

# Series VQC4000

## Base Mounted Plug-in Unit

### How to Order Manifold

**VV5QC 4 1 - 08 02 TD0** ..... **F / L / M**  
**P / T** Kit

**VV5QC 4 1 - 16 03 SDQW** ..... **S** Kit

**Series**  
 4 VQC4000

**Manifold model**  
 1 Plug-in unit

**Stations**  
 01 1 station  
 : :  
 The maximum number of stations differs depending on the electrical entry.

**Cylinder port size**

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

Note 1) Indicate the size in the specification order sheet in the case of "CM".  
 Note 2) Symbols for inch sizes are as follows:  
 <For One-touch fittings>  
 N7: ø1/4"  
 N9: ø5/16"  
 N11: ø3/8"  
 NM: Mixed

**Option**

|     |                                                                  |
|-----|------------------------------------------------------------------|
| Nil | None                                                             |
| K   | Special wiring specifications (except for double wiring) Note 1) |
| N   | With name plate (available for T kit only) Note 2)               |

\* When specifying more than one option, enter symbols in alphabetical order. Example: -KN  
 Note 1) Be sure to indicate the wiring specifications on the specification order sheet.  
 Note 2) The mounting position of the name plate is on the top face of the cover for the terminal block box.

**Input block COM. (Fill out for I/O unit only)**

|     |                                        |
|-----|----------------------------------------|
| Nil | PNP (+) or without SI unit/input block |
| N   | NPN (-)                                |

**Input block (Fill out for I/O unit only)**

|     |                                      |
|-----|--------------------------------------|
| Nil | Without SI unit/input block (SD0(W)) |
| 0   | Without input block                  |
| 1   | With 1 input block                   |
| :   | :                                    |
| 8   | With 8 input blocks                  |

Note) Max. 4 for EX240 and max 8 for EX250.

**SI unit COM.**

| SI unit COM | EX240     |             |         | EX250 |         |           |             | EX500   |            |         |  | EX126 |
|-------------|-----------|-------------|---------|-------|---------|-----------|-------------|---------|------------|---------|--|-------|
|             | DeviceNet | PROFIBUS-DP | CC-LINK | AS-i  | CANopen | DeviceNet | PROFIBUS-DP | CC-LINK | Remote I/O | CC-LINK |  |       |
| Nil +COM    | ○         | —           | —       | ○     | —       | ○         | ○           | ○       | ○          | ○       |  |       |
| N -COM      | —         | ○           | ○       | ○     | ○       | ○         | ○           | ○       | ○          | —       |  |       |

Note) Leave the box blank for the SI unit COM. without SI unit (SD0).

**Input block type (Fill out for I/O unit only)**

|     |                       |
|-----|-----------------------|
| Nil | Without input block   |
| 0   | M12, 8 inputs (EX240) |
| 1   | M12, 2 inputs (EX250) |
| 2   | M12, 4 inputs (EX250) |
| 3   | M8, 4 inputs (EX250)  |

### Kit Designation/Electrical Entry/Cable Length

| S Kit (Decentralized wiring type serial kit)                |                                              | S Kit (I/O serial kit)                                      |                                                        | S Kit (I/O serial transmission kit)                         |                            | S Kit (Serial output kit)                                   |                        |
|-------------------------------------------------------------|----------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------|----------------------------|-------------------------------------------------------------|------------------------|
| <p>Serial unit: <b>EX500</b><br/> <b>IP67 compliant</b></p> |                                              | <p>Serial unit: <b>EX250</b><br/> <b>IP67 compliant</b></p> |                                                        | <p>Serial unit: <b>EX240</b><br/> <b>IP65 compliant</b></p> |                            | <p>Serial unit: <b>EX126</b><br/> <b>IP67 compliant</b></p> |                        |
| SD0                                                         | Serial kit without SI unit                   | SD0                                                         | Serial kit without SI unit                             | SD0W                                                        | Serial kit without SI unit | SDVB                                                        | Serial kit for CC-LINK |
| SDA1                                                        | Serial kit for Remote I/O                    | SDY                                                         | Serial kit for CANopen                                 | SDQW                                                        | Serial kit for DeviceNet   |                                                             |                        |
| SDA2                                                        | Serial kit for DeviceNet/PROFIBUS-DP/CC-LINK | SDQ                                                         | Serial kit for DeviceNet                               | SDNW                                                        | Serial kit for PROFIBUS-DP |                                                             |                        |
|                                                             | 1 to 8 stations (16 stations)                | SDN                                                         | Serial kit for PROFIBUS-DP                             |                                                             |                            |                                                             |                        |
|                                                             |                                              | SDV                                                         | Serial kit for CC-LINK                                 |                                                             |                            |                                                             |                        |
|                                                             |                                              | SDTA                                                        | AS-i, 8 in/out, 31 slave modes, 2 power supply systems |                                                             |                            |                                                             |                        |
|                                                             |                                              | SDTB                                                        | AS-i, 4 in/out, 31 slave modes, 2 power supply systems |                                                             |                            |                                                             |                        |
|                                                             |                                              | SDTC                                                        | AS-i, 8 in/out, 31 slave modes, 1 power supply systems |                                                             |                            |                                                             |                        |
|                                                             |                                              | SDTD                                                        | AS-i, 4 in/out, 31 slave modes, 1 power supply systems |                                                             |                            |                                                             |                        |
|                                                             |                                              |                                                             | 1 to 4 stations (8 stations)                           |                                                             |                            |                                                             |                        |
|                                                             |                                              |                                                             | 1 to 2 stations (4 stations)                           |                                                             |                            |                                                             |                        |
|                                                             |                                              |                                                             | 1 to 4 stations (8 stations)                           |                                                             |                            |                                                             |                        |
|                                                             |                                              |                                                             | 1 to 2 stations (4 stations)                           |                                                             |                            |                                                             |                        |

## How to Order Valves

**VQC 4 1 0 0 5**

**Series**  
4 VQC4000

**Type of actuation**

|          |                                                              |          |                                                              |
|----------|--------------------------------------------------------------|----------|--------------------------------------------------------------|
| <b>1</b> | 2 position single<br>(A)(B)<br>5 1 3<br>(R1)(P)(R2)          | <b>4</b> | 3 position exhaust center<br>(A)(B)<br>5 1 3<br>(R1)(P)(R2)  |
|          | 2 position double (metal)<br>(A)(B)<br>5 1 3<br>(R1)(P)(R2)  |          | 3 position pressure center<br>(A)(B)<br>5 1 3<br>(R1)(P)(R2) |
| <b>2</b> | 2 position double (rubber)<br>(A)(B)<br>5 1 3<br>(R1)(P)(R2) | <b>5</b> | 3 position perfect<br>(A)(B)<br>5 1 3<br>(R1)(P)(R2)         |
|          | 3 position closed center<br>(A)(B)<br>5 1 3<br>(R1)(P)(R2)   |          |                                                              |
| <b>3</b> |                                                              | <b>6</b> |                                                              |

**Light/Surge voltage suppressor**

|     |                                              |
|-----|----------------------------------------------|
| Nil | With                                         |
| E   | Without light, with surge voltage suppressor |

**Coil voltage**

|   |               |
|---|---------------|
| 5 | 24 VDC (Note) |
| 6 | 12 VDC        |

Note) S kit is only available for 24 VDC.

**Function**

|     |                          |
|-----|--------------------------|
| Nil | Standard type (1 W)      |
| R   | External pilot           |
| Y   | Low wattage type (0.5 W) |

\* When specifying more than one option, enter symbols in alphabetical order.

**Seal type**

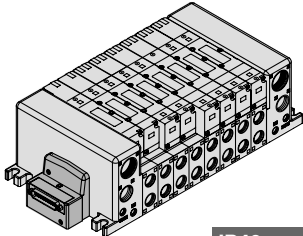
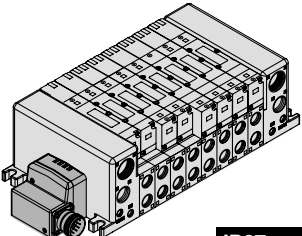
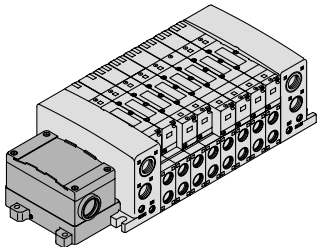
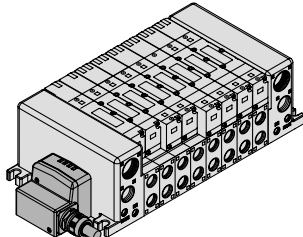
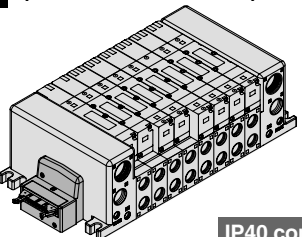
|   |             |
|---|-------------|
| 0 | Metal seal  |
| 1 | Rubber seal |

**Manual override**

**Nil:** Non-locking push type (Slotted)

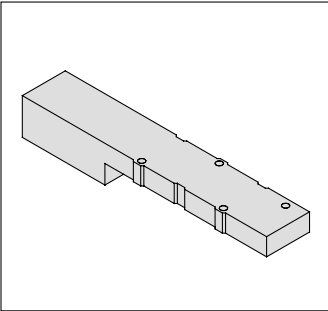
**B:** Locking type (Slotted)

## Kit Designation/Electrical Entry/Cable Length

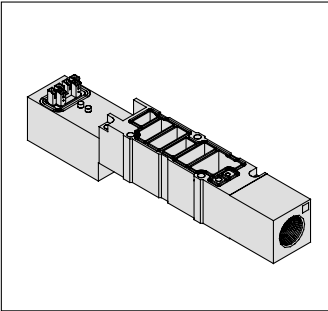
|                                       |                                                                                     |                                            |                                          |                                                                                     |                                               |                                                                                             |                                                                                       |                                                       |
|---------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------|
| <b>F</b> Kit<br>(D-sub connector kit) |  |                                            | <b>M</b> Kit<br>(Multiple connector kit) |  |                                               | <b>T</b> Kit<br>(Terminal block box kit)                                                    |  |                                                       |
|                                       | IP40 compliant                                                                      |                                            |                                          | IP67 compliant                                                                      |                                               |                                                                                             | IP67 compliant                                                                        |                                                       |
|                                       | FD0                                                                                 | D-sub connector kit (25P) without cable    |                                          | MD0                                                                                 | Multiple connector kit (26P) without cable    |                                                                                             | TD0                                                                                   | Terminal block box kit 1 to 10 stations (16 stations) |
|                                       | FD1                                                                                 | D-sub connector kit (25P) with 1.5 m cable |                                          | MD1                                                                                 | Multiple connector kit (26P) with 1.5 m cable |                                                                                             |                                                                                       |                                                       |
|                                       | FD2                                                                                 | D-sub connector kit (25P) with 3.0 m cable | MD2                                      | Multiple connector kit (26P) with 3.0 m cable                                       |                                               |                                                                                             |                                                                                       |                                                       |
|                                       | FD3                                                                                 | D-sub connector kit (25P) with 5.0 m cable | MD3                                      | Multiple connector kit (26P) with 5.0 m cable                                       |                                               |                                                                                             |                                                                                       |                                                       |
| <b>L</b> Kit<br>(Lead wire kit)       |  |                                            | <b>P</b> Kit<br>(Flat ribbon cable kit)  |  |                                               | Note) P kit: when using the flat ribbon cable kit (20P), order cable assemblies separately. |                                                                                       |                                                       |
|                                       | IP67 compliant                                                                      |                                            |                                          | IP40 compliant                                                                      |                                               |                                                                                             |                                                                                       |                                                       |
|                                       | LD0                                                                                 | Lead wire kit 0.6 m lead wire              |                                          | PD0                                                                                 | Flat ribbon cable kit (26P) without cable     |                                                                                             |                                                                                       |                                                       |
|                                       | LD1                                                                                 | Lead wire kit 1.5 m lead wire              |                                          | PD1                                                                                 | Flat ribbon cable kit (26P) with 1.5 m cable  |                                                                                             |                                                                                       |                                                       |
|                                       | LD2                                                                                 | Lead wire kit 3.0 m lead wire              | PD2                                      | Flat ribbon cable kit (26P) with 3.0 m cable                                        |                                               |                                                                                             |                                                                                       |                                                       |
|                                       |                                                                                     |                                            | PD3                                      | Flat ribbon cable kit (26P) with 5.0 m cable                                        |                                               |                                                                                             |                                                                                       |                                                       |
|                                       |                                                                                     |                                            | PDC                                      | Flat ribbon cable kit (20P) without cable (Note)                                    |                                               |                                                                                             |                                                                                       |                                                       |

**Manifold Option**

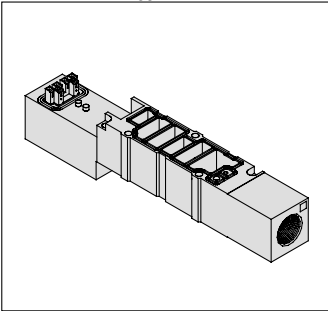
Blanking plate assembly  
VVQ4000-10A-1



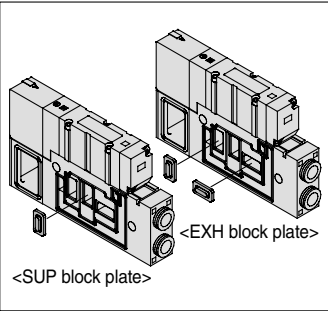
Individual SUP spacer  
VVQ4000-P-1-02-03



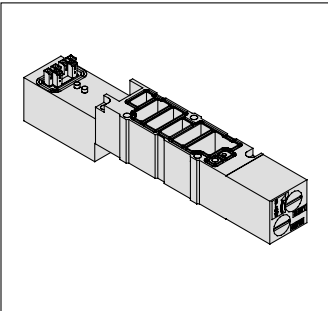
Individual EXH spacer  
VVQ4000-R-1-02-03



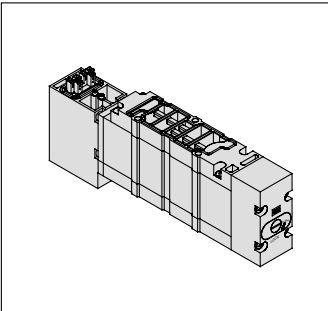
SUP/EXH block plate  
VVQ4000-16A



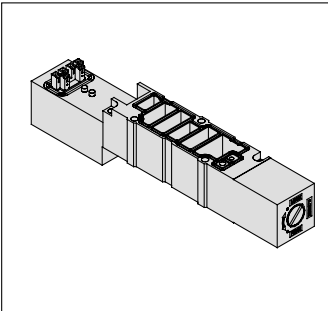
Throttle valve spacer  
VVQ4000-20A-1



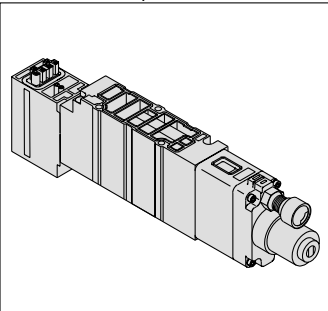
Residual pressure release valve  
perfect spacer  
VVQ4000-25A-1 (Note 1)



SUP stop valve spacer  
VVQ4000-37A-1



Interface regulator  
ARBQ4000-00-0-1



 Note 1) Perfect spacers with residual pressure release valve cannot be combined with external pilot specifications.

