

## SX5A AS-Interface (Communication Terminal and Repeater)

### AS-Interface Communication Terminals (Slave Modules)

#### IP67 I/O Module

- AS-Interface Ver. 2.1 compliant, capable of connecting 62 slaves
- Compatible with 2- and 3-wire sensors
- With AS-Interface power and input status indicators
- Overload detection function on the sensor power supply
- Output overload detection function (2 in/2 out model, 4 in/3 out model)

#### IP20 Terminal Block

- AS-Interface Ver. 2.1 compliant, capable of connecting 62 slaves
- Removable terminal blocks
- Compatible with 2- and 3-wire sensors
- AS-Interface power and input status indicators
- IEC62026-2 compliant





#### Repeater

- No address setting required.
- The AS-Interface network can be extended up to 300 m.
- IP65 protection
- Easy connection to AS-Interface flat cables.




### Part Numbers


#### SX5A AS-Interface Communication Terminals

	Terminal	I/O Specifications				Part Numbers	Applicable Base Module (order separately)
		Input Points	Input	Output Points	Output		
IP67 I/O Module 	Connector	4	NPN	—	—	SX5A-SWN40S02	SX5A-B3FF
		4	PNP	—	—	SX5A-SWN40K02N	SX5A-B3FF
		2	PNP	2	PNP	SX5A-SWM22KS2N	SX5A-B3FF
		4	PNP	3	PNP	SX5A-SWM43KS2N	SX5A-B2FF
IP20 I/O Module 	Terminal Block	4	NPN	—	—	SX5A-SSN40S0N	—
		4	PNP	—	—	SX5A-SSN40K0N	—
		4	PNP	3	PNP	SX5A-SSM43KSN	—

#### Base Modules

	Applicable I/O Module	Description	Part Numbers
Base Module for IP67 I/O Module 	4 in model 2 in/2 out model	Substructure module to connect to AS-Interface flat cables for AS-Interface bus and auxiliary power	SX5A-B3FF
	4 in/3 out model		SX5A-B2FF

#### Repeater

	Description	Part Number
	A repeater can extend the AS-Interface Network up to 300m.	SX5A-RP1

**Accessories**

		Description	Part Numbers	Notes
PLCs		Assign slave addresses and monitor system configuration	SX9Z-ADR1N	Includes: Programming device cable (SX9Z-CN1) Programming device AC adapter (SX9Z-ADPT) SwitchNet addressing port adapter (LA9Z-SNADP) Operation manual (English/Japanese)
	Hand-held Programming Device			
Operator Interfaces		Connect the programming device to slave	SX9Z-CN1	
	Programming Device Cable			
		Charge the programming device	SX9Z-ADPT	AC input voltage: 100 to 240V AC
Automation Software		Connect the programming device cable to SwitchNet contacts	LA9Z-SNADP	
	SwitchNet Addressing Port Adapter			
		Branch AS-Interface flat cable to AS-Interface flat cable	SX9Z-CF1	
	AS-Interface Flat Cable Branch Connector			
Power Supplies		Branch AS-Interface flat cable to 2-wire cable	LA9Z-SNTB	
	T-branch Connector			
		Branch AS-Interface flat cable to M12 cables	SX9Z-CT1	
Sensors		Protect the end of AS-Interface cable	SX9Z-CPA1	Degree of protection: IP65
	AS-Interface Flat Cable End Tube			
		Ensure IP67 protection on unused M12 I/O plugs	SX9Z-CAP1	
	Protection Cap			

IP67 I/O Module

- AS-Interface Ver. 2.1 compliant. A maximum of 62 slaves can be connected.
- SX5A-SWN40S02 is a Ver. 2.0 standard slave, which allows for connection of up to 31 slaves.
- Compatible with 2- and 3-wire sensors
- With AS-Interface power and input status indicators
- Overload detection function on the sensor power supply
- Output overload detection function (2 in/2 out model, 4 in/3 out model)
- IEC62026-2 compliant



