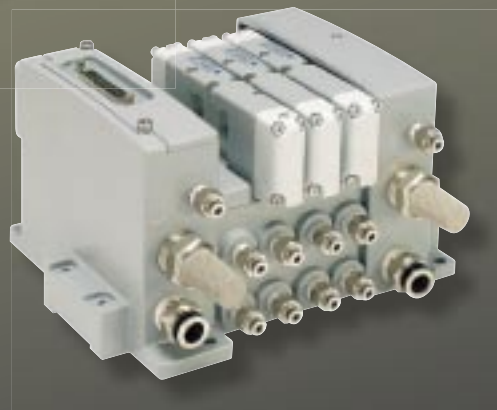
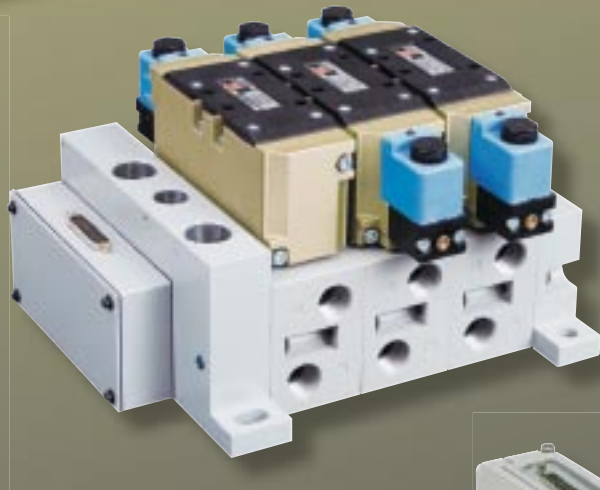




**BULLETIN 600**

# **ISO Valves and Serial Bus Communication from ROSS CONTROLS®**



**Premium Pneumatic Controls Since 1921**

**DeviceNet™**

**PROFIBUS**

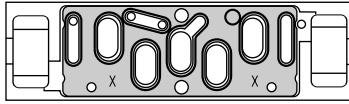
**ControlNet™**

**EtherNet/IP™**

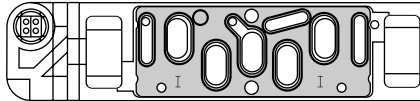
# Standard Definitions

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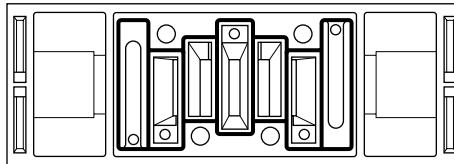
## 15407-1: Drop-cord Standards for Size 0 (26mm) & Size 00 (18mm) Wide Valves



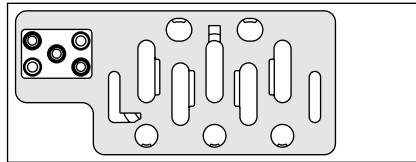
## 15407-2: Plug-in Standards for Size 0 (26mm) & Size 00 (18mm) Wide Valves



## 5599-1: Drop-cord Standards for Sizes 1, 2, 3



## 5599-2: Plug-in Standards for Size 1, 2, 3



### **WARNING**

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from ROSS CONTROLS®, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application including consequences of any failure, and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by ROSS CONTROLS and its subsidiaries at any time without notice.

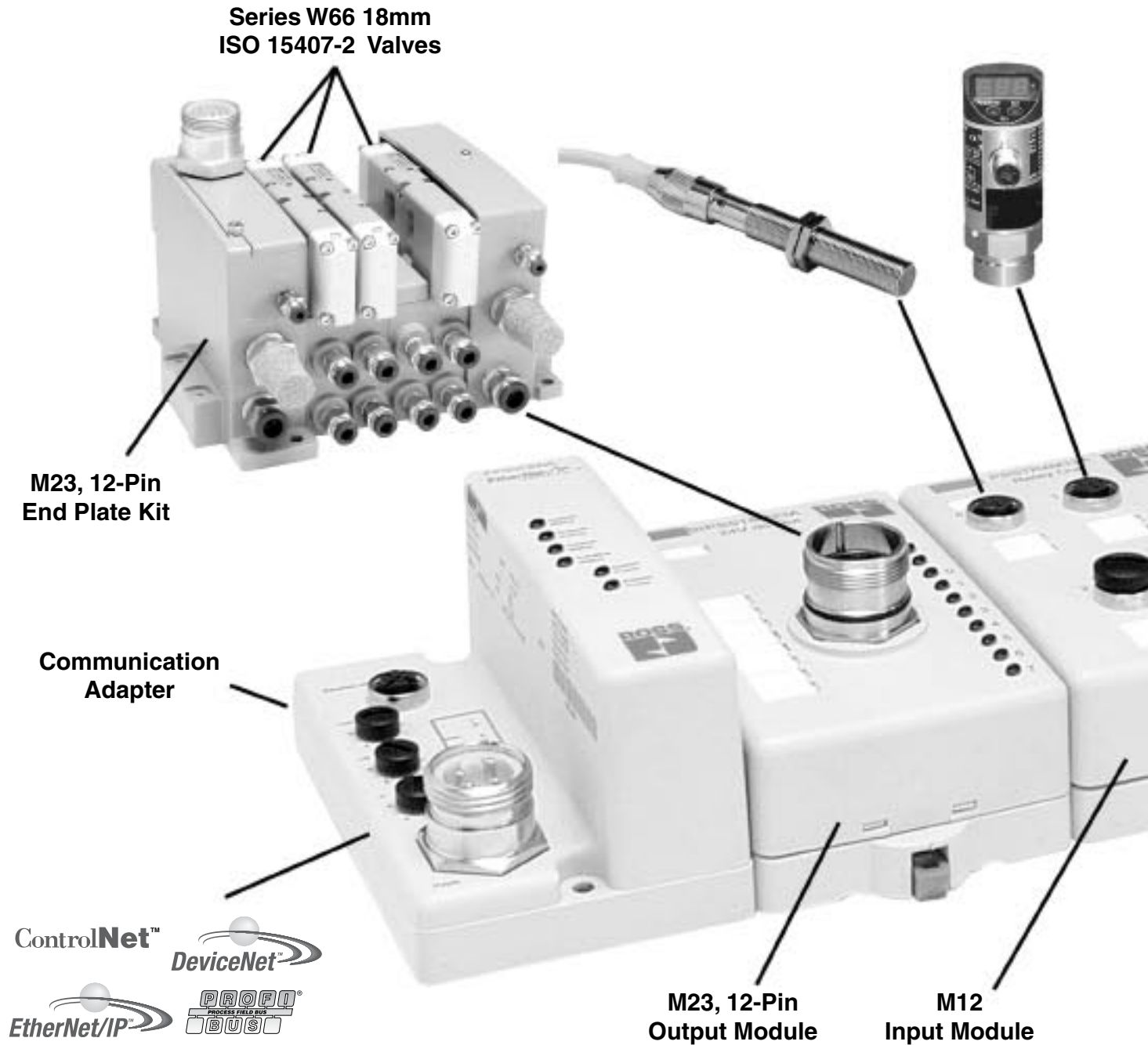
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# Serial Bus System

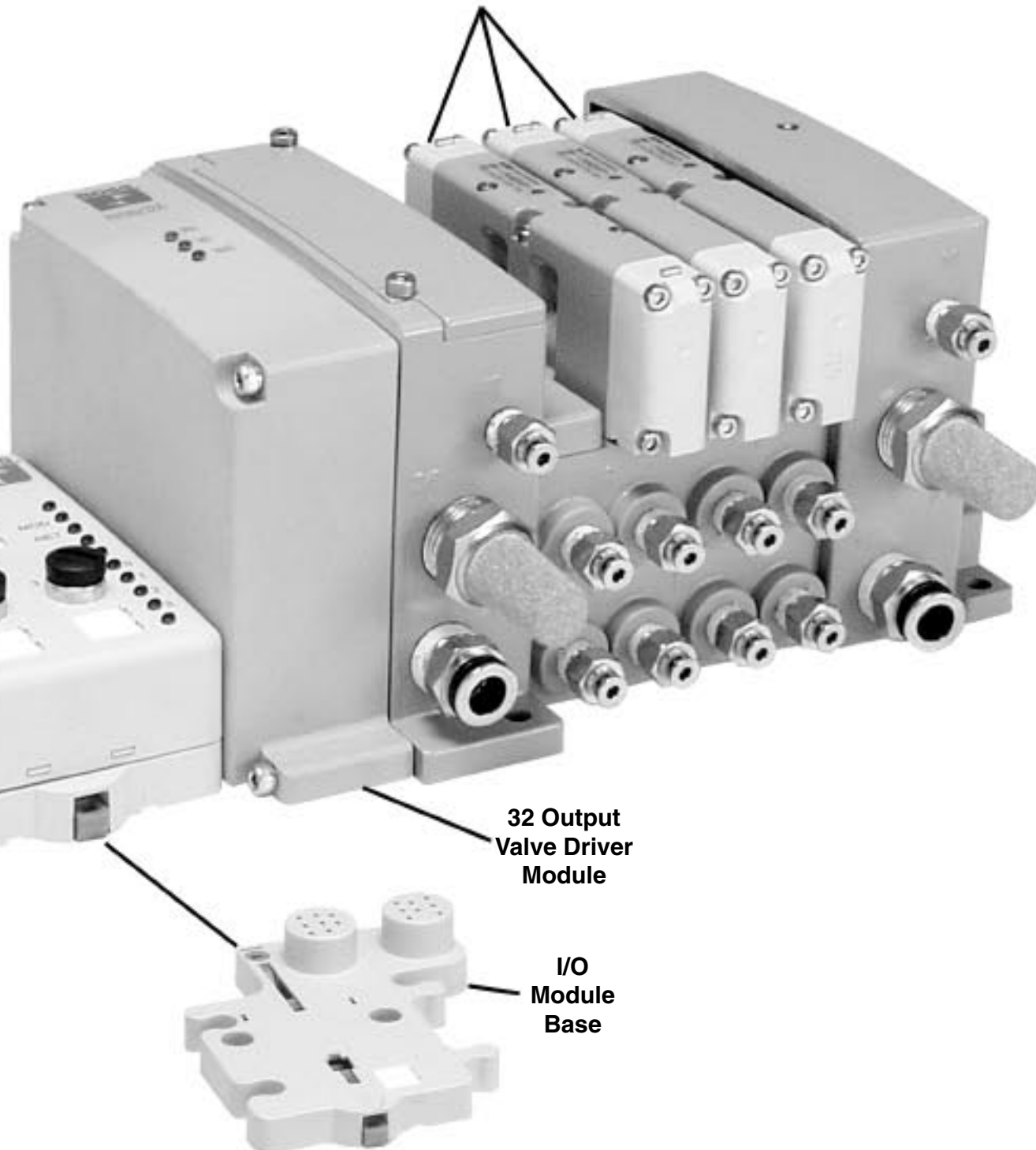
- A complete Serial Bus communication offering for all ISO valves.
- UL, C-UL and CE certifications (as marked).



# I/O - Centralized Configuration

- Centralized Serial Bus system.
- Pneumatics and I/O are in close proximity to one another.
- I/O density per module = 8.

Series W66 18mm  
ISO 15407-2 Valves



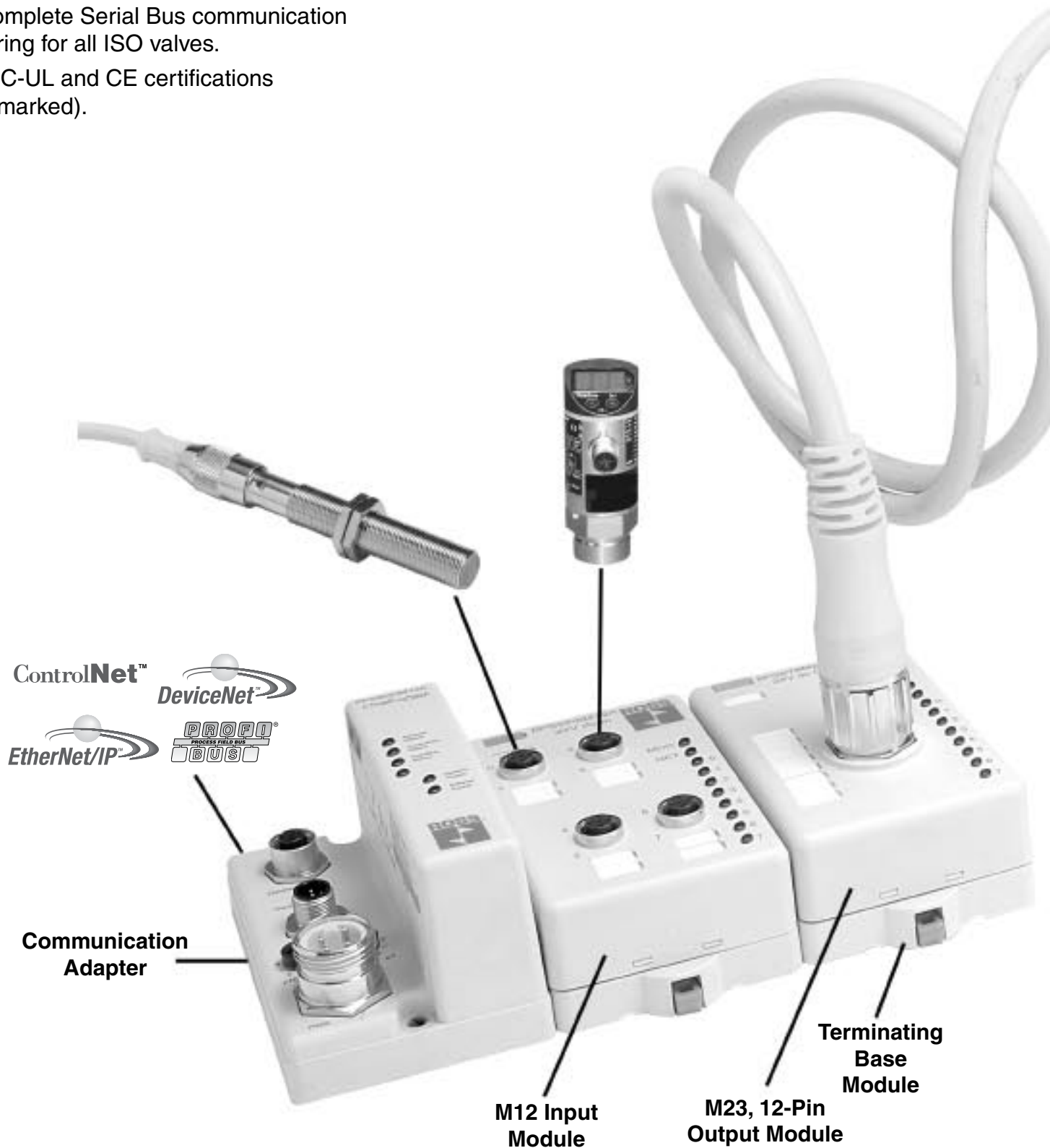
32 Output  
Valve Driver  
Module

I/O  
Module  
Base

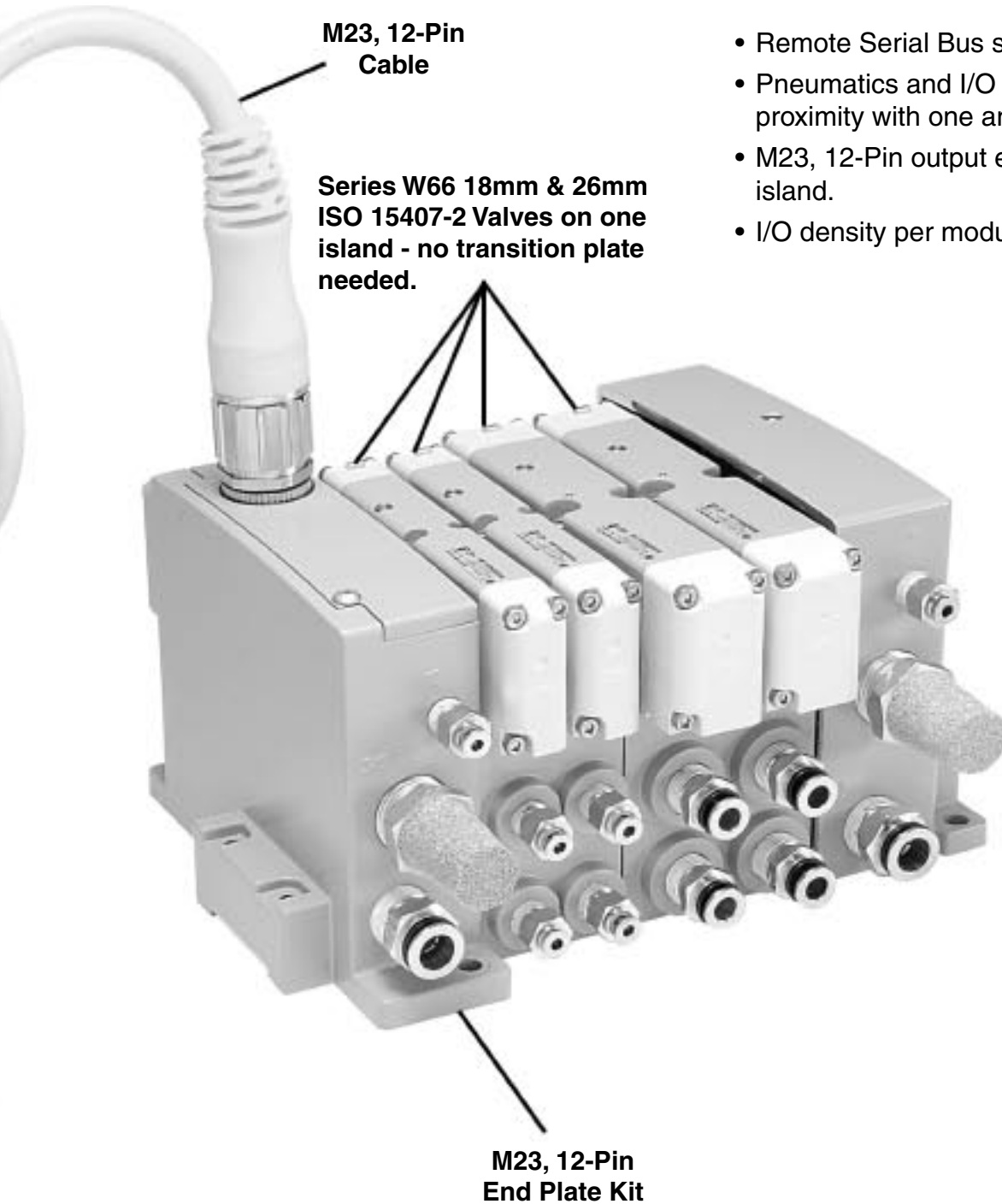
# Serial Bus System

---

- A complete Serial Bus communication offering for all ISO valves.
- UL, C-UL and CE certifications (as marked).



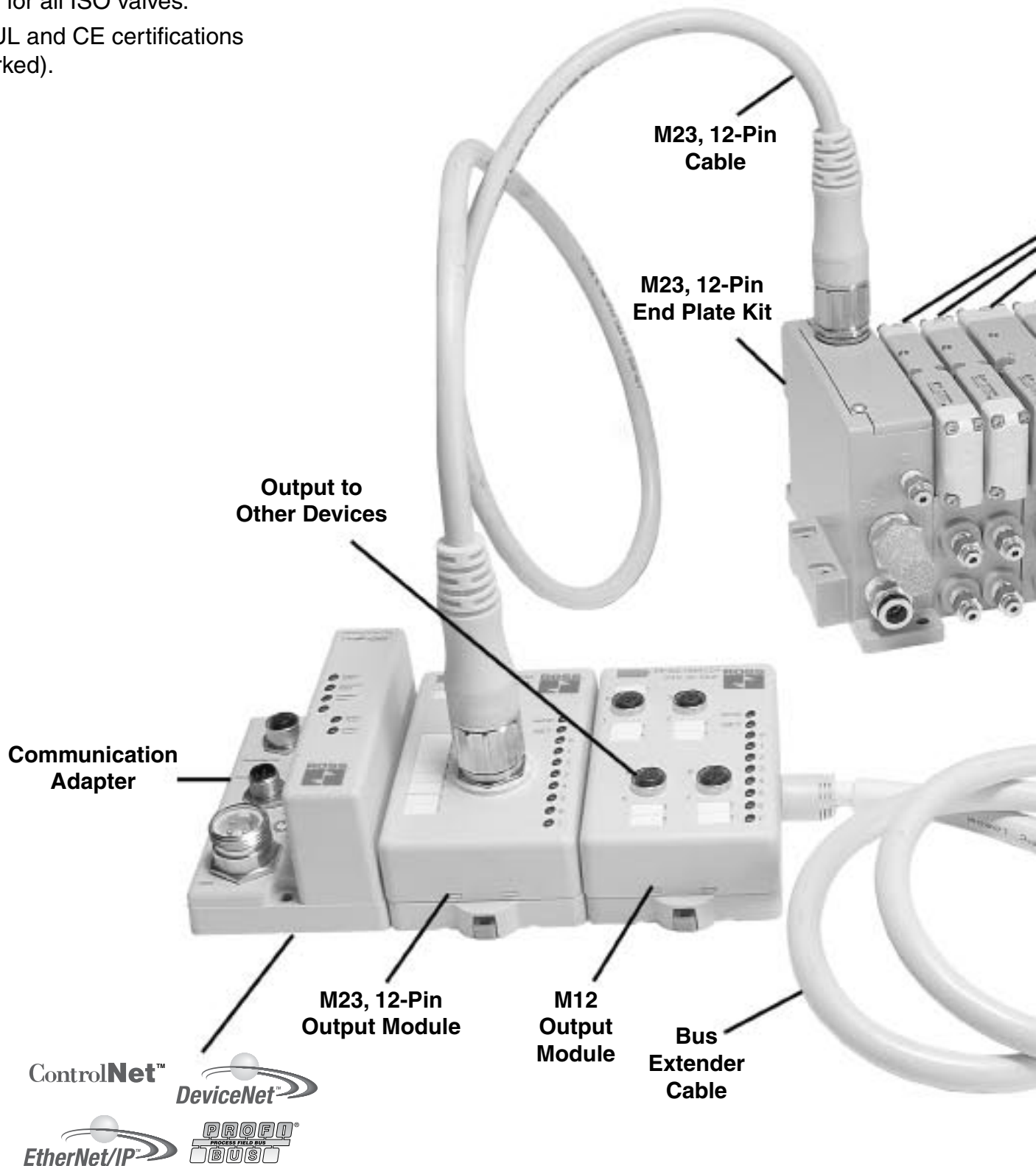
# I/O - Remote Configuration



- Remote Serial Bus system.
- Pneumatics and I/O are not in close proximity with one another.
- M23, 12-Pin output extension to remote valve island.
- I/O density per module = 8.