VQC

SQ

VQ0

VQ4

VQ5

VQZ

VQD

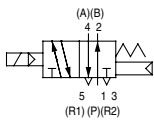
# Series VQC

## Base Mounted Plug-in Unit

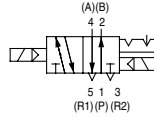


### JIS Symbol

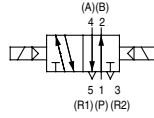
2 position single



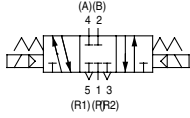
2 position double (metal)



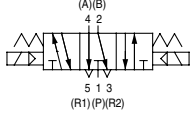
2 position double (rubber)



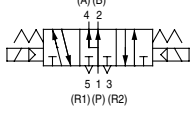
3 position closed center



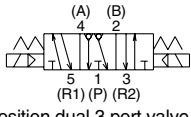
3 position exhaust center



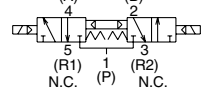
3 position pressure center



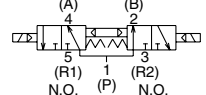
3 position exhaust center with pressure release valves



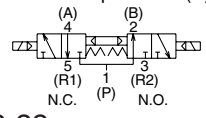
4 position dual 3 port valve (A)



4 position dual 3 port valve (B)



4 position dual 3 port valve (C)



2-2-22

### Model

| Series  | No. of solenoids |                   | Model       |                                   | Flow characteristics |      |      |                             |      |            | Response time (ms) |             | Weight (g) |     |
|---------|------------------|-------------------|-------------|-----------------------------------|----------------------|------|------|-----------------------------|------|------------|--------------------|-------------|------------|-----|
|         |                  |                   |             |                                   | 1 → 4, 2 (P → A, B)  |      |      | 4, 2 → 5, 3 (A, B → R1, R2) |      |            | Standard: 1 W      | Low wattage |            |     |
|         |                  |                   |             |                                   | C[dm³/(s·bar)]       | b    | Cv   | C[dm³/(s·bar)]              | b    | Cv         |                    |             |            |     |
| VQC1000 | 2 position       | Single            | Metal seal  | VQC1100                           | 0.70                 | 0.15 | 0.16 | 0.72                        | 0.25 | 0.18       | 12 or less         | 15 or less  | 64         |     |
|         |                  |                   | Rubber seal | VQC1101                           | 0.85                 | 0.20 | 0.21 | 1.0                         | 0.30 | 0.25       | 15 or less         | 20 or less  |            |     |
|         |                  | Double            | Metal seal  | VQC1200                           | 0.70                 | 0.15 | 0.16 | 0.72                        | 0.25 | 0.18       | 10 or less         | 13 or less  |            | 78  |
|         |                  |                   | Rubber seal | VQC1201                           | 0.85                 | 0.20 | 0.21 | 1.0                         | 0.30 | 0.25       | 15 or less         | 20 or less  |            |     |
|         | Closed center    | Metal seal        | VQC1300     | 0.68                              | 0.15                 | 0.16 | 0.72 | 0.25                        | 0.18 | 20 or less | 26 or less         |             |            |     |
|         |                  | Rubber seal       | VQC1301     | 0.70                              | 0.20                 | 0.16 | 0.65 | 0.42                        | 0.18 | 25 or less | 33 or less         |             |            |     |
|         | Exhaust center   | Metal seal        | VQC1400     | 0.68                              | 0.15                 | 0.16 | 0.72 | 0.25                        | 0.18 | 20 or less | 26 or less         |             |            |     |
|         |                  | Rubber seal       | VQC1401     | 0.70                              | 0.20                 | 0.16 | 1.0  | 0.30                        | 0.25 | 25 or less | 33 or less         |             |            |     |
|         | Pressure center  | Metal seal        | VQC1500     | 0.70                              | 0.15                 | 0.16 | 0.72 | 0.25                        | 0.18 | 20 or less | 26 or less         |             |            |     |
|         |                  | Rubber seal       | VQC1501     | 0.85                              | 0.20                 | 0.21 | 0.65 | 0.42                        | 0.18 | 25 or less | 33 or less         |             |            |     |
|         | 4 position       | Dual 3 port valve | Rubber seal | VQC1 <sup>A</sup> <sub>C</sub> 01 | 0.70                 | 0.20 | 0.16 | 0.70                        | 0.20 | 0.16       | 25 or less         | 33 or less  |            |     |
| VQC2000 | 2 position       | Single            | Metal seal  | VQC2100                           | 2.0                  | 0.15 | 0.46 | 2.6                         | 0.15 | 0.60       | 22 or less         | 29 or less  | 90         |     |
|         |                  |                   | Rubber seal | VQC2101                           | 2.2                  | 0.28 | 0.55 | 3.2                         | 0.30 | 0.80       | 24 or less         | 31 or less  |            |     |
|         |                  | Double            | Metal seal  | VQC2200                           | 2.0                  | 0.15 | 0.46 | 2.6                         | 0.15 | 0.60       | 15 or less         | 20 or less  |            | 110 |
|         |                  |                   | Rubber seal | VQC2201                           | 2.2                  | 0.28 | 0.55 | 3.2                         | 0.30 | 0.80       | 20 or less         | 26 or less  |            |     |
|         | Closed center    | Metal seal        | VQC2300     | 2.0                               | 0.15                 | 0.46 | 2.0  | 0.18                        | 0.46 | 29 or less | 38 or less         |             |            |     |
|         |                  | Rubber seal       | VQC2301     | 2.0                               | 0.28                 | 0.49 | 2.2  | 0.31                        | 0.60 | 34 or less | 44 or less         |             |            |     |
|         | Exhaust center   | Metal seal        | VQC2400     | 2.0                               | 0.15                 | 0.46 | 2.6  | 0.15                        | 0.60 | 29 or less | 38 or less         |             |            |     |
|         |                  | Rubber seal       | VQC2401     | 2.0                               | 0.28                 | 0.49 | 3.2  | 0.30                        | 0.80 | 34 or less | 44 or less         |             |            |     |
|         | Pressure center  | Metal seal        | VQC2500     | 2.4                               | 0.17                 | 0.57 | 2.0  | 0.18                        | 0.46 | 29 or less | 38 or less         |             |            |     |
|         |                  | Rubber seal       | VQC2501     | 3.2                               | 0.28                 | 0.80 | 2.2  | 0.31                        | 0.60 | 34 or less | 44 or less         |             |            |     |
|         | 4 position       | Dual 3 port valve | Rubber seal | VQC2 <sup>A</sup> <sub>C</sub> 01 | 1.8                  | 0.28 | 0.46 | 1.8                         | 0.28 | 0.46       | 34 or less         | 44 or less  |            |     |
| VQC4000 | 2 position       | Single            | Metal seal  | VQC4100                           | 6.2                  | 0.19 | 1.5  | 6.9                         | 0.17 | 1.7        | 20 or less         | 22 or less  | 230        |     |
|         |                  |                   | Rubber seal | VQC4101                           | 7.2                  | 0.43 | 2.1  | 7.3                         | 0.38 | 2.0        | 25 or less         | 27 or less  |            |     |
|         |                  | Double            | Metal seal  | VQC4200                           | 6.2                  | 0.19 | 1.5  | 6.9                         | 0.17 | 1.7        | 12 or less         | 12 or less  | 260        |     |
|         |                  |                   | Rubber seal | VQC4201                           | 7.2                  | 0.43 | 2.1  | 7.3                         | 0.38 | 2.0        | 15 or less         | 15 or less  |            |     |
|         | 3 position       | Closed center     | Metal seal  | VQC4300                           | 5.9                  | 0.23 | 1.5  | 6.3                         | 0.18 | 1.6        | 45 or less         | 47 or less  | 280        |     |
|         |                  |                   | Rubber seal | VQC4301                           | 7.0                  | 0.34 | 1.9  | 6.4                         | 0.42 | 1.9        | 50 or less         | 52 or less  |            |     |
|         |                  | Exhaust center    | Metal seal  | VQC4400                           | 6.2                  | 0.18 | 1.5  | 6.9                         | 0.17 | 1.7        | 45 or less         | 47 or less  |            |     |
|         |                  |                   | Rubber seal | VQC4401                           | 7.0                  | 0.38 | 1.9  | 7.3                         | 0.38 | 2.0        | 50 or less         | 52 or less  |            |     |
|         |                  | Pressure center   | Metal seal  | VQC4500                           | 6.2                  | 0.18 | 1.9  | 6.4                         | 0.18 | 1.6        | 45 or less         | 47 or less  | 280        |     |
|         |                  |                   | Rubber seal | VQC4501                           | 7.0                  | 0.38 | 1.9  | 7.1                         | 0.38 | 2.0        | 50 or less         | 52 or less  |            |     |
|         |                  | Perfect           | Metal seal  | VQC4600                           | 2.7                  | —    | —    | 3.7                         | —    | —          | 55 or less         | 57 or less  | 500        |     |
|         |                  |                   | Rubber seal | VQC4601                           | 2.8                  | —    | —    | 3.9                         | —    | —          | 62 or less         | 64 or less  |            |     |



Note 1) Values represented in this column are in the following conditions:

VQC1000: Cylinder port size C6 without a back pressure check valve

VQC2000: Cylinder port size C8 without a back pressure check valve

VQC4000: Cylinder port size Rc 3/8

Note 2) Values represented in this column are based on JIS B 8375-1981 (operating with clean air and a supply pressure of 0.5 MPa. Equipped with light/surge voltage suppressor. Values vary depending on the pressure as well as the air quality.) Values for double types are when the switch is ON.

## Standard Specifications

| Valve specifications                   | Valve Configuration           |                                            | Metal seal                                                                                                                     |                                                          | Rubber seal |          |  |
|----------------------------------------|-------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------|----------|--|
|                                        | Fluid                         |                                            | Air/Inert gas                                                                                                                  |                                                          |             |          |  |
|                                        | VQC1000/2000                  | Max. operating pressure                    |                                                                                                                                | 0.7 MPa (High pressure type: 1.0 MPa) <sup>Note 4)</sup> |             |          |  |
|                                        |                               | Min. operating pressure                    | Single                                                                                                                         | 0.1 MPa                                                  |             | 0.15 MPa |  |
|                                        |                               |                                            | Double                                                                                                                         | 0.1 MPa                                                  |             |          |  |
|                                        |                               |                                            | 3 position                                                                                                                     | 0.1 MPa                                                  |             | 0.2 MPa  |  |
|                                        |                               |                                            | 4 position                                                                                                                     | —                                                        |             | 0.15 MPa |  |
|                                        | VQC4000                       | Max. operating pressure <sup>Note 3)</sup> |                                                                                                                                | 1.0 MPa (0.7 MPa)                                        |             |          |  |
|                                        |                               | Min. operating pressure                    | Single                                                                                                                         | 0.15 MPa                                                 |             | 0.2 MPa  |  |
|                                        |                               |                                            | Double                                                                                                                         | 0.15 MPa                                                 |             |          |  |
|                                        |                               |                                            | 3 position                                                                                                                     | 0.15 MPa                                                 |             | 0.2 MPa  |  |
|                                        | Proof pressure                |                                            | 1.5 MPa                                                                                                                        |                                                          |             |          |  |
|                                        | Ambient and fluid temperature |                                            | −10 to 50°C <sup>Note 1)</sup>                                                                                                 |                                                          |             |          |  |
|                                        | Lubrication                   |                                            | Not required                                                                                                                   |                                                          |             |          |  |
|                                        | Manual override               |                                            | Push type/Locking type (tool required)/Locking type (Manual override) <sup>Note 5)/Slide locking type <sup>Note 5)</sup></sup> |                                                          |             |          |  |
| Impact resistance/Vibration resistance |                               | 150/30 m/s <sup>2</sup> <sup>Note 2)</sup> |                                                                                                                                |                                                          |             |          |  |
| Enclosure                              |                               | Dust proof (IP67 compliant)                |                                                                                                                                |                                                          |             |          |  |
| Electrical specifications              | Rated coil voltage            |                                            | 24 VDC                                                                                                                         |                                                          |             |          |  |
|                                        | Allowable voltage fluctuation |                                            | ±10% of rated voltage                                                                                                          |                                                          |             |          |  |
|                                        | Coil insulation type          |                                            | Equivalent to B type                                                                                                           |                                                          |             |          |  |
|                                        | Power consumption (Current)   | 24 VDC                                     | 1 W DC (42 mA), 0.5 W DC (21 mA)                                                                                               |                                                          |             |          |  |
|                                        |                               | 12 VDC                                     | 1 W DC (83 mA), 0.5 W DC (42 mA)                                                                                               |                                                          |             |          |  |

Note 1) Use dry air to prevent condensation at low temperatures.

Note 2) **Impact resistance:** No malfunction resulted from the impact test using a drop impact tester. The test was performed one time each in the axial and right angle directions of the main valve and armature, for both energized and de-energized states.

**Vibration resistance:** No malfunction occurred in a one-sweep test between 45 and 2000Hz. Test was performed in the axial and right angle directions of the main valve and armature for both energized and de-energized states.

Note 3) Values in ( ) are for the low wattage (0.5 W) specification.

Note 4) Metal seal type only.

Note 5) Only for VQC1000/2000.

VQC

SQ

VQ0

VQ4

VQ5

VQZ

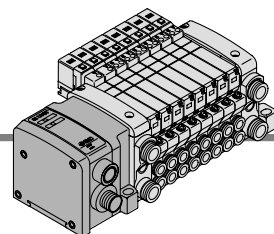
VQD

## Manifold Specifications

| Series  | Base model  | Connection type                                                                                                                                                     | Piping specifications |                                                                                                           |                                                                   | Applicable stations<br><small>Note 2)</small>                                                                                                                                               | Applicable solenoid valves | 5 station weight (g)                                                 |
|---------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------------------------------------------|
|         |             |                                                                                                                                                                     | Port direction        | Port size <small>Note 1)</small>                                                                          |                                                                   |                                                                                                                                                                                             |                            |                                                                      |
|         |             |                                                                                                                                                                     |                       |                                                                                                           | 1, 3 (P, R)                                                       | 2, 4 (A, B)                                                                                                                                                                                 |                            |                                                                      |
| VQC1000 | VV5QC11-□□□ | ■ F Kit: D-sub connector<br>■ P Kit: Flat cable<br>■ T Kit: Terminal block box<br>■ S Kit: Serial transmission<br>■ L Kit: Lead wire<br>■ M Kit: Multiple connector | Side                  | C8 (For ø8)<br><div>Options<br/>Direct outlet with built-in silencer</div>                                | C3 (For ø3.2)<br>C4 (For ø4)<br>C6 (For ø6)<br>M5 (M5 threads)    | (F, L, M and P kits<br>1 to 12 stations)<br><div>T kit<br/>1 to 10 stations</div>                                                                                                           | VQC1□00-5<br>VQC1□01-5     | 628 (Single)<br>759 (Double, 3P)                                     |
| VQC2000 | VV5QC21-□□□ |                                                                                                                                                                     | Side                  | C10 (For ø10)<br><div>Options<br/>Direct outlet with built-in silencer</div><br>Branch type C12 (for ø12) | C4 (For ø4)<br>C6 (For ø6)<br>C8 (For ø8)                         | <div>S kit<br/>1 to 8 stations: EX500<br/>1 to 12 stations: EX250<br/>1 to 8 stations: EX126</div>                                                                                          | VQC2□00-5<br>VQC2□01-5     | 1051 (Single)<br>1144 (Double, 3P)                                   |
| VQC4000 | VV5QC41-□□□ |                                                                                                                                                                     | Side                  | P: Rc 1/2<br>R: Rc 3/4                                                                                    | C8 (For ø8)<br>C10 (For ø10)<br>C12 (For ø12)<br>Rc 1/4<br>Rc 3/8 | (F, L, M and P kits<br>1 to 12 stations)<br><div>T kit<br/>1 to 10 stations</div> <div>S kit<br/>1 to 12 stations: EX240, EX250<br/>1 to 8 stations: EX500<br/>1 to 8 stations: EX126</div> | VQC4□00-5<br>VQC4□01-5     | 4150<br>• S kit (without unit)<br>• Solenoid weight is not included. |
|         |             | Bottom                                                                                                                                                              | Rc 1/4                |                                                                                                           |                                                                   |                                                                                                                                                                                             |                            |                                                                      |

Note 1) One-touch fittings in inch sizes are also available.

Note 2) An optional specification for special wiring is available to increase the maximum number of stations.

**S****VQC1000/2000/4000****Kit (Serial transmission kit) Decentralized Serial Wiring****Gateway type serial transmission system**

- Since wiring is "prepackaged" into one multi-connector type cable, wiring work is not only made easier, but much more accurate.

S kit can be used by connecting to gateway unit.

