

Plug-in

Electro-Pneumatic Regulator / Manifold Type

New



RoHS

IP65

Connects the electro-pneumatic regulator and the fieldbus device to the same manifold.

This results in **reduced wiring**,

less man hours for piping and a **more compact size**.

Compatible
protocol

PROFINET
EtherNet/IP
EtherCAT

Max. number
of stations

4 stations

Electro-Pneumatic Regulator

For the stepless control of air pressure in proportion to electrical signals

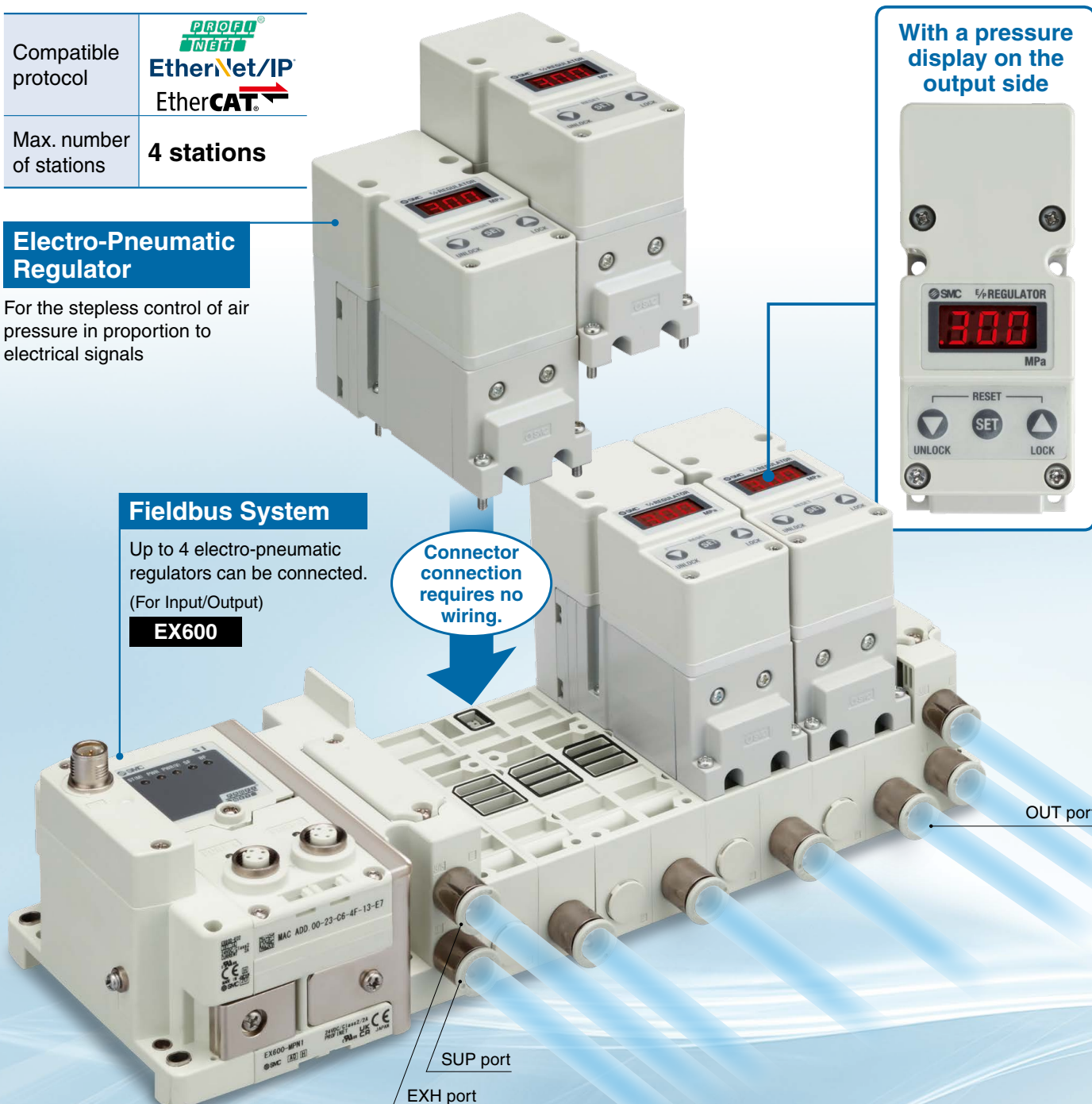
Fieldbus System

Up to 4 electro-pneumatic regulators can be connected.
(For Input/Output)

EX600

Connector
connection
requires no
wiring.

With a pressure
display on the
output side



IITV23 Series



CAT.ES60-27A ®

Wiring/piping labor reduction

New Electro-Pneumatic Regulator / Manifold Type

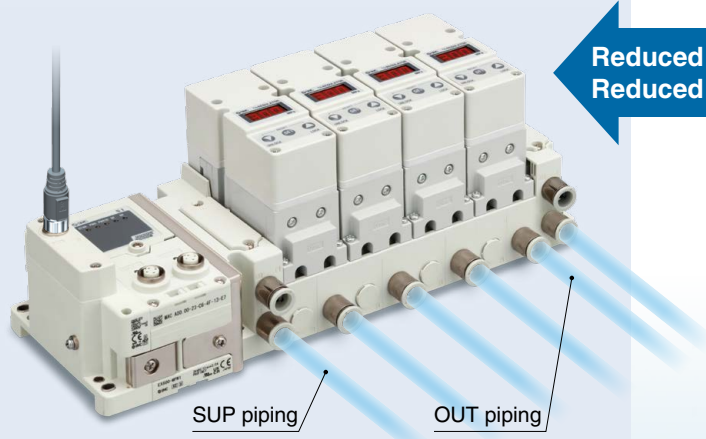
Wiring/Analog input/output unit

Only one power supply cable

Wiring	Not required
Analog input/output unit	

Piping

SUP: 1 pipe OUT: 4 pipes	5 pipes
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Existing type

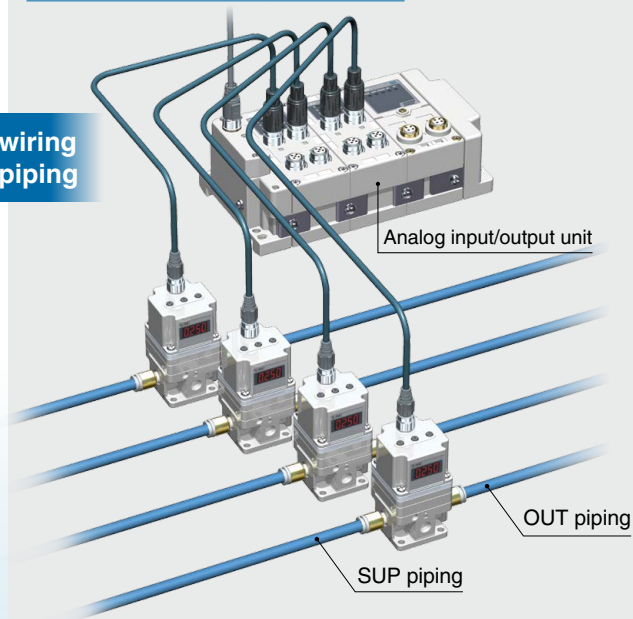
Wiring/Analog input/output unit

Wiring	4 wires*1
Analog input/output unit	2 units

*1 Set pressure signal:
4 wires
Output pressure signal:
4 wires

Piping

SUP: 4 pipes OUT: 4 pipes	8 pipes
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Compact

Installation area

20% reduction

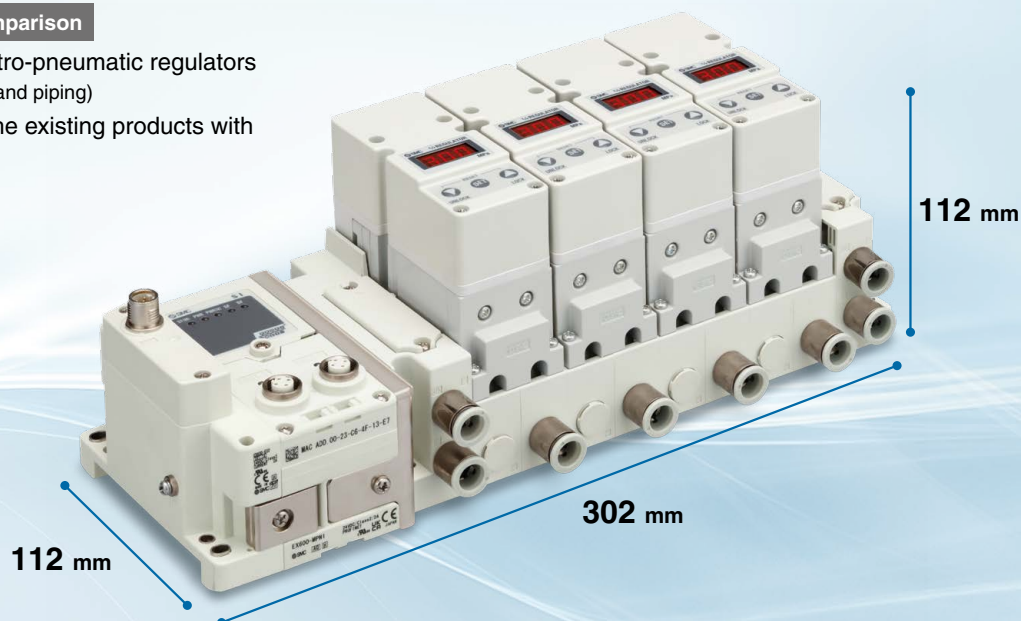
Occupied volume

10% reduction

Conditions for comparison

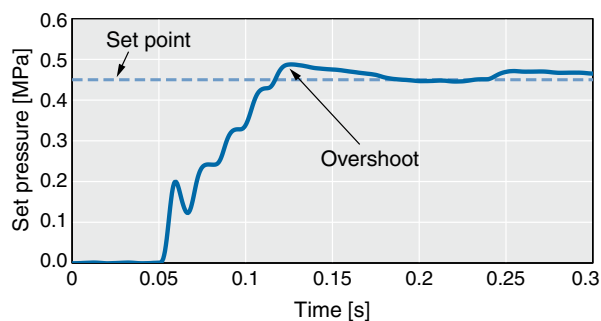
When using 4 electro-pneumatic regulators
(* excluding its wiring and piping)

Comparison with the existing products with
equivalent features

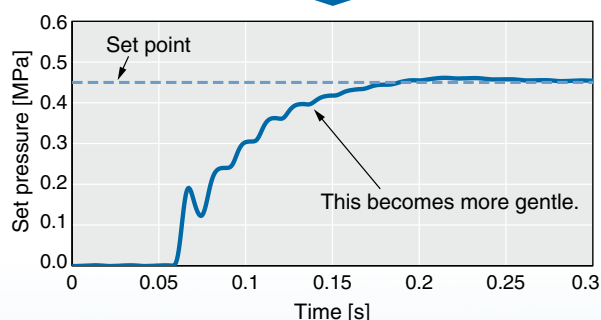


Gain setting

This product can change the response with this gain setting.

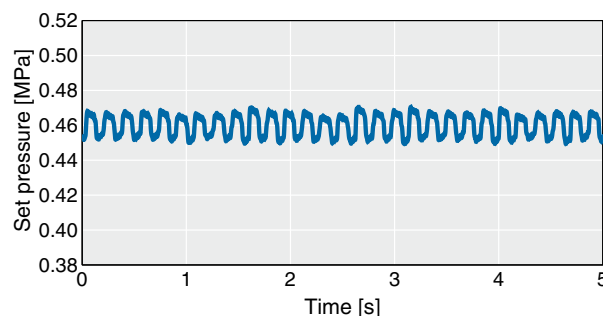


Change the gain.

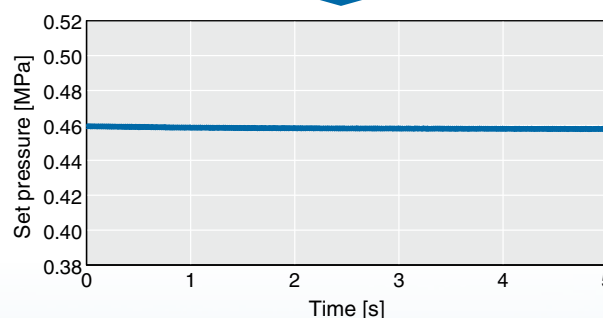


Sensitivity setting

When the sensitivity is adjusted, the correction operation of pressure changes.



Change the sensitivity.



Download the Operation Manual that describes the setting method from the SMC website.

More information can be viewed here.



Remote control and monitoring are available.

■ Via the fieldbus

Control, parameter setting and monitoring can be performed from a PLC.

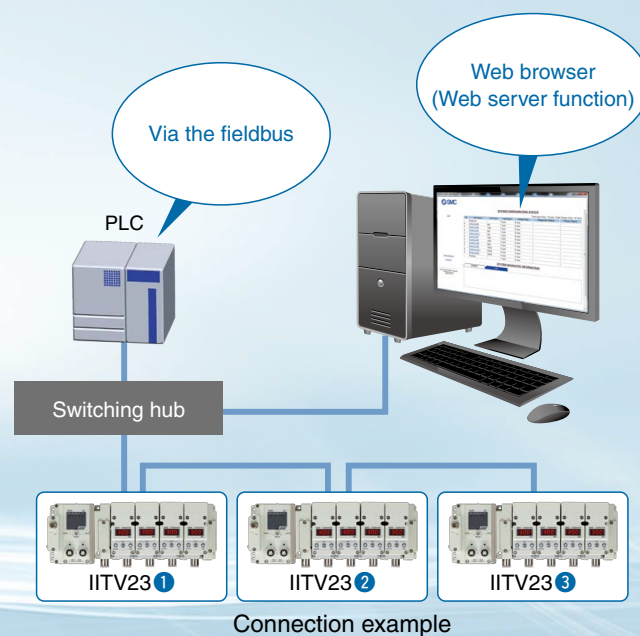
■ Web server function

Status checks of the EX600 and electro-pneumatic regulators are possible with the use of general-purpose web browsers such as Microsoft Edge.

■ List of Main Items

Item		Via the fieldbus	Web server function
Control	Set pressure value	●	—
	Gain setting	●	▲
Parameter setting	Sensitivity setting	●	▲
	Accumulated energizing time notification	●	▲
Monitoring	I/O status	●	●
	Diagnostic state	●	●

▲: PROFINET parameters cannot be set from the web server.

