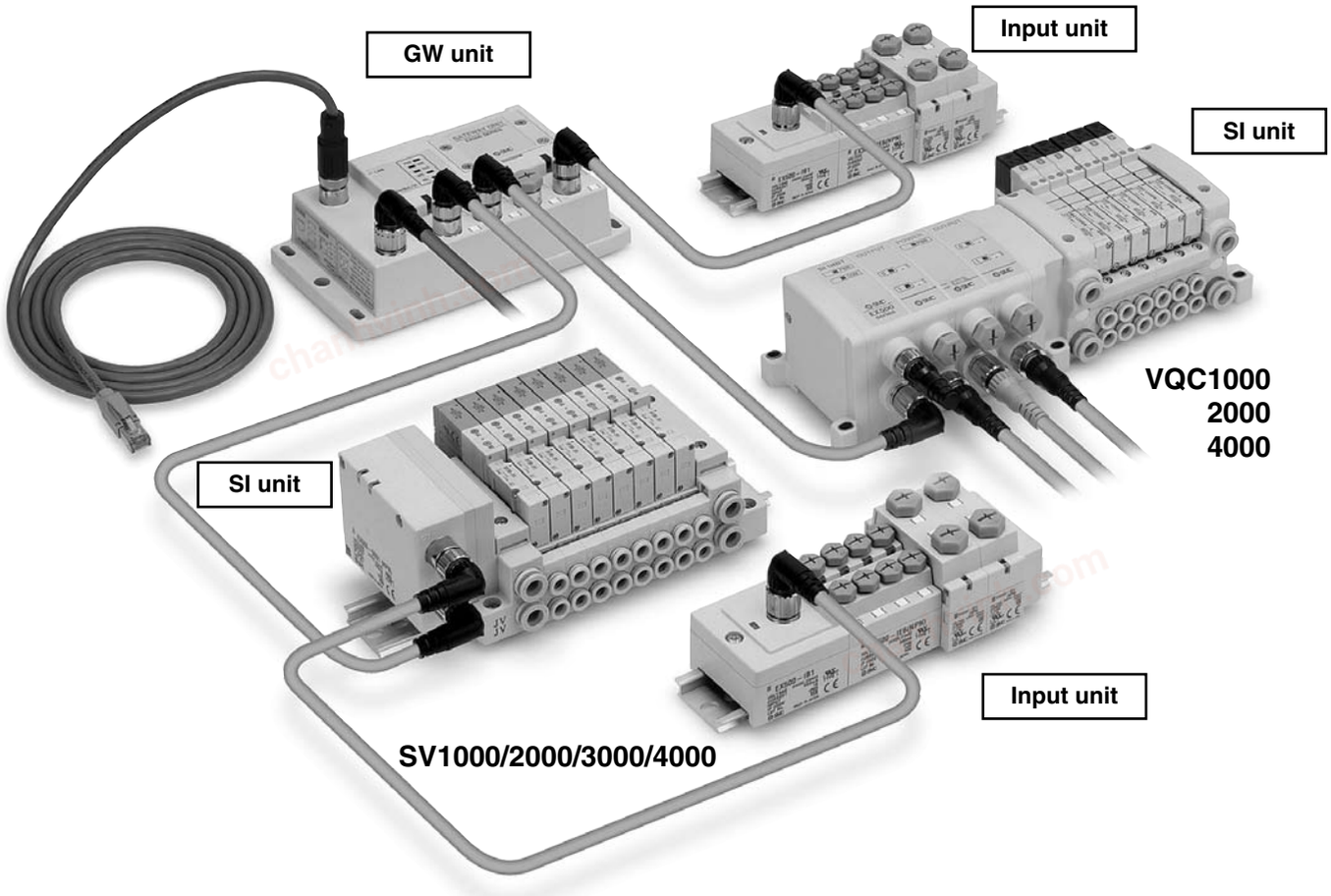
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Decentralized Serial Wiring (GW System, 4 Branches)

Series EX500

★Valve manifold and input unit manifold can be connected around the GW unit.
★Compatible with various protocols by replacing the GW unit.
★Compatible with 64-digital-outputs (16 points x 4 branches) and 64-digital-inputs (16 points x 4 branches).
★GW unit, Input unit manifold: IP65
★Valve manifold including SI unit: IP67



GW Unit



How to Order GW Unit

EX500 – G DN1

Communication protocol

DN1	DeviceNet
PR1A	PROFIBUS DP
MJ1	CC-Link
EN1	EtherNet/IP

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GW Unit Specifications

Model			EX500-GDN1	EX500-GPR1A	EX500-GMJ1	EX500-GEN1
Communication specification	Applicable system	Protocol	DeviceNet	PROFIBUS DP	CC-Link	EtherNet/IP
		Version Note 1)	Release 2.0	DP-V0	Ver. 1.10	Release 1.0
	Communication speed		125k/250k/500kbps	9.6 k/19.2 k/45.45 k/ 93.75 k/187.5 k/500 k/ 1.5 M/3 M/6 M/12 Mbps	156 k/625 k/ 2.5 M/5 M/10 Mbps	10 M/100 Mbps
	Specified file Note 2)		EDS file	GSD file	—	EDS file
	Occupied area (Number of inputs/outputs)		64/64	64/64	96/96 (3 stations, remote device station)	128/128
	Terminal resistor		Not applicable	Built in the unit (Switch setting)	Not applicable	
Power supply	For unit		11 to 25 VDC (Supplied by DeviceNet circuit, 50 mA or less)	24 VDC±20%		
	For sensors		24 VDC±20%			
	For valve		24 VDC±10%/–5%			
Internal current consumption (Unit)			200 mA or less (GW unit)			
Input specification	Number of inputs		64 points (16 points x 4 branches)			
	Connection input device		The EX500 series input unit manifold (connection from communication port A to D)			
	Supply voltage		24 VDC			
	Supply current		Max. 2.8 A (Max. 0.7 A per branch)			
Output specification	Number of outputs		64 points (16 points x 4 branches)			
	Connection output device		The EX500 series SI unit manifold (connection from communication port A to D)			
	Supply voltage		24 VDC			
	Supply current		Max. 3.0 A (Max. 0.75 A per branch)			
Branch cable length			5 m or less between connected devices (total extension 10 m or less)			
Environmental resistance	Enclosure		IP65			
	Operating temperature range		Operating: 5 to 45°C Stored: –25 to 70°C (with no freezing and condensation)			
	Operating humidity range		Operating, Stored: 35 to 85%RH (with no condensation)			
	Withstand voltage		1000 VAC for 1 min. between whole charging part and case			
	Insulation resistance		2 MΩ or more (500 VDC Mega) between whole charging part and case			
	Vibration resistance		10 to 150 Hz with a 0.7 mm amplitude or 50 m/s^2 in each X, Y, Z direction for 2 hrs (De-energized)			
	Impact resistance		150 m/s^2 in each X, Y, Z direction, 3 times (De-energized)			
Standard			CE marking, UL (CSA)			
Mass			470 g			
Accessory: Waterproof cap (for M12 connector socket)			EX500-AWTS (4 pcs.)	EX500-AWTS (5 pcs.)	EX500-AWTS (4 pcs.)	EX500-AWTS (5 pcs.)

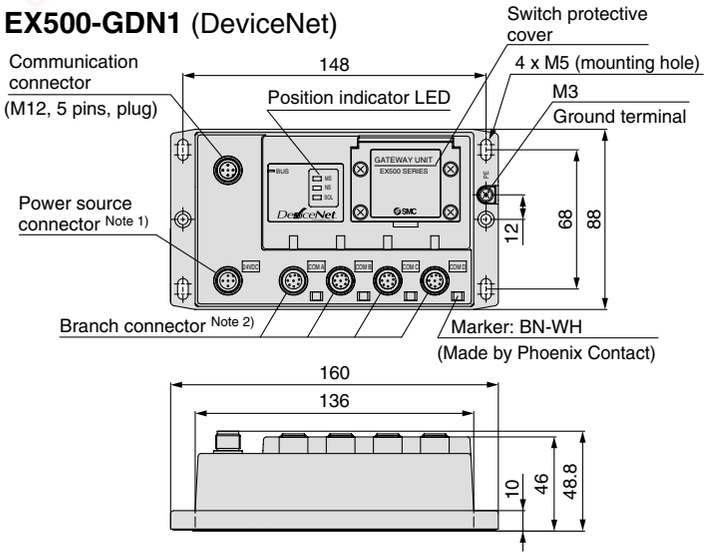
Note 1) Please note that the version is subject to change.
Note 2) Each file can be downloaded from SMC's website (http://www.smcworld.com/).
Note 3) For detailed specifications other than the above, refer to the separate technical operation manual can be downloaded from SMC's website (http://www.smcworld.com/).

