GW System, 4 Branches Series EX500

- \star Valve manifold and input unit manifold can be connected around the GW unit.
- \star 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 System, 4 Branches Series EX500 (€ c%)us

How to Order GW Unit



GW Unit

EX500-GDN1

Communication protocol

DN1	DeviceNet™
PR1A	PROFIBUS DP
EN1	EtherNet/IP™

GW Unit Specifications

	Model		EX500-GDN1	EX500-GPR1A	EX500-GEN1				
	Applicable	Protocol	DeviceNet™	PROFIBUS DP	EtherNet/IP™				
	system	Version Note 1)	Release 2.0	DP-V0	Release 1.0				
unication	Communication speed		125 k/250 k/500 kbps	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	10 M/100 Mbps				
Configuration file Note		file Note 2)	EDS file	GSD file	EDS file				
Com	I/O occupation (Inputs/Output	n area ts)	64/64	64/64	128/128				
	Terminating re	esistor	Not provided	Built into the unit (Switch setting)	Not provided				
Power supply	For unit		11 to 25 VDC (Supplied by DeviceNet™ circuit, 50 mA or less)	24 VDC±10%					
voltage	For sensors		24 VDC±10%						
	For valve		24 VDC±10%/-5%						
Internal cu	rrent consumpt	ion (Unit)	200 mA or less (GW unit)						
	Number of inp	uts	64 inputs (16 inputs x 4 branches)						
but	Connection in	put device	The EX500 series input unit manifold (connection from communication port A to D)						
5	Supply voltage	e	24 VDC						
	Supply curren	t	Max. 2.8 A (Max. 0.7 A per branch)						
÷	Number of out	puts	64 outputs (16 outputs x 4 branches)						
tpr	Connection ou	Itput device	The EX500 series SI	unit manifold (connection from comm	nunication port A to D)				
õ	Supply voltage	e		24 VDC					
	Supply curren	t	Max. 3.0 A (Max. 0.75 A per branch)						
Branch cat	le length		5 m or less betw	een connected devices (total extens	ion 10 m or less)				
ent	Enclosure		Operating: E to 45°C	IP65 Starady 05 to 70%C (with no frage)	na and condensation)				
Operating temperature range Operating humidity range		Operating: 5 to 45°C	Stored: -25 to 70°C (with no need	denostion)					
		Operating	, Stored: 35 to 85%RH (with no cond	densation)					
		1000 VAC for 1 minute between terminals and housing							
Standarde	moulation resi	Stance	CE marking LU (CSA)						
Weight				470 g					
Accessory: W	aterproof cap (for M	112 connector socket)	EX9-AWTS (4 pcs.)	EX9-AWTS (5 pcs.)	EX9-AWTS (5 pcs.)				

Note 1) Please note that the version is subject to change.

Note 2) Each file can be downloaded from SMC website (http://www.smcworld.com).

Note 3) For detailed specifications other than the above, refer to the operation manual that can be downloaded from SMC website (http://www.smcworld.com).





GW Unit Dimensions/Parts Description



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

EX12□
EX140
EX180
EX260
EX250
EX600
EX500
EX510
PCA EX



O ۲

EX500-GEN1(EtherNet/IP™)

Ó ote 1) connector N

Branch connector Note 2)



2

0 0 0

88 88

/Marker: BN-WH (Made by PHOENIX CONTACT)



How to Order Input Unit Manifold [Ordering Example]



Input Unit Specifications

	Model	EX500-IB1
Internal current consumption		100 mA or less
	Number of inputs	16 inputs
Input Connection block Connection block stations		The EX500 series input block (mixed combination is possible)
		2-input, input block: Max. 8 stations 8-input, input block: Max. 2 stations
	Enclosure	IP65
	Operating temperature range	Operating: 5 to 45°C Stored: -25 to 70°C (with no freezing and condensation)
Environment	Operating humidity range	Operating, Stored: 35 to 85%RH (with no condensation)
	Withstand voltage	1000 VAC for 1 minute between whole live part and enclosure
	Insulation resistance	2 $\text{M}\Omega$ or more (500 VDC mega meter) between whole live part and enclosure
Standards		CE marking, UL (CSA)
Weight		100 g (Input unit + End block)

