Autonics
Serial Converter Module
SCM SERIES
INSTRUCTION MANUAL

SCM-US
(USB/Serial Converter)

SCM-38I
(RS232C/RS485 Converter)

SCM-US48I
(USB/RS485 Converter)

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 electric shock or 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.

■ Proper Usage

●**TX_Enable signal(RTS signal)**
In case of SCM-38I and SCM-US48I, Tx_ Enable signal (RTS signal) is automatically generated according to protocol.(Do not need to generate signal on your own)
●**Auto-loop Back**
SCM-38I has Auto-look Back function. When using Auto-loop back function, please use as 'RS232C' cable connections.
●**Termination Resistor**
RS485 Communication has many advantages such as fast transmission rate, long distance communication and etc. But if the impedance of transmission line does not match to RS485 network terminations, the reflected wave will be generated.
In case of increasing the length of transmission line or using 1:N multi-drops, the reflected wave may cause transmission error.
Therefore in this case, please use termination resistor(100 to 120Ω) at both terminations.

■ Features

SCM-US	SCM-38I	SCM-US48I
●USB ↔ Serial ●Communication cable is specifically designed to connect to Autonics products. ●Non-isolation type ●Applicable OS: Windows 98/98SE/ME/2000/Server 2003/XP/Vista/7 ●Built- in ferrite core cable for noise reduction ●Both USB1.1, USB 2.0 compatible ●Data transmission/power supply indicating LED ●Easy to connect with PC[1] ●Built-in protection circuit	●RS232C ↔ RS485 ●Isolating RS485 Transceiver (2500VRMS) ●Built-in protection circuit ●Tx-Enable signal (RTS signal) is automatically generated	●USB ↔ RS485 ●Isolating RS485 Transceiver(2500VRMS) ●Applicable OS: Windows 98/98SE/ME/2000/Server 2003/XP/Vista/7 ●Built- in ferrite core USB 2.0 AB cable for noise reduction ●Both USB1.1, USB 2.0 compatible ●Power supply ON/OFF indicating LED ●Easy to connect with PC ●Built-in protection circuit

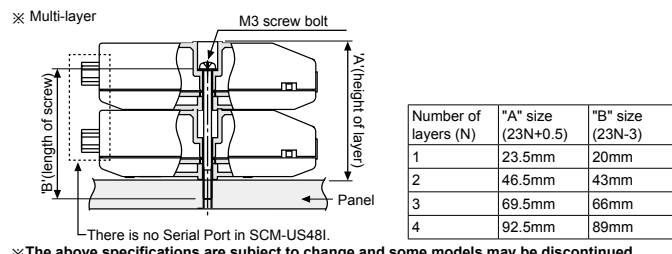※1: Some products requires the dedicated converter cable(EXT-US, sold separately).

■ Specifications

Model		SCM-US	SCM-38I	SCM-US48I
Power supply		5VDC USB bus power[1]	12-24VDC═ ±10%	5VDC USB bus power[1]
Power consumption		Approx. 1W	Approx. 1.7W	Approx. 1W
Max. com. speed[2]		1,200 to 115,200bps (recommended: 9,600bps)		
Communication type		Half duplex type		
Available com. distance		1.5m (not extension)	Max. 1.2km	USB: Max. 1m±30% RS485: Max. 1.2km
Multi-drop		—	Max. 31 multi-drop	
Protocol	Data bit	—	5-bit, 6-bit, 7-bit, 8-bit	
	Stop bit	—	1-bit, 2-bit	
	Parity bit	—	None, Odd, Even	
Connection type		USB: USB 2.0 A type (male) Earphone Jack[3] (4 pole stereo phone plug)	RS232C: D-sub 9-pin RS485: 4-wire screw terminal (2-wire communication type)	USB: USB 2.0 B type (male)
Isolation type		Non-isolation	Isolation	
Dielectric strength		—	Between whole terminals and case: 2000VAC 50/60Hz for 1 min Between RS232C and RS485: 2500VAC 50/60Hz for 1 min	Between whole terminals and case: 2500VAC 50/60Hz for 1 min Between USB and RS485: 2500VAC 50/60Hz for 1 min
Isolation resistance		—	100MΩ (at 500VDC megger)	
Dielectric strength		—	±500V the squre wave noise(pulse width: 1µs) 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/s²(approx. 30G) in each X, Y, Z direction for 3 times		
	Malfunction	100m/s²(approx. 10G) in each X, Y, Z direction for 3 times		
Environ-ment	Ambient temperature	-10 to 55℃, storage: -20 to 60℃		
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH		
Approval		CE		
Accessory		—		USB 2.0 AB type cable (length: 1m)
Weight[4]		Approx. 80g (approx. 41g)	Approx. 106g (approx. 46g)	Approx. 197g (approx. 34.5g)

※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).
※4: The weight includes packaging. The weight in parentheses is for unit only.
※There might be some differences in the specification above depending on PC environment.
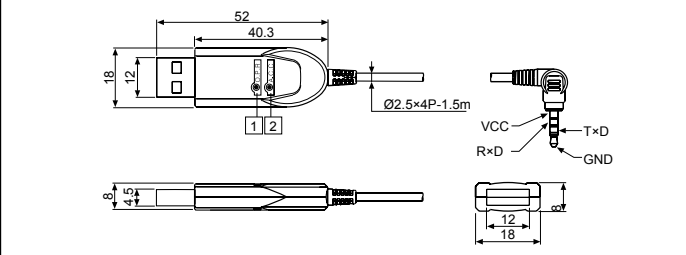※Environment resistance is rated at no freezing or condensation.

