmission / power supply indicating LED
- Easy to connect with PC
Some products requires the dedicated converter cable (EXT-US, sold separately)
- Built-in protection circuit
- Ferrite core cable for noise reduction
- Non-isolation type



※ Specifically designed to connect to particular Autonics and Konics products which support the PC loader port.


 Please read "Caution for your safety" in operation manual before using.

Communication Converter

■ Specifications

◎ SCM-WF48

● Standard specifications

Model	SCM-WF48	
Power supply	24VDC $\overline{=}$	
Allowable voltage range	12-28VDC	
Communication type	RS485, USB, WiFi	
Isolation resistance	Min. 200M Ω (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	\pm 500V the square wave noise (pulse width: 1 μ s) 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°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	
Accessory	CE 	
Weight ^{*1}	Approx. 160g (approx. 57g)	

※1: The weight is with packaging and the weight in parentheses is only unit weight.

※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 \pm 30%

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/ Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho / Speed / Pulse Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching Mode Power Supplies

(Q) Stepper Motors & Drivers & Controllers

(R) Graphic/ Logic Panels


(S) Field Network Devices

(T) Software

SCM Series

■ Specifications

◎ SCM-US48I / SCM-38I / SCM-US

Model		SCM-US48I	SCM-38I	SCM-US
Power supply		5VDC USB bus power ^{※1}	12-24VDC \pm 10%	5VDC USB bus power ^{※1}
Power consumption		Max. 1W	Max. 1.7W	Max. 1W
Max. com speed ^{※2}		1,200 to 115,200bps (recommended: 9,600bps)		
Communication type		Half duplex type		
Available com. distance		USB: Max. 1m \pm 30% RS485: Max. 1.2km	Max. 1.2km	1.5m (not extension)
Multi-drop		Max. 31 multi-drop		—
Protocol ^{※2}	Data bit	5-bit, 6-bit, 7-bit, 8-bit		—
	Stop bit	1-bit, 2-bit		—
	Parity bit	None, Even, Odd		—
Connection type		USB: USB 2.0 B type (male) RS485: 4-wire screw terminal (2-wire communication type)	RS232: D-sub 9-pin	USB: USB 2.0 A type (male) Earphone jack (4 pole stereo phone plug) ^{※3}
Isolation type		Isolation		Non-isolation
Dielectric strength		<ul style="list-style-type: none"> Between terminals and case: 200VAC 50/60Hz for 1 min Between USB and RS485: 2500VAC 50/60Hz for 1 min 	<ul style="list-style-type: none"> Between terminals and case: 200VAC 50/60Hz for 1 min Between RS232C and RS485: 2500VAC 50/60Hz for 1 min 	—
Insulation resistance		Min. 100M Ω (at 500VDC megger)		—
Noise strength		\pm 500V the square wave noise (pulse width: 1 μ s) by the noise simulator		—
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz in each X, Y, Z direction for 1 hour		
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz in each X, Y, Z direction for 10 min		
Shock	Mechanical	300m/s ² (approx. 30G) in each X, Y, Z direction for 3 times		
	Malfunction	100m/s ² (approx. 10G) 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 85%RH, storage: 35 to 85%RH		
Approval		CE 		
Accessory		USB 2.0 AB type connector (length: 1m)	—	—
Unit weight		Approx. 34.5g	Approx. 46g	Approx. 41g

※1: USB bus power is supplied from PC or USB host controller.

※2: Protocol and communication speed are set by Hyper terminal. DAQMaster, ParaSet, Modbus Poll.

When communicating with Autonics products, set communication speed to 9,600bps.

※3: Some products requires the EXT-US(converter cable, sold separately).

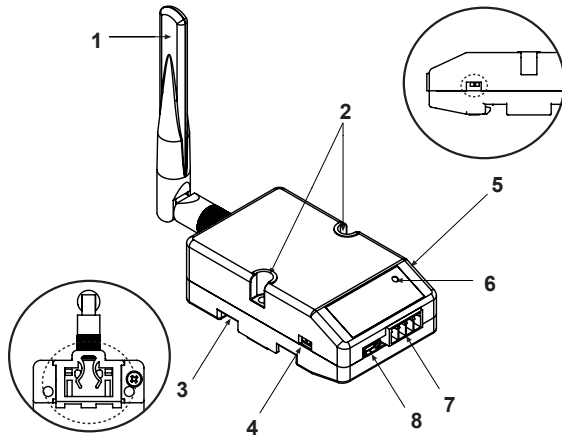
※There might be some differences in the specification above depending on PC environment.