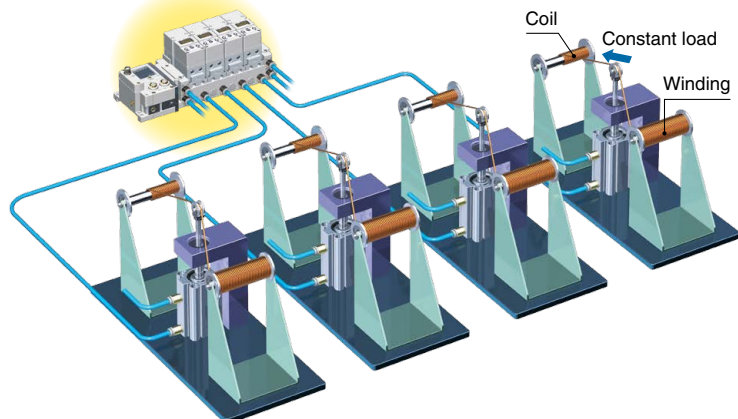


Connection example

Applications

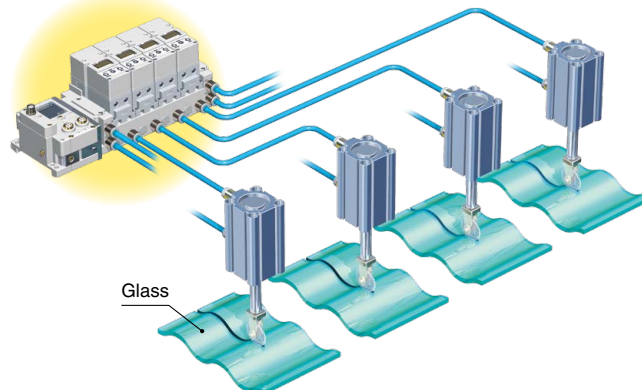
Tension Control

Coil winding machines



Actuator Output Control

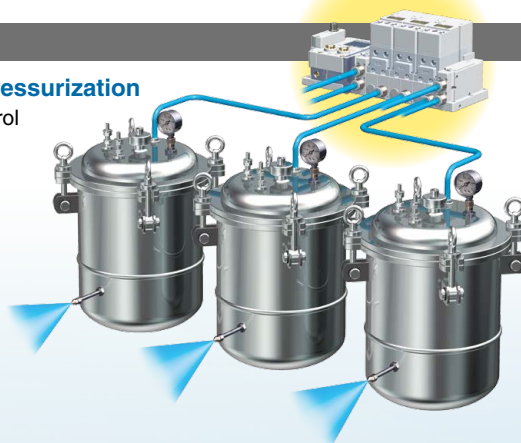
Wavy surface cutting




Flow Rate Control

Liquid pressure feeding by tank pressurization

By fixing the nozzle orifice, pressure control can be used to control the flow rate.



Variations

Series	Model	Set pressure range	Linearity	Hysteresis	Repeatability	Sensitivity
	ITV234	0 to 0.7 MPa	± 0.009 MPa or less ($\pm 1\%$ F.S.*1)	0.0045 MPa or less (0.5% F.S.*1)	± 0.0045 MPa or less ($\pm 0.5\%$ F.S.*1)	$\pm 0.2\%$ F.S. or more (Input signal variation: 8/4095 (12 bit) or more)
	ITV235	0 to 0.9 MPa				

*1 The F.S. is fixed at 0.9 MPa regardless of the set pressure range.

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Plug-in

Electro-Pneumatic Regulator / Manifold Type

IITV23 Series



How to Order Manifolds

IITV23 - S6 **F** **2** **□** - **2** **U** - **□**

1 2 3 4 5 6

1 SI unit

0	Without SI Unit
D	EtherCAT
E	EtherNet/IP™
F	PROFINET

* I/O Unit cannot be mounted without SI Unit.

2 End plate

Nil	Without SI Unit
2	M12 power supply connector, B-coded
3	7/8 inch power supply connector
4	M12 power supply connector IN/OUT, A-coded, Pin arrangement 1
5	M12 power supply connector IN/OUT, A-coded, Pin arrangement 2

* Without SI Unit, the symbol is nil.

6 Mounting and Option

Symbol	Mounting
Nil	Direct mounting
D	DIN rail mounting (With DIN rail)
D0	DIN rail mounting (Without DIN rail)

* DIN rail (D) cannot be mounted without SI unit.
 * Refer to page 29 for details on securing the DIN rail mounting type manifold.
 * Refer to L₃ of the dimensions for the DIN rail length. When a dimension greater than L₃ is required, select D0 and order a DIN rail separately. Refer to page 20 for the DIN rail part number.

3 I/O unit stations

Nil	None
1	1 station
2	2 stations
⋮	⋮
8	8 stations

* Without SI Unit, the symbol is nil.
 * SI unit is not included in I/O unit stations.
 * When I/O unit is selected, it is shipped separately, and assembled by the customer. Refer to the operation manual for mounting.
 * Refer to "How to Order Manifold Assembly" (order number examples). When ordering, be sure to add the single unit part number with an asterisk prefix.

4 Electro-pneumatic regulator stations

Symbol	Stations
1	1 station
2	2 stations
3	3 stations
4	4 stations

*1 Refer to "How to Order Manifold Assembly" (order number examples). When ordering, be sure to add the single unit part number with an asterisk prefix.

5 P, E port entry

U	U side
D	D side
B	Both sides
C	U side, Built-in silencer
E	D side, Built-in silencer
F	Both sides, Built-in silencer

* The 3/5(E) port is plugged for the built-in silencer type.
 * When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
 * When the number of electro-pneumatic regulator stations is 3 or more, use "both sides." Excessive back pressure may cause damage.

For details on the Fieldbus system (for input/output) EX600 series, refer to the **Web Catalog** and the **Operation Manual**.

For the part numbers of the SI units to be mounted, refer to page 17. (IP40 specifications may be required according to the I/O unit to be selected.)

The part number for a valve plate connected to the IITV23 is [EX600-ZMV3]. Refer to page 22. Please download the Operation Manual via the SMC website: <https://www.smcworld.com>

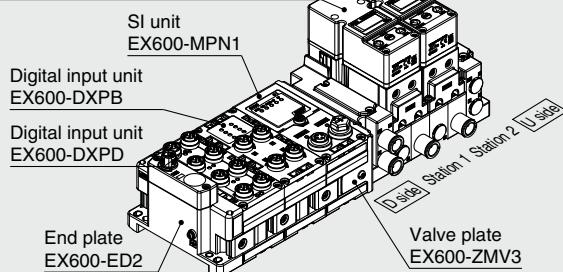


Caution This product cannot be ordered only with the manifold part number. Under the manifold part number, be sure to add the single unit part number with an asterisk prefix.

How to Order Manifold Assembly

Example (IITV23-S6F22-2D)

Electro-pneumatic regulator for manifold
ITV2350-2 (2 sets)



IITV23-S6F22-2D1 set (2-station base part no.)

* ITV2350-22 sets (0.9 MPa spec., Pressure display unit: MPa)

* EX600-DXPD1 set I/O unit part number (Station 1)

* EX600-DXPB1 set I/O unit part number (Station 2)

* The asterisk denotes the symbol for the assembly.
 * Prefix it to the part numbers of the valve, etc.

For the electro-pneumatic regulator arrangement, the electro-pneumatic regulator closest to the D side is considered the 1st station. Under the manifold part number, state the electro-pneumatic regulators to be mounted in order starting with the 1st station as shown in the figure.

* Do not enter the SI unit part number and the end plate part number together.
 * If the number of EX600 units is 6 stations or more, install an intermediate reinforcement bracket.

How to Order Electro-Pneumatic Regulators for Manifold (With mounting screw)

ITV 23 **4** **0** - **2** **□**

1 2 3

1 Pressure range

4	0.7 MPa
5	0.9 MPa

2 Output type

2	Direct output type
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3 Pressure display unit

Nil	MPa
3	bar
4*1	psi

*1 This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

* **When ordering an electro-pneumatic regulator for manifold individually, the base gasket is not included.** Since the base gasket is attached to the manifold block, please contact SMC if it is needed for maintenance.





Specifications

Manifold

Wiring	Serial wiring (Dedicated EX600)
Supply/Exhaust port type	Common SUP/EXH
Port size	ø10 One-touch fitting
Electro-pneumatic regulator stations	1 to 4 stations

Formula for Weight (excluding the I/O units and options)

$$W = 539 \times n1 + 863 \text{ [g]}$$

n1: Electro-pneumatic regulator stations

Electro-Pneumatic Regulator^{*1}

Fluid		Air		
Pressure display unit		MPa	bar	psi
Min. supply pressure		Set pressure + 0.05 MPa	Set pressure + 0.5 bar	Set pressure + 7.25 psi
Max. supply pressure		1.0 MPa	10 bar	145 psi
Set pressure range (Rated) ^{*2}		0 to 0.7 MPa/0.9 MPa	0 to 7 bar/9 bar	0 to 100 psi/130 psi
Min. set pressure		0.005 MPa	0.05 bar	1 psi
Power supply	Voltage	24 VDC ±10% (Stabilized power supply with a ripple rate of 1% or less)		
	Current consumption	0.12 A or less		
Linearity ^{*3}		±0.009 MPa or less	±0.09 bar or less	±1.3 psi or less
Hysteresis ^{*3}		0.0045 MPa or less	0.045 bar or less	0.65 psi or less
Repeatability ^{*3}		±0.0045 MPa or less	±0.045 bar or less	±0.65 psi or less
Sensitivity		±0.2% F.S. (Input signal variation: 8/4095 (12 bit) or more)		
Temperature characteristics		±0.00108 MPa/°C or less	±0.0108 bar/°C or less	±0.156 psi/°C or less
Step response ^{*4}		0.3 s or less		
Output pressure display ^{*5}	Display type	3-digit, 7-segment LED, 1-color display (Red)		
	Accuracy	±0.018 MPa ±1 digit or less	±0.18 bar ±1 digit or less	±3 psi ±1 digit or less
	Min. unit	0.001 (Actual display: .001)	0.01	1
Ambient and fluid temperatures		0 to 50°C (No condensation)		
Enclosure		IP65		
Weight		Approx. 390 g (Without accessories)		

*1 This specification table shows the characteristics at a power supply voltage of 24 VDC, ambient temperature of 25 ±3°C, and no load applied.

Only in static conditions, the pressure may fluctuate when air is consumed on the output side.

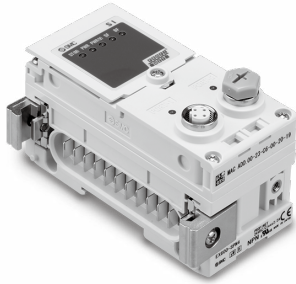
*2 When the input signal is 0%, there is residual pressure equal to or less than the minimum set pressure.

In cases where the pressure needs to be reduced completely to 0, install a 3-port valve, etc., on the output side to discharge the residual pressure.

*3 Compliant with ISO 10094

*4 This is the characteristics to reach 90% of the set pressure when the step amount are [0 → 100%], [25 → 75%], and [45 → 55%] under the max. supply pressure conditions.

*5 The zero/span adjustment values are set by the minimum unit of the output pressure display. Note that the unit cannot be changed.



Specifications

SI Unit (For the Electro-Pneumatic Regulator/Manifold Type) PROFINET

Model		EX600-MPN1
Communication	Protocol	PROFINET IO (Conformance Class C)
	Communication speed	100 Mbps
	Configuration file*1	GSDML file
	Applicable function	Fast Start up
		MRP
		System Redundancy S2
		Web server
Internal current consumption (Power supply for control/input)		0.17 A or less
Output	Electro-pneumatic regulator for manifold	Up to 4 units
Standards		CE/UKCA marking, UL (CSA)
Weight		310 g
Environmental resistance	Operating temperature range	Operating: −10 to +50°C, Stored: −20 to +60°C
	Operating humidity range	35 to 85% RH (No condensation)
	Withstand voltage	500 VAC for 1 minute between external terminals and FE
	Insulation resistance	500 VDC, 10 MΩ or more between external terminals and FE

*1 The configuration file can be downloaded from the SMC website: <https://www.smcworld.com>

SI Unit (For the Electro-Pneumatic Regulator/Manifold Type) EtherNet/IP™

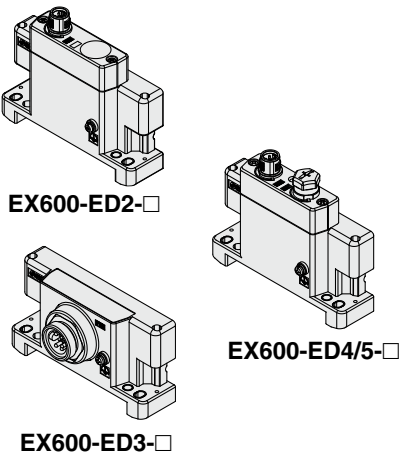
Model		EX600-MEN1
Communication	Protocol	EtherNet/IP™ (Conformance version: Composite19)
	Communication speed	10/100 Mbps
	Configuration file*1	EDS file
	Applicable function	QuickConnect™
		DLR
		Web server
Internal current consumption (Power supply for control/input)		0.17 A or less
Output	Electro-pneumatic regulator for manifold	Up to 4 units
Standards		CE/UKCA marking, UL (CSA)
Weight		310 g
Environmental resistance	Operating temperature range	Operating: −10 to +50°C, Stored: −20 to +60°C
	Operating humidity range	35 to 85% RH (No condensation)
	Withstand voltage	500 VAC for 1 minute between external terminals and FE
	Insulation resistance	500 VDC, 10 MΩ or more between external terminals and FE

*1 The configuration file can be downloaded from the SMC website: <https://www.smcworld.com>

SI Unit (For the Electro-Pneumatic Regulator/Manifold Type) EtherCAT

Model		EX600-MEC1
Communication	Protocol	EtherCAT (Conformance Test Record V2.4.0)
	Communication speed	100 Mbps
	Configuration file*1	XML file
	Applicable function	Web server
Internal current consumption (Power supply for control/input)		0.17 A or less
Output	Electro-pneumatic regulator for manifold	Up to 4 units
Standards		CE/UKCA marking, UL (CSA)
Weight		310 g
Environmental resistance	Operating temperature range	Operating: -10 to +50°C, Stored: -20 to +60°C
	Operating humidity range	35 to 85% RH (No condensation)
	Withstand voltage	500 VAC for 1 minute between external terminals and FE
	Insulation resistance	500 VDC, 10 MΩ or more between external terminals and FE

*1 The configuration file can be downloaded from the SMC website: <https://www.smcworld.com>

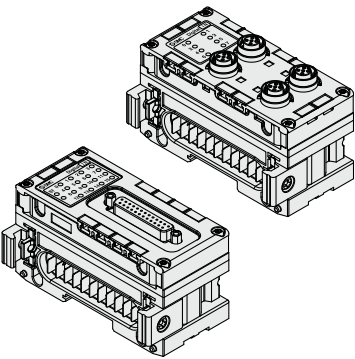


Specifications

End Plate

Model			EX600-ED2-□	EX600-ED3-□	EX600-ED4/5-□
Power supply	Power supply connector	PWR IN	M12 (5-pin) plug	7/8 inch (5-pin) plug	M12 (4-pin) plug
		PWR OUT	—	—	M12 (5-pin) socket
	Rated voltage	Power supply for control/input	24 VDC ±10%		
		Power supply for output	24 VDC +10/−5%		
	Rated current	Power supply for control/input	Max. 2 A	Max. 8 A	Max. 4 A
		Power supply for output			
Enclosure			IP67 (Manifold assembly)		
Standards*2			CE/UKCA marking, UL (CSA)		
Weight			170 g	175 g	170 g

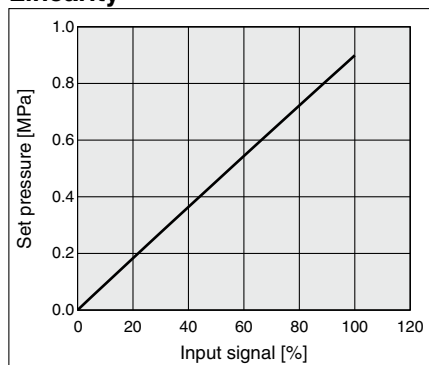
*2 The EX600-ED4/5 is not compliant with UL (CSA) standards.



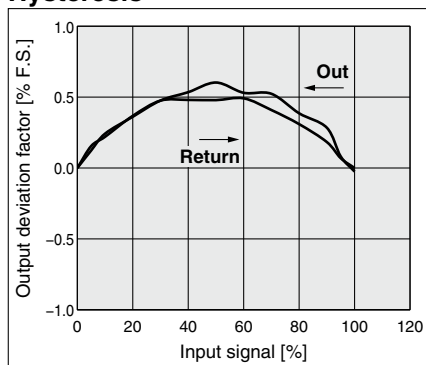
I/O Unit

Refer to the **Web Catalog** of the Fieldbus system (for input/output) EX600 series.

