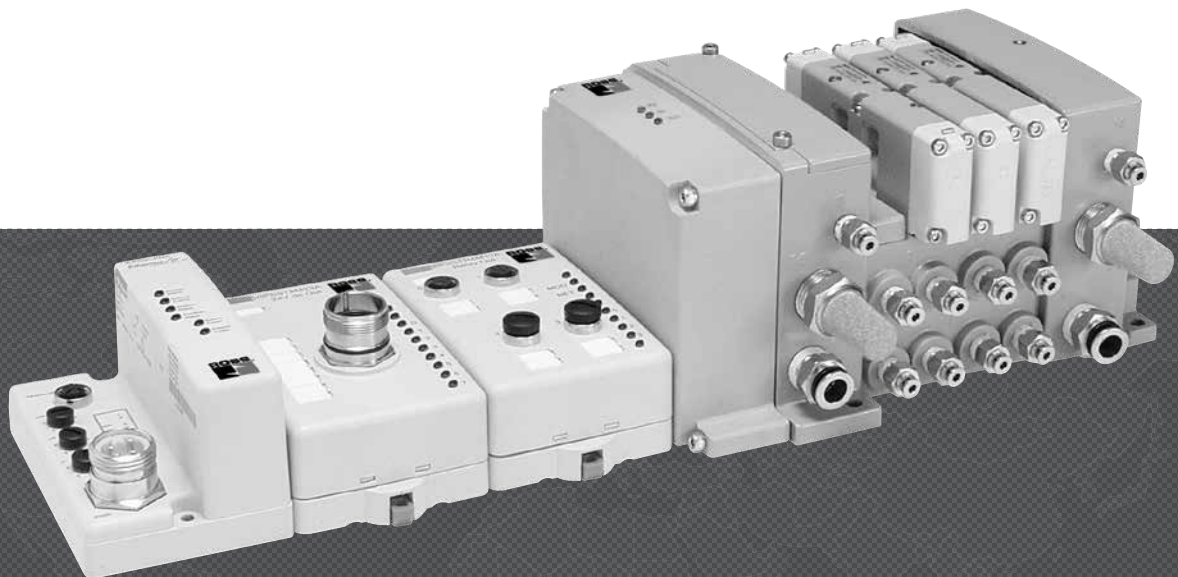




ROSS SERIAL BUS COMMUNICATIONS



ROSS CONTROLS

ROSS SERIAL BUS COMMUNICATIONS – KEY FEATURES

- A complete Serial Bus communication offering for all ISO valves
- Centralized and decentralized pneumatics and I/O configurations
- Communication module supports up to 63 I/O modules, 264 Inputs, and 264 Outputs
- Input modules accept signals from sensors, photo eyes, limits and other field input devices
- Output modules provide signals to remote solenoid valves and other field output devices
- UL, C-UL, and CE certified



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| Select Communication Module | C3.6 |
| Select Input/Output Module | C3.7 - C3.8 |
| Select Valve Driver Module | C3.8 |
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ROSS Serial Bus Communications

I/O - Centralized Configuration

A complete Serial Bus communication offering for all ISO valves.
UL, C-UL and CE certifications (as marked)
Centralized Serial Bus system.
Pneumatics and I/O are in close proximity to one another.
I/O density per module = 8.



I/O - Remote Configuration

A complete Serial Bus communication offering for all ISO valves.
UL, C-UL and CE certifications (as marked)
Centralized Serial Bus system.
Pneumatics and I/O are in close proximity to one another.
M23, 12-Pin output extension to remote valve island.
I/O density per module = 8.



I/O - Compartmentalized Remote Configuration

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



Components Selection Steps

1. Select Communication Interface Module
2. Select I/O Modules
3. Select Valve Driver Module
4. Select Terminating Base Module
5. Select Optional Power Component
6. Select Accessories

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. |

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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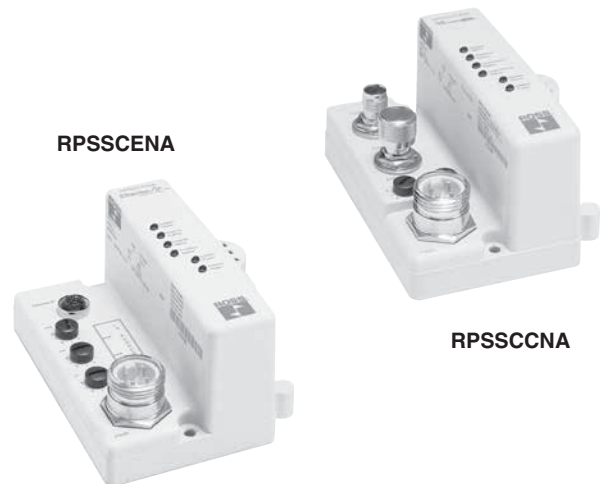
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C3.3