※Environment resistance is rated at no freezing or condensation.

Communication Converter

Part Description

SCM-WF48



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 \longleftrightarrow RS485 \times For setting SCM-WF48 via

(default) 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 \longleftrightarrow OFF

(default)

RT: Uses terminating resistances.
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.

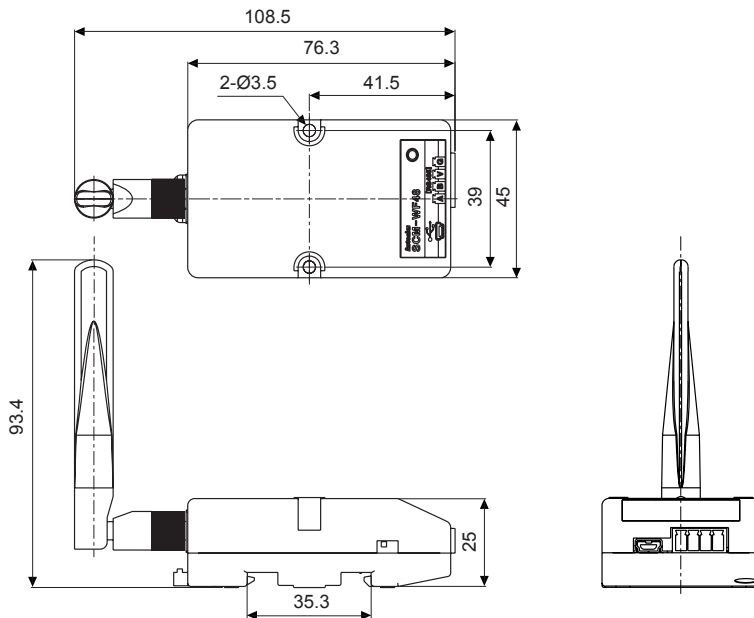
8. USB connector

: Used for connecting a PC, etc. with an USB cable.

Dimensions

SCM-WF48

(unit: mm)



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(B) Fiber Optic Sensors

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(R) Graphic/ Logic Panels

(S) Field Network Devices

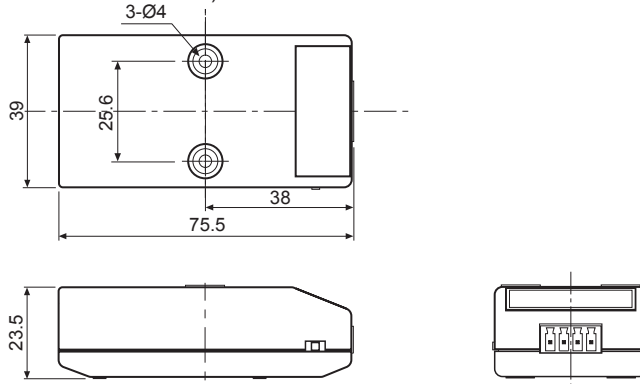
(T) Software

SCM Series

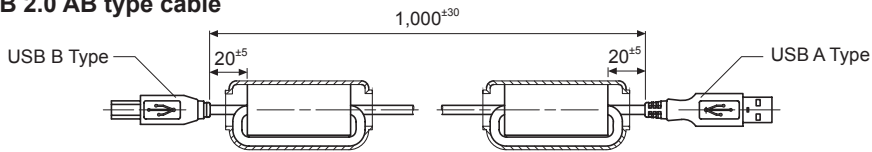
■ Dimensions

(unit: mm)

