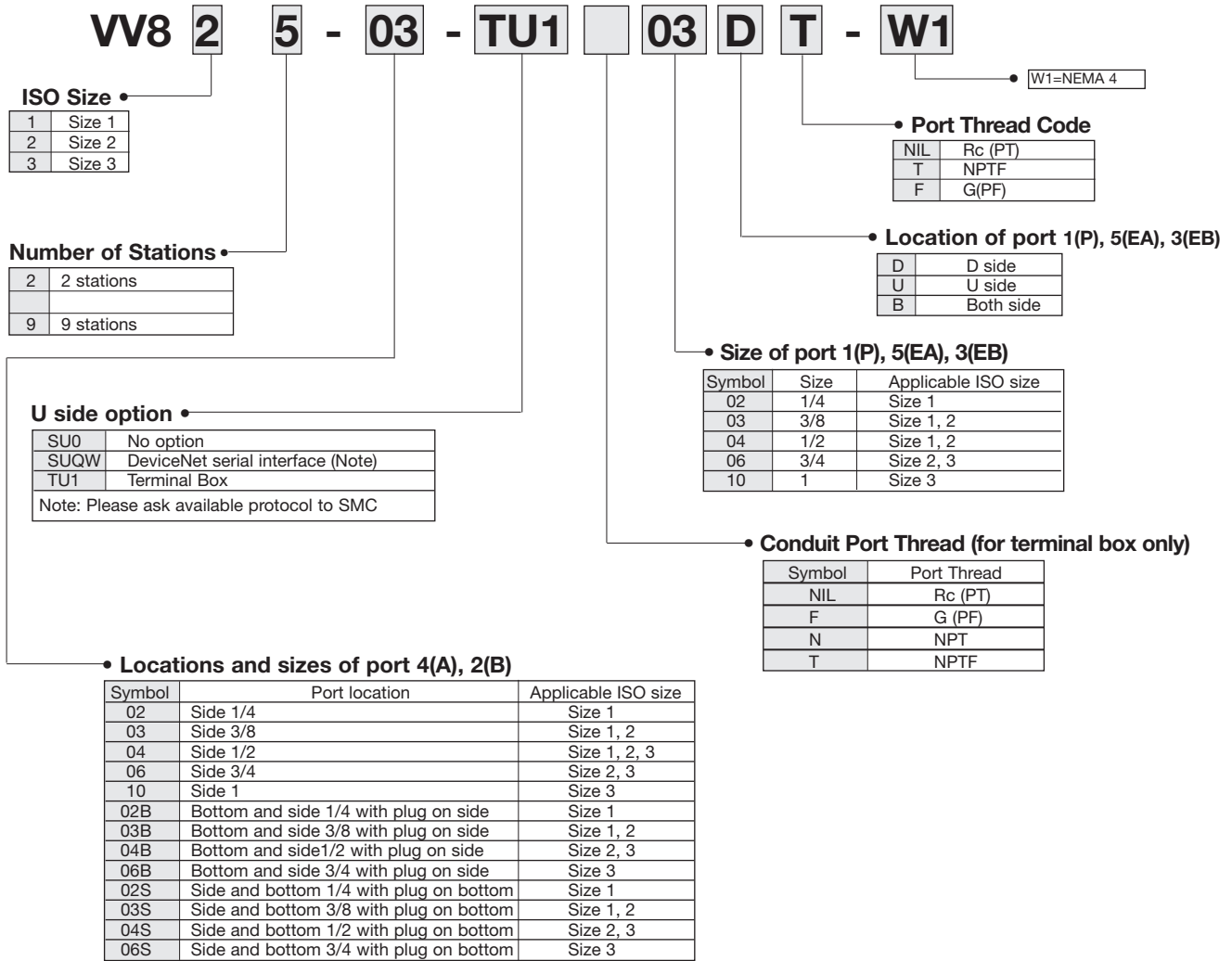
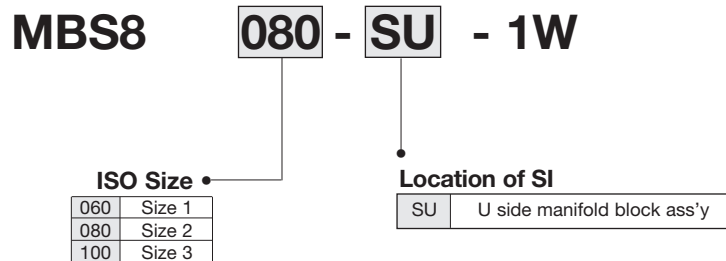