Specifications

Models		SX5A-SWN40S02		SX5A-SWN40K02N		SX5A-SWM22KS2N		SX5A-SWM43KS2N		
General	Rated Operating Voltage (Ue)	26.5 to 31.6V DC supplied from AS-Interface line								
	Rated Operating Current (Ie)	≤ 40mA (without sensor) 240mA maximum		≤ 40mA (without sensor) 140mA maximum		≤ 40mA (without sensor) 140mA maximum		≤ 40mA (without sensor) 240mA maximum		
	External Auxiliary Power Supply U (Aux)	—		—		20 to 30V DC PELV (protective very-low voltage: protection class 3 VDE0106 / IEC60364-4-41 compliant)				
	Operating Temperature	-25 to +60°C (no freezing)								
	Storage Temperature	-25 to +85°C (no freezing)								
	Degree of Protection	IP67 (EN60529); Attach SX9Z-CAP1 protection caps on unused I/O connectors.								
	Connection Method	Insulation displacement technology for flat cables (yellow/black) M12 connector for I/O								
	Weight	100g						150g		
	Mounting Method	Screw mounting on base module								
Input	Input Points/Signals	4DC inputs 2- and 3-wire sensors (NPN)		4DC inputs 2- and 3-wire sensors (PNP)		2DC inputs 2- and 3-wire sensors (PNP)		4DC inputs 2- and 3-wire sensors (PNP)		
	Input Power	20 to 31V DC supplied from AS-Interface line								
	Load Current Capacity	≤ 200mA (Tb ≤ 40°C) ≤ 150mA (Tb ≤ 60°C)		≤ 100mA (Tb ≤ 40°C) ≤ 75mA (Tb ≤ 60°C)		≤ 100mA (Tb ≤ 40°C) ≤ 75mA (Tb ≤ 60°C)		≤ 200mA (Tb ≤ 40°C) ≤ 150mA (Tb ≤ 60°C)		
	OFF Current	OFF ≤ 1mA		—		OFF ≤ 2mA				
	ON Current (sink)	ON ≥ 4.5mA		—		ON ≥ 4mA				
	Protection Circuit	Input current limit ≤ 8mA								
Output	Output Points/Signals	—		—		2 PNP transistor outputs (with overload/short-circuit protection)		3 PNP transistor outputs (with overload/short-circuit protection)		
	Output Power	—		—		Supplied from external auxiliary power supply U (Aux)				
	Voltage	—		—		External auxiliary power voltage U (Aux) – 0.5V				
	Current	—		—		1A per output point		2A (OUT1, OUT2) 1.5A (OUT3) 4A total		
	Communication Error	—		—		Output turns off				
Communication	Slave Type	Standard slave			A/B slave					
	Profile	IO	0		0		B		7	
		ID	1		A		A		A	
		ID2	—		2		2		2	
	Data Bits	Input	Output	Input	Output	Input	Output	Input	Output	
	D0	IN1	—	IN1	—	—	OUT1	IN1	OUT1	
D1	IN2	—	IN2	—	—	OUT2	IN2	OUT2		
D2	IN3	—	IN3	—	—	—	IN3	OUT3		
D3	IN4	—	IN4	—	—	—	IN4	—		

PLCs

Operator Interfaces

Automation Software

Power Supplies

Sensors

Communication & Networking

**Specifications**

Models		SX5A-SWN40S02	SX5A-SWN40K02N	SX5A-SWM22KS2N	SX5A-SWM43KS2N
LED Indicators	PWR	AS-Interface power: Green LED			
	AUX	—		External auxiliary power U (aux): Green LED	
	IN	4 yellow LEDs		2 yellow LEDs	4 yellow LEDs
	OUT	—		2 yellow LEDs	3 yellow LEDs
	FAULT	Error indication: Red LED ON: Communication error or address 0 Flash: Sensor power supply or output is overloaded			
Address Assignment	Addressing Method	Remove the protection cap from the addressing port on the I/O module. Connect the hand-held programming device (SX9Z-ADR1N) to the addressing port on the I/O module using the programming device cable (SX9Z-CN1), then the I/O module stops communication through the AS-Interface line. Change slave addresses using the programming device.			
Certification		AS-International Association			
Standards		UL/c-UL, CE			

PLCs

Operator Interfaces

Automation Software

Power Supplies

Sensors

Communication &amp; Networking

IP20 I/O Module

- AS-Interface Ver. 2.1 compliant
- A maximum of 62 slaves can be connected.
- Removable terminal blocks
- Communication monitor function
- Compatible with 2- and 3-wire sensors
- AS-Interface power and input status indicators
- IEC62026-2 compliant



