DeviceNet Digital Remote I/O [ARD-D Series]

■ Ordering information

AR **D** — **D** **I** **08** **A** **E** — **4S** Terminal block※2

Terminal block※2	No-mark	Standard terminal block type	
	4S	Sensor connector type(4pin)	
Structure	No-mark	Basic unit	
	E※4	Expansion unit	
I/O specification※1	A	AC voltage	R Relay
	N	NPN open collector	S SSR
	P	PNP open collector	
I/O point	08	8 points type	
	16	16 points type	
I/O type	I	Input type	
	O	Output type	
	X	I/O mixed type	
Digital/Analog	D	Digital type	
	A※5	Analog type	
Network	D	Basic unit(DeviceNet type)	
	X※3	Expansion unit(use in DeviceNet/Modbus)	
Item	AR	Autonics Remote I/O	

※1: Sensor connector type (ARD-□-4S) model is only for NPN, PNP I/O specifications.
※2: Sensor connector(CNE-P04-□) is sold separately. It is compatible with e-CON connector.
※3: It is only for an expansion unit of sensor connector type.
※4: It is only for an expansion unit of standard terminal block type.
※5: For ARD-A Series as analog type, refer to the 328 page.

■ Specifications

Type		Standard terminal block type								
Model	Basic unit	**ARD-DI08A**	**ARD-DI16N**	**ARD-DI16P**	**ARD-DO08R**	**ARD-DO08S**	**ARD-DO16N**	**ARD-DO16P**	**ARD-DX16N**	**ARD-DX16P**
	Expansion unit	**ARD-DI08AE**	**ARD-DI16NE**	**ARD-DI16PE**	**ARD-DO08RE**	**ARD-DO08SE**	**ARD-DO16NE**	**ARD-DO16PE**	**ARD-DX16NE**	**ARD-DX16PE**
Appearances		CE  DeviceNet CONFORMANCE TESTED								
Power supply		Rated voltage: 24VDC, Voltage range: 12-28VDC								
Power consumption		Max. 3W								
Insulation type		Photocoupler isolated								
I/O points		AC input 8-point	NPN input 16-point	PNP input 16-point	Relay output 8-point	SSR output 8-point	NPN output 16-point	PNP output 16-point	NPN input 8-point + output 8-point	PNP input 8-point + output 8-point
Control I/O	Voltage	75-250VAC	10-28VDC		Normally open(N.O.) 250VAC 2A 1a	30-250VAC	10-28VDC(voltage drop: max. 0.5VDC)			
	Current	13mA/point	10mA/point			1A/point	0.5A/point (leakage current: max. 0.5 mA)		Input: 10mA, Output: 0.5A/point (leakage current: max. 0.5mA)	

■ Specifications

Type		Standard terminal block type								
Model	Basic unit	ARD-DI08A	ARD-DI16N	ARD-DI16P	ARD-DO08R	ARD-DO08S	ARD-DO16N	ARD-DO16P	ARD-DX16N	ARD-DX16P
	Expansion unit	ARD-DI08AE	ARD-DI16NE	ARD-DI16PE	ARD-DO08RE	ARD-DO08SE	ARD-DO16NE	ARD-DO16PE	ARD-DX16NE	ARD-DX16PE
Common		8-point, common			1-point, COM	8-point, common				
Insulation resistance		Min. 200MΩ(at 500VDC megger)								
Noise resistance		±240 V the square wave noise (pulse width: 1μs) by the noise simulator								
Dielectric strength		1000 VAC 50/60 Hz for 1 min.								
Vibration		1.5 mm amplitude at frequency of 10 to 55Hz (for 1 min.) in each of X, Y, Z directions for 2 hours								
Shock		500 m/s^2(approx. 50G) in X, Y, Z directions for 3 times								
Environment	Ambient temperature	-10 to 50℃, storage : -25 to 75 ℃								
	Ambient humidity	35 to 85%RH, storage : 35 to 85%RH								
Protection		IP20(IEC standard)								
Protection circuit		Surge protection circuit, Reverse polarity protection circuit (common) ●Transistor output type - Overcurrent protection circuit (NPN type : operated at min. 1.9A → re-supply power in overcurrent status, PNP type : operated at min. 0.7A), Overheating protection circuit(Min. 165℃), Short-circuit protection circuit								
Indicator		Network status (NS) LED (green, red), Unit status (MS) LED (green, red), I/O status LED (input: green, output: red)								
Material		Front case, Body Case: PC, Rubber cap: NBR								
Mounting		DIN rail or screw lock type								
Approval		DeviceNet	CE DeviceNet		DeviceNet		CE DeviceNet			
Unit weight		Approx. 150g	Approx. 140g		Approx. 160g	Approx. 170g	Approx. 140g			