## HOW TO ORDER ISO5599/2 VALVE MANIFOLD

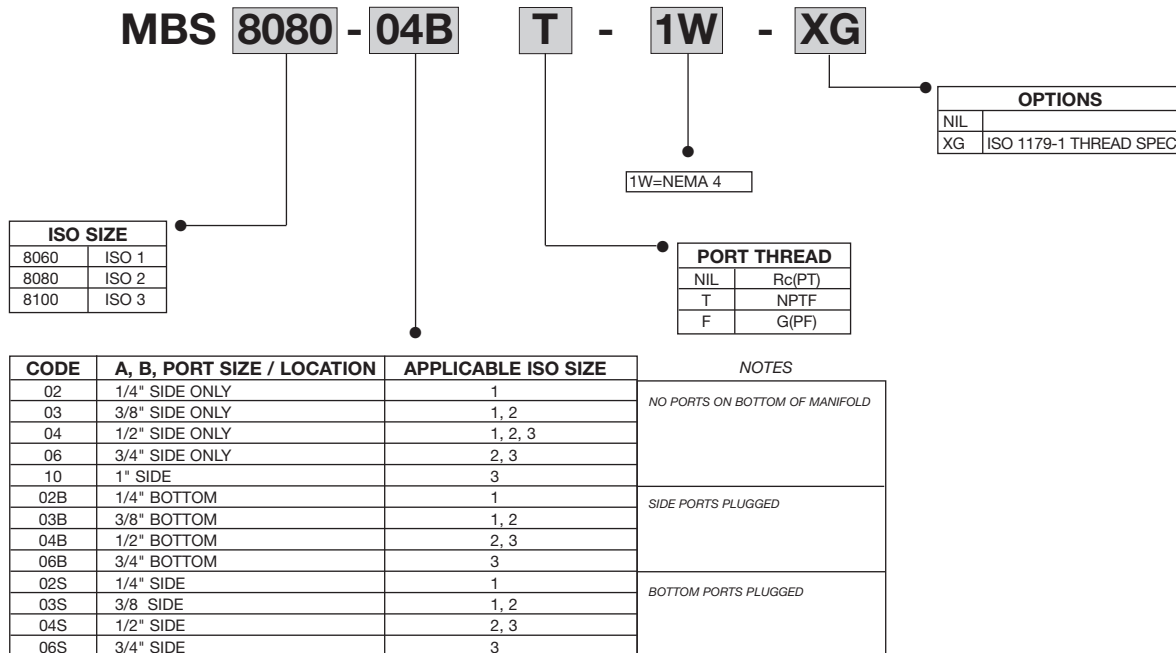


## SERIAL INTERFACE MANIFOLD BLOCK ASS'Y



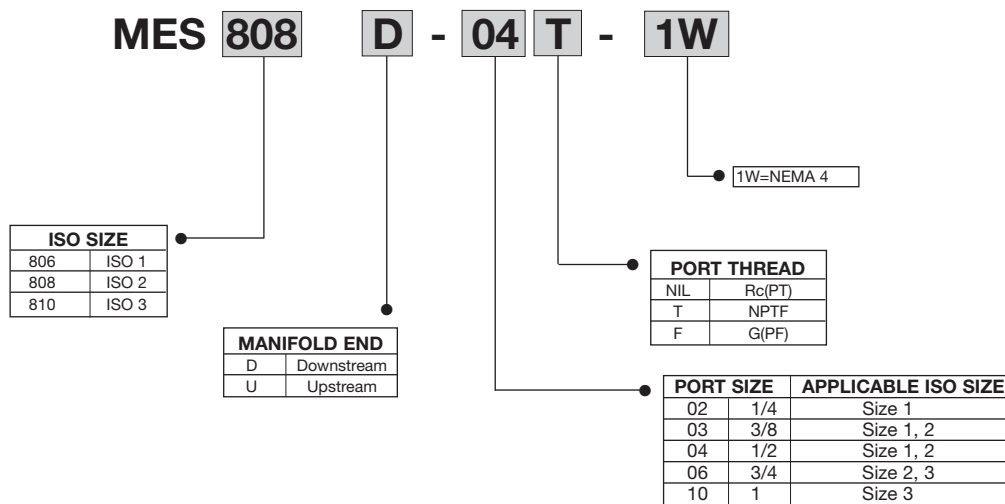
## HOW TO ORDER LATERAL PLUG-IN MANIFOLD BLOCKS

### VALVE MANIFOLD BLOCKS



**NOTE:** Device Net Serial Interface Module Manifold Block **MBS 8080 - SU - 1W**  
 Device Net Serial Interface Module **EX230 - SDN1**

## HOW TO ORDER LATERAL PLUG-IN MANIFOLD END PLATES



**NOTE:** When ordering parts for assembly. (2) AXT502-34-"" (use "" for number of stations) tie rods must be ordered separately for size 1 only. If only connecting size 1 end plates to manifold. (2) AXT502-4-2 must be ordered separately.

## HOW TO ORDER MANIFOLD ASSEMBLIES FOR (4-PIN EURO CONNECTOR) PLUG-IN VALVE BASES

VV8 1 5 - 03S - W 03 D T - X6

ISO SIZE	
1	ISO 1
2	ISO 2
3	ISO 3

NUMBER OF STATIONS	
2	2 STATIONS
:	:
:	:
10	10 STATIONS

4-PIN EURO CONNECTOR	
X6	
X13	
X17	
X53	

\* For wiring options, please refer to page 13 for more information.

PORT THREAD	
NIL	Rc(PT)
T	NPTF
F	G(PF)

P, EXH. PORT LOCATION	
D	DOWN STREAM
U	UP STREAM
B	BOTH

P, EXH. PORT SIZE	APPLICABLE ISO SIZE
02	1/4"
03	3/8"
04	1/2"
06	3/4"
10	1"

CODE	A, B, PORT SIZE / LOCATION	APPLICABLE ISO SIZE	NOTES
02	1/4" SIDE ONLY	1	NO PORTS ON BOTTOM OF MANIFOLD
03	3/8" SIDE ONLY	1, 2	
04	1/2" SIDE ONLY	1, 2, 3	
02B	1/4" BOTTOM	2, 3	SIDE PORTS PLUGGED
03B	3/8" BOTTOM	1, 2	
02S	1/4" SIDE	1	BOTTOM PORTS PLUGGED
03S	3/8" SIDE	1, 2	

## HOW TO ORDER LATERAL PLUG-IN MANIFOLD BLOCKS WITH 4-PIN EURO CONNECTOR

VALVE MANIFOLD BLOCKS

MBS 8080 - 04B T - 1W - X6

ISO SIZE	
8060	ISO 1
8080	ISO 2

4-PIN EURO CONNECTOR	
X6	
X13	
X17	
X53	

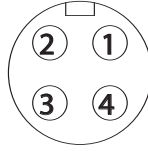
\* For wiring options, please refer to page 13 for more information.