EX

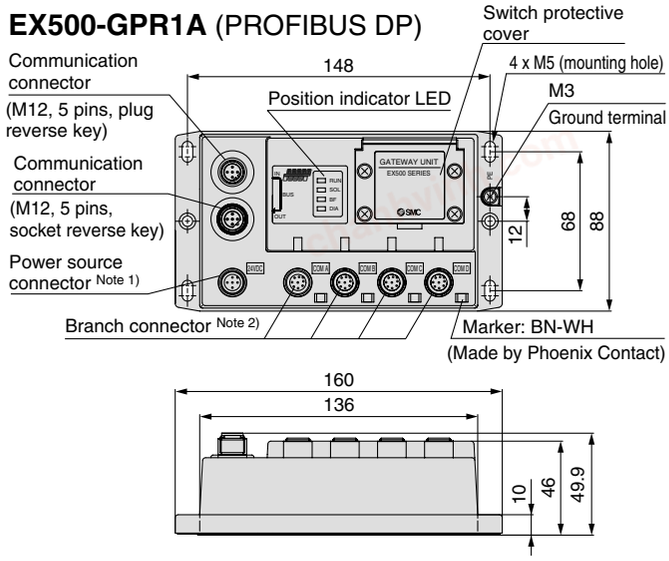
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GW Unit Dimensions / Parts Description

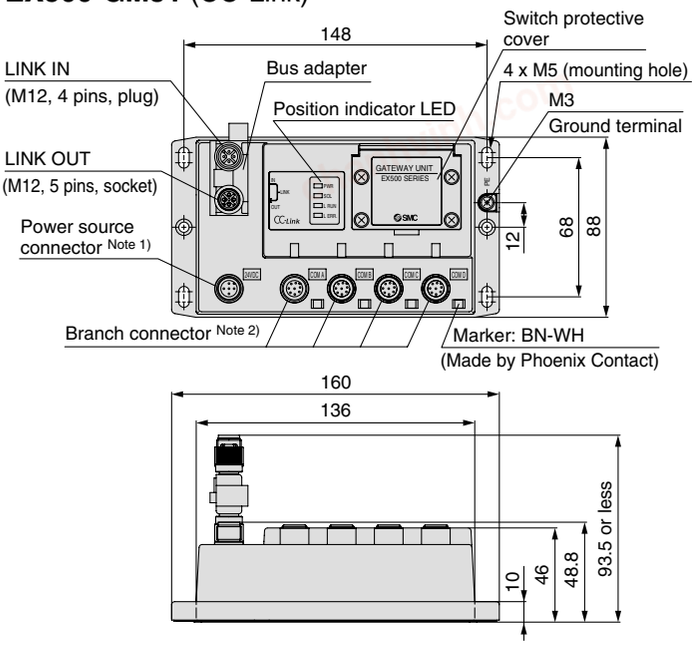
EX500-GDN1 (DeviceNet)



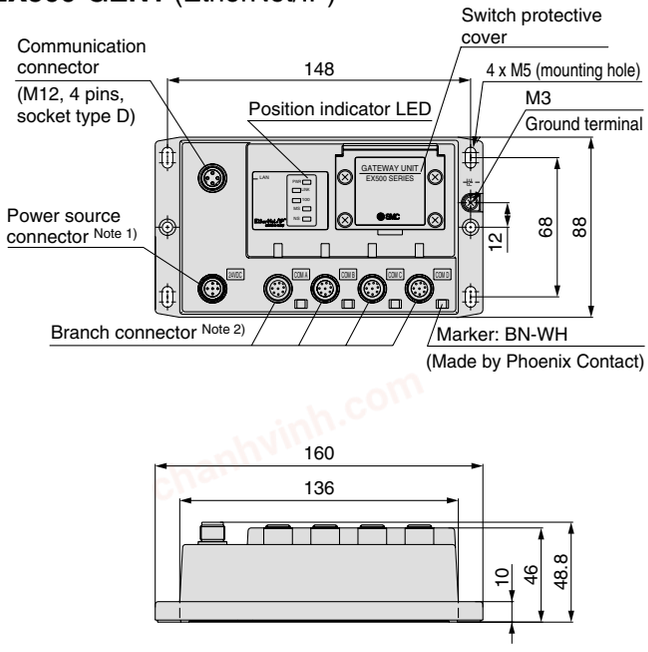
EX500-GPR1A (PROFIBUS DP)



EX500-GMJ1 (CC-Link)



EX500-GEN1 (EtherNet/IP)



Note 1) Power supply connector specification
(M12, 5 pins, plug)
Note 2) Branch connector specification
(M12, 8 pins, socket)

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Input Unit Manifold



How to Order Input Manifold

EEX500−IB1−E 8

Connector type

E	M8 connector
T	M12 connector
M	M8, M12 mixed

Stations

1	1 station
⋮	⋮
8	8 stations

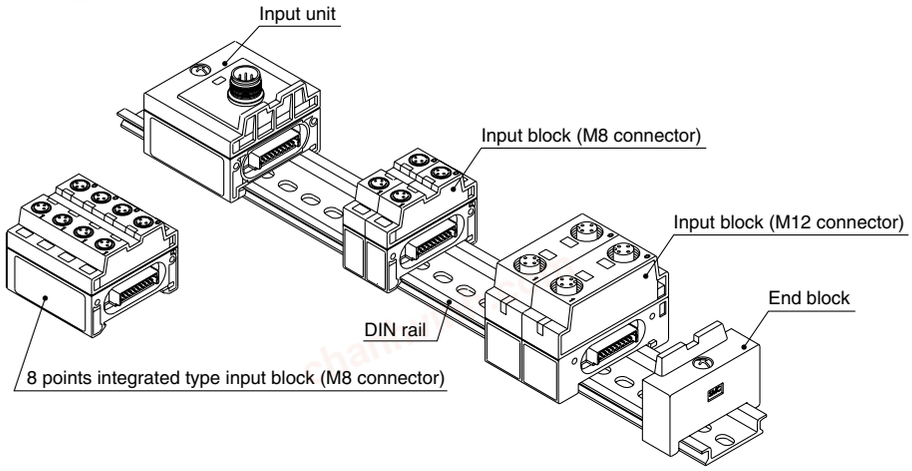
How to Order Input Block

EX500−IE 1

Block type

1	M8 connector, 2 inputs, PNP specification
2	M8 connector, 2 inputs, NPN specification
3	M12 connector, 2 inputs, PNP specification
4	M12 connector, 2 inputs, NPN specification
5	M8 connector, 8 points integrated type, PNP specification
6	M8 connector, 8 points integrated type, NPN specification

For options, refer to pages 1689 to 1694.



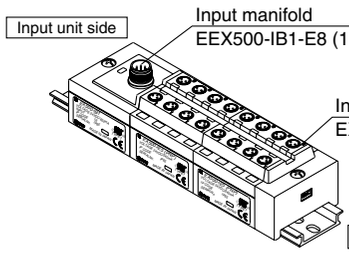
EX

How to Order Input Unit Manifold [Ordering Example]

When ordering an input unit manifold, enter the Input manifold part no. + Input block part no.
The Input unit, End block and DIN rail are included in the input manifold. Refer to the indications below.

