Glossary of Fieldbus Terms

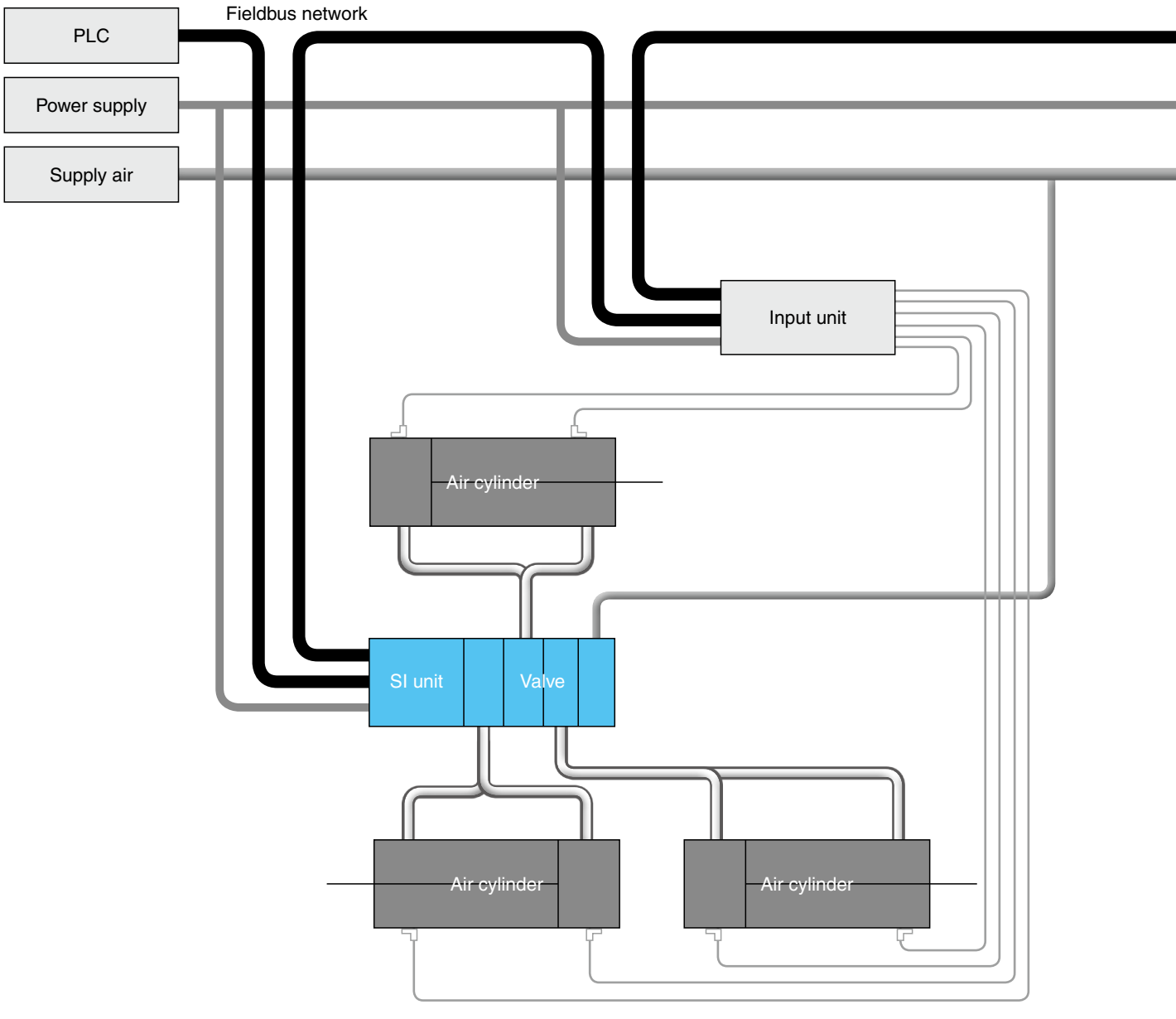
Term		Definition
Address		An identifier of a particular location on a network, connection port, etc.
Analog unit		Refer to the AO unit or the AI unit.
Gateway type		Refer to pages 7 and 8.
Output unit		Refer to the DO unit (or the AO unit).
Serial transmission		The method of using a single wire to send multiple data
Integrated input-output type		Refer to pages 9 and 10.
Type		Refer to pages 5 to 10.
Digital unit		Refer to the DO unit or the DI unit.
Topology		Refers to network topology Common network topologies include the star network, bus network, and ring network.
Node		A point of intersection/connection within a network In a communication network, all devices that are accessible through the network (computer, hub, router, etc.) are considered nodes.
Parallel wiring		The method of using multiple wires to send multiple data
PLC		Abbreviation for Programmable Logic Controller A programmable controller used to control production facilities/devices
Output type for solenoid valves		Refer to pages 5 and 6.
Footprint		The amount of space a particular unit of hardware or software occupies
Protocol		Standard operating procedure when exchanging data Refer to pages 13 and 14.
Master unit		A PLC component that outputs control signals from the PLC to the valve and receives signals from each sensor
Input unit		Refer to the DI unit (or the AI unit).
Layout		The installation arrangement of a customer's valve manifolds, I/O devices, etc.
AI unit		Abbreviation for Analog Input Unit A device that receives analog signals from electro-pneumatic regulators, etc.
AO unit		Abbreviation for Analog Output Unit A device that sends analog signals to electro-pneumatic regulators, etc.
DI unit		Abbreviation for Digital Input Unit A device that imports digital signals (switch signals) from auto switches, etc. Only series variations Type 2 and Type 3 can be used with SMC's input units.
DO unit		Abbreviation for Digital Output Unit A device that sends digital signals (switch signals) to relays, lights, etc.
GW unit		Abbreviation for Gateway Unit A conversion device for connecting one communication network with another
I/O		Abbreviation for Input/Output
IP20	**Enclosure with protection against the entry of dust and water in accordance with international standard IEC60529**	Enclosure with protection against contact between fingers and moving parts, but with no particular protection against the entry of water
IP65		Enclosure with protection against the entry of powdered dust and also water sprayed from any direction
IP67		Enclosure with protection against the entry of powdered dust as well as water, even when the enclosure is immersed in water under defined conditions of pressure and time
SI unit		Abbreviation for Serial Interface Unit A device that makes use of a Fieldbus to control a manifold valve

