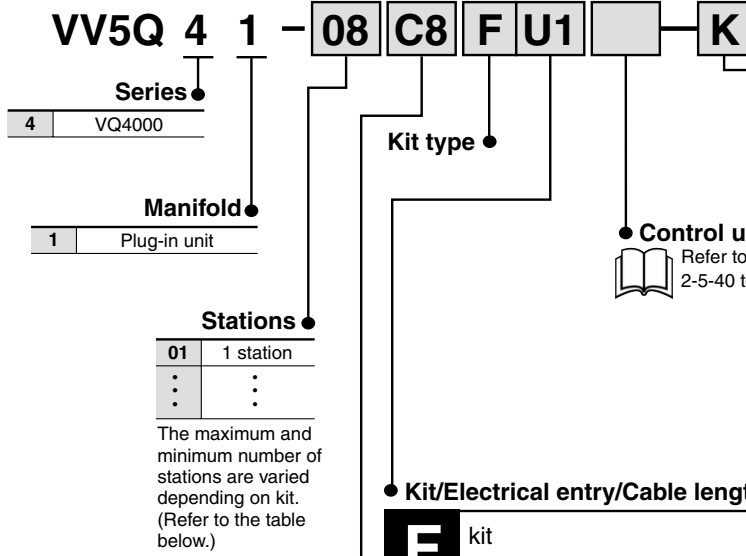
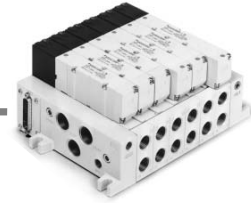


Series VQ4000

Base Mounted Plug-in Unit

How to Order Manifold



The maximum and minimum number of stations are varied depending on kit. (Refer to the table below.)

Cylinder port

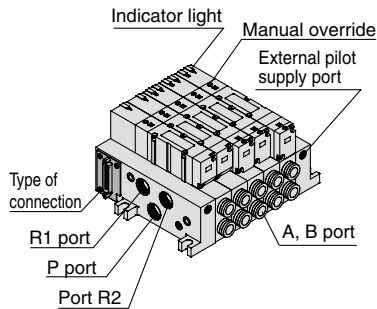
C8	With One-touch fitting for ø8
C10	With One-touch fitting for ø10
C12	With One-touch fitting for ø12
02	Rc 1/4
03	Rc 3/8
B	Bottom ported Rc 1/4
CM	Mixed

Connector entry direction

D side		U side		Cable length	Stations
Kit	Symbol	Kit	Symbol		
	D0		U0	Without cable	1 to 18 stations
F	D1	F	U1	Cable length 1.5 m	
	D2		U2	Cable length 3 m	
	D3		U3	Cable length 5 m	

Terminal block mounting position

D side		U side		Terminal block box	Stations
Kit	Symbol	Kit	Symbol		
	TD		TO	Terminal block box	3 to 18 stations



Note) Shown VV5Q41-05C12FD0

Electrical entry

D side		U side		Cable length	Stations
Kit	Symbol	Kit	Symbol		
L	D0	L	U0	Cable length 0.6 m	1 to 16 stations
	D1		U1	Cable length 1.5 m	
	D2		U2	Cable length 3 m	

Unit mounting position

D side		U side		Serial transmission unit	Stations
Kit	Symbol	Kit	Symbol		
	0			Without SI unit	3 to 18 stations
	A			With general type SI unit (Series EX300)	
	B			Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System	
	BB			Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System (2 power supply systems)	
	C			OMRON Corp.: SYSBUS Wire System	
	D			SHARP Corp.: Satellite I/O Link System	
	F1			NKE Corp.: Uni-wire System (16 output points)	
	J1			SUNX Corp.: S-LINK System (16 output points)	
	J2			SUNX Corp.: S-LINK System (8 output points)	
	K			Fuji Electric Co.: T-LINK Mini System	
	Q			DeviceNet, CompoBus/D (OMRON Corp.)	
	R1			OMRON Corp.: CompoBus/S System (16 output points)	
	R2			OMRON Corp.: CompoBus/S System (8 output points)	
	U			JEMANET (JPCN-1)	
	V			Mitsubishi Electric Corp.: CC-LINK System	
	G			Rockwell Automation: Allen Bradley Remote I/O (RIO) System	
	H			NKE Corp.: Uni-wire H System	

Simple specials are available with SMC Simple Special System. For details about applicable models, please contact SMC.

Manifold Specifications

Series	Base model	Type of connection	Porting specifications			Maximum applicable stations	Applicable solenoid valve	5 station weight (kg)
			4(A), 2(B) port location	Port size <small>Note)</small>				
				1(P), 5(R1), 3(R2)	4(A), 2(B)			
VQ4000	VV5Q41-□□□	<ul style="list-style-type: none"> ■ F kit-D-sub connector ■ T kit-Terminal block box ■ L kit-Lead wire ■ S kit-Serial transmission 	Side	Rc 1/2 Option (Direct exhaust with silencer box)	C8 (For ø8) C10 (For ø10) C12 (For ø12)	F, T kit 12 stations L kit 16 stations S kit 10 stations	VQ4□00 VQ4□01	2.24 • L kit • Except solenoid valve weight
			Bottom		Rc 1/4			



Note) For details about inch-size One-touch fittings and other thread standards, refer to page 2-5-39.

Flow Characteristics at the Number of Manifold Stations (Operated individually)

Model	Passage/Stations	Station 1	Station 5	Station 10	Station 15	
2 position metal seal VQ4 ₂ 00	1 → 4/2 (P → A/B)	C [dm ³ /(s·bar)]	5.9	5.9	5.9	5.9
		b	0.23	0.23	0.23	0.23
		Cv	1.5	1.5	1.5	1.5
	4/2 → 5/3 (A/B → EA/EB)	C [dm ³ /(s·bar)]	6.2	6.2	6.2	6.2
		b	0.19	0.19	0.19	0.19
		Cv	1.5	1.5	1.5	1.5
2 position rubber seal VQ4 ₂ 01	1 → 4/2 (P → A/B)	C [dm ³ /(s·bar)]	6.8	6.8	6.8	6.8
		b	0.31	0.31	0.31	0.31
		Cv	1.8	1.8	1.8	1.8
	4/2 → 5/3 (A/B → EA/EB)	C [dm ³ /(s·bar)]	7.0	7.0	7.0	7.0
		b	0.38	0.38	0.38	0.38
		Cv	1.9	1.9	1.9	1.9