# Serial Bus System

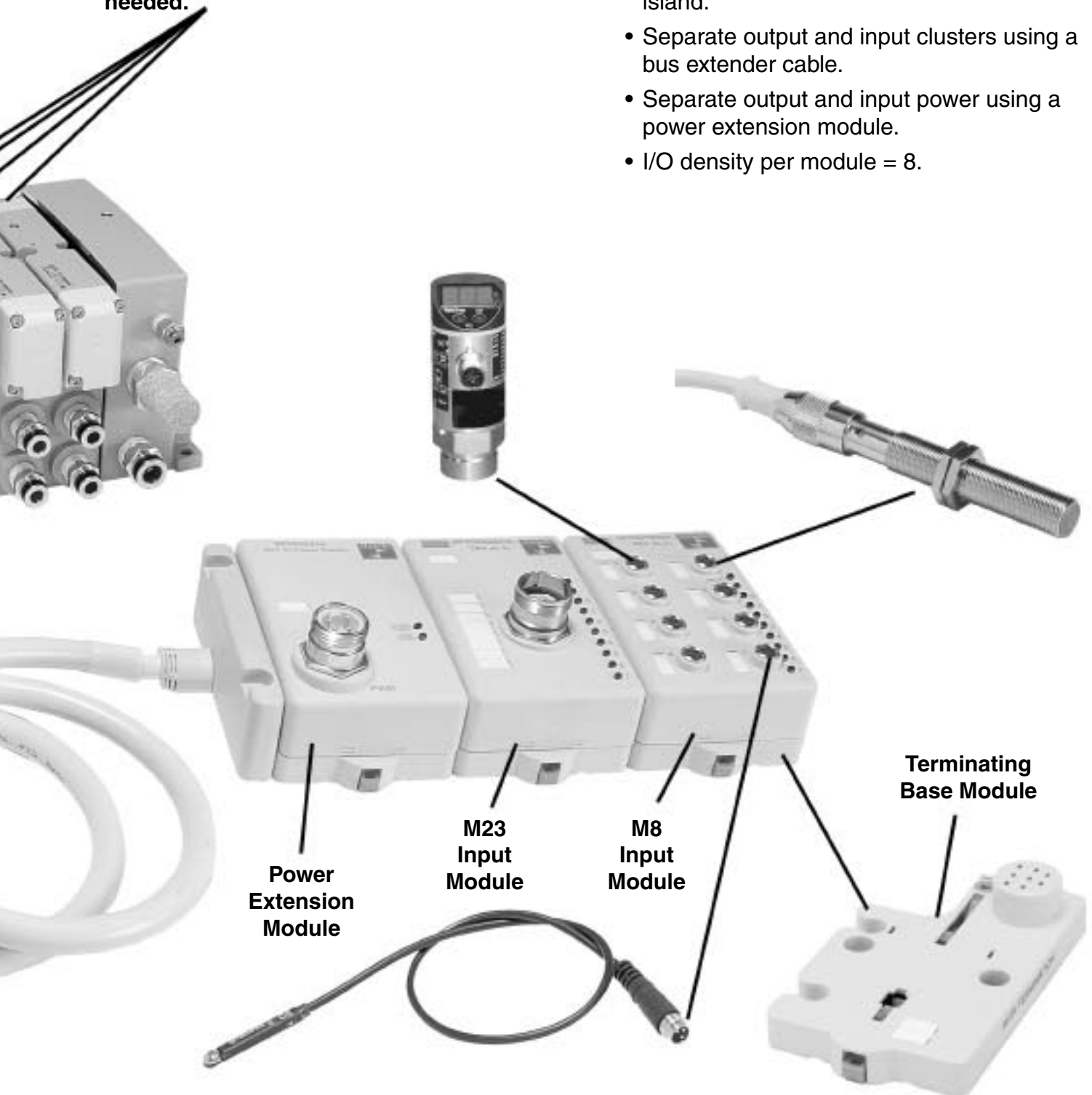
- A complete Serial Bus communication offering for all ISO valves.
- UL, C-UL and CE certifications (as marked).



# I/O - Compartmentalized Remote Configuration

Series W66 18mm & 26mm ISO 15407-2 Valves on one island - no transition plate needed.

- Remote Serial Bus system.
- Pneumatics and I/O are not in close proximity with one another.
- M23, 12-Pin output extension to remote valve island.
- Separate output and input clusters using a bus extender cable.
- Separate output and input power using a power extension module.
- I/O density per module = 8.



# ISO Size 00 & 0 Valves

---

## 15407-1 & 2

### Specifications

Series W66, Size 00: 0.55 Cv (18mm)

Series W66, Size 0: 1.1 Cv (26mm)

### Materials of Construction

- End Caps: PBT
- Fasteners: Zinc Plated Steel
- Valve Body: Aluminum
- Coils: Thermoset Plastic

### Operating Pressure

- Vacuum to 145 PSIG
- Minimum Operating Pressure
  - 2-Position: 25 PSI
  - 3-Position: 35 PSI

### Ports

- NPT and BSPP “G” Standard

### Manifolds

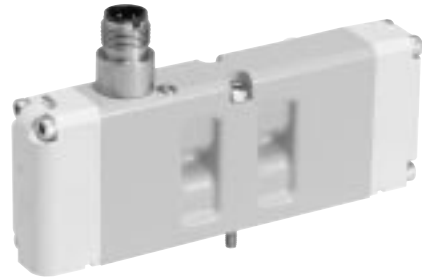
- Terminal Block Wiring (Series W66, Size 0 Only)
- Collective Wiring
  - 25-Pin, D-Sub
  - 19-Pin Round
  - 16 Point Terminal Strip
  - M23, 12-Pin
  - Serial Bus Field Bus

### Certification / Approval

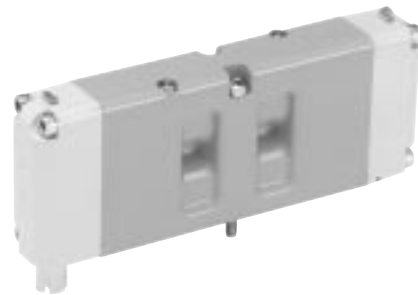
- Approved to be CE Marked
- CSA / C-US Approved
- NEMA 4
- IP65
- Manifold and Subbase Ports Meet ISO 1179 Specifications

### Solenoids

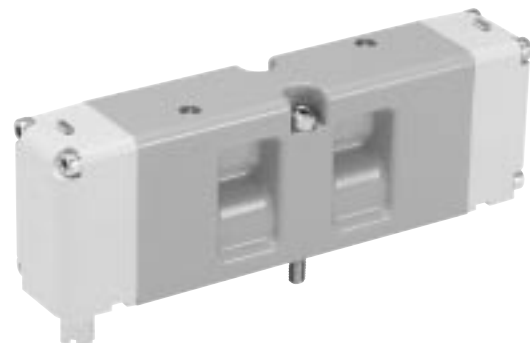
- Surge Suppression (Standard)
- Low Watt – 1.0, 24VDC, 2.0VA, 120VAC
- Indicator Lights



**Series W66 (15407-1)**  
**Size 00 (18mm), Single Solenoid (5/2)**



**Series W66 (15407-2)**  
**Size 00 (18mm), Double Solenoid (5/2)**



**Series W66 (15407-2)**  
**Size 0 (26mm), Double Solenoid (5/3)**  
**Open Center**

# Series W66 Valve Ordering Code

**W66**

**76**

**A**

**0**

**4**

**01**

**W**

Function*		Remote Pilot	Count
4-Way 2-Position	Remote Pilot	56	
	Solenoid Pilot	76	
4-Way 3-Position	Remote Pilot	57	
	Solenoid Pilot	77	
Dual 3-Way 2-Position	Normally Open	70	
	Normally Closed	75	
	NC / NO NC - 14 End	78	

Basic Size	
Size 00 (18mm)	0
Size 0 (26mm)	1

Options*		Voltage		
4-Way 2-Position	Single	Plug-In (15407-2)	Non-Locking Overrides	Internal Pilot - 01
			External Pilot - 51	
		Locking Overrides	Internal Pilot - 11	
			External Pilot - 21	
	Drop Cord (15407-1)	Non-Locking Overrides	Internal Pilot - 61	
			External Pilot - 81	
		Locking Overrides	Internal Pilot - 71	
			External Pilot - 91	
	Double	Plug-In (15407-2)	Non-Locking Overrides	Internal Pilot - 07
			External Pilot - 57	
			Locking Overrides	Internal Pilot - 17
			External Pilot - 27	
Drop Cord (15407-1)		Non-Locking Overrides	Internal Pilot - 67	
		External Pilot - 87		
		Locking Overrides	Internal Pilot - 77	
		External Pilot - 97		
4-Way 3-Position	Closed Center	Plug-In (15407-2)	Non-Locking Overrides	Internal Pilot - 01
			External Pilot - 51	
		Locking Overrides	Internal Pilot - 11	
			External Pilot - 21	
	Drop Cord (15407-1)	Non-Locking Overrides	Internal Pilot - 61	
		External Pilot - 81		
		Locking Overrides	Internal Pilot - 71	
		External Pilot - 91		
	Power Center	Plug-In (15407-2)	Non-Locking Overrides	Internal Pilot - 03
			External Pilot - 53	
			Locking Overrides	Internal Pilot - 13
			External Pilot - 23	
Drop Cord (15407-1)		Non-Locking Overrides	Internal Pilot - 63	
		External Pilot - 83		
		Locking Overrides	Internal Pilot - 73	
		External Pilot - 93		
Open Center	Plug-In (15407-2)	Non-Locking Overrides	Internal Pilot - 07	
		External Pilot - 57		
		Locking Overrides	Internal Pilot - 17	
		External Pilot - 27		
	Drop Cord (15407-1)	Non-Locking Overrides	Internal Pilot - 67	
		External Pilot - 87		
		Locking Overrides	Internal Pilot - 77	
		External Pilot - 97		
Dual 3-Way 2-Position	Plug-In (15407-2)	Non-Locking Overrides	Internal Pilot - 07	
		Locking Overrides	Internal Pilot - 17	
	Drop Cord (15407-1)	Non-Locking Overrides	Internal Pilot - 67	
		Locking Overrides	Internal Pilot - 77	

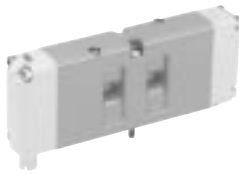
\* Be sure to choose Options from the correct list. For example, if a Function of 4-Way 2-Position is chosen, then only choose Options from the section listed for that function. See the light gray-shaded columns of the Function and Options lists.



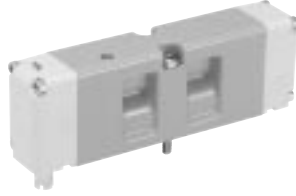
# Plug-in, Series W66 (15407-2)

## Size 00 (18mm) & Size 0 (26mm) Common Model Numbers

### Single Solenoid 2-Position

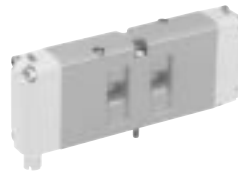


Series W66, Size 00

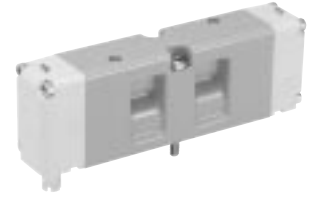


Series W66, Size 0

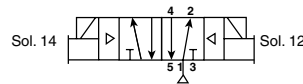
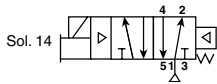
### Double Solenoid 2-Position



Series W66, Size 00



Series W66, Size 0

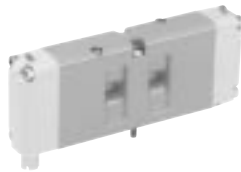


<b>Series W66 Size 00</b>	<b>W6676A0401Z W6676A0401W</b>	120VAC 24VDC	0.55 Cv
<b>Series W66 Size 0</b>	<b>W6676A1401Z W6676A1401W</b>	120VAC 24VDC	1.1 Cv

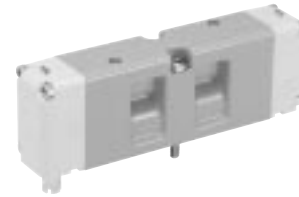
<b>Series W66 Size 00</b>	<b>W6676A0407Z W6676A0407W</b>	120VAC 24VDC	0.55 Cv
<b>Series W66 Size 0</b>	<b>W6676A1407Z W6676A1407W</b>	120VAC 24VDC	1.1 Cv

**Remote Pressure Control Models Available (2 & 3-Position) – Consult ROSS**

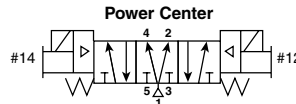
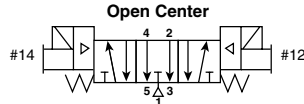
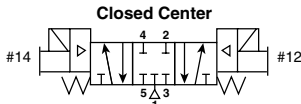
### Double Solenoid 3-Position Closed Center 3-Position Open Center 3-Position Power Center



Series W66, Size 00



Series W66, Size 0



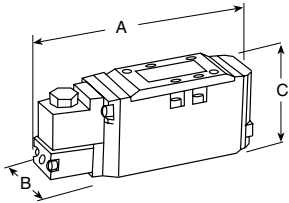
Closed Center			
<b>Series W66 Size 00</b>	<b>W6677A0401Z W6677A0401W</b>	120VAC 24VDC	0.50 Cv
<b>Series W66 Size 0</b>	<b>W6677A1401Z W6677A1401W</b>	120VAC 24VDC	1.0 Cv
Open Center			
<b>Series W66 Size 00</b>	<b>W6677A0407Z W6677A0407W</b>	120VAC 24VDC	0.50 Cv
<b>Series W66 Size 0</b>	<b>W6677A1407Z W6677A1407W</b>	120VAC 24VDC	1.0 Cv

Power Center			
<b>Series W66 Size 00</b>	<b>W6677A0403Z W6677A0403W</b>	120VAC 24VDC	0.50 Cv
<b>Series W66 Size 0</b>	<b>W6677A1403Z W6677A1403W</b>	120VAC 24VDC	1.0 Cv

# W65 Spool and Sleeve Valves

## for ISO Bases (5599-2)

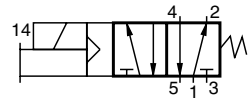
### 5/2 Valves – Single Solenoid Pilot



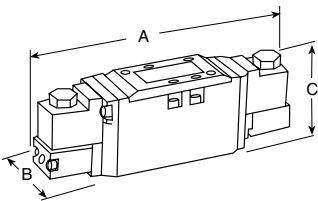
ISO Size	Avg. C <sub>v</sub>	Port Size	Valve Model Number*	Weight lb. (kg)
1	1.0	1/4-3/8	W6576A2401	1.5 (0.7)
2	2.3	3/8-1/2	W6576A3401	2.0 (1.0)
3	3.4	1/2-3/4	W6576A4401	3.5 (1.6)

\*Valve dimensions on next page.

The W65 Series has a base electrical connector which eliminates the need to disconnect wires to remove the valve. This eliminates dropcords, simplifies maintenance and connection to Serial Data Communication systems. For more information, request Bulletin 379B.

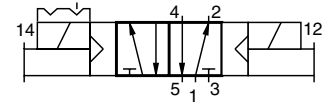


### 5/2 Valves – Double Solenoid Pilot

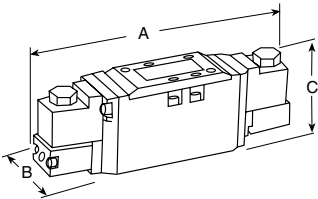


ISO Size	Avg. C <sub>v</sub>	Port Size	Valve Model Number*	Weight lb. (kg)
1	1.0	1/4-3/8	W6576A2407	2.0 (1.0)
2	2.3	3/8-1/2	W6576A3407	2.5 (1.2)
3	3.4	1/2-3/4	W6576A4407	4.0 (1.9)

\*Valve dimensions on next page.



### 5/3 Valves – Double Solenoid Pilot

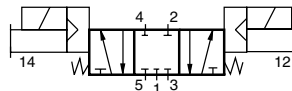


ISO Size	Avg. C <sub>v</sub>	Port Size	Valve Model Number*			Weight lb. (kg)
			Power Center	Closed Center	Open Center	
1	1.0	1/4-3/8	W6577A2902	W6577A2401	W6577A2407	2.0 (1.0)
2	2.3	3/8-1/2	W6577A3901	W6577A3401	W6577A3407	2.5 (1.2)
3	3.4	1/2-3/4	W6577A4900	W6577A4401	W6577A4407	4.0 (1.9)

\*Valve dimensions on next page.



POWER CENTER



CLOSED CENTER



OPEN CENTER

**STANDARD SPECIFICATIONS:** For valves on this page.

**Solenoids:** Rated for continuous duty. All solenoids have built-in Surge Suppression and Indicator Light. Standard voltages 100–110 volts 50 Hz; 100–120 volts 60 Hz; 24, 110 volts DC

**Power Consumption:** Each solenoid. 6.5 VA holding on 50 or 60 Hz; 3.5 watts on DC (at 10 bar).

**Ambient Temperature:** 40° to 120°F (4° to 50°C).

**Media Temperature:** 40° to 175°F (4° to 80°C).

**Flow Media:** Filtered air. 5 micron recommended.

**Inlet Pressure:** Standard- Size 1: 2-10 bar, Size 2: 1-10 bar, Size 3: 1-10 bar. All sizes available up to 16 bar.

**Pilot Supply:** Internal/external supply selected automatically. Required pressure at least 30 PSIG (2 bar)

**Certification / Approval:** CSA

**Materials of Construction:**

End Caps & Valve Body: Die Cast Aluminum

Fasteners: Zinc Plated Steel

Spool & Sleeve: Stainless Steel

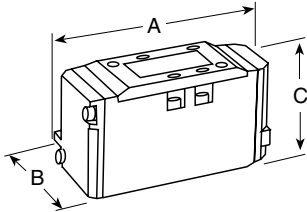
Coils: Thermoset Plastic



# W65 Spool and Sleeve Valves

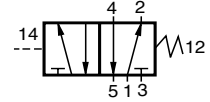
## for ISO Bases (5599-2)

### 5/2 Valves – Single Remote Pressure Control Spring Return

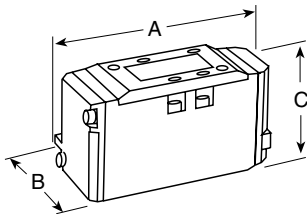


ISO Size	Avg. C <sub>v</sub>	Port Size	Valve Model Number*	Weight lb. (kg)
1	1.0	1/4-3/8	W6556A2411	0.8 (0.4)
2	2.3	3/8-1/2	W6556A3411	1.5 (0.7)
3	3.4	1/2-3/4	W6556A4411	3.0 (1.4)

\*Valve dimensions shown below.

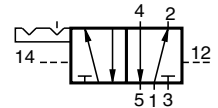


### 5/2 Valves – Double Remote Pressure Momentary Control

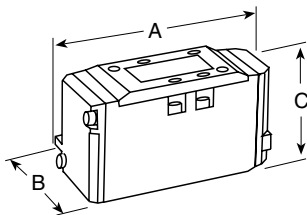


ISO Size	Avg. C <sub>v</sub>	Port Size	Valve Model Number*	Weight lb. (kg)
1	1.0	1/4-3/8	W6556A2417	0.8 (0.4)
2	2.3	3/8-1/2	W6556A3417	1.5 (0.7)
3	3.4	1/2-3/4	W6556A4417	3.0 (1.4)

\*Valve dimensions shown below.

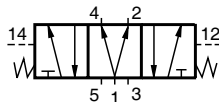


### 5/3 Valves – Double Remote Pressure Control

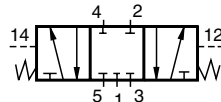


ISO Size	Avg. C <sub>v</sub>	Port Size	Valve Model Number*			Weight lb. (kg)
			Power Center	Closed Center	Open Center	
1	1.0	1/4-3/8	W6557A2900	W6557A2411	W6557A2417	1.0 (0.5)
2	2.3	3/8-1/2	W6557A3901	W6557A3411	W6557A3417	1.5 (0.7)
3	3.4	1/2-3/4	W6557A4900	W6557A4411	W6557A4417	3.0 (1.4)

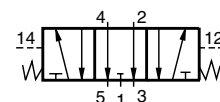
\*Valve dimensions shown below.