Product Series Featuring 3 Types Suitable to a Variety of Equipment/Facility Layouts

Type 1 Output type for solenoid valves

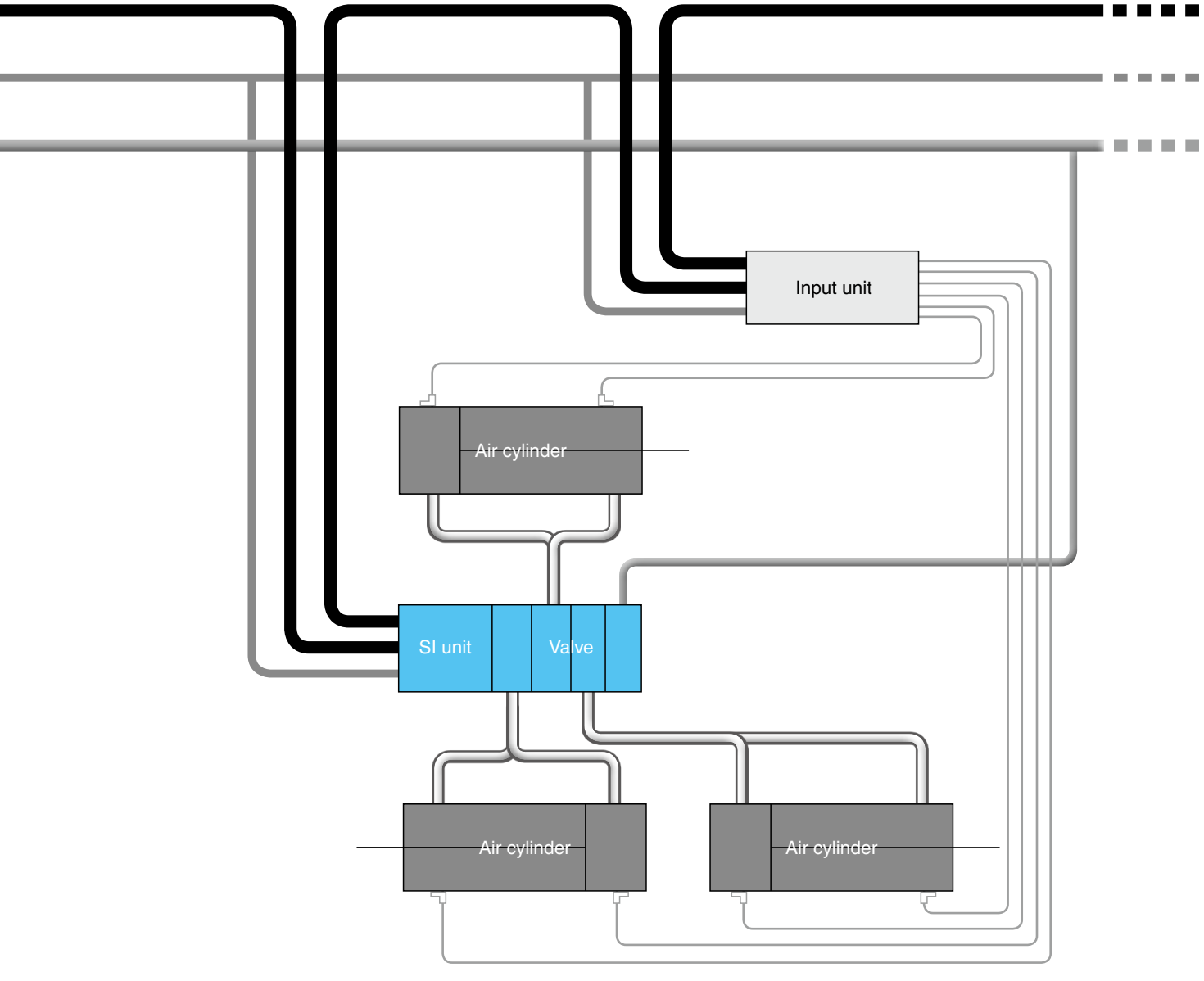
- When decentralized arrangement of valve manifolds is desired
- When installing valve manifolds close to the cylinder/actuator due to minimal space
- Number of inputs/outputs: Small (Example: EX260 series [32 outputs])

Applicable products



For selection, refer to pages 13 and 14.

	Effectiveness and Compatibility
Features	It's easy to install into equipment with a small number of I/O points, and it's possible to break up valve manifolds and input units.
Number of nodes	Increases according to the number of valve manifolds and input units
Wiring	Valve manifolds can be installed in the vicinity of an actuator. ➡ Reduced wiring space It is necessary to provide both a communication cable and a power cable.
Piping	Valve manifolds can be installed in the vicinity of an actuator. ➡ Reduced piping space
Actuator responsiveness	Reduced piping space ➡ Increased actuator responsiveness due to shorter piping tubes
Address setting	Address setting is required for each individual SI unit and input unit.
Digital input	Using an input unit not manufactured by SMC
Analog input/output	Using a unit not manufactured by SMC
Change of protocol	All units must be replaced.



Product Series Featuring 3 Types Suitable to a Variety of Equipment/Facility Layouts