1W=NEMA 4

PORT THREAD	
NIL	Rc(PT)
T	NPTF
F	G(PF)

CODE	A,B, PORT SIZE / LOCATION	APPLICABLE ISO SIZE	NOTES
02	1/4" SIDE ONLY	1	NO PORTS ON BOTTOM OF MANIFOLD
03	3/8" SIDE ONLY	1, 2	
04	1/2" SIDE ONLY	1, 2, 3	
02B	1/4" BOTTOM	1	SIDE PORTS PLUGGED
03B	3/8" BOTTOM	1, 2	
02S	1/4" SIDE	1	BOTTOM PORTS PLUGGED
03S	3/8" SIDE	1, 2	
04S	3/4" SIDE	2, 3	

## WIRING INFORMATION



### SUB-BASE

OPTION			OPTION		
X11	PIN 1	NOT USED	X53	PIN 1	14 (A) +
	PIN 2	12 (B) +		PIN 2	NOT USED
	PIN 3	COMMON		PIN 3	COMMON
	PIN 4	14 (A) +		PIN 4	12 (B) +
X6	PIN 1	NOT USED			
	PIN 2	14 (A) +			
	PIN 3	COMMON			
	PIN 4	12 (B) +			

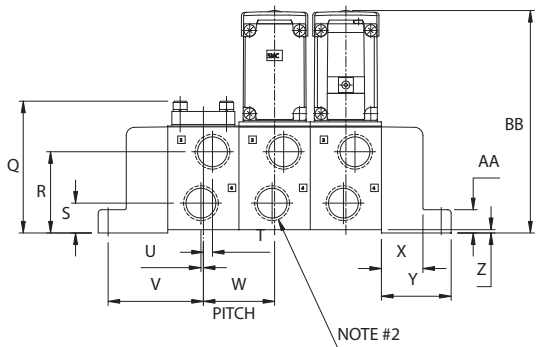
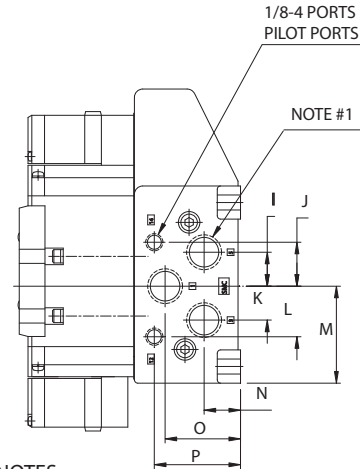
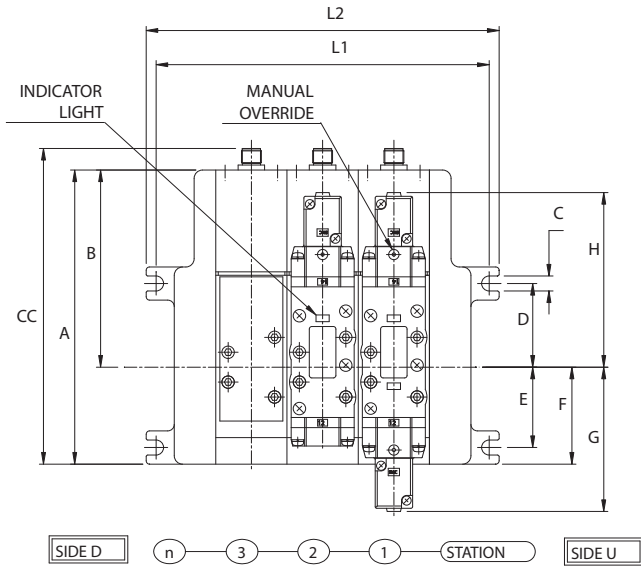
### MANIFOLD BLOCK

OPTION			OPTION		
X6	PIN 1	NOT USED	X13	PIN 1	NOT USED
	PIN 2	14 (A) +		PIN 2	12 (B) +
	PIN 3	COMMON		PIN 3	COMMON
	PIN 4	12 (B) +		PIN 4	14 (A) +
X17	PIN 1	NOT USED	X53	PIN 1	14 (A) +
	PIN 2	12 (B) +		PIN 2	NOT USED
	PIN 3	COMMON		PIN 3	COMMON
	PIN 4	14 (A) +		PIN 4	12 (B) +

### TERMINAL STRIP 22 POSITION

TERM P1=OUT 0	TERM P7=OUT 6	TERM P13=OUT 12	TERM P19=PE
TERM P2=OUT 1	TERM P8=OUT 7	TERM P14=OUT 13	TERM P20=ITV +24
TERM P3=OUT 2	TERM P9=OUT 8	TERM P15=OUT 14	TERM P21=ITV_IN0
TERM P4=OUT 3	TERM P10=OUT 9	TERM P16=OUT 15	TERM P22=ITV_IN1
TERM P5=OUT 4	TERM P11=OUT 10	TERM P17=OV	
TERM P6=OUT 5	TERM P12=OUT 11	TERM P18=OV	

MANIFOLD M12 CONNECTORS



- NOTES:
- 1) SIZE 1 - 1/4, 3/8, 1/2  
SIZE 2 - 3/8, 1/2, 3/4  
SIZE 3 - 3/4, 1  
6 PORTS, 1, 3, 5 PORTS
  - 2) SIZE 1 - 1/4, 3/8, 1/2  
SIZE 2 - 3/8, 1/2, 3/4  
SIZE 3 - 1/2, 3/4, 1  
2 PORTS, 2, 4 PORTS
  - 3) ALL DIMENSIONS ARE IN MILLIMETERS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SIZE 1	177.5	119	9	50.5	48.5	58.5	87	105	20.5	26.5	20.5	30.5	58.5	22	45.5	52	81	49	18	5.5
SIZE 2	189.5	125	9	52	52.5	64.5	96.5	112	26	34	26	37	64.5	31.5	58.5	67.5	97.5	58.5	20.5	3
SIZE 3	234.5	142.5	13	77.5	79.5	92	108	123.5	41	52	41	52	92	36	69	82.5	121	74	28	4

	U	V	W	X	Y	Z	AA	BB	CC
SIZE 1	1.5	57.5	43	25	42	2	14	133	188.5
SIZE 2	1	73	56	35	53	2	20	150.5	199
SIZE 3	4	68.5	71	30	45	2	20	175.5	244

n= NUMBER OF STATIONS (MIN. 2, MAX. 10)