POWER CENTER



CLOSED CENTER



OPEN CENTER

#### OVERALL DIMENSIONS inches (mm)

Type	Size	A	B	C
Sgl. Sol.	1	6.3 (161)	1.6 (41)	2.7 (69)
Sgl. Sol.	2	7.3 (186)	2.1 (52)	2.8 (71)
Sgl. Sol.	3	8.5 (216)	2.6 (67)	3.1 (78)
Db. Sol.	1	8.8 (224)	1.6 (41)	2.7 (69)
Db. Sol.	2	9.0 (228)	2.1 (52)	2.8 (71)
Db. Sol.	3	10.0 (254)	2.6 (67)	3.1 (79)
Rem. Pressure	1	4.8 (121)	1.6 (41)	2.7 (68)
Rem. Pressure	2	5.8 (148)	2.1 (52)	2.8 (71)
Rem. Pressure	3	7.0 (178)	2.6 (67)	3.1 (79)

**STANDARD SPECIFICATIONS:** For valves on this page.

**Ambient Temperature:** 40° to 175°F (4° to 80°C).

**Media Temperature:** 40° to 175°F (4° to 80°C).

**Flow Media:** Filtered air. 5 micron recommended.

**Inlet Pressure:** Standard- Size 1: 2-10 bar, Size 2: 1-10 bar.

Size 3: 1-10 bar. All sizes available up to 16 bar.

**Pilot Supply:** Internal/external supply selected automatically. Required pressure at least 30 PSIG (2 bar)

**Materials of Construction:**

End Caps & Valve Body: Die Cast Aluminum

Fasteners: Zinc Plated Steel

Spool & Sleeve: Stainless Steel

# Plug-in, Series W66 (15407-2)

## Size 00 & 0 Manifold / Subbase Kits

### Manifold and Subbase Kit Ordering Code

**R PS5511 13 C P**

Basic Series	
ISO 15407-2 18mm, Series W66, Size 00	PS5611
ISO 15407-2 26mm, Series W66, Size 0	PS5511

Mounting Style / Port Size	
Series W66, Size 00	
Manifold with 1/8 NPT End Ports	51
Manifold with 1/8 BSPP End Port	52
Manifold with 1/8 NPT Bottom / End Port	61
Manifold with 1/8 BSPP Bottom / End Port	62
Series W66, Size 0	
Subbase with 1/4 NPT Side Ports	13
Subbase with 1/4 BSPP Side Ports	14
Subbase with 1/4 NPT Bottom / Side Port	23
Subbase with 1/4 BSPP Bottom / Side Port	24
Manifold with 1/4 NPT End Port	53
Manifold with 1/4 BSPP End Port	54
Manifold with 1/4 NPT Bottom / End Port	63
Manifold with 1/4 BSPP Bottom / End Port	64

Enclosures / Lead Length	
C†	Terminal Strip
J*	Circuit Board, Single Address
M*	Circuit Board, Double Address
N*§	Single Address Circuit Board with 32 Output Expansion
P*‡	Double Address Circuit Board with 32 Output Expansion

\* Manifolds Only.

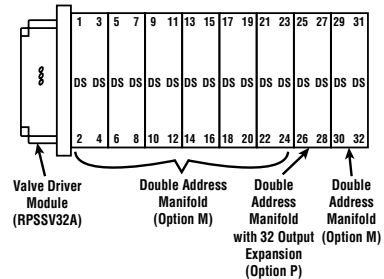
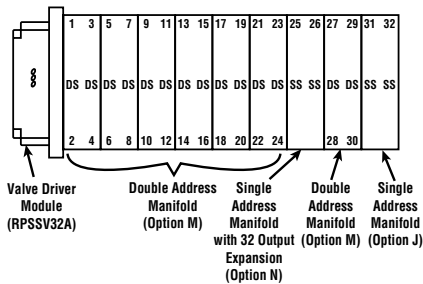
† Available with Series W66, Size 0 (26mm).

§ When using an Series W66, Size 0 or Series W66, Size 00 manifold base with the "N" Enclosure / Lead Length option:

- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 26 are a single address base. Use a base with "N" Enclosure / Lead Length option (this is a single address board with a ribbon connection from the valve driver module, RPSSV32A).
- Outputs 27 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.

‡ When using an Series W66, Size 0 or Series W66, Size 00 manifold base with the "P" Enclosure / Lead Length option:

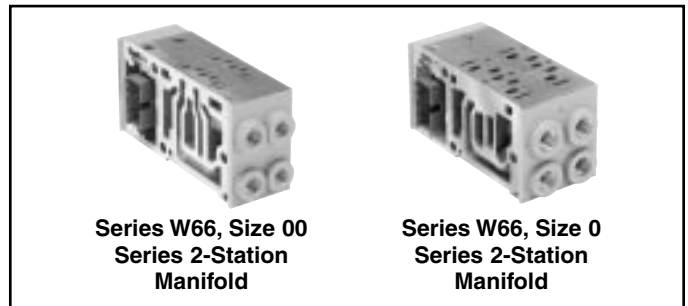
- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 28 are a double address base. Use a base with "P" Enclosure / Lead Length option (this is a double address board with a ribbon connection from the valve driver module, RPSSV32A).
- Outputs 29 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.



### Subbase Kits



### Manifold Kits



# Plug-in, Series W65 (5599-2)

## Size 1, 2, & 3 Manifold / Subbase Kits

### Manifold and Subbase Kit Ordering Code

**R PS4011 55 A - C P**

Basic Series	
Size 1	PS4011
Size 2	PS4111
Size 3	PS4211

Wiring Options	
Blank	None
C	Chrysler
F	SAE / Ford
G	General Motors

Enclosures / Lead Length	
7	3-Pin Mini Connector in Base
8*	4-Pin M12 Micro Connector in Base
9	5-Pin Mini Connector in Base
<b>A</b>	<b>6" Leads</b>
C	Terminal Block
J†	Circuit Board, Single Address
<b>M†</b>	<b>Circuit Board, Double Address</b>
T*	SAM Gen 3.0 Wiring

**Note:**

When using the Enclosure / Lead Length "J" or "M" option:

12VDC - Maximum number of coils is 13

24VDC - Maximum number of coils is 21

120VAC - Coils limited by the number of pins available in the connector

(25-Pin D-Sub = 24 coils, 19-Pin Brad Harrison = 16, 12-Pin M23 = 8)

240VAC - Must use "A" or "C" Option, Lead Wires or Terminal Blocks

\* Valve Voltage Code "B9" Only.

† Not Available with Subbase Kits.

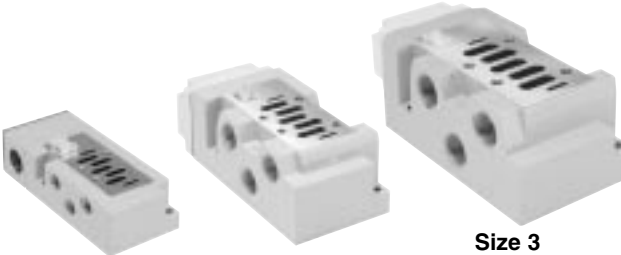
#### Mounting Base Style / Port Size

Mounting Base Style / Port Size	Subbase							
	3/8 NPT Side Ports	1/2 NPT Side Ports	3/4 NPT Side Ports					
Size 1	Subbase: 3/8 NPT Side Ports	15	Size 2	Subbase: 1/2 NPT Side Ports	17	Size 3	Subbase: 3/4 NPT Side Ports	19
	Subbase: 3/8 BSPP Side Ports	16*		Subbase: 1/2 BSPP Side Ports	18*		Subbase: 3/4 BSPP Side Port	10*
	Manifold: 1/4 NPT End Ports	53		Subbase: 1/2 NPT Bottom / End Port	27		Subbase: 3/4 NPT Bottom / End Port	29
	Manifold: 1/4 BSPP End Ports	54		Subbase: 1/2 BSPP Bottom / End Port	28		Subbase: 3/4 BSPP Bottom / End Port	20
	<b>Manifold: 3/8 NPT End Ports</b>	<b>55</b>		Manifold: 3/8 NPT End Ports	55		Manifold: 1/2 NPT End Port	57
	Manifold: 3/8 BSPP End Ports	56*		Manifold: 3/8 BSPP End Ports	56*		Manifold: 1/2 BSPP End Ports	58*
	Manifold: 3/8 NPT Bottom / End Port	65†		<b>Manifold: 1/2 NPT End Port</b>	<b>57</b>		<b>Manifold: 3/4 NPT End Port</b>	<b>59</b>
	Manifold: 3/8 BSPP Bottom / End Port	66*†		Manifold: 1/2 BSPP End Ports	58*		Manifold: 3/4 BSPP End Port	50*
		Manifold: 1/2 NPT Bottom / End Port	67	Manifold: 3/4 NPT Bottom / End Port	69			
		Manifold: 1/2 BSPP Bottom / End Port	68*	Manifold: 3/4 BSPP Bottom / End Port	60*			

\* BSPP ISO 1179 Specifications.

† #1 Bottom Port - 1/4".


### Subbase Kits



**Automotive Connectors**  
 Mounted in 1/2" Conduit Port

- 3-Pin - Wired for Single Solenoid
- 4-Pin / 5-Pin - Wired for Double Solenoid

### Manifold Kits



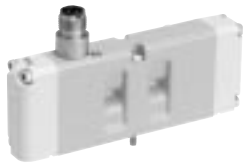
**Automotive Connectors**  
 Mounted in Individual Manifold Conduit Cover

- 3-Pin - Wired for Single Solenoid
- 4-Pin / 5-Pin - Wired for Double Solenoid

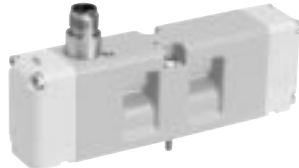
# Drop-cord, Series W66 (15407-1)

## Size 00 (18mm) & Size 0 (26mm) Common Model Numbers

### Single Solenoid 2-Position

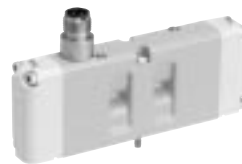


Series W66, Size 00: 18mm

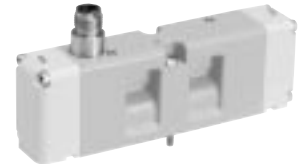


Series W66, Size 0: 26mm

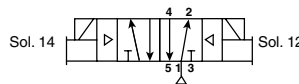
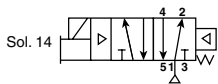
### Double Solenoid 2-Position



Series W66, Size 00: 18mm



Series W66, Size 0: 26mm

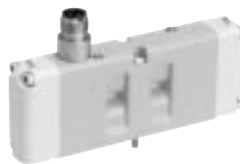


Series W66 Size 00	W6676A0461W	24VDC	0.55 Cv
Series W66 Size 0	W6676A1461W	24VDC	1.1 Cv

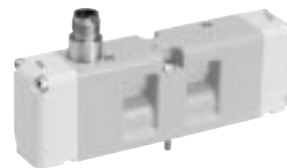
Series W66 Size 00	W6676A0467W	24VDC	0.55 Cv
Series W66 Size 0	W6676A1467W	24VDC	1.1 Cv

Remote Pressure Control Models Available (2 & 3-Position) – Consult ROSS

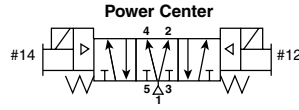
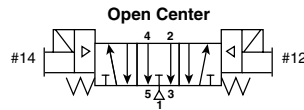
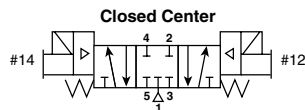
### Double Solenoid 3-Position Closed Center 3-Position Open Center 3-Position Power Center



Series W66, Size 00: 18mm



Series W66, Size 0: 26mm



Closed Center			
Series W66 Size 00	W6677A0461W	24VDC	0.50 Cv
Series W66 Size 0	W6677A1461W	24VDC	1.0 Cv
Open Center			
Series W66 Size 00	W6677A0467W	24VDC	0.50 Cv
Series W66 Size 0	W6677A1467W	24VDC	1.0 Cv

Power Center			
Series W66 Size 00	W6677A0463W	24VDC	0.50 Cv
Series W66 Size 0	W6677A1463W	24VDC	1.0 Cv

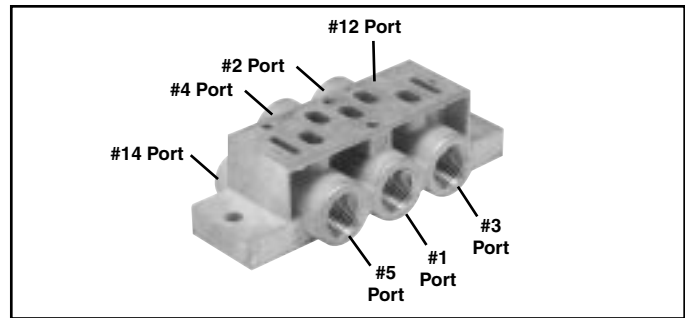
# Drop-cord, 15407-1

## Size 00 & 0 Manifold / Subbase / End Plate Kits

### Individual Subbase Kit with Side Ports

Size	Port Size	Kit Number	
		NPT	BSPP "G"
Size 00	1/8"	RPL02-01-80	RPL02-01-70
Size 0	1/4"	RPL01-02-80	RPL01-02-70

Note: Can be used for external, single, or double remote pilot.

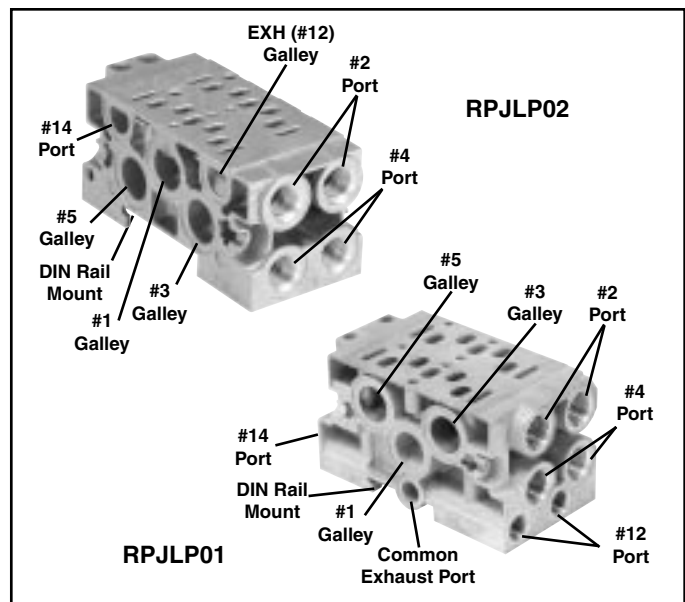


### Two Station Manifold Base with Side Ports

Size	Port Size	Kit Number	
		NPT	BSPP "G"
Size 00	1/8"	RPJLP02-201-80*	RPJLP02-201-70*
Size 0	1/4"	RPJLP01-202-80*	RPJLP01-202-70*

\* Can be used for external pilot, not remote pilot.

Note: Gaskets and assembly hardware included.



### Two Station Manifold Base with Side Ports

Size	Port Size	Kit Number	
		NPT	BSPP "G"
Size 0	1/4"	RPJL01-202-80*	RPJL01-202-70*

\* Can be used for single and double remote pilot and external pilot using the #14 Port.

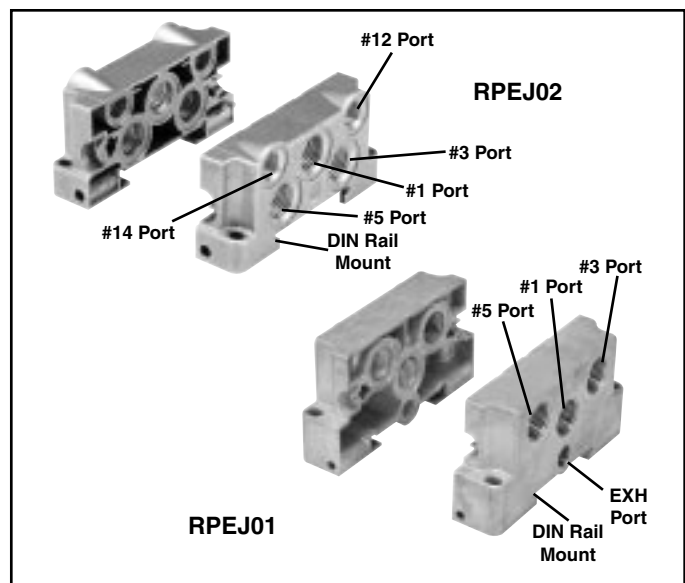
Note: Gaskets and assembly hardware included.

### End Plate Kit for Side Ported Two Station Manifold Base

Size	Port Size	Kit Number	
		NPT	BSPP "G"
Size 00	1/4"	RPEJ02-02-80*	RPEJ02-02-70*
Size 0	3/8"	RPEJ01-03-80†	RPEJ01-03-70†

\* Use with RPJLP02.....

† Use with RPJLP01 or RPJL01.....



# Manifolds — Series W66

## Size 00 & 0 (15407-2)

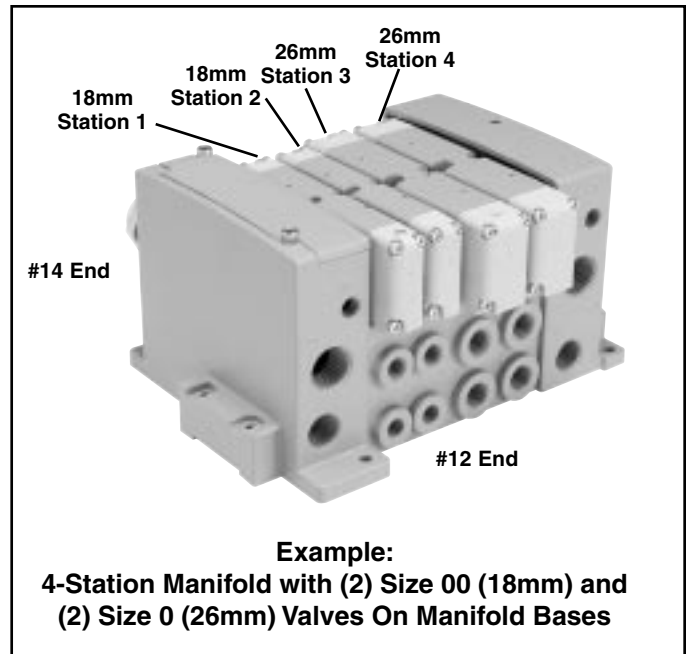
### How To Order Manifold Assemblies

1. List Manifold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold.  
The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)

### Maximum Solenoids Energized Simultaneously (Interconnect Circuit Boards)

Size 00 & 0	Voltage Code	25-Pin D-Sub	19-Pin Round	Single 12-Pin M23	Serial Bus
24VDC	W	24	16	8	32
120VAC*	Z	24	16	8	32

\* Not CSA certified for 25-Pin, D-Sub option.



### Manifold Assembly Model Number

**AA 00 D 0 04 -**

End Plate Type	
25-Pin	D
19-Pin	E
16 Point Terminal Strip	F
M23, 12-Pin	G
Standard - Non-Collective Wiring	S
4-Pin, M12, Connector 15407-1	U**
Serial Bus	Y*

\* Valve Driver Module included. Must order communication modules separately.

\*\* Must be used with Valve Series 02 & 01.

Transition Plate	
Blank	No Transition Plate
B*	00 / 0 to H2

\* Not Available with End Plate Type "U".

Number of Stations*	
02	
04	
•	
24	
•	
32†	

\* Must be ordered in multiples of (2).  
† Maximum Number

Port Type	
0	NPT
1	BSPP "G"

### Example

Application requires a 4-Station manifold with a regulator on Station 2. (Two 18mm + Two 26mm Stations)

Item	Qty.	Part No.	Location
01	1	AAHBD004	
02	1	W6676A0401	Station 1
03	1	W6676A0407	Station 2
04	1	RPS5638166P	Station 2
05	1	RPS561151MP	Station 1 & 2
06	2	W6676A1407	Station 3 & 4
07	1	RPS551151MP	Station 3 & 4

**NOTE:** Construct manifold assemblies from left to right while looking at the ports. Valves must be ordered as External Pilot when using Interposed Regulator.

#### When using a Series W66, Size 0 or Series W66, Size 00 manifold base with the "N" Enclosure / Lead Length option:

- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 26 are a single address base. Use a base with "N" Enclosure / Lead Length option (this is a single address board with a ribbon connection from the valve driver module, RPSSV32A).
- Outputs 27 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.

#### When using an Series W66, Size 0 or Series W66, Size 00 manifold base with the "P" Enclosure / Lead Length option:

- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 28 are a double address base. Use a base with "P" Enclosure / Lead Length option (this is a double address board with a ribbon connection from the valve driver module, RPSSV32A).
- Outputs 29 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.