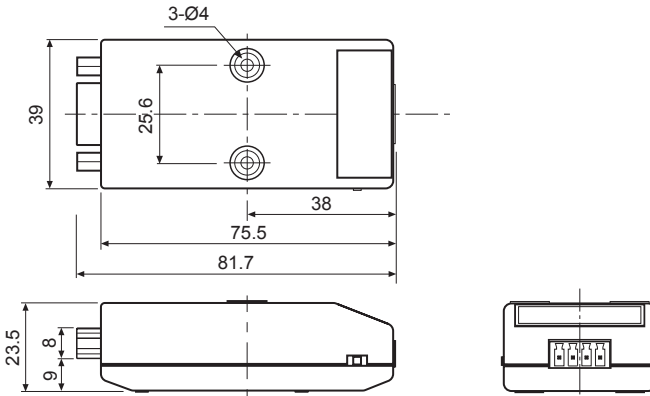
- ◎ **SCM-US48I** ※USB 2.0 AB type cable is including the product and is also sold separately.
(model: USB AB CABLE)



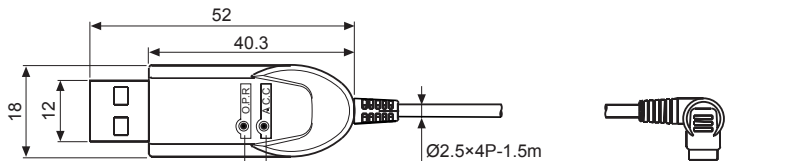
- **USB 2.0 AB type cable**



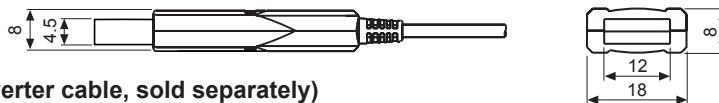
- ◎ **SCM-38I**



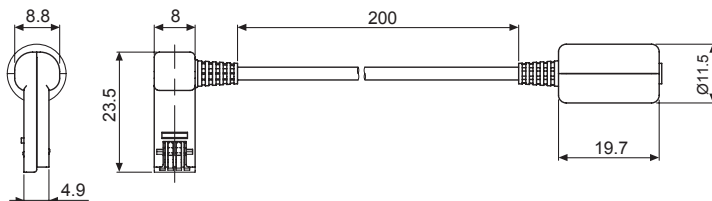
- ◎ **SCM-US**



- ※LED indicator
- 1. O.P.R: Power
- 2. A.C.C: Rx/Tx data transmission

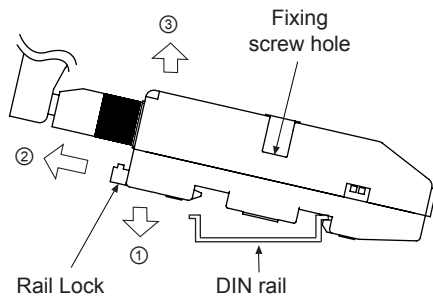


- **EXT-US (converter cable, sold separately)**



■ Installations

◎ SCM-WF48



● 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.

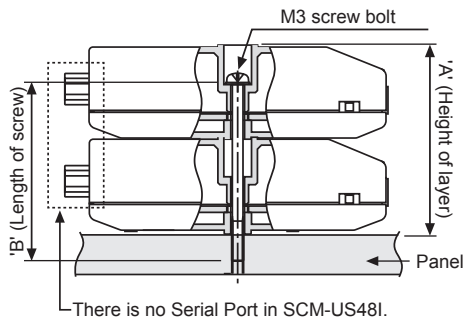
● Removing

- 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

◎ SCM-US48I & SCM-38I



Number of layers (N)	"A" size (23N+0.5)	"B" size (23N-3)
1	23.5mm	20mm
2	46.5mm	43mm
3	69.5mm	66mm
4	92.5mm	89mm

■ Comprehensive Device Management Program (DAQMaster)

DAQMaster is the comprehensive 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.