※Environment resistance is rated at no freezing or condensation.

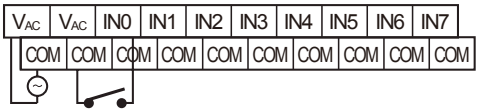
Type		Sensor connector type			
Model	Basic unit	ARD-DI08N-4S	ARD-DI08P-4S	ARD-DO08N-4S	ARD-DO08P-4S
	Expansion unit	ARX-DI08N-4S	ARX-DI08P-4S	ARX-DO08N-4S	ARX-DO08P-4S
Appearances		CE  DeviceNet CONFORMANCE TESTED			
Power supply		Rated voltage: 24VDC, Voltage range: 12-28VDC)			
Power consumption		Max. 3W			
Insulation type		Photocoupler isolated			
I/O points		NPN input 8-point	PNP input 8-point	NPN output 8-point	PNP output 8-point
Control I/O	Voltage	10-28VDC		10-28VDC(voltage drop: max. 0.5VDC)	
	Current	10mA/point(Sensor current: 150 mA/point)		0.3A/point(leakage current: max.0.5mA)	
Common		8-point, common			
Insulation resistance		Min. 200MΩ(at 500VDC megger)			
Noise resistance		±240V the square wave noise (pulse width: 1μs) by the noise simulator			
Dielectric strength		1,000VAC 50/60Hz for 1min. (between external terminals and case)			
Vibration		1.5mm amplitude at frequency of 10 to 55 Hz (for 1 min.) in each of X, Y, Z directions for 2 hours			
Shock		500m/s^2(approx. 50 G) in X, Y, Z directions for 3 times			
Environment	Ambient temperature	-10 to 50℃, storage : -25 to 75℃			
	Ambient humidity	35 to 85%RH, storage : 35 to 85%RH			
Protection		IP20(IEC standard)			
Protection circuit		Surge, Short-circuit, Overheating (over 165 ℃) and ESD protection, Reverse polarity protection circuit			
		Overcurrent protection circuit(operated at min. 0.17A)		Over current protection circuit(operated at min. 0.7A)	
Indicator		Network status (NS) LED (green, red), Unit status (MS) LED (green, red), I/O status LED (Input: green, Output: red)			
Material		Front case, Body Case: PC			
Mounting		DIN rail or screw lock type			
Approval		CE DeviceNet			
Unit weight	Basic unit	Approx. 64 g	Approx. 64 g	Approx. 65 g	Approx. 67 g
	Expansion unit	Approx. 56 g	Approx. 57 g	Approx. 58 g	Approx. 59 g

※Environment resistance is rated at no freezing or condensation.

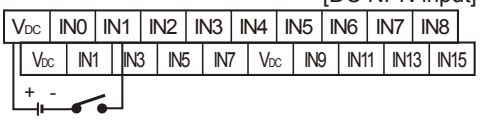
▣ Connections

◎ Standard terminal block type

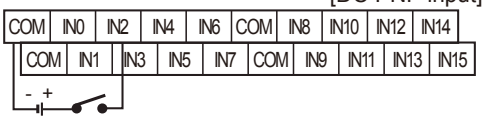
● ARD-DI08A(E) [AC input]



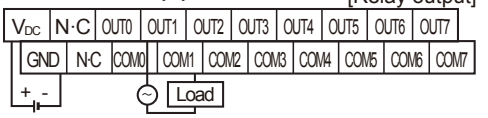
● ARD-DI16N(E) [DC NPN input]