# Manifolds

## Size 1, 2 & 3 (5599-2)

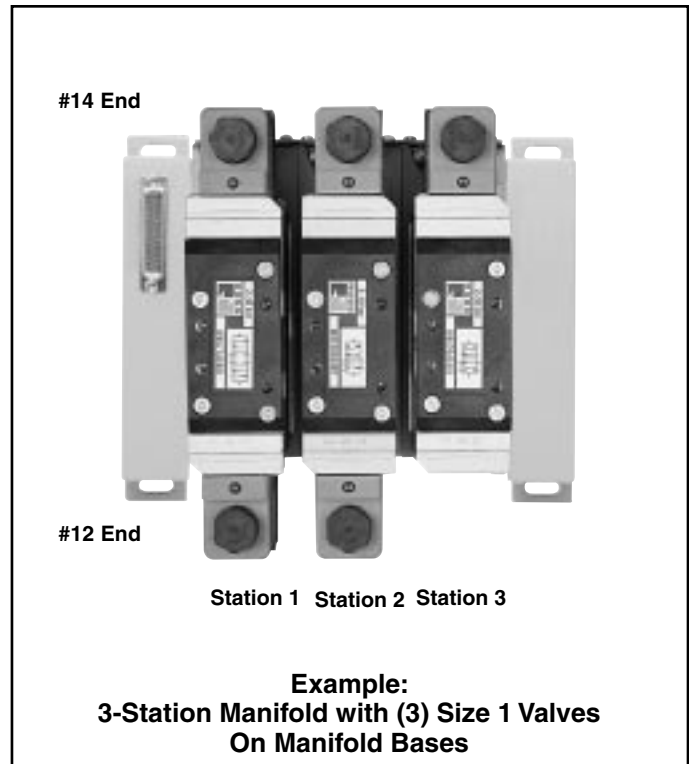
### How To Order Manifold Assemblies

1. List Manifold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold.  
The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)

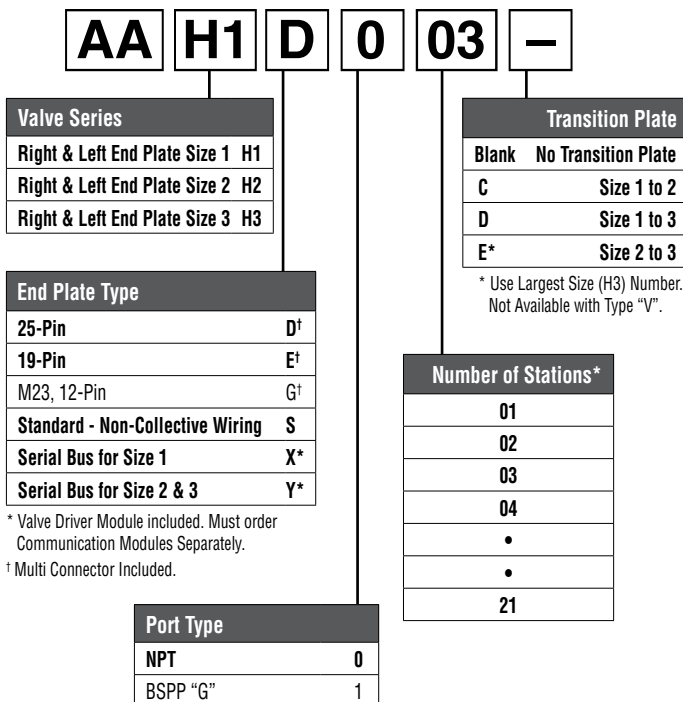
### Maximum Solenoids Energized Simultaneously (Interconnect Circuit Boards)

Voltage	Voltage Code	25-Pin D-Sub	19-Pin Round	Single 12-Pin M23	Serial Bus
24VDC	W	20	16	8	21
120VAC*	Z	24	16	8	N/A

\* Not CSA certified for 25-Pin, D-Sub option.



### Manifold Assembly Model Number — Size 1, 2 & 3 (5599-2)



\* Valve Driver Module included. Must order Communication Modules Separately.

† Multi Connector Included.

### Example

Application requires a 3-Station manifold with a valve, regulator on Station 3.

Item	Qty.	Part No.	Location
01	1	AAH1E003	
02	1	W6577A2401 .....	Station 1
03	1	RPS401155MCP .....	Station 1
04	1	W6576A2407 .....	Station 2
05	1	RPS401155MCP .....	Station 2
06	1	W6576A2401 .....	Station 3
07	1	RPS401155MCP .....	Station 3

#### NOTE:

When using the Enclosure / Lead Length "J" or "M" option:

24VDC - maximum number of coils is 20.

120VAC - Coils limited by the number of pins available in the connector. (25-Pin, D-Sub = 24 coils; 19-Pin Brad Harrison = 16, 12-Pin, M23 = 8).

#### NOTE:

Construct manifold assemblies from left to right while looking at the cylinder ports.

Valves must be ordered as External Pilot when using Interposed Regulator.

## Size 00 & 0 End Plate Kits

**R PS56 20 01 0 P**

Basic Series	
ISO 15407, Size 00 (18mm) & Size 0 (26mm)	PS56

Thread Type	
0	NPT
1	BSPP "G"

End Plate Kit Type	
End Plate, Collective Wiring	20
End Plate, Non-Collective Wiring	31

Options	
01*	Non-Collective Wiring
L2†§	25-Pin, D-Sub
L3†§	19-Pin, Round, Brad Harrison
L4†§	12-Pin, M23
L5†§	16-Point Terminal Strip
L6†§	Serial Bus

\* Only Available with End Plate Kit Type "31" & Series W66, Size 0 Valves.

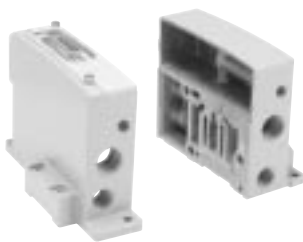
† Only Available with End Plate Kit Type "20".

§ 120VAC is not CSA rated.

‡ Valve Driver Module and 24 Output Cable Installed.

Must order communication modules separately.

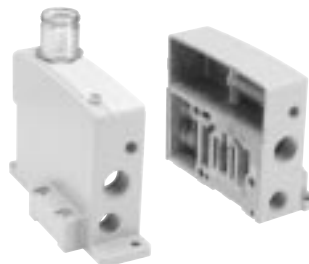
# Must Order Bases with Circuit Boards.



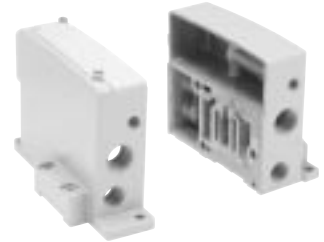
Series W66, Size 00 & 0  
25-Pin  
End Plates



Series W66, Size 00 & 0  
16-Point Terminal Strip  
End Plates



Series W66, Size 00 & 0  
19-Pin  
End Plates



Series W66, Size 00 & 0  
Non-Collective Wiring  
End Plates

# Series W65

## Size 1, 2, & 3 End Plate Kits

**R** **PS40** **20** **L2** **0** **C** **P**

Basic Series	
ISO 5599, Size 1	PS40
ISO 5599, Size 2	PS41
ISO 5599, Size 3	PS42

End Plate Kit Type	
End Plate, Collective Wiring	20
End Plate, Non-Collective Wiring	31

Engineering Level	
C	Current

Thread Type	
0	NPT
1	BSPP "G"

Options	
01*	Non-Collective Wiring
L1†**	Collective Wiring End Plate, Top Ported
L2†#	25-Pin, D-Sub
L3†#	19-Pin, Round, Brad Harrison
L4†#	12-Pin, M23
L6†#	Serial Bus

\* Only Available with End Plate Kit Type "31".

\*\* For PS41 and PS42 Kits Only.

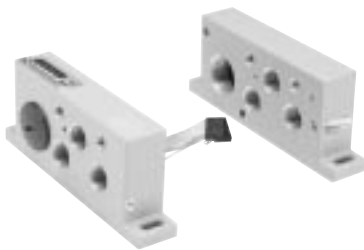
† Only Available with End Plate Kit Type "20".

o Must Order Collective Wiring Module Separately.

# 120VAC is Not CSA Rated.

^ Valve Driver Module and 24 Output Cable Installed. Must order communication modules separately.

+ Must Order Bases with Circuit Boards.



Size 1 25-Pin D-Sub  
End Plates



Size 1 Non-Collective Wiring  
End Plates



Size 1 19-Pin Round  
End Plates

## Transition Plates, Collective Wiring Modules

### 15407-2 & 5599-2 Plug-in Transition Plate Kit

Kit includes:

- 1 Left-hand end plate,
- 1 Transition plate,
- 1 Right-hand end plate, &
- 1 Valve Driver Module (when ordered with L6 option).

**R PS40 26 L2 0 C P**

Basic Series	
Size 1, 2, & 3	PS40
Size 00 & 0	PS56

Engineering Level	
Blank	Basic Series PS56
C	Basic Series PS40

Transition Plate Type	
Series W66, Size 0 / Series W66, Size 00 to Size 2	24*
Size 1 to 2 to 3	25
Size 1 to 3	26
Size 1 to 2	27
Size 2 to 3	28

\* Used Only with Basic Series PS56.

Thread Type	
0	NPT or No Ports
1	BSPP "G"

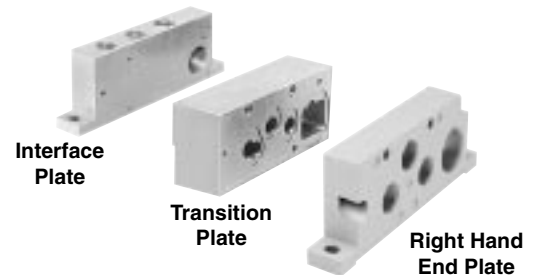
Options	
01	Non-Collective Wiring
L1*	Collective Wiring End Plate, Top Ported
L2	25-Pin, D-Sub
L3	19-Pin, Round, Brad Harrison
L4	12-Pin, M23
L5**	16-Pt. Terminal Strip
L6	Serial Bus

\* Used Only with Transition Plate Type "28". Must order Collective Wiring Modules Separately.

\*\* Only Available with Transition Plate Type "24".



**RK21R01100P**  
1 Inch Plastic Conduit Plug



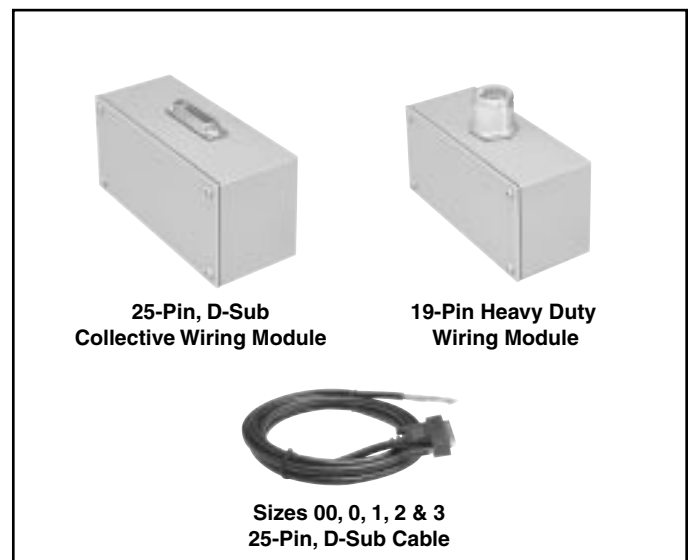
Size 1 to Size 2 Shown

### Collective Wiring Module Kits Size 2 & 3

Size	Kit Number
25-Pin, D-Sub Module**	<b>RSCD251MC</b>
M23, 12-Pin**	<b>RSCM231MC</b>
19-Pin Heavy Duty Round**	<b>RSCC191MC</b>
D-Sub Cable, Non-IP, 3 Meters	<b>RP8LMH25M3A</b>

\* Kit includes: Wiring Module with Circuit Board Connection, Gasket, Tie Rods and Bolts.

† Available with, ISO 5599-2, Sizes 2 & 3.



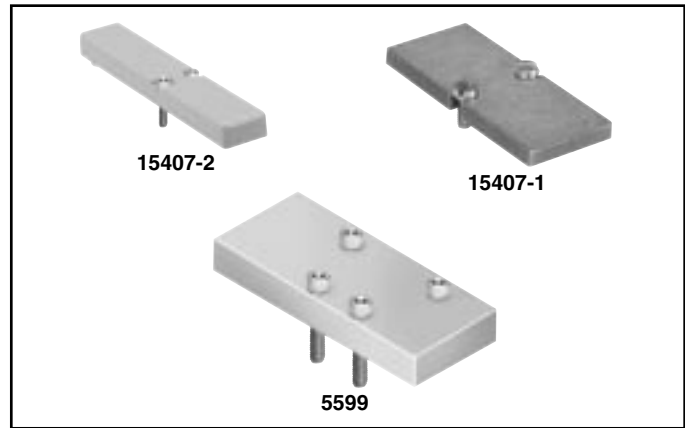
# Accessories

## Blank Stations, Port Isolation, Gaskets

### Blank Station Kits

Size	Kit Number		
	15407-2	15407-1	5599-2
Size 00	RPS5634P	RDX02BLK	—
Size 0	RPS5534P	RDX01BLK	—
Size 1	—	—	RPS4034CP
Size 2	—	—	RPS4134CP
Size 3	—	—	RPS4234CP

Kit includes: Blank Station Plate, Gasket, and Mounting Bolts.



### Manifold Port Isolation Kits Main Galley (1, 3, 5)

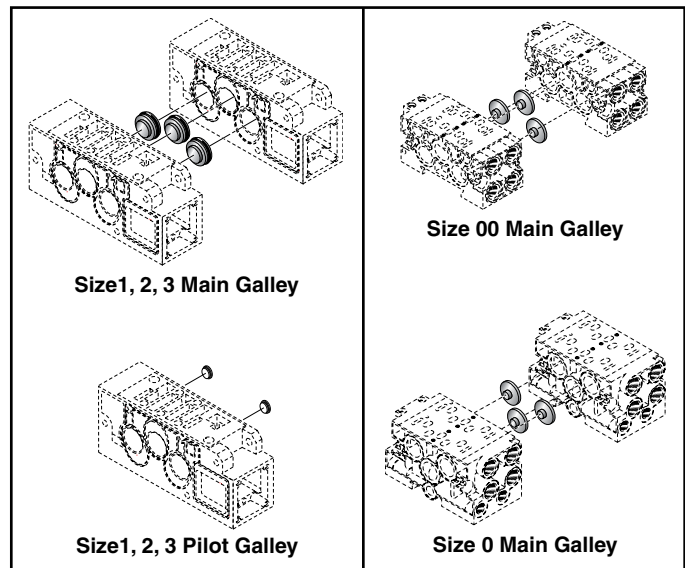
Size	Kit Number
Size 00	RD02BD0
Size 0	RD01BD0
Size 1	RPS4032CP
Size 2	RPS4132CP
Size 3	RPS4232CP

Kit includes: Plugs with O-rings.

### Pilot Galley

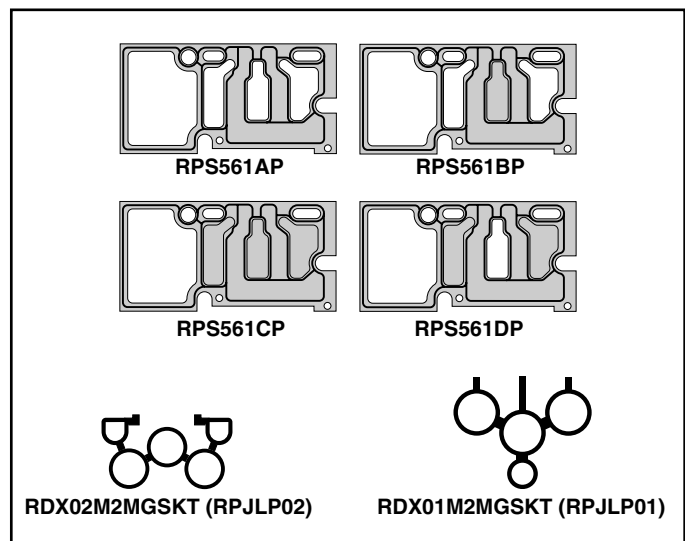
Size	Kit Number
1, 2, & 3	RPS4033CP

Kit includes: Plugs with O-rings.



### Manifold to Manifold Gasket Kits

15407-2				
Size	Standard	Blocked #1 Port	Blocked #1, 3, 5 Ports	Blocked #3, 5 Ports
Size 00	RPS561AP	RPS561BP	RPS561CP	RPS561DP
Size 0				
15407-1				
Size 00	RDX02M2MGSKT (RPJLP02)			
Size 0	RDX01M2MGSKT (RPJLP01)			
Size 1	RPS4013P	—	—	—
Size 2	RPS4113P	—	—	—
Size 3	RPS4213P	—	—	—



# Accessories

## Interposed Regulators

### Interposed Regulators Features

- Remote Air Pilot Operated for hard-to-reach pressure control.
- Unregulated Pilot Pressure to valve for consistent valve shifting regardless of pressure adjustment.

### Gauge Adapter Kit

Included with all Size 00 Regulators. Both kits are required on all Size 0 & 00 Regulators when the Regulator is on the last Station on the Right (14) End.

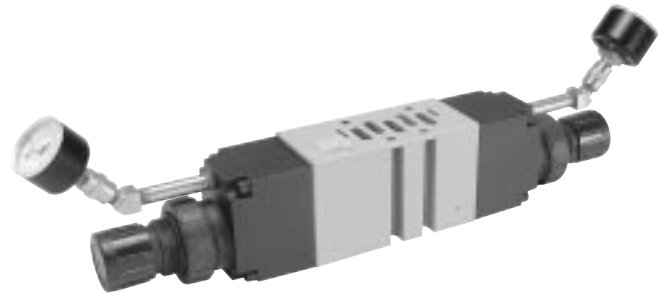


Description	Part Number
Gauge Kit	RPS5651160P
1/8" Female to 1/8" Female Coupling	R207P-2*
1/8" Male to 1/8" Male Long Nipple	RVS215PNL-2-15*

\* Included in Gauge Kit RPS5651160P



**Size 1**  
(Dual Interposed Regulator Shown)



**Size 2**  
(Dual Interposed Regulator Shown)



**Size 00 - 18mm**  
(Dual Interposed Regulator Shown)



**Size 0 - 26mm**  
(Single Interposed Regulator Shown)

# Accessories

## Interposed Regulator Kit Ordering Code

**R PS5637 1 6 6 P**

Basic Series	
Size 00	
15407-1, 18mm	PS5637
15407-2, 18mm	PS5638
Size 0	
15407-1, 26mm	PS5537
15407-2, 26mm	PS5538

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2

#2 Port Regulator / Gauge*	
2	2-60 PSIG w/o Gauge
3	5-125 PSIG w/o Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge

\* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

#4 Port Regulator / Gauge*	
2	2-60 PSIG w/o Gauge
3	5-125 PSIG w/o Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge

\* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

**R PS4037 1 6 6 C P**

Basic Series	
Size 1	
5599-1	PS4037
5599-2	PS4038
Size 2	
5599-1	PS4137
5599-1	PS4138
Size 3	
5599-1	PS4237
5599-1	PS4238

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2
Selector Regulator	3

#2 Port Regulator / Gauge*	
0**	Line By-Pass Plate
1	1-30 PSIG w/o Gauge
2	2-60 PSIG w/o Gauge
3	5-125 PSIG w/o Gauge
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge
C	Air Pilot w/60 PSIG Gauge
D	Air Pilot w/160 PSIG Gauge

\* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

\*\* Pressure Line By-Pass Option can only be used with Independent and Selector Regulators (Option 2 & 3 in Interposed Block Function).

#4 Port Regulator / Gauge*	
0**	Line By-Pass Plate
1	1-30 PSIG w/o Gauge
2	2-60 PSIG w/o Gauge
3	5-125 PSIG w/o Gauge
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge
C	Air Pilot w/60 PSIG Gauge
D	Air Pilot w/160 PSIG Gauge

\* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

\*\* Pressure Line By-Pass Option can only be used with Independent and Selector Regulators (Option 2 & 3 in Interposed Block Function).

### Ordering Components

- Manifold or Subbase Kit required.
- Interposed Regulator Kit configured for Internal Pilot as standard.
- Order valve as External Pilot.

## How to Configure Interposed Regulator / Valve Combinations

### Internal Pilot Configuration -

Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

### External Pilot Configuration - Size 1, Size 2, Size 3

An External Pilot pressure in Port 12 or 14 of the base feeds thru the Interposed Regulator 12 or 14 galley directly to the 12/14 pilot of the valve. This configuration takes an External Pilot from the 12 port of the base and passes it thru the regulator to feed the 12 galley of the valve.

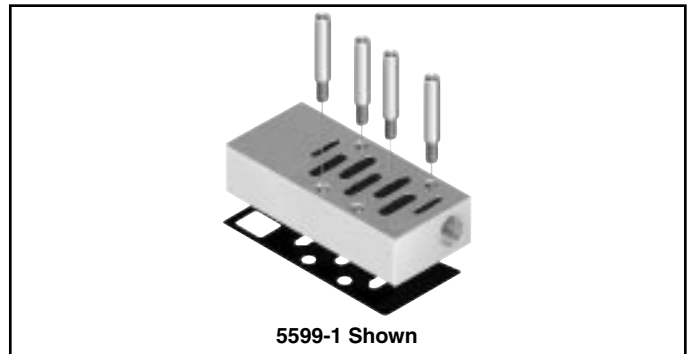
# Accessories

## Remote Pilot Access Plates, Exhaust Modules, Air Supply Bases

### Remote Pilot Access Plate Kits

Size	Port Size	Kit Number	
		NPT	BSPP "G"
Size 1	1/8"	RPS401500CP	RPS401501CP
Size 2	1/8"	RPS411500CP	RPS411501CP
Size 3	1/8"	RPS421500CP	RPS421501CP

Kit includes: Pilot Port Access Plate, Gasket and Mounting Studs.



5599-1 Shown

### Size 1 Auxiliary Access Plate Kits

Size	Port Size	Kit Number	
		NPT	BSPP "G"
Size 1	1/4" & 3/8"	RPS403000CP	RPS403001CP

Kit includes: Pilot Port Access Plate, Gasket and Mounting Screws.

- Used on Size 1 Manifolds to provide auxiliary access to Ports 1, 3 & 5.
- Port 1: 1/4", Ports 3 & 5: 3/8". Height: .72 Inch



### Interposed Supply & Exhaust Modules

Valve Size		NPT	BSPP "G"
Size 00 (15407-1)	Supply	RPS562600P	RPS562601P
	Exhaust	RPS562700P	RPS562701P
Size 0 (15407-1)	Supply	RPS552600P	RPS552601P
	Exhaust	RPS552700P	RPS552701P
Size 00 (15407-2)	Supply	RPS561600P	RPS561601P
	Exhaust	RPS561700P	RPS561701P
Size 0 (15407-2)	Supply	RPS551600P	RPS551601P
	Exhaust	RPS551700P	RPS551701P

Quantity 1

- Used on Size 00 & Size 0 valves to provide a pressure or exhaust path to individual valves.



15407-2 Shown

### Intermediate Air Supply Bases 15407-1

Size	Port Size	Kit Number
		NPT
Size 00 (15407-1)	1/8"	RD02P-01-80
Size 0 (15407-1)	1/4"	RD01P-02-80

Kit includes: Gasket and Mounting Bolts.