PLCs

Operator Interfaces

Automation Software

Power Supplies

Sensors

Communication & Networking

Specifications

Models		SX5A-SSN40SON	SX5A-SSN40KON	SX5A-SSM43KSN	
General	Rated Operating Voltage (Ue)	26.5 to 31.6V DC supplied from AS-Interface line			
	Rated Operating Current (Ie)	≤ 30mA (without sensor)		≤ 35mA (without sensor)	
	External Auxiliary Power Supply U (Aux)	—		20 to 30V DC PELV (protective very-low voltage: protection class 3 VDE0106 / IEC60364-4-41 compliant)	
	Operating Temperature	−25 to +60°C (no freezing)			
	Storage Temperature	−25 to +85°C (no freezing)			
	Degree of Protection	IP20 (EN60529)			
	Connection Method	Removable terminal block: Applicable wire size ≤ 2.5mm <sup>2</sup> (14 AWG)			
	Weight	150g			
	Mounting Method	DIN rail mounting			
Input	Input Points/Signals	4 DC inputs, 2- and 3-wire sensors (NPN)	4 DC inputs, 2- and 3-wire sensors (PNP)		
	Input Power	Supplied from AS-Interface line (default: internal switch set to INT) Supplied from an external 12 to 24V DC PELV (internal switch set to EXT)			
	Load Current Capacity	≤ 150mA (provided with overload and short-circuit protection)			
	OFF Current	OFF ≤ 2mA			
	ON Current (sink)	ON ≥ 4mA			
Output	Output Points/Signals	—	3 PNP transistor outputs (with overload/short-circuit protection)		
	Output Power	—	Supplied from external auxiliary power supply U (Aux)		
	Voltage	—	External auxiliary power voltage U (Aux) − 0.5V		
	Current	—	3A max. (OUT1), 1.5A max. (OUT2, OUT3), 6A total (Tb ≤ 40°C) 2A max. (OUT1), 1A max. (OUT2, OUT3), 4A total (Tb ≤ 60°C)		
	Communication Error	—	Output turns off		
Communication	Slave Type	A/B slaves			
	Profile	IO	0	7	
		ID	A	A	
		ID2	0	0	
	Data Bits	Input	Output	Input	Output
	D0	IN1	—	IN1	OUT1
D1	IN2	—	IN2	OUT2	
D2	IN3	—	IN3	OUT3	
D3	IN4	—	IN4	—	

**Specifications**

Models		SX5A-SSN40S0N	SX5A-SSN40K0N	SX5A-SSM43KSN
PLCs	<b>PWR</b>	AS-Interface power: Green LED		
	<b>AUX</b>	—	External auxiliary power U (AUX): Green LED	
	<b>IN</b>	4 yellow LEDs		
	<b>OUT</b>	—	3 yellow LEDs	
	<b>FAULT</b>	Error indication: Red LED ON: Communication error or address 0 Flash: Sensor power supply or output is overloaded		
	<b>INT</b>	Input power supplied from AS-Interface line: Green LED		
Operator Interfaces	<b>Address Assignment</b>	Connect the hand-held programming device (SX9Z-ADR1N) to the addressing port on the I/O module using the programming device cable (SX9Z-CN1), then the I/O module stops communication through the AS-Interface line. Change slave addresses using the programming device.		
	<b>Addressing Method</b>			
	<b>Certification</b>	AS-International Association		
	<b>Standards</b>	UL/c-UL, CE		