Note) Port size: Rc 3/8

Manifold Option

<p>Blanking plate assembly VVQ4000-10A-1</p>	<p>Individual SUP spacer VVQ4000-P-1-₀₂/₀₃</p>	<p>Individual EXH spacer VVQ4000-R-1-₀₂/₀₃</p>	<ul style="list-style-type: none"> • Refer to pages 2-5-34 to 2-5-38 for detailed dimensions of each option. For replacement parts, refer to page 2-5-47. • Refer to pages 2-5-40 to 2-5-43 for control unit. 	
<p>Throttle valve spacer VVQ4000-20A-1</p>	<p>SUP stop valve spacer VVQ4000-37A-1</p>	<p>SUP/EXH block plate VVQ4000-16A</p> <p>< SUP blocking plate > < EXH blocking plate ></p>		<p>Interface regulator ARBQ4000-00-_A/_B-1 _P</p>
<p>Release valve spacer VVQ4000-24A-1D ^(1, 2)</p>	<p>Double check spacer with residual pressure exhaust VVQ4000-25A-1 ⁽¹⁾</p>	<p>Direct exhaust with silencer box [-S_D[□]] ⁽¹⁾</p>		<p>For exhaust cleaner mounting [-C_D[□]] ⁽¹⁾</p>



Note 1) Release valve spacer, built-in silencer (direct exhaust), exhaust cleaner mounting and double check spacer for residual pressure exhaust cannot be combined with external pilot.

Note 2) Can be mounted on L kit only. For other kits, order E type control unit.

(Refer to pages 2-5-40 to 2-5-43.)



VQC

SQ

VQ0

VQ4

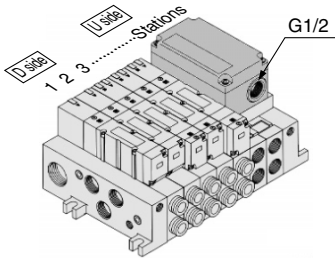
VQ5

VQZ

VQD

S Kit (Serial transmission unit)

- The serial transmission system reduces wiring work, while minimizing wiring and saving space.
- The system comes in an type SA (generic for small scale systems) for equipment with a small number of I/O points, or 32 points max., type SB (applicable to Mitsubishi Electric models) for controlling 512 I/O points max., type SC (applicable to OMRON models), type SD (applicable to SHARP models; 504 points max.), and type SF (applicable to NKE Uni-wire System; 128 points max.), type SJ (applicable to SUNX models), type SK (applicable to Fuji Electric models), type SQ (applicable to OMRON CompoBus/D), type SR (CompoBus/S).
- Maximum stations are 18.
- 2 stations are used for serial unit mounting.



- Stations are counted from station 1 on the D side.
- Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types.

Item	Specifications
External power supply	24 VDC +10%, -5%
Current consumption (Internal unit)	SA, SB, SBB, SD, SF, SH, SJ, SK, SQ, SR, SV: 0.1A SC: 0.3A

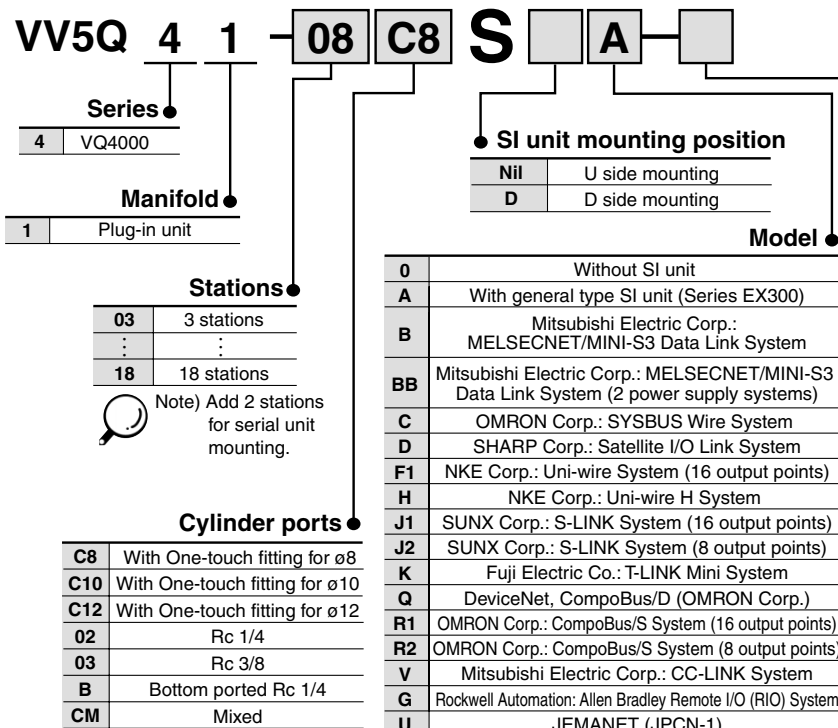
Manifold Specifications

Series	Porting specifications		Applicable stations
	4(A), 2(B) port port location	Port size	
VQ4000	Side	1(P), 5(R1), 3(R2) Rc 1/2	Max. 18 stations
	Bottom	4(A), 2(B) C 8, 10, 12 Rc 1/4, 3/8 Rc 1/4	

	Type SA With general type SI unit (Series EX300)	Type SB Mitsubishi Electric Corporation MELSECNET/MINI-S3 Data Link System																		
Name of terminal block (LED)	<table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>TRD</td> <td>Lighting during data reception</td> </tr> <tr> <td>RUN/ERR</td> <td>Blinking when received data is normal; Lighting when data reception</td> </tr> </tbody> </table>	LED	Description	TRD	Lighting during data reception	RUN/ERR	Blinking when received data is normal; Lighting when data reception	<table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>POWER</td> <td>Lighting when power is turned ON</td> </tr> <tr> <td>RUN</td> <td>Lighting when data transmission with the master station is normal</td> </tr> <tr> <td>RD</td> <td>Lighting during data reception</td> </tr> <tr> <td>SD</td> <td>Lighting during data transmission</td> </tr> <tr> <td>ERR.</td> <td>Lighting when reception data error occurs. Light turns off when the error is corrected.</td> </tr> </tbody> </table>	LED	Description	POWER	Lighting when power is turned ON	RUN	Lighting when data transmission with the master station is normal	RD	Lighting during data reception	SD	Lighting during data transmission	ERR.	Lighting when reception data error occurs. Light turns off when the error is corrected.
	LED	Description																		
TRD	Lighting during data reception																			
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POWER	Lighting when power is turned ON																			
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RD	Lighting during data reception																			
SD	Lighting during data transmission																			
ERR.	Lighting when reception data error occurs. Light turns off when the error is corrected.																			
Note	<ul style="list-style-type: none"> ● T unit Can be connected with PLC I/O card for serial transmission. EX300-TMB1.....For models of Mitsubishi Electric Corporation EX300-TTA1.....For OMRON EX300-TFU1.....For Fuji Electric EX300-T001.....General purpose * T units have 32 control points per unit ● No. of output points, 16 points 	<ul style="list-style-type: none"> ● Master station PLC made by Mitsubishi Electric Corporation Series MELSEC-A AJ71PT32-S3, AJ71T32-S3 A1SJ71PT32-S3 * Max. 64 stations, connected to remote I/O stations (Max. 512 points). ● No. of output points, 16 points. No. of stations occupied, 2 stations 																		