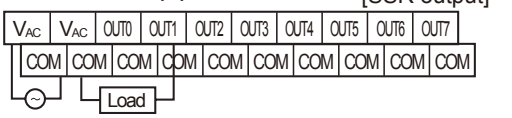
● ARD-DI16P(E) [DC PNP input]



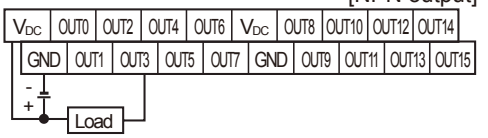
● ARD-DO08R(E) [Relay output]



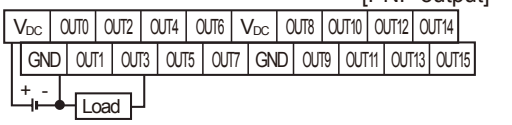
● ARD-DO08S(E) [SSR output]



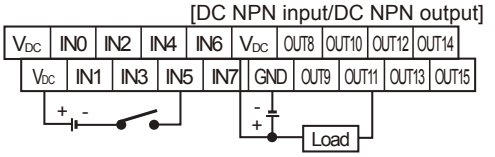
● ARD-DO16N(E) [NPN output]



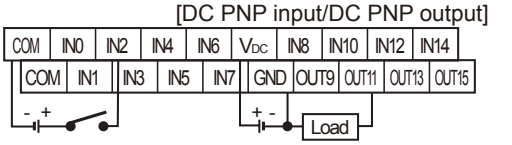
● ARD-DO16P(E) [PNP output]



● ARD-DX16N(E) [DC NPN input/DC NPN output]

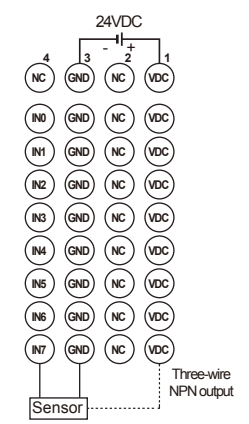


● ARD-DX16P(E) [DC PNP input/DC PNP output]



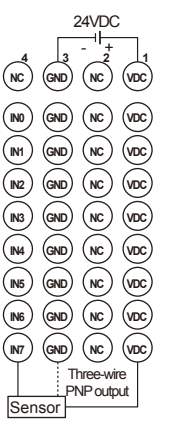
◎ Sensor connector type

● AR□-DI08N-4S



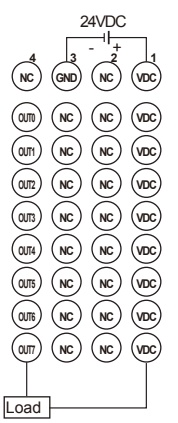
IN : 8P, 24VDC 10mA

● AR□-DI08P-4S



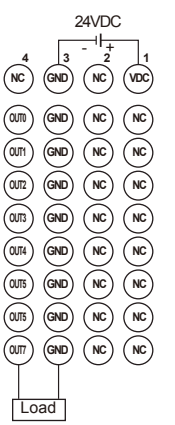
IN : 8P, 24VDC 10mA

● AR□-DO08N-4S



OUT : 8P, 24VDC 0.3A/Point

● AR□-DO08P-4S

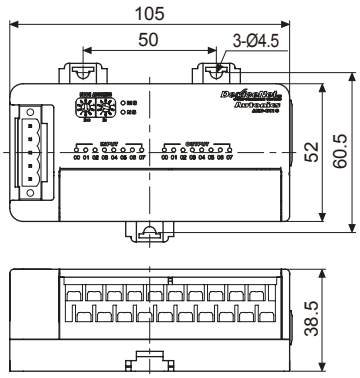


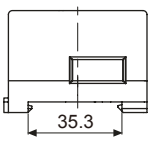
OUT : 8P, 24VDC 0.3A/Point

▣ Dimensions

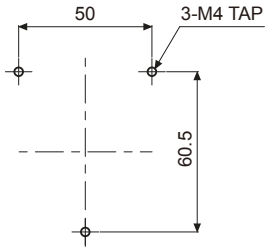
(unit:mm)