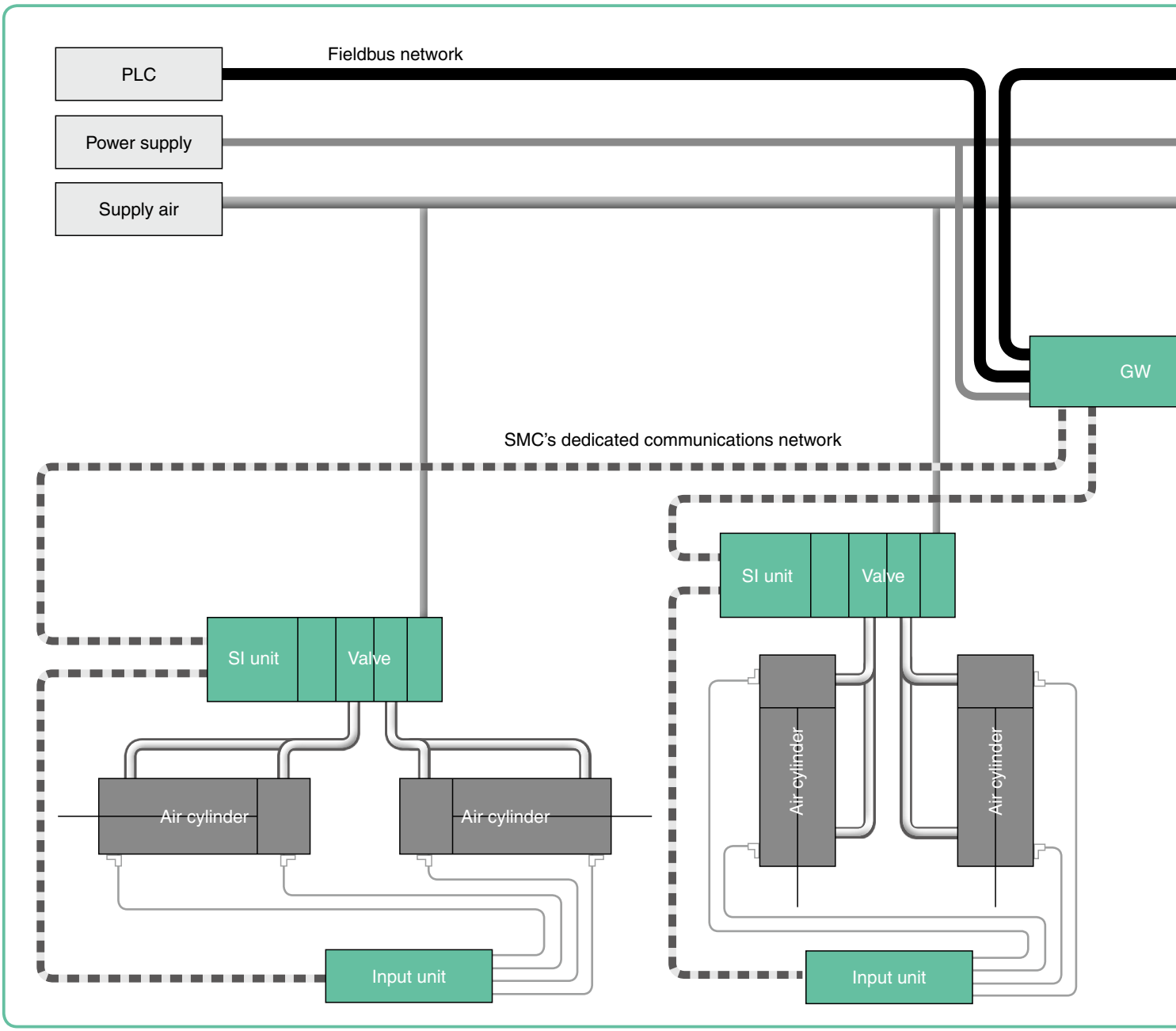
Type 2 Gateway type

- When the use of a GW unit is desired to further reduce the wiring of valve manifolds and input units
- Number of inputs/outputs: Medium (Example: EX500 series [128 outputs])