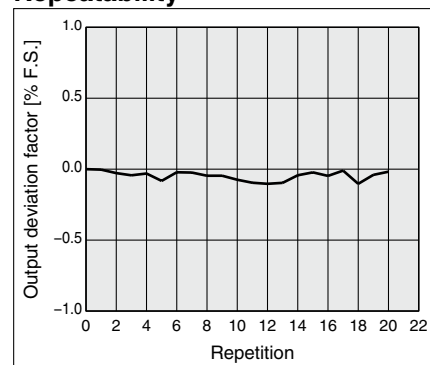
Linearity



Hysteresis

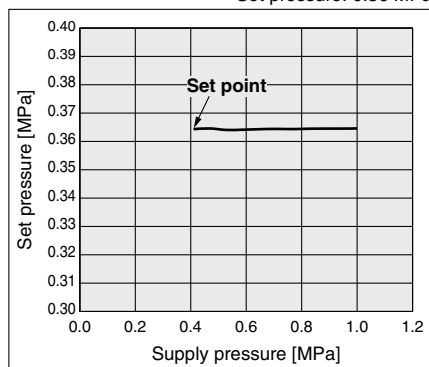


Repeatability



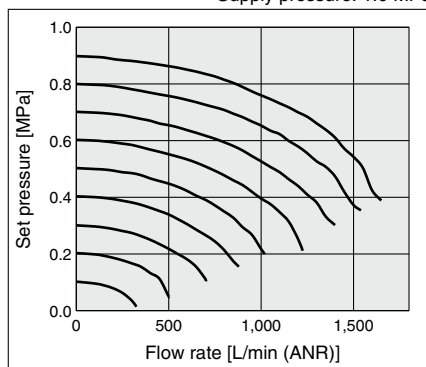
Pressure Characteristics

Set pressure: 0.36 MPa



Flow Rate Characteristics

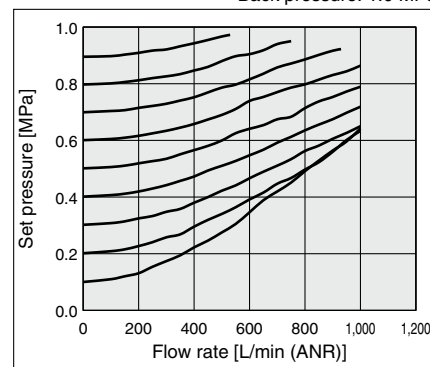
Supply pressure: 1.0 MPa



Relief

Characteristics

Back pressure: 1.0 MPa

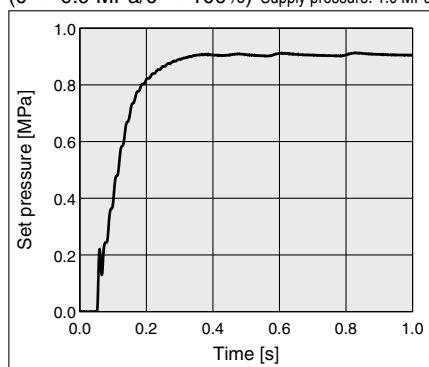


When the number of electro-pneumatic regulator stations is 3 or more, use a P, E port entry provided on "Both sides."

Excessive back pressure may damage the product.

Response Characteristics

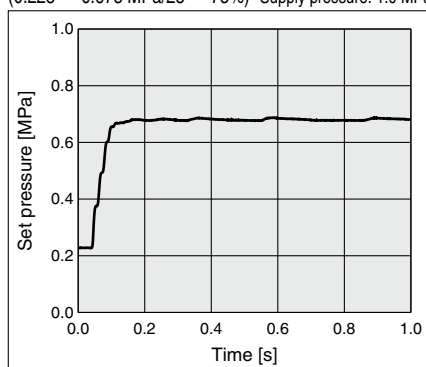
(0 → 0.9 MPa/0 → 100%) Supply pressure: 1.0 MPa



Power supply voltage: 24 VDC, Ambient temperature: 25 ±3°C, With no load on the outlet side

Response Characteristics

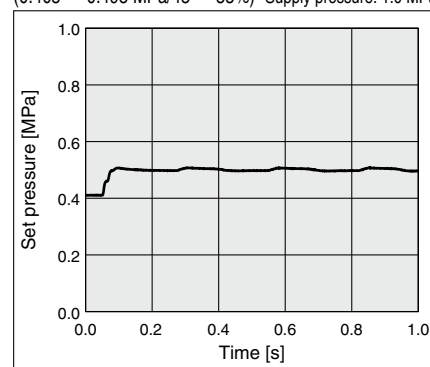
(0.225 → 0.675 MPa/25 → 75%) Supply pressure: 1.0 MPa



Power supply voltage: 24 VDC, Ambient temperature: 25 ±3°C, With no load on the outlet side

Response Characteristics

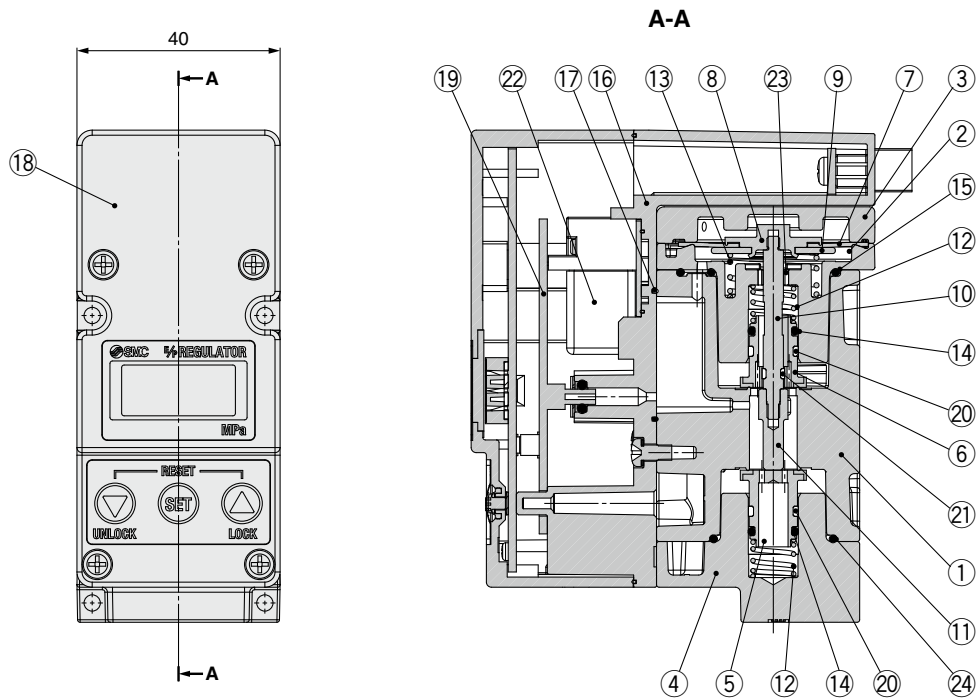
(0.405 → 0.495 MPa/45 → 55%) Supply pressure: 1.0 MPa



Power supply voltage: 24 VDC, Ambient temperature: 25 ±3°C, With no load on the outlet side

Construction

ITV23□0



Main Component Parts

No.	Description	Material
◆ 1	Body	Aluminum alloy
◆ 2	Intermediate body	Aluminum alloy
◆ 3	Cover	Aluminum alloy
◆ 4	Base plate	Aluminum alloy
◆ 5	Supply valve	Stainless steel
◆ 6	Exhaust valve	Stainless steel
◆ 7	Diaphragm	Rubber
◆ 8	Diaphragm disk	Aluminum alloy
◆ 9	Diaphragm shell	Stainless steel
◆ 10	Stem	Stainless steel
◆ 11	Rod	Stainless steel
◆ 12	Valve spring	Stainless steel
◆ 13	Bias spring	Stainless steel
◆ 14	Seal	HNBR
◆ 15	Exhaust seal	HNBR
◆ 16	Sub-plate	Resin
◆ 17	Sub-plate seal	HNBR
◆ 18	Bowl cover	Resin
◆ 19	Control circuit assembly	—
◆ 20	Wear ring	Resin
◆ 21	Stem guide	Resin
◆ 22	Solenoid valve	—
◆ 23	Slide bearing	—
◆ 24	O-ring	HNBR

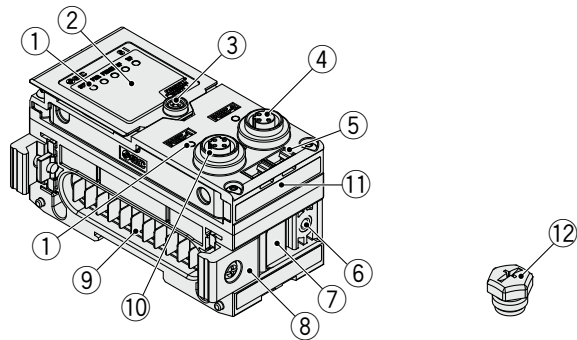
* ◆ indicates parts in contact with the fluid.

In the control circuit assembly, only the built-in pressure sensor is the part in contact with the fluid.

IITV23 Series

Parts Description

SI Unit

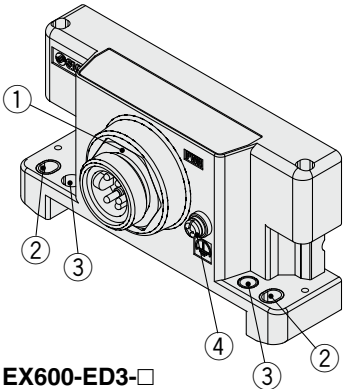
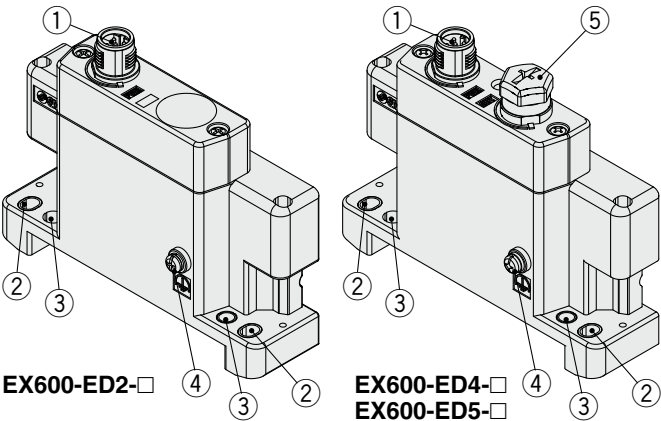


EX600-MPN1
EX600-MEN1
EX600-MEC1

No.	Name	Use
1	Status indication LED	Displays unit status
2	Indication cover*1	Open for setting the switch.
3	Indication cover set screw*1	Loosen for opening the indication cover.
4	Connector (PORT-2)	Connects to the communication cable
5	Marker groove	Can be used to mount a marker
6	Valve plate mounting hole	Fixes a valve plate in place
7	Valve plate mounting groove	Inserts a valve plate
8	Joint bracket	Links units to one another
9	Connector for unit (Plug)	Transmits signals to the neighboring unit and supplies power
10	Connector (PORT-1)	Connects to the communication cable
11	MAC address name plate	Displays a unique 12-digit MAC address for each SI unit
12	Seal cap	Mounted on the connector (PORT-2) at the time of shipment

*1 Not used for the EX600-MPN1

End Plate

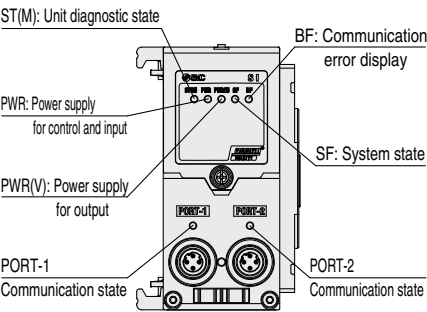


EX600-ED3-

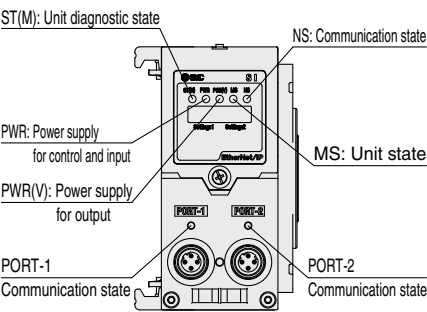
No.	Name	Use
1	Power supply connector (PWR IN)	Supplies power to the unit and/or input/output device (Only the EX600-ED2/ED4/ED5- is SPEEDCON compatible.)
2	Fixing hole for direct mounting	Connects directly to equipment
3	Fixing hole for DIN rail	Converts to manifold or for DIN rail mounting
4	FE terminal (M3)	Used for grounding. Ground this terminal securely to improve noise immunity.
5	Power supply connector (PWR OUT)	Supplies power to the device on the downstream side

LED Indicator

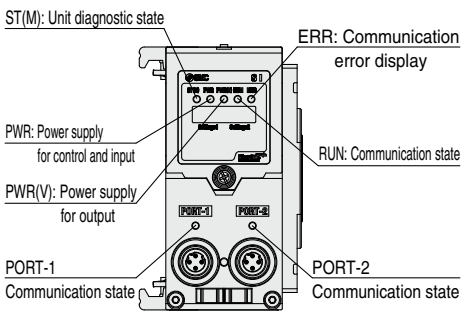
EX600-MPN1



EX600-MEN1

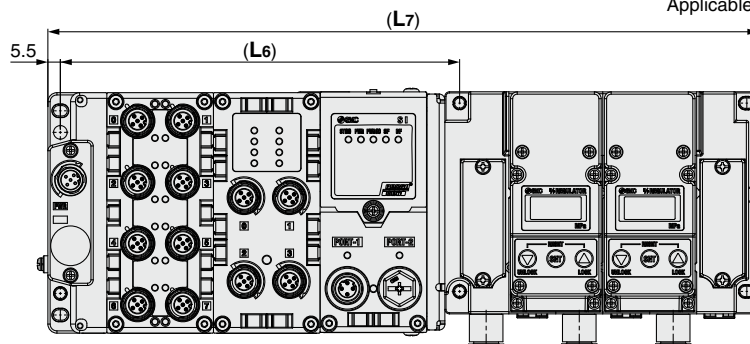


EX600-MEC1



IITV23-S62

End plate specifications: M12 power supply connector, B-coded (EX600-ED2)

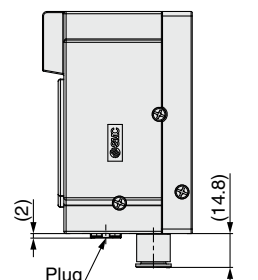


[mm]

$(L_6) = 47 \times n + 82$
 $(L_7) = 47 \times n + L_1$
 n : I/O unit stations

Part no.	DIN rail part no.
II TV23-S6□2-1□-D	VZ1000-11-1-10
II TV23-S6□2-2□-D	VZ1000-11-1-13
II TV23-S6□2-3□-D	VZ1000-11-1-16
II TV23-S6□2-4□-D	VZ1000-11-1-19

Silencer
(Exhaust port)