**Gateway (GW) Unit IP65 compliant****How to Order****EX500 — G DN1****Communication protocol**

|             |             |               |                  |
|-------------|-------------|---------------|------------------|
| <b>DN1</b>  | DeviceNet   | <b>AB1-X1</b> | Remote I/O (RIO) |
| <b>PR1A</b> | PROFIBUS-DP | <b>MJ1</b>    | CC-LINK          |

**Specifications**

| Model                                  | EX500-GAB1-X1                                                                                                                                | EX500-GDN1                                             | EX500-GPR1A                                                    | EX500-GMJ1                            |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------|---------------------------------------|
| Applicable PLC/Communication protocol  | Rockwell Automation PLC                                                                                                                      | DeviceNet Release 2.0                                  | PROFIBUS-DP (EN50170)                                          | CC-LINK Ver. 1.10                     |
| Communication speed                    | 57.6/115.2/230.4 kbit/sec                                                                                                                    | 125/250/500 kbit/sec                                   | 9.6/19.2/45.45/93.75/187.5/500 kbit/sec<br>1.5/3/6/12 Mbit/sec | 156/625 kbit/sec<br>2.5/5/10 Mbit/sec |
| Rated voltage                          | 24 VDC                                                                                                                                       |                                                        |                                                                |                                       |
| Power supply voltage range             | Input and control unit power supply: 24 VDC ± 10%<br>Solenoid valve power supply: 24 VDC + 10%/–5% (with power drop warning at approx. 20 V) |                                                        |                                                                |                                       |
|                                        | —                                                                                                                                            | Communication power supply for DeviceNet 11 to 25 VDC  | —                                                              | —                                     |
| Current consumption                    | 200 mA or less (Single GW unit)                                                                                                              |                                                        |                                                                |                                       |
|                                        | —                                                                                                                                            | Communication power supply for DeviceNet 50 mA or less | —                                                              | —                                     |
| Number of inputs/outputs               | Maximum 64 inputs/64 outputs                                                                                                                 |                                                        |                                                                |                                       |
| Number of input/output branches        | 4 branches (16 inputs/16 outputs per branch)                                                                                                 |                                                        |                                                                |                                       |
| Branch cable                           | 8 core heavy duty cable                                                                                                                      |                                                        |                                                                |                                       |
| Branch cable length                    | 5 m or less (total extension 10 m or less)                                                                                                   |                                                        |                                                                |                                       |
| Communication connector                | M12 connector (8 pins, socket)                                                                                                               |                                                        |                                                                |                                       |
| Power connector                        | M12 connector (5 pins, plug)                                                                                                                 |                                                        |                                                                |                                       |
| Ambient operating temperature/humidity | +5 to +45°C at 35% to 85% RH (No condensation)                                                                                               |                                                        |                                                                |                                       |
| Enclosure                              | IP65                                                                                                                                         |                                                        |                                                                |                                       |
| Applicable standard                    | UL, CSA, CE                                                                                                                                  |                                                        |                                                                |                                       |
| Weight (g)                             | 470                                                                                                                                          |                                                        |                                                                |                                       |

**Input Block IP67 compliant****How to Order Input Manifold****EEX500 — IB1 — E 8****Input unit specifications**

| Connector type |                  |
|----------------|------------------|
| <b>E</b>       | M8 connector     |
| <b>T</b>       | M12 connector    |
| <b>M</b>       | M8 and M12 mixed |

**Stations**

|          |            |
|----------|------------|
| <b>1</b> | 1 station  |
| <b>8</b> | 8 stations |

**Applicable GW unit**

|            |                  |
|------------|------------------|
| <b>Nil</b> | DeviceNet        |
|            | PROFIBUS-DP      |
| <b>-X1</b> | Remote I/O (RIO) |



Note) When ordering an input block manifold, enter the Input manifold part no. + Input block part no. together. The input block, end block and DIN rail are included in the input manifold.

**How to Order Input Block****EX500 — IE 1****Block type**

|          |                                                           |
|----------|-----------------------------------------------------------|
| <b>1</b> | M8 connector, PNP specifications                          |
| <b>2</b> | M8 connector, NPN specifications                          |
| <b>3</b> | M12 connector, PNP specifications                         |
| <b>4</b> | M12 connector, NPN specifications                         |
| <b>5</b> | 8-point integrated type, M8 connector, PNP specifications |
| <b>6</b> | 8-point integrated type, M8 connector, NPN specifications |

**Applicable GW unit**

|            |                  |
|------------|------------------|
| <b>Nil</b> | DeviceNet        |
|            | PROFIBUS-DP      |
| <b>-X1</b> | Remote I/O (RIO) |

\* With waterproof cap

**Input Unit Specifications**

|                             |                                                                                                            |
|-----------------------------|------------------------------------------------------------------------------------------------------------|
| Connection block            | Current source type input block (PNP input block)<br>or<br>Current sink type input block (NPN input block) |
| Communication connector     | M12 connector (8 pins, plug)                                                                               |
| Number of connection blocks | Maximum 8 blocks                                                                                           |
| Block supply voltage        | 24 VDC                                                                                                     |
| Block supply current        | 0.65 A maximum                                                                                             |
| Current consumption         | 100 mA or less (at rated voltage)                                                                          |
| Short circuit protection    | Operates at 1A Typ. (power supply cut)<br>GW unit reset by turning power OFF and back ON.                  |
| Enclosure                   | IP65                                                                                                       |
| Weight (g) Note)            | 100 (Input unit + end block)                                                                               |

Note) Not including the DIN rail weight.

**Input Block Specifications**

|                       |                                                                          |
|-----------------------|--------------------------------------------------------------------------|
| Applicable sensor     | Current source type (PNP output)<br>or<br>Current sink type (NPN output) |
| Sensor connector      | M8 connector (3 pins) or, M12 connector (4 pins)                         |
| Number of inputs      | 2 inputs/8 inputs (M8 only)                                              |
| Rated voltage         | 24 VDC                                                                   |
| Indication            | Green LED                                                                |
| Insulation            | None                                                                     |
| Sensor supply current | Maximum 30 mA/Sensor                                                     |
| Enclosure             | IP65                                                                     |
| Weight (g)            | [For M8: 20] [For M12: 40] [8 point integrated type, for M8: 55]         |



**SI Unit****How to Order****EX500 – Q001**• **Applicable GW unit**

|            |                          |
|------------|--------------------------|
| <b>Nil</b> | DeviceNet<br>PROFIBUS-DP |
| <b>-X1</b> | Remote I/O (RIO)         |

**Specifications**

|                                     |                                                                                                                                                            |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connection block                    | Solenoid valve (single, double)<br>Relay output module (1 output, 2 outputs)                                                                               |
| Communication connector             | M12 connector (8 pins, plug, socket)                                                                                                                       |
| Number of connection block stations | Double solenoid valve<br>Relay output module (2 points): Maximum 8 stations<br>Single solenoid valve<br>Relay output module (1 point): Maximum 16 stations |
| Block supply voltage                | 24 VDC                                                                                                                                                     |
| Block supply current                | 0.65 A maximum                                                                                                                                             |
| Current consumption                 | 100 mA or less (at rated voltage)                                                                                                                          |
| Weight (g)                          | 115                                                                                                                                                        |

**VQC****SQ****VQ0****VQ4****VQ5****VQZ****VQD****Cable****How to Order Cable with M12 Connector****EX500 – AC 030 – SSPS**

| Cable length |       |
|--------------|-------|
| <b>003</b>   | 0.3 m |
| <b>005</b>   | 0.5 m |
| <b>010</b>   | 1 m   |
| <b>030</b>   | 3 m   |
| <b>050</b>   | 5 m   |

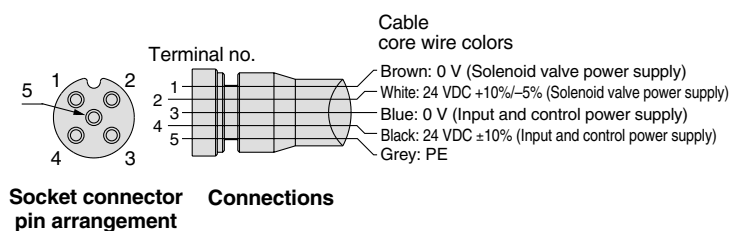
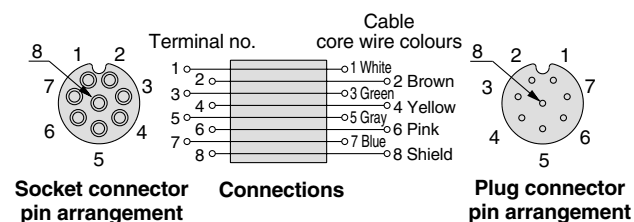
| Connector specifications |                                              |
|--------------------------|----------------------------------------------|
| <b>SSPS</b>              | Socket side: Straight<br>Plug side: Straight |
| <b>SAPA</b>              | Socket side: Angle<br>Plug side: Angle       |

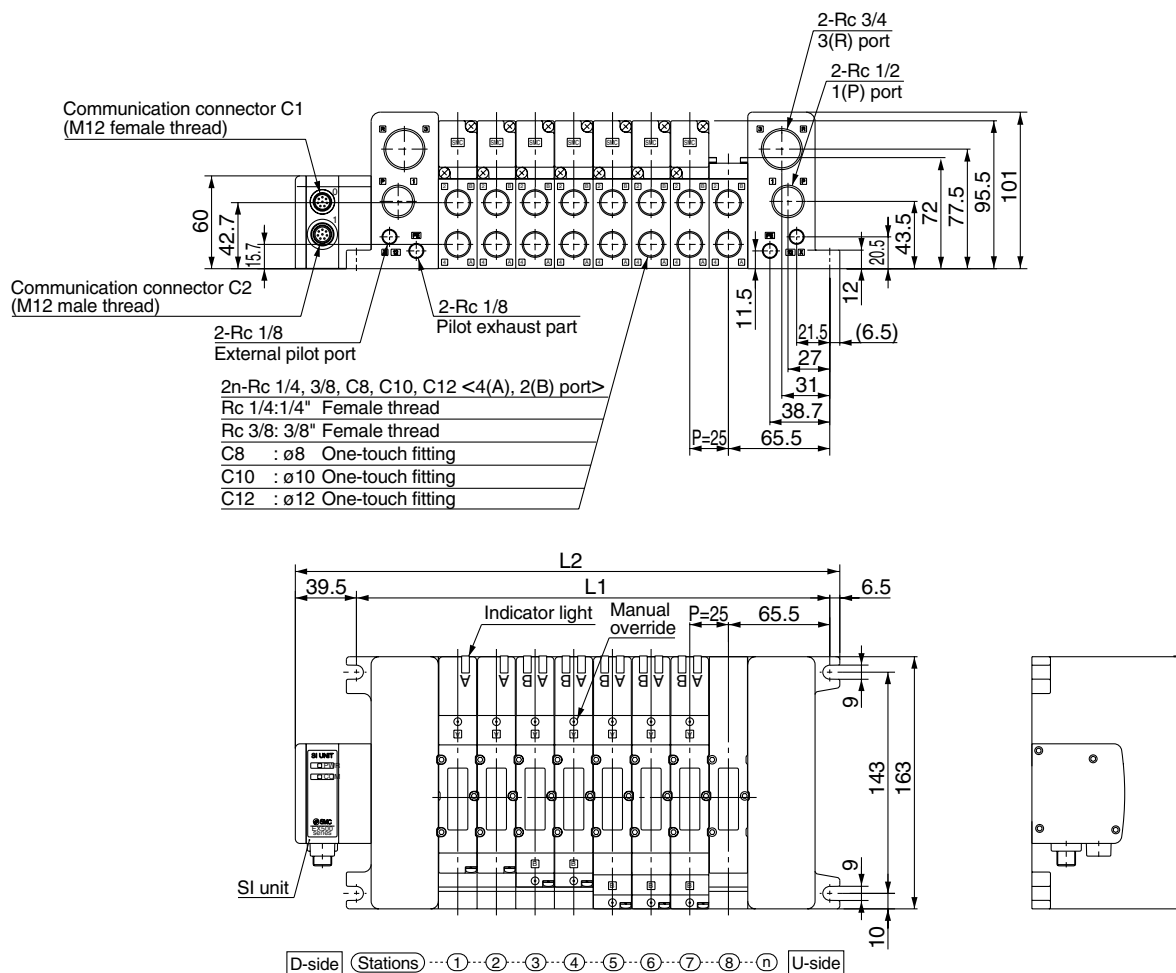
**How to Order Power Cable with Connector****EX500 – AP 050 – S**

| Cable length |     |
|--------------|-----|
| <b>010</b>   | 1 m |
| <b>050</b>   | 5 m |

• **Connector specifications**

|          |          |
|----------|----------|
| <b>S</b> | Straight |
| <b>A</b> | Angle    |



**VV5QC41****SA1 Kit (Serial transmission kit: EX500)**

## Formulas

L1 = 25n + 106 (Maximum 16 single wiring stations)

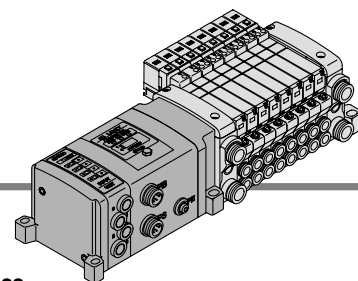
n: Stations

| L \ n | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L1    | 131 | 156 | 181 | 206 | 231 | 256 | 281 | 306 | 331 | 356 | 381 | 406 | 431 | 456 | 481 | 506 |
| L2    | 177 | 202 | 227 | 252 | 277 | 302 | 327 | 352 | 377 | 402 | 427 | 452 | 477 | 502 | 527 | 552 |

S

VQC1000/2000/4000

Kit (Serial Transmission Kit) for I/O IP67 compliant



## Compatible network

DeviceNet/PROFIBUS-DP/CC-Link

- The serial transmission system greatly reduces connection work, minimizes wiring, and saves space.

## SI unit for DeviceNet/PROFIBUS-DP/CC-LINK

As a DeviceNet/PROFIBUS-DP/CC-LINK slave unit, this kit is capable of up to 32 points of solenoid valve ON and OFF control.

Furthermore, by connecting an input block, a maximum 32 sensor signal inputs are possible.

## SI unit for AS-i

As a AS-i slave unit, this kit is capable of up to 4 or 8 points of solenoid valve ON and OFF control.

Furthermore, by connecting an input block, a maximum 4 or 8 sensor signal inputs are possible.

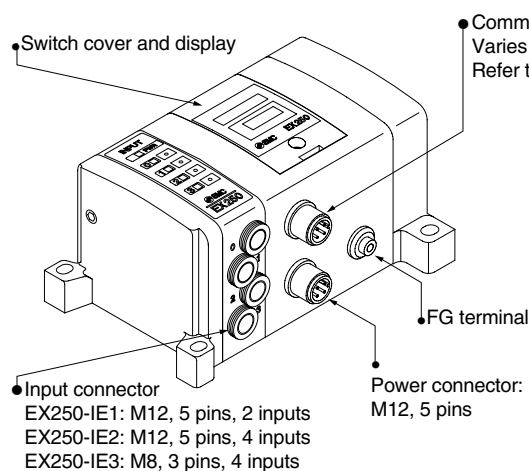
## Input block

This expansion block connects to the SI unit and allows for sensor input to the auto switches.

Each input block can receive input from up to two or four sensors, and the common can be matched to the sensor by an NPN/PNP selector switch.

Input connectors are available in both M8 and M12 types.

## Connector Details

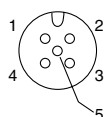


## Circuit diagram Input module (EX250-IE\*)

Input connection: M12 ... 5 pins (Socket)

Example for the cable side connection: OMRON Corporation XS2G;

Karl Lumberg GmbH: Series RST5; Franz Binder GmbH: Series 713,763



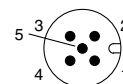
| Pos. | Description  | Function                 |
|------|--------------|--------------------------|
| 1    | SW+          | Sensor power supply +    |
| 2    | N.C (SIGNAL) | Open*                    |
| 3    | SW-          | Sensor power supply -    |
| 4    | SIGNAL       | Sensor input signal      |
| 5    | E            | Sensor ground connection |

\* In the 4 input type unit (EX250-IE2), this is the input signal from the second sensor connected.

## Communication connector

CANopen: Female connector cable: M12 female 5 pins cable with shield (according to ISO11898).

| Pos. | Description | Function                 |
|------|-------------|--------------------------|
| 1    | CAN_SHLD    | Shield                   |
| 2    | CAN_V+      | Power supply +           |
| 3    | CAN_GND     | Power supply -           |
| 4    | CAN_H       | Bus line (dominant High) |
| 5    | CAN_L       | Bus line (dominant Low)  |



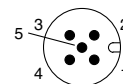
DeviceNet: M12...5 pins (Plug) Example for a cable set with plug / socket:

OMRON Corporation DCA1-5CN05F1. Karl Lumberg GmbH: 0935 253 103/...M, RSC RKC 57\* ... M.

Accessories, bus branch Y: Karl Lumberg GmbH: 0906 UTP 101, Hans Turck GmbH: VB2-FKM-FSM57.