LENGTH FORMULA  
L1= 43n + 72  
L2= 43n + 84

LENGTH FORMULA  
L1= 56n + 90  
L2= 56n + 106

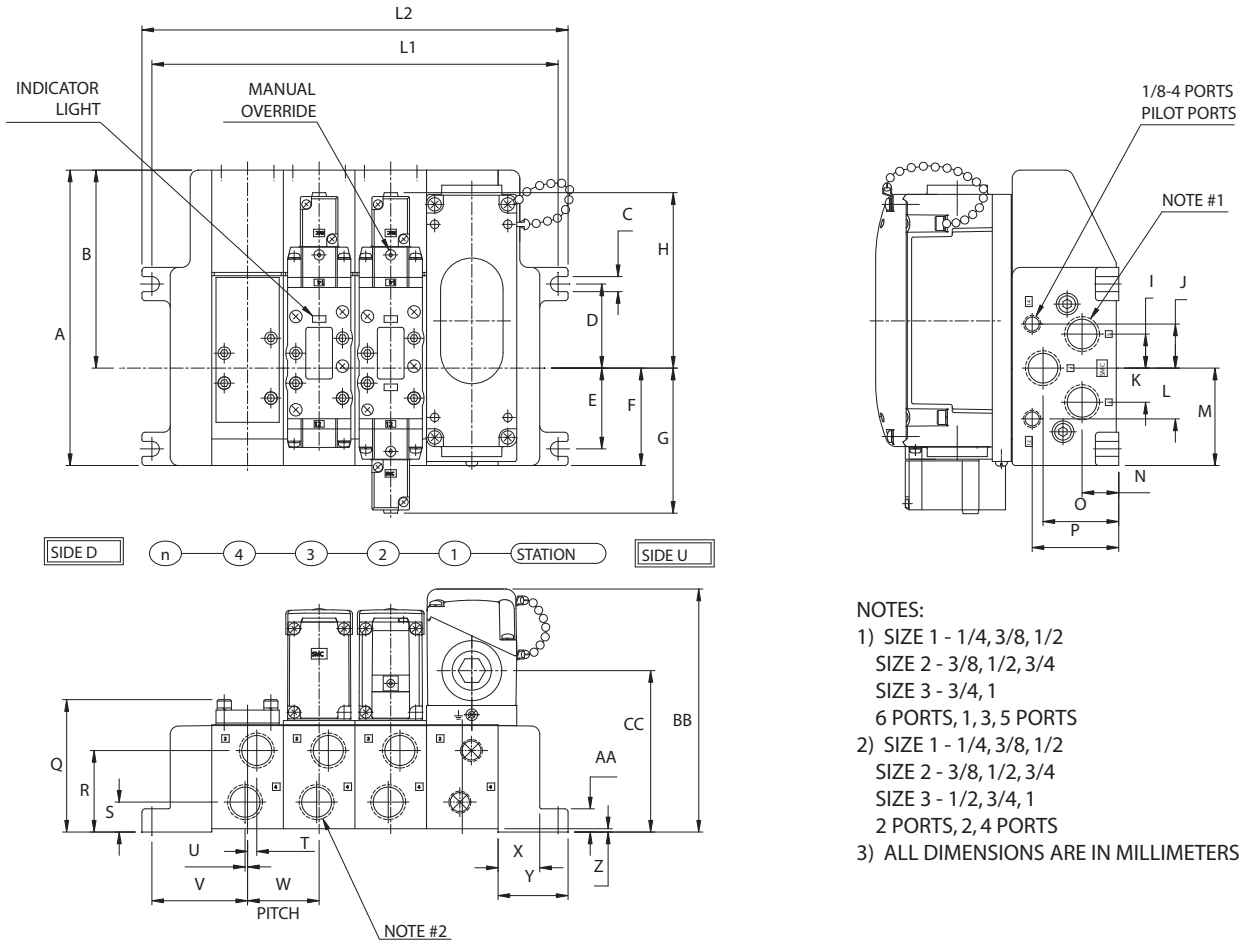
LENGTH FORMULA  
L1= 71n + 66  
L2= 71n + 90

LENGTH DIMENSIONS		SIZE 1									
n	L	2	3	4	5	6	7	8	9	10	
L1		158	201	244	287	330	373	416	459	502	
L2		170	213	256	299	342	385	428	471	514	

LENGTH DIMENSIONS		SIZE 2									
n	L	2	3	4	5	6	7	8	9	10	
L1		202	258	314	370	426	482	538	594	650	
L2		218	274	330	386	442	498	554	610	666	

LENGTH DIMENSIONS		SIZE 3									
n	L	2	3	4	5	6	7	8	9	10	
L1		208	279	350	421	492	563	634	705	776	
L2		232	303	374	445	516	587	658	729	800	

## MANIFOLD WITH TERMINAL BOX



- NOTES:
- 1) SIZE 1 - 1/4, 3/8, 1/2  
 SIZE 2 - 3/8, 1/2, 3/4  
 SIZE 3 - 3/4, 1  
 6 PORTS, 1, 3, 5 PORTS
  - 2) SIZE 1 - 1/4, 3/8, 1/2  
 SIZE 2 - 3/8, 1/2, 3/4  
 SIZE 3 - 1/2, 3/4, 1  
 2 PORTS, 2, 4 PORTS
  - 3) ALL DIMENSIONS ARE IN MILLIMETERS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SIZE 1	177.5	119	9	50.5	48.5	58.5	87	105	20.5	26.5	20.5	30.5	58.5	22	45.5	52	81	49	18	5.5
SIZE 2	189.5	125	9	52	52.5	64.5	96.5	112	26	34	26	37	64.5	31.5	58.5	67.5	97.5	58.5	20.5	3
SIZE 3	234.5	142.5	13	77.5	79.5	92	108	123.5	41	52	41	52	92	36	69	82.5	121	74	28	4

	U	V	W	X	Y	Z	AA	BB	CC
SIZE 1	1.5	57.5	43	25	42	2	14	145.5	96.5
SIZE 2	1	73	56	35	53	2	20	159	110.5
SIZE 3	4	68.5	71	30	45	2	20	182.5	133.5

n= NUMBER OF STATIONS (MIN. 2, MAX. 10)