* For details on specifications and handling, refer to the separate technical instruction manual.

How to Order Manifold



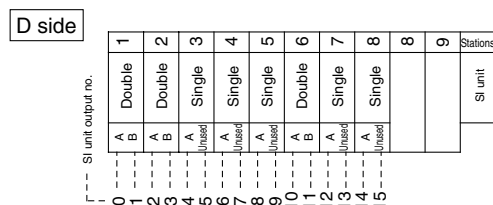
Symbol	Option
Nil	None
CD ⁽²⁾	Exhaust cleaner: D side mounting
CU ⁽²⁾	Exhaust cleaner for Rc 1: U side exhaust
K ⁽³⁾	Special wiring specifications (Except double wiring)
SD ⁽²⁾	Direct exhaust with silencer box: D side exhaust
SU ⁽²⁾	Direct exhaust with silencer box: U side exhaust
W ⁽²⁾	IP65 enclosure

- Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -CDK
- Note 2) Combination of [CD] and [SD] is not possible.
- Note 3) Specify the wiring specifications in the manifold specification sheet.
- Note 4) Refer to pages 2-5-40 to 2-5-43 for with control unit.consumption of AC type.
- Note 5) The release valve and the pressure switch on the manifold with control unit are connected to another power supply. Cable length is 0.6 m for L kit.

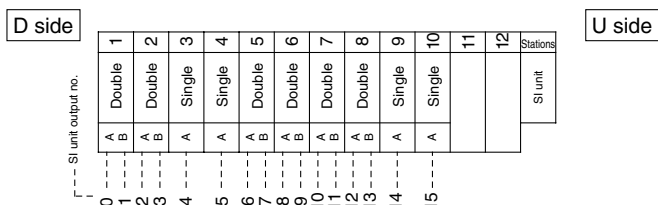
● Correspondence of SI unit output numbers and solenoid valve coils

Mixed wiring is available as an option.
Use the manifold specification sheet to specify.

<Wiring example 1> Double wiring (Standard)



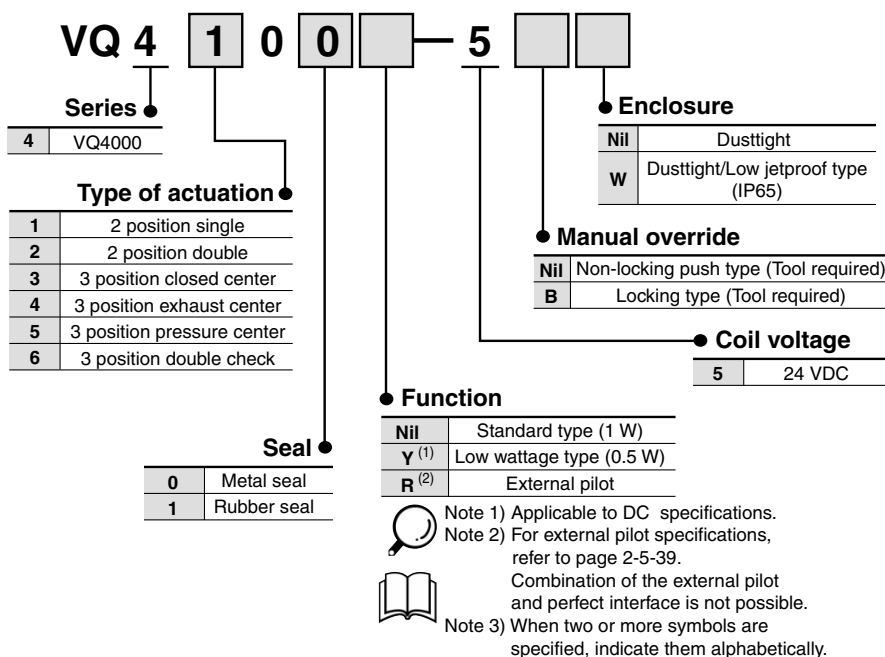
<Wiring example 2> Single/Double mixed wiring (Option)



	Type SC OMRON Corporation SYSBUS Wire System	Type SD SHARP Corporation Satellite I/O Link System															
Name of terminal block (LED)																	
	<table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>RUN</td> <td>Lights when transmission is normal and PLC is in operation mode</td> </tr> <tr> <td>T/R ERR</td> <td>Blinks during data transmission/reception ON when transmission is abnormal.</td> </tr> </tbody> </table>	LED	Description	RUN	Lights when transmission is normal and PLC is in operation mode	T/R ERR	Blinks during data transmission/reception ON when transmission is abnormal.	<table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>POWER</td> <td>ON when power supply is ON</td> </tr> <tr> <td>RUN</td> <td>Lights when power is ON and slave stations are operating normally</td> </tr> <tr> <td>ERROR</td> <td>Lights when slave station switch setting is abnormal, communication is abnormal, PLC stopped and defective slave unit</td> </tr> <tr> <td>R.SET HOLD</td> <td>ON for master unit control input</td> </tr> </tbody> </table>	LED	Description	POWER	ON when power supply is ON	RUN	Lights when power is ON and slave stations are operating normally	ERROR	Lights when slave station switch setting is abnormal, communication is abnormal, PLC stopped and defective slave unit	R.SET HOLD
LED	Description																
RUN	Lights when transmission is normal and PLC is in operation mode																
T/R ERR	Blinks during data transmission/reception ON when transmission is abnormal.																
LED	Description																
POWER	ON when power supply is ON																
RUN	Lights when power is ON and slave stations are operating normally																
ERROR	Lights when slave station switch setting is abnormal, communication is abnormal, PLC stopped and defective slave unit																
R.SET HOLD	ON for master unit control input																
Note	<ul style="list-style-type: none"> Master station unit OMRON PLC SYSMAC C(CV) series Types C500-RM201 and C200H-RM201 * 32 units max., transmission terminal connection (512 points max.) No. of output points, 16 points 	<ul style="list-style-type: none"> Master station unit SHARP Corporation PLC New Satellite Series W ZW-31LM New Satellite Series JW JW-23LM, JW-31LM * Max. 31 units, I/O slave stations connected (504 points max.) No. of output points, 16 points 															