Accessories terminating socket with resistor: Hans Turck GmbH: RSE57-TR2, Karl Lumberg GmbH: 0939 CXT 101.

| Pos. | Description | Function               |
|------|-------------|------------------------|
| 1    | Drain       | Drain / shield         |
| 2    | V+          | Circuit power supply + |
| 3    | V-          | Circuit power supply - |
| 4    | CAN_H       | Signal H               |
| 5    | CAN_L       | Signal L               |



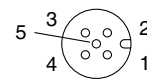
PROFIBUS-DP: M12... 5 pins reserve-keyed (Socket). Example for the corresponding cable sets with plug / socket:

Hans Turck GmbH: RSSW-RKSW456-...M; Karl Lumberg GmbH: 0975 254 101/...M

Accessories Bus branch Y: Hans Turck GmbH: VB2/FSW/FKW/FSW45

Accessories terminating resistor: Hans Turck GmbH: RSS4.5-PDP-TR; Karl Lumberg GmbH: 0979PTX101

| Pos. | Description | Function                              |
|------|-------------|---------------------------------------|
| 1    | VP          | Power supply for terminating resistor |
| 2    | A-N         | Negative for data transfer/reception  |
| 3    | DGND        | Ground for terminating resistor       |
| 4    | B-P         | Positive for data transfer/reception  |
| 5    | SHIELD      | Shield                                |



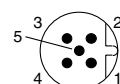
## Power supply

DeviceNet: M12 ... 5 pins reserve-keyed (Plug)

(The configuration of the connection surface area differs from that of the transmission plug)

Example of the cable set with socket: Hans Turck GmbH: WAKW4.5T-2, Franz Binder GmbH: 79-4449-...05.

| Pos. | Description | Function                  |
|------|-------------|---------------------------|
| 1    | SV24V       | +24 V solenoid valve      |
| 2    | SV0V        | 0V solenoid valve         |
| 3    | SW24V       | +24 V SI and input blocks |
| 4    | SW0V        | 0 V SI and input blocks   |
| 5    | E           | Ground connection         |

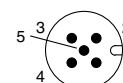


PROFIBUS-DP: M12...5 pins (Plug)

Example of the cable set with socket:

SMC: EX500-AP...S (See page 2-2-25.)

| Pos. | Description | Function                  |
|------|-------------|---------------------------|
| 1    | SV24V       | +24 V solenoid valve      |
| 2    | SV0V        | 0 V solenoid valve        |
| 3    | SW24V       | +24 V SI and input blocks |
| 4    | SW0V        | 0 V SI and input blocks   |
| 5    | E           | Ground connection         |



Input connection: M8 ... 3 pins (Socket)

Example for cable side connection: Franz Binder GmbH Series 718, 768

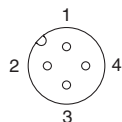
Karl Lumberg GmbH: Series RSMV3



| Pos. | Description | Function              |
|------|-------------|-----------------------|
| 1    | SW+         | Sensor power supply + |
| 3    | SW-         | Sensor power supply - |
| 4    | SIGNAL      | Sensor input signal   |

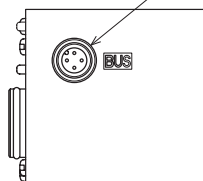
**AS-i EX250-SAS7 / EX250-SAS9**

Communication connector: M12 male 4 pins

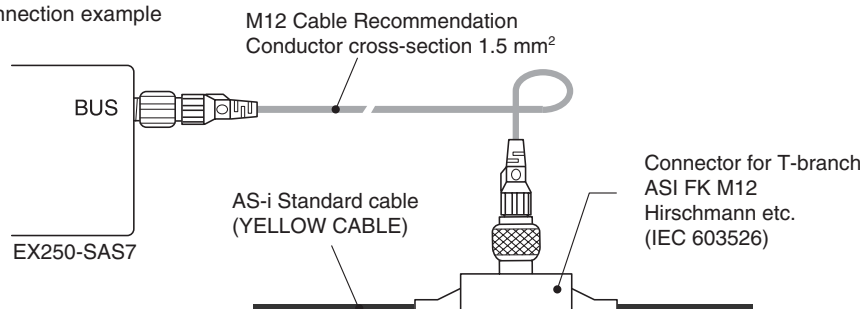


| Pos. | Description | Function                   |
|------|-------------|----------------------------|
| 1    | AS-i +      | Positive AS-Interface line |
| 2    | RESERVE     | RESERVE                    |
| 3    | AS-i -      | Negative AS-Interface line |
| 4    | RESERVE     | RESERVE                    |

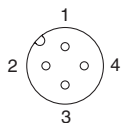
Communication connector



Connection example

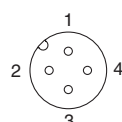
**VQC****SQ****VQ0****VQ4****VQ5****VQZ****VQD****AS-i EX250-SAS3 / EX250-SAS5**

Communication connector: M12 male 4 pins



| Pos. | Description | Function                             |
|------|-------------|--------------------------------------|
| 1    | AS-i +      | Positive AS-Interface line           |
| 2    | 0V          | Negative output equipment power line |
| 3    | AS-i -      | Negative AS-Interface line           |
| 4    | 24V         | Positive output equipment power line |

Output equipment power connector: M12 male 4 pins



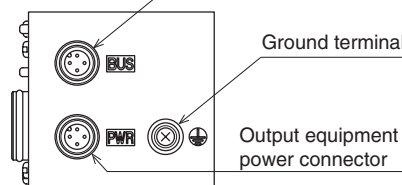
| Pos. | Description | Function                             |
|------|-------------|--------------------------------------|
| 1    | 24V         | Positive output equipment power line |
| 2    | NC          | Not connected                        |
| 3    | 0V          | Negative output equipment power line |
| 4    | NC          | Not connected                        |

\* Connected inside the SI unit.

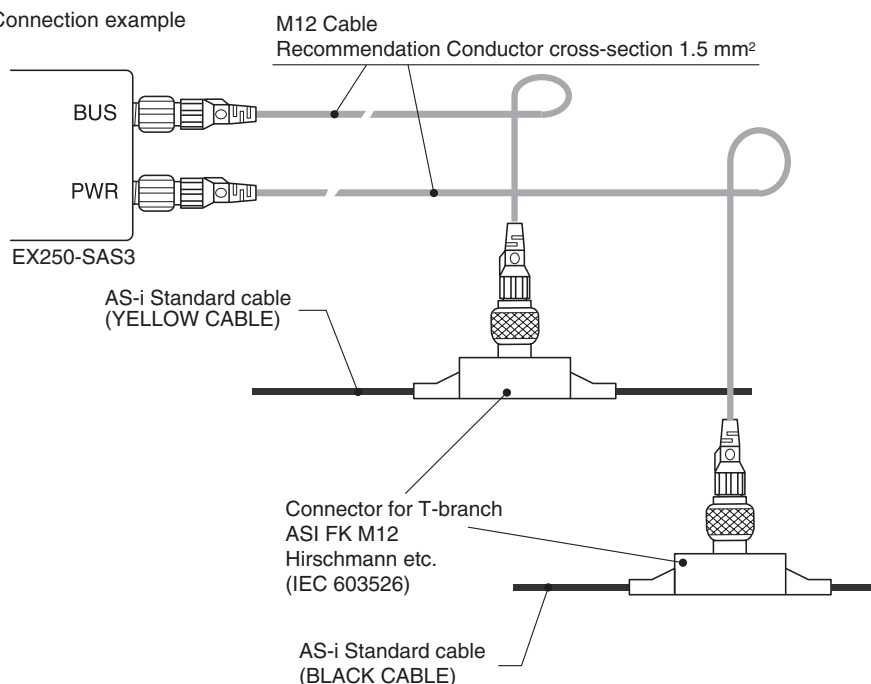
Communication connector

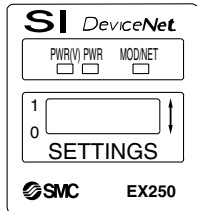
Ground terminal

Output equipment power connector

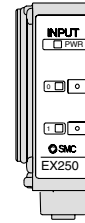
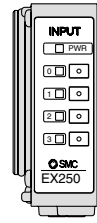
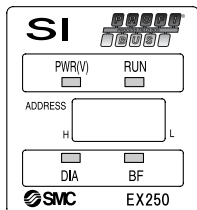


Connection example



**Indicator Unit (LED) Description and Its Function**■ **SI unit****DeviceNet (EX250-SDN1)**

| Name    | 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).                 |
|         | RED ON: MAC_ID duplication error, or BUSOFF error (major communication abnormality). |

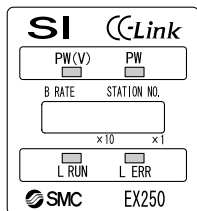
■ **Input block (EX250-IE1/2/3)**2-input type  
(EX250-IE1)4-input type  
(EX250-IE2/3)■ **PROFIBUS-DP (EX250-SPR1)**

| Name   | Function                                                                                                              |
|--------|-----------------------------------------------------------------------------------------------------------------------|
| PWR(V) | GREEN ON when solenoid valve power supply is turned ON.<br>GREEN OFF when the power supply voltage is less than 19 V. |
| RUN    | GREEN ON when operating (SI unit power supply is ON).                                                                 |
| DIA    | RED ON when self diagnosis device detects abnormality.                                                                |
| BF     | RED ON for BUS abnormality.                                                                                           |

| Description | Function                           |
|-------------|------------------------------------|
| PWR         | ON when sensor power is turned ON. |
| 0 to 1(3)   | ON when each sensor input goes ON. |

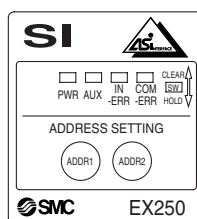


\* Please contact your SMC representative for specifications and handling precautions.

■ **CC-Link (EX250-SMJ2)**

| Name  | Function                                                                                                               |
|-------|------------------------------------------------------------------------------------------------------------------------|
| PW    | ON: Input and control unit power supply ON.<br>OFF: Input and control unit power supply OFF.                           |
| PW(V) | ON: Solenoid valve power supply ON.<br>OFF: Solenoid valve power supply voltage is less than 19 V.                     |
| L RUN | ON: Normal traffic<br>OFF: Traffic disconnected (Timeover error)                                                       |
| L ERR | ON: Traffic error<br>BLINKING: Station or baud rate switch is set while the power supply is ON.<br>OFF: Normal traffic |

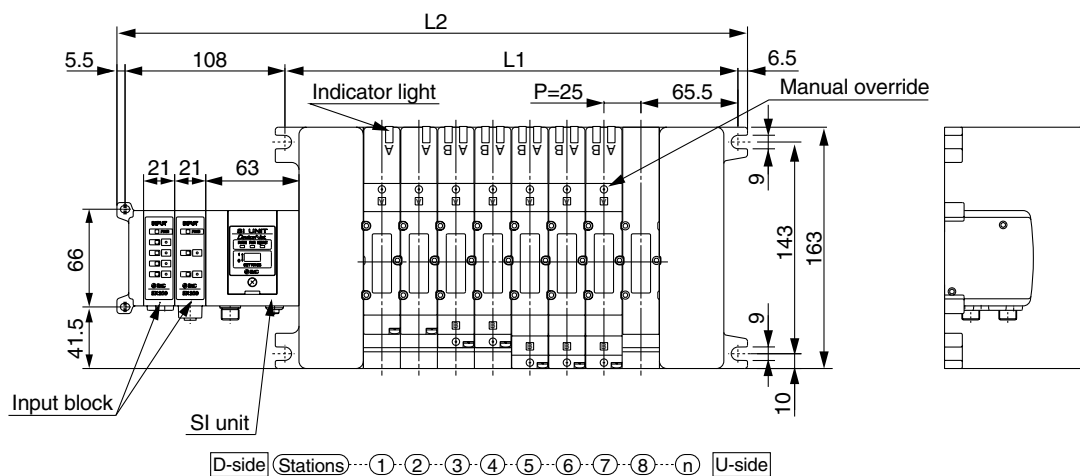
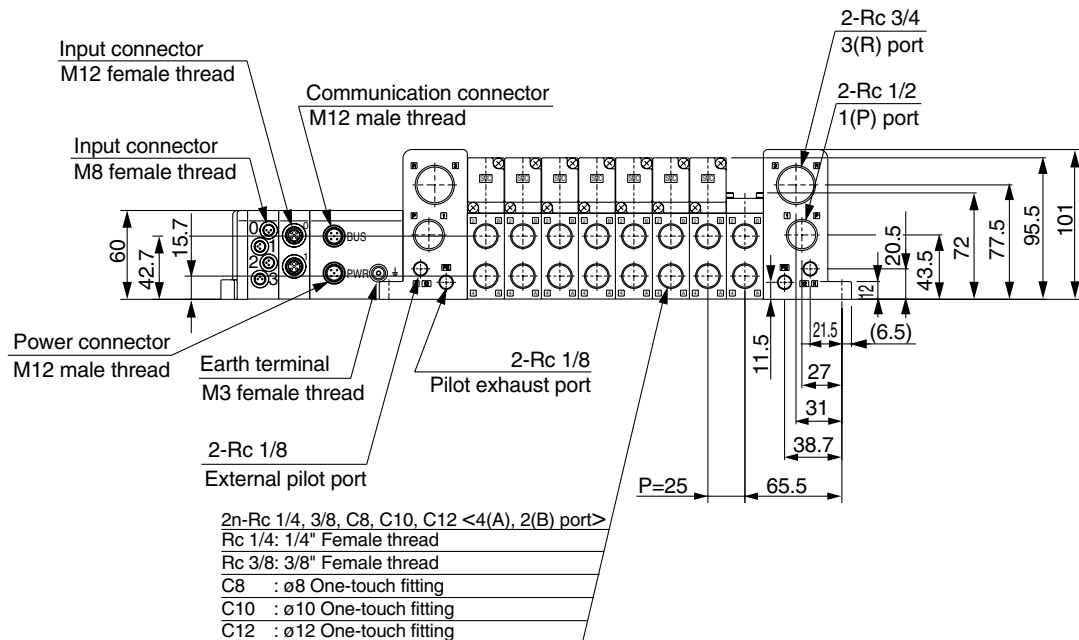
When the data link is normal, PW, PW (V) and L RUN are ON.

■ **AS-i (EX250-SAS□)**

| Name    | LED Condition | Contents                                                                                    |
|---------|---------------|---------------------------------------------------------------------------------------------|
| PWR     | Green Light   | In time of power supply for AS-Interface line is turned on.                                 |
| AUX     | Green Light   | In time of auxiliary power supply for output equipment is turned on.                        |
| IN-ERR  | Red Light     | In time of input power is detected over current. (Lights off at normal condition)           |
| COM-ERR | Red Light     | In time of communication error. (Lights off at normal condition)                            |
|         | Red Blink     | In time of peripheral equipment error. (Over current of input power, blowing the fuse etc.) |

■ **SI unit****CANopen (EX250-SCA1)**

| Name   | LED Condition                | Contents                                                        |
|--------|------------------------------|-----------------------------------------------------------------|
| PWR(V) | Green Light                  | Illuminates when power for solenoid valves is supplied          |
|        | Green Light                  | Illuminates when power for CANopen line is supplied             |
| PWR    | Green Light                  | Illuminates when SI unit is in the Operational state            |
| CAN    | Green Light (Blinking)       | SI unit is in the Pre-operational state                         |
|        | Green Light (Single flash)   | Single flash when SI unit is in Stopped state                   |
|        | Red Light (Single flash)     | Single flash when CAN controller error occurs                   |
|        | Red Light (Double flash)     | Double flash when Error Control Event occurs                    |
|        | Green/Red Light (flickering) | Flickering when SI unit is in Configuration mode (LSS services) |
|        | Red Light                    | Red Light SI unit is in "Bus OFF" state                         |

**S****VQC1000/2000/4000****Kit (Serial transmission kit) for I/O IP67 compliant****VV5QC41****S Kit****(Serial transmission kit: EX250)**

## Formulas

L1 = 25n + 106 (Maximum 16 single wiring stations)

\* L2: For one input block. Add 21 mm for each additional input block.

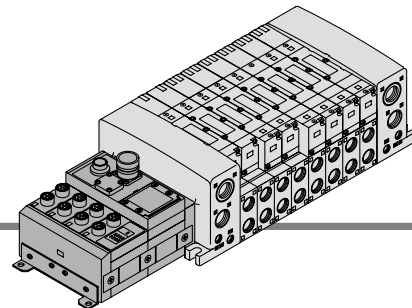
n: Stations

| L \ n | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L1    | 131 | 156 | 181 | 206 | 231 | 256 | 281 | 306 | 331 | 356 | 381 | 406 | 431 | 456 | 481 | 506 |
| L2    | 230 | 255 | 280 | 305 | 330 | 355 | 380 | 405 | 430 | 455 | 480 | 505 | 530 | 555 | 580 | 605 |

S

VQC4000

Kit (Serial transmission kit) for I/O IP65 compliant



## Compatible network DeviceNet/PROFIBUS-DP

- The serial transmission system greatly reduces connection work, minimizes wiring, and saves space.

## DeviceNet/PROFIBUS-DP compatible SI unit

As a DeviceNet/PROFIBUS-DP slave unit, this kit is capable of solenoid valve ON and OFF control up to 32 points.

Furthermore, by connecting an input block, up to 32 sensor signal inputs are possible.

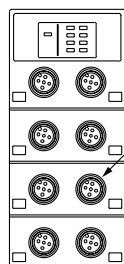
## Input block

This expansion block connects to the SI unit and allows for sensor input to the auto switches.

Each input block can receive input from up to 8 sensors, and the common can be matched to the sensor by an NPN/PNP selector switch.

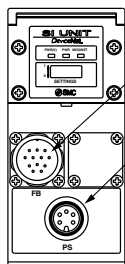
## Connector Details

## Input block



Input connector

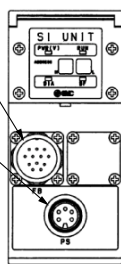
## SI unit (DeviceNet)



Communication connector

Power connector

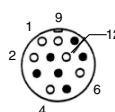
## SI unit (PROFIBUS-DP)



## Communication connector (PROFIBUS-DP):

CONINVERS GmbH RC-2RS1N12, 12 pins

Cable side connector example: Siemens AG 6ES5 760-2CB11



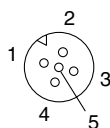
| No. | Description | Function                |
|-----|-------------|-------------------------|
| 1   | M5V         | GND Terminal            |
| 2   | A           | Signal -N               |
| 4   | B           | Signal -P               |
| 6   | +5V         | Terminal +5V            |
| 9   | SHIELD      | Shield ground           |
| 12  | RTS         | Optical fiber (reserve) |

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

\* The connector configuration and the pin arrangement are compatible with Siemens AG ET200C.