Applicable products

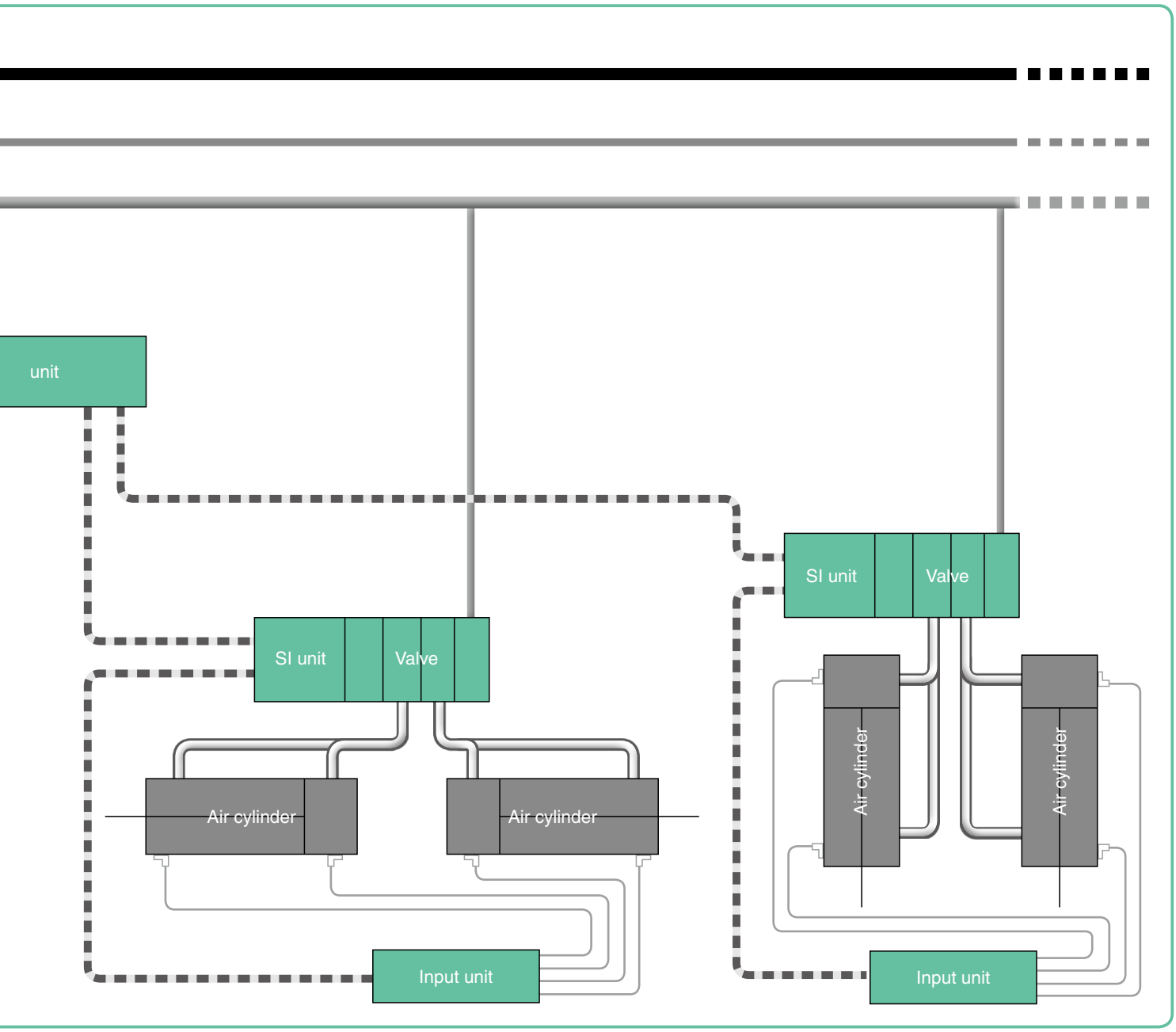
EX500

EX510



For selection, refer to pages 13 and 14.

	Effectiveness and Compatibility
Features	It is possible to break up a large number of valve manifolds and input units for installation with the use of a GW unit.
Number of nodes	With 1 node of a GW unit, a large number of valve manifolds and input units can be used. Therefore, it is possible to reduce the number of nodes.
Wiring	Valve manifolds can be installed in the vicinity of an actuator. ➡ Reduced wiring space A single cable can be used in place of a separate power cable and communication cable (for between the GW unit and the valve manifolds/input units).
Piping	Valve manifolds can be installed in the vicinity of an actuator. ➡ Reduced piping space
Actuator responsiveness	Reduced piping space ➡ Increased actuator responsiveness due to shorter piping tubes
Address setting	By conducting the address setting of the GW unit, there is no need to do so for the SI units, input units, etc. This makes plug and play possible.
Digital input	SMC's input units can be used.
Analog input/output	Using a unit not manufactured by SMC
Change of protocol	It is possible to make changes by simply replacing the GW unit.