- VQC
- SQ
- VQ0
- VQ4
- VQ5
- VQZ
- VQD

How to Order Valves



How to Order Manifold Assembly

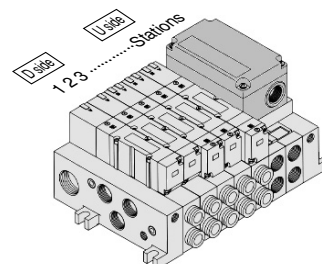
Specify the part numbers for valves and options together beneath the manifold base part number.

<Example>
Serial transmission unit

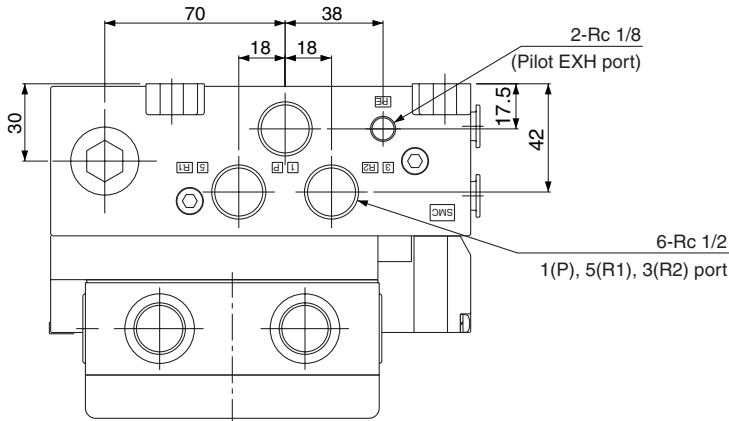
VV5Q41-07C8SA1 set —Manifold base part no.
*VQ4100-5.....2 sets —Valve part no. (Stations 1 and 2)
*VQ4200-5.....2 sets —Valve part no. (Stations 3 and 4)
*VQ4300-5.....1 set —Valve part no. (Station 5)

Prefix the asterisk to the part nos. of the solenoid valve, etc.

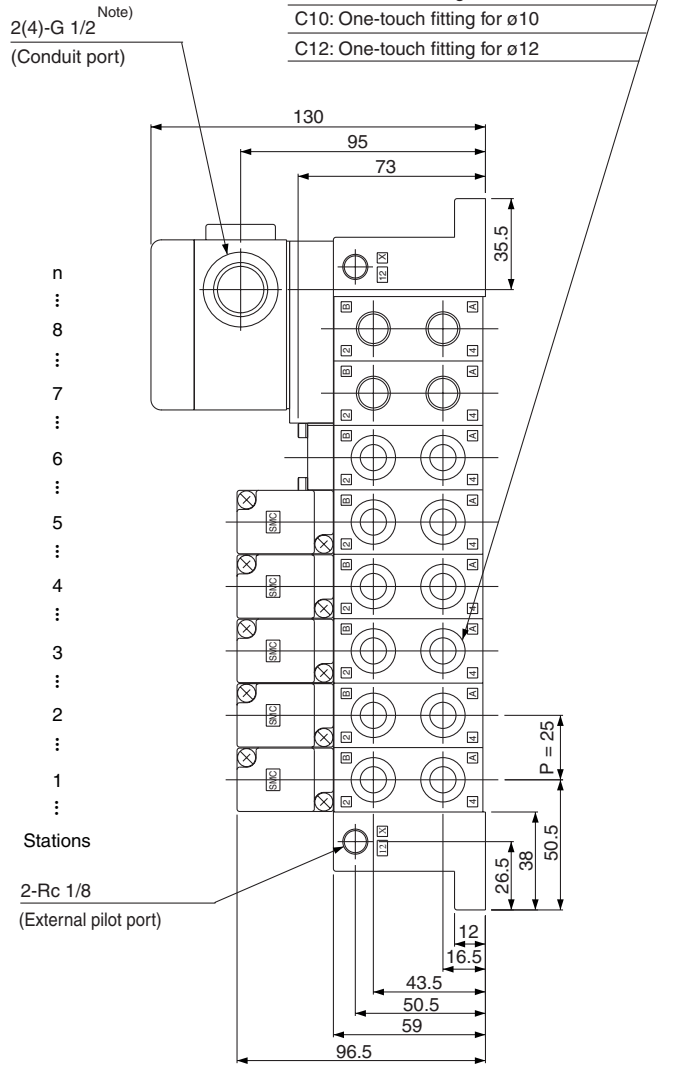
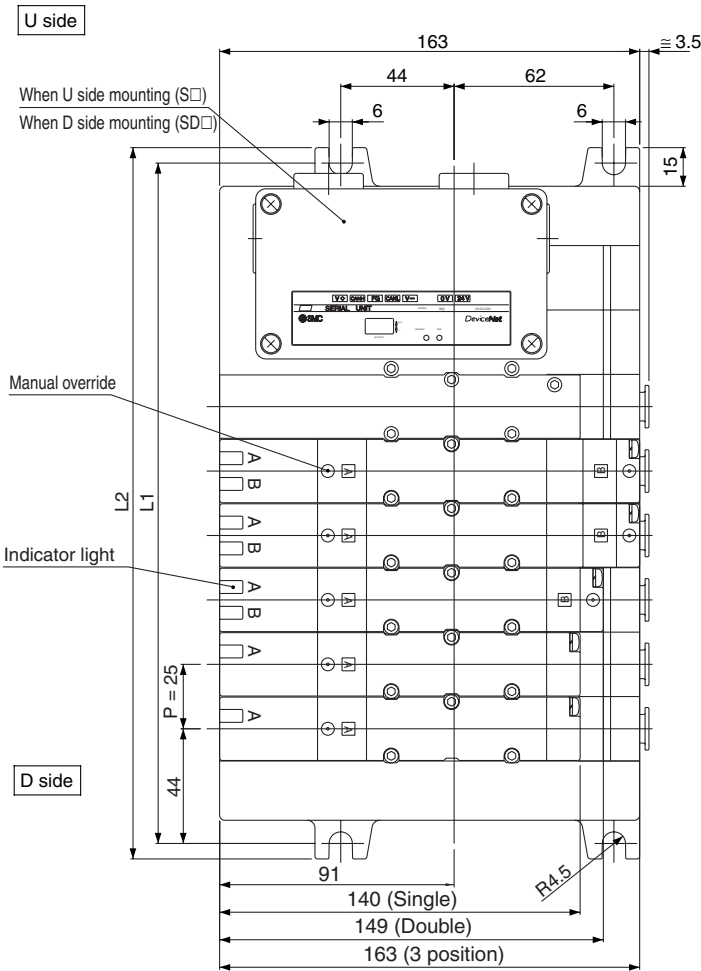
Enter in order starting from the first station on the D side.
When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