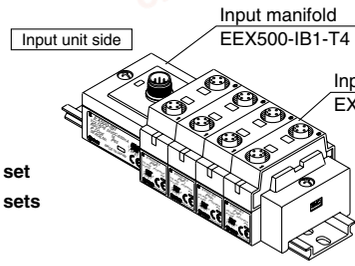
Block part no. entry
Input unit side
↓
End block side

Example 1) M8 input block only

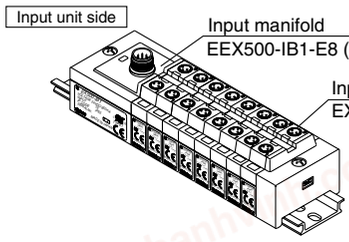


EEX500-IB1-E8 ····· **1 set**
∗ **EX500-IE5** ····· **2 sets**

Example 2) M12 input block only

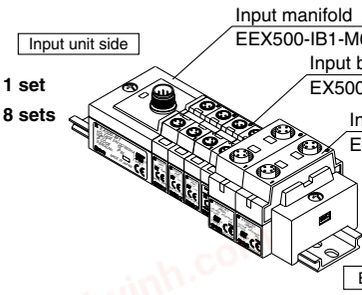


EEX500-IB1-T4 ····· **1 set**
∗ **EX500-IE4** ····· **4 sets**

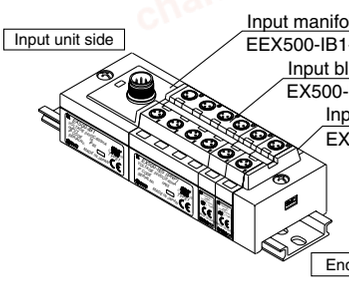


EEX500-IB1-E8 ····· **1 set**
∗ **EX500-IE1** ····· **8 sets**

Example 3) M8, M12 mixed



EEX500-IB1-M6 ····· **1 set**
∗ **EX500-IE1** ····· **4 sets**
∗ **EX500-IE3** ····· **2 sets**



EEX500-IB1-E6 ····· **1 set**
∗ **EX500-IE5** ····· **1 set**
∗ **EX500-IE1** ····· **2 sets**

Note) • Since the 8 points integrated type input block is equivalent to the length of four stations on an M8 input block, pay attention to the number of stations on an input manifold.
• When an input block layout becomes complicated, indicate in the input unit manifold specification sheet.

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Input Unit Specifications

Model		EX500-IB1
Internal current consumption		100 mA or less
Input specification	Number of inputs	16 points
	Connection block	The EX500 series input block (possible to be positioned with others)
	Connection block stations	2-input, input block: Max. 8 stations 8-input, input block: Max. 2 stations
Environmental resistance	Enclosure	IP65
	Operating temperature range	Operating: 5 to 45°C Stored: –25 to 70°C (with no freezing and condensation)
	Operating humidity range	Operating, Stored: 35 to 85%RH (with no condensation)
	Withstand voltage	1000 VAC for 1 min. between whole charging part and case
	Insulation resistance	2 MΩ or more (500 VDC Mega) between whole charging part and case
	Vibration resistance	10 to 150 Hz with a 0.7 mm amplitude or 50 m/s^2 in each X, Y, Z direction for 2 hrs (De-energized)
	Impact resistance	150 m/s^2 in each X, Y, Z direction, 3 times (De-energized)
Standard		CE marking, UL (CSA)
Mass		100 g (Input unit + End block)

Input Block Specifications

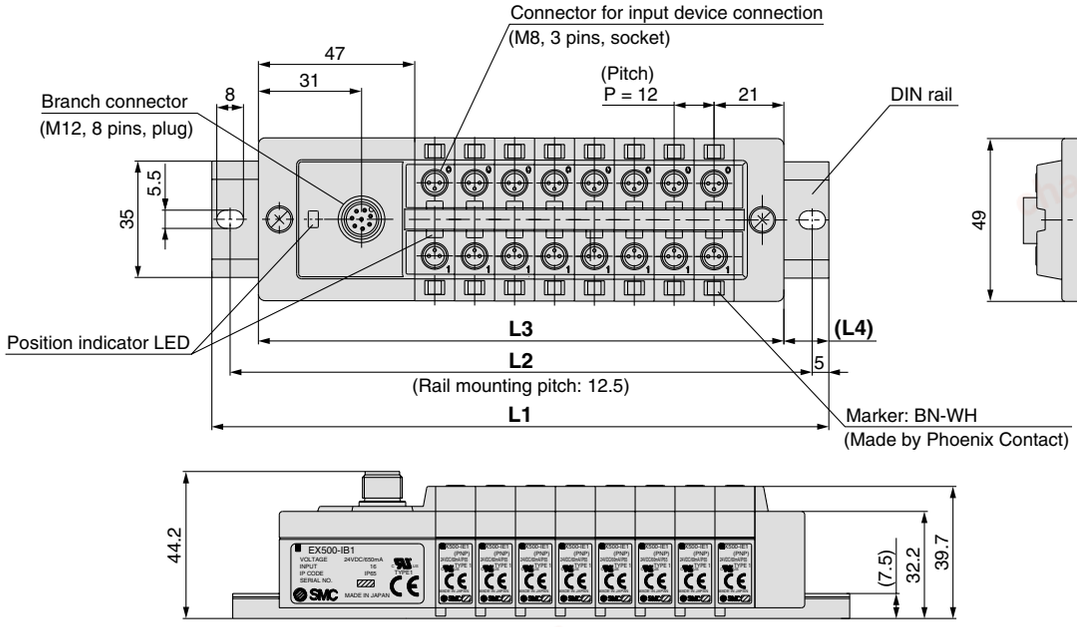
Model		EX500-IE1	EX500-IE2	EX500-IE3	EX500-IE4	EX500-IE5	EX500-IE6
Input specification	Input type	PNP sensor input	NPN sensor input	PNP sensor input	NPN sensor input	PNP sensor input	NPN sensor input
	Number of inputs	2 points				8 points	
	Input device supply voltage	24 VDC					
	Input device supply current	Max. 480 mA/Input unit manifold					
	Rated input current	Approx. 5 mA					
	Display	Green LED (Lights when power is turned ON.)					
	Connector on the input device side	M8 connector (3 pins, plug)		M12 connector (4 pins, plug)		M8 connector (3 pins, plug)	
Environmental resistance	Enclosure	IP65					
	Operating temperature range	Operating: 5 to 45°C Stored: –25 to 70°C (with no freezing and condensation)					
	Operating humidity range	Operating, Stored: 35 to 85%RH (with no condensation)					
	Withstand voltage	1000 VAC for 1 min. between whole charging part and case					
	Insulation resistance	2 MΩ or more (500 VDC Mega) between whole charging part and case					
	Vibration resistance	10 to 150 Hz with a 0.7 mm amplitude or 50 m/s^2 in each X, Y, Z direction for 2 hrs (De-energized)					
	Impact resistance	150 m/s^2 in each X, Y, Z direction, 3 times (De-energized)					
Standard		CE marking, UL (CSA)					
Mass		20 g		40 g		55 g	
Accessory: Waterproof cap	(for M8 connector socket)	EX500-AWES (2 pcs.)		—		EX500-AWES (8 pcs.)	
	(for M12 connector socket)	—		EX500-AWTS (2 pcs.)		—	

Note) For detailed specifications other than the above, refer to the separate technical operation manual that can be downloaded from SMC's website (http://www.smcworld.com/).