PLCs

Operator Interfaces

Automation Software

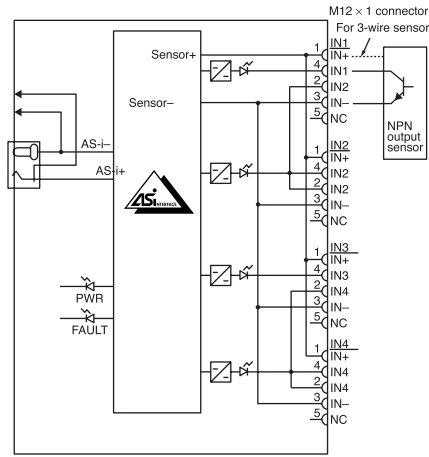
Power Supplies

Sensors

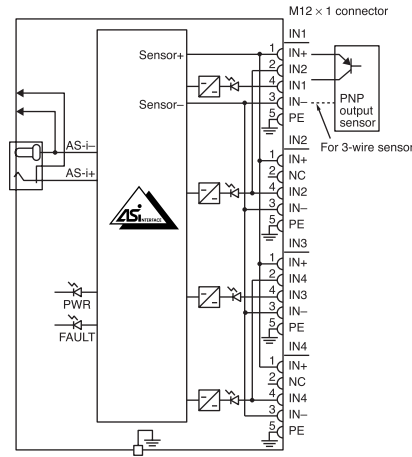
Communication &amp; Networking

Internal Circuits

SX5A-SWN40S02

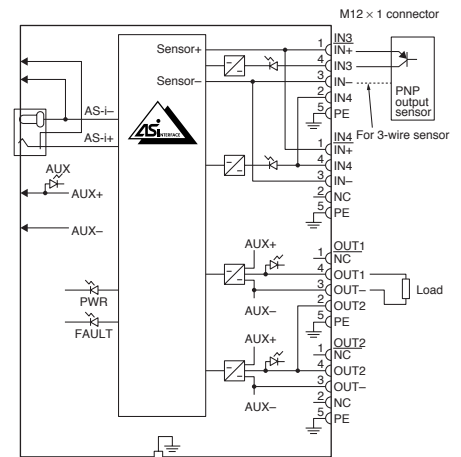


SX5A-SWN40K02N



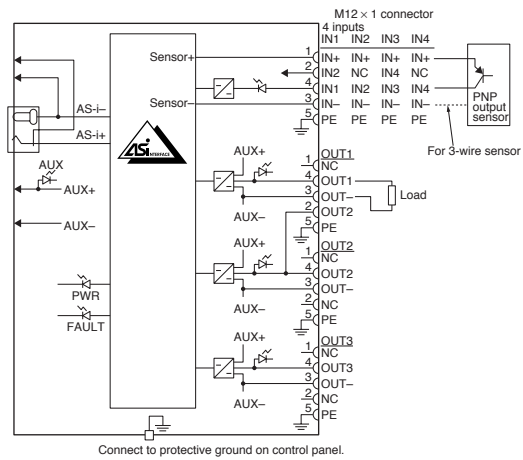
Connect to protective ground on control panel.

SX5A-SWM22KS2N



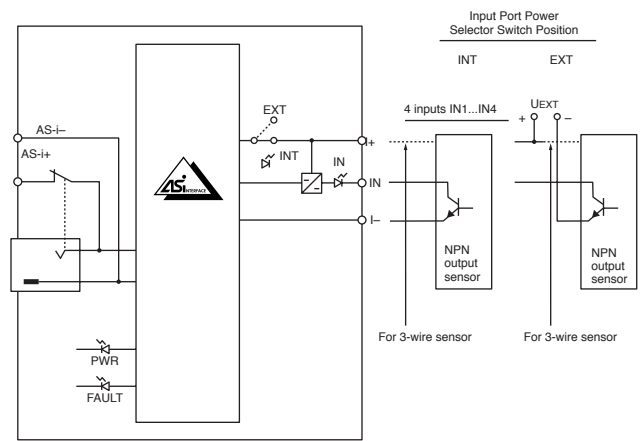
Connect to protective ground on control panel.

SX5A-SWM43KS2N

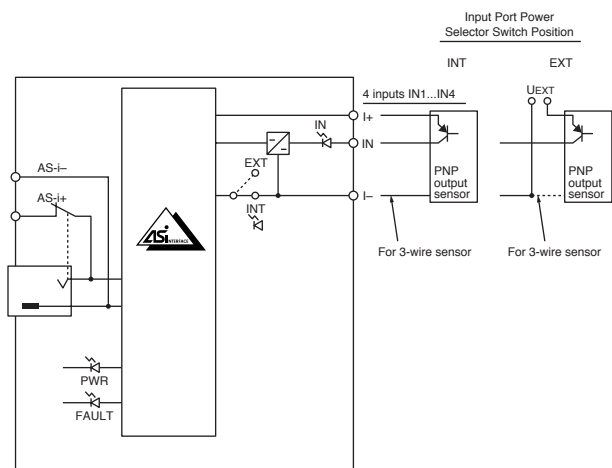


Connect to protective ground on control panel.