■ Panel Mounting
SCM-38I & SCM-US48I
※ Multi-layer

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

※There is no Serial Port in SCM-US48I.
※**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).**
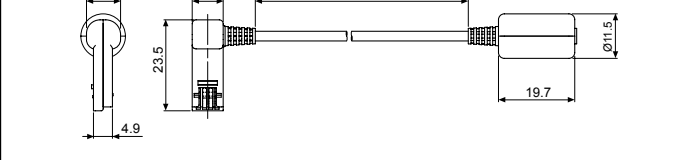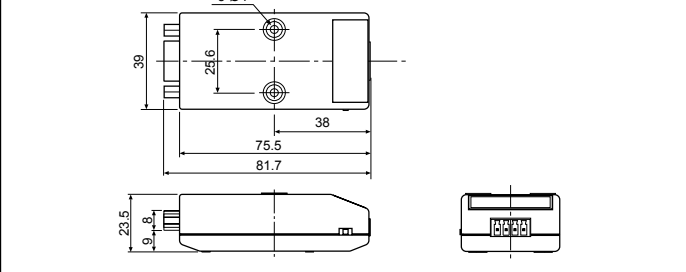
■ Dimensions
(unit: mm)

1. SCM-US

※LED
1 O.P.R (redLED) : POWER
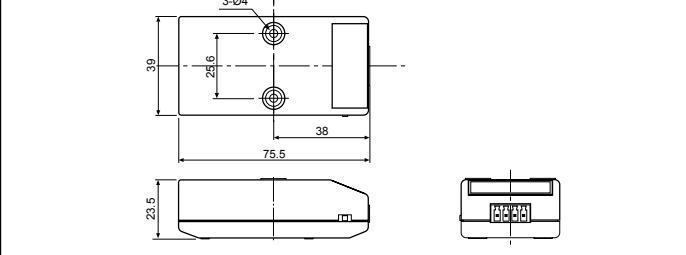2 A.C.C (green LED) : Rx/Tx Data Transmission

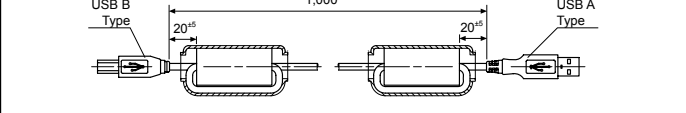● **EXT-US (converter cable, sold separately)**

2. SCM-38I

3. SCM-US48I

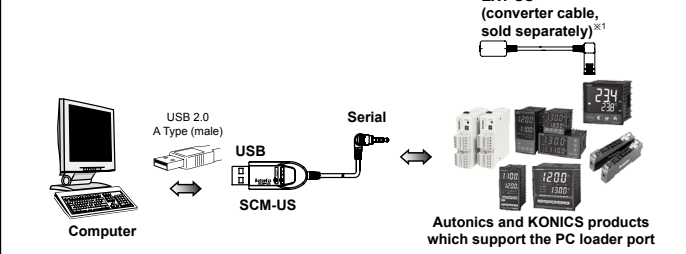● **USB 2.0 AB type cable (accessory)**
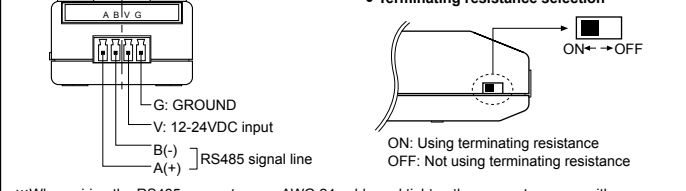※ USB 2.0 AB type cable is enclosed and also sold separately.(Model: USB AB CABLE)

■ Connection and Installation

1. SCM-US

EXT-US (converter cable, sold separately)[1]

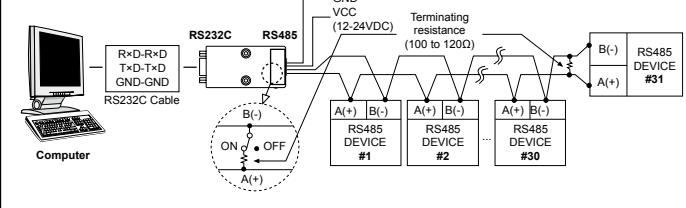Autonics and KONICS products which support the PC loader port

※Use only for Autonics/Konics products that support 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.