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Input Unit Manifold Dimensions / Parts Description

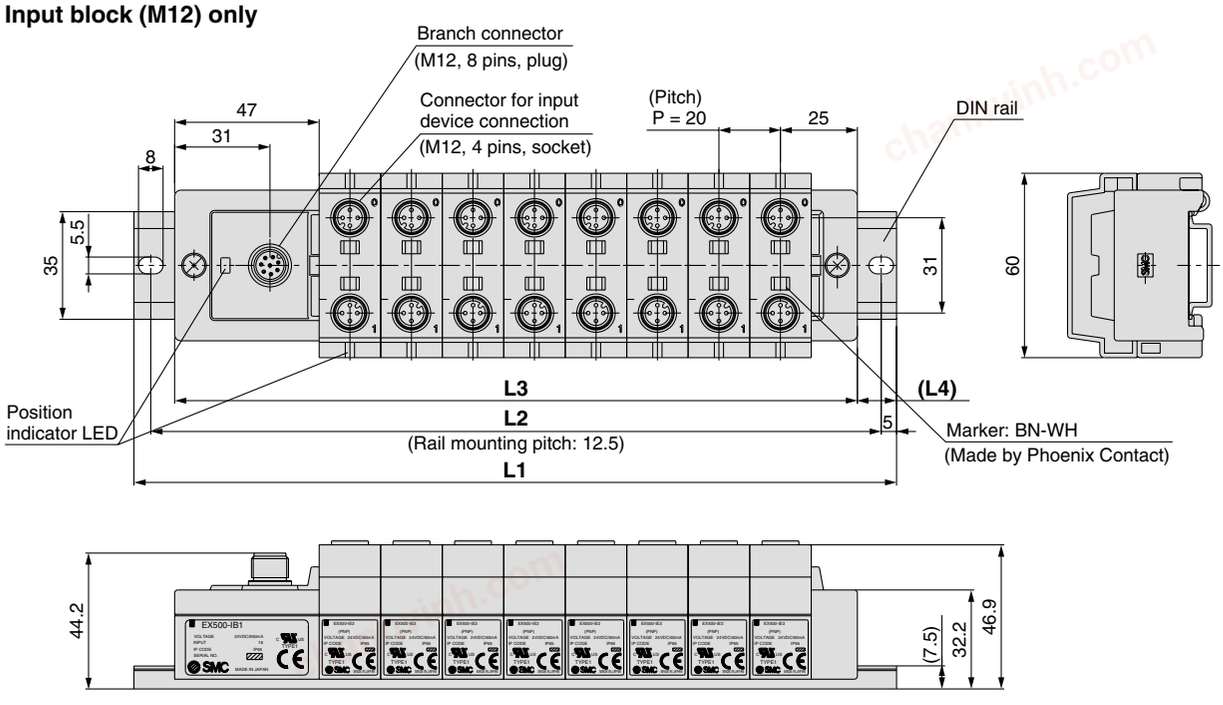
Input block (M8) only



(mm)

Stations	1	2	3	4	5	6	7	8
Rail length **L1**	98	110.5	123	135.5	148	160.5	173	185.5
Mounting pitch **L2**	87.5	100	112.5	125	137.5	150	162.5	175
Manifold length **L3**	74	86	98	110	122	134	146	158
L4	12	12	12.5	12.5	13	13	13.5	13.5

Input block (M12) only



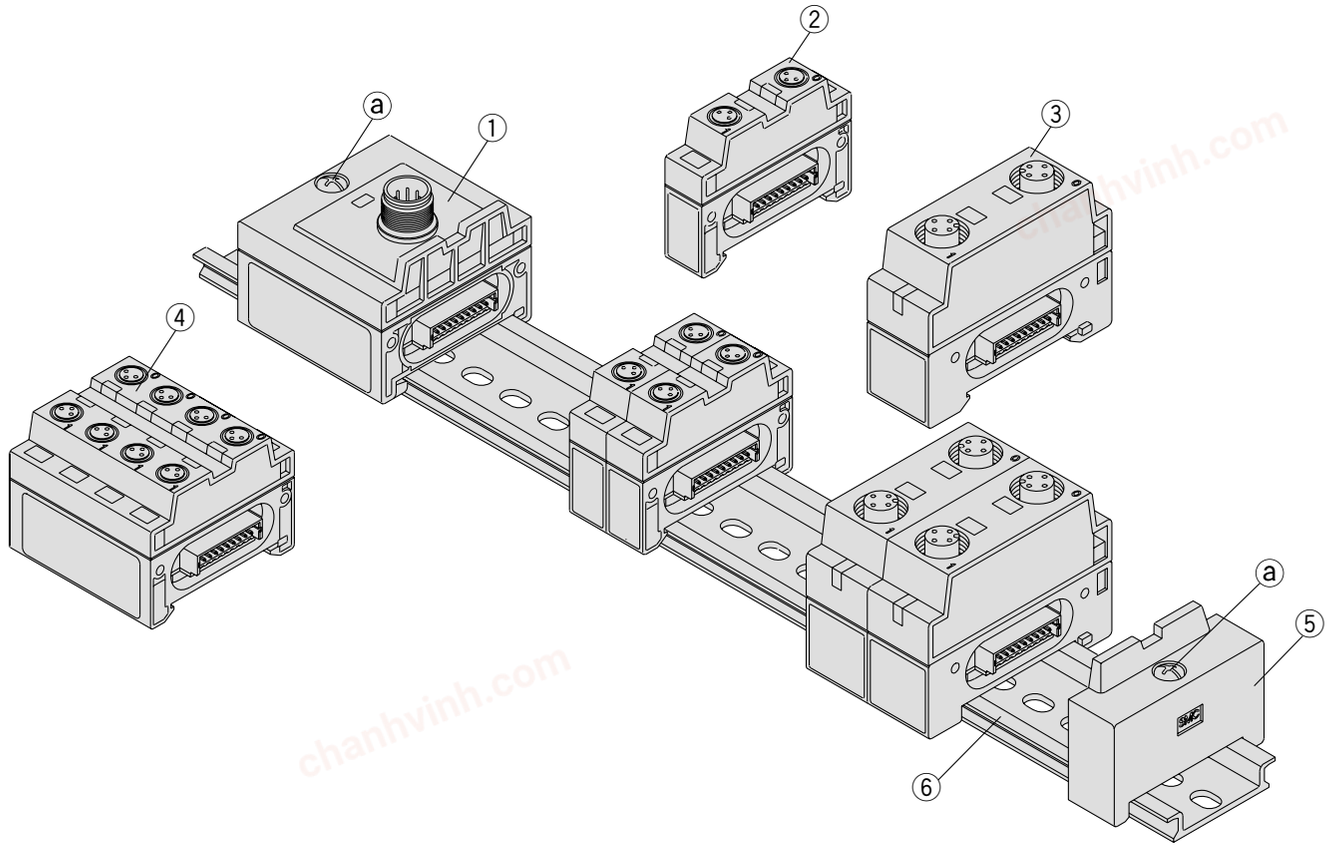
(mm)

Stations	1	2	3	4	5	6	7	8
Rail length **L1**	110.5	123	148	173	185.5	210.5	223	248
Mounting pitch **L2**	100	112.5	137.5	162.5	175	200	212.5	237.5
Manifold length **L3**	82	102	122	142	162	182	202	222
L4	12	12	12.5	12.5	13	13	13.5	13.5

EX

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Input Unit Manifold Exploded View



Parts List

No.	Description	Part no.	Note
		For standard	
1	**Input unit**	EX500-IB1	
2	**Input block (M8 connector)**	EX500-IE□	PNP specification ··· □: 1, NPN specification ··· □: 2
3	**Input block (M12 connector)**	EX500-IE□	PNP specification ··· □: 3, NPN specification ··· □: 4
4	**Input block (M8 connector) 8 points integrated type**	EX500-IE□	PNP specification ··· □: 5, NPN specification ··· □: 6
5	**End block**	EX500-EB1	
6	**DIN rail**	VZ1000-11-1-□	□: No. based on L dimension (Refer to the table below.)

