Before Use

Fieldbus system

EX500-GPN2

Thank you for purchasing an SMC EX500 Series Fieldbus system.
Please read this manual carefully before operating the product and make sure you understand its capabilities and limitations. Please keep this manual handy for future reference.

To obtain the operation manual about this product and control unit, please refer to the SMC website (URL http://www.smcworld.com) or contact SMC directly.

Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage.
These instructions indicate the level of potential hazard with the labels of "Caution", "Warning" or "Danger". They are all important notes for safety and must be followed in addition to International standards (ISO/IEC) and other safety regulations.

⚠ Caution: CAUTION indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: WARNING indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

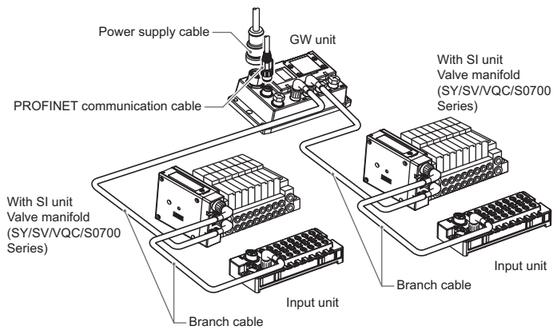
⚠ Danger: DANGER indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

Operator

- The operation manual is intended for those who have knowledge of machinery using pneumatic equipment, and have sufficient knowledge of assembly, operation and maintenance of such equipment. Only those persons are allowed to perform assembly, operation and maintenance.
- Read and understand the operation manual carefully before assembling, operating or providing maintenance to the product.

Product Summary

○**System configuration**

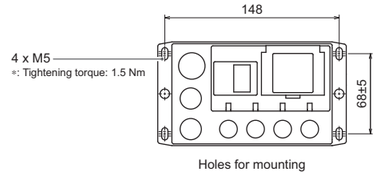


The EX500 range of units can be connected to open fieldbus (PROFINET) to realize the reduction of input or output device wiring and the distributed control system.
One branch of manifold valves/input unit can be connected to 32 outputs/32 inputs.
Up to 4 branches can be connected (total 128 outputs/128 inputs).

Mounting and Installation

■Installation

•Direct mounting
Install the product using 4 M5 screws x 15 mm or longer with a head ø5.2 minimum.

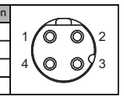


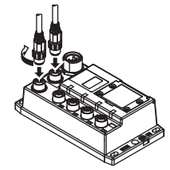
■Wiring

1. Communication wiring
Connect the PROFINET communication cable to the communication connector.

Communication connector pin layout (Port1/Port2)
M12, 4 pin, socket, D code

No.	Description
1	TX+
2	RX+
3	TX-
4	RX-

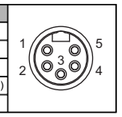


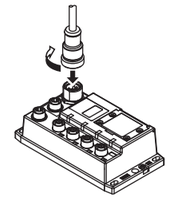


2. Power supply wiring
Connect a power supply cable to the power supply connector on the GW unit.

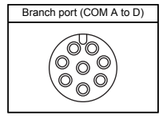
Power supply connector pin layout
7/8 inch, 5 pin, plug

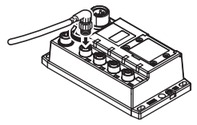
No.	Description
1	0 VDC (For solenoid valves)
2	0 VDC (For input and control)
3	FE
4	24 VDC (For input and control)
5	24 VDC (For solenoid valves)





3. Branch wiring
Connect the manifold valves with SI unit or an input unit to a branch port (COM A to D) using a branch cable (cable with M12 connector).
One branch port can be connected with up to 32 inputs and 32 outputs (max. 4 units).





Select the specified branch cable below.

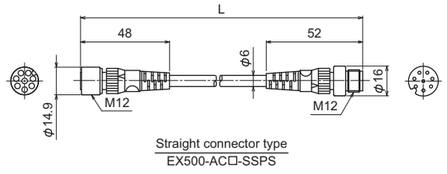
How to order: EX500-AC 030 - SSPS

Cable length (L)

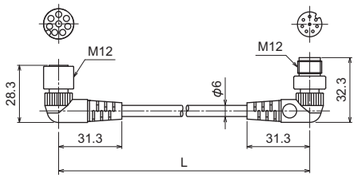
003	0.3 [m]
005	0.5 [m]
010	1 [m]
030	3 [m]
050	5 [m]
100	10 [m]

Connector

SSPS	Socket side: Straight Plug side: Straight
SAPA	Socket side: Angled Plug side: Angled



Straight connector type
EX500-AC□-SSPS

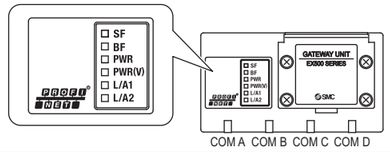


Angled connector type
EX500-AC□-SAPA

(unit: mm)

Minimum acceptable cable bending radius: 40 mm (fixed)

LED Display



Display		Description
SF	LED is OFF	Operating normally
	Red LED is ON	Abnormality detected
BF	LED is OFF	Operating normally
	Red LED is ON	Communication not established
PWR	LED is OFF	Power for input and control is not supplied
	Green LED is ON	Power for input and control is supplied
PWR(V)	LED is OFF	Power for valves is not supplied
	Green LED is ON	Power for valves is supplied
L/A1	LED is OFF	No Link, No Activity (Port1)
	Green LED is ON	Link (Port1)
	Orange LED is ON	Activity (Port1)
L/A2	LED is OFF	No Link, No Activity (Port2)
	Green LED is ON	Link (Port2)
	Orange LED is ON	Activity (Port2)
COM A to D	LED is OFF	Not connected
	Green LED is ON	Operating normally
	Green LED is flashing	Abnormality detected