◎ Standard terminal block type





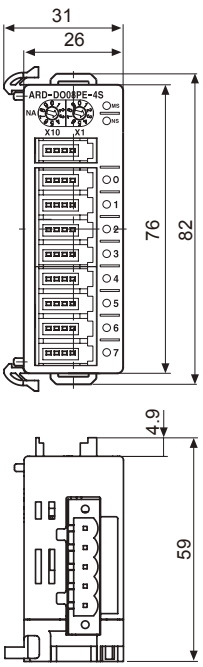
● **Panel cut-out**



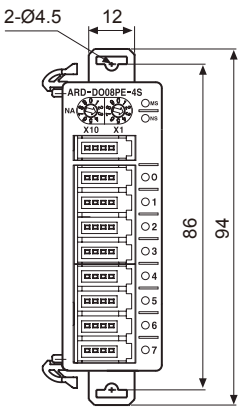
※Tightening torque: 1.8 to 2.5N·m
※Same dimensions are applied to both basic and expansion unit.
※Connecting connectors are included for expansion units.

◎ Sensor connector type

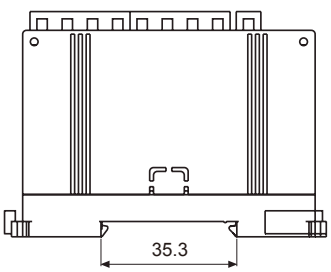
● **Mounting on DIN rail**



● **Mounting with screws**



※Tightening torque: 1.8 to 2.5N·m



※Same dimensions are applied to both basic and expansion unit.

DeviceNet Analog Remote I/O [ARD-A Series]

▣ Ordering information

AR D – A I 04

I/O points	04	4-point type
I/O type	I	Input type
	O	Output type
Digital/Analog	A	Analog type
	D※1	Digital type
Network	D	DeviceNet type
Item	AR	Autonics Remote I/O

※1. For digital type ARD-D Series, refer to the 324 page.

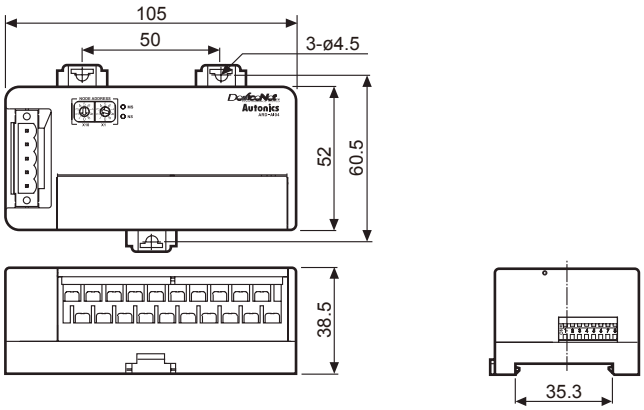
▣ Specifications

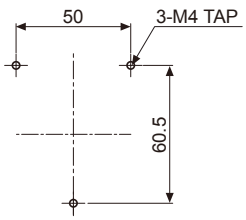
Model		ARD-AI04	ARD-AO04
Appearances		NEW 	
Power supply		Rated voltage: 24 VDC, Voltage range: 12-28 VDC	
Power consumption		Max. 3 W	
Insulation type		Photocoupler isolated	
I/O points		Input 4-point (switchable voltage/current)	Output 4-point (voltage 2CH, current 2CH)
Control I/O	Voltage	0-10 VDC, -10-10 VDC, 0-5 VDC, 1-5 VDC, -5-5 VDC (input impedance: max. 1 MΩ)	0-10 VDC, -10-10 VDC, 0-5 VDC, 1-5 VDC, -5-5 VDC (load resistance: max. 1 KΩ)
	Current	DC4-20 mA, DC0-20mA (input impedance: 250Ω)	DC4-20 mA, DC0-20 mA (load resistance: max. 600 Ω)
Max. allowable I/O		±5% F.S of rated I/O range	
Sampling cycle		1 ms/point	
Accuracy	25±5 ℃	±0.3% F.S	
	-10 ±20 ℃ 30 to 50 ℃	±0.6% F.S.	
Resolution		1/16,000	
Insulation resistance		Min. 200 MΩ(at 500 VDC megger)	
Noise resistance		±240 V the square wave noise (pulse width: 1 μs) by the noise simulator	
Dielectric strength		500 VAC 50/60Hz for 1 min. (between external terminals and case, between i/o and power terminals)	
Vibration		1.5 mm amplitude at frequency of 10 to 55 Hz (for 1 min.) in each of X, Y, Z directions for 2 hours	
Shock		500m/s^2 (approx. 50 G) in each of X, Y, Z directions for 3 times	
Environment	Ambient temperature	-10 to 50 ℃, storage: -25 to 75 ℃	
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH	
Protection		IP20(IEC standard)	
Protection circuit		Surge, ESD protection, Reverse polarity protection circuit	
Indicator		Network status(NS) LED(green, red), Unit status(MS) LED(green, red)	
Material		Front case, Body Case: PC	
Mounting		DIN rail or screw lock type	
Approval		CE DeviceNet	
Weight※1		Approx. 210 g (approx. 145 g)	

