# Serial Communication Converters

## SCM Series

**For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.**
The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

## Major Features

**[SCM-US / SCM-USP, USB ↔ Serial]**

- Both USB1.1 and USB 2.0 HOST controller compatible
- Data transmission / power supply indicating LED
- Easy to connect with PC
- Built-in protection circuit
- Ferrite core cable for noise reduction
- Non-isolation type

**[SCM-38I: RS232C ↔ RS485]**

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

**[SCM-US48I, USB ↔ RS485]**

- Available to transmit signals to max. 1.2km by converting USB signal to RS485 signal
- Realizing electrical insulation (2500VRMS) between USB port and RS485 port through RS485 transceiver
- Improved stability and durability with built-in surge 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
- User friendly features through compatibility with USB 1.1 and USB 2.0

## Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

**⚠ Warning** Failure to follow instructions may result in serious injury or death.

**01. 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.

**02. Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
Failure to follow this instruction may result in explosion or fire.

**03. Do not disassemble or modify the unit.**
Failure to follow this instruction may result in fire.

**04. Do not connect, repair, or inspect the unit while connected to a power source.**
Failure to follow this instruction may result in fire.

**05. Check 'Connections' before wiring.**
Failure to follow this instruction may result in fire.

**⚠ Caution** Failure to follow instructions may result in injury or product damage.

**01. Use the unit within the rated specifications.**
Failure to follow this instruction may result in fire or product damage.

**02. Use dry cloth to clean the unit, and do not use water or organic solvent.**
Failure to follow this instruction may result in fire.

**03. Keep metal chip, dust, and wire residue from flowing into the unit.**
Failure to follow this instruction may result in fire or product damage.

**04. Do not disconnect connector or power, when the product is operating.**
Failure to follow this instruction may result in fire or malfunction.

## Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- 12-24 VDC⎓ power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Use only designated connector and do not apply excessive power when connecting or disconnecting the connectors.
- 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.
- 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.
- After supplying power, connect with the communication output product. When disconnect, communication output product first and power last.
- When connecting multiple SCM 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.
- When connecting the RS485 communication output product, connect the terminating resistance (100 to 120Ω) at each end of the communication cable.
- Use twist pair wire for RS485 communication. If not, use A(+) and B(-) cables in the same length.
- Use USB cable of designated standard, and do not use extension cable.
- This unit may be used in the following environments.
  - Indoors (in the environment condition rated in 'Specifications')
  - Altitude max. 2,000m
  - Pollution degree 2
  - Installation category I

## Specifications

• There might be some differences depending on PC environment. (Supported OS: Microsoft Windows)

| Model | SCM-US | SCM-USP |
|---|---|---|
| Power supply | 5 VDC⎓ USB bus power [01] | |
| Power consumption | ≈ 1 W | |
| Max. com. speed [02] | 1,200 to 115,200 bps (recommended: 9,600 bps) | |
| Communication type | Half duplex type | |
| Available com. distance | 1.5 m (not extension) | |
| Connection type | USB: USB 2.0 A type (male) | |
| | Earphone jack (4 pole stereo phone plug) | 4-pin connector for communication |
| Isolation type | Non-isolation | |
| Indicator | A.C.C (green), O.P.R (red) | |
| Approval | CE KC EAC | CE KC |
| Weight (packaging) | ≈41 g (≈80 g) | |

| Model | SCM-38I | SCM-US48I |
|---|---|---|
| Power supply | 12-24 VDC⎓ ±10% | 5 VDC⎓ USB bus power [01] |
| Power consumption | ≈ 1.7 W | ≈ 1 W |
| Max. com. speed [02] | 1,200 to 115,200 bps (recommended: 9,600 bps) | |
| Communication type | Half duplex type | |
| Available com. distance | ≤ 1.2 km | USB: ≤ 1 m ± 30%, RS485: ≤ 1.2 km |
| Multi-drop | ≤ 31 Multi-drop | |
| Protocol [02] | Data bit: 5bit, 6bit, 7bit, 8bit / Stop bit: 1bit, 2bit / Parity bit: None, Odd, Even | |
| Connection type | RS232C: D-sub 9-pin | USB: USB 2.0 B type (male) |
| | RS485: 4-wire screw terminal (2-wire communication type) | |
| Protection circuit | Surge protection circuit | |
| Isolation type | Isolation | |
| Dielectric strength | Between whole terminals and case: 2,000 VAC~ 50/60 Hz for 1 min<br>Between RS232C and RS485: 2,500 VAC~ 50/60 Hz for 1 min | Between whole terminals and case: 2,500 VAC~ 50/60 Hz for 1 min<br>Between RS232C and RS485: 2,500 VAC~ 50/60 Hz for 1 min |
| Isolation resistance | ≥ 100 MΩ (500 VDC⎓ megger) | |
| Noise immunity | ±500 VDC⎓ the square wave noise (pulse width: 1μs) by the noise simulator | |
| Indicator | RUN (red) | |
| Accessory | - | USB 2.0 AB type cable (length: 1 m, sold separately, model: USB AB CABLE) |
| Approval | CE KC EAC | |
| Weight (packaging) | ≈46g (≈106 g) | ≈34.5 g (≈197 g) |