< Computer specification for using software >

Item	Minimum requirements
System	IBM PC compatible computer with Intel Pentium III or above
Operating system	Microsoft Windows 98/NT/XP/Vista/7/8/10
Memory	256MB or more
Hard disk	More than 1GB of free hard disk space
VGA	1024×768 or higher resolution display
Others	RS-232 serial port (9-pin), USB port

< DAQMaster screen >



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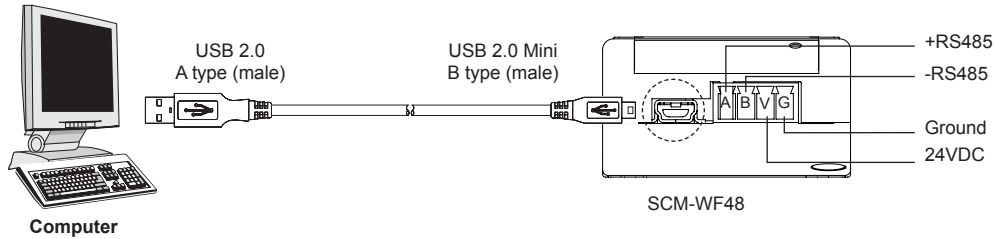
(T) Software

SCM Series

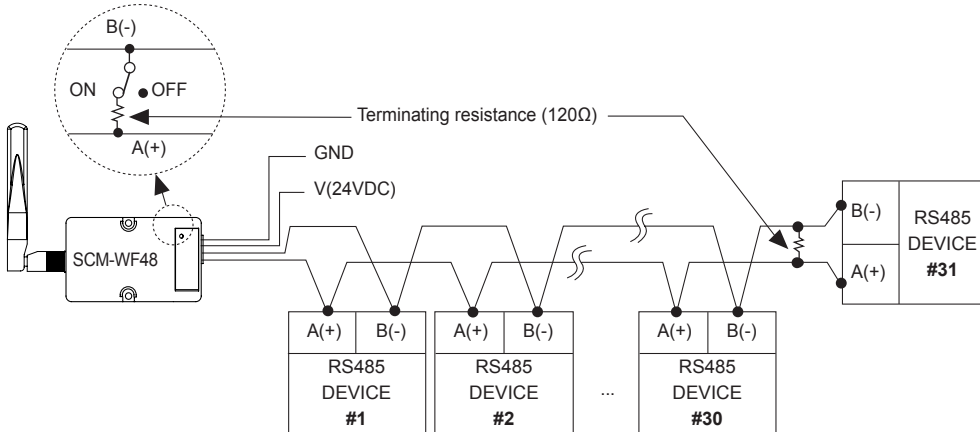