2. SCM-38I

● **Terminating resistance selection**
ON: Using terminating resistance
OFF: Not using terminating resistance

G: GROUND
V: 12-24VDC input
B(-)
A(+) } RS485 signal line

※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.

● **Multi-drop connection method with PC**

● **RS232C cable connection**

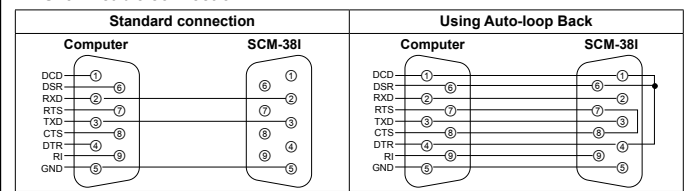| Standard connection			Using Auto-loop Back		
Computer		SCM-38I	Computer		SCM-38I

3. SCM-US48I

※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.
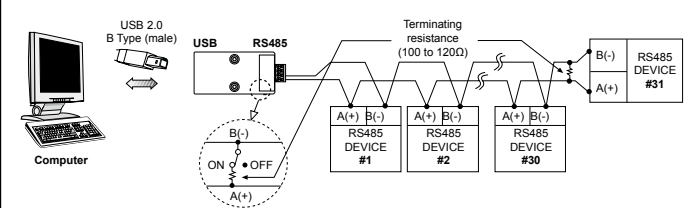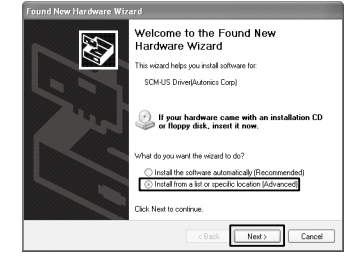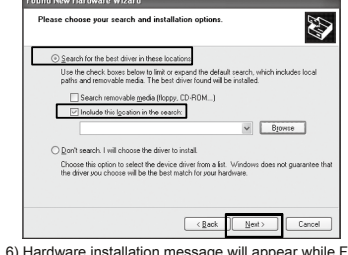
■ Driver Installation (SCM-US, SCM-US48I)
※This Driver Installation shows the procedure for Windows XP. There might be some differences in the specification above depending on OS.
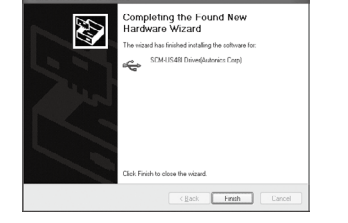
1. USB Driver Installation
1) Visit our website (www.autonics.com) to download 'SCM-US USB Driver' or 'SCM-US48I USB Driver'.
2) Unzip download 'SCM-US.zip' or 'SCM-US48I.zip' at any directory.
3) When connecting product with USB port, "Found New Hardware Wizard" will appear automatically. 'Do you want 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)' 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' and click 'Finish'. Click 'Next' to proceed with the USB Driver installation.
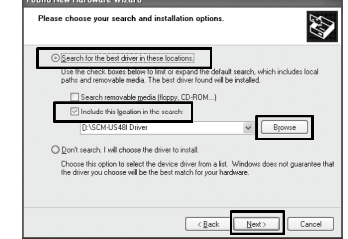

6) Hardware installation message will appear while Found New Hardware Wizard is running. Click 'Continue Anyway' to proceed with installation.
7) The following window will be displayed if the USB Driver is installed properly. Click the 'Finish' button.
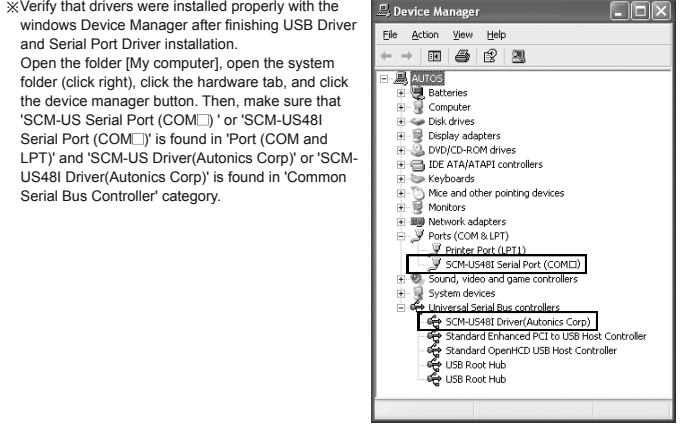

※If USB port is changed, reinstall the USB driver.

2. 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-US Serial Port (COM□) ' or 'SCM-US48I Serial Port (COM□)' is found in 'Port (COM and LPT)' and 'SCM-US Driver(Autonics Corp)' or 'SCM-US48I Driver(Autonics Corp)' is found in 'Common Serial Bus Controller' category.

■ 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, earphone jack, 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-US or SCM-US48I 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 (100 to 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
■ Fiber Optic Sensors
■ Door Sensors
■ Door Side Sensors
■ Area Sensors
■ Proximity Sensors
■ Pressure Sensors
■ Rotary Encoders
■ Connectors/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, CO₂, 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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