※1. The weight is with packaging and the weight in parentheses is only unit weight.
※Environment resistance is rated at no freezing or condensation.

▣ Dimensions

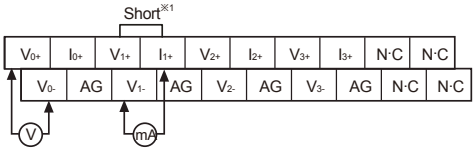
●Panel cut-out (unit : mm)



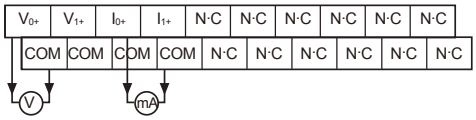


▣ Connections

●ARD-AI04



●ARD-AO04



Voltage	0-5 VDC
	1 to 5 VDC
	-5-5 VDC
	0-10 VDC
	-10-10 VDC
Current	DC 0-20 mA
	DC 4-20 mA

※1: For current input, short between $V_{□+}$ and $I_{□+}$.

Modbus sensor connector type digital remote I/O [ARM Series]

▣ Ordering information

AR M — D I 08 N — 4S

Terminal block	4S	Sensor connector 4-pin socket
I/O specifications	N	NPN open collector
	P	PNP open collector
I/O points	08	8 points type
I/O type	I	Input type
	O	Output type
Digital/Analog	D	Digital type
Network	M	Basic unit(Modbus RTU type)
	X	Expansion unit(Use in DeviceNet/Modbus)
Item	AR	Autonics Remote I/O