01) USB bus Power is supplied from PC or USB host controller.
02) They are set by Hyper terminal, DAQMaster, ParaSet, and Modbus Poll.

| | |
|---|---|
| Vibration | 0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 1 hour |
| Vibration (malfunction) | 0.5 mm amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 10 min |
| Shock | 300 m/s² (≈ 30 G) in each X, Y, Z direction for 3 times |
| Shock (malfunction) | 100 m/s² (≈ 10 G) X, Y, Z in each X, Y, Z direction for 3 times |
| Ambient temperature | -10 to 55 °C, storage: -20 to 60 °C (a non freezing or condensation environment) |
| Ambient humidity | 35 to 85 %RH, storage: 35 to 85 %RH (a non freezing or condensation environment) |

## Cautions for Installation

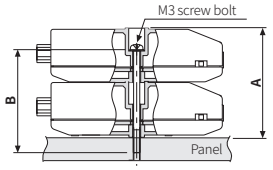
• See 'Dimensions.'
• When wiring the RS485 connector, use AWG 24 cable.
• Tighten the connector screw with a tightening torque of 0.22 to 0.4 N m with the screwdriver for M2 screw.

### ■ SCM-US / SCM-USP

• Use only for our products that support SCM-US / SCM-USP.

### ■ SCM-38I / SCM-US48I

• Multi-layer




A: 23N+0.5, B: 23N-3

| N (number of layers) | A (height of layer) | B (length of screw) |
|---|---|---|
| 1 | 23.5 mm | 20 mm |
| 2 | 46.5 mm | 43 mm |
| 3 | 69.5 mm | 66 mm |
| 4 | 92.5 mm | 89 mm |

• RS485

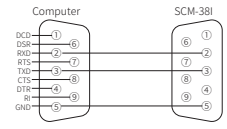
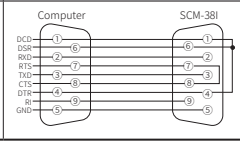
[Pin assignments]


| Pin | Function | |
|---|---|---|
| | SCM-38I | SCM-US48I |
| A | RS485 (+) | |
| B | RS485 (–) | |
| V | +V | – |
| G | Ground | – |

[Terminating resistance selection switch]


| | |
|---|---|
| RT | Using terminating resistance |
| OFF | Not using terminating resistance |

• RS232C (SCM-38I)

| Standard connection | Using Auto-loop Back |
|---|---|
|  |  |



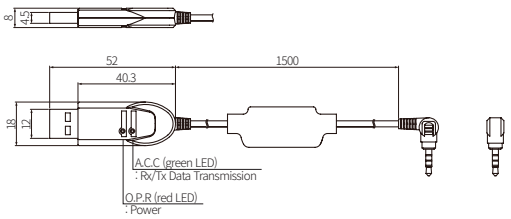
## Driver Installation (SCM-US, SCM-US48I)

• Visit our webstie to download the driver.
• If the computer is connected to the Internet, your PC automatically searches for the driver and install it.
• After completing the USB driver installation, follow the steps of the Serial Port driver installer.
• Check the status of all drivers installed on your computer via Device Manager.

## Dimensions

• Unit: mm, For the detailed dimensions of the product, follow the Autonics web site.

### ■ SCM-US

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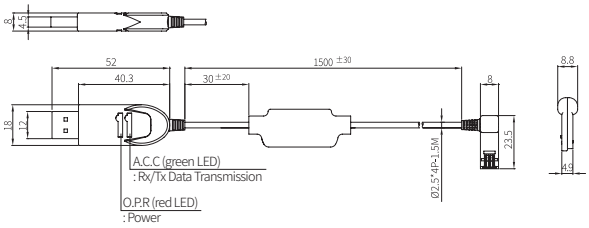
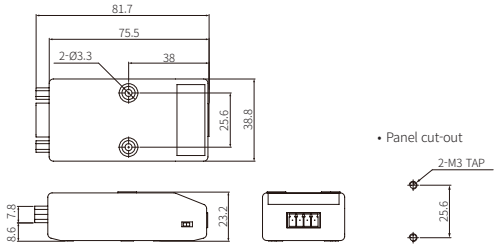
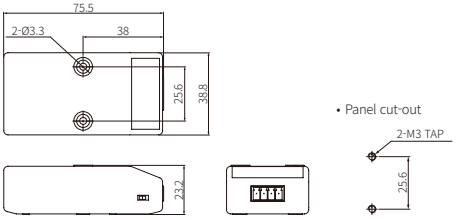


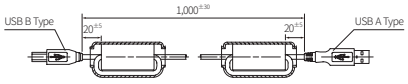

### ■ SCM-38I




### ■ SCM-US48I




• USB AB CABLE

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