Example of Connections

SCM-WF48

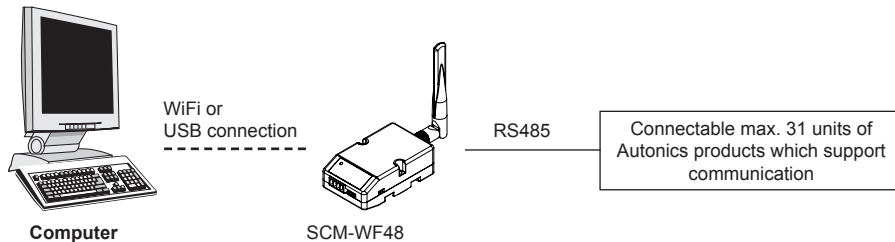
Cable connections



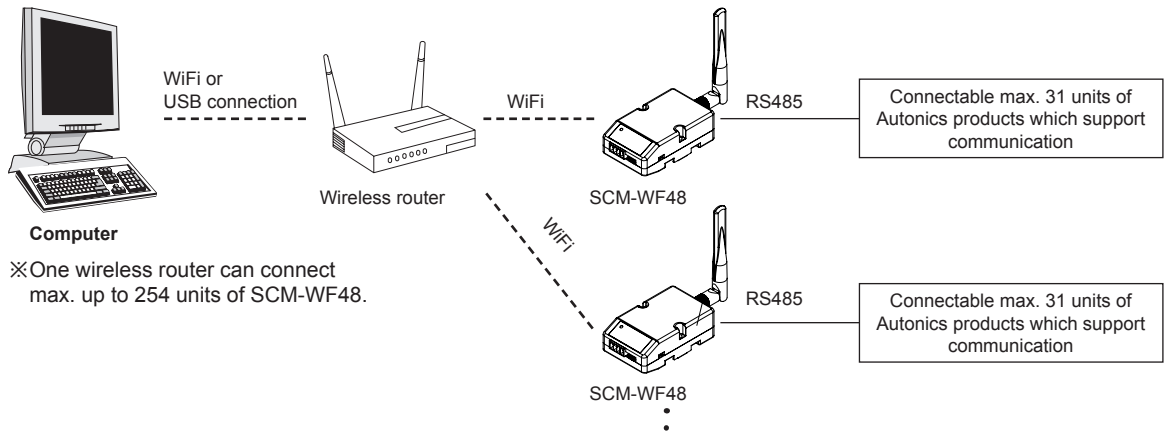
Connection of SCM-WF48 and Multi-drop



AP mode



Station mode

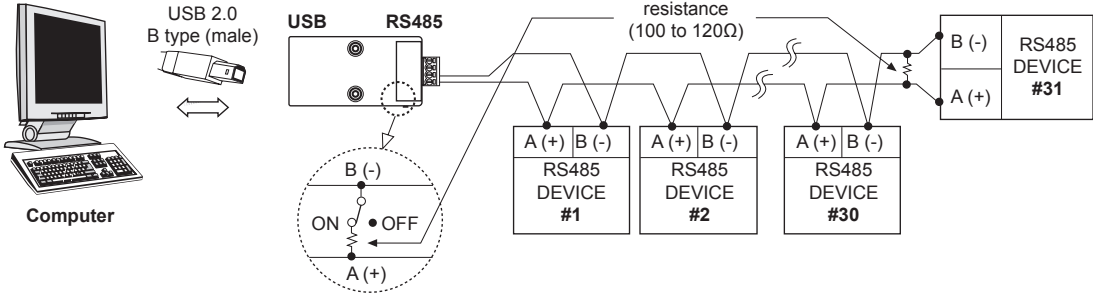


※One wireless router can connect max. up to 254 units of SCM-WF48.

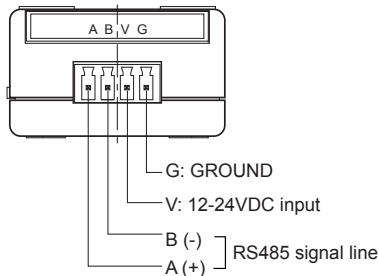
※Before using this unit, set the communication method switch of SCM-WF48 as USB, and connect this unit and a PC with USB cable. You can set the communication setting for SCM-WF48 by DAQMaster.