How to add input block stations

1 Loosen the screws ⓐ (2 places) that hold the end block.

2 Separate the blocks at the locations where stations are to be added.

3 Attach the additional blocks to the DIN rail, and connect the blocks so that they fit together securely.

4 While holding the blocks together so that there are no gaps between them, secure them to the DIN rail by tightening the screws ⓐ.
Note: Be sure to tighten the round head combination screw with the prescribed tightening torque. (0.6 N·m)

DIN Rail L Dimensions [mm]

Stations	M8 input block (m)								
M12 input block (n)	0	1	2	3	4	5	6	7	8
0		0	1	2	3	4	5	6	7
1	1	2	3	4	5	6	7	8	
2	2	3	4	5	6	7	8		
3	4	5	6	7	8	9			
4	6	7	8	9	10				
5	7	8	9	10					
6	9	10	11						
7	10	11							
8	12								

Connector type
For T (n = 1 to 8)

Connector type
For M (m + n = 2 to 8)

Connector type
For E (m = 1 to 8)

L dimensions

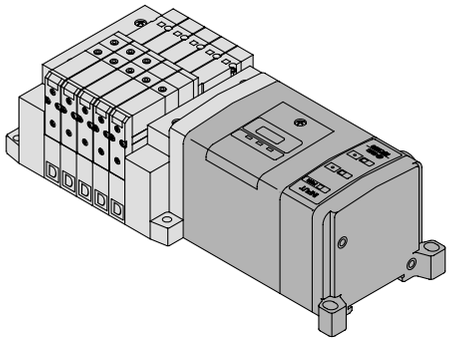
No.	L dimension	No.	L dimension
0	98	7	185.5
1	110.5	8	198
2	123	9	210.5
3	135.5	10	223
4	148	11	235.5
5	160.5	12	248
6	173		

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How to Order SI Unit

SI Unit

SV1000/2000/3000/4000



EX500 – S001

Applicable solenoid valve: SV series

For options, refer to pages 1689 to 1694.

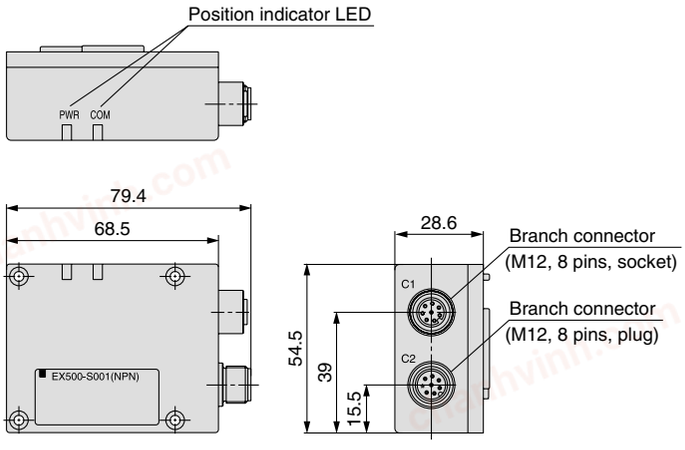
SI Unit Specifications (EX500-S001)

Model		EX500-S001
Internal current consumption		100 mA or less
Output specification	**Number of outputs**	16 points
	Connection block	Solenoid valve (single, double) Relay output module (1 ouput, 2 outputs)
	Connection block stations	Double solenoid valve, relay output module (2 outputs): Max. 8 stations Single solenoid valve, relay output module (1 output): Max. 16 stations
	Connection block supply current	Max. 0.65 A
Environmental resistance	**Enclosure**	IP67
	Operating temperature range	Operating: 5 to 45°C Stored: –25 to 70°C (with no freezing and condensation)
	Operating humidity range	Operating, Stored: 35 to 85%RH (with no condensation)
	Withstand voltage	1000 VAC for 1 min. between whole charging part and case
	Insulation resistance	2 MΩ or more (500 VDC Mega) between whole charging part and case
	Vibration resistance	10 to 150 Hz with a 0.7 mm amplitude or 50 m/s² in each X, Y, Z direction for 2 hrs (De-energized)
	Impact resistance	150 m/s² in each X, Y, Z direction, 3 times (De-energized)
Standard		CE marking, UL (CSA)
Mass		115 g
Accessory: Waterproof cap (for M12 connector socket)		EX500-AWTS (1 pc.)

Note) For detailed specifications other than the above, refer to the separate technical operation manual that can be downloaded from SMC's website (http://www.smcworld.com/).

SI Unit Dimensions / Parts Description

EX500-S001

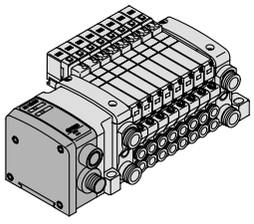


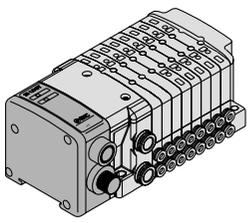
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Series EX500

SI Unit

VQC1000/2000/4000 **S0700**





How to Order SI Unit

EX500 – Q 0 0 1

Applicable solenoid valve:
VQC/S0700 series

SI unit COM.

0	+COM.
1	–COM.

SI unit type

1	For without EX9 output block
2	For EX9 output block mounting

For options, refer to page 1689 to 1694.

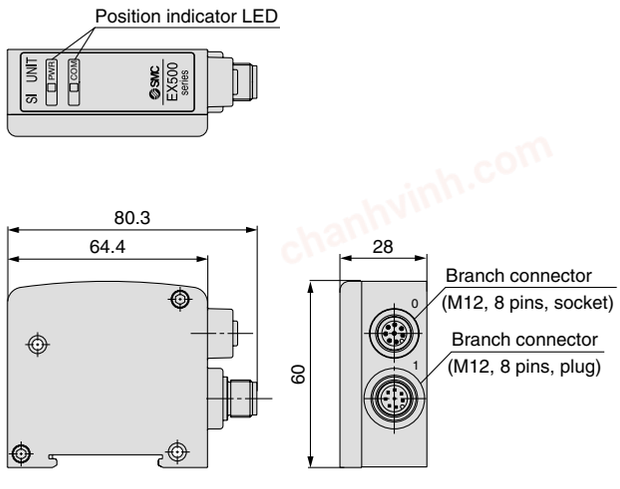
SI Unit Specifications (EX500-Q□0□)

Model		EX500-Q001	EX500-Q101	EX500-Q002	EX500-Q102
Internal current consumption		100 mA or less			
Output specification	**Number of outputs**	16 points			
	Output type	NPN output (sink type)	PNP output (source type)	NPN output (sink type)	PNP output (source type)
	Connection block	+COM. Solenoid valve (single, double)	–COM. Solenoid valve (single, double)	+COM. Note) Output block, power block Solenoid valve (single, double)	–COM. Note 1) Output block, power block Solenoid valve (single, double)
	Connection block stations	Double solenoid valve: Max. 8 stations Single solenoid valve: Max. 16 stations		Double solenoid valve, output block: Max. 8 stations Single solenoid valve: Max. 16 stations ∗ Power block is not included.	
	Connection block supply current	Max. 0.75 A			
Environmental resistance	**Enclosure**	IP67			
	Operating temperature range	Operating: 5 to 45°C Stored: –25 to 70°C (with no freezing and condensation)			
	Operating humidity range	Operating, Stored: 35 to 85%RH (with no condensation)			
	Withstand voltage	1000 VAC for 1 min. between whole charging part and case			
	Insulation resistance	2 MΩ or more (500 VDC Mega) between whole charging part and case			
	Vibration resistance	10 to 150 Hz with a 0.7 mm amplitude or 50 m/s² in each X, Y, Z direction for 2 hrs (De-energized)			
	Impact resistance	150 m/s² in each X, Y, Z direction, 3 times (De-energized)			
Standard		CE marking, UL (CSA)			
Mass		105 g			
Accessory: Waterproof cap (for M12 connector socket)		EX500-AWTS (1 pc.)			