S Kit (Serial transmission unit)



- 2n-Rc 1/4, 3/8, C8, C10, C12 {4(A), 2(B)}
- Rc 1/4: Rc 1/4 thread
- Rc 3/8: Rc 3/8 thread
- C8: One-touch fitting for ø8
- C10: One-touch fitting for ø10
- C12: One-touch fitting for ø12



(Note) In the case of EX124 for SI unit, conduit port (G 1/2) will be 4 locations.

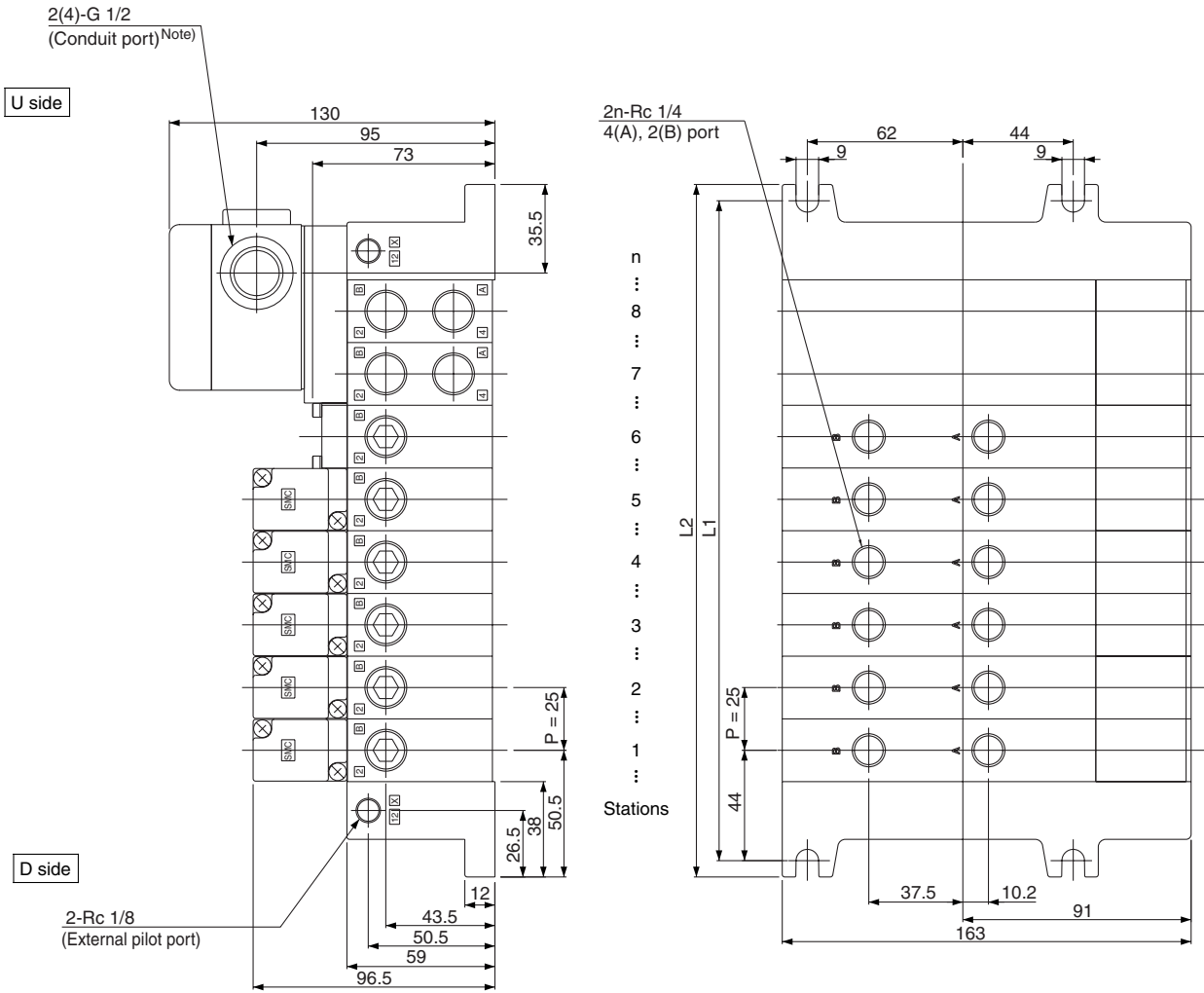
(Note) Shown VV5Q41-08C12SQ-W

Dimensions

Formula $L1 = 25n + 63$, $L2 = 25n + 76$
 n: Station (Maximum standard 18 stations)
 * Including 2 stations for mounting SI unit box.

L	n	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L1		138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513
L2		151	176	201	226	251	276	301	326	351	376	401	426	451	476	501	526

Plug-in Unit Series VQ4000



- VQC
- SQ
- VQ0
- VQ4
- VQ5
- VQZ
- VQD

Dimensions

Formula $L_1 = 25n + 63$, $L_2 = 25n + 76$
 n: Station (Maximum standard 18 stations)
 * Including 2 stations for mounting SI unit box.

L \ n	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L ₁	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513
L ₂	151	176	201	226	251	276	301	326	351	376	401	426	451	476	501	526

S Kit (Serial transmission kit) for I/O

IP65 compliant

Applicable network: **DeviceNet/PROFIBUS-DP**

● The serial transmission system reduces wiring work, while minimizing wiring and saving-space.