Communication Converter

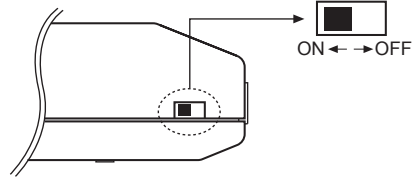
◎ SCM-US481



◎ SCM-381

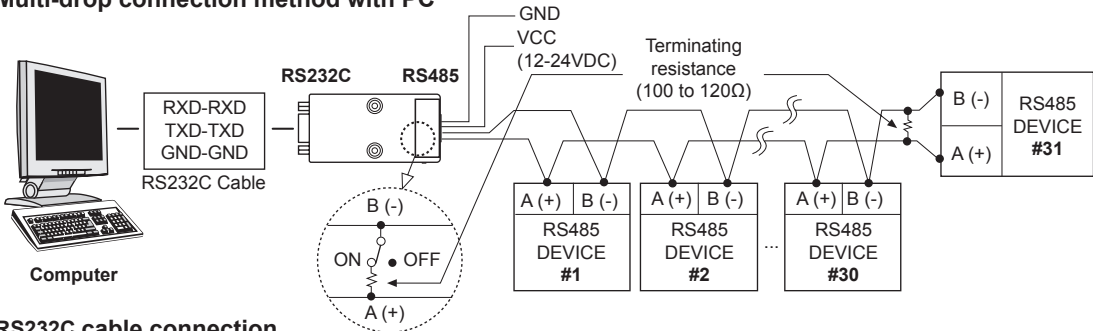


● Terminating resistance selection

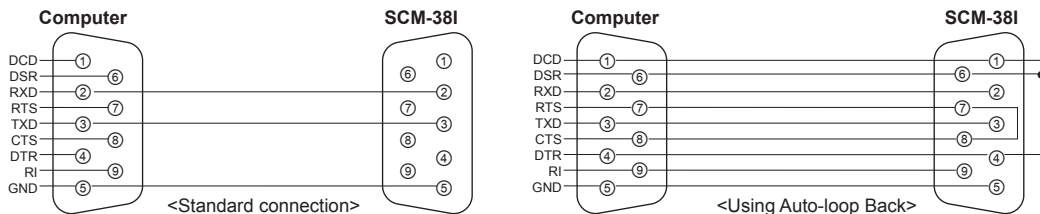


ON: Using terminating resistance
OFF: Not using terminating resistance

● Multi-drop connection method with PC

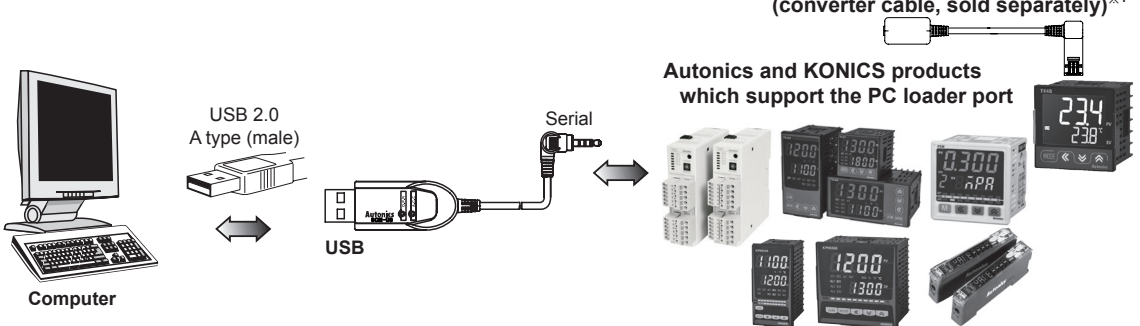


● RS232C cable connection



※When the software of the communication driver uses Auto-loop Back, please connect as the above.

◎ SCM-US



※1: Some products requires the dedicated converter cable(EXT-US, sold separately) to connect SCM-US. Do not apply excessive force to the converter cable. It may cause damage to the unit. Do not bend cable and connector part. It may cause damage to the unit.

- (A) Photoelectric Sensors
- (B) Fiber Optic Sensors
- (C) Door/Area Sensors
- (D) Proximity Sensors
- (E) Pressure Sensors
- (F) Rotary Encoders
- (G) Connectors/ Sockets
- (H) Temperature Controllers
- (I) SSRs / Power Controllers
- (J) Counters
- (K) Timers
- (L) Panel Meters
- (M) Tacho / Speed / Pulse Meters
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- (T) Software

■ Driver Installation

◎ USB Driver Installation

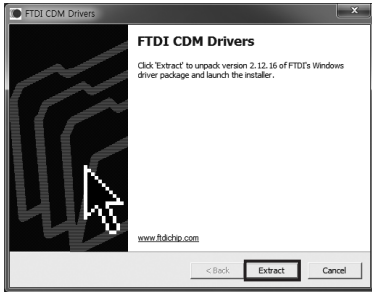
● SCM-WF48

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

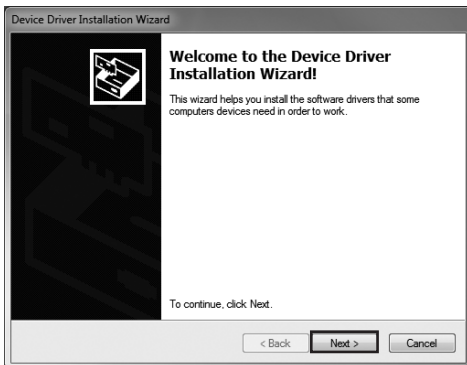
When PC is connected INTERNET and the unit is connected with PC via USB port, PC searches and installs the driver automatically.

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'.



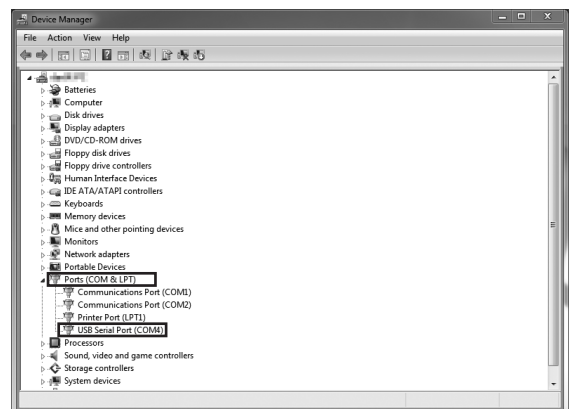
- 6) 'License Agreement' dialog box appears. Select 'I accept this agreement' and click 'Next'.