Product Series Featuring 3 Types Suitable to a Variety of Equipment/Facility Layouts

Type 3 Integrated input-output type

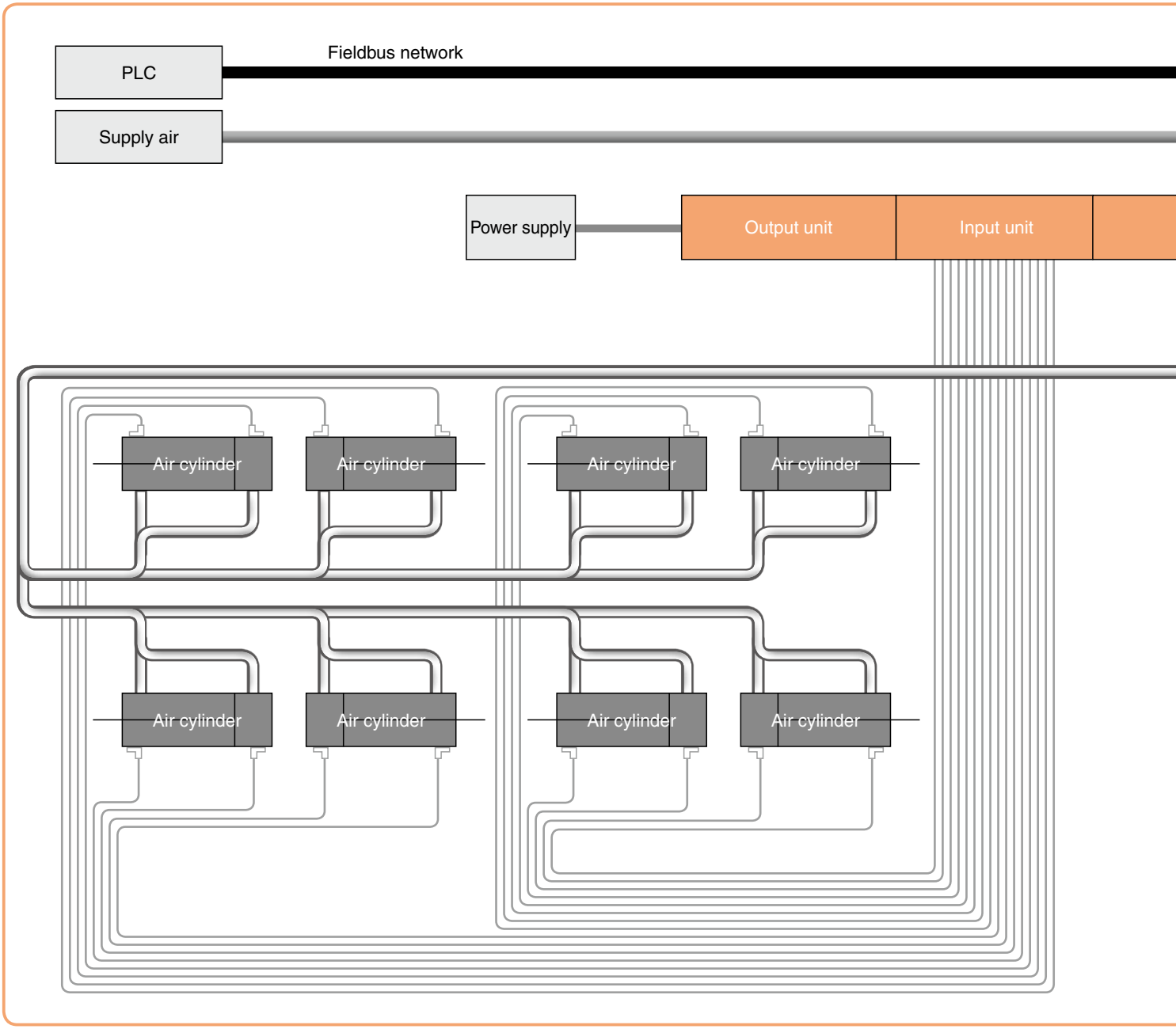
- When valve manifolds, input units, etc., are desired to be installed in the same place
- When there is sufficient wiring/piping installation space between the valve manifolds and the actuator
- Number of inputs/outputs: Large (Example: EX600 series [512 outputs])