Input Block Specifications

Model	EX500-IE1	EX500-IE2	EX500-IE3	EX500-IE4	EX500-IE5	EX500-IE6		
Input type	PNP sensor input	NPN sensor input	PNP sensor input	NPN sensor input	PNP sensor input	NPN sensor input		
Number of inputs		2 in	puts		8 in	puts		
Input device supply voltage			24 \	VDC				
Input device supply current			Max. 480 mA/In	put unit manifold				
Rated input current	Approx. 5 mA							
Display		Gree	n LED (Lights up w	hen power is turned	I ON.)			
Connector on the input device side	M8 connector	(3 pins, plug)	M12 connecto	r (4 pins, plug)	M8 connector (3 pins, plug)			
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 minute between terminals and housing							
Insulation resistance	2 MG	or more (500 VDC	C measured via me	gohmmeter) betwee	n terminals and ho	using		
	CE marking, UL (CSA)							
	20	20 g		40 g		5 g		
(for M8 connector socket)	EX9-AWE	S (2 pcs.)	_		EX9-AWE	ES (8 pcs.)		
(for M12 connector socket)	_		EX9-AW1	S (2 pcs.)	_			
	Input type Number of inputs Input device supply voltage Input device supply current Rated input current Display Connector on the Input device side Enclosure Operating temperature range Operating temperature range Operating temperature range Operating temperature range Operating temperature range Operating temperature range (for M8 connector socket) (for M12 connector socket)	Input type PNP sensor input Number of inputs Input device supply voltage Input device supply current Input device supply current Rated input current Input device side Display Connector on the input device side Operating temperature range CC Operating temperature range CC Operating humidity range CO Withstand voltage 2000 (for M8 connector socket) EX9-AWE (for M12 connector socket)	Input type PNP sensor input NPN sensor input Number of inputs 2 in Input device supply voltage 1 Input device supply current Rated input current Display Gree Connector on the input device side M8 connector (3 pins, plug) Enclosure Operating temperature range Operating: 5 to 45°C Operating humidity range Operating Vithstand voltage 1000 V// Insulation resistance 2 MΩ or more (500 VDC 20 g (for M8 connector socket) EX9-AWES (2 pcs.) (for M12 connector socket)	Input type PNP sensor input PNP sensor input PNP sensor input Input type PNP sensor input PNP sensor input PNP sensor input Input device supply voltage 2 inputs 24 i Input device supply current Max. 480 mA/In A80 mA/In Rated input current Approx Approx Display Green LED (Lights up w Connector on the input device side M8 connector (3 pins, plug) M12 connector Enclosure IP Operating: 5 to 45°C Stored: -25 to 70 Operating temperature range Operating: 5 to 45°C Stored: -25 to 70 Operating temperature range Operating: 5 to 45°C Stored: 35 to 85'' Withstand voltage 1000 VAC for 1 minute bether Insulation resistance 2 MΩ or more (500 VDC measured via	Input type PNP sensor input NPN sensor input PNP sensor input NPN sensor input Number of inputs 2 inputs 1 1 NPN sensor input NPN sensor input NPN sensor input Input device supply outge 2 inputs 24 VDC Input device supply current Max. 480 mA/Input unit manifold Rated input current Approx. 5 mA Display Green LED (Lights up when power is turned connector on the input device side M8 connector (3 pins, plug) M12 connector (4 pins, plug) Enclosure IP65 Operating temperature range Operating: 5 to 45°C Stored: -25 to 70°C (with no freezin Operating, Stored: 35 to 85%RH (with no cond Withstand voltage Insulation resistance 2 MΩ or more (500 VDC measured via megohmmeter) between terminals and Insulation resistance 2 MΩ or more (500 VDC measured via megohmmeter) between terminals and Insulation resistance 20 g 40 g (for M8 connector socket) EX9-AWES (2 pcs.) (for M12 connector socket) EX9-AWTS (2 pcs.)	Input type PNP sensor input NPN sensor input		