- 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.



Communication Converter

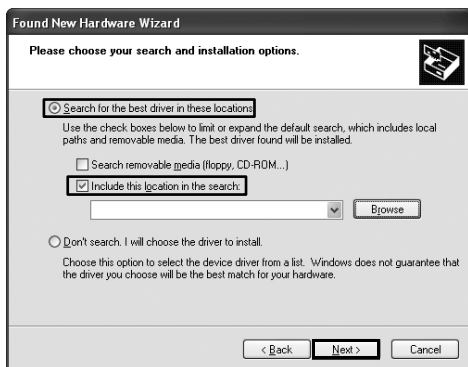
• SCM-US48I, SCM-US

- 1) Visit our website (www.autonics.com) to download USB Driver.
- 2) Unzip the downloaded 'SCM-US48I.zip', or 'SCM-US.zip' at any directory.
- 3) When connecting product with USB port, 'Found New Hardware Wizard' will appear automatically. 'Do you want to search software by connecting 'Window Update'?. Click 'No' button and the following window will be displayed to proceed Driver installation. Select 'Install from a list or specific location' (Advanced) (S) and click 'Next'.

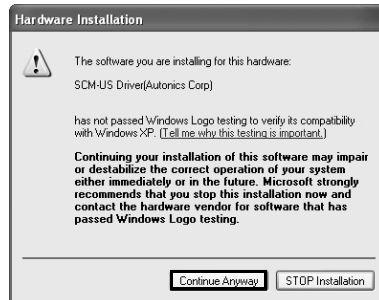


- 4) Select 'Search for best driver in these locations' and 'include this location in the search' continuously. Click the 'Browse' button.

- 5) When 'Browse Folder' window is displayed, select 'SCM-US\Driver' for SCM-US48I, SCM-US, and click 'Finish'. Click 'Next' to proceed with the USB Driver installation.



- 6) Hardware installation message will appear while Found New Hardware Wizard is running. Click 'Continue Anyway' to proceed with installation.



- 7) The following window will be displayed if the USB Driver is installed properly. Click the 'Finish' button.



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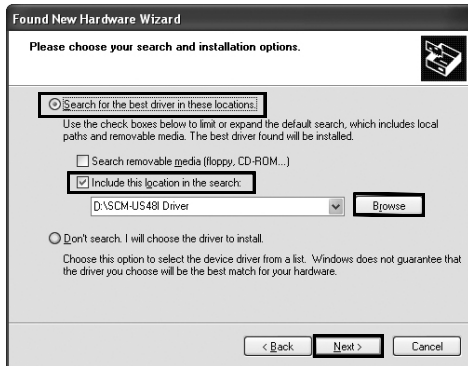
(S) Field Network Devices

(T) Software

SCM Series

◎ Serial Port Driver Installation

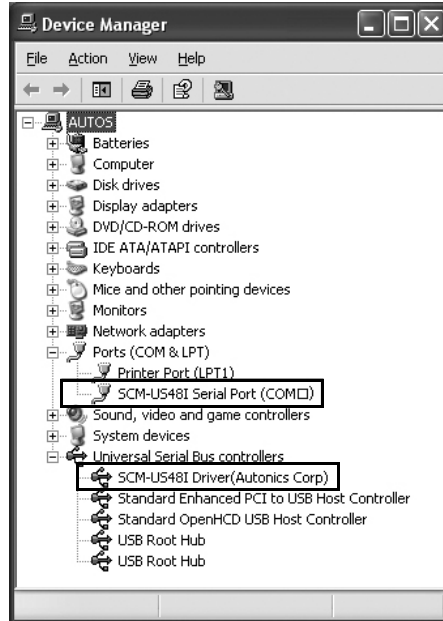
- 1) After installing USB Driver, Serial Port (COM port), 'Found New Hardware Wizard' will appear (Serial Port Driver installation follows the same procedures described in installing USB Driver).
- 2) After selecting 'Install from a list or specific location (advance)', click 'Next' button. The following window will be displayed for 'Search and installation options'
- 3) Because a driver location was selected when installing USB driver, click 'Next' button.