LENGTH FORMULA  
 $L1 = 43n + 72$   
 $L2 = 43n + 84$

LENGTH FORMULA  
 $L1 = 56n + 90$   
 $L2 = 56n + 106$

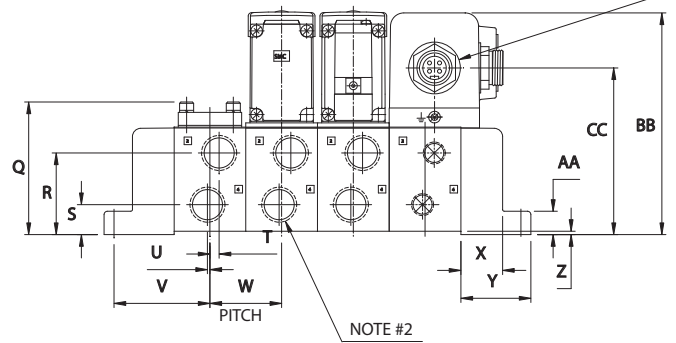
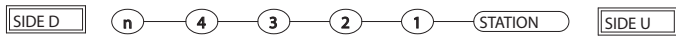
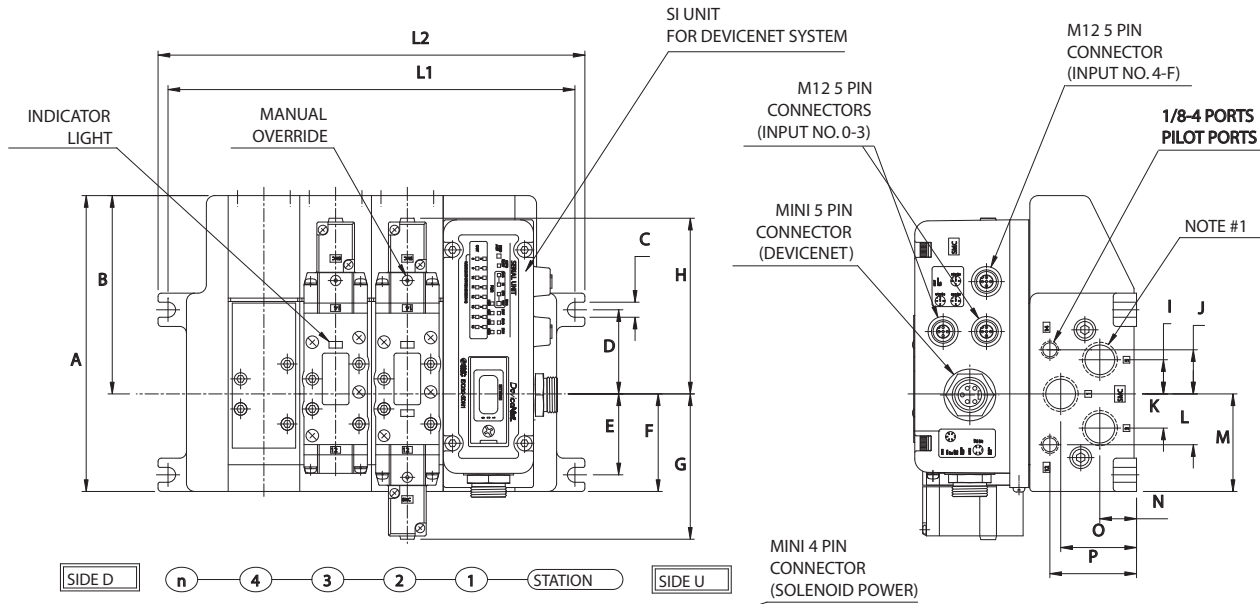
LENGTH FORMULA  
 $L1 = 71n + 66$   
 $L2 = 71n + 90$

LENGTH DIMENSIONS		SIZE 1								
L \ n	2	3	4	5	6	7	8	9	10	
L1	158	201	244	287	330	373	416	459	502	
L2	170	213	256	299	342	385	428	471	514	

LENGTH DIMENSIONS		SIZE 2								
L \ n	2	3	4	5	6	7	8	9	10	
L1	202	258	314	370	426	482	538	594	650	
L2	218	274	330	386	442	498	554	610	666	

LENGTH DIMENSIONS		SIZE 3								
L \ n	2	3	4	5	6	7	8	9	10	
L1	208	279	350	421	492	563	634	705	776	
L2	232	303	374	445	516	587	658	729	800	

MANIFOLD DEVICENET



- NOTES:
- 1) SIZE 1 - 1/4, 3/8, 1/2  
SIZE 2 - 3/8, 1/2, 3/4  
SIZE 3 - 3/4, 1  
6 PORTS, 1, 3, 5 PORTS
  - 2) SIZE 1 - 1/4, 3/8, 1/2  
SIZE 2 - 3/8, 1/2, 3/4  
SIZE 3 - 1/2, 3/4, 1  
2 PORTS, 2, 4 PORTS
  - 3) ALL DIMENSIONS ARE IN MILLIMETERS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SIZE 1	177.5	119	9	50.5	48.5	58.5	87	105	20.5	26.5	20.5	30.5	58.5	22	45.5	52	81	49	18	5.5
SIZE 2	189.5	125	9	52	52.5	64.5	96.5	112	26	34	26	37	64.5	31.5	58.5	67.5	97.5	58.5	20.5	3
SIZE 3	234.5	142.5	13	77.5	79.5	92	108	123.5	41	52	41	52	92	36	69	82.5	121	74	28	4

	U	V	W	X	Y	Z	AA	BB	CC
SIZE 1	1.5	57.5	43	25	42	2	14	132.5	99.5
SIZE 2	1	73	56	35	53	2	20	146.5	113.5
SIZE 3	4	68.5	71	30	45	2	20	168.5	135.5

n= NUMBER OF STATIONS (MIN. 2, MAX. 10)

LENGTH FORMULA  
 $L1 = 43n + 72$   
 $L2 = 43n + 84$

LENGTH FORMULA  
 $L1 = 56n + 90$   
 $L2 = 56n + 106$

LENGTH FORMULA  
 $L1 = 71n + 66$   
 $L2 = 71n + 90$

LENGTH DIMENSIONS		SIZE 1								
n	L	2	3	4	5	6	7	8	9	10
L1	158	201	244	287	330	373	416	459	502	
L2	170	213	256	299	342	385	428	471	514	

LENGTH DIMENSIONS		SIZE 2								
n	L	2	3	4	5	6	7	8	9	10
L1	202	258	314	370	426	482	538	594	650	
L2	218	274	330	386	442	498	554	610	666	