ROSS Serial Bus Communications

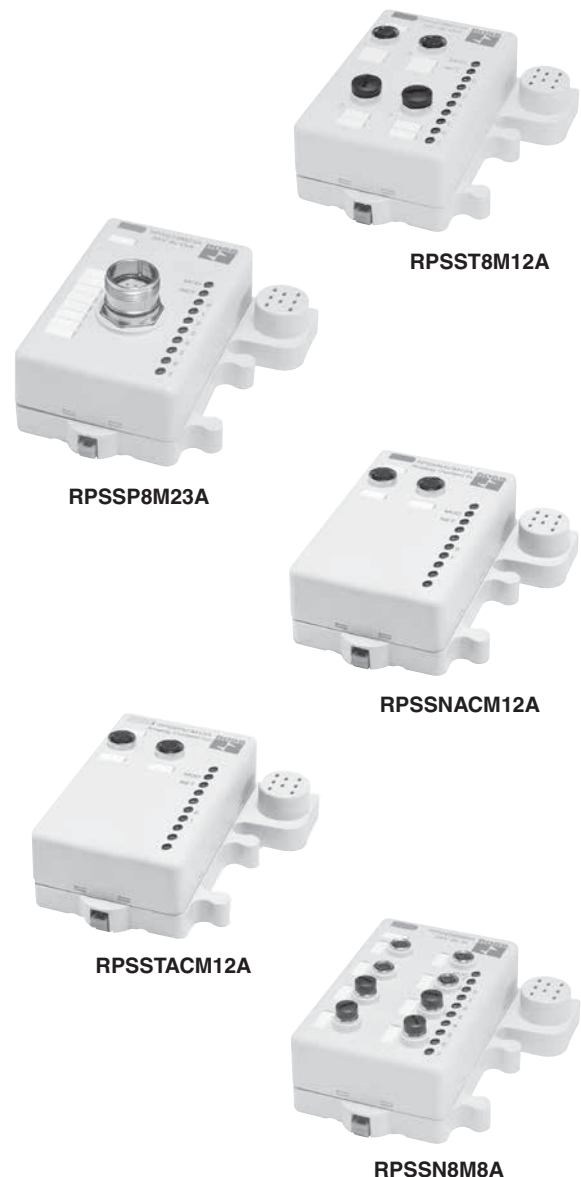
Communication Modules*

| Network | Model Number | Voltage |
|---|---------------------------------------|---------------------|
| †§ DeviceNet™ (M18 or M12) | RPSSCDM18PA (M18) or RPSSCDM12A (M12) | 10 to 28.8 volts DC |
| †§ ControlNet™ | RPSSCCNA | 10 to 28.8 volts DC |
| †§ Ethernet I/P™ | RPSSCENA | 10 to 28.8 volts DC |
| †§ Profibus-DP® | RPSSCPBA | 10 to 28.8 volts DC |
| * 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 Station Kits. EDS and GSD files located at www.rosscontrols.com | | |



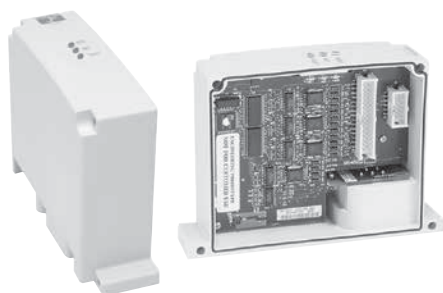
I/O Modules*

| Network | Model Number | Voltage |
|---|--------------|------------------------|
| † 8 Digital Inputs M12 (NPN Sinking - Requires PNP Sourcing Input Device) | RPSSN8M12A | 10 to 28.8 volts DC |
| † 8 Digital Inputs M12 (PNP Sourcing - Requires NPN Sinking Input Device) | RPSP8M12A | 10 to 28.8 volts DC |
| † 8 Digital Inputs M8 (NPN Sinking - Requires PNP Sourcing Input Device) | RPSSN8M8A | 10 to 28.8 volts DC |
| † 8 Digital Inputs M8 (PNP Sourcing - Requires NPN Sinking Input Device) | RPSP8M8A | 10 to 28.8 volts DC |
| † 8 Digital Inputs M23 12-Pin (PNP Sourcing - Requires NPN Sinking Input Device) | RPSP8M23A | 10 to 28.8 volts DC |
| † 8 Digital Inputs M23 12-Pin (NPN Sinking - Requires PNP Sourcing Input Device) | RPSSN8M23A | 10 to 28.8 volts DC |
| + 8 Digital Outputs M12 (PNP Sourcing) | RPSST8M12A | 10 to 28.8 volts DC |
| + 8 Digital Outputs M8 (PNP Sourcing) | RPSST8M8A | 10 to 28.8 volts DC |
| § 4 Digital Output, High Watt Relay M12 (PNP Sourcing) (2 Amp) | RPSTR4M12A | 24 volts DC |
| +§ 8 Digital Outputs M23 (PNP Sourcing) | RPSST8M23A | 10 to 28.8 volts DC |
| ‡ 2 Analog Inputs Voltage (M12) | RPSSNAVM12A | 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. Reference the following Documents for Installation Instructions. † A10318, †A10319, §A10320, ‡A10321, ..A10322. # Can be used with RPSSTERM. See www.rosscontrols.com | | |