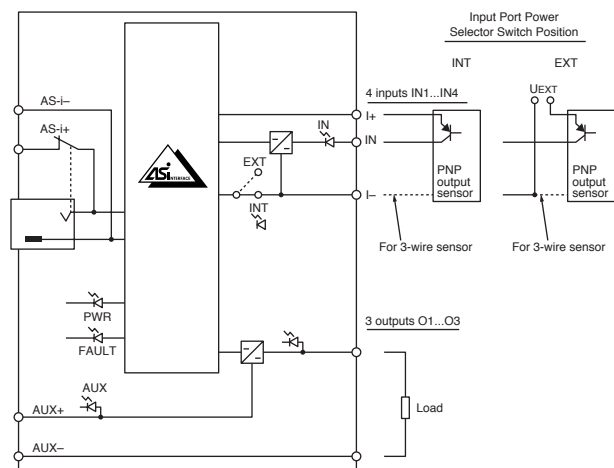
SX5A-SSN40S0N



SX5A-SSN40K0N



SX5A-SSM43KSN



PLCs

Operator Interfaces

Automation Software

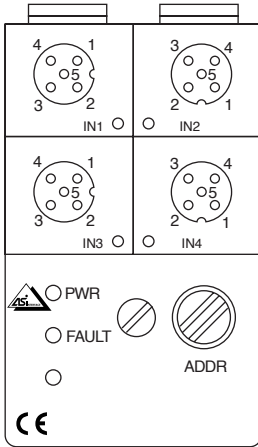
Power Supplies

Sensors

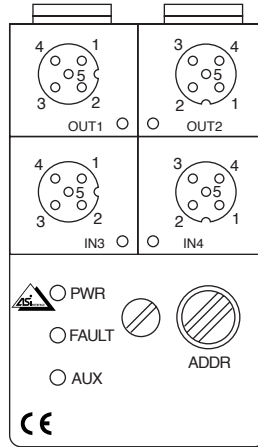
Communication & Networking

**Connector Arrangement**

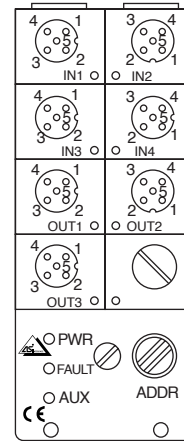
**SX5A-SWN40S02  
SX5A-SWN40K02N**



**SX5A-SWM22KS2N**



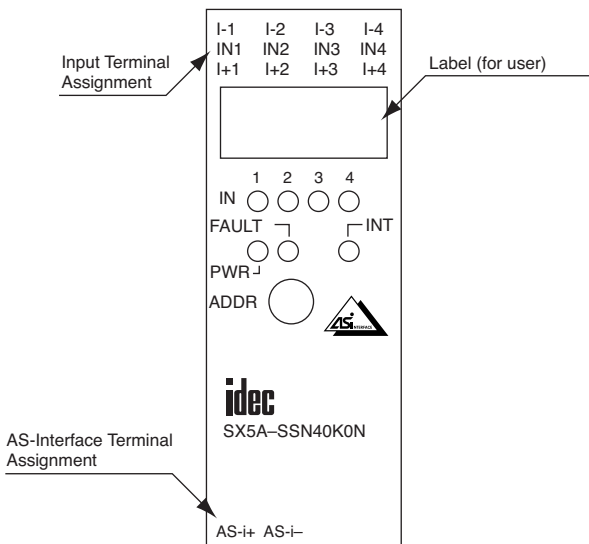
**SX5A-SWM43KS2N**



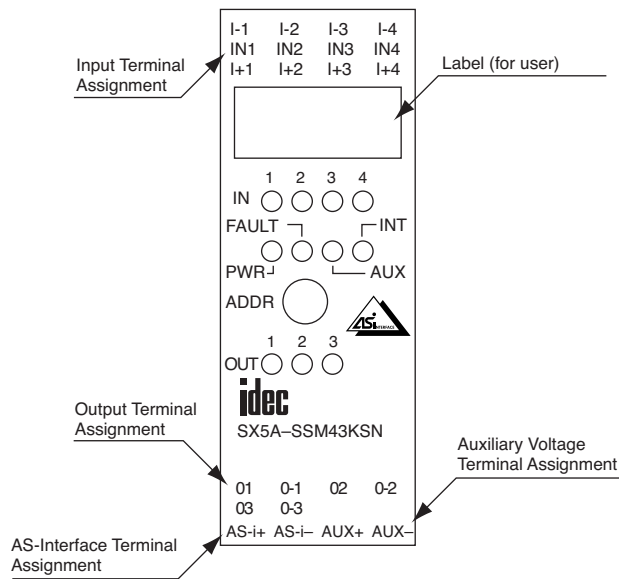
PLCs  
Operator Interfaces

**Terminal Arrangement**

**SX5A-SSN40S0N, SX5A-SSN40K0N**



**SX5A-SSM43KSN**

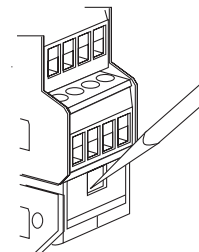


Automation Software  
Power Supplies

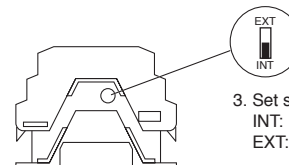
**Input Port Power Selection**

Power for input ports and connected sensors can be supplied from either inside (AS-Interface) or outside (external power supply). The selection is done using a switch inside the I/O module.