## Input connector: M12, 5 pins (OMRON Corporation XS2F compatible) x 8 pcs.

Cable side connector example: OMRON Corporation XS2G



| No. | Description | Function                 |
|-----|-------------|--------------------------|
| 1   | SW +        | (+) Sensor power supply  |
| 2   | N.C.        | Open*                    |
| 3   | SW -        | (-) Sensor power supply  |
| 4   | SIGNAL      | Sensor input signal      |
| 5   | PE          | Protective sensor ground |

\* The second pin of the connector with input no. 0, 2, 4, 6 (the connector at the right side of the input block) is connected internally to the fourth pin (sensor input no.) of the connector with input no. 1, 3, 5, 7. This makes it possible to directly input two inputs that are combined together by the common connector.

| Connector: Input no. 0, 2, 4, 6 |   | Input no. 1, 3, 5, 7 |   |
|---------------------------------|---|----------------------|---|
| SW +                            | 1 | 1                    | 1 |
| SIGNAL -n + 1                   | 2 | 2                    | 2 |
| SW -                            | 3 | 3                    | 3 |
| SIGNAL -n                       | 4 | 4                    | 4 |
| PE                              | 5 | 5                    | 5 |

## ⚠ Caution

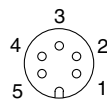
When IP65 or equivalent enclosures are required, install a waterproof cover on the input connector that is not being used. Order waterproof covers separately.

Example: OMRON Corporation XS2Z-12

## Power connector: Franz Binder GmbH Series 723, 5 pins (72309-0115-80-05)

Cable side connector example: Franz Binder GmbH 72309-0114-70-15, etc.

\* DIN type 5 pins

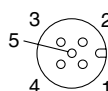


| No. | Description | Function                |
|-----|-------------|-------------------------|
| 1   | SV24V       | For solenoid valve +24V |
| 2   | SV0V        | For solenoid valve +0V  |
| 3   | PE          | Protective ground       |
| 4   | SW24V       | For solenoid valve +24V |
| 5   | SW0V        | For solenoid valve +0V  |

## Communication connector (DeviceNet): M12, 5 pins (for DeviceNet only)

Example of corresponding cable assemblies with connector:

OMRON Corporation DCA1-5CN05F1, Karl Lumberg GmbH &amp; Co. KG RKT5-56.

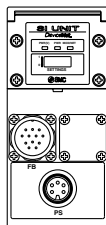


| No. | Description | Function                 |
|-----|-------------|--------------------------|
| 1   | Drain       | Drain/Shield             |
| 2   | V +         | (+) Circuit power supply |
| 3   | V -         | (-) Circuit power supply |
| 4   | CAN_H       | Signal H                 |
| 5   | CAN_L       | Signal L                 |

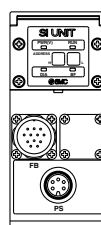
Compatible with DeviceNet specification Micro Style connector.

## Indicator Unit (LED) Description and Its Function

## SI unit (DeviceNet)



## SI unit (PROFIBUS-DP)



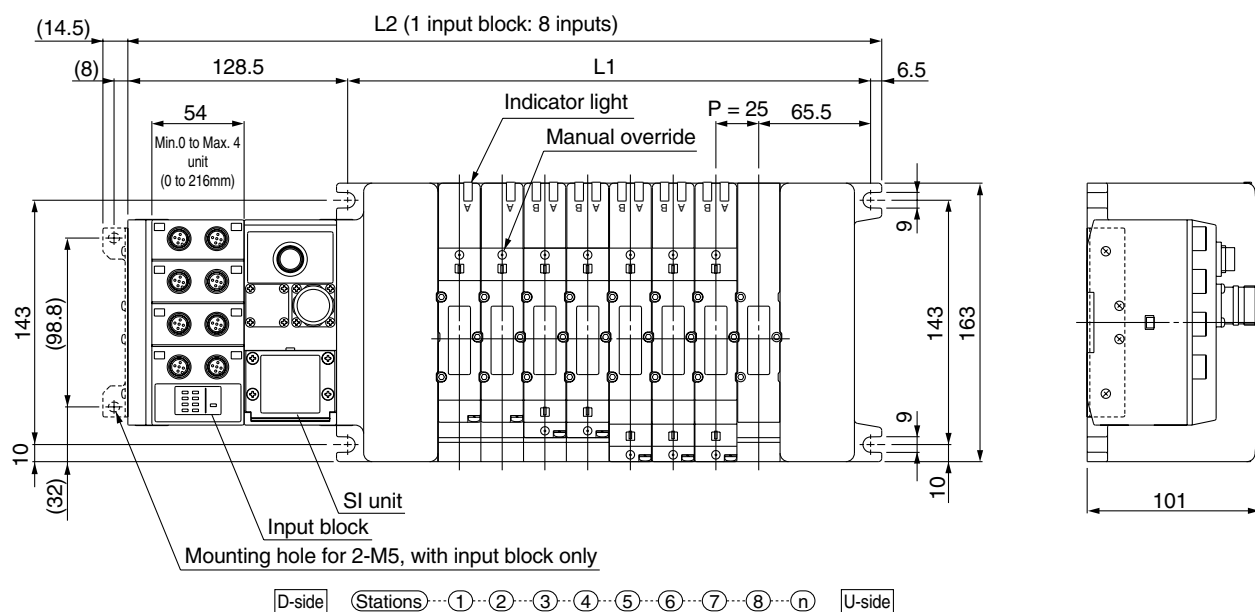
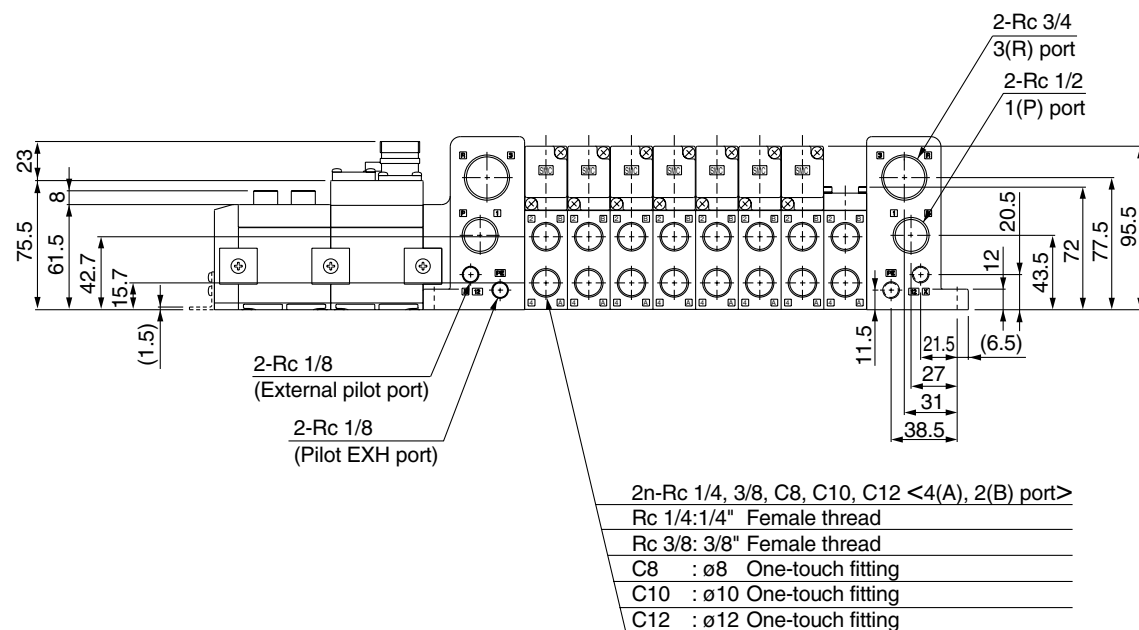
## Input block



| 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).                 |
|             | RED ON: MAC_ID duplication error, or BUSOFF error (major communication abnormality). |

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

| Description | Function                                                                            |
|-------------|-------------------------------------------------------------------------------------|
| PWR         | ON when sensor power is turned ON.<br>OFF when short circuit protection is working. |
| 0 to 7      | ON when each sensor input goes ON.                                                  |

**VV5QC41****S Kit (Serial transmission kit: EX240)**

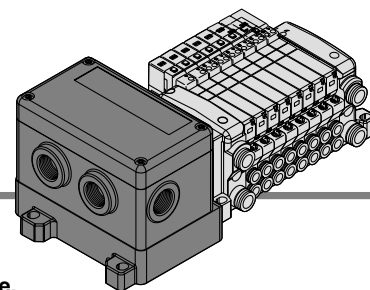
Formulas:  $L1 = 25n + 106$ ,  $L2 = 25n + 241$  (For 1 input block. For each additional input block, add 54 mm.) n: Stations (Maximum 16 stations)

| L \ n | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L1    | 131 | 156 | 181 | 206 | 231 | 256 | 281 | 306 | 331 | 356 | 381 | 406 | 431 | 456 | 481 | 506 |
| L2    | 266 | 291 | 316 | 341 | 366 | 391 | 416 | 441 | 466 | 491 | 516 | 541 | 566 | 591 | 616 | 641 |

S

VQC1000/2000/4000

Kit (Serial transmission kit) for I/O IP67 compliant

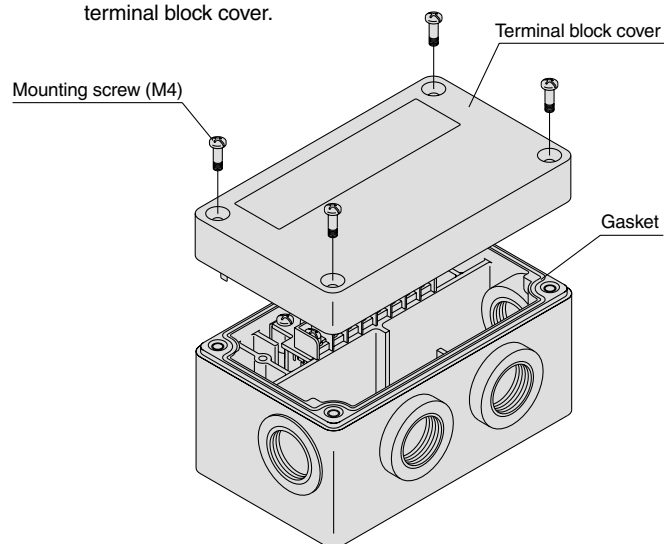
Compatible network **CC-Link**

- The serial transmission system greatly reduces connection work, minimizes wiring, and saves space.

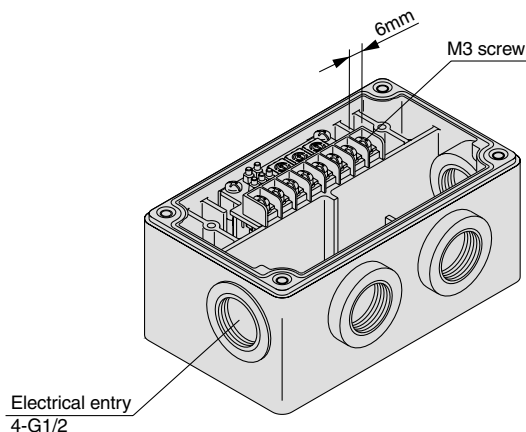
## Terminal Block Connection

### Step 1. How to remove terminal block cover

Loosen the 4 mounting screws (M4) and remove the terminal block cover.



### Step 2. Wire the cables according to the terminal block specifications below. Pay attention to the wire bound positions.



### Step 3. How to replace the terminal block cover

Securely tighten the screws to the torque shown in the table below, after confirming that the gasket is installed correctly.

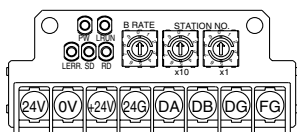
| Proper tightening torque (N·m) |
|--------------------------------|
| 0.7 to 1.2                     |

- Applicable crimp terminal (fork tongue type): 1.25-3S, 1.25Y-3, 1.25Y-3N, 1.25Y-3.5

\* For detailed specifications and handling, refer to the operation manual provided by SMC.

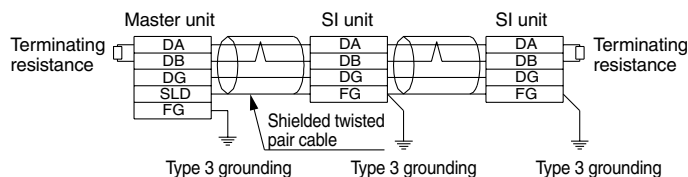
## Terminal Block Details

### • Terminal block LED descriptions



| Description   | Function                                                                                                            |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| <b>PW</b>     | ON when transmission power supply is ON.<br>OFF when transmission power supply is OFF.                              |
| <b>L RUN</b>  | ON when normal data is received.                                                                                    |
| <b>SD</b>     | ON when data is sent.                                                                                               |
| <b>RD</b>     | ON when data is received.                                                                                           |
| <b>L ERR.</b> | ON for transmission error and incorrect settings.<br>BLINKING for change in station or transmission speed settings. |

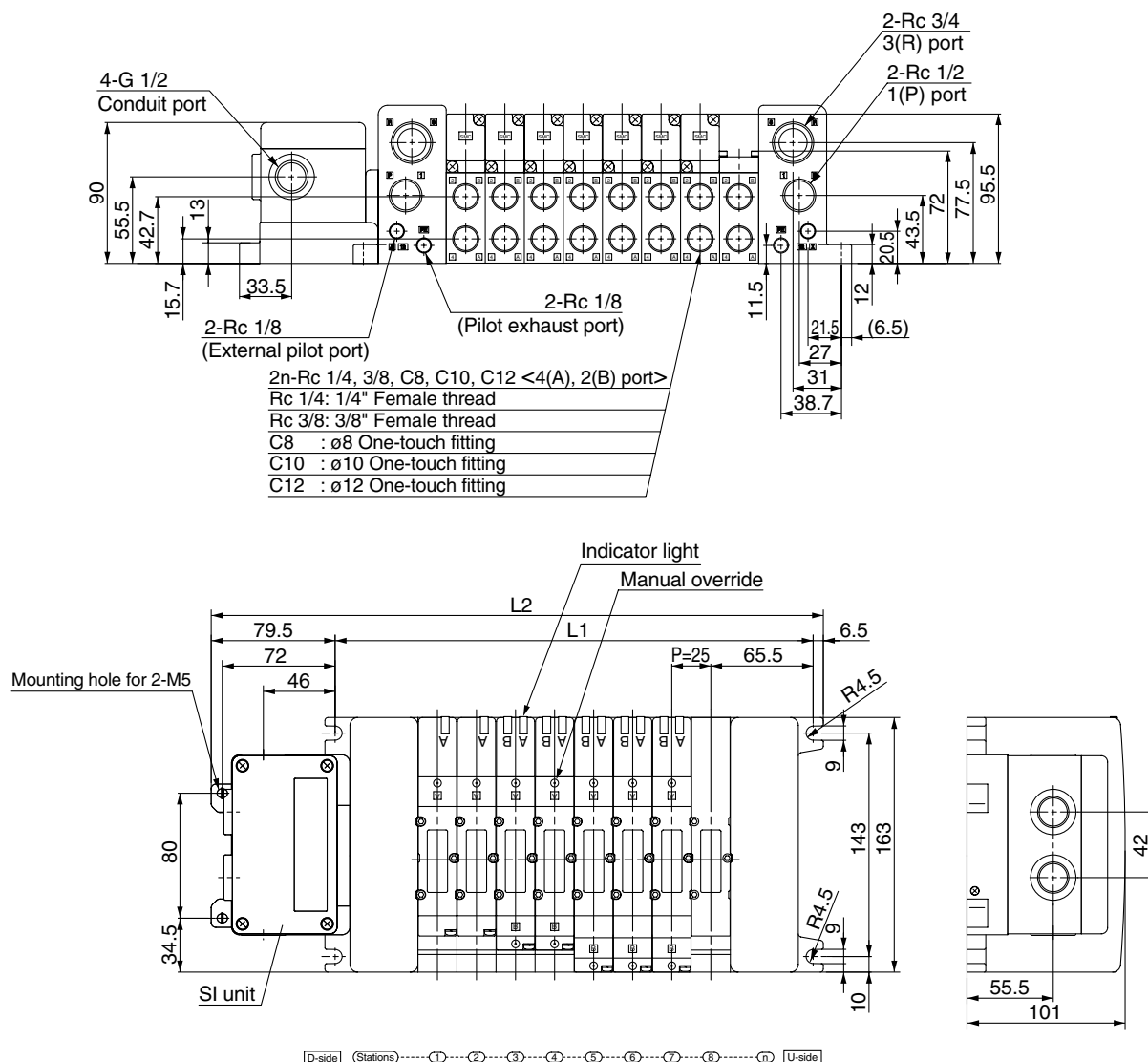
### • Cable wiring



### • Note

- CC-LINK System
  - Master unit: AJ61BT11
  - Master unit: A1SJ61BT11
  - Master unit: AJ61QBT11
  - Master unit: A1SJ61QBT11