LENGTH DIMENSIONS		SIZE 3								
n	L	2	3	4	5	6	7	8	9	10
L1	208	279	350	421	492	563	634	705	776	
L2	232	303	374	445	516	587	658	729	800	

## Precautions

### Quality of Fluid

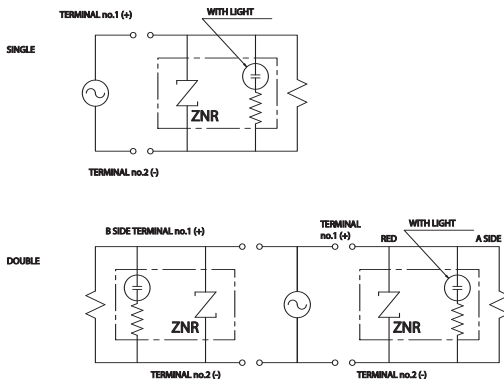
1. A filter of about 5 μm is adequate.
2. Remove contaminants from the system because excess contaminants cause pneumatic product malfunctions as well as environmental pollution.  
For added convenience, the use of an auto drain is recommended.
3. When there is a large amount of carbon powder from the compressor, it causes valve malfunction. Please change the compressor oil or install a mist separator.
4. The valve has been lubricated for life at manufacture, and does not require lubrication in service.  
If a lubricant is used in the system, use turbine oil (ISO VG32).

### Solenoid Precautions

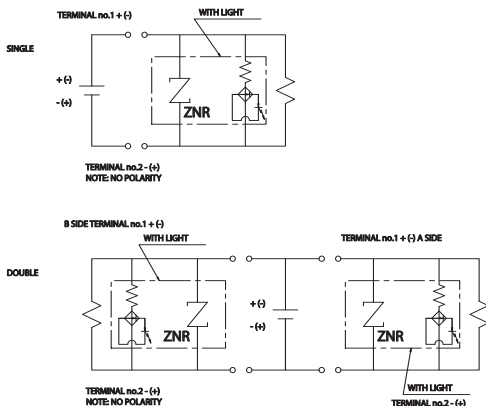
1. Ensure that voltage leakage across the coil is as follows.  
DC coil: No more than 3% of the rated voltage  
AC coil: No more than 20% of the rated voltage
2. Continuous duty  
When long term energizing is required, the continuous energizing time should not exceed 30 days.
3. Energization time  
The double solenoid valve must be energized for at least 0.1 second to ensure proper operation.

### Wiring & Light / Surge Voltage Suppressor

#### AC AND 100 VDC



#### 24VDC OR LESS



### Piping

1. Flushing: Thoroughly flush the piping on both inlet and outlet sides of the valve to remove dust.
2. Mounting position: Mount the double solenoid and 3-position type valves so that the spool valve will be horizontal.
3. Installation in places subject to vibration: Mount the valve so that spool valve will be at right angles to direction of vibration.  
(Avoid use in places where vibration exceeds 5G.)
4. When 3-position closed center valve is mounted: Check the piping between the valve and cylinder as well as joints for leakage using soapy water. Even slight leakage should be avoided.
5. R(EXH) port piping: Take care that exhaust air is not throttled.  
(Otherwise, delay in response or cylinder malfunction may result.)

### Operation Conditions

Avoid the following locations or environments to prevent valve trouble. If it is unavoidable install a cover, etc. for protection.

1. Locations where the ambient temperature exceeds +5~50°C range. The metal seal type can be used down to -10°C, but take care that solidification of contaminants or water freezing does not take place.
2. Locations where valves will be exposed directly to water drops, cutting oil, etc.
3. Locations exposed to direct sunlight.
4. Environments causing dewing on valve body or condensation when there are drastic temperature changes.
5. Locations exposed to corrosive gas, chemicals and their solution or vapor seawater, etc.

### How to calculate Flow (At an air temperature 20°C)

Subsonic flow:  $P_1 + 0.1013 < 1.89(P_2 + 0.1013)$

$$Q = 226S \sqrt{\Delta P (P_2 + 0.1013)}$$

Sonic flow:  $P_1 + 0.1013 > 1.89(P_2 + 0.1013)$

$$Q = 113S (P_1 + 0.1013)$$

Q: Flow rate under standard conditions [l/min(ANR)]

S: Effective area (mm<sup>2</sup>)

ΔP: Pressure differential (P1-P2) (MPa)

P1: Upstream pressure (MPa)

P2: Downstream pressure (MPa)

\* When the air temperatures is different, multiply the flow calculated with the above formula by the following factor.

Air Temperature (C°)	-20	-10	0	10	30	40	50	60
Factor	1.08	1.06	1.04	1.02	0.98	0.97	0.95	0.94



## Features / Options

### Expandable Manifold

Stacking type manifold can be expanded up to the recommended number of stations. (Max. of 10 stations)

### Various porting combinations available to suit your application.

Every manifold block comes standard with side and bottom ports.

### Wide variety of Interface Options

Individual supply/exhaust spacers, interface regulators and interface speed controls are available to customize your manifold



The manifold Series VV81 have a wide variety of functions and portings, compatible with virtually any application.

### Standard Features

#### Common EXH Type

All the manifolded valves are supplied and exhausted by the same manifold ports. This is our most popular configuration.

#### Bottom Porting Type (A, B port)

When The application requires bottom porting, either a portion of, or the entire manifold can be piped with bottom porting.

### Interface Options

#### Individual EXH Spacer

An individual EXH spacer (VV81-R-■) mounted on the manifold block allows each valve to exhaust individually.

#### Individual SUP Spacer

An individual SUP spacer (VV81-P-■) mounted on the manifold block allows each valve to exhaust individually.

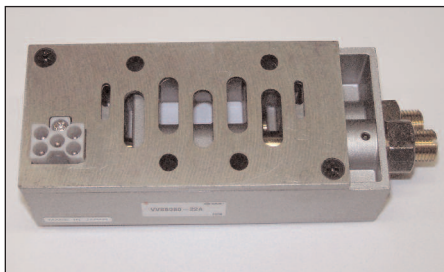


#### Interface Regulator

The interface unit is designated to separately control the pressure of one valve and still maintain a common manifold pressure. This unit is available as either a P port regulator or as an A or B port regulator.