While the input power is supplied from inside, the INT LED remains on. While the input power is supplied from outside, the INT LED remains off. I/O statuses are indicated on the front LED indicators



1. Unlock  
Press on BOTH sides.
2. Open  
Pull upper part until STOP.



3. Set switch  
INT: sensor supply from AS-Interface  
EXT: external sensor supply

Switching the input power supply INT/EXT

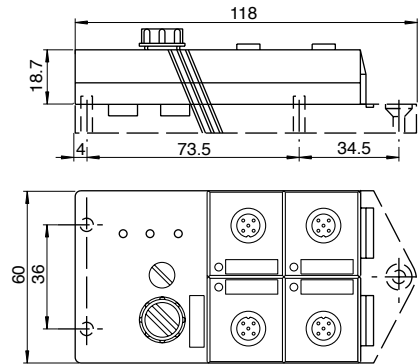
Sensors  
Communication & Networking



Dimensions

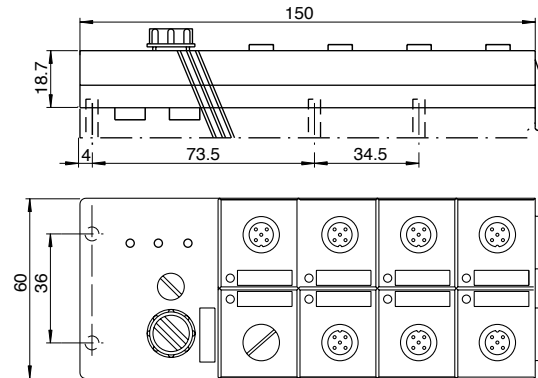
**SX5A-SWN40S02**  
**SX5A-SWN40K02N**  
**SX5A-SWM22KS2N**

Base module is separately ordered

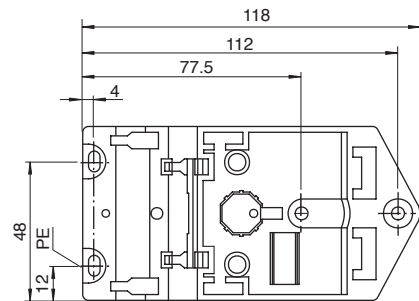


**SX5A-SWM43KS2N**

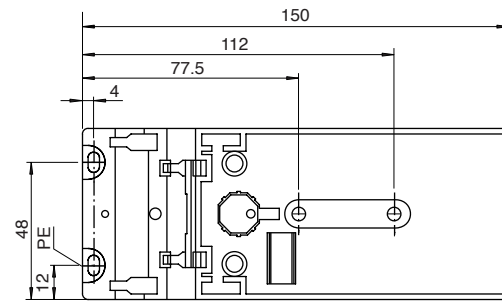
Base module is separately ordered



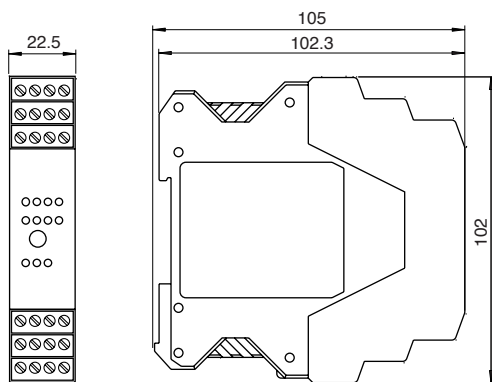
**SX5A-B3FF**



**SX5A-B2FF**



**SX5A-SSN40S0N**  
**SX5A-SSN40K0N**  
**SX5A-SSM43KS2N**



All dimensions in mm.