- 16 outputs

**VV5QC41****S Kit (Serial transmission kit: EX126)**

## Formulas

L1 = 25n + 106 (Maximum 16 single wiring stations)

L2 = 25n + 192

n: Stations

| L \ n | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L1    | 131 | 156 | 181 | 206 | 231 | 256 | 281 | 306 | 331 | 356 | 381 | 406 | 431 | 456 | 481 | 506 |
| L2    | 217 | 242 | 267 | 292 | 317 | 342 | 367 | 392 | 417 | 442 | 467 | 492 | 517 | 542 | 567 | 592 |

# Series VQC

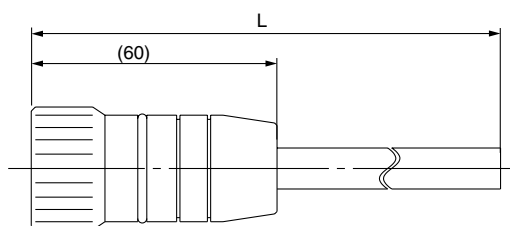
## Manifold Option

### ■ Circular connector/Cable assembly (26 pins)

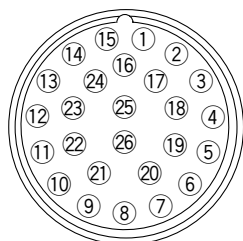
AXT100 – MC26 – □

Lead Wire Length

| Part no.        | L dimension |
|-----------------|-------------|
| AXT100-MC26-015 | 1.5 m       |
| AXT100-MC26-030 | 3 m         |
| AXT100-MC26-050 | 5 m         |



Plug terminal no.  
(arrangement as seen from lead wire side)



### Circular Connector Cable Assembly Terminal No.

| Terminal no. | Lead wire color | Dot marking |
|--------------|-----------------|-------------|
| ①            | Black           | None        |
| ②            | Brown           | None        |
| ③            | Red             | None        |
| ④            | Orange          | None        |
| ⑤            | Yellow          | None        |
| ⑥            | Pink            | None        |
| ⑦            | Blue            | None        |
| ⑧            | Purple          | White       |
| ⑨            | Gray            | Black       |
| ⑩            | White           | Black       |
| ⑪            | White           | Red         |
| ⑫            | Yellow          | Red         |
| ⑬            | Orange          | Red         |
| ⑭            | Yellow          | Black       |
| ⑮            | Pink            | Black       |
| ⑯            | Blue            | White       |
| ⑰            | Purple          | None        |
| ⑱            | Gray            | None        |
| ⑲            | Orange          | Black       |
| ⑳            | Red             | White       |
| ㉑            | Brown           | White       |
| ㉒            | Pink            | Red         |
| ㉓            | Gray            | Red         |
| ㉔            | Black           | White       |
| ㉕            | White           | None        |

Note) Terminal no. ㉖ is connected to ㉕ inside the connector.

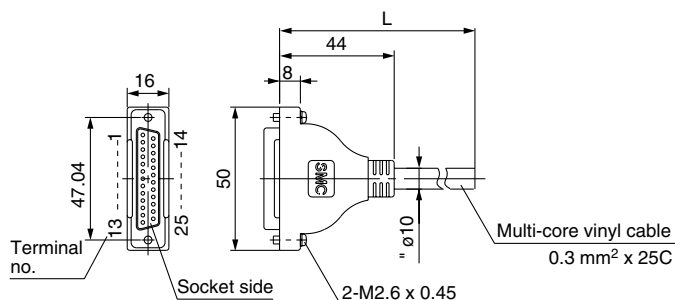
### ■ D-sub connector/Cable assembly (25 pins)

AXT100 – DS25 – □

Lead Wire Length

| Part no.        | L dimension |
|-----------------|-------------|
| AXT100-DS25-015 | 1.5 m       |
| AXT100-DS25-030 | 3 m         |
| AXT100-DS25-050 | 5 m         |

When a commercially available connector is required, use a 25 pin female connector conforming to MIL-C24308.



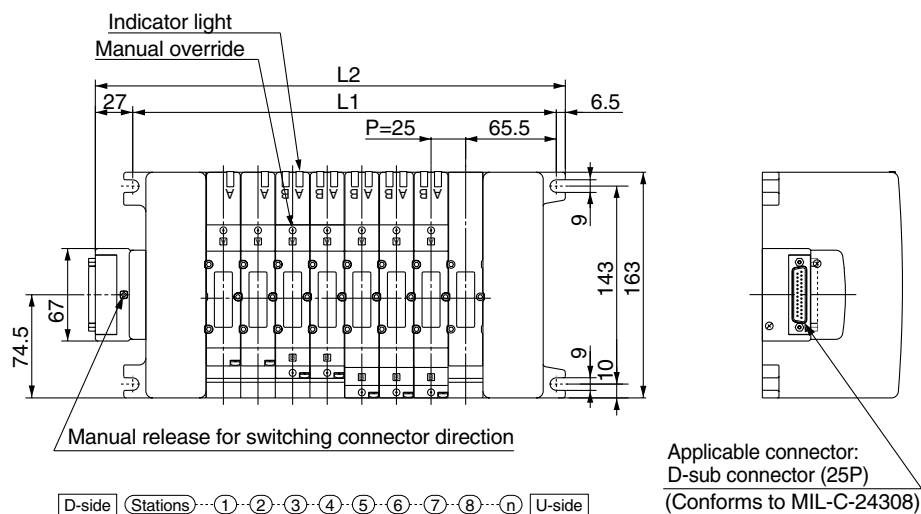
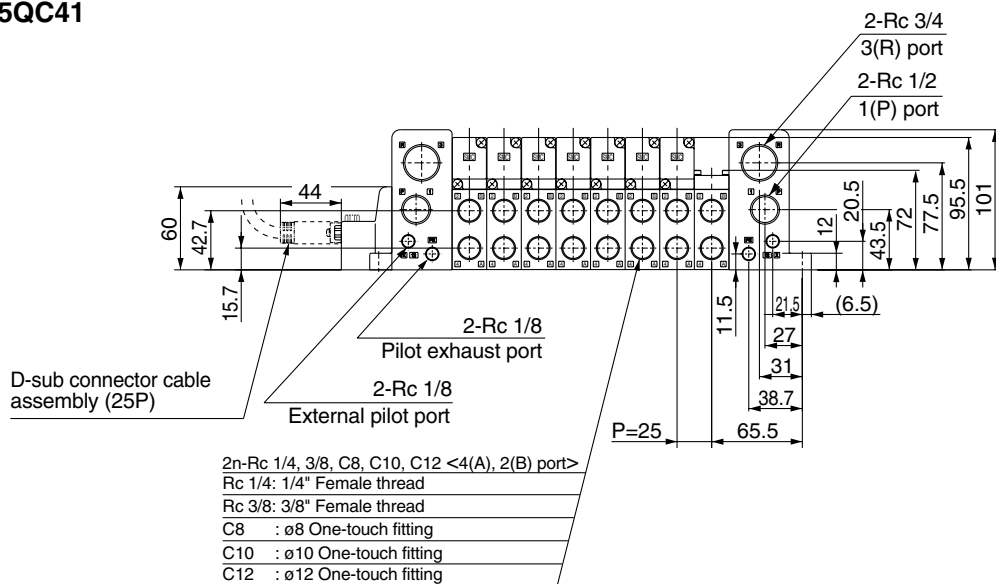
### D-sub Connector Cable Assembly Terminal No.

| Terminal no. | Lead wire color | Dot marking |
|--------------|-----------------|-------------|
| ①            | Black           | None        |
| ②            | Brown           | None        |
| ③            | Red             | None        |
| ④            | Orange          | None        |
| ⑤            | Yellow          | None        |
| ⑥            | Pink            | None        |
| ⑦            | Blue            | None        |
| ⑧            | Purple          | White       |
| ⑨            | Gray            | Black       |
| ⑩            | White           | Black       |
| ⑪            | White           | Red         |
| ⑫            | Yellow          | Red         |
| ⑬            | Orange          | Red         |
| ⑭            | Yellow          | Black       |
| ⑮            | Pink            | Black       |
| ⑯            | Blue            | White       |
| ⑰            | Purple          | None        |
| ⑱            | Gray            | None        |
| ⑲            | Orange          | Black       |
| ㉑            | Red             | White       |
| ㉒            | Brown           | White       |
| ㉓            | Pink            | Red         |
| ㉔            | Gray            | Red         |
| ㉕            | Black           | White       |
| ㉖            | White           | None        |

### Circular Connector, D-sub Connector Cable Assembly Electric Characteristics

| Item                              | Characteristics |
|-----------------------------------|-----------------|
| Conductor resistance W/km, 20°C   | 65 or less      |
| Withstand voltage VAC, 1 min.     | 1000            |
| Insulation resistance, M/km, 20°C | 5 or less       |

Note) The minimum inside bending radius for each cable is 20 mm.

**VV5QC41**

## Formulas

$$L1 = 25n + 106 \text{ (Maximum 16 single wiring stations)}$$

$$L2 = 25n + 139.5$$

n: Stations

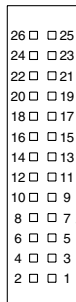
| L \ n | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1    | 131   | 156   | 181   | 206   | 231   | 256   | 281   | 306   | 331   | 356   | 381   | 406   | 431   | 456   | 481   | 506   |
| L2    | 164.5 | 189.5 | 214.5 | 239.5 | 264.5 | 289.5 | 314.5 | 339.5 | 364.5 | 389.5 | 414.5 | 439.5 | 464.5 | 489.5 | 514.5 | 539.5 |

**P****VQC1000/2000/4000****Kit (Flat ribbon cable kit) IP40 compliant**

- Using our flat ribbon cable for electrical connections greatly reduces labour, while it also minimizes wiring and saves space.
- We use flat ribbon cables whose connectors (26P and 20P) conform to MIL standards, and are therefore widely compatible with many standard commercial models.
- Top or side entry for the connector can be changed freely, allowing for changes even after mounting, to meet any changing needs for space.

## Electrical Wiring Specifications

### Flat ribbon cable connector

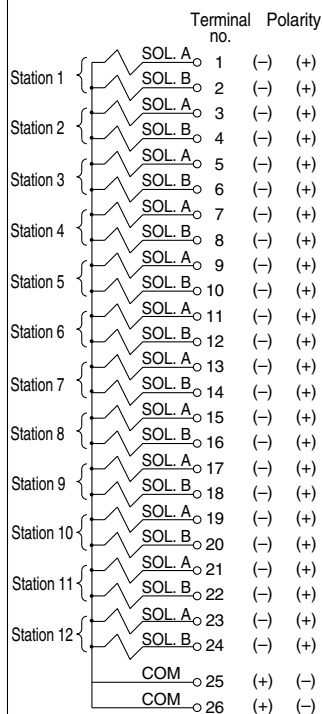


Connector terminal number

Triangle mark indicator position

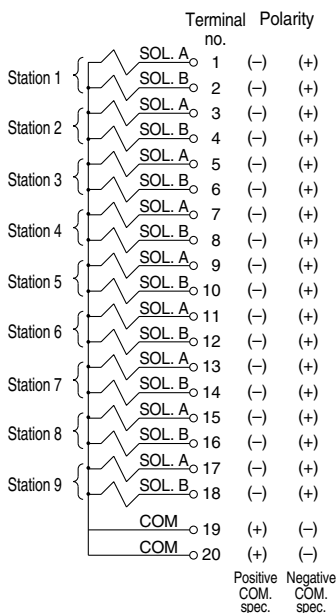
Double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types. Mixed single and double wiring are available as options. Refer to special wiring specifications (options) below.

### <26P>



Positive COM. spec. Negative COM. spec.

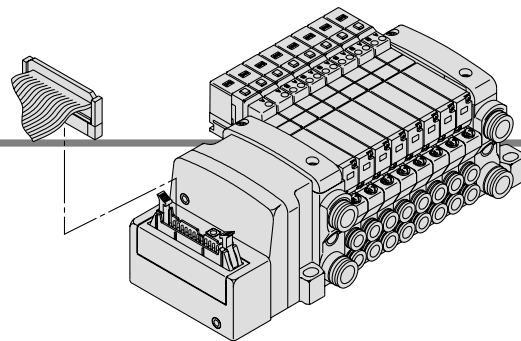
### <20P>



Positive COM. spec. Negative COM. spec.



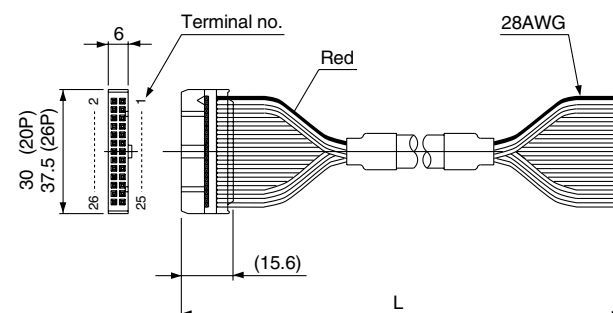
Note) When using the negative COM. specification for VQC1000/2000, use valves for negative COM.



## Cable Assembly

**AXT100-FC<sup>20</sup><sub>26</sub>-<sup>1</sup><sub>2</sub><sub>3</sub>**

(Type 26P flat ribbon cable connector assemblies can be ordered with manifolds. Refer to manifold ordering.)



### Flat ribbon cable connector assemblies (Option)

| Cable length (L) | Part no.      |               |
|------------------|---------------|---------------|
|                  | 26P           | 20P           |
| 1.5 m            | AXT100-FC26-1 | AXT100-FC20-1 |
| 3 m              | AXT100-FC26-2 | AXT100-FC20-2 |
| 5 m              | AXT100-FC26-3 | AXT100-FC20-3 |

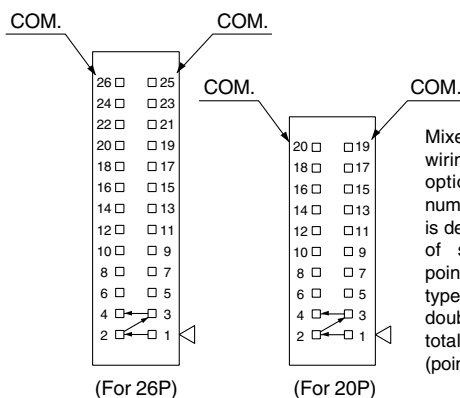
\* When using a standard commercial connector, use a type 26P connector conforming to MIL-C-83503 or a type 20P with strain relief.

\* Cannot be used for transfer wiring.

### Connector Manufacturers Example:

- Hirose Electric CO., Ltd.
- Sumitomo/3-M Limited
- Fujitsu, Ltd.
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.
- Oki Electric Cable Co., Ltd.