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

Input Unit Manifold Dimensions/Parts Description



								(11111)
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



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2												t	6
44.		EX500-IB1	POD POD HALANS INSTANDA POSSE PA	Form En (Part) Via Také protocoma P cácile Part	PANALAS PALANE SERIES	Path (Path) VATABE instrument P GLOS Per	(N) PA SAIE avaidana PODE PA	fatanda (M) Victorial anticessa P called the	formula (NP) Via Iauli anticimena P-0000 PM	(100.00 (rd) statut eritema ritik (re		2.2	46
			,sac C€	€	30 ce	€	990 C E	€	om C€	€			

								(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
2116							ØS	VIC

Input Unit Manifold Exploded View



Parts List

Nie	Description	Part no.	Noto
INO.	Description	For standard	Note
1	Input unit	EX500-IB1	
2	Input block (M8 connector)	EX500-IE	PNP specifications ··· : 1, NPN specifications ··· : 2
3	Input block (M12 connector)	EX500-IE	PNP specifications ··· □: 3, NPN specifications ··· □: 4
4	Input block (M8 connector) 8 points integrated type	EX500-IE	PNP specifications ··· □: 5, NPN specifications ··· □: 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 (a) (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 (a). Note: Be sure to tighten the round head combination screw with the prescribed tightening torque. (0.6 N-m)

DIN Rail L Dimension [mm]



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		

Connector type For T (n = 1 to 8)

SI Unit

SV1000/2000/3000/4000



How to Order SI Unit

EX500-<u>\$</u>001

Applicable solenoid valve: Series SV

For options, refer to pages 2120 to 2122.

SI Unit Specifications (EX500-S001)

	Model	EX500-S001				
Internal current consumption		100 mA or less				
	Number of outputs	16 outputs				
Output type Connection block Connection block stations	Sink/NPN (Positive common)					
	Positive common compatible 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				
	Enclosure	IP67				
	Operating temperature range	Operating: 5 to 45°C Stored: -25 to 70°C (with no freezing and condensation)				
Environment	Operating humidity range	Operating, Stored: 35 to 85%RH (with no condensation)				
	Withstand voltage	1000 VAC for 1 minute between terminals and housing				
Insulation resistance Standards		$2\ \text{M}\Omega$ or more (500 VDC measured via megohmmeter) between terminals and housing				
		CE marking, UL (CSA)				
Weight		115 g				
Accessory: Wate	rproof cap (for M12 connector socket)	EX9-AWTS (1 pc.)				

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

SI Unit Dimensions/Parts Description

EX500-S001



GW System, 4 Branches Series EX500



SI Unit Specifications (EX500-Q 0)

	Model	EX500-Q001	EX500-Q101	EX500-Q002	EX500-Q102				
Internal curren	t consumption		100 mA or less						
	Number of outputs		16 p	oints					
	Output type	Sink/NPN (Positive common)	Source/PNP (Negative common)	Sink/NPN (Positive common)	Source/PNP (Negative common)				
Output	Connection block	Positive common compatible Solenoid valve (single, double)	Negative common compatible Solenoid valve (single, double)	Positive common compatible Note) Output block, power block Solenoid valve (single, double)	Negative common compatible Note 1) Output block, power block Solenoid valve (single, double)				
specifications	Connection block stations	Double solenoid va Single solenoid val	lve: Max. 8 stations ve: 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					
	Enclosure	IP67							
	Operating temperature range	Operating:	Operating: 5 to 45°C Stored: -25 to 70°C (with no freezing and condensation)						
Environment	Operating humidity range		Operating, Stored: 35 to 85%RH (with no condensation)						
	Withstand voltage		1000 VAC for 1 minute betw	ween terminals and housing					
	Insulation resistance	2 M Ω or more (500 VDC measured via megohmmeter) between terminals and housing							
Standards		CE marking, UL (CSA)							
Weight		105 g							
Accessory: Waterpro	of cap (for M12 connector socket)	EX9-AWTS (1 pc.)							
Note 1) For details	s of output block and power	block, refer to page 2120.							