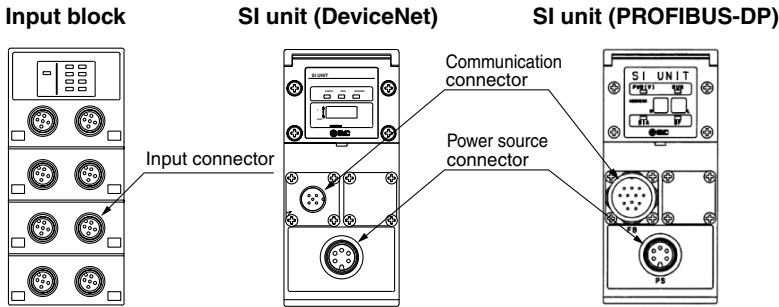
SI unit for DeviceNet/PROFIBUS

As a slave for DeviceNet/PROFIBUS, it is possible to control ON/OFF of a solenoid valve with the maximum of 32 points. Furthermore, by connecting a discrete input block, it is possible to input the sensor signal for 32 points at the maximum.

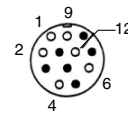
Input block

Meaning of an expansion block, connecting with SI unit, for sensor-inputting for auto switches, etc. Sensor-input is available up to 8 per one input block. By the NPN/PNP switch, it is able to adjust COM to sensor.

Details in Connector



● **Communication connector (PROFIBUS-DP):**
 Made by CONINVERS GmbH RC-2RS1N12 12 pins
 Cable side connector example:
 Made by Siemens AG 6ES5 760-2CB11



Number	Description	Function
1	M5V	GND Terminal
2	A	Signal-N
4	B	Signal-P
6	+5V	Terminal + 5V
9	SIELD	Shield ground
12	RTS	Optical fiber (Reserve)

Pin no. 3, 5, 7, 8, 10 and 11 marked with ● are open.

* Connector's shape and pin assignment is interchangeable with ET200C made by Siemens AG.

How to Order Manifold

VV5Q 4 1 - 08 C8 S D QW 1 W

Series
 4 VQ4000

Manifold
 1 Plug-in unit

Stations

01	1 station
⋮	⋮
16	16 stations

Cylinder ports

Symbol	Port size
C8	With One-touch fitting for ø8
C10	With One-touch fitting for ø10
C12	With One-touch fitting for ø12
02	Rc 1/4
03	Rc 3/8
B	Bottom ported Rc 1/4
CM	Mixed

Kit
 Serial transmission kit

Mounting SI unit

D	D side mounting
U	U side mounting

SI unit

OW	With no SI unit, nor input unit
QW	DeviceNet
NW	Profibus DP

SI unit COM

Nil	With no SI/Input unit (For SDOW)
+COM	DeviceNet (SDQW)
N	Profibus DP (SDNWN)

Note) Only +COM is available for DeviceNet. Order a mounting valve with +COM. Since PROFIBUS is -COM only, order -COM for valves to be mounted.

Enclosure
 IP65 (Dusttight/Low jetproof type)

Option

Symbol	Option
Nil	None
CD ⁽²⁾⁽³⁾	Exhaust cleaner: For D side mounting
CU ⁽²⁾⁽³⁾	Exhaust cleaner: For U side mounting
K	Special wiring specification (Except double wiring)
SD ⁽²⁾⁽³⁾	Direct exhaust with silencer box: D side exhaust
SU ⁽²⁾⁽³⁾	Direct exhaust with silencer box: U side exhaust

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -CDK

Note 2) Combination of [C_D^U] and [S_D^U] is not possible.

Note 3) Mounting side for exhaust cleaner, silencer box is available only in the opposite side from SI unit mounting side.

Input unit COM

Nil	PNP (+) or with no SI unit (for SDOW)
N	NPN (-)

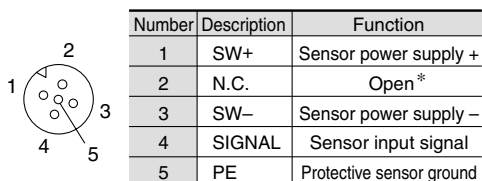
Input unit

Nil	With no SI unit, or input unit (In the case of SDOW)
0	Without input unit
1	With 1 input unit
2	With 2 input units
3	With 2 input units
4	With 4 input units

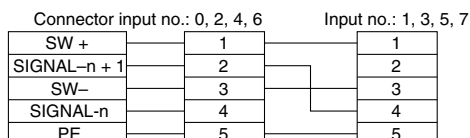
Details in Connector

● **Input connector: M12 5 pins (XS2F compatible made by OMRON Corp.) x 8 pcs.**

Cable side connector example: XS2G made by OMRON Corp.



* No. 2 pin of the input no. 0, 2, 4, 6 connector (connectors aligned in the right side on the input block) is connected internally with no. 4 pin (sensor input no.) of the input no. 1, 3, 5, 7 respectively. Thereby, it is possible to directly input 2 points which is bundled into 1 cable by the cluster connector, etc.



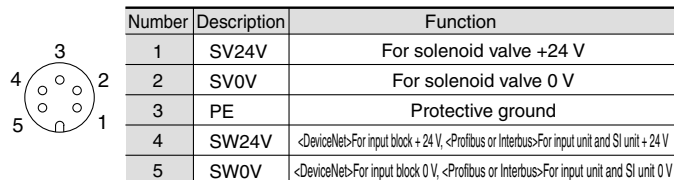
Caution

When an enclosure equivalent to IP65 is required, place a waterproof cover on the unused input connector. As for waterproof cover, order it separately.

Example: OMRON Corp. XS2Z-12

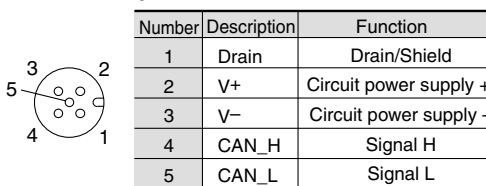
● **Power source connector: Series 723 (made by Franz Binder GmbH & Co. KG) 5 pins (72309-0115-80-05)**

Cable side connector example: Franz Binder GmbH & Co. KG 72309-0114-70-15, etc.
* DIN type 5 pins



● **Communication connector (DeviceNet): M12 5 pins (for DeviceNet compliant)**

Example of corresponding cable assemblies with connector:
OMRON Corporation: DCA1-5CN05F1
Karl Lumberg GmbH & Co. KG: RKT5-56



Item conforming to Micro style connector in DeviceNet specifications.