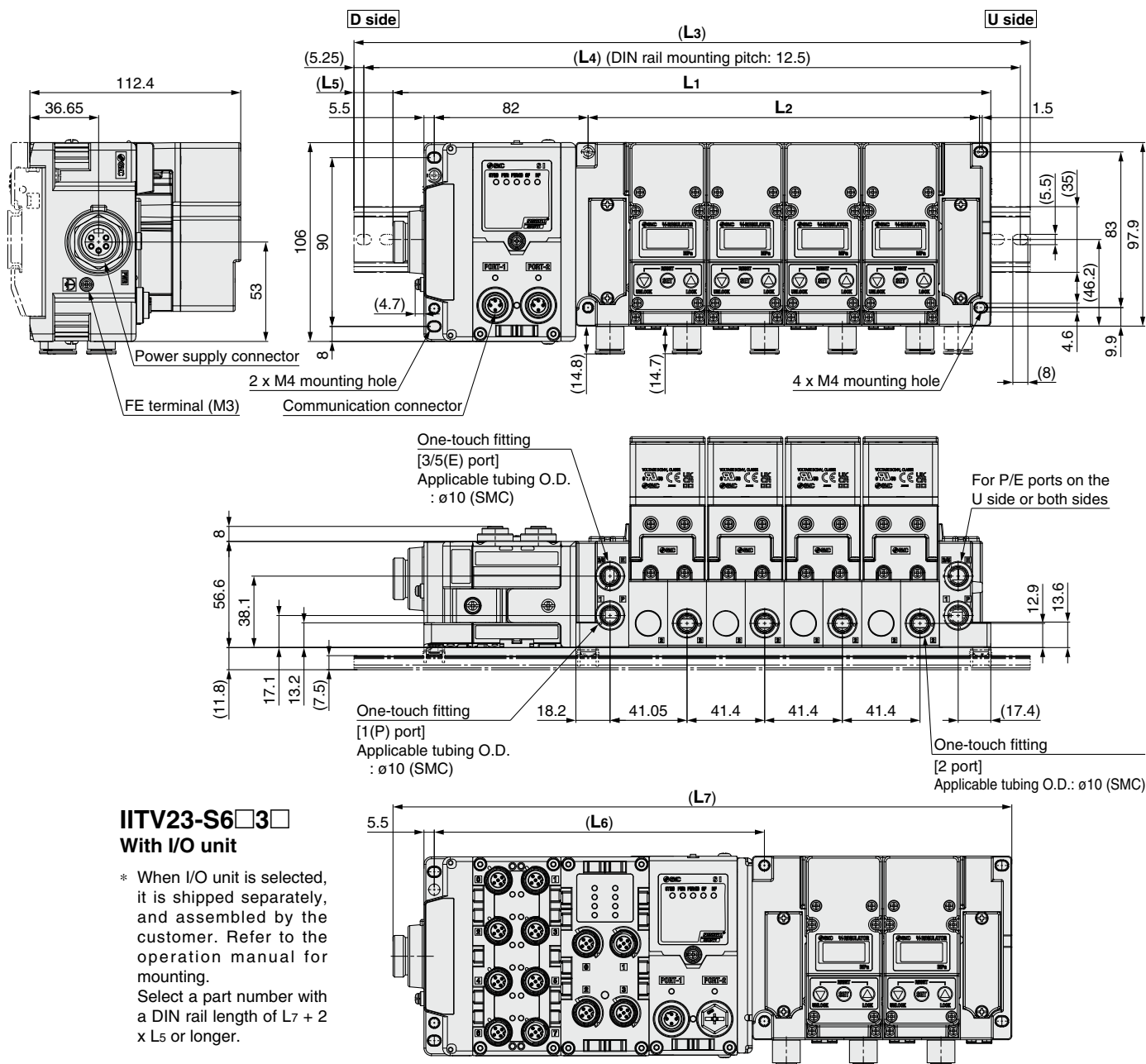
IITV23 Series

Dimensions

IITV23-S6□3

Protocol: PROFINET, EtherNet/IP™, EtherCAT

End plate specifications: 7/8 inch power supply connector (EX600-ED3)



IITV23-S6□3

With I/O unit

* When I/O unit is selected, it is shipped separately, and assembled by the customer. Refer to the operation manual for mounting.
Select a part number with a DIN rail length of $L_7 + 2 \times L_5$ or longer.

Dimensions

Part no.	L1	L2	L3	L4	L5
IITV23-S6□3-1□-□	194.5	84.45	235.5	225	(L3-L1)/2
IITV23-S6□3-2□-□	235.9	125.85	273	262.5	
IITV23-S6□3-3□-□	277.3	167.25	310.5	300	
IITV23-S6□3-4□-□	318.7	208.65	360.5	350	

DIN Rail Part Nos.

Part no.	DIN rail part no.
IITV23-S6□3-1□-D	VZ1000-11-1-11
IITV23-S6□3-2□-D	VZ1000-11-1-14
IITV23-S6□3-3□-D	VZ1000-11-1-17
IITV23-S6□3-4□-D	VZ1000-11-1-21

* Refer to L3 of the dimensions for the DIN rail length.

If a dimension greater than L3 is required, select D0 (without DIN rail) and order a DIN rail separately. Refer to page 20 for the DIN rail part number.

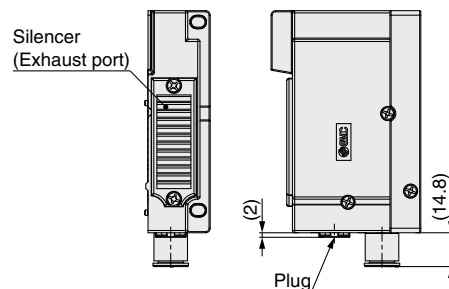
DIN rail cannot be mounted without SI unit.

$$(L_6) = 47 \times n + 82$$

$$(L_7) = 47 \times n + L_1$$

n: I/O unit stations

P, E port entry:
Built-in silencer

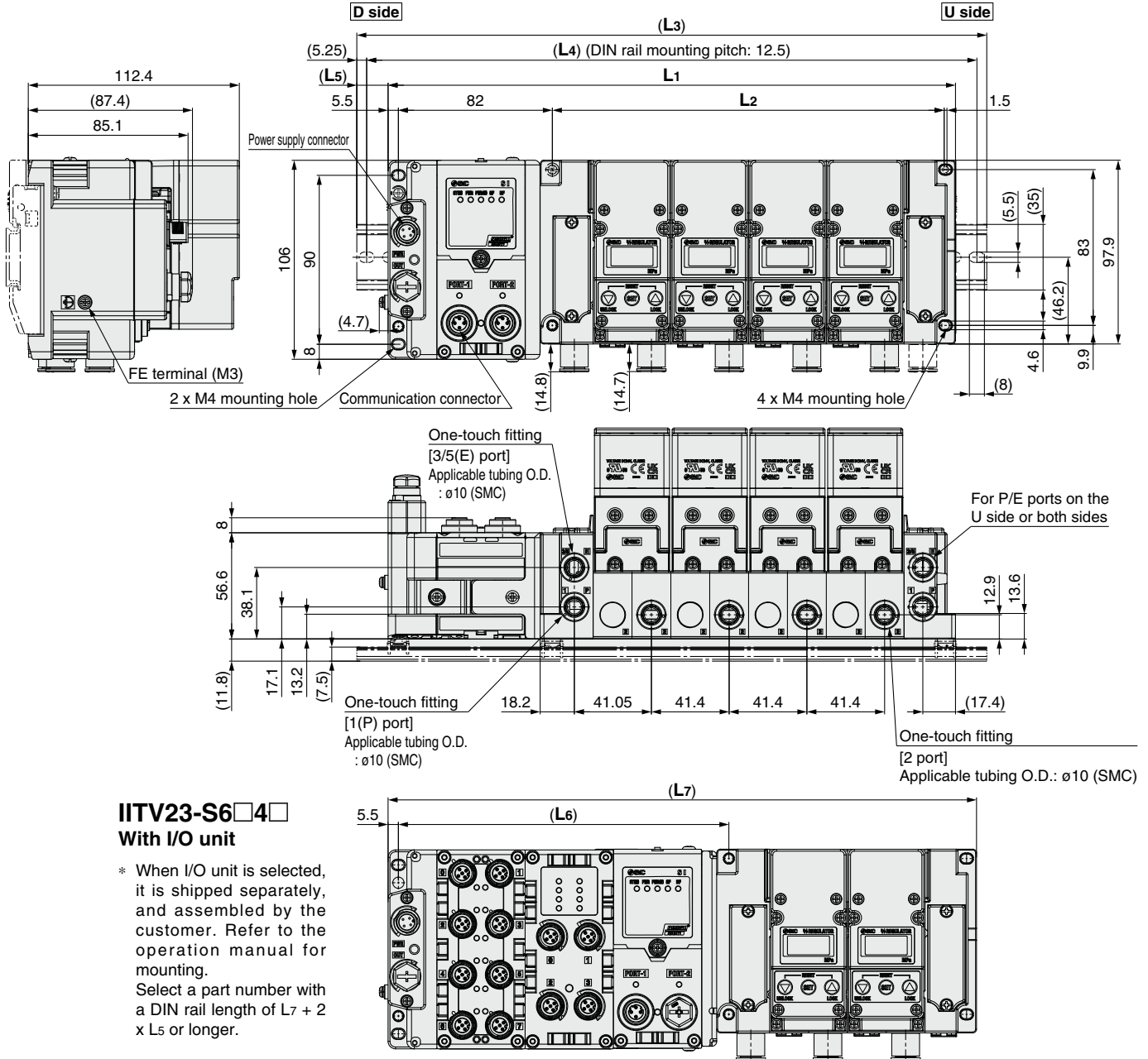


Dimensions

IITV23-S6□4

Protocol: PROFINET, EtherNet/IP™, EtherCAT

End plate specifications: M12 power supply connector IN/OUT, A-coded (EX600-ED4)



Dimensions

Part no.	L1	L2	L3	L4	L5
IITV23-S6□4-1□-□	178	84.45	223	212.5	(L3-L1)/2
IITV23-S6□4-2□-□	219.4	125.85	260.5	250	
IITV23-S6□4-3□-□	260.8	167.25	298	287.5	
IITV23-S6□4-4□-□	302.2	208.65	335.5	325	

DIN Rail Part Nos.

Part no.	DIN rail part no.
IITV23-S6□4-1□-D	VZ1000-11-1-10
IITV23-S6□4-2□-D	VZ1000-11-1-13
IITV23-S6□4-3□-D	VZ1000-11-1-16
IITV23-S6□4-4□-D	VZ1000-11-1-19

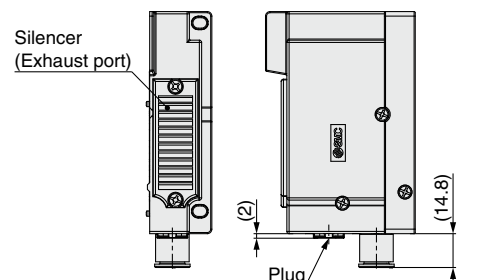
* Refer to L3 of the dimensions for the DIN rail length.

If a dimension greater than L3 is required, select D0 (without DIN rail) and order a DIN rail separately. Refer to page 20 for the DIN rail part number.

DIN rail cannot be mounted without SI unit.

(L6) = 47 x n + 82
(L7) = 47 x n + L1
n: I/O unit stations

**P, E port entry:
Built-in silencer**



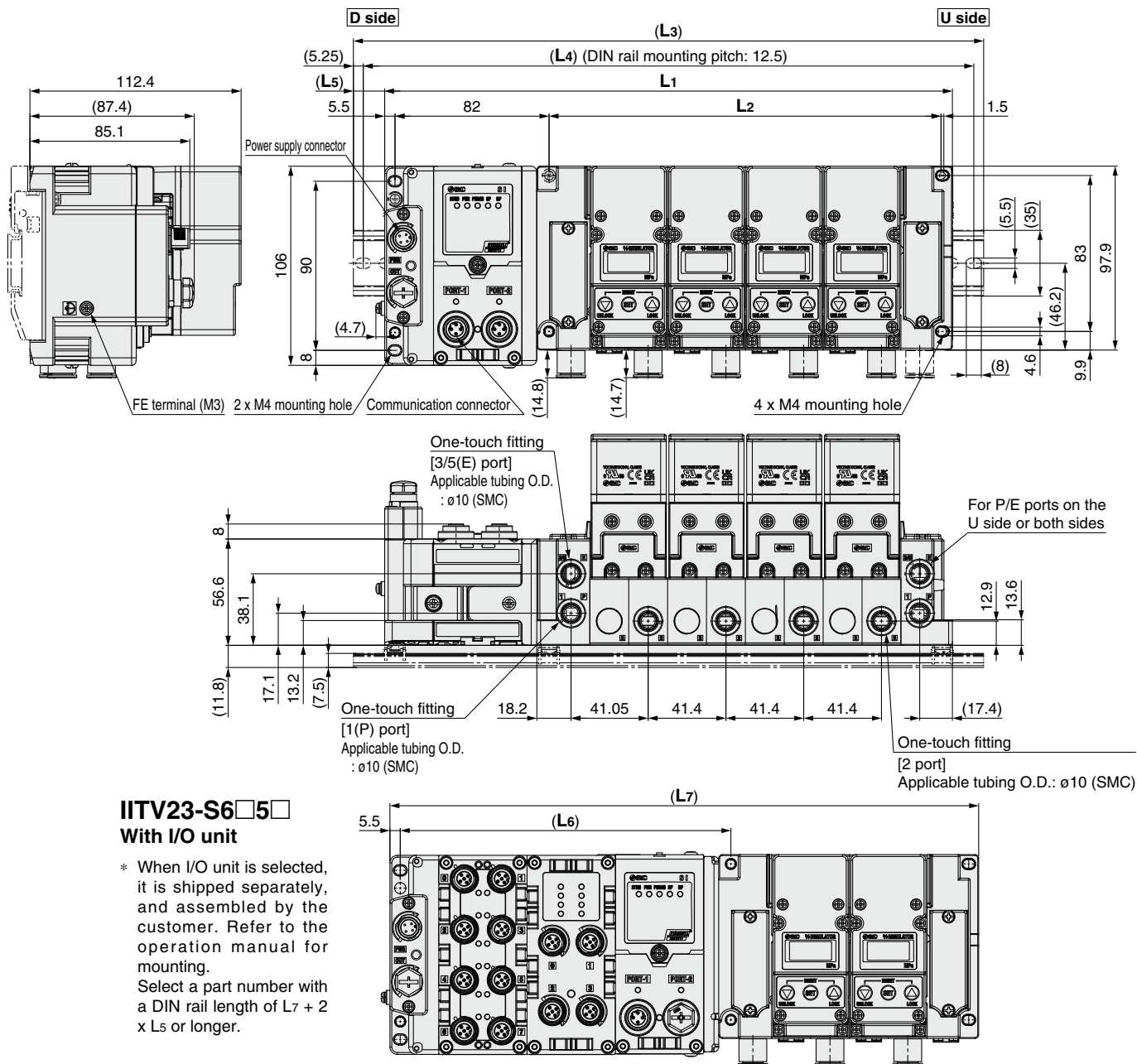
IITV23 Series

Dimensions

IITV23-S6□5

Protocol: PROFINET, EtherNet/IP™, EtherCAT

End plate specifications: M12 power supply connector IN/OUT, A-coded (EX600-ED5)



Dimensions

Part no.	L ₁	L ₂	L ₃	L ₄	L ₅
IITV23-S6□5-1□-□	178	84.45	223	215.5	(L ₃ -L ₁)/2
IITV23-S6□5-2□-□	219.4	125.85	260.5	250	
IITV23-S6□5-3□-□	260.8	167.25	298	287.5	
IITV23-S6□5-4□-□	302.2	208.65	335.5	325	

DIN Rail Part Nos.

Part no.	DIN rail part no.
IITV23-S6□5-1□-D	VZ1000-11-1-10
IITV23-S6□5-2□-D	VZ1000-11-1-13
IITV23-S6□5-3□-D	VZ1000-11-1-16
IITV23-S6□5-4□-D	VZ1000-11-1-19

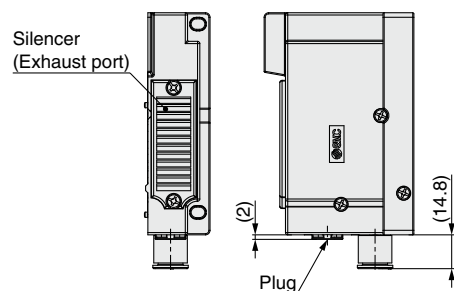
* Refer to L3 of the dimensions for the DIN rail length.