PLCs

Operator Interfaces

Automation Software

Power Supplies

Sensors

Communication & Networking

**Repeater**

**SX5A-RP1**

- No address setting required
- An AS-Interface network can be extended up to 300 m.
- IP65 protection
- Insulation displacement technology allows easy connection to AS-Interface flat cables.
- Input status of AS-Interface 1 and 2 are displayed with LED indicators.
- The SX5A-RP1 repeater is used to extend the AS-Interface cable. One repeater extends the length of network up to 100 m. A maximum of two repeaters can be used in a network, enabling the construction of a network of up to 300 m.



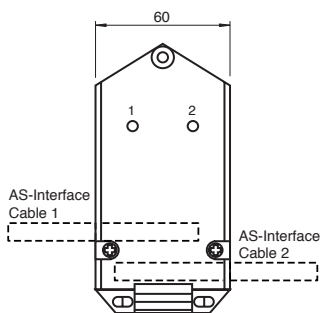
**Specifications**

Models		SX5A-RP1
General	Input Voltage	26.5 to 31.6V DC
	Current	60mA (per segment), 120mA (total)
	Operating Temperature	0 to +55°C (no freezing)
	Storage Temperature	-25 to +75°C (no freezing)
	Operating Humidity	30 to 95% RH (no condensation)
	Degree of Protection	IP65
	Insulation Resistance	5 MΩ minimum (500V DC megger)
	Dielectric Strength	1000V AC, 1 minute
	Applicable Wire	AS-Interface flat cable
	Weight	Approx. 170g
	Dimensions	60W x 118.5H x 22.5D mm
	Mounting	Screw mounting
	Standard	CE

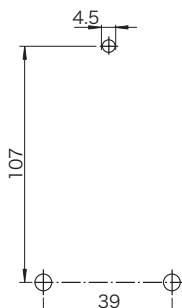
**LED Indicators (see Dimensions)**

Indicators	Color (when ON)	Description
AS-Interface 1	Green	Power is supplied to line 1.
AS-Interface 2	Green	Power is supplied to line 2.

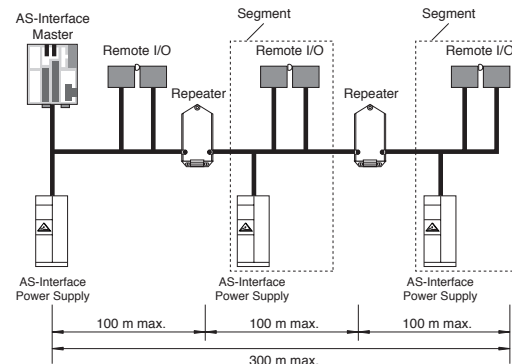
**Dimensions**



**Mounting Hole Layout**



**System Setup**



All dimensions in mm.

PLCs

Operator Interfaces

Automation Software

Power Supplies

Sensors

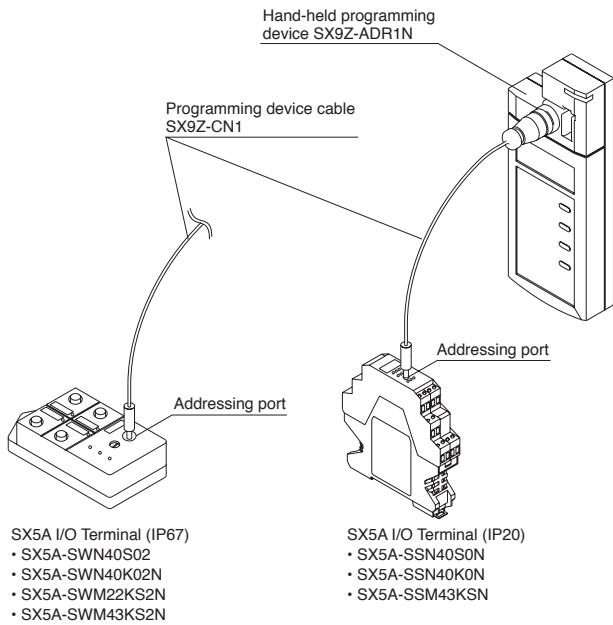
Communication & Networking

### Address Assignment for Communication Terminals

Remove the protection cap from the addressing port on the I/O module.