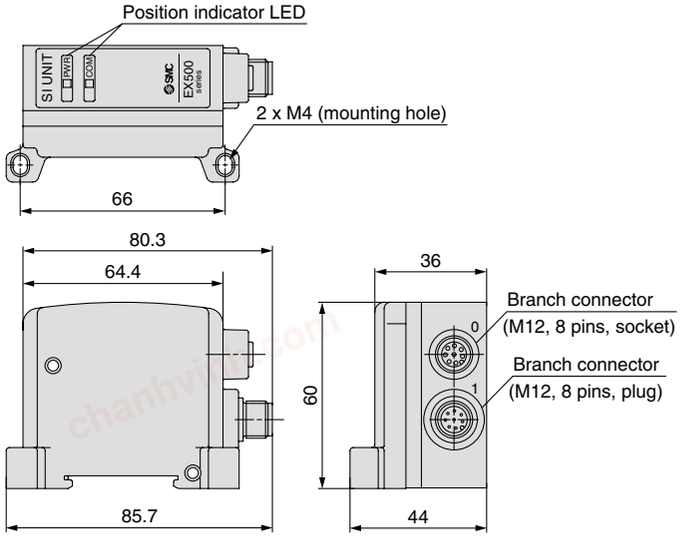
Note 1) For details of output block and power block, refer to page 1692.
Note 2) For detailed specifications other than the above, refer to the separate technical operation manual that can be downloaded from SMC's website (http://www.smcworld.com/).

SI Unit Dimensions / Parts Description

EX500-Q□01



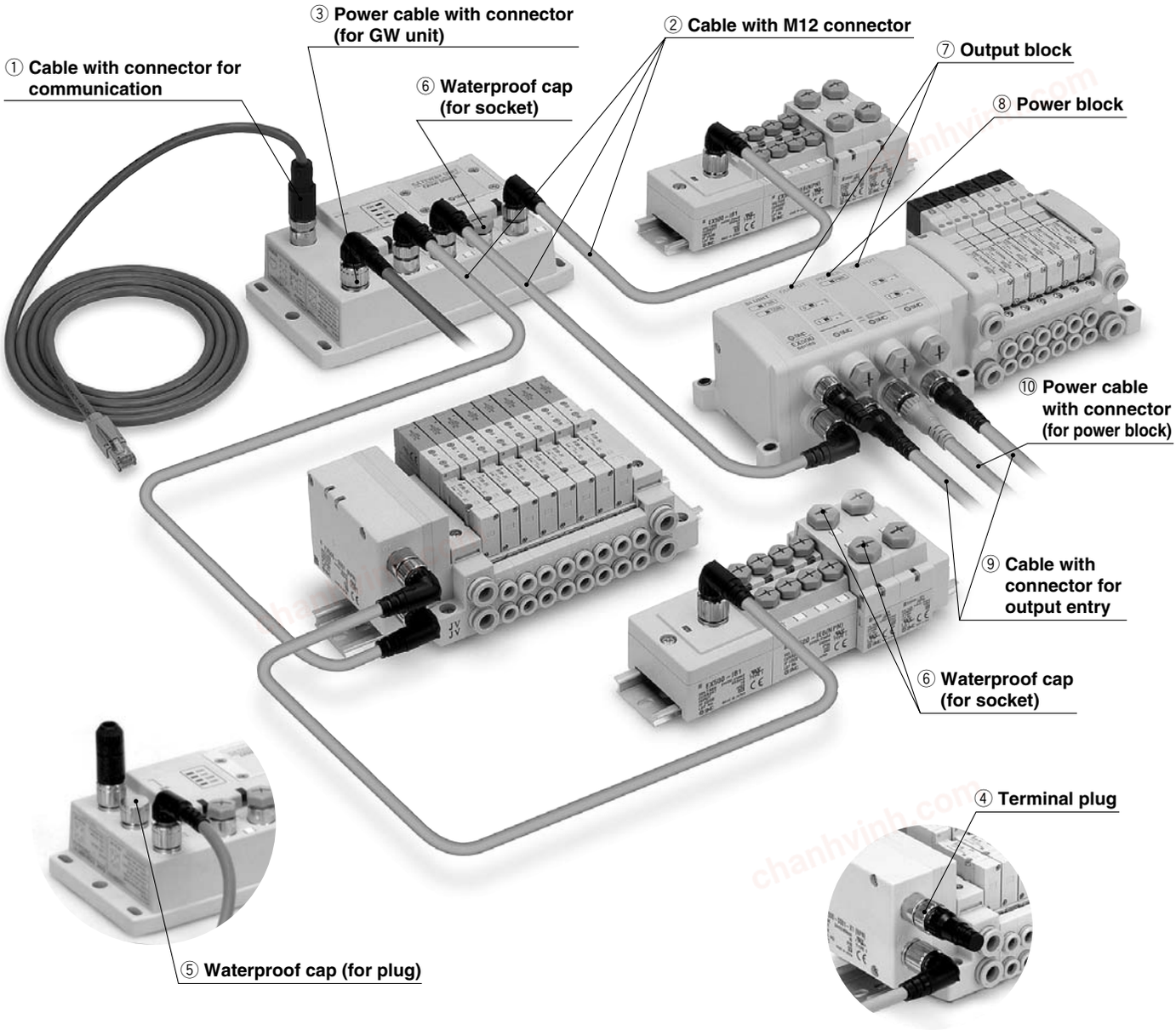
EX500-Q□02



SMC

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Options



EX

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Options

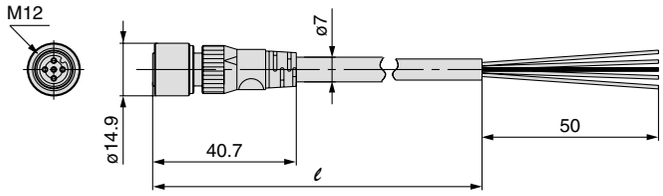
① Cable with communication connector

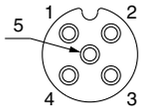
For DeviceNet type GW unit

EX500 – AC 050 – DN

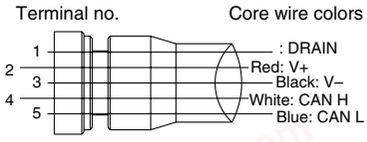
Cable length (ℓ)

010	1000 [mm]
050	5000 [mm]





Socket connector pin arrangement



Connections

For EtherNet/IP type GW unit

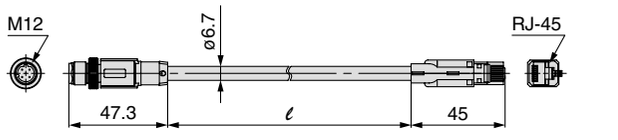
EX9 – AC 020 EN – PSRJ

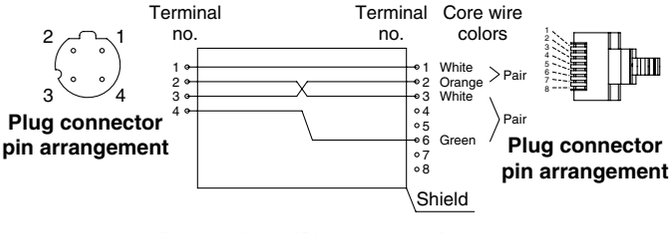
Cable length (ℓ)

020	2000 [mm]

Connector specification

PSRJ	M12 plug (straight)⇔RJ-45 connector





Plug connector pin arrangement

Plug connector pin arrangement

Connections (Straight cable)

② Cable with M12 connector

EX500 – AC 030 – SSPS

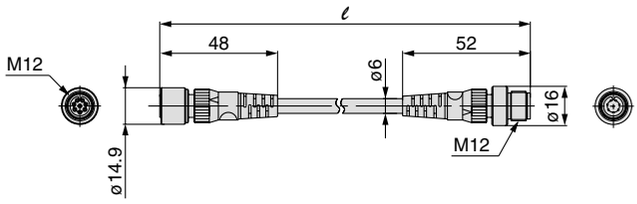
Cable length (ℓ)

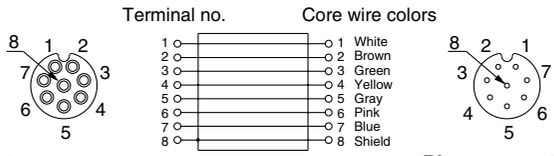
003	300 [mm]
005	500 [mm]
010	1000 [mm]
030	3000 [mm]
050	5000 [mm]

Connector specification

SSPS	Socket side: Straight, Plug side: Straight
SAPA	Socket side: Angle, Plug side: Angle