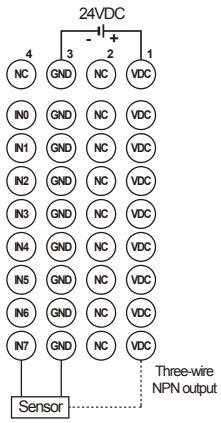
▣ Specifications

Model		ARM-DI08N-4S	ARM-DI08P-4S	ARM-DO08N-4S	ARM-DO08P-4S
	Expansion unit	ARX-DI08N-4S	ARX-DI08P-4S	ARX-DO08N-4S	ARX-DO08P-4S
Appearances		NEW CE 			
Power supply		Rated voltage: 24VDC, Voltage range: 12-28VDC			
Power consumption		Max. 3W			
I/O points		NPN input 8 points	PNP input 8 points	NPN output 8 points	PNP output 8 points
Control I/O	Voltage	10-28VDC		10-28VDC Output(voltage drop: Max. 0.5V)	
	Current	10mA/point (sensor current: 150mA/points)		0.3A/point (leakage current: Max. 0.5mA)	
Common		8 points, common			
Communication speed		2400, 4800, 9600, 19200, 38400, 57600, 115200bps(default 9600bps)			
Communication method		2-wire half duplex			
Communication distance		Max. 800m			
Multi-drop		Max. 32 Multi-Drop			
Medium access		POLL			
Application standard		Compliance with EIA RS485			
Protocol		Modbus RTU			
Data bit		8 bits			
Stop bit		1 or 2 bits(default: 2)			
Parity bit		None/Odd/Even(default: None)			
Isolation type		I/O and inner circuit: Photocoupler insulation Modbus to internal bus and inner circuit: Insulation Unit power: Non-insulation			
Insulation resistance		Min. 200MΩ (at 500VDC megger)			
Noise resistance		±240V the square wave noise (pulse width: 1μs) by the noise simulator			
Dielectric strength		1,000VAC 50/60Hz for 1 minute			
Vibration		1.5mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 2 hours			
Shock		500m/s²(approx. 50G) in each of X, Y, Z directions for3 times			
Environ -ment	Ambient temperature	-10 to 55℃, storage: -25 to 75℃			
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH			
Protection		IP20(IEC standards)			
Protection circuit		Surge, Short-circuit, Overheating and static protection, Reversed polarity protection circuit			
		Over current protection(Operated at min. 0.17A)		Over current protection(Operated at min. 0.7A)	
Indicator		Network status(NS) LED (Green, Red), Module status(MS) LED (Green, Red) I/O status LED (Input: Green, Output: Red)			
Material		Front case: PC, Body case: PC			
Mounting		DIN Rail or Screw lock type			
Approval		CE			
Unit weight	Basic unit	Approx. 65g	Approx. 65g	Approx. 65g	Approx. 66g
	Expansion unit	Approx. 55g	Approx. 55g	Approx. 55g	Approx. 56g

※ Environment resistance is rated at no freezing or condensation.

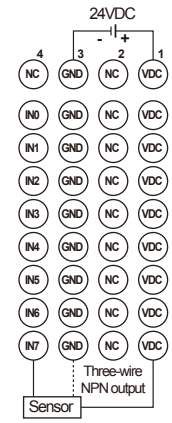
▣ Connections

●ARM-DI08N-4S
●ARX-DI08N-4S



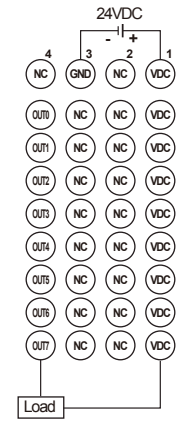
IN : 8P, 24VDC 10mA

●ARM-DI08P-4S
●ARX-DI08P-4S



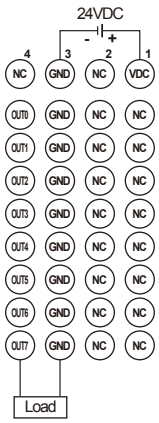
IN : 8P, 24VDC 10mA

●ARM-DO08N-4S
●ARX-DO08N-4S



OUT : 8P, 24VDC 0.3A/Point

●ARM-DO08P-4S
●ARX-DO08P-4S

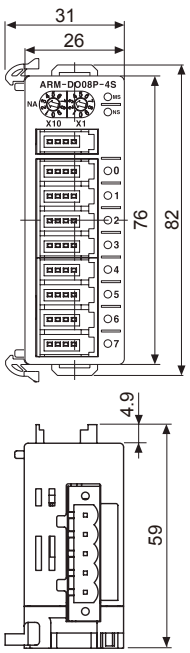


OUT : 8P, 24VDC 0.3A/Point

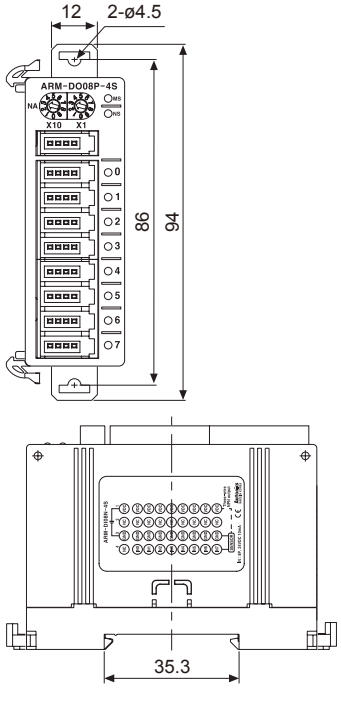
▣ Dimensions

(unit:mm)

● Mounting DIN rail



● Mounting with screws



※ Same dimensions are applied to both basic and expansion unit.