- 4) Hardware installation message will appear while Found New Hardware Wizard is running. Click 'Continue Anyway' to proceed with installation.
- 5) 'Completing the Found New Hardware wizard' will be displayed if the Serial Port Driver is installed properly. Click the 'Finish' button.



- ※Verify that drivers were installed properly with the windows Device Manager after finishing USB Driver and Serial Port Driver installation. Open the folder [My computer], open the system folder (click right), click the hardware tab, and click the Device Manager Button. Then, make sure that 'SCM-US48I Driver (Autonics Corp)' or 'SCM-US Driver (Autonics Corp)' is found in 'Common Serial Bus Controller' category and 'Port (COM and LPT)' is found in 'SCM-US48I Serial Port (COM □)' or 'SCM-US Serial Port (COM □)'.



- ※This Driver Installation is described based on the procedure for Windows XP. There might be some differences in the specification above depending on OS.

■ Proper Usage

- In case of connecting PC with SCM-WF48, SCM-US48I or SCM-US, when changing PC USB port and connecting this unit to another (changed) USB port, USB driver will be reinstalled. This is not a malfunction.
- When connecting SCM-US or SCM-US48I communication module, please connect PC first. Then, connect RS485 communication product afterward. When disconnecting the units, remove the unit in reverse order.
- Using the twisted pair cable (AWG24), which is suitable to RS485 communication is recommended. If the Twisted pair cable is not used, be sure preserving identically the length of A (+) and B (-) cables.
- In case of SCM-WF48, Attach terminating resistances (120 Ω) at the both ends of communication cable when connecting RS485. After connecting SCM-38I, SCM-US48I with RS485 communication DEVICE, be sure to attach the terminating resistor (100 to 120Ω).
- In case of connect PC with SCM-WF48, SCM-US48I, or SCM-US , No. of COM Port will be numbered in order. This is not a malfunction. (e.g. COM 14, COM 15, ..., COM 256)
- When connecting SCM-WF48, SCM-US48I or SCM-US with USB cable, check COM port number before communication. It may take some time for computer to detect the cable after the cable is connected. (This is not a malfunction.)
- When connecting PC with SCM-WF48, SCM-US48I or SCM-US, do not use the extension cable to extend USB cable length. It may cause a malfunctions.
- Be cautious when using SCM-WF48, SCM-US as non-isolated type.
- Check the connection, disconnection and short of communication cable before supplying the power to SCM-WF48.
- Only use Autonics products that are available for SCM-US.
- Observe the rated voltage.
- 24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- To avoid malfunctions due to noise, do not place the unit close to a high-voltage power line.
- Proper application environment
(Avoid following environments for unit to be used.)
 - Where severe vibration or shock exists
 - Where close to a strong alkali or strong acid
 - Where direct rays of light exist
 - Where near facilities generating strong magnetic forces or electric noise.
- Storage
Keep the unit -20 to 60°C, 35 to 85%RH with avoiding direct rays of light. It is recommended to keep the unit package as it is.
- This unit may be used in the following environments.
 - Indoor
 - Altitude: Under 2,000m
 - Pollution degree 2
 - Installation category II

(A)
Photoelectric
Sensors

(B)
Fiber
Optic
Sensors

(C)
Door/Area
Sensors

(D)
Proximity
Sensors

(E)
Pressure
Sensors

(F)
Rotary
Encoders

(G)
Connectors/
Sockets

(H)
Temperature
Controllers

(I)
SSRs / Power
Controllers

(J)
Counters

(K)
Timers

(L)
Panel
Meters

(M)
Tacho /
Speed / Pulse
Meters

(N)
Display
Units

(O)
Sensor
Controllers

(P)
Switching
Mode Power
Supplies

(Q)
Stepper Motors
& Drivers
& Controllers

(R)
Graphic/
Logic
Panels

(S)
Field
Network
Devices

(T)
Software