Maintenance

- Maintenance should be performed according to the Safety Instructions.
- Perform regular maintenance and inspections.
  There is a risk of unexpected malfunction.
- Do not use solvents such as benzene, thinner etc. to clean each unit.
  They could damage the surface of the body and erase the markings on the body.
  Use a soft cloth to remove stains.
  For heavy stains, use a cloth soaked with diluted neutral detergent and fully squeezed, then wipe up the stains again with a dry cloth.

Refer to the SMC website (URL http://www.smcworld.com) to obtain more detailed information about maintenance.

■Safety Instructions

⚠ Warning

■**Do not disassemble, modify (including changing the printed circuit board) or repair.**
An injury or failure can result.

■**Do not operate the product outside of the specifications.**
Do not use for flammable or harmful fluids.
Fire, malfunction, or damage to the product can result.
Verify the specifications before use.

■**Do not operate in an atmosphere containing flammable or explosive gases.**
Fire or an explosion can result.
This product is not designed to be explosion proof.

■**If using the product in an interlocking circuit:**
•Provide a double interlocking system, for example a mechanical system.
•Check the product regularly for proper operation.
Otherwise malfunction can result, causing an accident.

■**The following instructions must be followed during maintenance:**
•Turn off the power supply.
•Stop the air supply, exhaust the residual pressure and verify that the air is released before performing maintenance.
Otherwise an injury can result.

⚠ Caution

■**When handling the unit or assembling/replacing units:**
•Do not touch the sharp metal parts of the connector or plug for connecting units.
•Take care not to hit your hand when disassembling the unit.
The connecting portions of the unit are firmly joined with seals.
•When joining units, take care not to get fingers caught between units.
An injury can result.

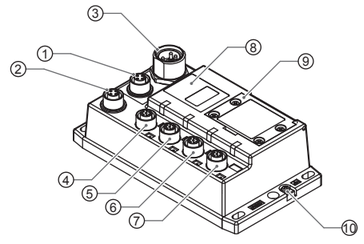
■**After maintenance is complete, perform appropriate functional inspections.**
Stop operation if the equipment does not function properly.
Safety cannot be assured in the case of unexpected malfunction.

■**Provide grounding to assure the safety and noise resistance of the Serial System.**
Individual grounding should be provided close to the product with a short cable.

■NOTE

- The direct current power supply to combine should be UL1310 Class 2 power supply when conformity to UL is necessary.

Summary of Product parts



No.	Description	Application
1	Communication connector (Port1/IN)	Connect PROFINET line.
2	Communication connector (Port2/OUT)	
3	Power supply connector	Connector to supply power to the output devices such as solenoid valves and input and control equipment such as sensors.
4	Branch port A (COM A)	Connect the SI unit (with manifold valves) or input unit using a branch cable.
5	Branch port B (COM B)	
6	Branch port C (COM A)	
7	Branch port D (COM D)	
8	Display window	Displays the status of the power supply and the communication with the PLC.
9	Protective cover	This protective cover should not be opened.
10	Grounding terminal (FE)	Used for functional grounding. (It is recommended to ground with resistance of 100 ohms or less)

*: Seal cap is provided.

Setting

This product has no switches for setting. Therefore the protective cover should not be opened.
•Parameter setting
•I/O map
•Hardware configuration
Refer to the SMC website (URL http://www.smcworld.com) to obtain more detailed information about these settings.

Troubleshooting

Refer to the LED Display. Refer to the SMC website (URL http://www.smcworld.com) to obtain more detailed information about troubleshooting.

Specification

Gateway distributed system 2 (128 points) specifications

Item	Specification
Number of points	128 inputs/128 outputs
Number of branches	4 (Input: Max. 32 points/Output: Max. 32 points per branch)
Slave connection number	Max. 16 devices (Input unit: Max. 2 devices/Output unit: Max. 2 devices per branch)
Branch cable length	20 m or less total extension per branch

When you use this system together with another product compatible with the gateway distributed system (64 points), please refer to the SMC website (URL http://www.smcworld.com) to obtain more detailed information about product.

GW unit specifications

Item	Specification
Power supply voltage range	Power supply for input and control: 24 VDC ±10% Power supply for solenoid valves: 24 VDC +10%/-5%
Rated current	Power supply for input and control: 6.2 A (GW unit internal current consumption: 200 mA or less) Power supply for solenoid valves: 4 A
Number of inputs and outputs	Input: Max. 128 points/Output: Max. 128 points
Enclosure rating	IP65
Ambient temperature range	Operation: -10 to 50 ℃, Storage: -20 to 60 ℃ (No condensation or freezing)
Operating humidity range	Operation, Storage: 35 to 85%RH (No condensation)
Operating atmosphere	No corrosive gas
Weight	550 g
Accessory	Seal cap (for M12 connector socket): 5 pcs.

Refer to the product catalog or SMC website (URL http://www.smcworld.com) to obtain more detailed information about product specifications.

Outline with Dimensions

Refer to the product catalog or SMC website (URL http://www.smcworld.com) to obtain more detailed information about outline dimensions.

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