#### Interface Speed Controls

Cylinder speed can be controlled by throttling exhaust air.



### Manifold Option

#### Terminal Box

- Terminals are provided in the box, permitting connection of conduit piping.
- Simplifies wiring requirements

#### SI Unit

With serial interface unit

- Solenoid valve wiring reduced considerably.
- Applicable to Dvice Net and Profi Bus.

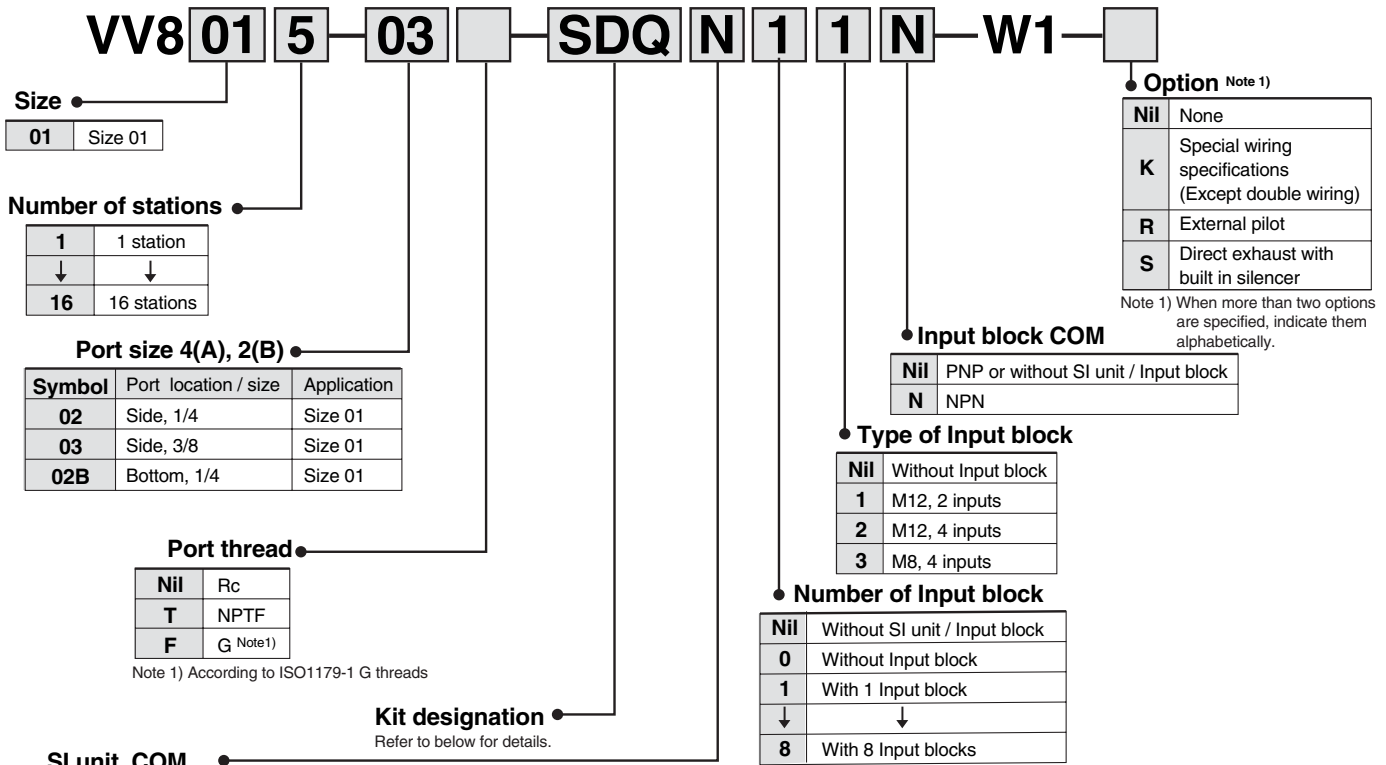


#### Splash Proof

Splash proof manifold conforms to IP65 and NEMA4.

- Applicable to all sizes

**How to Order Manifold (ISO15407-2)**



SI unit COM	EX250						EX500		EX126
	DeviceNet	PROFIBUS-DP	CC-Link	AS-i	CANopen	EtherNet/IP	DeviceNet EtherNet/IP PROFIBUS-DP CC-Link	Remote I/O	CC-Link
Nil +COM	—	—	○	—	—	—	○	○	○
N -COM	○	○	○	○	○	○	○	○	○

**Kit designation**

Kit	Kit / Cable length	Max. number of stations Note 1)	Max. number of solenoids Note1)	Applicable SI unit	
F kit	FD0	D-sub connector kit (25P) without cable	1 to 12 stations (16 stations)	24	
	FD1	D-sub connector kit (25P) with 1.5m cable			
	FD2	D-sub connector kit (25P) with 3.0m cable			
P kit	PD0	Flat ribbon cable kit (26P) without cable	1 to 12 stations (16 stations)	24	
	PD1	Flat ribbon cable kit (26P) with 1.5m cable			
	PD2	Flat ribbon cable kit (26P) with 3.0m cable			
	PD3	Flat ribbon cable kit (26P) with 5.0m cable			
L kit	LD0	Lead wire kit (25 core) 0.6m lead wire	1 to 12 stations (16 stations)	24	
	LD1	Lead wire kit (25 core) 1.5m lead wire			
	LD2	Lead wire kit (25 core) 3.0m lead wire			
M kit	MD0	Multiple connector kit (26P) without cable	1 to 12 stations (16 stations)	24	
	MD1	Multiple connector kit (26P) with 1.5m cable			
	MD2	Multiple connector kit (26P) with 3.0m cable			
	MD3	Multiple connector kit (26P) with 5.0m cable			
T kit	TD0	Terminal block box kit	1 to 10 stations (16 stations)	20	
S kit	SD0	Serial kit without SI unit	1 to 12 stations (16 stations)	24	
	SDN	Serial kit for PROFIBUS-DP			
	SDQ	Serial kit for DeviceNet			
	SDQ1	Serial kit for DeviceNet			
	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	1 to 4 stations (8 stations)	8	EX250-SPR1
	SDTC	AS-i, 8 in/out, 31 slave modes, 1 power supply systems	1 to 2 stations (4 stations)	4	EX250-SDN1 Note 2)
	SDTD	AS-i, 4 in/out, 31 slave modes, 1 power supply systems	1 to 4 stations (8 stations)	8	EX250-SDN1-X102 Note 3)
	SDV	Serial kit for CC-Link	1 to 2 stations (4 stations)	4	EX250-SAS3
	SDY	Serial kit for CANopen	1 to 2 stations (4 stations)	4	EX250-SAS5
	SDA1	Serial kit for Remote I/O	1 to 12 stations (16 stations)	24	EX250-SAS7
	SDA2	Serial kit for DeviceNet, PROFIBUS-DP, CC-Link, EtherNet/IP	1 to 12 stations (16 stations)	24	EX250-SAS9
	SDVB	Serial kit for CC-Link (EX126)	1 to 12 stations (16 stations)	24	EX250-SMJ2
	SDZEN	Serial kit for EtherNet/IP	1 to 12 stations (16 stations)	24	EX250-SCA1