Applicable products


EX600

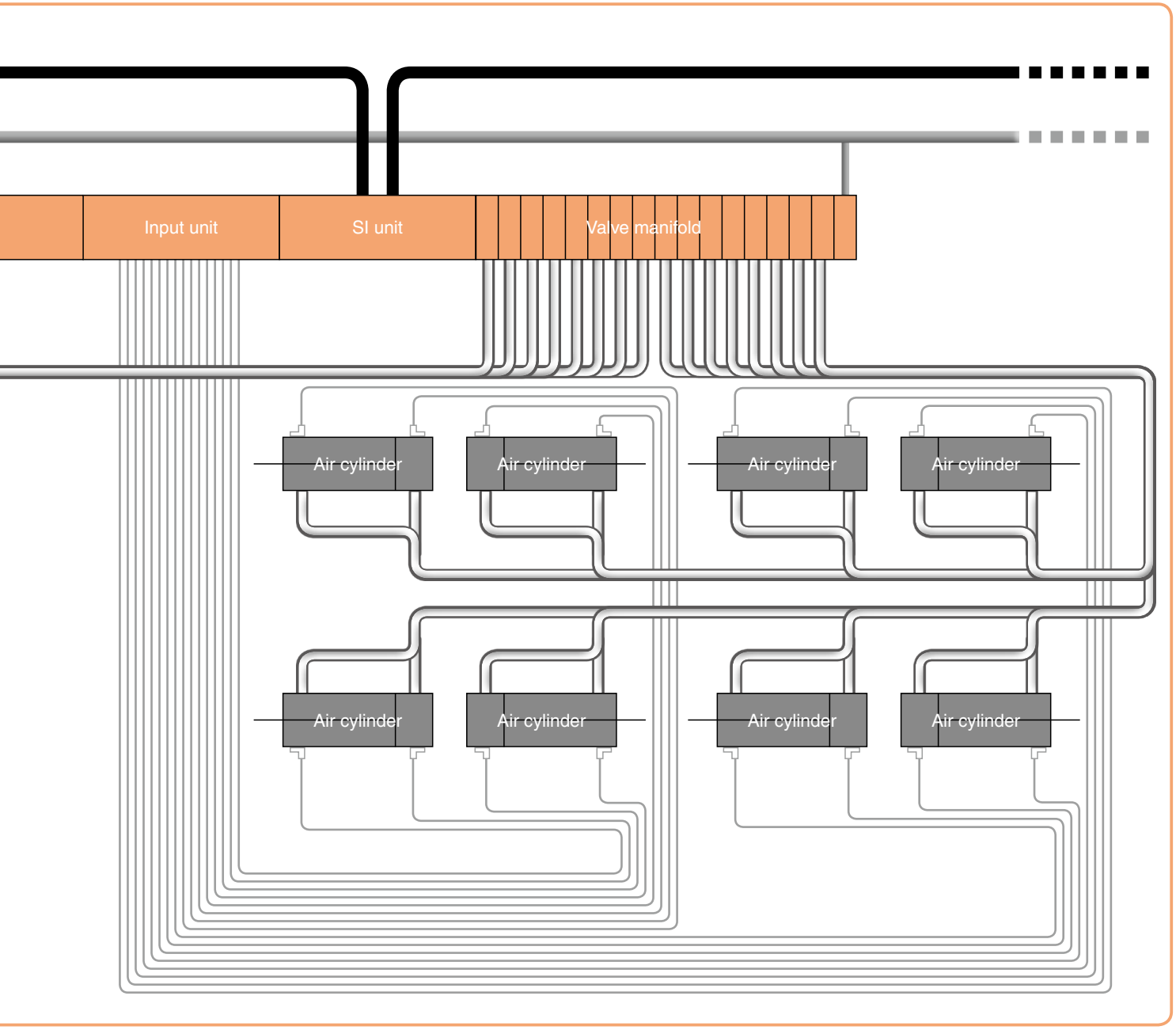

EX245


EX250



For selection, refer to page 13.