If a dimension greater than L3 is required, select D0 (without DIN rail) and order a DIN rail separately. Refer to page 20 for the DIN rail part number.

DIN rail cannot be mounted without SI unit.

$(L_6) = 47 \times n + 82$
 $(L_7) = 47 \times n + L_1$
 n : I/O unit stations

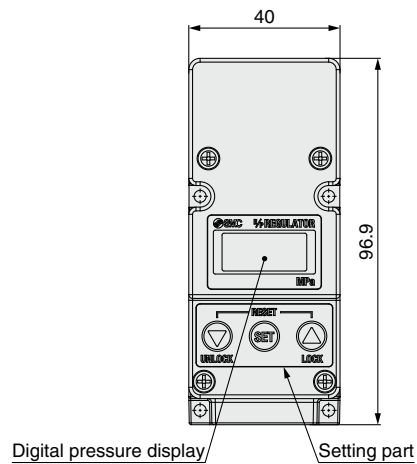
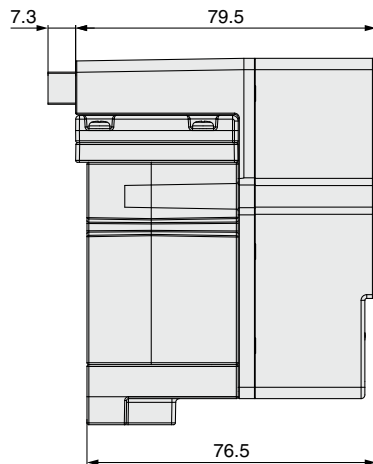
P, E port entry:
Built-in silencer



Dimensions

Electro-pneumatic regulator (Single unit)

ITV23□0

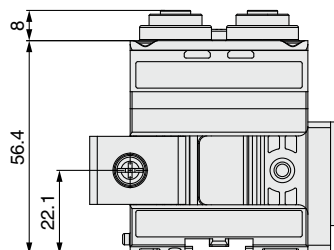
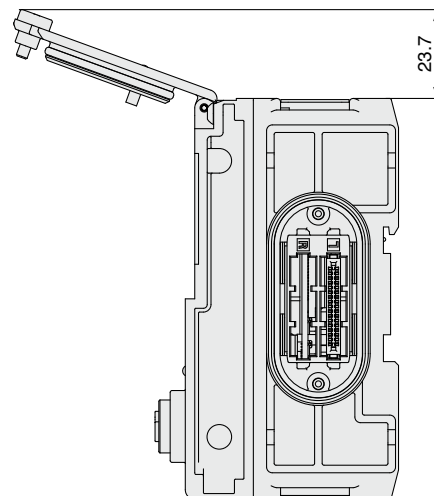
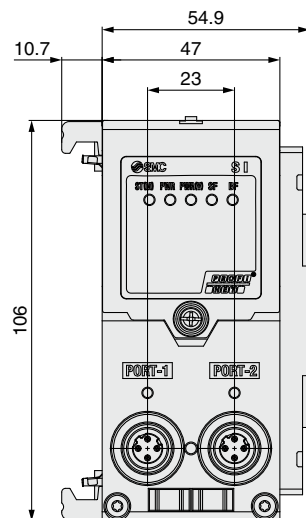


SI unit

EX600-MPN1

EX600-MEN1

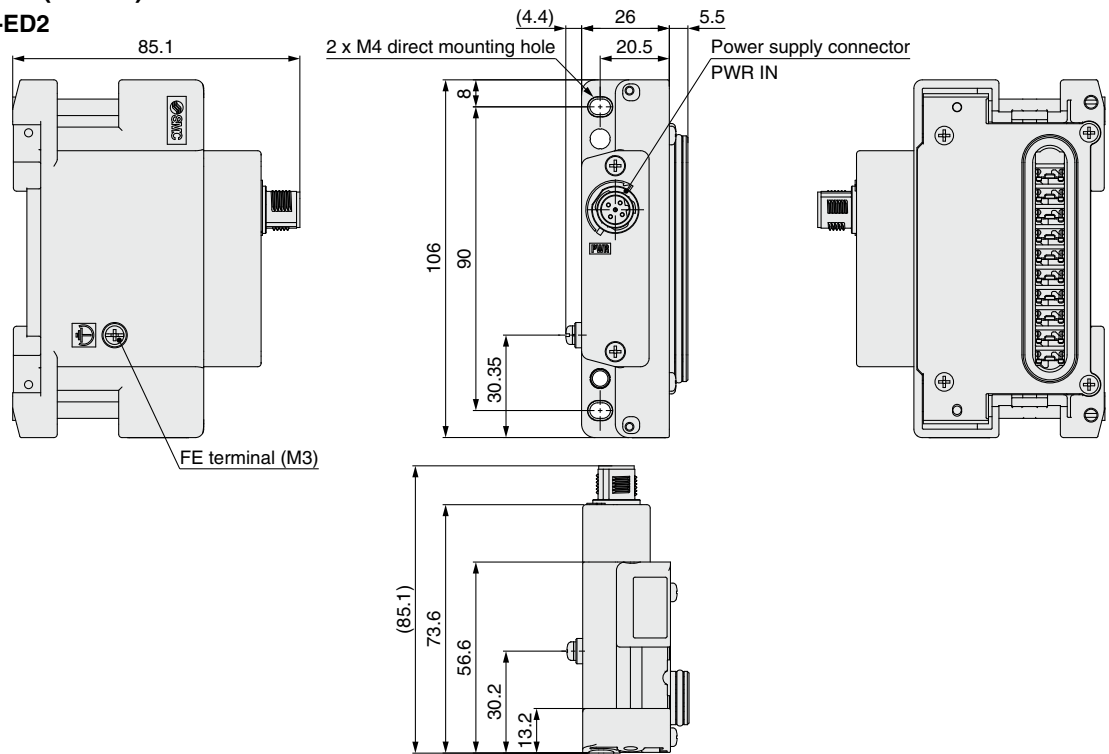
EX600-MEC1



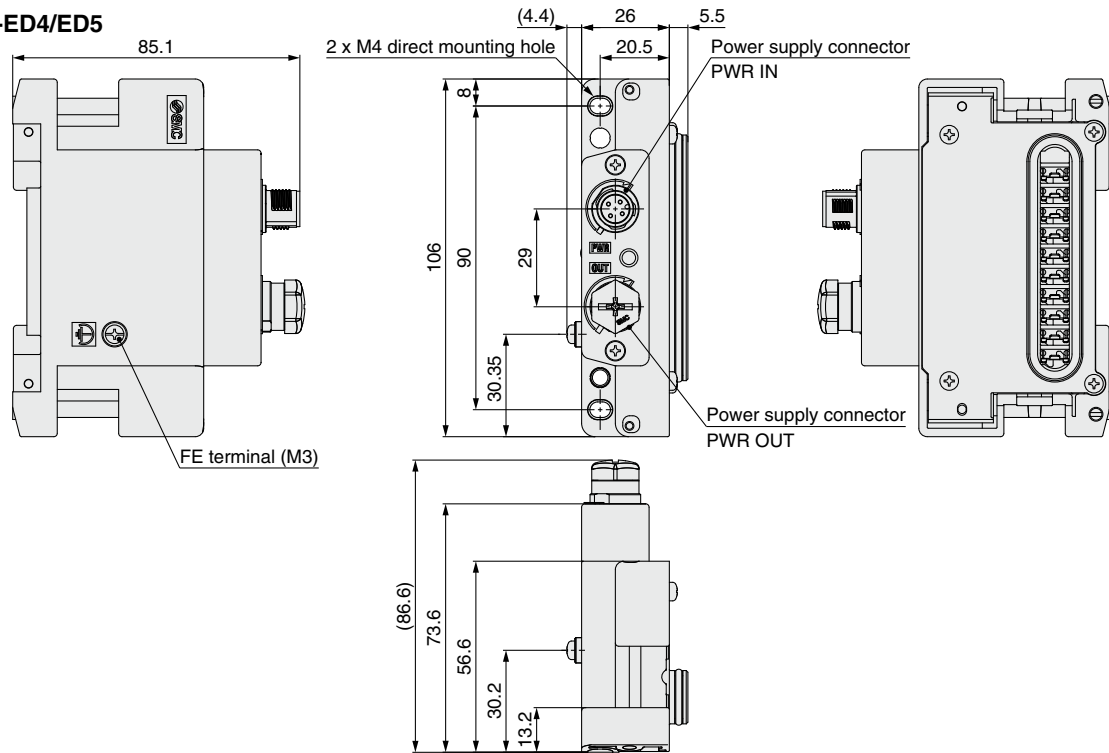
Dimensions

End plate (D side)

EX600-ED2



EX600-ED4/ED5



Power supply connector PWR IN:
M12 5-pin plug, B-coded

Configuration	EX600-ED2	
	Pin no.	Description
	1	24 V (for output)
	2	0 V (for output)
	3	24 V (for control/input)
	4	0 V (for control/input)
	5	FE

Power supply connector PWR IN:
M12 4-pin plug, A-coded

Configuration	EX600-ED4 (Pin arrangement 1)		EX600-ED5 (Pin arrangement 2)	
	Pin no.	Description	Pin no.	Description
	1	24 V (for control/input)	1	24 V (for output)
	2	24 V (for output)	2	0 V (for output)
	3	0 V (for control/input)	3	24 V (for control/input)
	4	0 V (for output)	4	0 V (for control/input)

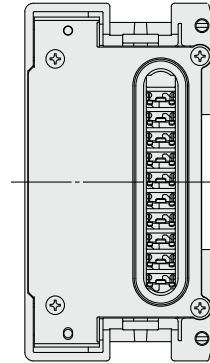
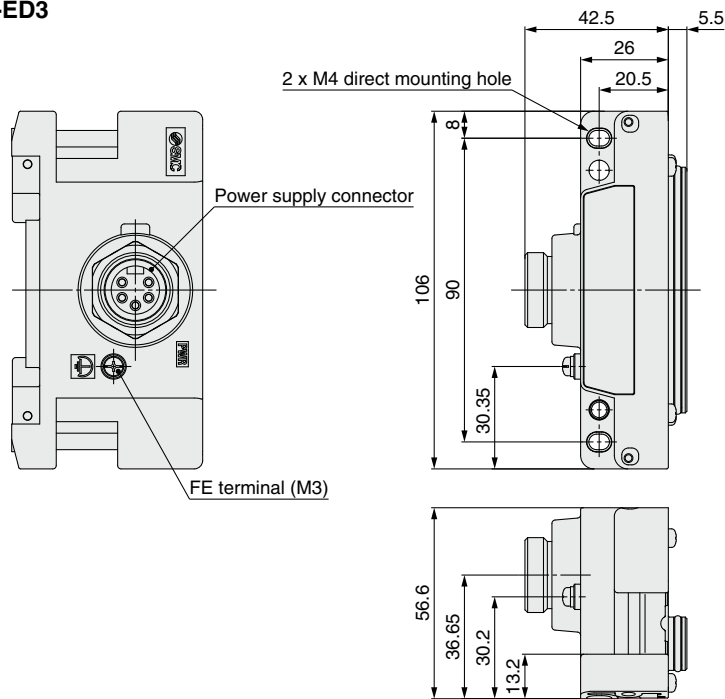
Power supply connector PWR OUT:
M12 5-pin socket, A-coded

Configuration	EX600-ED4 (Pin arrangement 1)		EX600-ED5 (Pin arrangement 2)	
	Pin no.	Description	Pin no.	Description
	1	24 V (for control/input)	1	24 V (for output)
	2	24 V (for output)	2	0 V (for output)
	3	0 V (for control/input)	3	24 V (for control/input)
	4	0 V (for output)	4	0 V (for control/input)
	5	Unused	5	Unused

Dimensions

End plate (D side)

EX600-ED3



Power supply connector PWR: 7/8 inch 5-pin plug

Configuration	Pin no.	Description
	1	0 V (for output)
	2	0 V (for control/input)
	3	FE
	4	24 V (for control/input)
	5	24 V (for output)

IITV23 Series

Electro-Pneumatic Regulator Manifold Exploded View

Wiring

EX600

DIN rail holding screw
(Tightening torque: 1.4 N·m)

Mounting screw
(Tightening torque: 0.6 to 0.7 N·m)

Holding screw
(Tightening torque: 1.4 N·m)

④ **Clamp bracket**
It is mounted only for the DIN rail mounting type.
The holding screws of the clamp bracket is tightened at two points.

Manifold exploded view

U side

a
Tension
bolt

Refer to page 19 for the detailed manifold exploded view.

Manifold Parts Nos.

SUP/EXH block assembly

JSY 3 1M-1PL-1A ☐ - **C10** ☐

With/without silencer

Nil	Without
S	With

P, E port size
(One-touch fitting)

Symbol	P, E port
C10	ø10 One-touch fitting
00	Plug

* When “S: With” is selected for the silencer, the E port is plugged.

Mounting

Symbol	Mounting
Nil	Direct mounting
D0	DIN rail mounting (Without DIN rail)

② Valve plate

EX600 – ZMV3

* With mounting screws (2 pcs. of M4 x 6 and 2 pcs. of M3 x 8)

③ EX600 SI unit

EX600 – M PN 1

Protocol

Symbol	Description
PN	PROFINET
EN	EtherNet/IP™
EC	EtherCAT

④ Clamp bracket

SY30M-15-1A

* The part number is for 1 piece.

Manifold Parts Nos.

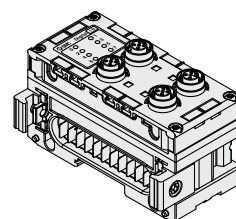
⑤ EX600 digital input unit

EX600-DX **P** **B**

Input type	
Symbol	Description
P	PNP
N	NPN

Number of inputs, open-circuit detection, and connector

Symbol	Number of inputs	Open-circuit detection	Connector
B	8	No	M12 connector (5 pins) 4 pcs.
C	8	No	M8 connector (3 pins) 8 pcs.
C1	8	Yes	M8 connector (3 pins) 8 pcs.
D	16	No	M12 connector (5 pins) 8 pcs.
E	16	No	D-sub connector (25 pins)
F	16	No	Spring type terminal block (32 pins)



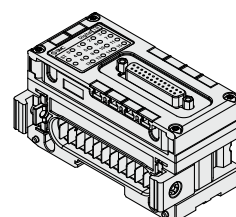
⑤ EX600 digital output unit

EX600-DY **P** **B**

Output type	
Symbol	Description
P	PNP
N	NPN

Number of outputs and connector

Symbol	Number of outputs	Connector
B	8	M12 connector (5 pins) 4 pcs.
E	16	D-sub connector (25 pins)
F	16	Spring type terminal block (32 pins)



⑤ EX600 digital input/output unit

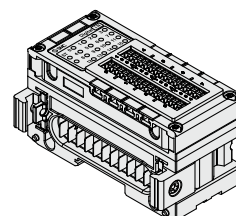
EX600-DM **P** **E**

Input/Output type

Symbol	Description
P	PNP
N	NPN

Number of inputs/outputs and connector

Symbol	Number of inputs	Number of outputs	Connector
E	8	8	D-sub connector (25 pins)
F	8	8	Spring type terminal block (32 pins)



⑤ EX600 analog input/output unit

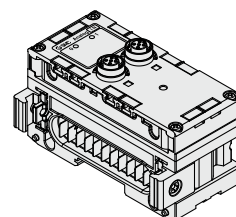
EX600-AX **A**

Analog input/output

Symbol	Description
AX	Analog input
AY	Analog output

Number of channels and connector

Symbol	Number of channels	Connector
A	2 channels	M12 connector (5 pins) 2 pcs.