Note 1) The numeral in parentheses indicates the maximum number of stations in case of special wiring specification. The maximum number of manifold stations is determined by the number of solenoids. Count 1 point for a single solenoid type and 2 points for a double solenoid type. Determine the number of stations so that the total number solenoids are not more than the maximum points. In case of special wiring specification, put the option symbol "K".

Note 2) 4 byte input / 4 byte output

Note 3) 6 byte input / 4 byte output, corresponding to status bit for valve power supply / Input power supply

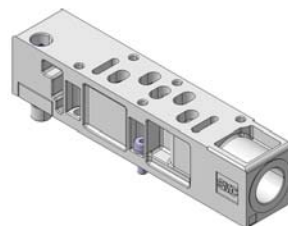
# Series VSR/VSS8-4

## Manifold Option

Individual SUP spacer: **VV801-P-03** 

Thread type ●

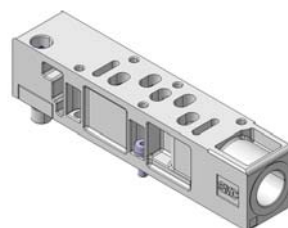
Nil	PT (Rc)
N	NPT
T	NPTF
F	G





Individual EXH spacer: **VV801-R-03** 

Thread type ●

Nil	PT (Rc)
N	NPT
T	NPTF
F	G



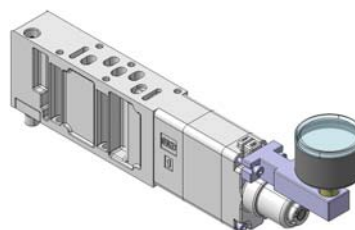
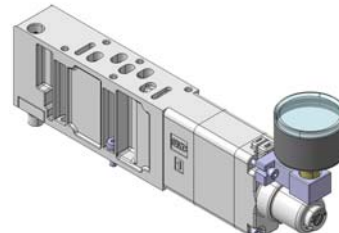
Interface regulator: **VVS8040-ARB-**  **-1-**  **X1S**

Regulation type ●

P	P port
A	A port
B	B port

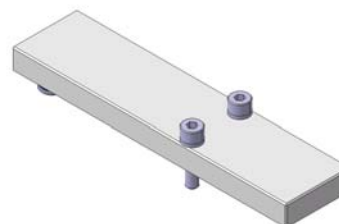
Pressure gauge adapter ●

X1S	Short
X1L	Long



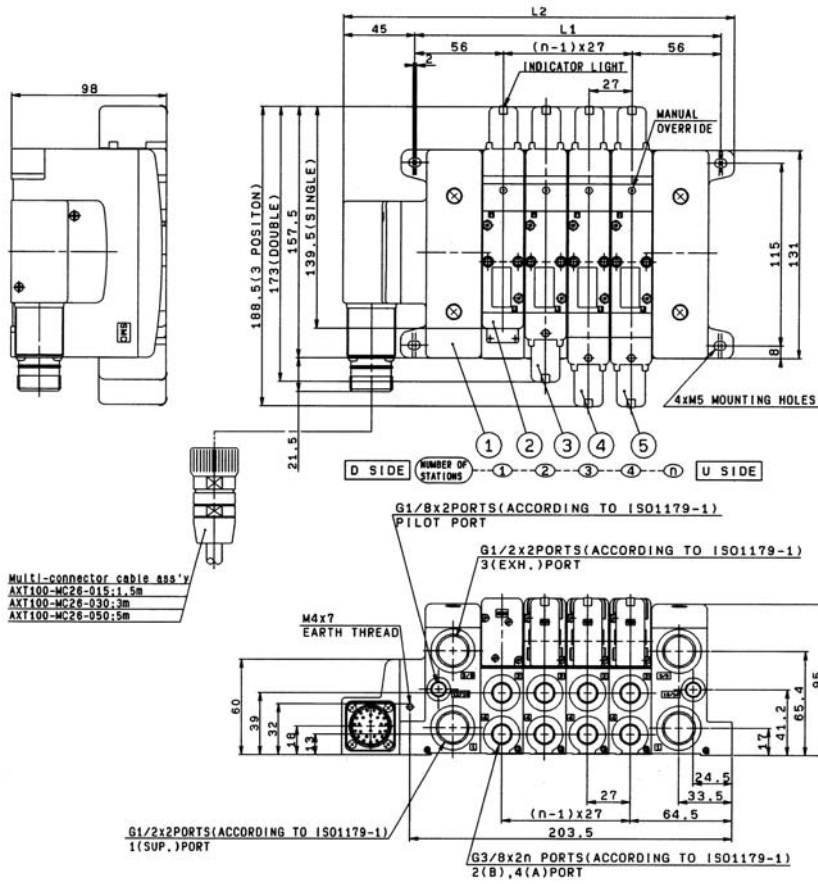
\* Pressure gauge indication unit: Bar/Psi

Blanking plate: **VVS8040-11A**



**Dimensions**

**VV801□ - □F-MDO**



# Series VSR/S8-4, 8-2

## Dimensions

VV801□ - □F-SDGN