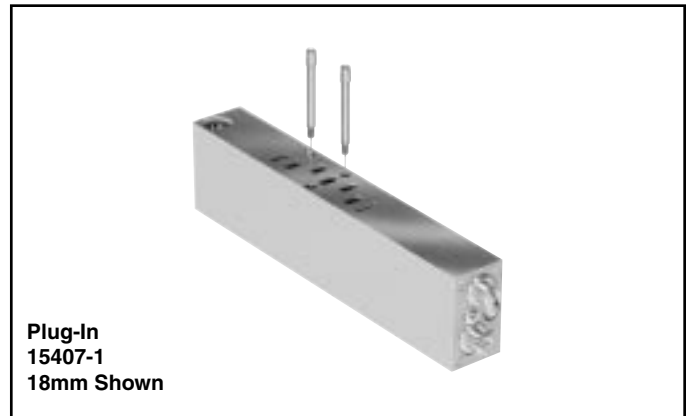
RD01P-02-80 Shown

# Accessories

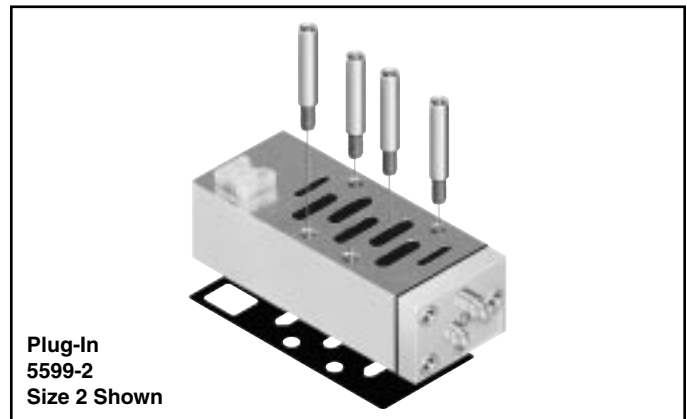
## Interposed Flow Controls

### Features

- Both adjustment screws are located on the 12 end of the unit.
- Interposed Flow Control mounts with its own studs, which means the valve uses standard bolts for mounting.
- Interposed Flow Control is not to be used as a shut off device and is not bubble tight when needles are fully turned down.



Valve Size	Plug-In 15407-2	Non Plug-In 15407-1
Size 00 (15407-1)	RPS5635P	RPS5642P
Size 0 (15407-1)	RPS5535P	RPS5542P
Valve Size	Plug-In 5599-2	
Size 1	RPS4035CP	
Size 2	RPS4135CP	
Size 3	RPS4235CP	



*A Interposed Flow Control and Common Port Interposed Regulator may be sandwiched together on a manifold or subbase. The Interposed Flow Control MUST be located between the manifold/subbase and the Common Port Interposed Regulator.*

# Technical & Wiring Information

## Ratings

### Temperature Rating

<b>Size 00, 0, 1, 2, &amp; 3</b>
-15°C to 49°C (5°F to 120°F) Ambient.

### Flow Rating (Cv)

Valve Size	Port Size	2-Position	3-Position
Size 00	1/8"	0.55	0.50
Size 0	1/4"	1.1	1.0
Size 1	3/8"	1.0	1.0
Size 2	1/2"	2.3	2.3
Size 3	3/4"	3.4	3.4

Cv tested per ANSI / (NFPA) T3.21.3

### Response Time\*\* (ms)

Valve Size	Port Size	0 Cu. In. Chamber		## Cu. In. Chamber	
		Fill	Exhaust	Fill	Exhaust
<b>Single Solenoid 2-Position - Air Return / Spring Assist</b>					
Size 00	1/8"	28	30	141	154
Size 0	1/4"	24	26	77	124
Size 1†	3/8"	—	—	—	—
Size 2†	1/2"	—	—	—	—
Size 3†	3/4"	—	—	—	—

## Size 00 (12), Size 0 (25)

\*\* With 100 PSIG supply, time (ms) required to fill from 0 to 90 PSIG and Exhaust from 100 PSIG to 10 PSIG measured from the instant of energizing or de-energizing 24VDC solenoid.

† For valve response time information for Size 1, 2, & 3 valves, see ROSS Bulletin 379B - form # A10090.

Tested per ANSI / (NFPA) T3.21.8

### Operating Pressure

<b>Size 00, 0, 1, 2, &amp; 3</b>			
<b>Maximum:</b> 145 PSIG (1000 kPa)			
<b>Minimum:</b>			
Internal Pilot	PSIG (Min. kPa) Series W66, Size 00	PSIG (Min. kPa) Series W66, Size 0	See pages 13 & 14 for Sizes 1, 2 & 3
Single Solenoid - 2-Position	30 (207)	25 (173)	
Double Solenoid- 2-Position			
Single Remote Pilot - 2-Position **	Vacuum	Vacuum	
Double Remote Pilot - 2-Position**	Vacuum	Vacuum	
Double Solenoid - 3-Position CC, OC, PC	35 (241)	35 (241)	
Double Remote Pilot - 3-Position** CC, OC, PC	Vacuum	Vacuum	
Single Solenoid Pilot - 2-Position Air Return / Spring Assist	30 (207)	30 (207)	
Single Remote Pilot - 2-Position** Air Return / Spring Assist			
<b>External Pilot*</b>	*	*	
All Functions	Vacuum	Vacuum	

\* External Pilot Pressure / Remote Pilot Supply - 45-145 PSIG (310-1000 kPa).

\*\* Must be equal to or greater than operating pressure.



# Technical & Wiring Information

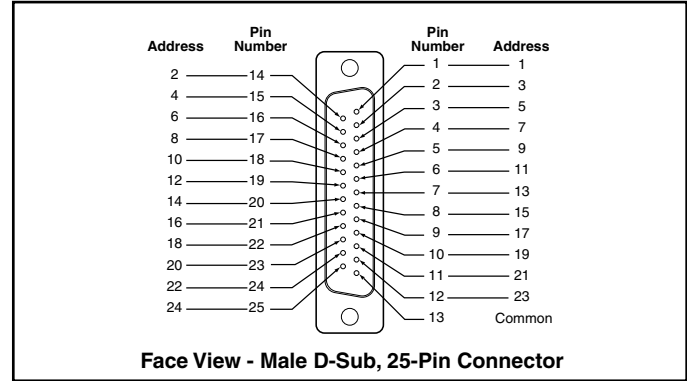
## Electrical Connectors

### Maximum Solenoids Energized Simultaneously (Interconnect Circuit Boards)

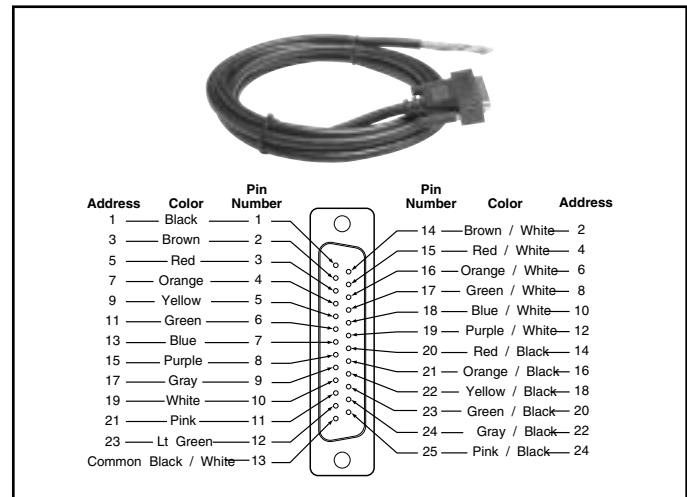
Size 00, Size 0	Voltage Code	25-Pin D-Sub	19-Pin Round	Single 12-Pin M23	Serial Bus
24VDC	W	24	16	8	32
120VAC*	Z	24	16	8	32
Size 1, Size 2, Size 3	Voltage Code	25-Pin D-Sub	19-Pin Round	Single 12-Pin M23	Serial Bus
24VDC	W	20	16	8	N/A
120VAC*	Z	24	16	8	N/A

\* Not CSA certified for 25-Pin, D-Sub option.

### 25-Pin, D-Sub Connector (Male)



### 25-Pin, D-Sub Cable (Female)

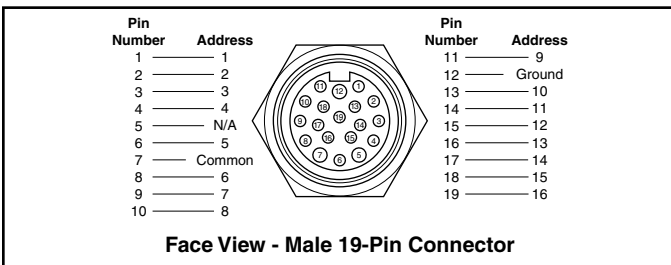


### 25-Pin, D-Sub Cable Specifications

Common Pin "13" is rated for 3 amps. Common wire rating must be greater than total amperage of all solenoids on a Manifold assembly.

IP65 rated with properly assembled IP65 rated cable.

### 19-Pin Round Brad Harrison



### 19-Pin Round Cable Specifications

Common Pin "7" is rated for 8 amps. Cable common wire must be greater than total amperage of solenoids on Manifold assembly.

*Example:* 8 station manifold, 16 solenoids,

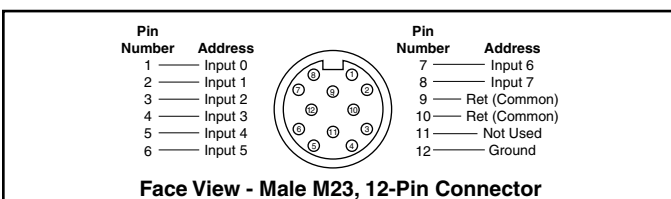
120VAC - 16 x .039 amps = .63 total amp rating.

NEMA 4 rated with properly assembled NEMA 4 rated cable.

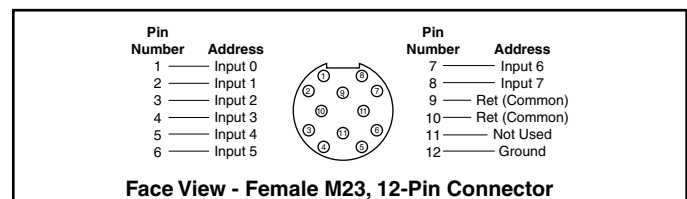
### Cable Assemblies

Part Number	Description	Length
R333030P80M050	Brad Harrison Female to Male Cable	16.40 ft.
R333030P80M0100	Brad Harrison Female to Male Cable	32.80 ft.

### M23, 12-Pin Round Connector (Male)



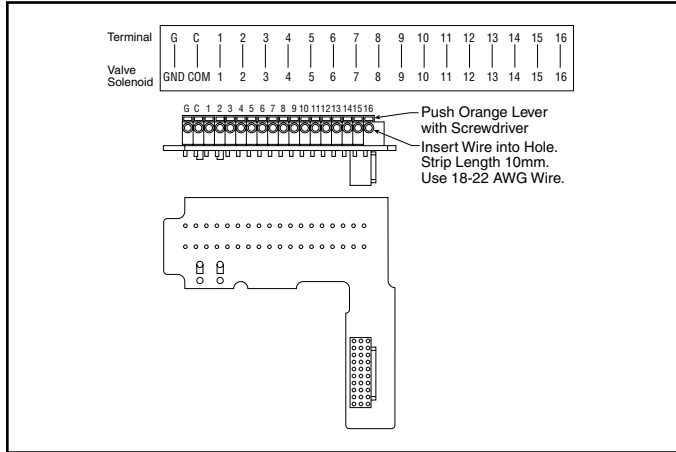
### M23, 12-Pin Round Connector (Female)



# Technical & Wiring Information

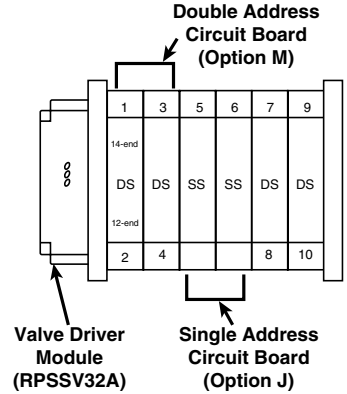
## Wiring

### 16-Point Terminal Strip

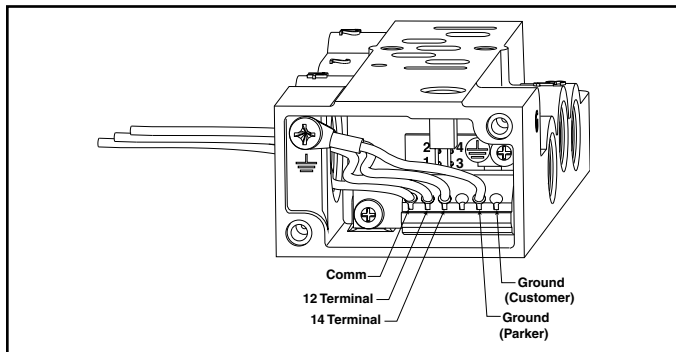


### I/O Addressing Examples

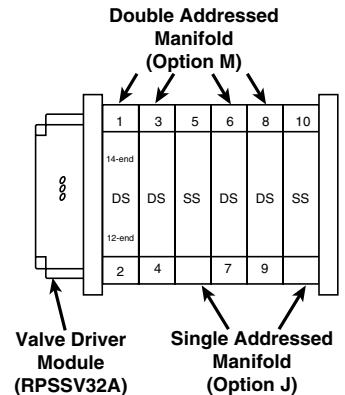
Size 00 & 0 Example  
Two Station Manifold Bases



### Subbase Wiring



Size 1, 2 & 3 Example:  
Single Station Manifold Bases

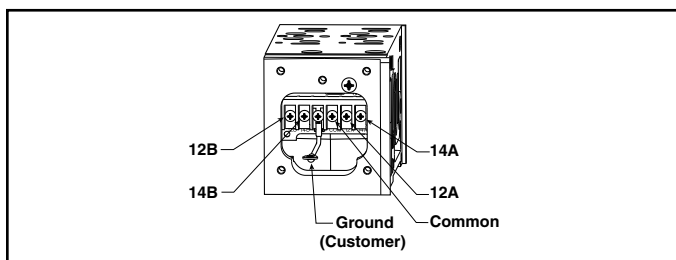


### Connections

	14 Solenoid	12 Solenoid
Valves with Wires	Black Wires	Red Wires
Valves with Terminal Block (Will accept 18 to 24 Gauge Wires)	14 and Com Terminals	12 and Com Terminals

Notes: SS = Single Solenoid Valve  
DS = Double Solenoid Valve  
First output address the #14 end of the valve closest to the valve driver module.

### Manifold Wiring



# Service & Repair Kits

## Series W65 Replacement Pilot Assembly & Coil

Description	Model Number
Pilot Assembly	1149C79
Coil	334B33

Specify Voltage and Hz when ordering.

## Manifold Hardware Kits

Valve Size	Kit Number
Size 00	RPS5612P
Size 0	RPS5512P
Size 1	RPS4012P
Size 2	RPS4112P
Size 3	RPS4212P

Quantity 12

## Valve Bolt Kits

Valve Size	Kit Number
Size 00	RPS5687P
Size 0	RPS5587P

Quantity 12

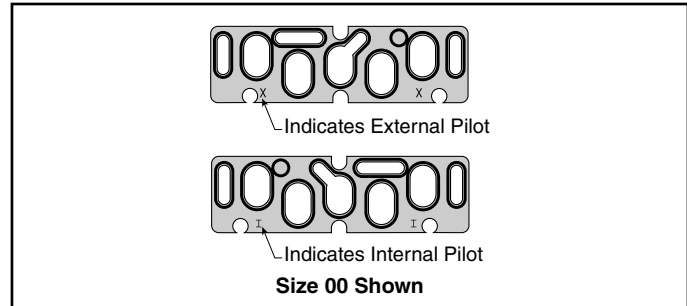
## Regulator Kits

Valve Size	Kit Number
Size 1	RPS4039P
Size 2 & 3	RPS4139P

## Pilot Select Gasket Kits

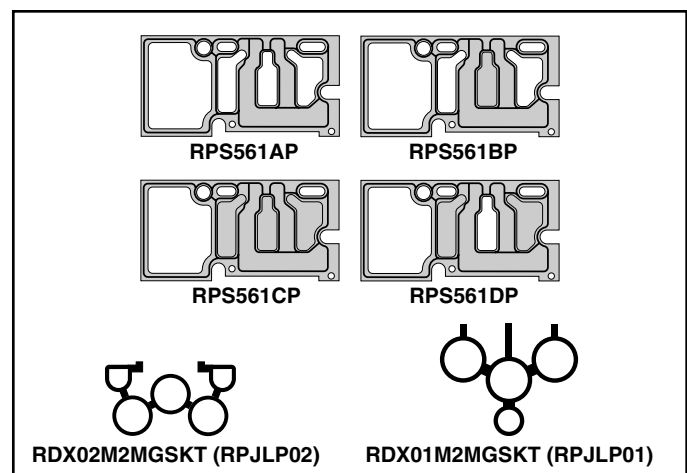
Valve Size	Kit Number
Size 00	RPS5605P
Size 0	RPS5505P

Quantity 10



## Manifold to Manifold Gasket Kits

15407-2				
Size	Standard	Blocked #1 Port	Blocked #1, 3, 5 Ports	Blocked #3, 5 Ports
Size 00	RPS561AP	RPS561BP	RPS561CP	RPS561DP
Size 0				
15407-1				
Size 00	RDX02M2MGSKT (RPJLP02)			
Size 0	RDX01M2MGSKT (RPJLP01)			
Size 1	RPS4013P	—	—	—
Size 2	RPS4113P	—	—	—
Size 3	RPS4213P	—	—	—



# Service & Repair Kits

## Valve to Base Gasket Kits

Valve Size	Standard
Size 00	RPS5605P*
Size 0	RPS5505P*
Size 1	797B11
Size 2	828B11
Size 3	858B11

Quantity 1  
\* Quantity 10

## Regulator & Flow Control Mounting Studs

Type	Size 00	Size 0	
Flow Control	RPS5636P	RPS5536P	
Regulator	RPS5636P	RPS5536P	
Type	Size 1	Size 2	Size 3
Flow Control	RPS4036P	RPS4136P	RPS4236P
Regulator	RPS4040P	RPS4140P	RPS4240P

Quantity 12

## Regulator Gauge Kits – Size 1, 2 & 3

Gauge Type	Kit Number
<b>3/4" Face Air - Standard</b>	
0-60 PSIG	RPS4051060BP
0-160 PSIG	RPS4051160BP
<b>1-1/2" Face Air - Large*</b>	
0-60 PSIG	RPS4053060BP
0-160 PSIG	RPS4053160BP
<b>1-1/2" Face Liquid*</b>	
0-160 PSIG	RPS4052160BP

\* Includes brass pipe fitting extensions  
Quantity 1

## Regulator Spring Range Kits

Spring Range	Size 1	Size 2 & 3
0 to 30 PSIG	RPS4050030P	RPS4150030BP
2 to 60 PSIG	RPS4050060P	RPS4150060BP
5 to 125 PSIG	RPS4050125P	RPS4150125BP

Quantity 1

## Regulator Conversion Kits

Valve Size	Manual Bonnet Assembly (w/o Spring)	Air Pilot Bonnet Assembly	Independent By-Pass Plate
Size 1	RPS4045BP	RPS4047BP	RPS4048BP
Size 2	RPS4145BP	RPS4147BP	RPS4148BP
Size 3			

Quantity 1

## Body Service Kits

Valve Size	2 Position Single	2 Position Double	3-Position		
			Closed Center	Open Center	Power Center
Size 00	RPS5601P	RPS5601P	RPS5602P	RPS5603P	RPS5604P
Size 0	RPS5501P	RPS5501P	RPS5502P	RPS5503P	RPS5504P
Size 1	1422K77	1423K77	1424K77	1425K77	1424K77
Size 2	1467K77	1468K77	1469K77	1470K77	1469K77
Size 3	1471K77	1472K77	1473K77	1474K77	1473K77

**Kit Includes:** Spool assembly with seals, all piston seals, return spring, pilot selector gasket, coil to end cap gasket.