Communication Converter

- **SCM-WF48: Wi-Fi/RS485, USB wireless communication converter**
- **SCM-US48I: USB to Serial converter**
- **SCM-38I: RS232C to RS485 converter**
- **SCM-US: USB to Serial converter**

▣ Specifications(SCM-WF48)

Model		**SCM-WF48**
Appearances		NEW (available soon) CE K (pending) 
Power supply		24VDC
Allowable voltage range		12-28VDC
Communication type		RS485, USB, Wi-Fi
Isolation resistance		Min. 200 MΩ(at 500 VDC 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		±500 V the square wave noise(pulse width: 1μs) by the noise simulator
Vibration		1.5 mm amplitude at frequency of 10 to 55 Hz(for 1min.) in each of X, Y, Z directions for 2 hours
Shock		500m/s^2(approx. 50G) in each of X, Y, Z directions for 3 times
Environ-ment	Ambient temperature	-10 to 55℃, storage: -20 to 60℃
	Ambient humidity	35 to 80%RH, storage: 35 to 80%RH
Protection		IP20(IEC standards)
Mounting		DIN rail or panel mounting
Accessories		USB 2.0 Mini 5P type cable (length: 1 m), Connector for RS-485 (4-pin, male type) 1EA
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.

● RS485 communication specifications

Connection	RS485
Standard	EIA RS485
Protocol	Modbus RTU
Com. method	2-wire half duplex
Synchronous method	Asynchronous
Effective com. distance	Max. 800m
Com. speed※1	4800, 9600, 19200, 38400, 57600, 115200bps (factory default: 115200bps)
Data bit※1	5bit,6bit,7bit,8bit(factory default:8bit)
Stop bit※1	1bit, 2bit(factory default: 1bit)
Parity bit※1	None, Even, Odd(factory default: None)
Multi-drop	Max. 31 Multi-drop
Connection type	4-wire screw terminal (2-wire communication method)

※1: You can set this by DAQMaster.

● Wi-Fi communication specifications

Protocol	TCP/IP(IPv4)
Standard	802.11 b/g/n(IEEE 802.11b) compatible
Com. speed	Max. 11 Mbps
Frequency range	2.4 to 2.497 GHz
Security	WEP, WPA, WPA2-PSK, Enterprise
Antenna	2dBi external antenna
Com. distance	Max. 100 m

● USB communication specifications

Power	5 V, 500 mA
Standard	USB 2.0(compatible sub-transmission)
Com. method	2-wire half duplex
Connections	USB 2.0 Mini 5P type(Male)

▣ Specifications(SCM-US48I, SCM-38I, SCM-US)