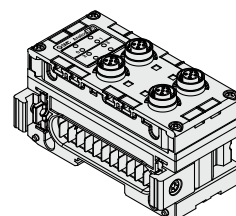
⑤ EX600 analog input/output unit

EX600-AM **B**

Analog input/output

Number of input/output channels and connector

Symbol	Number of input channels	Number of output channels	Connector
B	2 channels	2 channels	M12 connector (5 pins) 4 pcs.



⑤ EX600 IO-Link unit

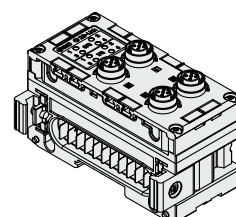
EX600-L **A** **B** 1

Port specification

Symbol	Description
A	Port class A
B	Port class B

Number of ports and connector

Symbol	Number of ports	Connector
B	4 ports	M12 connector (5 pins) 4 pcs.



⑥ EX600 end plate

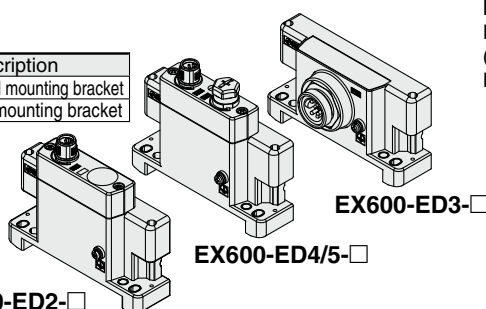
EX600-ED **2** - **□**

Power connector

Symbol	Connector
2	M12 power supply connector, B-coded
3	7/8 inch power supply connector
4	M12 power supply connector IN/OUT, A-coded, Pin arrangement 1
5	M12 power supply connector IN/OUT, A-coded, Pin arrangement 2

Mounting

Symbol	Description
Nil	Without DIN rail mounting bracket
3	With DIN rail mounting bracket



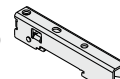
* The pin layout for the "4" and "5" pin connectors is different.

⑦ Clamp bracket for EX600

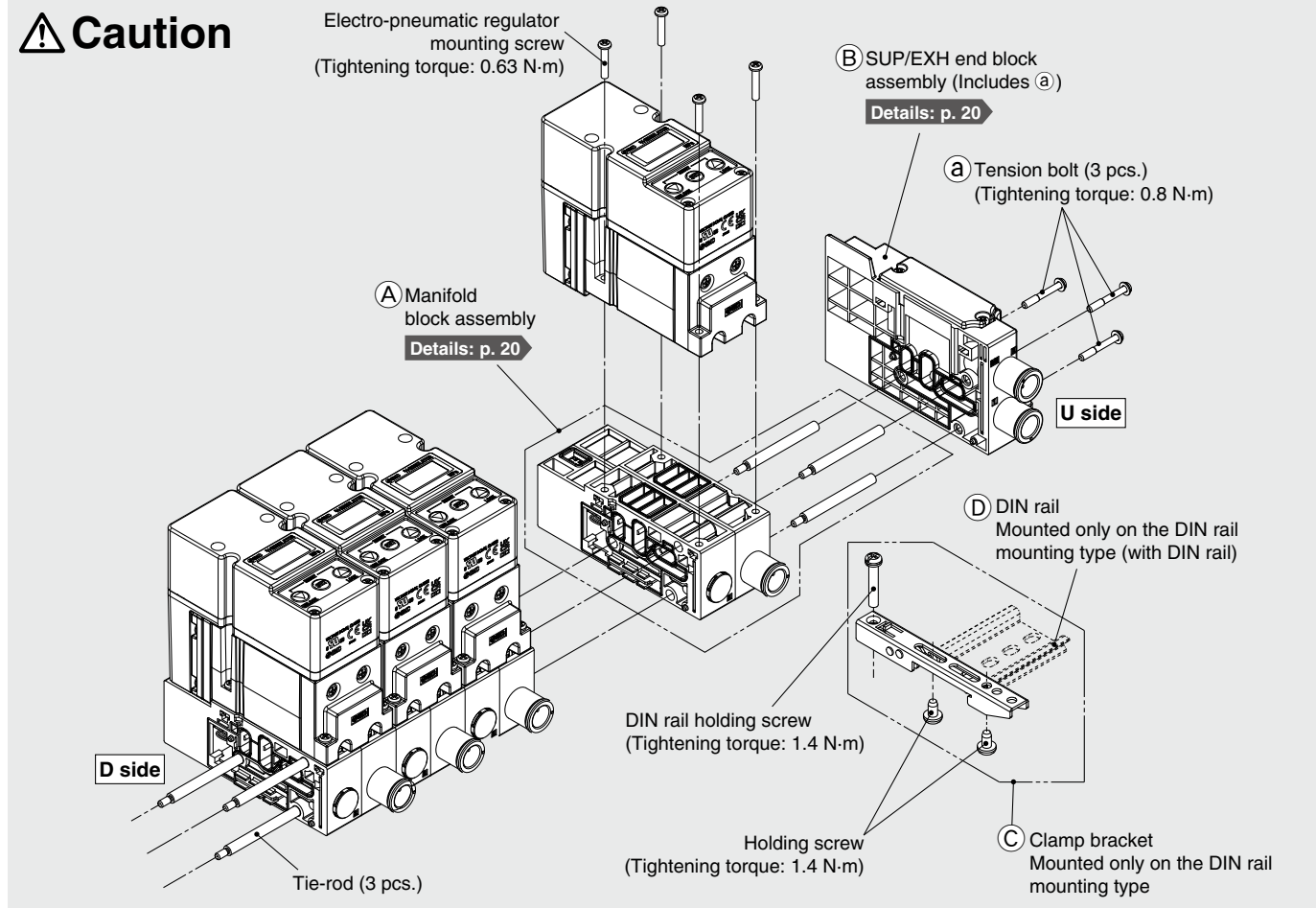
EX600-ZMA3

Enclosed parts

Round head screw with washer (M4 x 20) 1 pc.
P-tight screw (4 x 14) 2 pcs.



Manifold Exploded View (U side)



How to Increase Electro-Pneumatic Regulator Manifold Stations

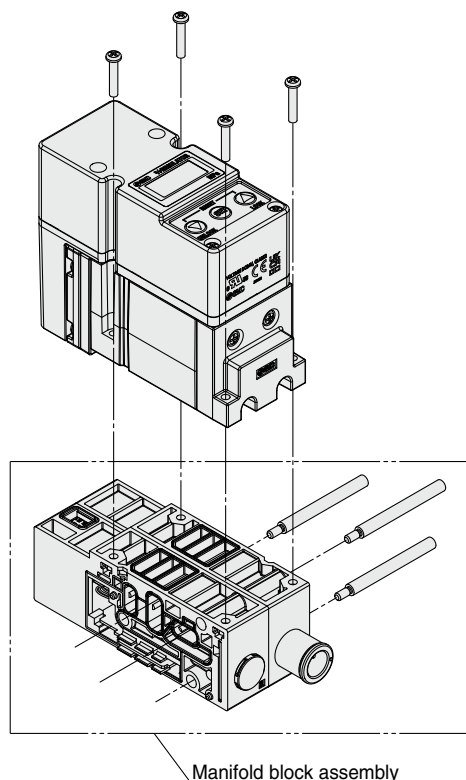
- 1 Loosen the U-side tension bolt ③, and remove the ② SUP/EXH end block assembly.
- 2 Screw in tie-rods for additional stations to the tie-rod of the manifold.
(Screw them in until there is no gap between the tie-rods.)
- 3 Connect the ① manifold block assembly to be added, and ② SUP/EXH end block assembly and tighten the tension bolt ③.

Tightening torque for tension bolt ③ (M3): 0.8 N·m

⚠ Caution

1. Be sure to shut off the power and air supplies before disassembly.
Furthermore, since air may remain inside the actuator, piping, and manifold, confirm that the air is completely exhausted before performing any work.
2. When disassembly and assembly are performed, air leakage may result if the tightening of the tension bolt is inadequate.

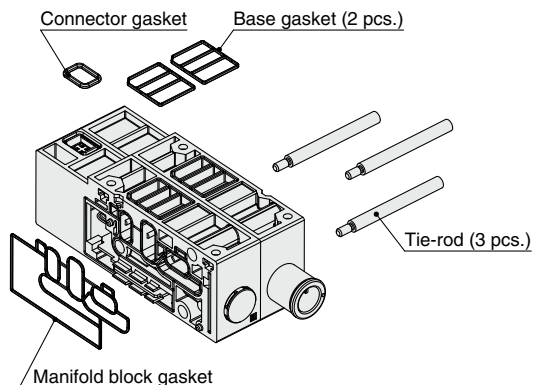
How to increase manifold stations



Manifold Parts Nos.

① Manifold block assembly

P798050 – 9 – 2



② SUP/EXH end block assembly

JSY 3 1M – 3P – 1A ☐ – **C10** ☐

With/without silencer

Nil	Without
S	With

Mounting

Nil	Direct mounting
D0	DIN rail mounting (Without DIN rail)

P, E port size
(One-touch fitting)

Symbol	P, E port
C10	ø10 One-touch fitting
00	Plug

* When "S: With" is selected for the silencer, the E port is plugged.

SUP/EXH end block assembly accessories and the number of accessories

Accessories	Quantity
③ Tension bolt	3 pcs.

③ Clamp bracket

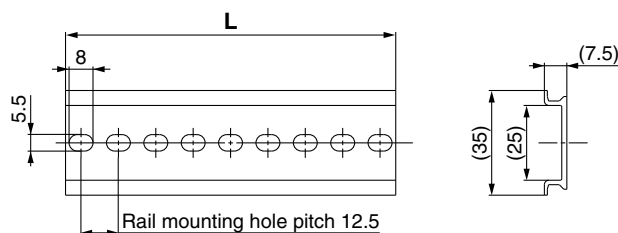
SY30M – 15 – 1A

* The part number is for 1 piece.

④ DIN rail dimensions/weight

VZ1000 – 11 – 1 – ☐

* After confirming the L₃ dimension in the dimensions table of each series, refer to the DIN rail dimensions table below and specify the number in the box ☐.

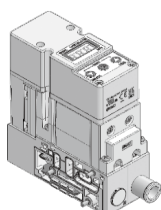


No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5	273	285.5	298	310.5	323
Weight [g]	17.6	19.9	22.1	24.4	26.6	28.9	31.1	33.4	35.6	37.9	40.1	42.4	44.6	46.9	49.1	51.4	53.6	55.9	58.1
No.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
L dimension	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5	523	535.5	548	560.5
Weight [g]	60.4	62.5	64.9	67.1	69.4	71.6	73.9	76.1	78.4	80.6	82.9	85.1	87.4	89.6	91.9	94.1	96.4	98.6	100.9
No.	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
L dimension	573	585.5	598	610.5	623	635.5	648	660.5	673	685.5	698	710.5	723	735.5	748	760.5	773	785.5	798
Weight [g]	103.1	105.4	107.6	109.9	112.1	114.4	116.6	118.9	121.1	123.4	125.6	127.9	130.1	132.4	134.6	136.9	139.1	141.4	143.6
No.	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71				
L dimension	810.5	823	835.5	848	860.5	873	885.5	898	910.5	923	935.5	948	960.5	973	985.5				
Weight [g]	145.9	148.1	150.4	152.6	154.9	157.1	159.4	161.6	163.9	166.1	168.4	170.6	172.9	175.1	177.4				

Electro-Pneumatic Regulators for Manifold Assembly

This part number is for the integrated electro-pneumatic regulator for manifolds and manifold block assembly.

3 tie-rods are included.



ITV2340 – ☐ **A**

Output type

2	Direct output type
---	--------------------

Pressure display unit

Nil	MPa
3	bar
4*1	psi

*1 This product is for overseas use only according to the New Measurement Act.
(The SI unit type is provided for use in Japan.)

IITV23 Series

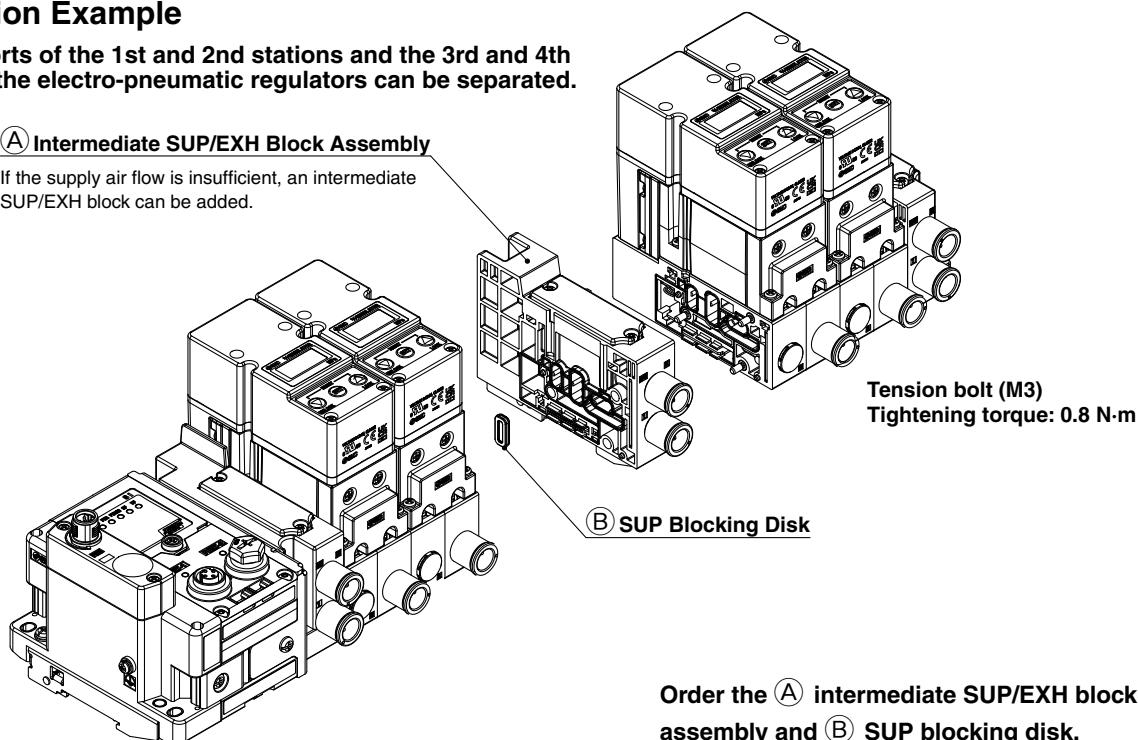
Accessories

Application Example

The SUP ports of the 1st and 2nd stations and the 3rd and 4th stations of the electro-pneumatic regulators can be separated.

Ⓐ Intermediate SUP/EXH Block Assembly

If the supply air flow is insufficient, an intermediate SUP/EXH block can be added.



Ⓐ Intermediate SUP/EXH Block Assembly

JSY31M - 125P - 1A C10

With/without silencer

Nil	Without
S	With

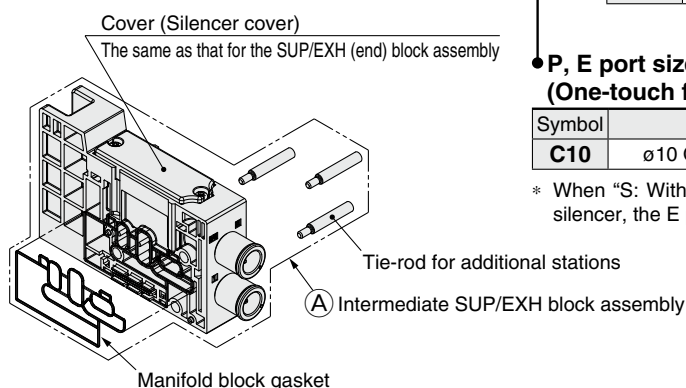
Mounting

Nil	Direct mounting
D0	DIN rail mounting (Without DIN rail)

P, E port size (One-touch fitting)

Symbol	P, E port
C10	ø10 One-touch fitting

* When "S: With" is selected for the silencer, the E port is plugged.