Straight connector type



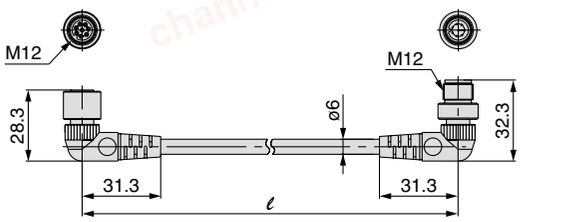


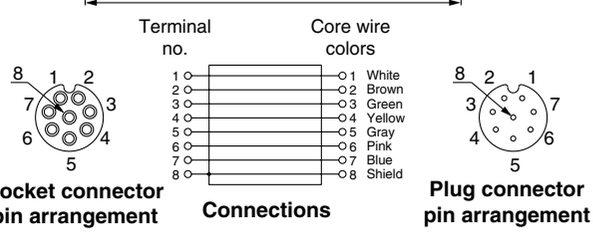
Socket connector pin arrangement

Connections

Plug connector pin arrangement

Angle connector type





Socket connector pin arrangement

Connections

Plug connector pin arrangement

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③ Power cable with connector (for GW unit)

EX500 − AP 050 − S

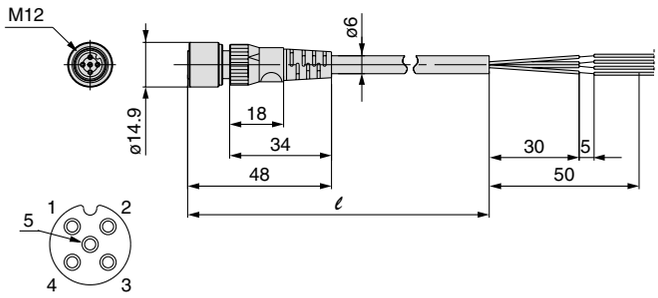
Cable length (ℓ)

010	1000 [mm]
050	5000 [mm]

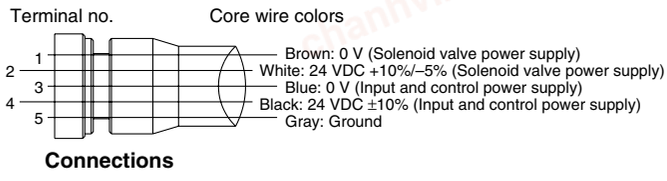
Connector specification

S	Straight
A	Angle

Straight connector type

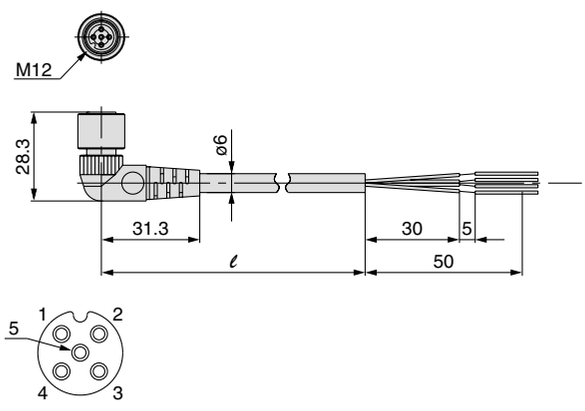


Socket connector pin arrangement

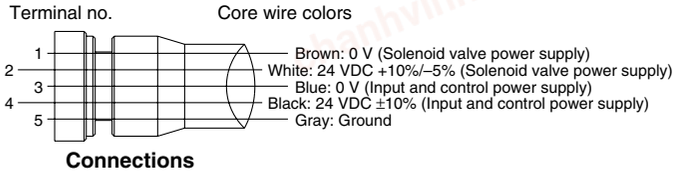


Connections

Angle connector type



Socket connector pin arrangement

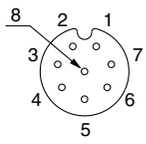


Connections

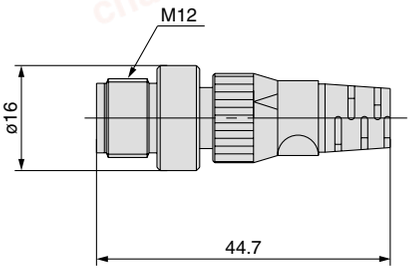
④ Terminal plug

This is used when an input manifold (input unit/input block) is not being used.
(If a terminal plug is not used, the GW unit is COM LED will not light up.)

EX500 − AC000 − S



Plug connector pin arrangement

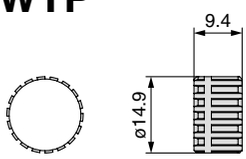


⑤ Waterproof cap: M12 connector (for plug)

Use this on ports that are not being used for an M12 connector (plug). Use of this waterproof cap maintains the integrity of the IP65 enclosure.

Note) Tighten the waterproof cap with the prescribed tightening torque. (For M12: 0.1 N•m)

EX500 − AWTP



⑥ Waterproof cap: M8, M12 connector (for socket) / Accessory

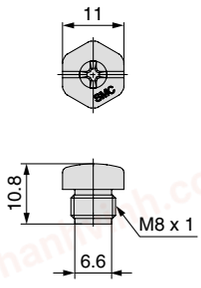
Use this on ports that are not being used for M8 and M12 connectors (socket).
Use of this waterproof cap maintains the integrity of the IP65 enclosure. (Included with each unit.)

Note) Tighten the waterproof cap with the prescribed tightening torque. (For M8: 0.05 N•m, For M12: 0.1 N•m)

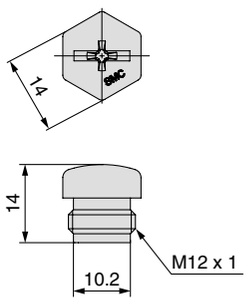
EX500 − AW ☐

Connector type

ES	M8 connector (for socket), 10 pcs.
TS	M12 connector (for socket), 10 pcs.



M8 connector (for socket)



M12 connector (for socket)

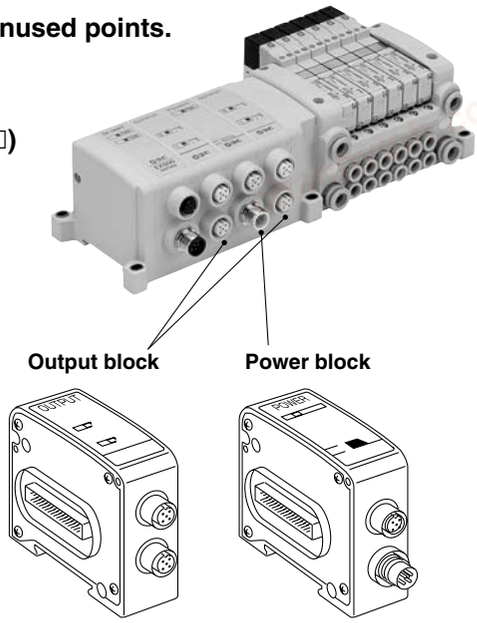
EX

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Options

⑦ Output block / ⑧ Power block

Features:
- **Able to retrofit to the valve manifold, using the unused points.**
- **2-output / 1-output block (M12 connector)**
- **+ common / – common are standardized.**
- **Able to drive by max. 0.5 A per point. (EX9-OEP□)**



How to Order Output Block

EX9 – OE T 1

Output specification

1	PNP output (–COM.)
2	NPN output (+COM.)

Power supply type

T	Internal power supply method (for low-wattage load)
P	Integrated power supply method (for high-wattage load) Note)

Note) Required to connect with a power block.

SI Unit Part No.

SI unit part no.	Output	Applicable model
EX500-Q002	PNP output (+COM.)	EX9-OET2, EX9-OEP2
EX500-Q102	NPN output (–COM.)	EX9-OET1, EX9-OEP1

Option/Part No.

Description	Part no.	Applicable model		Note
		OET□	OEP□	
Waterproof cap	**EX500-AWTS**	○	○	Refer to page1691. Order separately: 10 pcs.
Cable with connector for output entry	**EX9-AC□-7**	○	○	Refer to page 1677. Order separately.
Power block	**EX9-PE1**		○	Refer to the right page. Order separately.