## Special Wiring Specifications (Option)



(For 26P)

(For 20P)

Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

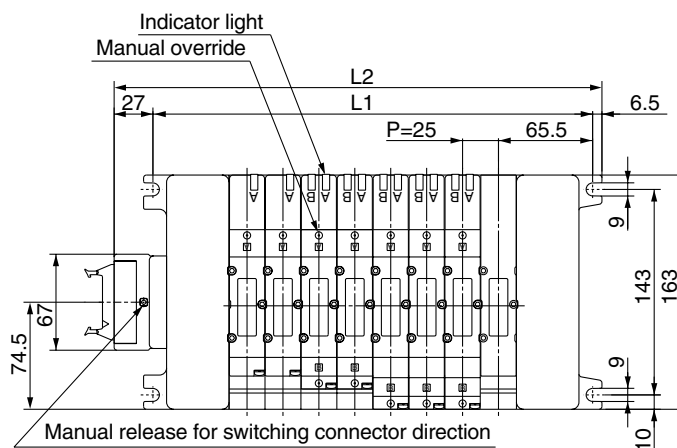
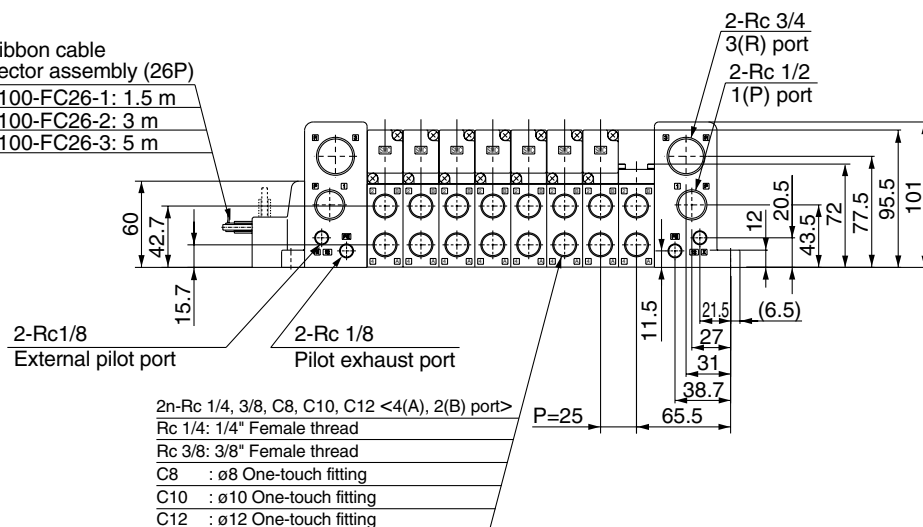
**VV5QC41**

Flat ribbon cable  
connector assembly (26P)

AXT100-FC26-1: 1.5 m

AXT100-FC26-2: 3 m

AXT100-FC26-3: 5 m



D-side Stations ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ n U-side

Applicable connector:  
Flat ribbon cable connector (26P)  
(Conforms to MIL-C-83503)

## Formulas

$L1 = 25n + 106$  (Maximum 16 single wiring stations)

$L2 = 25n + 139.5$

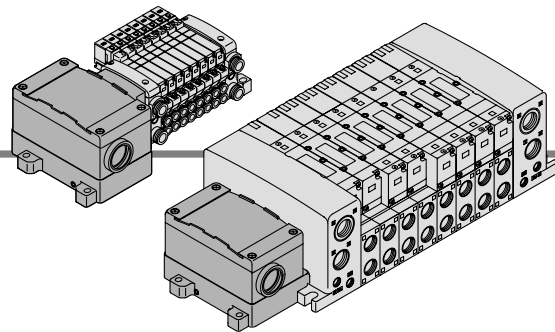
n: Stations

| L \ n | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1    | 131   | 156   | 181   | 206   | 231   | 256   | 281   | 306   | 331   | 356   | 381   | 406   | 431   | 456   | 481   | 506   |
| L2    | 164.5 | 189.5 | 214.5 | 239.5 | 264.5 | 289.5 | 314.5 | 339.5 | 364.5 | 389.5 | 414.5 | 439.5 | 464.5 | 489.5 | 514.5 | 539.5 |

T

VQC1000/2000/4000

Kit (Terminal block box kit) IP67 compliant

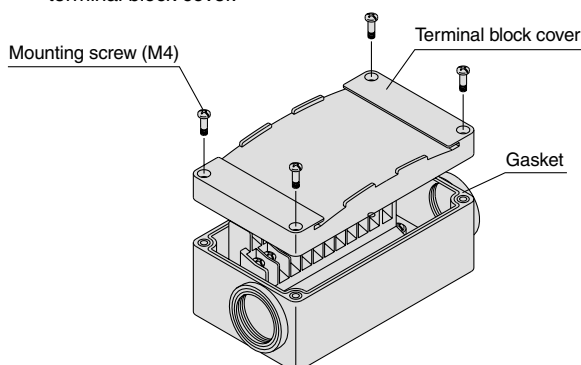


- This kit has a small terminal block inside a junction box. The provision of a G 3/4 electrical entry allows connection of conduit fittings.

## Terminal Block Connection

### Step 1. How to remove terminal block cover

Loosen the 4 mounting screws (M4) and remove the terminal block cover.



### Step 3. How to replace the terminal block cover

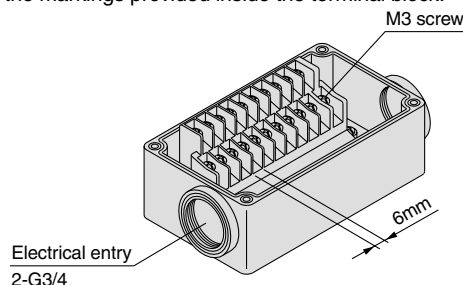
Securely tighten the screws to the torque shown in the table below, after confirming that the gasket is installed correctly.

| Proper tightening torque (N·m) |
|--------------------------------|
| 0.7 to 1.2                     |

### Step 2. The diagram below shows the terminal block wiring.

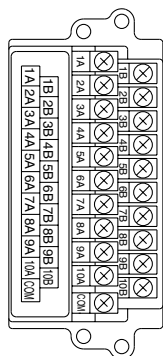
**All stations are provided with double wiring regardless of the valves which are mounted.**

Connect each wire to the power supply side, according to the markings provided inside the terminal block.



- Applicable crimp terminal (fork tongue type): 1.25-3S, 1.25Y-3, 1.25Y-3N, 1.25Y-3.5

## Electrical Wiring Specifications (Conforms to IP67)



The internal wiring is double (connected to SOL. A and SOL. B) for all stations regardless of the type of valve or options. Mixed single and double wiring are available as options.



Note) When using the negative COM. specification for VQC1000/2000, use valves for negative COM.

### Standard wiring

|            | Terminal no. | Polarity                    |
|------------|--------------|-----------------------------|
| Station 1  | SOL. A 1A    | (-) (+)                     |
|            | SOL. B 1B    | (-) (+)                     |
| Station 2  | SOL. A 2A    | (-) (+)                     |
|            | SOL. B 2B    | (-) (+)                     |
| Station 3  | SOL. A 3A    | (-) (+)                     |
|            | SOL. B 3B    | (-) (+)                     |
| Station 4  | SOL. A 4A    | (-) (+)                     |
|            | SOL. B 4B    | (-) (+)                     |
| Station 5  | SOL. A 5A    | (-) (+)                     |
|            | SOL. B 5B    | (-) (+)                     |
| Station 6  | SOL. A 6A    | (-) (+)                     |
|            | SOL. B 6B    | (-) (+)                     |
| Station 7  | SOL. A 7A    | (-) (+)                     |
|            | SOL. B 7B    | (-) (+)                     |
| Station 8  | SOL. A 8A    | (-) (+)                     |
|            | SOL. B 8B    | (-) (+)                     |
| Station 9  | SOL. A 9A    | (-) (+)                     |
|            | SOL. B 9B    | (-) (+)                     |
| Station 10 | SOL. A 10A   | (-) (+)                     |
|            | SOL. B 10B   | (-) (+)                     |
|            | COM.         | (+) (-)                     |
|            |              | Positive COM. Negative COM. |

### Special Wiring Specifications (Option)

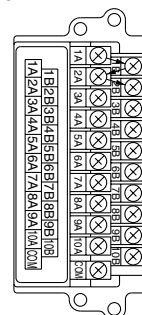
Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 20.

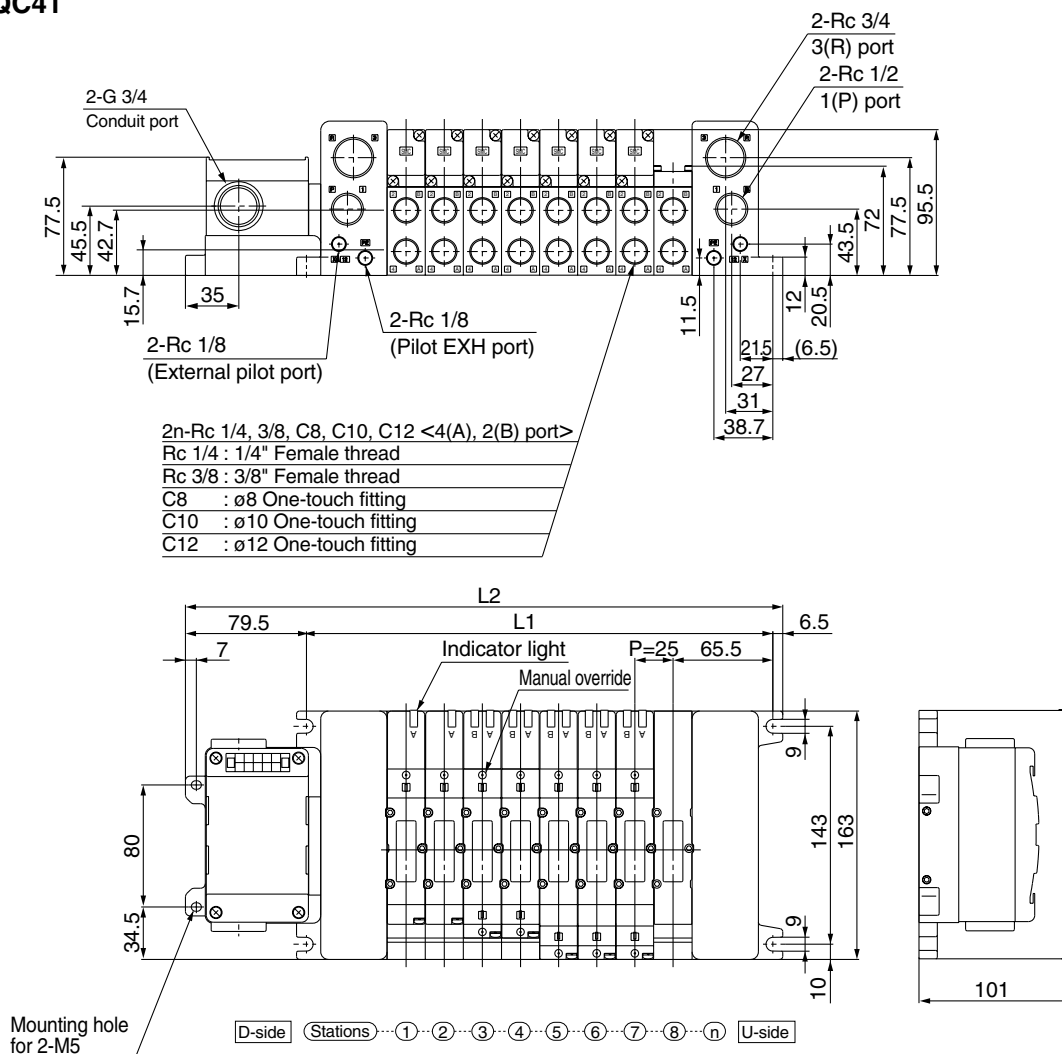
#### 1. How to order

Indicate option symbol "-K" in the manifold part number and be sure to specify station positions for single or double wiring on the manifold specification sheet.

#### 2. Wiring specifications

Connector terminal numbers are connected from solenoid station 1 on the A side in the order indicated by the arrows without skipping any terminal numbers.



**VV5QC41**

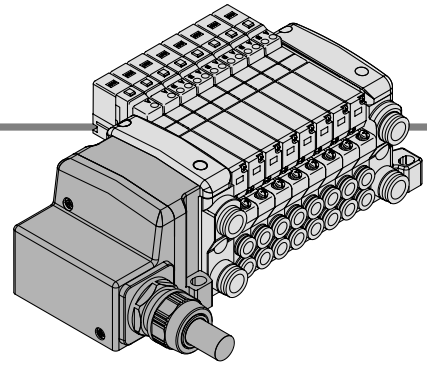
## Formulas

L1 = 25n + 106 (Maximum 16 single wiring stations)

L2 = 25n + 192

n: Stations

| L  | n | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
|----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L1 |   | 131 | 156 | 181 | 206 | 231 | 256 | 281 | 306 | 331 | 356 | 381 | 406 | 431 | 456 | 481 | 506 |
| L2 |   | 217 | 242 | 267 | 292 | 317 | 342 | 367 | 392 | 417 | 442 | 467 | 492 | 517 | 542 | 567 | 592 |

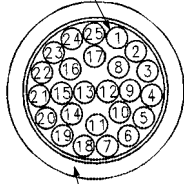
**L****VQC1000/2000/4000****Kit (Lead wire kit) IP67 compliant**

- Direct electrical entry type.
- IP67 enclosure is available with use of cables with sheath and waterproof connectors.

## Electrical Wiring Specifications

### Lead wire specifications

Lead wire

0.3 mm<sup>2</sup> × 25 core

Sheath  
Colour: Urban white

As the standard electrical wiring specification used is for 12 stations or less, double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types. Mixed single and double wiring are available as options. Refer to special wiring specifications (options) below.

|            | Terminal no. | Polarity            | Lead wire colour | Dot marking |
|------------|--------------|---------------------|------------------|-------------|
| Station 1  | SOL. A 1     | (-) (+)             | Black            | None        |
|            | SOL. B 14    | (-) (+)             | Yellow           | Black       |
| Station 2  | SOL. A 2     | (-) (+)             | Brown            | None        |
|            | SOL. B 15    | (-) (+)             | Pink             | Black       |
| Station 3  | SOL. A 3     | (-) (+)             | Red              | None        |
|            | SOL. B 16    | (-) (+)             | Blue             | White       |
| Station 4  | SOL. A 4     | (-) (+)             | Orange           | None        |
|            | SOL. B 17    | (-) (+)             | Purple           | None        |
| Station 5  | SOL. A 5     | (-) (+)             | Yellow           | None        |
|            | SOL. B 18    | (-) (+)             | Grey             | None        |
| Station 6  | SOL. A 6     | (-) (+)             | Pink             | None        |
|            | SOL. B 19    | (-) (+)             | Orange           | Black       |
| Station 7  | SOL. A 7     | (-) (+)             | Blue             | None        |
|            | SOL. B 20    | (-) (+)             | Red              | White       |
| Station 8  | SOL. A 8     | (-) (+)             | Purple           | White       |
|            | SOL. B 21    | (-) (+)             | Brown            | White       |
| Station 9  | SOL. A 9     | (-) (+)             | Grey             | Black       |
|            | SOL. B 22    | (-) (+)             | Pink             | Red         |
| Station 10 | SOL. A 10    | (-) (+)             | White            | Black       |
|            | SOL. B 23    | (-) (+)             | Grey             | Red         |
| Station 11 | SOL. A 11    | (-) (+)             | White            | Red         |
|            | SOL. B 24    | (-) (+)             | Black            | White       |
| Station 12 | SOL. A 12    | (-) (+)             | Yellow           | Red         |
|            | SOL. B 25    | (-) (+)             | White            | None        |
|            | COM. 13      | (+) (-) Note)       | Orange           | Red         |
|            |              | Positive COM. spec. |                  |             |
|            |              | Negative COM. spec. |                  |             |

Note) When using the negative COM. specification for VQC1000/2000, use valves for negative COM.

### Lead wire length

**VV5QC11-08 C6 LD 0**

#### Lead wire length

|   |       |
|---|-------|
| 0 | 0.6 m |
| 1 | 1.5 m |
| 2 | 3.0 m |

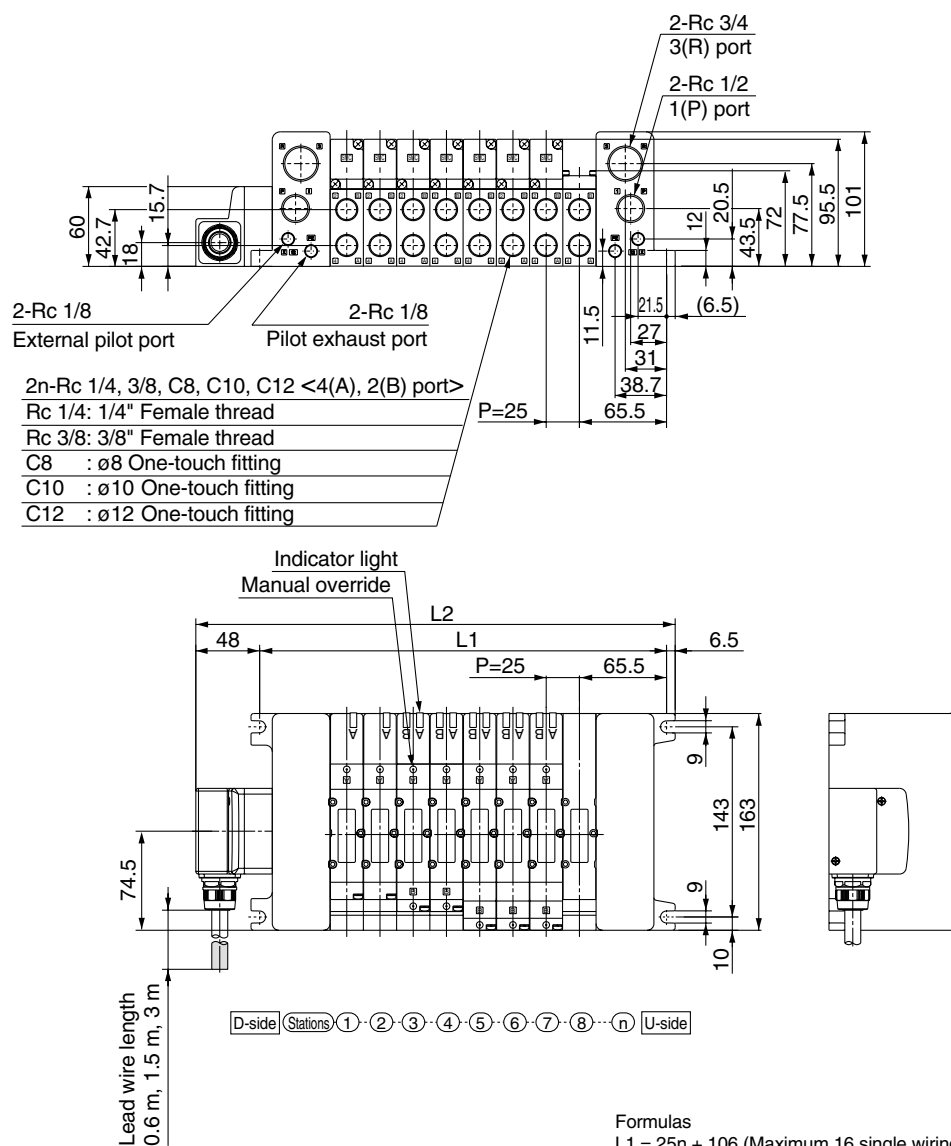
### Electrical characteristics

| Item                                  | Characteristic |
|---------------------------------------|----------------|
| Conductor resistance<br>Ω/km, 20°C    | 65 or less     |
| Withstand pressure<br>V, 1 minute, AC | 1000           |
| Insulation resistance<br>MΩ/km, 20°C  | 5 or more      |

Note) Cannot be used for transfer wiring.  
The minimum bending radius for cables is 20 mm.