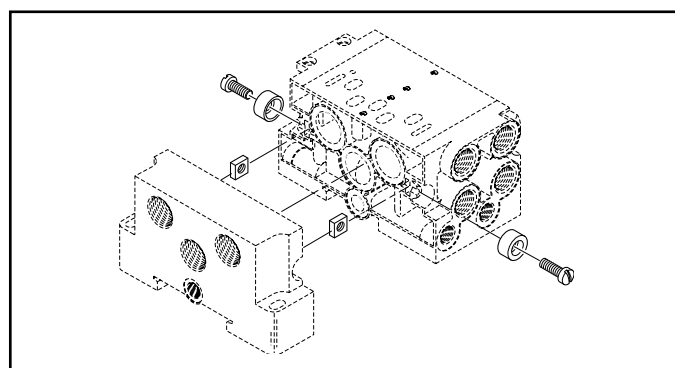
Quantity 1

## Manifold Bolt Kit – (Size 00 & 0, 15407-1 Manifolds)

Part Number	Items
RDX02M2MB*	Bolt, Washer & Nut*

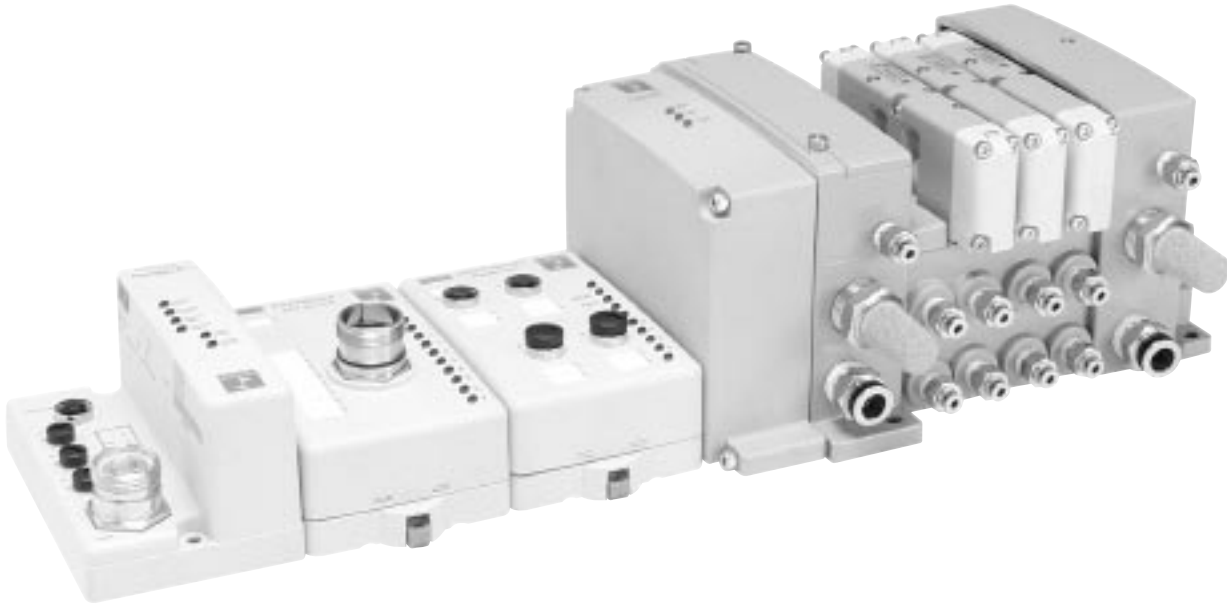
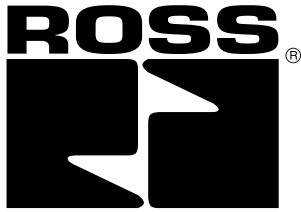
\* Includes 10 Bolts, 10 Washers, 10 Nuts

\*\* Use this number for both sizes, RPJLP02 & RPJLP01.



# Serial Bus System

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## Integrated Solution

- A complete serial bus communication offering for Series W66 & W65 ISO valves.
- Extremely fast I/O backplane uses change-of-state (COS) connections to maximize performance.
- UL, C-UL and CE certifications (as marked).

## Modularity

- Ease of module replacement with unique latching mechanisms eliminating the need for screws.
- Auto Device Replacement allows OEMs to add I/O modules without making changes to the control software.
- Built-in panel grounding.
- Electronic and mechanical keying prevents users from placing I/O modules in the wrong sequence.

## I/O Modules

- Accepts signals from sensors, photo eyes, limits and other field input devices.
- Provides signals to remotely operating solenoid valves and other field operating output devices.
- Choice of digital, analog, high watt I/O Modules.
- Choose from a broad range of color coded I/O types with connector choices of 8mm, 12mm or M23.
- Built-in miswiring, short circuit, open circuit detection with electronic feedback.

## Communication Modules

- A Communication Module supports up to a maximum of 63 I/O modules and up to 264 Inputs and 264 Outputs.

ControlNet™



# Serial Bus System

## Serial Bus Product Compatibility

	DeviceNet™ Adapter RPSSCDM	ControlNet Adapter RPSSCCNA	EtherNet Adapter RPSSCENA	PROFIBUS Adapter RPSSCPBA
PLC-5™ with Network Port	IOD	NS	NS	NA
SLC 500™ with Network Port	IOD	NS	NS	NA
PLC-5 Processor via Network Module	IOD	NS	NS	3
1756 Logix™ Communication Interface	IOD	IOD	IOD	3
PanelView™ Terminal	NA	NA	NA	NA
RSLinx™ Software	NA	NA	NA	NA
1769-L20, -L30 Controller with 1761- NET Interface	NA	NS	NS	NA
1769-L32E, -35E	NA	NA	IOD	NA
1769-L32C, -35CR	NA	IOD	NA	NA
1769 CompactLogix™ Communication Interface	IOD	NA	NA	3*
SoftLogix5800™ Communication Interface	IOD	IOD	IOD	3*
PC with RSLinx Only	NS	NS	NS	NA
FlexLogic™ Communication Interface	IOD	IOD	IOD	3

IOD = I/O Data

NS = Not Supported

NA = Not Applicable

3 = Requires third party scanner module

\* Hilscher North America

## Communication Considerations

Serial Bus features are impacted by your network choice.

Network	Impact
DeviceNet™ RPSSCDM12A and RPSSCDM18PA	The RPSSCDM12A and RPSSCDM18PA provide two means of connecting a node of I/O to DeviceNet™. A total of 63 Serial Bus modules can be assembled on a single DeviceNet™ node. Expansion power supplies may be used to provide additional PointBus backplane current.
ControlNet™ RPSSCCNA	A total of 63 Serial Bus modules can be assembled on a single ControlNet™ node. Expansion power supplies may be used to provide additional PointBus backplane current. Up to 25 direct connections and 5 rack connections are allowed.
EtherNet/IP™ RPSSCENA	A total of 63 Serial Bus modules can be assembled on a single EtherNet / IP node. Expansion power supplies may be used to provide additional PointBus backplane current. Refer to the User Manual, Bulletin 601 (form #A10311) to determine the ratings for direct and rack connections allowed.
PROFIBUS DP™ RPSSCPBA	A total of 63 Serial Bus modules can be assembled on a single PROFIBUS node. Expansion power supplies may be used to provide additional PointBus backplane current.



# Serial Bus System

## Communication Modules\*

†§ DeviceNet™ (M18 or M12)	RPSSCDM18PA (M18) or RPSSCDM12A (M12)	10 to 28.8VDC
†§ ControlNet™	RPSSCCNA	10 to 28.8VDC
†§ Ethernet I/P™	RPSSCENA	10 to 28.8VDC
†§ Profibus-DP®	RPSSCPBA	10 to 28.8VDC

\* IP67 Certified

† Reference the following Documents for Installation Instructions.

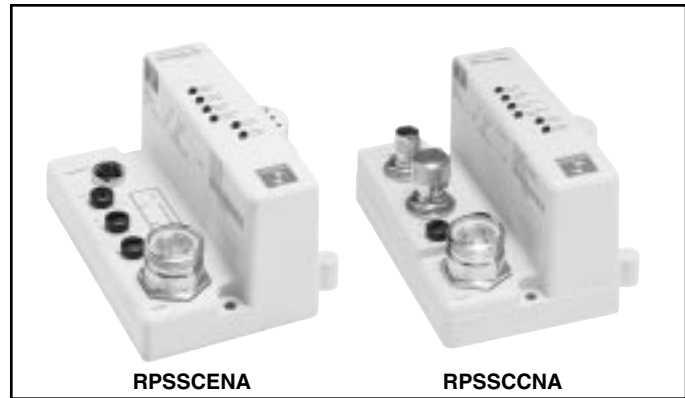
DeviceNet™ - A10313, A10311; ControlNet™ - A10315

Ethernet I/P - A10316; Profibus-DP - A10314

§ Requires a RPSST8M23A or RPSSV32A in all manifold assemblies.

RPSSV32A is included in factory assembled manifolds and Serial Bus End Plate Kits.

EDS and GSD files located at [www.rosscontrols.com](http://www.rosscontrols.com)



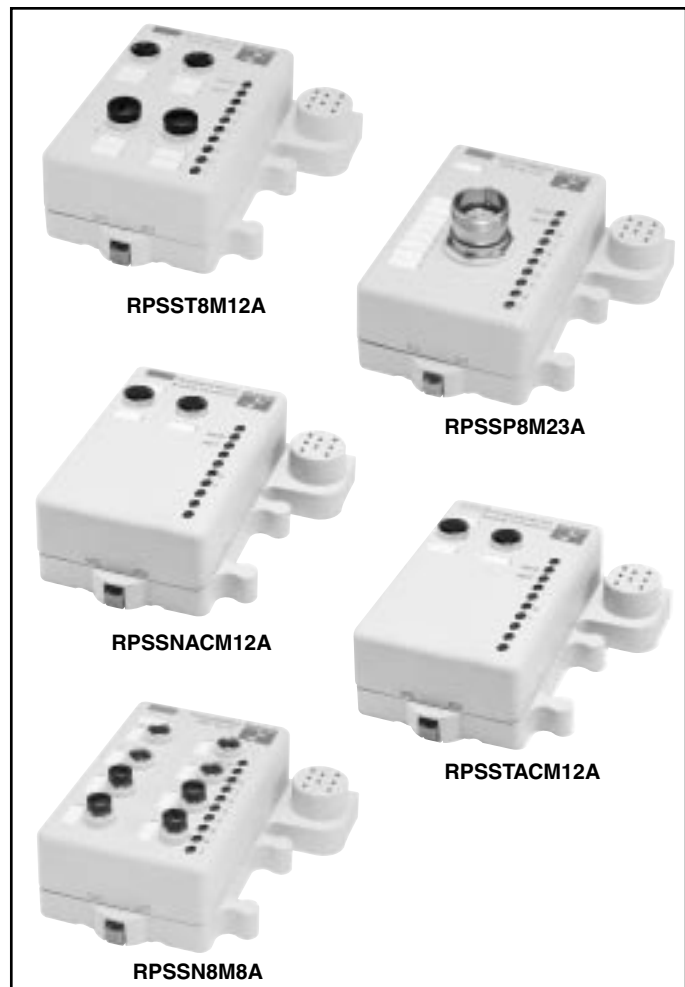
RPSSCENA

RPSSCCNA

## I/O Modules\*

† 8 Digital Inputs M12 (NPN Sinking - Requires PNP Sourcing Input Device)	RPSSN8M12A	10 to 28.8VDC
† 8 Digital Inputs M12 (PNP Sourcing - Requires NPN Sinking Input Device)	RPSSP8M12A	10 to 28.8VDC
† 8 Digital Inputs M8 (NPN Sinking - Requires PNP Sourcing Input Device)	RPSSN8M8A	10 to 28.8VDC
† 8 Digital Inputs M8 (PNP Sourcing - Requires NPN Sinking Input Device)	RPSSP8M8A	10 to 28.8VDC
† 8 Digital Inputs M23 12-Pin (PNP Sourcing - Requires NPN Sinking Input Device)	RPSSP8M23A	10 to 28.8VDC
† 8 Digital Inputs M23 12-Pin (NPN Sinking - Requires PNP Sourcing Input Device)	RPSSN8M23A	10 to 28.8VDC
+ 8 Digital Outputs M12 (PNP Sourcing)	RPSST8M12A	10 to 28.8VDC
+ 8 Digital Outputs M8 (PNP Sourcing)	RPSST8M8A	10 to 28.8VDC
§ 4 Digital Output, High Watt Relay M12 (PNP Sourcing) (2 Amp)	RPSTR4M12A	24VDC
+# 8 Digital Outputs M23 (PNP Sourcing)	RPSST8M23A	10 to 28.8VDC
‡ 2 Analog Inputs Voltage (M12)	RPSSNAV12A	0 to 10V ± 10V
‡ 2 Analog Inputs Current (M12)	RPSSNACM12A	4 to 20mA or 0 to 20mA
.. 2 Analog Outputs Voltage (M12)	RPSSTAVM12A	0 to 10V ± 10V
.. 2 Analog Outputs Current (M12)	RPSSTACM12A	4 to 20mA or 0 to 20mA

\* IP67 Certified



RPSST8M12A

RPSSP8M23A

RPSSNACM12A

RPSSTACM12A

RPSSN8M8A

Reference the following Documents for Installation Instructions.

† A10318

+ A10319

§ A10320

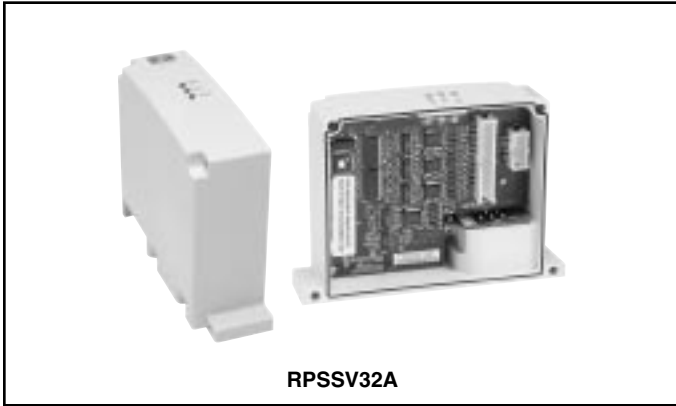
‡ A10321

.. A10322

# Can be used with RPSSTERM.

See [www.rosscontrols.com](http://www.rosscontrols.com)

# Serial Bus System



**RPSSV32A**

## Valve Driver Module

32 Point Module – Size 00, 0, 1, 2, & 3	RPSSV32A**
24 Output Cable – Size 00 & 0	RPS5624P†
25 - 32 Output Cable – Size 00 & 0	RPS5632P†
24 Output Cable – Size 1, 2, & 3	RPS4024P†

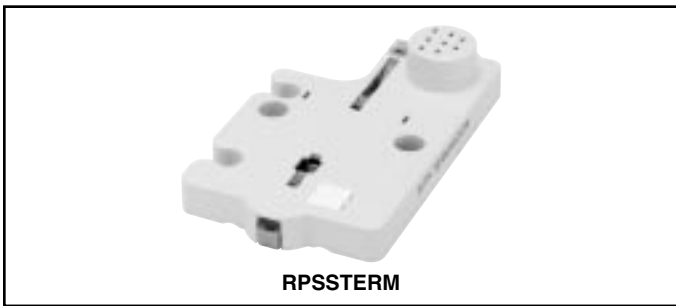
\* Reference Document A10312 for Installation Instructions.  
See [www.rosscontrols.com](http://www.rosscontrols.com)

† Serial Bus Manifold assemblies and end plate kits include a valve driver module (RPSSV32A) and cable.

Series W66, Size 00 / Series W66, Size 0 24 output manifolds require a RPS5624P.

Series W66, Size 00 / Series W66, Size 0 32 output manifolds require a RPS5624P + RPS5632P.

Size 1, 2, & 3 manifolds require a RPS4024P, allowing 21 outputs.



**RPSSTERM**

## Terminating Base Module

Terminating Module	RPSSTERM
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Used as the last Terminating Module for a Stand Alone Serial Bus Assembly. A RPSST8M23A must be located in the Serial Bus assembly.



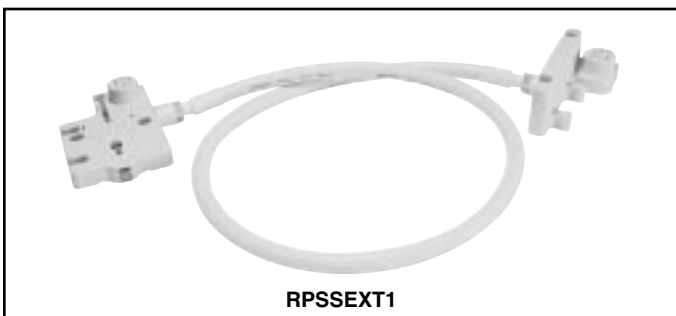
**RPSSSE24A**

## Power Extender Module

24VDC Field Power Module	RPSSSE24A	24VDC
--------------------------	-----------	-------

A Power Extender Module must be used on every 12th Module in an Serial Bus assembly. See [www.rosscontrols.com](http://www.rosscontrols.com)

Reference Document A10317 and A10311 for configuration instructions. See [www.rosscontrols.com](http://www.rosscontrols.com)



**RPSSEXT1**

## Bus Extender Cable

1 Meter Cable*	RPSSEXT1	24VDC
3 Meter Cable*	RPSSEXT2	24VDC

\* Requires a RPSSSE24A Power Extender Module.

IP67 Certified

See [www.rosscontrols.com](http://www.rosscontrols.com)



**RP8BPA00MA**

## Devicebus Terminating Resistor

DeviceNet™ M12 Type A	RP8BPA00MA
Profibus-DP M12 Type B	RP8BPA00MB

# Serial Bus System

## Specifying a Serial Bus System

Follow these steps as you specify your Serial Bus system:

Step		
1	<b>Select a Communication Interface Module</b> Choose the interface module for your operating system.	NetLinx™ Architecture Selecting a Network Selecting the DeviceNet™ Communication Interface
2	<b>Select I/O Devices Based on Field Devices</b> Location of the device Number of Serial Bus modules needed Number of I/O available per module Number of modules	Digital I/O Modules Analog I/O Modules Valve Driver Module
3	<b>Select Optional Power Component</b> Choose optional component to extend backplane power	Expansion Power Unit Typical Configurations
4	<b>Select Accessories</b>	Cables and Cordsets
5	<b>Placing Serial Bus Modules</b> Determine necessary dimensions based on the communication interface chosen.	Placing Serial Bus Modules Mounting the Serial Bus System

## Step 1

### Select a Communication Interface Module

#### Selecting Serial Bus Communication Interfaces

##### Rockwell Automation NetLinx® Architecture

Separate communication interface adapters are available for different networks. Install adapters into the PointBus backplane to allow Serial Bus modules to communicate with a controller.

NetLinx® open network architecture is the Rockwell Automation strategy of using open networking technology for seamless, top-floor to shop-floor integration. The networks in the NetLinx® architecture, DeviceNet™, ControlNet™, and EtherNet/IP™, speak a common language and share a universal set of communication services. NetLinx® architecture, part of the Integrated Architecture, seamlessly integrates all the components in an automation system from a few devices on one network to multiple devices on multiple networks including access to the Internet, helping you to improve flexibility, reduce installation costs, and increase productivity.

- EtherNet/IP™ is an open industrial networking standard that supports implicit and explicit messaging and uses commercial, off-the-shelf EtherNet equipment and physical media.
- ControlNet™ allows intelligent, high-speed control devices to share the information required for supervisory control, work-cell coordination, operator interface, remote device configuration, programming, and troubleshooting.
- DeviceNet™ offers high-speed access to plant-floor data from a broad range of plant-floor devices and a significant reduction in wiring.



# Serial Bus System

## Selecting a Network

You can configure your system for information exchange between a range of devices and computing platforms and operating systems.

Application Requirements	Network	Select
<ul style="list-style-type: none"> <li>Plant management (material handling)</li> <li>Configuration, data collection, and control on a single, high-speed network</li> <li>Time-critical applications with no established schedule</li> <li>Data sent regularly</li> <li>Internet/Intranet connection</li> </ul>	EtherNet/IP™	RPSSCENA
<ul style="list-style-type: none"> <li>High-speed transfer of time-critical data between controllers and I/O devices</li> <li>Deterministic and repeatable data delivery</li> <li>Media redundancy</li> <li>Controller redundancy</li> <li>Intrinsic safety</li> <li>Redundant controller systems</li> </ul>	ControlNet™	RPSSCCNA
<ul style="list-style-type: none"> <li>Connections of low-level devices directly to plant-floor controllers, without interfacing them</li> <li>Data sent as needed</li> <li>More diagnostics for improved data collection and fault detection</li> <li>Less wiring and reduced start-up time than a traditional, hard-wired system</li> </ul>	DeviceNet™	RPSSCDM12A RPSSCDM18PA
<ul style="list-style-type: none"> <li>Connecting to an existing PROFIBUS DP 5m bus, 12 MB network</li> </ul>	PROFIBUS	RPSSCPBA

## Selecting the DeviceNet™ Communication Interface

Serial Bus offers two interfaces for connecting to DeviceNet™. Refer to the following table.

For These Features	Remember	Select
Behaves as a slave device on the Main Network and a master on the PointBus.	All Serial Bus modules count as a single node on the Main Network.	RPSSCDM12A (M12-style network connectors).
Allows a group of I/O modules on the Subnet to act as a single node on the Main Network.	The Main Network distance is acceptable.	RPSSCDM18PA (mini-style network connectors with pass-through).
RSNetWorx™ for DeviceNet™ software is needed for configuration of the RPSSCDM12A or RPSSCDM18PA on the Main Network and the PointBus Configuration on the PointBus consists of a scan list that is very similar to those used in all of the DeviceNet™ master scanner modules.	Serial Bus expansion power supplies are permitted to add more Serial Bus modules.	

It is important that the total amount of data coming from the Subnet does not exceed the data capability of either the RPSSCDM12A or RPSSCDM18PA.

- 250 bytes (248 data + 2 bytes command info) for output data (used as either COS, cyclic, or poll)
- 250 bytes (248 data + 2 bytes status info) for polled input data
- 250 bytes (248 data + 2 bytes status info) for COS/cyclic input data
- 8 bytes (6 data + 2 status info) for strobe input data

The data coming through the RPSS adapter combined with the other data from the Main Network cannot exceed the data capability of the Main Network master scanner. If this occurs, you will need multiple master scanners on the Main Network and the I/O modules on the Subnet will need to be split between multiple RPSSCDM12A or RPSSCDM18PA adapters.