Intermediate SUP/EXH block assembly accessories and the number of accessories

Accessories	Quantity
Tie-rod for additional stations	3 pcs.
Manifold block gasket	1 pc.

* Gasket is mounted.

Ⓒ Clamp bracket

SY30M - 15 - 1A

* The part number is for 1 piece.

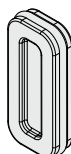
⚠ Caution

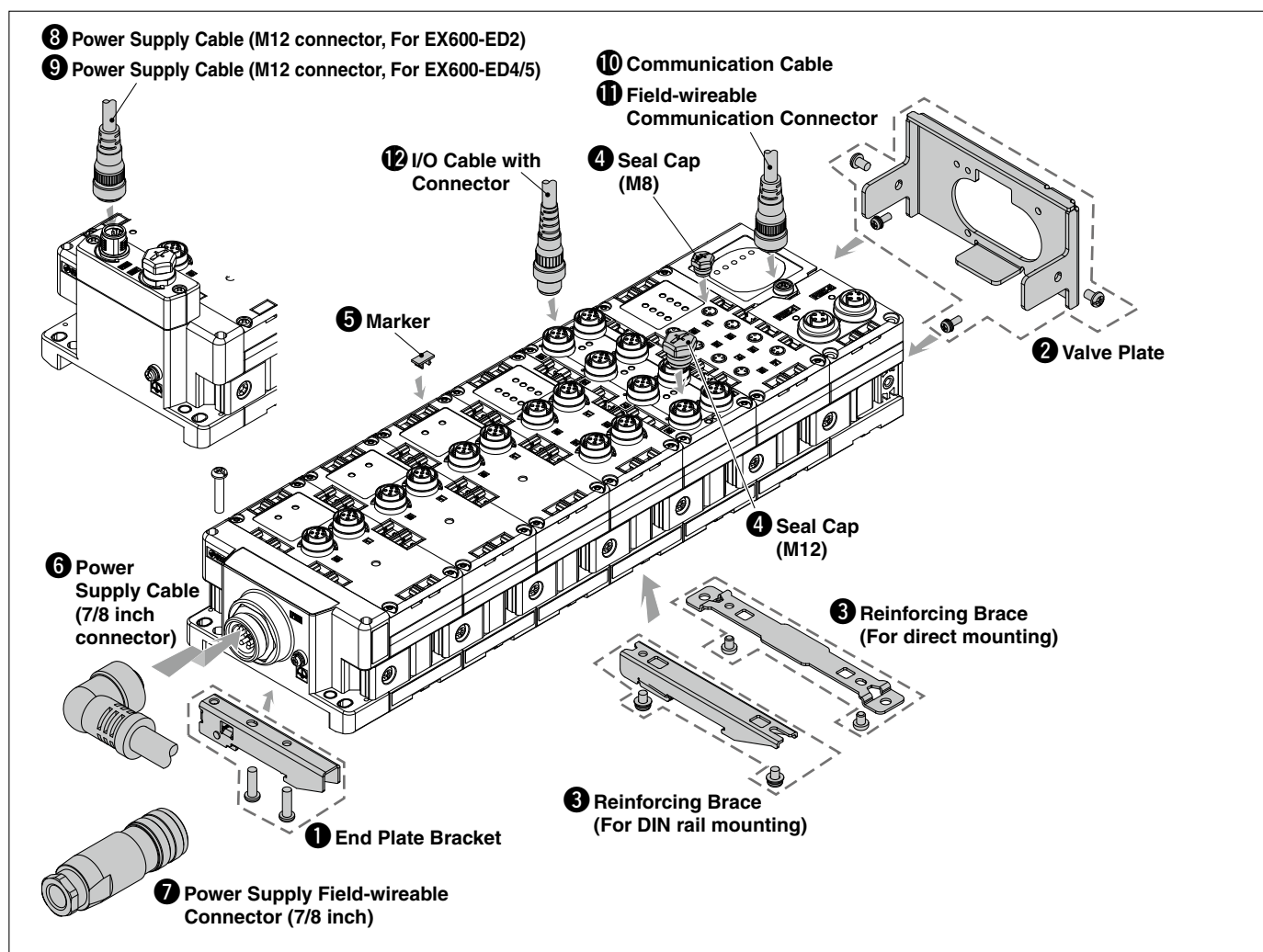
1. Be sure to shut off the power and air supplies before disassembly. Furthermore, since air may remain inside the actuator, piping and manifold, confirm that the air is completely exhausted before performing any work.
2. When disassembly and assembly are performed, air leakage may result if the tightening of the cover and port block assemblies are inadequate.

Ⓑ SUP Blocking Disk

JSY31M - 40P - 1A

* Insert a SUP blocking disk between the intermediate SUP/EXH block and the electro-pneumatic regulator.





1 End Plate Bracket

This bracket is used for the end plate of DIN rail mounting.

EX600-ZMA3

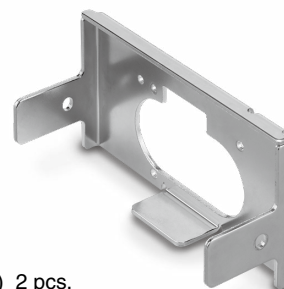


Enclosed parts

Round head screw with washer (M4 x 20) 1 pc.
P-tight screw (4 x 14) 2 pcs.

2 Valve Plate

EX600-ZMV3



Enclosed parts

Round head screw (M4 x 6) 2 pcs.
Round head screw (M3 x 8) 2 pcs.

③ Reinforcing Brace

This bracket is used on the bottom of the unit at the intermediate position for connecting 6 units or more.

* Be sure to attach this bracket to prevent connection failure between the units caused by deflection.

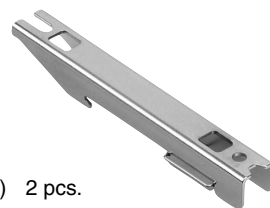
For direct mounting
EX600-ZMB1



Enclosed parts

Round head screw (M4 x 5) 2 pcs.

For DIN rail mounting
EX600-ZMB2



Enclosed parts

Round head screw (M4 x 6) 2 pcs.

④ Seal Cap (10 pcs.)

Be sure to mount a seal cap on any unused I/O connectors. Otherwise, the specified enclosure cannot be maintained.

EX9-AWES
For M8



EX9-AWTS

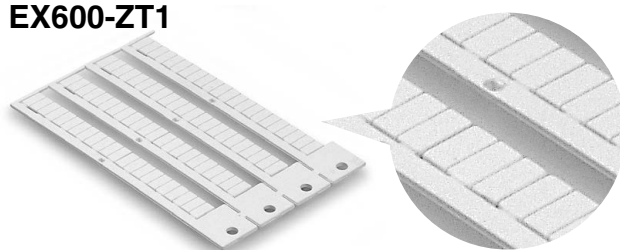
For M12



5 Marker (1 sheet, 88 pcs.)

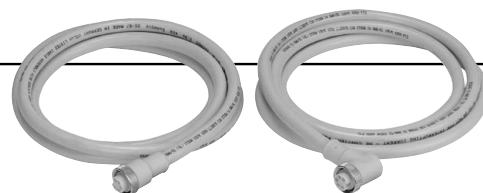
The signal name of I/O device and each unit address can be entered and mounted on each unit.

EX600-ZT1

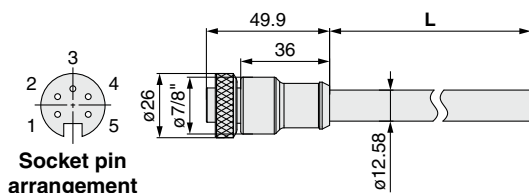


⑥ Power Supply Cable (7/8 inch connector)

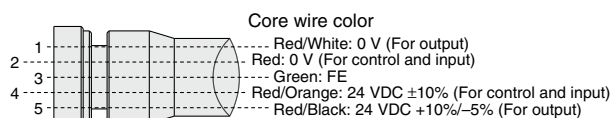
PCA-1558810	Straight 2 m
PCA-1558823	Straight 6 m
PCA-1558836	Right angled 2 m
PCA-1558849	Right angled 6 m



Straight connector type

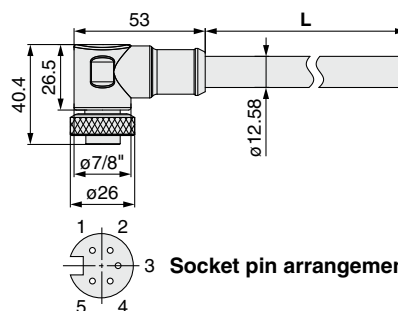


Socket pin arrangement

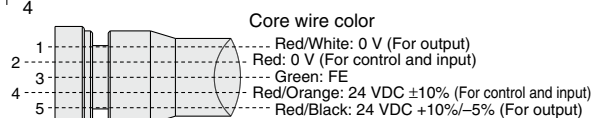


Connections

Angled connector type



Socket pin arrangement



Connections

Item	Specifications
Cable O.D.	ø12.58 mm
Conductor nominal cross section	1.5 mm ² /AWG16
Wire O.D. (including insulator)	2.35 mm
Min. bending radius (Fixed)	110 mm

⑦ Power Supply Field-wireable Connector (7/8 inch)

PCA-1578081 Socket [compatible with AWG22-16]



Applicable Cable

Item	Specifications
Cable O.D.	ø12.0 to 14.0 mm
Wire gauge (Stranded wire cross section)	0.34 to 1.5 mm ² AWG22 to 16

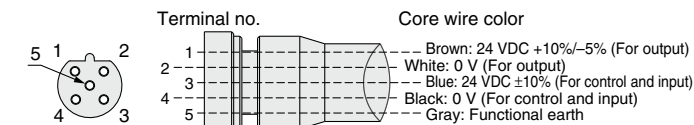
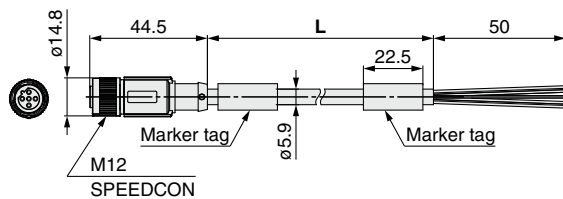
⑧ Power Supply Cable (M12 connector, For EX600-ED2) * The shape of the M12 connector is B-coded (Reverse key).

PCA-1564927 Straight 2 m
PCA-1564930 Straight 6 m
PCA-1564943 Right angled 2 m
PCA-1564969 Right angled 6 m



SPEEDCON

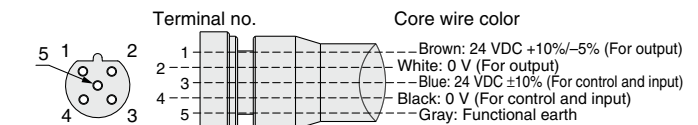
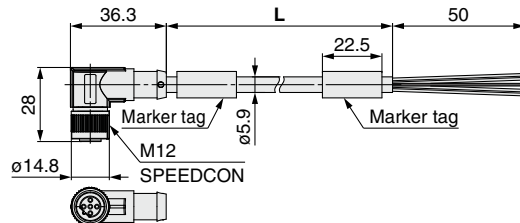
Straight connector type



Socket connector
pin arrangement
B-coded
(Reverse key)

Connections

Angled connector type



Socket connector
pin arrangement
B-coded
(Reverse key)

Connections

Item	Specifications
Cable O.D.	ø5.9 mm
Conductor nominal cross section	0.34 mm ² /AWG22
Wire O.D. (Including insulator)	1.27 mm
Min. bending radius (Fixed)	59 mm

IITV23 Series

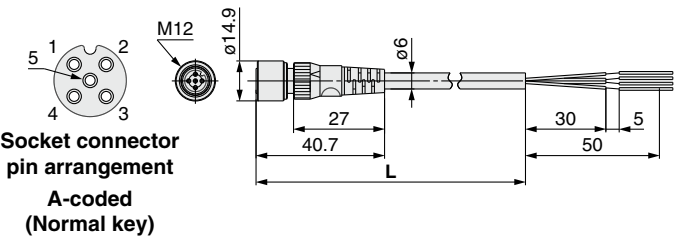
⑨ Power Supply Cable (M12 connector, For EX600-ED4/5) * The shape of the M12 connector is A-coded (Normal key).

EX500-AP 050 - S

Cable length (L)		Connector specification	
010	1000 mm	S	Straight
050	5000 mm	A	Angled

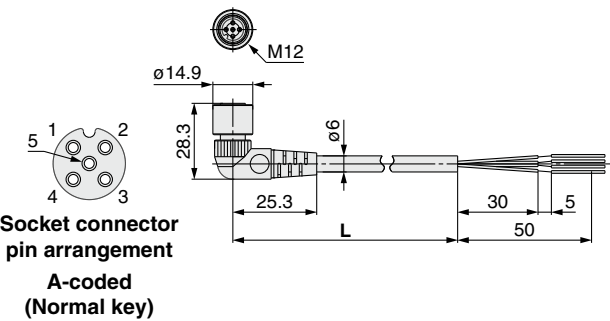


Straight connector type

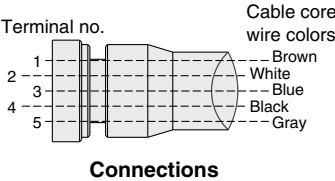


Item	Specifications
Cable O.D.	ø6 mm
Nominal cross section	0.3 mm ² /AWG22
Wire diameter (Including insulator)	1.5 mm
Min. bending radius	40 mm (Fixed)

Angled connector type



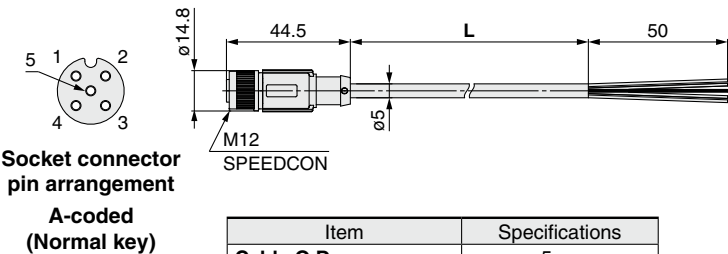
Item	Specifications
Cable O.D.	ø6 mm
Nominal cross section	0.3 mm ² /AWG22
Wire diameter (Including insulator)	1.5 mm
Min. bending radius	40 mm (Fixed)



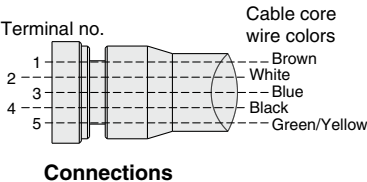
SPEEDCON

PCA-1401804

Cable length (L)	
1401804	1500 mm
1401805	3000 mm
1401806	5000 mm

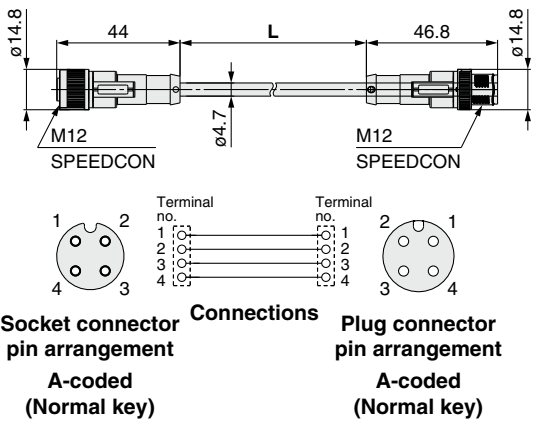


Item	Specifications
Cable O.D.	ø5 mm
Nominal cross section	0.3 mm ² /AWG22
Wire diameter (Including insulator)	1.27 mm
Min. bending radius	21.7 mm (Fixed)