	Effectiveness and Compatibility
Features	Valve manifolds, input units, etc., can be controlled together.
Number of nodes	While the number of nodes is increased according to the number of valve manifolds, the number of nodes can be reduced by linking with an input-output unit.
Wiring	When cables are concentrated in a single area, it's common for the wiring space between the valve manifolds and the actuator to get increasingly complex. It is necessary to provide both a communication cable and power cable.
Piping	When tubes are concentrated in a single area, it's common for the piping space between the valve manifolds and the actuator to get increasingly complex.
Actuator responsiveness	When the piping tubes are too long, it's common for the actuator's responsiveness to decline.
Address setting	Address setting for each individual SI unit is necessary.
Digital input	SMC's input units can be used.
Analog input/output	SMC's units can be used.
Change of protocol	It is possible to make changes by simply replacing the SI unit.



Applicable Product Selection by Type

IP67/65 specification models

	Type 1 Output type for solenoid valves		Type 2 Gateway type	Type 3 Integrated input-output type		
Number of valve outputs: 32	 EX260	EX124 	 EX500	 EX600	 EX245	 EX250
Number of valve outputs: 16						
Number of inputs: 16		EX123*1, EX126*1				
Number of inputs: 32	p. 24	p. 48	p. 54	p. 94	p. 134	p. 146

Applicable protocols	Series	EX260	EX124	EX500	EX600	EX245	EX250
EtherNet/IP™		●		●	●	●	●
PROFINET		●		●	●		
Modbus®TCP		◆					◆
Ethernet POWERLINK		●			◆		
EtherCAT		●			●		
CC-Link IE Field					◆		◆
PROFIBUS DP		●		●	●		●
DeviceNet™		●	●	●	●		●
CC-Link		●	●		●		●
AS-Interface		◆					●
CANopen		◆					●
CompoNet™			◆				
INTERBUS						◆	
IO-Link		◆					
Applicable valve series: SY (Plug-in connector connecting base: 10/11/12 type)	3000	●	●	●	●	◆	●
	5000	●	●	●	●	◆	●
	7000	●	●	●	●	◆	●
S0700 (Stacking base)	0700	●	●	●	●	◆	●
SV	1000	●	●	●	●	◆	●
	2000	●	●	●	●	◆	●
	3000	●	●	●	●	◆	●
	4000			●			
VQC	1000	◆	◆	◆	◆	◆	◆
	2000	◆	◆	◆	◆	◆	◆
	4000	◆	◆	◆	◆	◆	◆
	5000	◆	◆	◆	◆	◆	◆
VQ	1000		◆				
	2000		◆				
	4000		◆				
	5000		◆				

●: Standard product ◆: Made to order

*1 For details, refer to the catalog of each product.

IP20 specification models

	Type 1 Output type for solenoid valves			Type 2 Gateway type	Type 3 Integrated input-output type
Number of valve outputs / Number of inputs	32 / 16 / 16 / 32				
	 EX120 EX121 EX122	 EX140	 EX180	 EX510	
	p. 172	p. 180	p. 184	p. 189	

Applicable protocols	EX120 EX121 EX122	EX140	EX180	EX510	—
EtherNet/IP™			◆	● ◆	
PROFINET					
Modbus®TCP					
Ethernet POWERLINK					
EtherCAT			◆		
CC-Link IE Field					
PROFIBUS DP				●	
DeviceNet™	●	●	●	●	
CC-Link	●	●	●	●	
AS-Interface					
CANopen					
CompoNet™	●				
INTERBUS					
IO-Link					

Applicable valve series			EX120 EX121 EX122	EX140	EX180	EX510	—
SY	(Plug-in connector connecting base: 10/11/12 type)	3000	●				
		5000	●				
		7000	●				
	(Plug-in metal base: 50/51/52 type)	3000				●	
		5000				●	
		7000				●	
SJ		2000			●	●	
		3000			●	●	
S0700 (Bar stock)		0700			●	●	
SY	(Bar stock: 42SA type)	3000				●	
		5000				●	
		7000				●	
	(Stacking base: 45S6/43SA type)	3000	●			●	
		5000	●			●	
		7000					
		9000					
SV		1000	●				
		2000	●				
		3000	●				
		4000	●				
VQ		1000	●			●	
		2000	●			●	
		4000					
		5000					
SQ		1000		●		●	
		2000		●		●	
SZ		3000		●		●	
VQZ		1000				●	
		2000				●	
		3000				●	
SYJ		3000				●	
		5000				●	
		7000				●	

●: Standard product ◆: Made to order

∗1 For details, refer to the catalog of each product.