# Serial Bus System

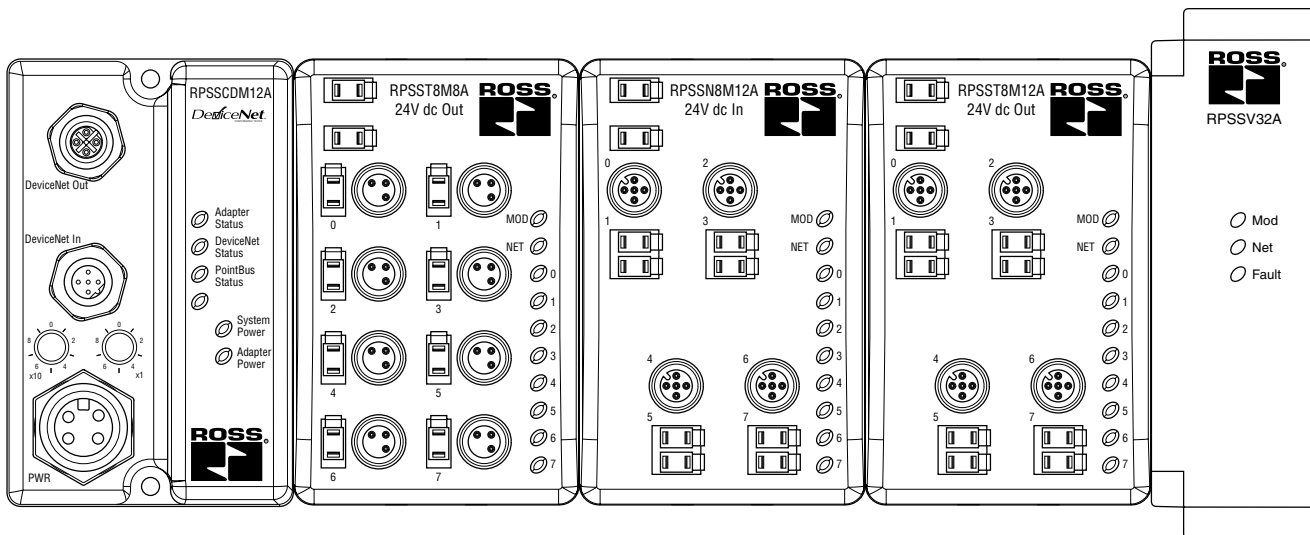
## Step 2

### Select I/O Modules

#### Selecting Serial Bus Modules

Some modules have diagnostic features, electronic fusing, or individually isolated inputs/outputs.

The Serial Bus family provides a wide range of input and output modules to span many applications, from high-speed discrete to process control. Serial Bus supports producer/consumer technology, which allows input information and output status to be shared among multiple Logix controllers.



The Serial Bus family of I/O modules includes:

- Digital I/O Modules
- Analog I/O Modules
- Valve Driver Module

# Serial Bus System

## Digital I/O Modules

Choose digital I/O modules when you need:

- **Input Modules.** An input module responds to an input signal in the following manner:
  - Input filtering limits the effect of voltage transients caused by contact bounce and/or electrical noise. If not filtered, voltage transients could produce false data. All input modules use input filtering.
  - Optical isolation shields logic circuits from possible damage due to electrical transients.
  - Logic circuits process the signal.
  - An input LED turns on or off indicating the status of the corresponding input device.
- **Output Modules.** An output module controls the output signal in the following manner:
  - Logic circuits determine the output status.
  - An output LED indicates the status of the output signal.
  - Optical isolation separates module logic and bus circuits from field power.
  - The output driver turns the corresponding output on or off.
- **Surge Suppression.** Most output modules have built-in surge suppression to reduce the effects of high-voltage transients. However, we recommend that you use an additional suppression device if an output is being used to control inductive devices, such as:
  - Relays
  - Motor starters
  - Solenoids
  - Motors

Additional suppression is especially important if your inductive device is in series with, or parallel to, hard contacts such as:

- Push buttons
- Selector switches

The digital I/O modules support:

- A wide variety of voltage interface capabilities
- Isolated and non-isolated module types
- Point-level output fault states
- Choice of direct-connect or rack-optimized communications
- Field-side diagnostics on select modules

Connector types are indicated by the catalog number. For example, the RPSSN8M12A has an M12 connector.

## Digital DC Input Modules

	RPSSN8M8A RPSSN8M12A RPSSN8M23A	RPSSP8M8A RPSSP8M12A RPSSP8M23A
Number of Inputs	8 Sinking	8 Sourcing
Keyswitch Position	1	1
Voltage, On-State Input, Nom.	24VDC	24VDC
Voltage, On-State Input, Min.	10VDC	10VDC
Voltage, On-State Input, Max.	28.8VDC	28.8VDC
Input Delay Time, ON to OFF	0.5 ms Hardware + (0...65 ms selectable)*	0.5 ms Hardware + (0...65 ms selectable)*
Current, On-State Input, Min.	2 mA	2 mA
Current, On-State Input, Max.	5 mA	5 mA
Current, Off-State Input, Max.	1.5 mA	1.5 mA
PointBus Current (mA)	75	75
Power Dissipation, Max.	1.0 W @ 28.8VDC	1.0 W @ 28.8VDC

\* Input ON-to-OFF delay time is the time from a valid input signal to recognition by the module.

## Digital DC Output Modules

	RPSST8M8A RPSST8M12A RPSST8M23A
Number of Outputs	8 sourcing
Keyswitch Position	1
Voltage, On-State Output, Nom.	24VDC
Voltage, On-State Output, Min.	10VDC
Voltage, On-State Output, Max.	28.8VDC
Output Current Rating, Max.	3.0 A per module, 1.0 A per channel
PointBus Current (mA)	75
Power Dissipation, Max.	1.2 W @ 28.8VDC

# Serial Bus System

## Relay Output Module

	RPSSTR4M12A
Number of Outputs	4 Form A (N.O.) relays, isolated
Keyswitch Position	7
Output Delay Time, ON to OFF, Max.	26 ms*
Contact Resistance, Initial	30 mΩ
Current Leakage, Off-State Output, Max.	1.2 mA and bleed resistor thru snubber circuit @ 240V ac
PointBus Current (mA)	90
Power Dissipation, Max.	0.5 W

\*Time from valid output off signal to relay deenergization by module.

## Analog I/O Modules

The Serial Bus analog modules support: on-board, channel-level data alarming (four set-points per channel); scaling to engineering units; channel-level diagnostics (electronic bits and LEDs); and integer format.

Choose analog I/O modules when you need:

- **Individually configurable channels** to use the module(s) with a variety of sensors.
- **On-board scaling** to eliminate the need to scale the data in the controller. Controller processing time and power are preserved for more important tasks, such as I/O control, communications, or other user-driven functions.
- **On-line configuration.** Modules can be configured in the RUN mode using the programming software or the control program. This allows you to change configuration while the system is operating. For example, the input filter for a particular channel could be changed, or a channel could be disabled based on a batch condition. To use this feature, the controller and network interface must also support this feature.
- **Over- and under-range detections and indications.** This eliminates the need to test values in the control program, saving valuable processing power of the controller. In addition, since alarms are handled by the module, the response is faster and only a single bit per channel is monitored to determine if an error condition has occurred.
- **Ability to direct output device operation during an abnormal condition.** Each channel of the output module can be individually configured to hold its last value or assume a user-defined value on a fault condition. This feature allows you to set the condition of your analog devices, and therefore your control process, which may help to ensure a reliable shutdown.
- **Ability to individually enable and disable channels.** Disabling unused channels improves module performance.
- **Selectable input filters** This lets you select the filter frequencies for each channel that best meets the performance needs of your application based on environmental limitations. Lower filter settings provide greater noise rejection and resolution. Higher filter settings provide faster performance. Note: The analog modules provide four input filter selections.
- **Selectable response to broken input sensor.** This feature provides feedback to the controller that a field device is not connected or operating properly. This lets you specify corrective action based on the bit or channel condition.
- **High accuracy.** The modules share a high accuracy rating of  $\pm 0.1\%$  of full-scale accuracy at 25 °C.

# Serial Bus System

## Analog Input Modules

	RPSSNACM12A	RPSSNAVM12A
Number of Inputs	2	2
Keyswitch Position	3	3
Input Signal Range	4...20 mA 0...20 mA	0...10V ±10V
Input Resolution, Bits	16 bits - over 21 mA 0.32 µA/cnt	15 bits plus sign 320 µV/cnt inunipolar or bipolar mode
Absolute Accuracy, Current Input	0.1% Full Scale @ 25°C**	—
Absolute Accuracy, Voltage Input	—	0.1% Full Scale @ 25°C**
Input Step Response, per Channel	70 ms @ Notch = 60 Hz (default) 80 ms @ Notch = 50 Hz 16 ms @ Notch = 250 Hz 8 ms @ Notch = 500 Hz	70 ms @ Notch = 60 Hz (default) 80 ms @ Notch = 50 Hz 16 ms @ Notch = 250 Hz 8 ms @ Notch = 500 Hz
Input Conversion Type	Delta Sigma	Delta Sigma
PointBus Current (mA)	75	75
Power Dissipation, Max.	0.6 W @ 28.8VDC	0.6 W @ 28.8VDC

\* Includes offset, gain, non-linearity and repeatability error terms.

† Analog input modules support these configurable parameters and diagnostics: open-wire with LED and electronic reporting; four-alarm and annunciation set-points; calibration mode and electronic reporting; under- and over-range and electronic reporting; channel signal range and update rate and on-board scaling; filter-type; channel update rate.

## Analog Output Modules

	RPSSTACM12A	RPSSTAVM12A
Number of Outputs	2	2
Keyswitch Position	4	4
Output Signal Range	4...20 mA 0...20 mA	0...10V ±10V
Output Resolution, Bits	13 bits - over 21 mA 2.5 µA/cnt	14 bits (13 plus sign) 1.28 mV/cnt inunipolar or bipolar mode
Absolute Accuracy, Current Output	0.1% Full Scale @ 25°C**	—
Absolute Accuracy, Voltage Output	—	0.1% Full Scale @ 25°C**
Step Response to 63% of FS,	24 µs	— Current Output
Step Response to 63% of FS,	—	20 µs Voltage Output
Output Conversion Rate	16 µs	20 µs
PointBus Current (mA)	75	75
Power Dissipation, Max.	1.0 W @ 28.8VDC	1.0 W @ 28.8VDC

\* Includes offset, gain, non-linearity and repeatability error terms.

† Analog output modules support these configurable parameters and diagnostics: open-wire with LED and electronic reporting (RPSSTACM12A only); fault mode; idle mode; alarms; channel signal range and on-board scaling.

# Serial Bus System

## Valve Driver Module

### RPSSV32A

The RPSSV32A valve driver module provides an interface between the Serial Bus system and the valve assembly. This module will always be the last module on the Serial Bus. It controls 32 digital outputs at 24VDC.

Depending on the valve selection, it can control up to 32 single solenoid valves or 16 double solenoid valves.

### Valve Driver Module Specifications

	RPSSV32A
Outputs per Module	32, sourcing
Voltage Drop, On-State Output, Maximum	0.2VDC
Voltage, Off-State Output, Maximum	28.8VDC
Voltage, On-State Output, Maximum Minimum Nominal	28.8VDC 10VDC 24VDC
Output Current Rating	200 mA per channel, not to exceed 6.0 A per module
Output Surge Current, Maximum	0.5 A for 10 ms, repeatable every 3 seconds
Current Leakage, Off-State Output, Maximum	0.1 mA
Current, On-State Output Minimum	200 mA per channel
Output Delay Time OFF to ON, Maximum <sup>1</sup>	0.1 ms
Output Delay Time, ON to OFF, Maximum <sup>1</sup>	0.1 ms
External DC Power Supply Voltage Range	10 to 28.8VDC
External DC Power Supply Voltage Nominal	24VDC

<sup>1</sup>. OFF to ON or ON to OFF delay is time from a valid output "on" or "off" signal to output energization or de-energization.

## Step 3

### Select the Appropriate Power Unit

#### Selecting a Power Supply Unit

Serial Bus adapters have built-in PointBus power supplies. All Serial Bus modules are powered from the PointBus by either an adapter or expansion power supply.

#### Power Specifications

Part Number	Power Supply Input Voltage, Nom.	Operating Voltage Range	Field Side Power Requirements, Max.	Power Supply Inrush Current, Max.	Input Overvoltage Protection	Power Supply Interruption Protection
RPSSCDM12A	24VDC	10...28.8VDC	24VDC (+20% = 28.8VDC) @ 400 mA	6 A for 10 ms	Reverse polarity protected	Output voltage will stay within specifications when input drops out for max. load.
RPSSCDM18PA						
RPSSCCNA						
RPSSCENA						
RPSSCPBA						
RPSSSE24A						

Power units are divided into two categories:

- Communication adapters with built-in power supply (dc-dc)
- Expansion power supply

# Serial Bus System

## Expansion Power Unit

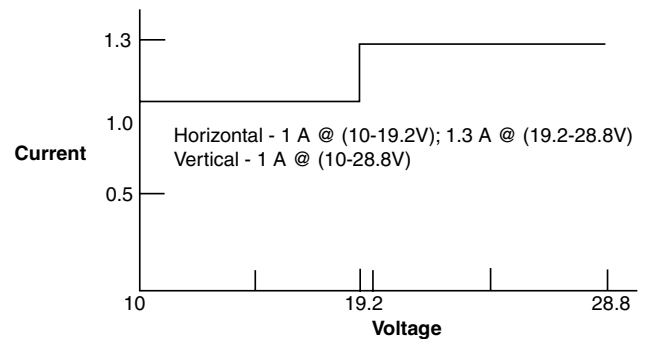
The RPSSSE24A expansion power unit passes 24VDC field power to the I/O modules to the right of it. This unit extends the backplane bus power and creates a new field voltage partition segment for driving field devices for up to 13 I/O modules. The expansion power unit separates field power from I/O modules to the left of the unit, effectively providing functional and logical partitioning for:

- Separating field power between input and output modules
- Separating field power to the analog and digital modules
- Grouping modules to perform a specific task or function

You can use multiple expansion power units with any of the communication adapters to assemble a full system. If you are using the RPSSCDM12A adapter, you may use a RPSSSE24A expansion power unit to add additional modules. For example, if you had a 36 module system with a RPSSCDM12A adapter, you would have at least two or more RPSSSE24A expansion power units to provide more PointBus current for modules to the right of the supply.

- 24VDC to 5VDC converter
- 1.3A, 5VDC output (extend backplane power)
- Starts new voltage distribution
- Partitioning

## RPSSSE24A Current Derating for Mounting



## Power Distribution General Specifications

	RPSSSE24A
Power Supply Requirements	Note: In order to comply with CE Low Voltage Directives (LVD), you must use a Safety Extra Low Voltage (SELV) or a Protected Extra Low Voltage (PELV) power supply to power this adapter
Field Side Power Requirements	24VDC (+20% = 28.8VDC max.) @ 400 mA
Inrush Current, Max.	6 A for 10 ms
Input Overvoltage Protection	Reverse polarity protected
Power Supply Interruption Protection	Output voltage will stay within specifications when input drops out for 10 ms at 10V with max. load
Power Supply Input Voltage, Nom.	24VDC
Operating Voltage Range	10...28.8VDC
Power Consumption, Max.	9.8 W @ 28.8VDC
Power Dissipation, Max.	3.0 W @ 28.8VDC
Thermal Dissipation, Max.	10.0 BTU/hr @ 28.8VDC
Isolation Voltage	1250V rms
Field Power Bus Supply Voltage, Nom.	12VDC or 24VDC
Field Power Bus Supply Current, Max.	10 A

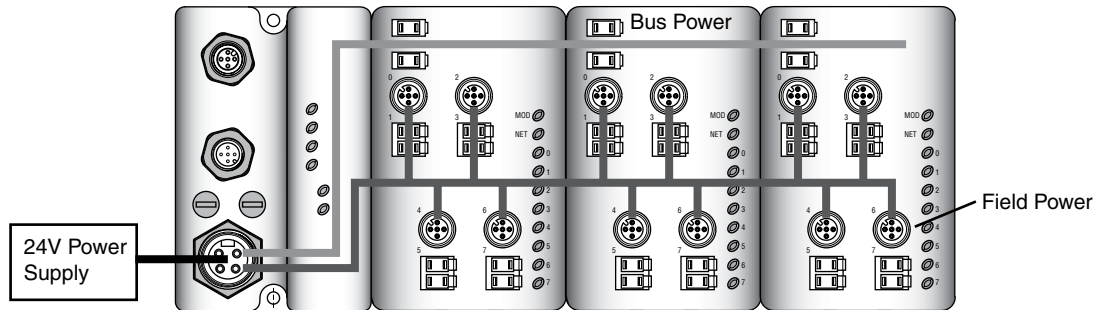
# Serial Bus System

## Typical Configurations

### Power Distribution Options

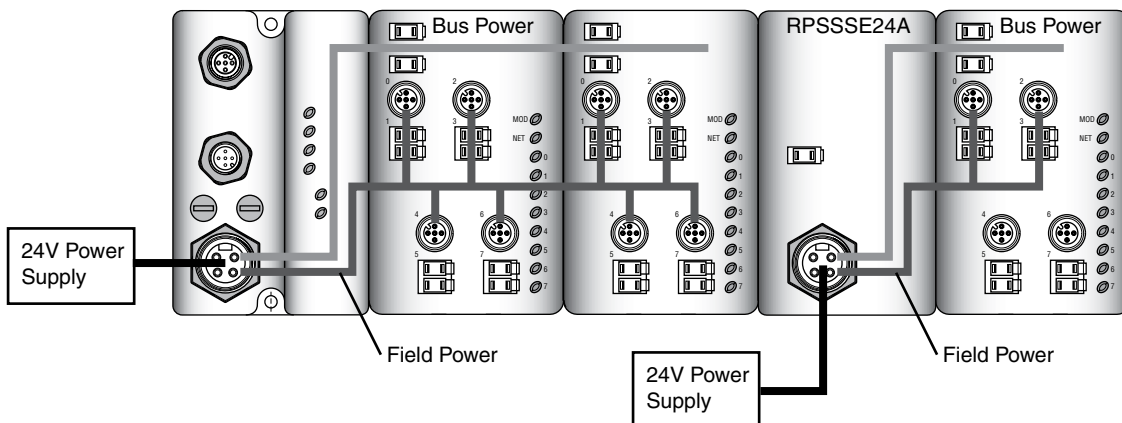
#### Serial Bus Communication Adapter and I/O Modules

An auxiliary 24VDC power supply provides power to the PointBus backplane and I/O modules. You can connect up to 13 I/O modules and an adapter with a maximum of 10 A field power, using the auxiliary power.



#### Serial Bus System with 24VDC Expansion Power Unit (RPSSE24A)

The auxiliary power supports up to 13 I/O modules and an adapter with a maximum of 10 A field power. The 24VDC expansion power unit (RPSSE24A) extends the backplane bus power to support up to 13 more I/O modules. Connect additional expansion power units to expand the I/O assembly up to the maximum of 63 I/O modules.



# Serial Bus System

## Step 4

### Select Cables and Cordsets

#### Selecting Accessories

#### Serial Bus Digital Input Module Cables

Part Number	For Using:	Recommended Rockwell Automation Patchcord (double-ended)	Recommended Rockwell Automation Male Cordset (single-ended)
RPSSN8M12A	2 inputs per connector	879D-F4ACDM-x	879-C3AEDM4-5
RPSSP8M12A	1 input per connector	889D-F4ACDM-x	889D-M4AC-y
RPSSN8M8A	3-Pin pico connectors	889P-F3ABPM-x	889P-M3AB-y
RPSSP8M8A	4-Pin pico connectors	889P-F4ABPM3-x	
RPSSN8M23A	M23, 12-Pin	889M-F12AHMU-z	—
RPSSP8M23A			
RPSST8M23A			

x = length in meters (1, 2, 3, 5, and 10 standard)

y = length in meters (2, 5, and 10 standard)

z = length in meters (1, 2, and 3 standard)

For more cables and cordsets, please refer to [www.connector.com](http://www.connector.com)

#### Serial Bus Analog Inputs and Outputs

Part Number	For Using:	Recommended Cable
RPSSNAVM12A	1 input per connector	804507P20M020 (Shielded)*
RPSSNACM12A		
RPSSTAVM12A	1 output per connector	
RPSSTACM12A		

\* Refer to [www.connector.com](http://www.connector.com)

#### Serial Bus Digital Output Module Cables

Part Number	For Using:	Recommended Rockwell Automation Patchcord (double-ended)	Recommended Rockwell Automation Male Cordset (single-ended)
RPSST8M12A	2 inputs per connector	879D-F4ACDM-x	879-C3AEDM4-5
	1 input per connector	889D-F4ACDM-x	889D-M4AC-y
RPSST8M8A	3-Pin pico connectors	889P-F3ABPM-x	889P-M3AB-y
	4-Pin pico connectors	889P-F4ABPM3-x	

x = length in meters (1, 2, 3, 5, and 10 standard)

y = length in meters (2, 5, and 10 standard)

For more cables and cordsets, please refer to [www.connector.com](http://www.connector.com)

#### Serial Bus Relay Output Module Cables

Part Number	Recommended Rockwell Automation Patchcord (double-ended)	Recommended Rockwell Automation Male Cordset (single-ended)
RPSSTR4M12A	889D-F4ACDM-x	889D-M4AC-y

x = length in meters (1, 2, 3, 5, and 10 standard)


y = length in meters (2, 5, and 10 standard)

For more cables and cordsets, please refer to [www.connector.com](http://www.connector.com)



# Serial Bus System

## Serial Bus DeviceNet™ and Auxiliary Power Cables

Part Number	Network	Recommended Rockwell Automation Network Cable	Recommended Rockwell Automation Auxiliary Power Cables
RPSSCDM12A RPSSCDM18PA	DeviceNet™	KwikLink Flat Media system standard drop cable: 1485K-PzF5-R5 Thin Round system standard drop cable: 1485R-PzN5-M5 Thick Round system standard drop cable: 1485C-PzN5-M5	Standard Cordset (single-ended): 889N-F5AFC-y Standard Patchcord (double-ended): 889N-F4AFNC-x
RPSSCCNA	ControlNet™	BNC to TNC Connector is required when using BNC Cordsets. See <a href="http://www.amphenolrf.com">www.amphenolrf.com</a> 	
RPSSCENA	EtherNet/IP™	—	
RPSSCPBA	PROFIBUS DP	—	Standard Cordset (single-ended): 889N-F5AFC-y

x = length in meters (1, 2, 3, and 6 standard)

y = length in feet (6, 12, and 20 standard)

z = length in feet (1, 2, 3, 4, 5, and 6 standard)

For more cables and cordsets, please refer to [www.connector.com](http://www.connector.com)

## Serial Bus Valve Driver Module Harness Assemblies

Valve	Part Number	
	1 to 24 Outputs	25 to 32 Outputs
Size 0 and Size 00 Valve	RPS5624P	RPS5632P
Size 1, 2, & 3 Valve	RPS4024P	RPS4032P

# Serial Bus System

## Step 5

### Placing Serial Bus Modules

#### Determining Mounting Requirements

The producer / consumer model multicasts messages. This means that multiple nodes can consume the same data at the same time from a single device. Where you place I/O modules in the control system determines how the modules exchange data.