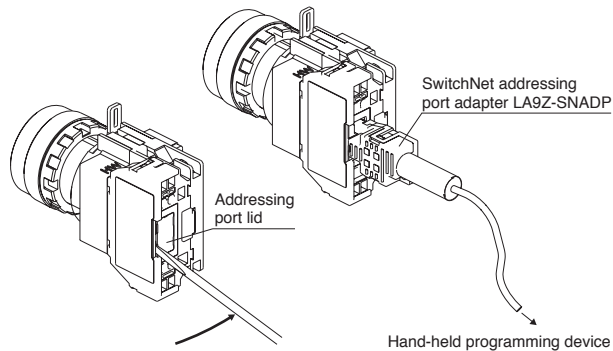
Connect the hand-held programming device (SX9Z-ADR1N) to the addressing port on the I/O module using the programming device cable (SX9Z-CN1), then the I/O module stops communication through the AS-Interface line. Change slave addresses using the programming device.

For addressing procedures, see the user's manual for the hand-held programming device.



### Using SwitchNet Addressing Port Adapter on HW

To open the addressing port lid, insert a screwdriver into the side slot as shown. Do not lose the lid.

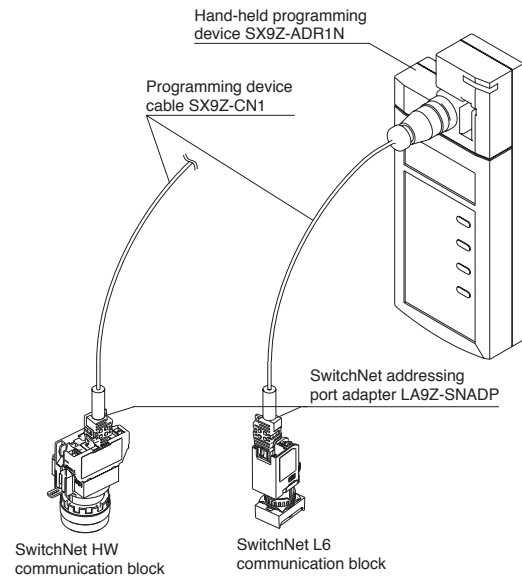


Attach the addressing port adapter to the programming device cable and insert the addressing port adapter into the addressing port on the communication block.

### Address Assignment for SwitchNet

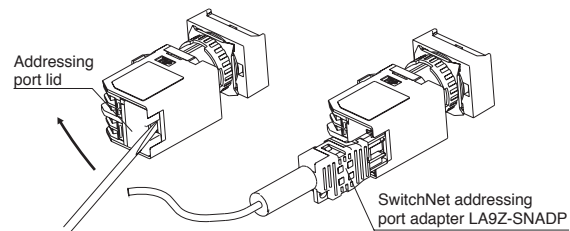
Turn off the power to the SwitchNet control unit and open the lid of the addressing port. Connect the programming device cable (SX9Z-CN1) to the hand-held programming device (SX9Z-ADR1N) and attach the SwitchNet addressing port adapter (LA9Z-SNADP) to the programming device cable (SX9Z-CN1). Insert the addressing port adapter into the addressing port on the SwitchNet control unit. Change slave address using the programming device.

For addressing procedures, see the user's manual for the hand-held programming device. After completing address assignment, reattach the lid to the addressing port.



### Using SwitchNet Addressing Port Adapter on L6

To open the addressing port lid, insert a screwdriver into the right-side hole as shown. The addressing port lid can be removed from the communication block by pulling it out.



Attach the addressing port adapter to the programming device cable and insert the addressing port adapter into the addressing port on the communication block.

**Hand-held Programming Device**

Model	SX9Z-ADR1N
<b>Standards</b>	CE
<b>Power Supply</b>	Powered by built-in battery (recharged using AC adapter)
<b>Operation Time</b>	8 hours or 250 read/write operations after full charge
<b>Charging Time</b>	Approx. 14 hours
<b>Operating Temperature</b>	0 to +55°C
<b>Storage Temperature</b>	-25 to +85°C (no freezing)
<b>Degree of Protection</b>	IP20
<b>Weight</b>	Approx. 275g
<b>Communication Specifications</b>	AS-Interface Version 2.1
<b>Operation</b>	Slave address assignment and data read/write (compatible with the 62-slave mode)
<b>Connection</b>	Connects to a slave using programming device cable

PLCs

Operator Interfaces

Automation Software

Power Supplies

Sensors

Communication &amp; Networking