Serial Communication Converters

SCM Series

INSTRUCTION MANUAL

TCD210207AC

Autonics

Thank you for choosing our Autonics product.
Read and understand the instruction manual and manual thoroughly before using the product.
For your safety, read and follow the below safety considerations before using.
For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.
Keep this instruction manual in a place where you can find easily.
The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.
Follow Autonics website for the latest information.

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.
- 5 VDC⎓, 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. 2,000 m
  - 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 / SCM-SFL
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 EAC	CE EAC
Unit weight (packaged)	≈ 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: 5-bit, 6-bit, 7-bit, 8-bit / Stop bit: 1-bit, 2-bit / 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 the all terminals and the case: 2,000 VAC~ 50/60 Hz for 1 min Between the RS232C and the RS485: 2,500 VAC~ 50/60 Hz for 1 min	Between the all terminals and the case: 2,500 VAC~ 50/60 Hz for 1 min Between the RS232C and the 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 EAC	
Unit weight (packaged)	≈ 46 g (≈ 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 double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 1 hour
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz 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 (no freezing or condensation)
Ambient humidity	35 to 85%RH, storage: 35 to85 %RH (no freezing or condensation)

Cautions for Installation

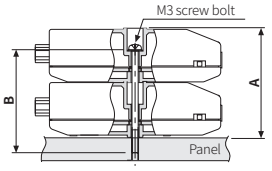
- Refer to the 'Dimensions.'
- When wiring the RS485 connector, use AWG 24 cable.
- Tighten the connector screw with a tightening torque of 0.22 to 0.4 N m with the screwdriver for M2 screw.

■ SCM-US / SCM-USP / SCM-SFL

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

■ 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

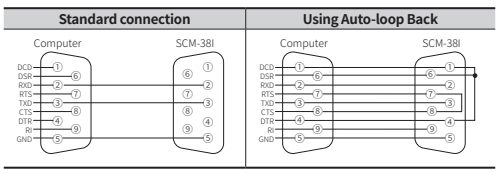
[Pin assignments]

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)



Driver Installation (SCM-US, SCM-USP, SCM-SFL, SCM-US48I)

- Visit our website 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.

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