VQC

SQ

VQ0

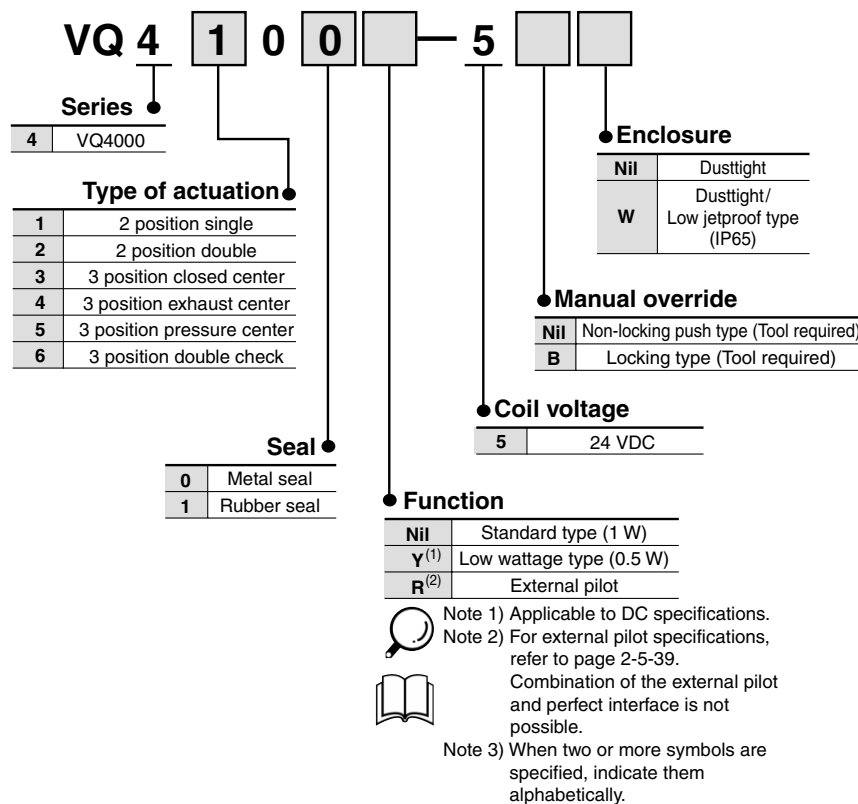
VQ4

VQ5

VQZ

VQD

How to Order Valves



How to Order Manifold Assembly

Specify the part numbers for valves and options together beneath the manifold base part number.

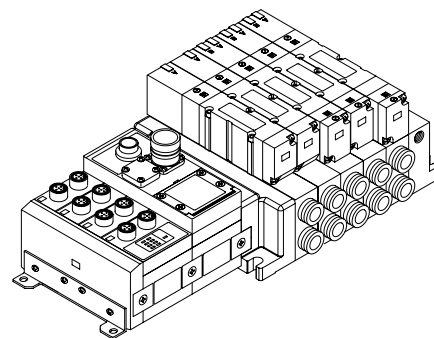
<Example>

Serial transmission unit

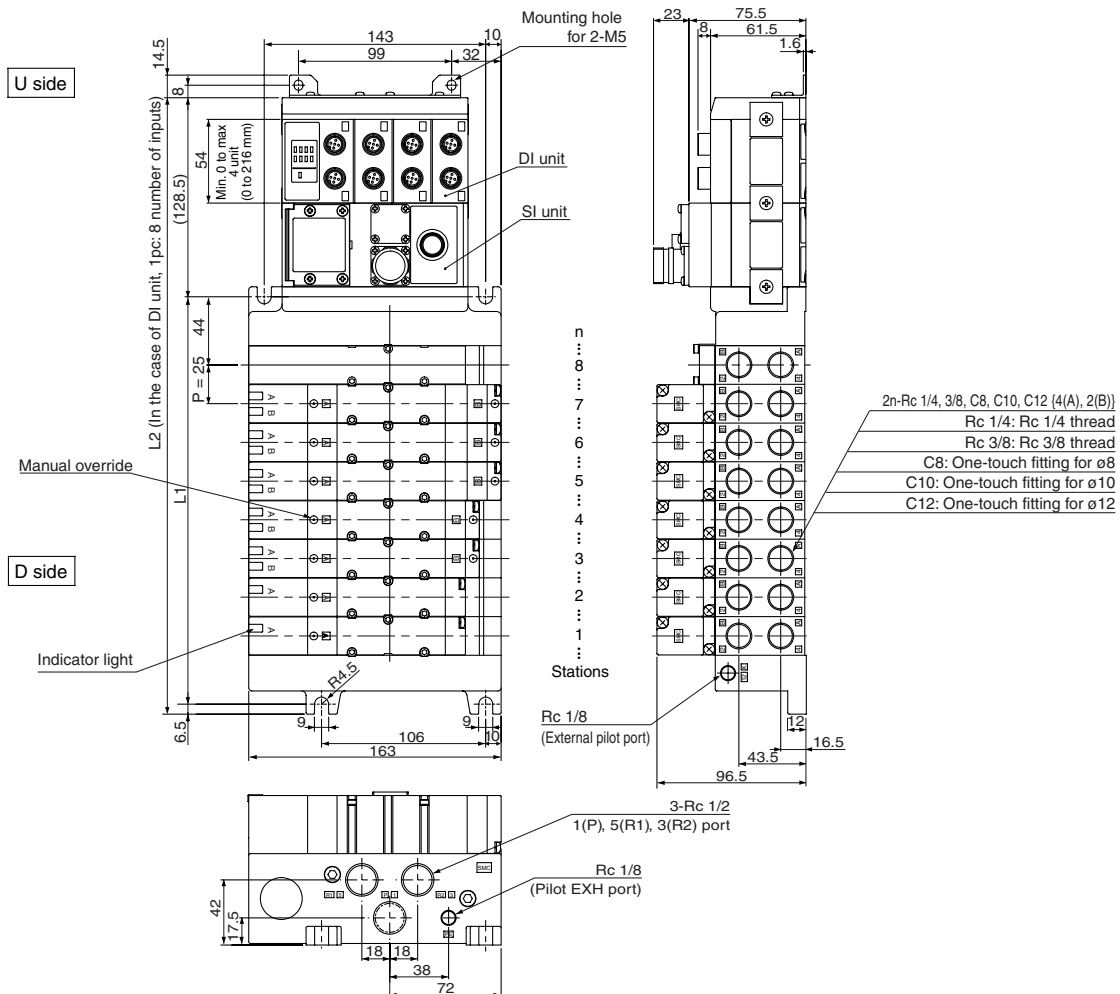
VV5Q41-05C8SDQW1-W...1 set —Manifold base part no.
*VQ4100-5W.....2 sets —Valve part no. (Stations 1 and 2)
*VQ4200-5W.....2 sets —Valve part no. (Stations 3 and 4)
*VQ4300-5W.....1 set —Valve part no. (Station 5)

Prefix the asterisk to the part nos. of the solenoid valve, etc.

Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



S Kit (Serial transmission unit) for I/O

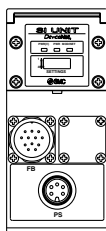


Formula L1 = 25n + 63, L2 = 25n + 198
 n: Stations * In the case of DI unit, 1 pc., 54 mm is added per 1 pc.

L	n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1		113	138	163	188	213	238	263	288	313	338	363	388	413	438	463
L2		248	273	298	323	348	373	398	423	448	473	498	523	548	573	598

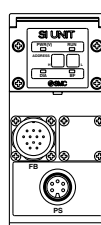
Indicator Unit (LED) Descriptions and Functions

SI Unit (DeviceNet)



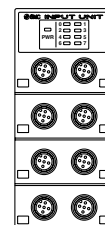
Description	Function
PWR(V)	ON when solenoid valve power supply is turned ON
PWR	ON when DeviceNet circuit power supply input is turned ON
MOD/NET	OFF: Power supply off, off line, or when checking duplication of MAC_ID
	Green blinking: Waiting for connection (On line)
	Green ON: Connection established (On line)
	Red blinking: Connection time out (Minor communication abnormality occurs)
	Red ON: MAC_DI duplication error, or BUSOFF error (Major communication abnormality occurs)

SI Unit (PROFIBUS-DP)



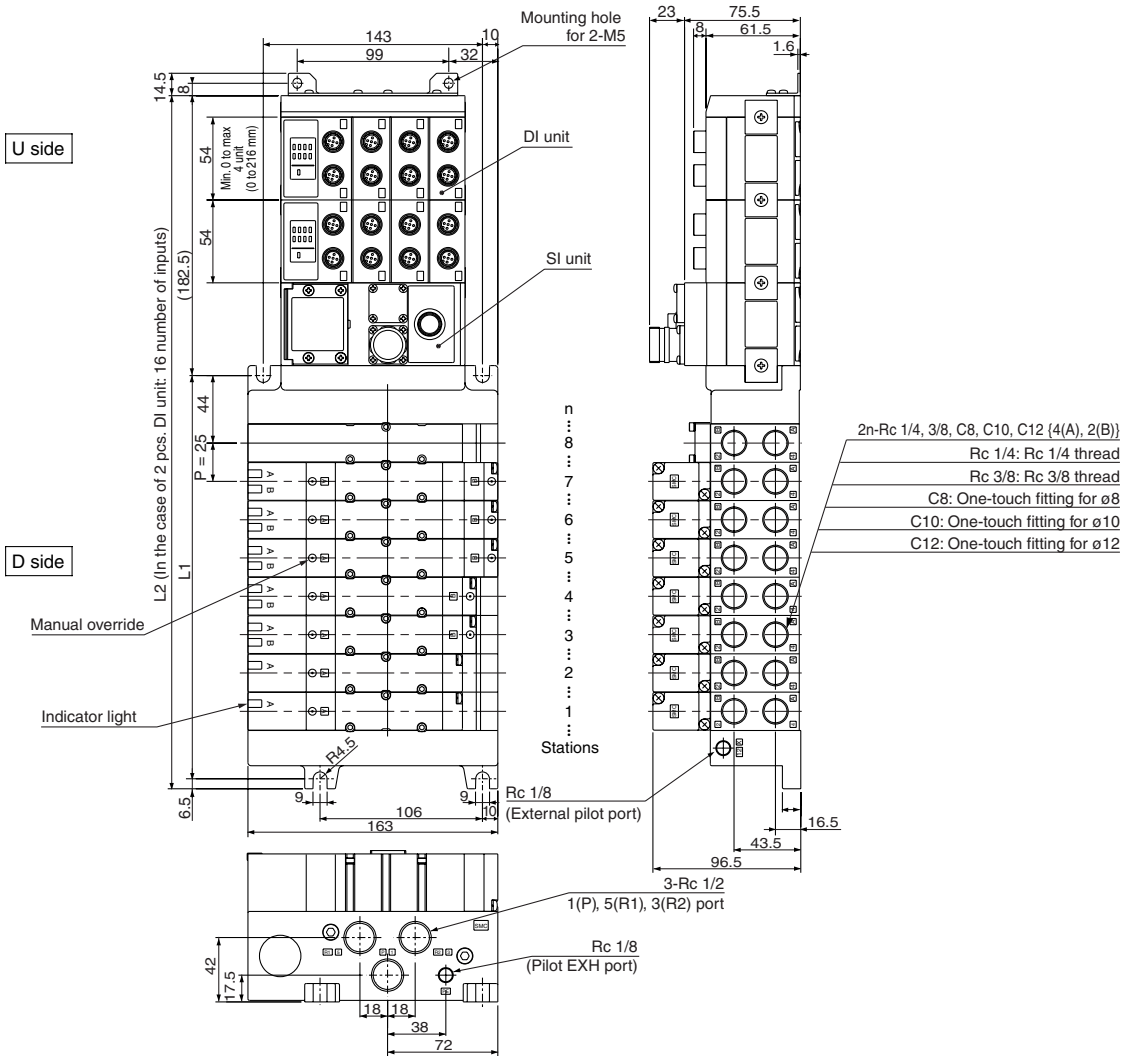
Description	Function
PWR	ON when solenoid valve power supply is turned ON OFF when the power supply voltage is less than 19 V
RUN	ON when operating (SI unit power supply is ON)
DIA	ON when self-diagnosis device detects abnormality
BF	ON for BUS abnormality

Input block



Description	Function
PWR	ON when sensor power is turned ON OFF when short circuit protection is working
0 to 7	ON when each sensor input goes ON

Plug-in Unit Series VQ4000



- VQC
- SQ
- VQ0
- VQ4
- VQ5
- VQZ
- VQD

Formula $L1 = 25n + 63$, $L2 = 25n + 252$
 n: Stations

Dimensions

* In the case of 2 pcs. DI unit, 105 mm will be added per 2 pcs.

L	n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1		113	138	163	188	213	238	263	288	313	338	363	388	413	438	463
L2		302	327	352	377	402	427	452	477	502	527	552	577	602	627	652