How to Order Power Block

EX9 – PE1

Option/Part No.

Description	Part no.	Note
Waterproof cap	**EX500-AWTS**	Refer to page 1691. When ordering separately: 10 pcs.
Power cable with connector	**EX9-AC□-1**	Refer to page 1672, Order separately.

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Output Block Specifications

Model		EX9-OET1	EX9-OET2	EX9-OEP1	EX9-OEP2
Output connector		M12 connector (5 pins)			
Internal current consumption		40 mA or less			
Output specification	**Output type**	PNP output (–COM.)	NPN output (+COM.)	PNP output (–COM.)	NPN output (+COM.)
	Number of outputs	2 points			
	Power supply method	Internal power supply method		Integrated power supply method (Power block: supplied from EX9-PE1)	
	Output device supply voltage	24 VDC			
	Output device supply current	Max. 42 mA/point (1.0 W/point) Note)		Max. 0.5 A/point (12 W/point)	
	Display	Yellow LED (Lights when power is turned ON.)			
	Connector on the output device side	M12 connector (5 pins, plug)			
Environmental resistance	**Enclosure**	IP67			
	Operating temperature range	–10 to 50°C			
	Operating humidity range	35 to 85%RH (with no condensation)			
	Withstand voltage	1500 VAC for 1 min. between external terminals and FG			
	Insulation resistance	10 MΩ or more (500 VDC) between external terminals and FG			
	Vibration resistance	10 to 150 Hz with a 0.35 mm amplitude or 49 m/s^2 in each X, Y, Z direction for 2 hrs (De-energized)			
	Impact resistance	98 m/s^2 in each X, Y, Z direction, 3 times (De-energized)			
Standard		CE marking, UL (CSA)			
Mass		120 g			

Note) The rated load current varies due to the output capability of the SI unit when connected to EX500.

Power Block Specifications

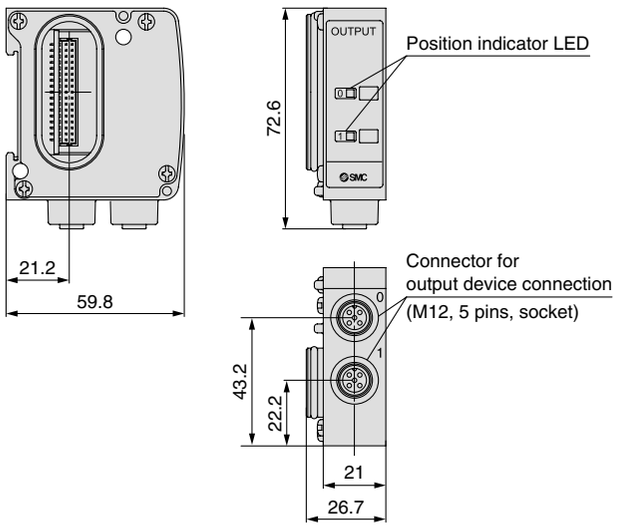
Model		EX9-PE1
Connection block		Output block (for high-wattage load)
Connection block stations		Output block: Max. 8 stations
Power supply for output and internal control	**Power supply voltage**	22.8 to 26.4 VDC
	Internal power consumption	20 mA or less
Supply current		Max. 3.1 A (When using with 3.0 to 3.1 A, the ambient temperature should not exceed 40°C, and do not bundle the cable.)
Environmental resistance	**Enclosure**	IP67
	Operating temperature range	–10 to 50°C
	Operating humidity range	35 to 85%RH (with no condensation)
	Withstand voltage	1500 VAC for 1 min. between external terminals and FG
	Insulation resistance	10 MΩ or more (500 VDC) between external terminals and FG
	Vibration resistance	10 to 150 Hz with a 0.35 mm amplitude or 49 m/s^2 in each X, Y, Z direction for 2 hrs (De-energized)
	Impact resistance	98 m/s^2 in each X, Y, Z direction, 3 times (De-energized)
Standard		CE marking, UL (CSA)
Mass		120 g
Accessory: Waterproof cap (for M12 connector socket)		EX500-AWTS (1 pc.)

Note) For detailed specifications other than the above, refer to the separate technical operation manual that can be downloaded from SMC's website (http://www.smcworld.com/).

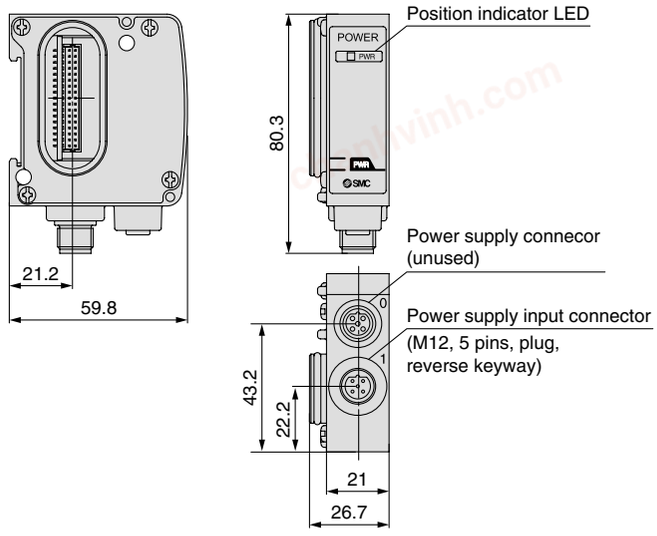
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Options

Output Block Dimension



Power Block Dimension



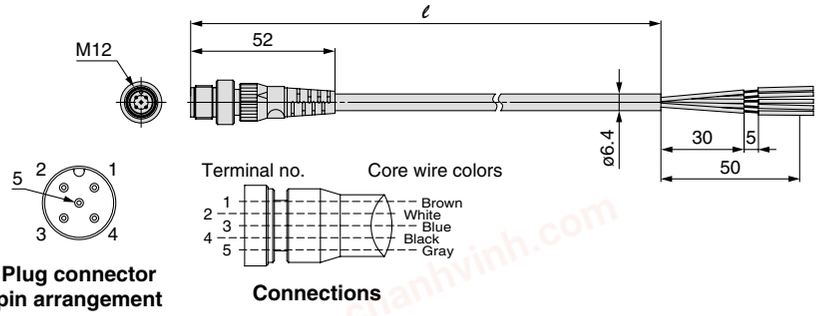
We sell this product individually. Please place an order separately.
You are requested to connect it to an SI unit and a valve manifold.
When using the output block only (valve manifold is unused.), place an order for an end plate (⑪ EX9-EA03) separately for connection.
Refer to the separate technical instruction manual for connection, wiring, installation, optional goods and cable, etc.

⑨ Cable with connector for output entry

EX9－AC 030 －7

Cable length (ℓ)

010	1000 [mm]
030	3000 [mm]



Plug connector pin arrangement

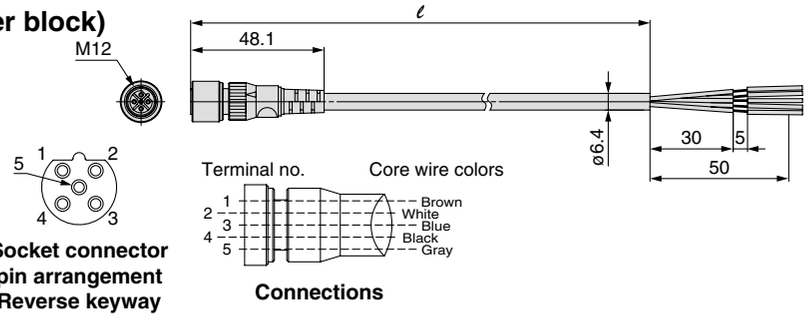
Connections

⑩ Power cable with connector (for power block)

EX9－AC 050 －1

Cable length (ℓ)

010	1000 [mm]
030	3000 [mm]
050	5000 [mm]



Socket connector pin arrangement Reverse keyway

Connections

⑪ End plate

EX9－EA03