## Special Wiring Specifications (Option)

Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

**VV5QC41**

## Formulas

$$L1 = 25n + 106 \text{ (Maximum 16 single wiring stations)}$$

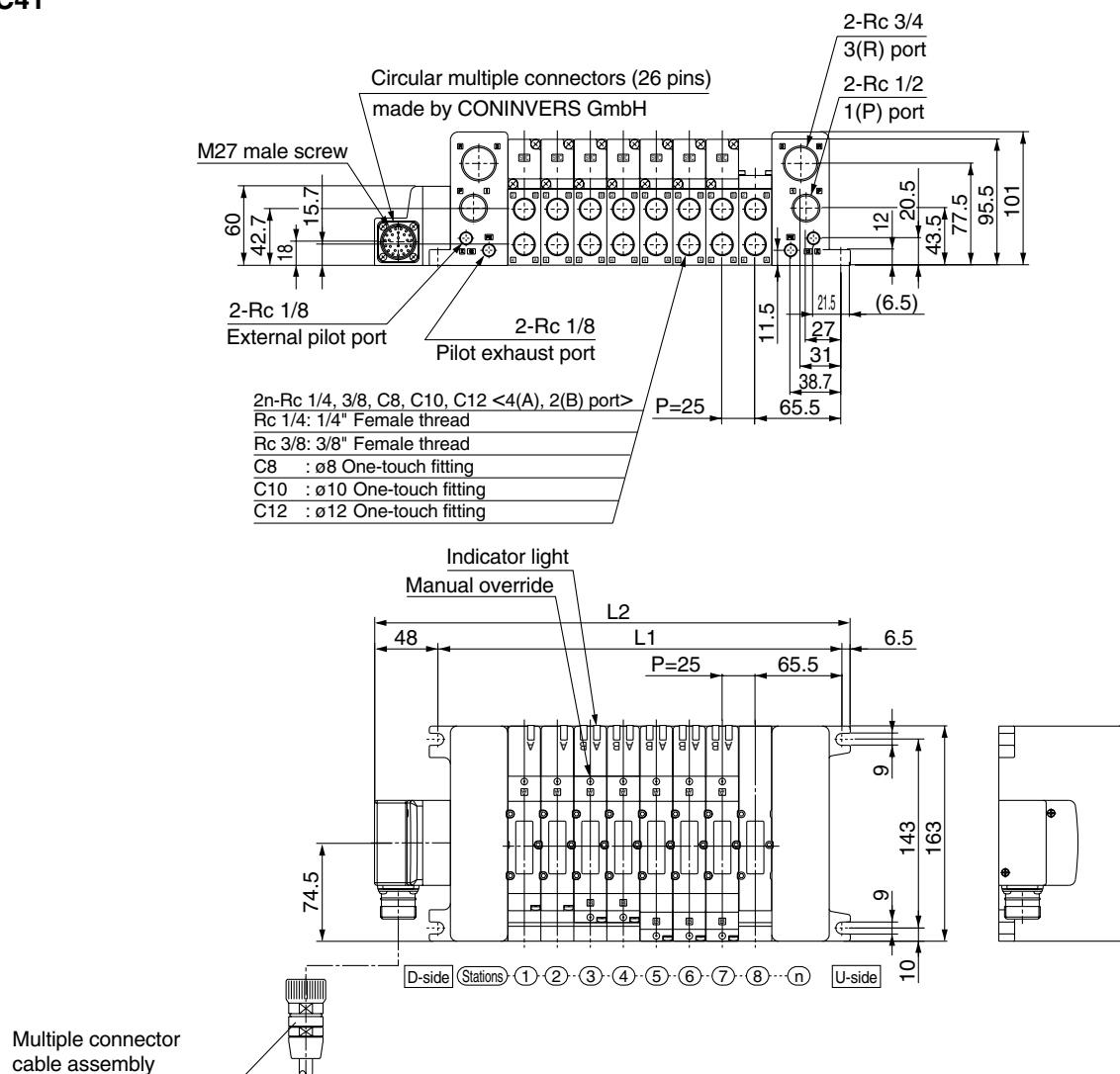
$$L2 = 25n + 160.5$$

n: Stations

| L \ n | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1    | 131   | 156   | 181   | 206   | 231   | 256   | 281   | 306   | 331   | 356   | 381   | 406   | 431   | 456   | 481   | 506   |
| L2    | 185.5 | 210.5 | 235.5 | 260.5 | 285.5 | 310.5 | 335.5 | 360.5 | 385.5 | 410.5 | 435.5 | 460.5 | 485.5 | 510.5 | 535.5 | 560.5 |



## VV5QC41



## Formulas

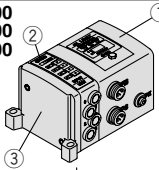
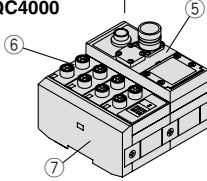
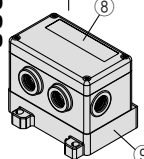
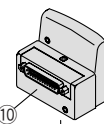
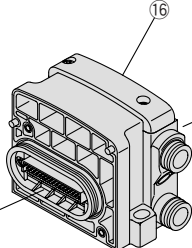
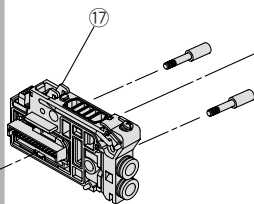
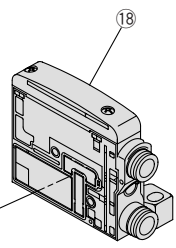
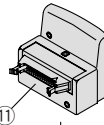
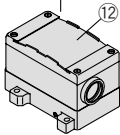
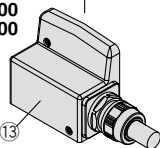
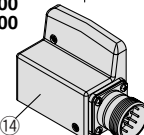
$$L1 = 25n + 106 \text{ (Maximum 16 single wiring stations)}$$

$$L2 = 25n + 160.5$$

n: Stations

| L \ n | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L1    | 131   | 156   | 181   | 206   | 231   | 256   | 281   | 306   | 331   | 356   | 381   | 406   | 431   | 456   | 481   | 506   |
| L2    | 185.5 | 210.5 | 235.5 | 260.5 | 285.5 | 310.5 | 335.5 | 360.5 | 385.5 | 410.5 | 435.5 | 460.5 | 485.5 | 510.5 | 535.5 | 560.5 |

# Exploded View of Manifold

|                               | Housing assembly and SI unit                                                                                                 | D-side end plate assembly                                                           | Manifold block assembly                                                             | U-side end plate assembly                                                            |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| S Kit (Serial)                | EX250<br>VQC1000<br>VQC2000<br>VQC4000<br>  |                                                                                     |                                                                                     |                                                                                      |
|                               | EX500<br>VQC1000<br>VQC2000<br>VQC4000<br>  |                                                                                     |                                                                                     |                                                                                      |
|                               | EX240<br>VQC4000<br>                        |                                                                                     |                                                                                     |                                                                                      |
|                               | EX126<br>VQC1000<br>VQC2000<br>VQC4000<br> |                                                                                     |                                                                                     |                                                                                      |
| F Kit<br>(D-sub connector)    | VQC1000<br>VQC2000<br>VQC4000<br>         |  |  |  |
| P Kit<br>(Flat ribbon cable)  | VQC1000<br>VQC2000<br>VQC4000<br>         |                                                                                     |                                                                                     |                                                                                      |
| T Kit<br>(Terminal block)     | VQC1000<br>VQC2000<br>VQC4000<br>         |                                                                                     |                                                                                     |                                                                                      |
| L Kit<br>(Lead wire)          | VQC1000<br>VQC2000<br>VQC4000<br>         |                                                                                     |                                                                                     |                                                                                      |
| M Kit<br>(Multiple connector) | VQC1000<br>VQC2000<br>VQC4000<br>         |                                                                                     |                                                                                     |                                                                                      |

## Manifold Assembly Part No.

## Housing Assembly and SI Unit/Input Block

| No. | Description                         | Part no.         | Note                                  | Applicable model |         |         |
|-----|-------------------------------------|------------------|---------------------------------------|------------------|---------|---------|
|     |                                     |                  |                                       | VQC1000          | VQC2000 | VQC4000 |
| ①   | SI unit                             | EX250-SPR1       | PROFIBUS-DP (–COM.)                   | ●                | ●       | ●       |
|     |                                     | EX250-SAS□       | AS-i (–COM.)                          | ●                | ●       | ●       |
|     |                                     | EX250-SMJ        | CC-LINK (+COM.)                       | ●                | ●       | ●       |
|     |                                     | EX250-SDN1       | DeviceNet (–COM.)                     | ●                | ●       | ●       |
|     |                                     | EX250-SCA1       | CANopen (–COM.)                       | ●                | ●       | ●       |
| ②   | Input block                         | EX250-IE1        | M12, 2 inputs                         | ●                | ●       | ●       |
|     |                                     | EX250-IE2        | M12, 4 inputs                         | ●                | ●       | ●       |
|     |                                     | EX250-IE3        | M8, 4 inputs                          | ●                | ●       | ●       |
| ③   | End plate assembly                  | EX250-EA1        | Standard                              | ●                | ●       | ●       |
|     |                                     | EX250-EA2        | DIN rail mounting                     | ●                | ●       | —       |
| ④   | SI unit                             | EX500-Q001       | DeviceNet (+COM.)                     | ●                | ●       | ●       |
|     |                                     | EX500-Q001-X1    | Remote I/O (+COM.)                    | ●                | ●       | ●       |
|     |                                     | EX500-Q101       | DeviceNet / PROFIBUS-DP (–COM.)       | ●                | ●       | ●       |
|     |                                     | EX500-Q101-X1    | Remote I/O (–COM.)                    | ●                | ●       | ●       |
| ⑤   | SI unit                             | EX240-SDN2       | DeviceNet (+COM.)                     | —                | —       | ●       |
|     |                                     | EX240-SPR1       | PROFIBUS-DP (–COM.)                   | —                | —       | ●       |
| ⑥   | Input block                         | EX240-IE1        | M12, 8 inputs                         | —                | —       | ●       |
|     |                                     | EX240-EA2        | For manifold with input block         | —                | —       | ●       |
| ⑦   | End cover assembly                  | EX240-EA4        | For manifold without input block      | —                | —       | ●       |
|     |                                     | EX126D-SMJ1      | CC-LINK (+COM.)                       | ●                | ●       | ●       |
| ⑧   | SI unit                             | EX126D-SMJ1      | CC-LINK (+COM.)                       | ●                | ●       | ●       |
| ⑨   | Terminal plate                      | VVQC1000-74A-2   | For EX126 SI unit mounting            | ●                | ●       | ●       |
| ⑩   | D-sub connector housing assembly    | VVQC1000-F25-1   | F kit, 25 pins                        | ●                | ●       | ●       |
| ⑪   | Flat ribbon cable housing assembly  | VVQC1000-P26-1   | P kit, 26 pins                        | ●                | ●       | ●       |
|     |                                     | VVQC1000-P20-1   | P kit, 20 pins                        | ●                | ●       | ●       |
| ⑫   | Terminal block box housing assembly | VVQC1000-T0-1    | T kit                                 | ●                | ●       | ●       |
| ⑬   | Lead wire housing assembly          | VVQC1000-L25-0-1 | L kit with 0.6 m lead wire            | ●                | ●       | ●       |
|     |                                     | VVQC1000-L25-1-1 | L kit with 1.5 m lead wire            | ●                | ●       | ●       |
|     |                                     | VVQC1000-L25-2-1 | L kit with 3.0 m lead wire            | ●                | ●       | ●       |
| ⑭   | Multiple connector housing assembly | VVQC1000-M26-1   | M kit 26 pins                         | ●                | ●       | ●       |
| ⑮   | Signal cut block                    | EX9-SC1-8        | Double wiring of 1st to 8th stations  | ●                | ●       | ●       |
|     |                                     | EX9-SC2-4        | Double wiring of 9th to 12th stations | ●                | ●       | ●       |

VQC

SQ

VQ0

VQ4

VQ5

VQZ

VQD

## D-side end plate assembly

## ⑮ D-side end plate assembly part no.

VVQC1000/2000

VVQC 1 000-3A-1-C8-□

Series

|   |         |
|---|---------|
| 1 | VQC1000 |
| 2 | VQC2000 |

Port size

| Symbol | VQC1000 | VQC2000 |
|--------|---------|---------|
| C8     | ●       |         |
| C10    |         | ●       |
| N9     | ●       |         |
| N11    |         | ●       |

Option

|     |                                              |
|-----|----------------------------------------------|
| Nil | Centralized exhaust                          |
| R   | External pilot                               |
| S   | Direct exhaust outlet with built-in silencer |

VVQC4000

VVQC4000-3A-1-□

Kit type

|   |                        |
|---|------------------------|
| 1 | S (EX240) kit          |
| 2 | F, P, T, S (EX250) kit |
| 3 | L, M, S (EX500) kit    |

Thread type

|     |          |
|-----|----------|
| Nil | Rc       |
| F   | G        |
| T   | NPT/NPTF |

## U-side end plate assembly

## ⑮ U-side end plate assembly part no.

VVQC1000/2000

VVQC 1 000-2A-1-C8-□

Series

|   |         |
|---|---------|
| 1 | VQC1000 |
| 2 | VQC2000 |

Port size

| Symbol | VQC1000 | VQC2000 |
|--------|---------|---------|
| C8     | ●       |         |
| C10    |         | ●       |
| C12    |         | ●       |
| N9     | ●       |         |
| N11    |         | ●       |
| N13    |         | ●       |

Option

|     |                                              |
|-----|----------------------------------------------|
| Nil | Centralized exhaust                          |
| R   | External pilot                               |
| S   | Direct exhaust outlet with built-in silencer |

Supply/Exhaust port entry direction

|          |                    |
|----------|--------------------|
| 1        | Cylinder port side |
| 2 (Note) | Branch type        |

Note) VQC2000 only

VVQC4000

VVQC4000-2A-1-□

Thread type

|     |          |
|-----|----------|
| Nil | Rc       |
| F   | G        |
| T   | NPT/NPTF |

## Manifold block assembly

## ⑮ Manifold block assembly part no.

VVQC 1 000-1A-D-C6-□

Wiring specifications

|          |               |
|----------|---------------|
| D        | Double wiring |
| S        | Single wiring |
| 0 (Note) | No wiring     |

Note) For VQC1000/2000 only.

Series

|   |         |
|---|---------|
| 1 | VQC1000 |
| 2 | VQC2000 |
| 4 | VQC4000 |

Note) Tie-rods (2 pcs.) for additional stations included.

Option

|          |                                |
|----------|--------------------------------|
| Nil      | None                           |
| B (Note) | With back pressure check valve |

Note) Except VQC4000.

Thread type (Note)

|     |          |
|-----|----------|
| Nil | Rc       |
| F   | G        |
| T   | NPT/NPTF |

Note) VQC 4000 thread port only

## Port size

| Symbol | Port size                  | VQC1000 | VQC2000 | VQC4000 |
|--------|----------------------------|---------|---------|---------|
| C3     | For ø3.2 One-touch fitting | ●       |         |         |
| C4     | For ø4 One-touch fitting   | ●       | ●       |         |
| C6     | For ø6                     | ●       | ●       |         |
| C8     | For ø8                     |         | ●       | ●       |
| C10    | For ø10                    |         |         | ●       |
| C12    | For ø12                    |         |         | ●       |
| N1     | For ø1/8"                  | ●       |         |         |
| N3     | For ø5/32"                 | ●       | ●       |         |
| N7     | For ø1/4"                  | ●       | ●       | ●       |
| N9     | For ø5/16"                 |         | ●       | ●       |
| N11    | For ø3/8"                  |         |         | ●       |
| M5     | For M5 thread              | ●       |         |         |
| 02     | Rc 1/4"                    |         |         | ●       |
| 03     | Rc 3/8"                    |         |         | ●       |
| B      | Rc 1/4" bottom ported      |         |         | ●       |
| C0     | Without One-touch fitting  | ●       | ●       | ●       |