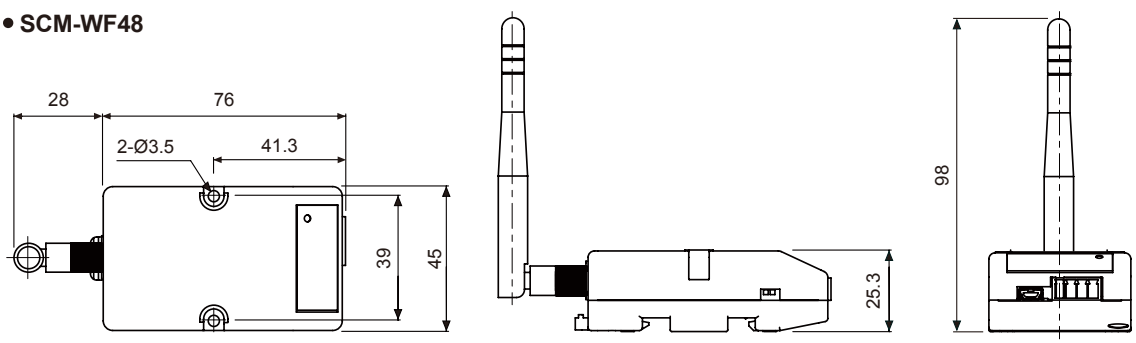
Model		SCM-US48I	SCM-38I	SCM-US
Appearances				
Power supply		5VDC USB bus Power	12-24VDC ± 10%	5VDC USB bus Power※1
Power consumption		Max. 1W	Max. 1.7W	Max. 1W
Max. com speed※2		1,200 to 115,200bps(Recommended : 9,600bps)		
Communication type		Half duplex type		
Available com. distance		USB: Max. 1m ± 30% RS485: Max.1.2km	Max. 1.2km	1.5m(not extension)
Multi-drop		Max. 31 multi-drop		—
Protocol※2	Data bit	5 to 8 data bits		—
	Stop bit	1 or 2 stop bits		—
	Parity bit	None/Odd/Even		—
Connection type		USB: B type connector	RS232: D-sub 9Pin	USB: A type connector
		RS485: 4-wire screw terminal(2wire communication type)		Earphone jack(4 pole stereo phone plug)
Isolation type		Isolation		Non-isolation
Dielectric strength		●Between terminals and case: 200VAC 50/60Hz for 1 min. ●Between USB and RS485: 2500VAC 50/60Hz for 1 min.	●Between terminals and case: 200VAC 50/60Hz for 1 min. ●Between RS232C and RS485: 2500VAC 50/60Hz for 1 min.	—
Insulation resistance		Min. 100MΩ(at 500VDC megger)		—
Noise strength		±500V the square wave noise(pulse width: 1μs) by the noise simulator		—
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 1 hour		
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 10 minutes		
Shock	Mechanical	300m/s² (approx. 30G) in each of X, Y, Z directions for 3 times		
	Malfunction	100m/s² (approx. 10G) in each of X, Y, Z directions 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 connector (length: 1m)	—	
Unit weight		Approx. 34.5g	Approx. 46g	Approx. 41g

※There might be some differences in the specification above depending on PC environment.
※Environment resistance is rated at no freezing or condensation.

▣ Dimensions

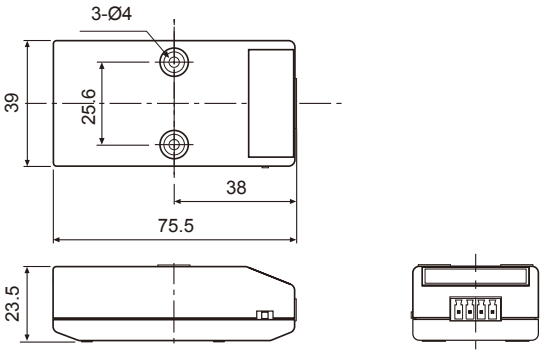
(unit: mm)

• SCM-WF48

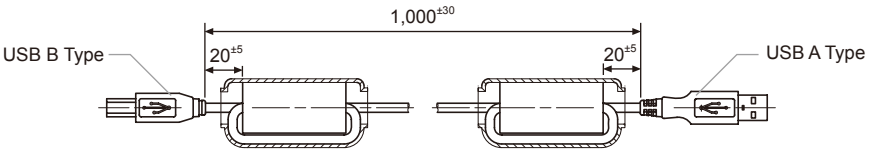


• SCM-US48I

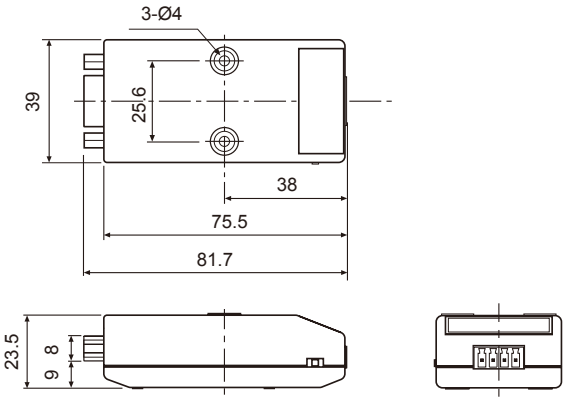
※USB 2.0 AB type cable is including the product and is also sold separately.
(model: USB AB CABLE)



< USB 2.0 AB type cable >



• SCM-US38I



• SCM-US