PCA-1557769

Cable length (L)	
1557769	3000 mm



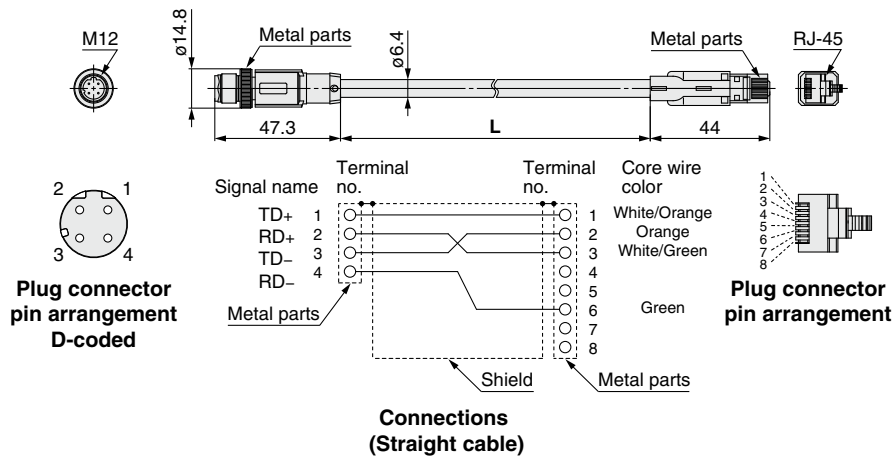
⑩ Communication Cable

For PROFINET, EtherNet/IP™, EtherCAT

EX9-AC **020** EN-PSRJ (Plug/RJ-45 connector)

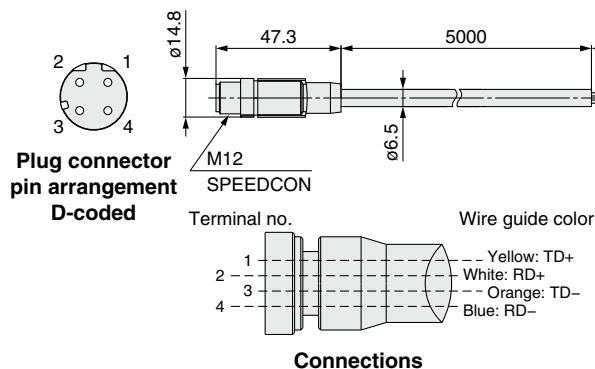
● Cable length (L)

010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm



Item	Specifications
Cable O.D.	$\phi 6.4$ mm
Conductor nominal cross section	0.14 mm ² /AWG26
Wire O.D. (Including insulator)	0.98 mm
Min. bending radius (Fixed)	26 mm

PCA-1446566 (Plug)



Item	Specifications
Cable O.D.	$\phi 6.5$ mm
Conductor nominal cross section	AWG22
Wire O.D. (Including insulator)	1.55 mm
Min. bending radius (Fixed)	45.5 mm

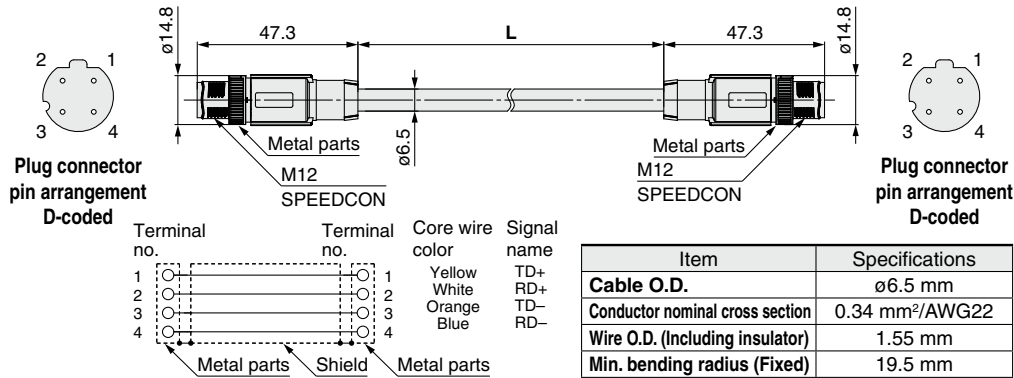
⑩ Communication Cable

For PROFINET, EtherNet/IP™, EtherCAT

EX9-AC 005 EN-PSPS (With connector on both sides (Plug/Plug))

• Cable length (L)

005	500 mm
010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm

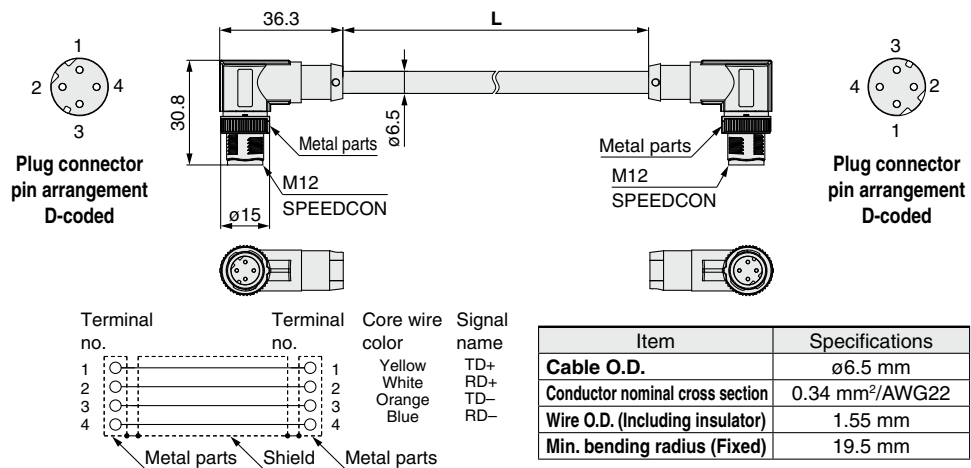


Connections (Straight cable)

EX9-AC 005 EN-PAPA (With angled connector on both sides (Plug/Plug))

• Cable length (L)

005	500 mm
010	1000 mm
020	2000 mm
030	3000 mm
050	5000 mm
100	10000 mm



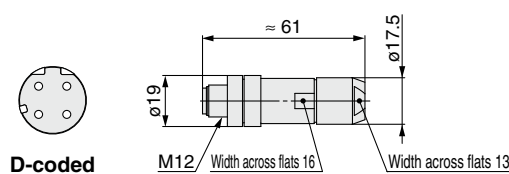
Connections (Straight cable)

⑪ Field-wireable Communication Connector

Plug

For PROFINET, EtherNet/IP™, EtherCAT

PCA-1446553



Applicable Cable

Item	Specifications
Cable O.D.	4.0 to 8.0 mm
Wire gauge (Stranded wire cross section)	0.14 to 0.34 mm ² / AWG26 to 22

* The table above shows the specifications for the applicable cable. Adaptation for the connector may vary on account of the conductor construction of the electric wire.

■Trademark

EtherNet/IP® is a registered trademark of ODVA, Inc.
EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.
QuickConnect™ is a trademark of ODVA



Specific Product Precautions 1

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For fieldbus system precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smcworld.com>

Operating Environment

Warning

1. Do not use in atmospheres containing corrosive gases, chemicals, sea water, or where there is direct contact with any of these.

Caution

1. When used in locations where the body of the product is exposed to water, water vapor, dust, etc., there is a possibility that moisture or dust could enter the body through the EXH port, thereby causing problems.
2. To prevent this, simply install tubing to each port, and extend the tubing so that the other end is in a location where no water splash, etc., occurs. Make sure not to bend or block the I.D. of the tubing as this will have a detrimental effect on the pressure control.
3. Do not use in places subject to heavy vibration and/or impact.
4. The product should not be exposed to prolonged sunlight. Use a protective cover if this is unavoidable.
5. Remove any sources of excessive heat.
6. In locations where there is contact with water, oil, weld spatter, etc., take suitable protective measures.

Air Supply

Warning

1. Be sure to use compressed air for the fluid.
2. Do not use compressed air that contains chemicals, synthetic oils that include organic solvents, salt, corrosive gases, etc., as doing so may result in a malfunction.

Caution

1. Install an air filter near this product on the supply side. Select an air filter with a filtration size of 5 μm or smaller.
2. Compressed air that contains a large amount of drainage can cause the malfunction of this product and other pneumatic equipment. Therefore, take appropriate measures to ensure air quality, such as providing an aftercooler, air dryer, or water separator.
3. If excessive carbon dust is generated by the compressor, it may adhere to the inside of this product and cause it to malfunction.

Refer to the “SMC Air Preparation System” for further details on compressed air quality.

Handling

Caution

1. Do not use a lubricator on the supply side of this product, as doing so may result in a malfunction. When lubrication of terminal equipment is necessary, connect a lubricator on the output side of this equipment.
2. If electric power is shut off while pressure is being applied, pressure will be retained on the output side. However, this output pressure is held only temporarily and is not guaranteed. If exhausting of this pressure is desired, shut off the power after reducing the set pressure, and discharge the air using a residual pressure exhaust valve, etc.
3. If the power to this product is cut off due to a power failure, etc., when it is in a controlled state, output pressure will be retained temporarily. Handle carefully when operating with output pressure released to the atmosphere, as air will continue to flow out.
4. If supply pressure to this product is interrupted while the power is still on, the internal solenoid valve will continue to operate and a humming noise may be generated. Since the life of the product may be shortened, shut off the power supply also when supply pressure is shut off.
5. The output side pressure cannot be completely released from this product in the range below 0.005 MPa. In cases where the pressure needs to be reduced completely to 0 MPa, install a 3-port valve, etc., on the output side to discharge the residual pressure.
6. This product is adjusted for each specification at the time of shipment from the factory. Avoid careless disassembly or removal of parts, as failure to do so may result in a malfunction.
7. When connecting the cable to this product, turn the lock ring of the cable. If a portion other than the lock ring of the cable is turned, it may damage the connector on the body. Turn the lock ring by hand without using a tool.
8. The right angle cable does not rotate and is limited to only one entry direction. If the right angle cable is rotated forcibly, the cable may be broken or damaged, or may damage the connector on the body.
9. Take the following steps to avoid malfunction due to noise.
 - 1) Remove power supply noise during operation by installing a line filter, etc., in the AC power line.
 - 2) For avoiding the influence of noise or static electricity, install this product and its wiring as far as possible from strong electric fields such as those of motors, power lines, etc.
 - 3) Be sure to implement protective measures against load surge for induction loads (solenoid valves, relays, etc.).
10. Specifications on pages 5 and 6 are in case of static environment. Pressure may fluctuate when air is consumed at the output side.
11. For details on the handling of this product, refer to the operation manual.
12. This product does not have a shut-off valve function. If air pressure is supplied without electric power being applied, output pressure may increase to the pressure equivalent of the supply pressure. Operate the system to shut off the supply pressure when not operating the product.



IITV23 Series

Specific Product Precautions 2

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For fieldbus system precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smcworld.com>

Handling

⚠ Caution

13. The solenoid valves built into this product are consumables. Perform periodic maintenance in environments where the solenoid valves are operated at a high frequency.
14. In locations where the body is exposed to water, dust, etc., there is a possibility that moisture or dust could enter the body through the EXH port. Mount a tube onto the EXH port and run the tube to a location not exposed to moisture, dust, etc.

Design / Selection

⚠ Caution

1. Use the following UL approved products for DC power supply combinations.

(1) Limited voltage current circuit in accordance with UL 508

A circuit in which power is supplied by the secondary coil of a transformer that meets the following conditions

- Max. voltage (with no load): 30 Vrms (42.4 V peak) or less
- Max. current:

(1) 8 A or less (including when short circuited)

(2) limited by circuit protector (such as fuse) with the following ratings

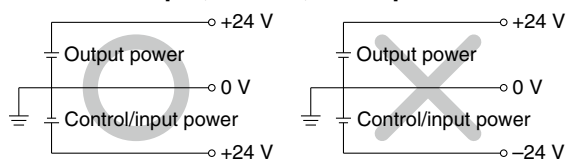
No load voltage (V peak)	Max. current rating [A]
0 to 20 [V]	5.0
Over 20 and 30 or less [V]	100 Peak voltage

(2) A circuit (class 2 circuit) with max. 30 Vrms (42.4 V peak) or less, and a power supply consisting of a class 2 power supply unit conforming to UL1310, or a class 2 transformer confirming to UL1585

2. Operate these products only within the specified voltage.

Using voltages beyond the specified levels could result in faults or malfunctions.

3. Use 0 V as the baseline for the power supplied to the unit for output, control, and input.



4. Please contact SMC for the usage when the output side is released to atmosphere.

This product is a pressure controller. The output side being released to atmosphere makes the inlet valve full open, allowing a large amount of atmosphere flow into the body. Please contact SMC for the appropriate usage when you use the product under such condition since the product may not meet the specification or the life of the product may be shortened.

Mounting

⚠ Caution

1. When handling and assembling units, do not touch the sharp metal parts of the connector or plug.
2. When connecting six stations or more, be sure to use the intermediate reinforcing brace (EX600-ZMB1 or EX600-ZMB2).

Mounting

⚠ Caution

3. When using the manifold with DIN rail in an environment where any vibration or impact is applied to it, the DIN rail itself may be broken. In particular, if the installation surface vibrates when mounting the manifold on the wall or if a load is directly applied to the manifold, the DIN rail may be broken, causing the manifold to drop. When any vibration, impact, or load is applied to the manifold, be sure to use the direct mounting manifold.

Operating Environment

⚠ Caution

1. Select the proper type of enclosure according to the operating environment.

IP65/67 is achieved when the following conditions are met.

1) Provide appropriate wiring between all units using electrical wiring cables, communication connectors and cables with M12 connectors.

2) Appropriately mount each unit and valve manifold.

3) Be sure to mount a seal cap on any unused connectors.

If using in an environment that is exposed to water splashes, please take measures such as using a cover.

When the enclosure is IP40, do not use in an operating environment or atmosphere where it may come in contact with corrosive gas, chemical agents, seawater, water, or water vapor.

When connected to the EX600-D□□E or EX600-D□□F, manifold enclosure is IP40.

Adjustment / Operation

⚠ Warning

1. The forced input/output function is used to change the signal status forcibly. When operating this function, be sure to check the safety of the surroundings and installation.

This may cause injuries or equipment damage.

2. Incorrect setting of parameters can cause a malfunction. Be sure to check the settings before use.

This may cause injuries or equipment damage.

Return of Product


⚠ Warning


If the product to be returned is contaminated or is possibly contaminated with substances that are harmful to humans, for safety reasons, please contact SMC beforehand and then employ a specialist cleaning company to decontaminate the product. After the decontamination prescribed above has been carried out, submit a Product Return Request Sheet or the Detoxification/Decontamination Certificate to SMC and await SMC's approval and further instructions before attempting to return the item. Please refer to the International Chemical Safety Cards (ICSC) for a list of harmful substances.


If you have any further questions, please don't hesitate to contact your SMC sales representative.

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)*1), and other safety regulations.

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

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

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

*1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots etc.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.

Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.


*2) **Vacuum pads are excluded from this 1 year warranty.**

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.

Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

 **Safety Instructions** Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

SMC Corporation

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Specifications are subject to change without prior notice
and any obligation on the part of the manufacturer.

D-G