For a Rockwell controller to control Serial Bus, the I/O must be:

- On the same network as the controller **or**
- On a ControlNet™ network that is local to that controller **or**
- On an EtherNet/IP™ network that is local to that controller

#### Maximum Size Layout

Part Number	PointBus Current (mA)	Maximum I/O Modules with 24VDC Backplane Current at 75 mA each	Maximum I/O Modules with Expansion Power Supplies	Maximum Number of I/O Module Connections
RPSSCDM12A on DeviceNet™	1000	Up to 13	63	5 rack and 20 direct 20 total connections including rack and direct Not to exceed scanner capacity
RPSSCDM18PA on DeviceNet™				
RPSSCCNA on ControlNet™				
RPSSCENA on EtherNet/IP™				
RPSSCPBA on PROFIBUS				
RPSSSE24A Expansion Power	Horizontal mounting: 1A@5VDC for 10...19.2V input; 1.3A @ 5VDC for 19.2...28.8V input Vertical mounting: 1A @ 5VDC for 10...28.8V input			

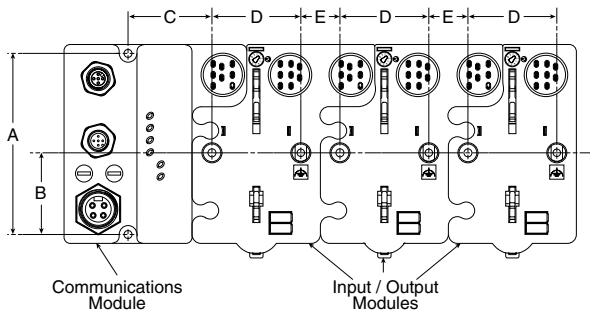
#### Power Supply Distance Rating

Modules are placed to the right of the power supply. Each Serial Bus module can be placed in any of the slots to the right of the power supply until the usable backplane current of that supply has been exhausted. An adapter provides 1 A current to the PointBus. The RPSSSE24A provides up to 1.3 A and I/O modules require from 75 mA (typical for the digital and analog I/O modules) up to 90 mA or more.

#### PointBus Current Requirements

Part Number	PointBus Current Requirements
RPSSN8xxx	75 mA
RPSSP8xxx	
RPSST8xxx	
RPSSTR4MRA	90 mA
RPSSNACM12A	75 mA
RPSSTACM12A	
RPSSNAVM12A	
RPSSTAVM12A	
RPSSV32A	

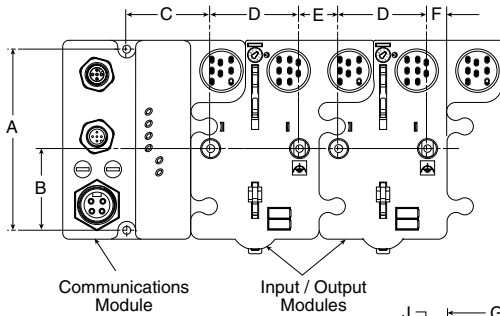
# Serial Bus System



## Serial Bus Dimensions

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
4.0 (102)	1.8 (46)	1.9 (48)	2.0 (50)
<b>E</b>	<b>F</b>		
.87 (22)	.43 (11)		

Inches (mm)



## Size 00, 0 Dimensions

<b>G</b>	<b>H</b>	<b>H<sub>1</sub></b>	<b>J</b>	<b>K</b>
2.68 (68)	.33 (8.4)	1.80 (45.8)	.15 (4)	4.32 (110)
<b>L</b>	<b>M</b>	<b>P</b>	<b>W</b>	<b>W<sub>1</sub></b>
.63 (16)	5.39 (137)	5.98 (152)	1.61 (40.8)	2.24 (56.8)

Inches (mm)

## Size 1 Dimensions

<b>G</b>	<b>H</b>	<b>H<sub>1</sub></b>	<b>J</b>	<b>K</b>
2.20 (56)	.63 (15.9)	.63 (15.9)	.33 (8.5)	6.50 (165)
<b>P</b>	<b>W</b>			
7.17 (182)	1.93 (49)			

Inches (mm)

## Size 2 Dimensions

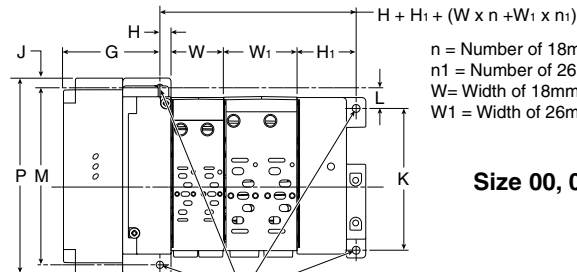
<b>G</b>	<b>H</b>	<b>H<sub>1</sub></b>	<b>J</b>	<b>K</b>
2.28 (58)	.71 (18)	.59 (15)	.47 (12)	8.46 (215)
<b>P</b>	<b>W</b>			
9.41 (239)	2.20 (56)			

Inches (mm)

## Size 3 Dimensions

<b>G</b>	<b>H</b>	<b>H<sub>1</sub></b>	<b>J</b>	<b>K</b>
2.52 (64)	.94 (24)	.65 (16.5)	.59 (15)	10.43 (265)
<b>P</b>	<b>W</b>			
11.61 (295)	2.80 (71)			

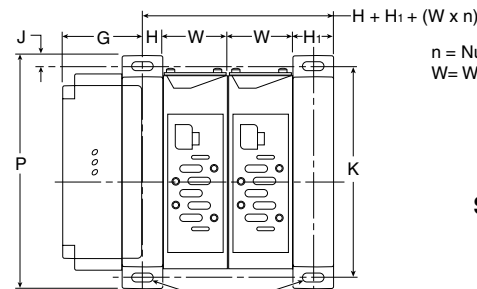
Inches (mm)



$n$  = Number of 18mm Size 00 Bases  
 $n_1$  = Number of 26mm Size 0 Bases  
 $W$  = Width of 18mm Size 00 Bases  
 $W_1$  = Width of 26mm Size 0 Bases

## Size 00, 0 Manifold Assembly

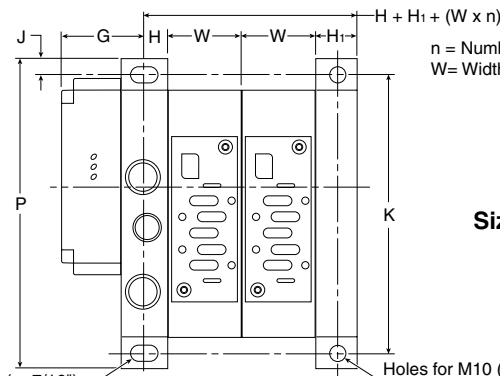
Holes for M6 (or 1/4")  
Screws 4 Places



$n$  = Number of Size 1 Bases  
 $W$  = Width of Size 1 Bases

## Size 1 Manifold Assembly

Slots for M6 (or 1/4")  
Screws 4 Places



$n$  = Number of Size 2 / Size 3 Bases  
 $W$  = Width of Size 2 / Size 3 Bases

## Size 2 & 3 Manifold Assembly

Slots for M10 (or 7/16")  
Screws 2 Places

Holes for M10 (or 7/16")  
Screws 2 Places

# Serial Bus System

## Related Documentation

Additional user documentation presents information according to the tasks you perform and the programming environment you use. Refer to the table below for information on Serial Bus products.

### Serial Bus Related Publications\*

	Part Number	Description	Instruction Sheet*
General Information	—	Industrial Automation Wiring and Grounding Guidelines	A10324
		Safety Guidelines for the Application, Installation and Maintenance of Solid State Control	A10325
Pinout Wiring Diagram	RPSSN8xxx, RPSSP8xxx, RPSST8xxx	Pinout Guide for Serial Bus Digital I/O Modules	PSS-WD001
	RPSSTR4M12A	Pinout Guide for Serial Bus Relay Module	PSS-WD002
	RPSSNACM12A, RPSSNAVM12A, RPSSTACM12A, RPSSTAVM12A, RPSSS23A	Pinout Guide for Serial Bus Analog and Serial Modules	PSS-WD003
	RPSSCDM12A, RPSSCDM18PA, RPSSCCNA, RPSSCPBA, RPSSCENA, RPSSE24A	Pinout Guide for Serial Bus Adapters and Power Supply	PSS-WD004
Communication Interfaces	RPSSCDM12A	Serial Bus DeviceNet™ Adapter Module, Drop or Pass-through, with male and female M12 connectors	A10313, Installation Instructions Bulletin 601, User Manual
	RPSSCDM18PA	Serial Bus DeviceNet™ Adapter Module, Drop or Pass-through, with male and female M18 connectors	
	RPSSCCNA	Serial Bus Redundant ControlNet™ Adapter Module	A10315, Installation Instructions Bulletin 601
	RPSSCENA	Serial Bus Ethernet/IP 10/100 Mbps Adapter Module	A10316, Installation Instructions Bulletin 601
	RPSSCPBA	Serial Bus PROFIBUS Adapter Module	A10314, Installation Instructions Bulletin 601
Valve Driver Module	RPSSV32A	32 Point Valve Driver Module	A10312
DC I/O	RPSSN8M8A	24VDC 8 Sink Input w/8 M8 connectors	A10318
	RPSSN8M12A	24VDC 8 Sink Input w/4 M12 connectors, 2 points per connector	
	RPSSN8M23A	24VDC 8 Sink Input w/1 M23 connector	
	RPSSP8M8A	24VDC 8 Source Input w/8 M8 connectors	
	RPSSP8M12A	24VDC 8 Source Input w/4 M12 connectors, 2 points per connector	
	RPSSP8M23A	24VDC 8 Source Input w/1 M23 connectors	
	RPSS8M8A	24VDC 8 Source Output w/1 M23	A10319
	RPSS8M12A	24VDC 8 Source Output w/4 M12	
	RPSS8M23A	24VDC 8 Source Output w/8 M8	
Analog	RPSSNACM12A	24VDC Analog Current Input w/ 2 M12 connectors	A10321
	RPSSNAVM12A	24VDC 2 Analog Voltage Input w/ 2 M12 connectors	
	RPSSTACM12A	24VDC Analog Current Output w/ 2 M12 connectors	A10322
	RPSSTAVM12A	24VDC Analog Voltage Output w/ 2 M12 connectors	
Power Unit	RPSSE24A	24VDC Expansion Power Supply	A10317
Relay Output	RPSSTR4M12A	4 From A isolated (normally open) electromechanical relays	A10320

\* Publications are electronic versions only. To make copies of these publications, go to: <http://www.rosscontrols.com>



# Serial Bus System

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## Serial Bus System Technical Support

System Support and Troubleshooting Assistance is available for purchase when an issue goes beyond just the performance of an individual component.

### Scope of Services Supplied

- World Class phone support in both U.S.A. and Canada
- All calls are logged into the support system
  - Caller and company history
  - Product information and service history
  - Problem and resolution description history
  - Summary notes by technical support specialist
- Functional Serial Bus hardware connected to Allen Bradley Control Logic PLC's and many other competitive PLC's

### Service Descriptions

#### Phone Support

**(8am–5pm Eastern Standard Time, Monday thru Friday)**

When your process is down, or you have a critical support issue, every minute counts. Your call receives priority status and can be routed to a support specialist.

#### Priority Case Handling

Open priority cases are kept at the front of the queue and assigned automatic escalation procedures. For complex cases that may require additional time to resolve, we call you with a status update.

#### Proactive Case Resolution

If you need to try our recommended solution after the phone call, we make a follow-up call to confirm your problem is resolved and provide additional troubleshooting if needed.

**Technical Service calls should be directed to  
1-888-835-7677 (toll free in the U.S.) or 1-706-356-3708**

# Installation Safety Guidelines

## Installation Safety Guidelines For Selecting And Using ROSS CONTROLS Products And Related Accessories

### WARNING:

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF ROSS CONTROLS PRODUCTS, ASSEMBLIES OR RELATED ITEMS (“PRODUCTS”) CAN CAUSE DEATH, PERSONAL INJURY, AND/OR PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:**

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work pieces or component parts being thrown off at high speeds.
- Failure of a device to function properly for example, failure to clamp or unclamp an associated item or device.
- Explosion
- Suddenly moving or falling objects.
- Release of toxic or otherwise injurious liquids or gasses.

Before selecting or using any of these Products, it is important that you read and follow the instructions below.

### 1. GENERAL INSTRUCTIONS

- 1.1. Scope:** This safety guide is designed to cover general guidelines on the installation, use, and maintenance of ROSS CONTROLS Valves, FRLs (Filters, Pressure Regulators, and Lubricators), and related accessory components.
- 1.2. Fail-Safe:** Valves, FRLs, and their related components can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of associated valves, FRLs or related accessory components will not endanger persons or property.
- 1.3. Relevant International Standards:** For a good guide to the application of a broad spectrum of pneumatic fluid power devices see: ISO 4414:1998, Pneumatic Fluid Power – General Rules Relating to Systems. See [www.iso.org](http://www.iso.org) for ordering information.
- 1.4. Distribution:** Provide a copy of this safety guide to each person that is responsible for selection, installation, or use of Valves or FRL products. Do not select, or use ROSS CONTROLS valves or FRLs without thoroughly reading and understanding this safety guide as well as the specific ROSS CONTROLS publications for the products considered or selected.
- 1.5. User Responsibility:** Due to the wide variety of operating conditions and applications for valves and FRLs ROSS CONTROLS and its distributors do not represent or warrant that any particular valve or FRL is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:
  - Making the final selection of the appropriate valve, FRL or accessory.
  - Assuring that all user's performance, endurance, maintenance, safety, and warning requirements are met and that the application presents no health or safety hazards.
  - Complying with all existing warning labels and / or providing all appropriate health and safety warnings on the equipment on which the valves or FRLs are used; and,
  - Assuring compliance with all applicable government and industry standards.
- 1.6. Safety Devices:** Safety devices must not be removed, defeated or designed around.
- 1.7. Warning Labels:** Warning labels must not be removed, painted over or otherwise obscured.
- 1.8. Intake / Exhaust Restriction:** Do not restrict the air flow in the supply line. To do so could reduce the pressure of the supply air below the minimum requirements for the valve and thereby cause erratic action. Do not restrict a poppet valve's exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and have flow capacities at least as great as the exhaust capacities of the valves. Contamination of the silencer can result in reduced flow and increased back pressure.
- 1.9. Mechanical power presses** and other potentially hazardous machinery using a pneumatically controlled clutch and brake mechanism must use a press control double valve with a monitoring device. A double valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All double valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.
- 1.10. Additional Questions:** Call the appropriate ROSS CONTROLS technical service department if you have any questions or require any additional information. See the ROSS CONTROLS publications for the product being considered or used, or call your local distributor or ROSS CONTROLS' Technical Service department at 1-888-TEK-ROSS in the U.S.A. (1-706-356-3708 outside the U.S.A.). You may find your local ROSS distributor at [www.rosscontrols.com](http://www.rosscontrols.com).

### 2. PRODUCT SELECTION INSTRUCTIONS

- 2.1. Flow Rate:** The flow rate requirements of a system are frequently the primary consideration when designing any pneumatic system. System components need to be able to provide adequate flow and pressure for the desired application.
- 2.2. Pressure Rating:** Never exceed the rated pressure of a product. Consult product labeling, ROSS CONTROLS catalogs or the instruction sheets supplied for maximum pressure ratings.
- 2.3. Temperature Rating:** Never exceed the temperature rating of a product. Excessive heat can shorten the life expectancy of a product and result in complete product failure.



# Installation Safety Guidelines

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- 2.4. Environment:** Many environmental conditions can affect the integrity and suitability of a product for a given application. Ross Controls products are designed for use in general purpose industrial applications. If these products are to be used in unusual circumstances such as direct sunlight and/or corrosive or caustic environments, such use can shorten the useful life and lead to premature failure of a product.
- 2.5. Lubrication and Compressor Carryover:** Some modern synthetic oils can and will attack nitrile seals. If there is any possibility of synthetic oils or greases migrating into the pneumatic components check for compatibility with the seal materials used. Consult the factory or product literature for materials of construction.
- 2.6. Polycarbonate Bowls and Sight Glasses:** All standard ROSS filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Do not fail to use the metal bowl guard, where provided, to minimize danger from high pressure fragmentation in the event of bowl failure. To avoid potential polycarbonate bowl failures:
- Do not locate polycarbonate bowls or sight glasses in areas where they could be subject to direct sunlight, impact blow, or temperatures outside of the rated range.
  - Do not expose or clean polycarbonate bowls with detergents, chlorinated hydro-carbons, ketones, esters, liquefied petroleum gas, or certain alcohols.
  - Do not use polycarbonate bowls or sight glasses in air systems where compressors are lubricated with fire resistant fluids such as phosphate ester and di-ester lubricants.
- 2.7. Chemical Compatibility:** For more information on plastic component chemical compatibility see ROSS' Catalog 104G (or later version). This can be downloaded at [www.rosscontrols.com](http://www.rosscontrols.com) or can be obtained from your local ROSS distributor.
- 2.8. Product Rupture:** Product rupture can cause death, serious personal injury, and property damage.
- Do not connect pressure regulators or other ROSS CONTROLS products to bottled gas cylinders.
  - Do not exceed the maximum primary pressure rating of any pressure regulator or any system component.
  - Consult product labeling or product literature for pressure rating limitations.
- 2.9** ROSS expressly disclaims all warranties and responsibility for any unsatisfactory performance or injuries caused by the use of the wrong type, wrong size, or inadequately maintained silencer installed with a ROSS product.

## 3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

- 3.1. Component Inspection:** Prior to assembly or installation a careful examination of the valves and FRLs must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.
- 3.2. Installation Instructions:** ROSS CONTROLS published installation instructions must be followed for installation of ROSS CONTROLS valves and FRLs. These instructions are provided with every ROSS CONTROLS valve and FRL sold, or by going to [www.rosscontrols.com/rosslit.htm](http://www.rosscontrols.com/rosslit.htm). All applicable instructions should be read and complied with before using any fluid power system in order to prevent harm to persons or equipment. In addition, overhauled or serviced valves must be functionally tested prior to installation or use.
- 3.3. Air Supply:** The air supply or control medium supplied to valves and FRLs must be moisture-free if ambient temperature can drop below freezing

## 4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS

- 4.1. Maintenance:** Even with proper selection and installation, valve and FRL service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of ROSS CONTROLS products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.9.
- 4.2. Installation and Service Instructions:** Before attempting to service or replace any worn or damaged parts consult the appropriate service bulletin or installation / instruction sheet for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every ROSS CONTROLS valve and FRL sold, or are available by calling 1-800-GET-ROSS, or by accessing the ROSS CONTROLS web site at [www.rosscontrols.com](http://www.rosscontrols.com).
- 4.3. Lockout / Tagout Procedures:** Be sure to follow all required lockout and tagout procedures when servicing equipment. For more information see: ANSI/ASSE Z244.1-2003 and OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – (Lockout / Tagout)
- 4.4. Visual Inspection:** Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:
- Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
  - Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
  - Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
  - Any observed improper system or component function: Immediately shut down the system and correct malfunction.
  - Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

**Caution: Leak detection solutions should be rinsed off after use.**

# Installation Safety Guidelines

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## 4.5. Routine Maintenance Issues:

- Remove excessive dirt, grime and clutter from work areas.
- Make sure all required guards and shields are in place.

## 4.6. Functional Test:

Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.

## 4.7. Service or Replacement Intervals:

It is the user's responsibility to establish appropriate service intervals. Valves and FRLs contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves and FRLs need to be serviced or replaced on routine intervals. Service intervals need to be established based on:

- Previous performance experiences.
- Government and / or industrial standards.
- When failures could result in unacceptable down time, equipment damage or personal injury risk.

## 4.8. Servicing or Replacing of any Worn or Damaged Parts:

To avoid unpredictable system behavior that can cause death, personal injury and property damage:

- Follow all government, state and local safety and servicing practices prior to service including but not limited to all OSHA Lockout Tagout procedures (ANSI/ASSE Z244.1-2003 and OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – Lockout / Tagout).
- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to system and ROSS CONTROLS products before installation, service, or conversion.
- Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
- Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.

## 4.9. Putting Serviced System Back into Operation:

Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve or FRL to insure proper function of the system.



**GLOBAL Reach with a LOCAL Touch<sup>SM</sup>**

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Fax: + 33-01-49-45-65-30

Email: [dimafluid@dimafluid.com](mailto:dimafluid@dimafluid.com)

[www.dimafluid.com](http://www.dimafluid.com)

*Your local ROSS distributor is:*

## Warranty

Products manufactured by ROSS are warranted to be free of defects in material and workmanship for a period of one year from the date of purchase. ROSS' obligation under this warranty is limited to repair or replacement of the product or refund of the purchase price paid solely at the discretion of ROSS and provided such product is returned to ROSS freight prepaid and upon examination by ROSS such product is found to be defective. This warranty shall be void in the event that product has been subject to misuse, misapplication, improper maintenance, modification or tampering. THE WARRANTY EXPRESSED ABOVE IS IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES AND ROSS EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ROSS MAKES NO WARRANTY WITH RESPECT TO ITS PRODUCTS MEETING THE PROVISIONS OF ANY GOVERNMENTAL OCCUPATIONAL SAFETY AND/OR HEALTH LAWS OR REGULATIONS. IN NO EVENT SHALL ROSS BE LIABLE TO PURCHASER, USER, THEIR EMPLOYEES OR OTHERS FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM A BREACH OF THE WARRANTY DESCRIBED ABOVE OR THE USE OR MISUSE OF THE PRODUCTS. NO STATEMENT OF ANY REPRESENTATIVE OR EMPLOYEE OF ROSS SHALL EXTEND THE LIABILITY OF ROSS AS SET FORTH HEREIN.