Note 2) For detailed specifications other than the above, refer to the operation manual that can be downloaded from SMC website (http://www.smcworld.com).

EX500-Q 02

SI Unit Dimensions/Parts Description





SMC

Options

Output block/ Power block

Features: • Possible to retrofit to the valve manifold, using the unused points.

- 2-output/1-output block (M12 connector)
- Positive/Negative common available as standard.
- Possible to drive by up to 0.5 A per a point. (EX9-OEP)



How to Order Output Block



т	Internal power supply method (for low-wattage load)
Ρ	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	Source/PNP (Negative common)	EX9-OET2, EX9-OEP2
EX500-Q102	Sink/NPN (Positive common)	EX9-OET1, EX9-OEP1

Option/Part No.

Description	Dertine	Applicable model		Note
Description	Pan no.	OET	OEP□	Note
Waterproof cap	EX9-AWTS	0	0	Refer to page 2169. Order separately: 10 pcs.
Cable with connector for output entry EX9-AC□-7		0	0	Refer to page 2169. Order separately.
Power block	EX9-PE1	_	0	Refer to the right page. Order separately.

How to Order Power Block

EX9-PE1

Option/Part No.

Description	Part no.	Note
Waterproof cap	EX9-AWTS	Refer to page 2169. When ordering separately: 10 pcs.
Power cable with connector	EX9-AC□-1	Refer to page 2168. Order separately.

Output Blo	ck Specifications	;			
	Model	EX9-OET1	EX9-OET2	EX9-OEP1	EX9-OEP2
Output connector		M12 connector (5 pins)			
Internal current consumption		40 mA or less			
	Output type	Source/PNP (Negative common)	Sink/NPN (Positive common)	Source/PNP (Negative common)	Sink/NPN (Positive common)
	Number of outputs	2 outputs			
	Power supply method	Internal power supply method		Integrated power supply method (Power block: supplied from EX9-PE1)	
Output	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 up when power is turned ON.)			
	Connector on the output device side	M12 connector (5 pins, plug)			
Environment	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 whole external terminal and FG			
	Insulation resistance	10 $\text{M}\Omega$ or more (500 VDC) between whole external terminal and FG			d FG
Standards		CE marking, UL (CSA)			
Weight		120 g			

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

Power Block Specifications

Power Block Spe	cifications		EV10
Model		EX9-PE1	
Connection block		Output block (for high-wattage load)	EX140
Connection block stations		Output block: Max. 8 stations	FV400
Power supply for output and internal control	Power supply voltage	22.8 to 26.4 VDC	EX180
	Internal power consumption	20 mA or less	EX260
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.)	
Environment	Enclosure	IP67	EX250
	Operating temperature range	-10 to 50°C	EVEND
	Operating humidity range	35 to 85%RH (with no condensation)	LAUUU
	Withstand voltage	1500 VAC for 1 min. between whole external terminal and FG	EX500
	Insulation resistance	10 $\text{M}\Omega$ or more (500 VDC) between whole external terminal and FG	EVEAD
Standards		CE marking, UL (CSA)	EX510
Weight		120 g	PCA
Accessory: Waterproof cap (for M12 connector socket)		EX9-AWTS (1 pc.)	

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

Options



When using the output block only (valve manifold is unused.), place an order for an end plate (EX9-EA03) separately for connection. Refer to the operation manual for connection, wiring, installation, option and cable, etc.

End plate