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

ROSS Serial Bus Communications



RPSSV32A



RPSSTERM



RPSSSE24A



RPSSEXT1



RP8BPA00MA

Valve Driver Module

| Description | ISO Size | Model Number |
|---|------------------|--------------|
| 32 Point Module | 00, 0, 1, 2, & 3 | RPSSV32A*† |
| 24 Output Cable | 00 & 0 | RPS5624P† |
| 25 - 32 Output Cable | 00 & 0 | RPS5632P† |
| 24 Output Cable | 1, 2, & 3 | RPS4024P† |
| * Reference Document A10312 for Installation Instructions. See www.rosscontrols.com † Serial Bus Manifold assemblies and end station 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. | | |

Terminating Base Module

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

Power Extender Module

| Description | Voltage | Model Number |
|---|-------------|--------------|
| Field Power Module | 24 volts DC | RPSSSE24A |
| A Power Extender Module must be used on every 12th Module in an Serial Bus assembly. See www.rosscontrols.com Reference Document A10317 and A10311 for configuration instructions. See www.rosscontrols.com | | |

Bus Extender Cable

| Description | Voltage | Model Number |
|--|-------------|--------------|
| 1 Meter Cable* | 24 volts DC | RPSSEXT1 |
| 3 Meter Cable* | 24 volts DC | RPSSEXT2 |
| * Requires a RPSSSE24A Power Extender Module. IP67 Certified. See www.rosscontrols.com | | |

Devicebus Terminating Resistor

| Description | Model Number |
|------------------------|--------------|
| DeviceNet™ M12 Type A | RP8BPA00MA |
| Profibus-DP M12 Type B | RP8BPA00MB |

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Step 1

Select a Communication Interface Module

ROSS Serial Bus System

Communication Modules*

| Network | Model Number | Voltage |
|---|---------------------------------------|---------------------|
| †§ DeviceNet™ (M18 or M12) | RPSSCDM18PA (M18) or RPSSCDM12A (M12) | 10 to 28.8 volts DC |
| †§ ControlNet™ | RPSSCCNA | 10 to 28.8 volts DC |
| †§ Ethernet I/P™ | RPSSCENA | 10 to 28.8 volts DC |
| †§ Profibus-DP® | RPSSCPBA | 10 to 28.8 volts DC |
| * 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 Station kits. EDS and GSD files located at www.rosscontrols.com | | |

RPSSCCNA



RPSSCENA



| General Environmental | |
|-----------------------|----------------------------------|
| Operating Temperature | -4° to 140° F |
| Storage Temperature | -40° to 185° F |
| Relative Humidity | 5 to 95% non-condensing |
| Vibration | 5g @ 10 to 500Hz |
| Protection Class | Operating 30g; Non-operating 50g |
| Shock | IP 65/66/67 |
| Approvals | UL, C-UL, CE |

Maximum Size Layout

| Model 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 | |
| RPSSCDM18PA on DeviceNet™ | | | | |
| RPSSCCNA on ControlNet™ | | | | 5 rack and 20 direct |
| RPSSCENA on EtherNet/IP™ | | | | 20 total connections including rack and direct |
| RPSSCPBA on PROFIBUS | | | | |
| RPSSSE24A Expansion Power | Horizontal mounting: 1A@5V DC for 10...19.2V input; 1.3A @ 5V DC for 19.2...28.8V input Vertical mounting: 1A @ 5V DC for 10...28.8V input | | | Not to exceed scanner capacity |

PointBus Current Requirements

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

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.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

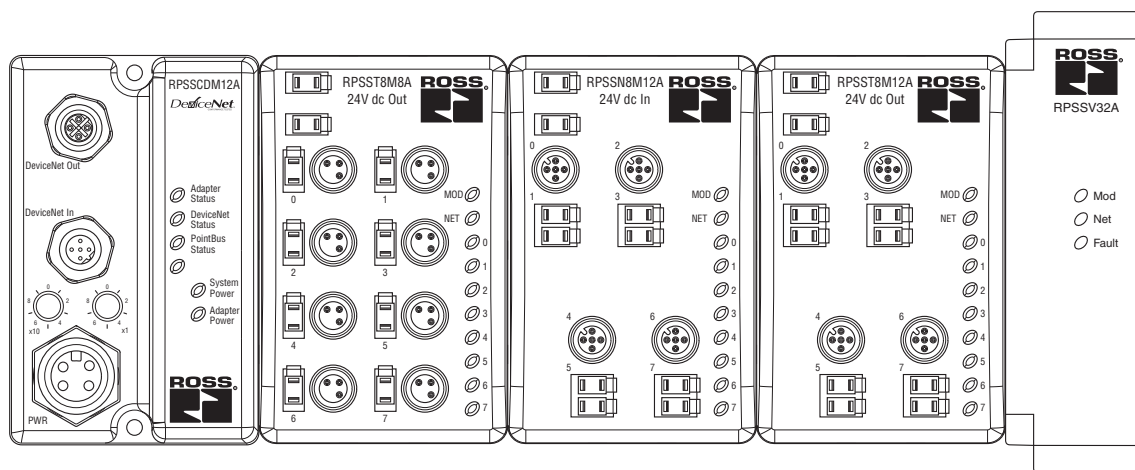
Step 2

Select I/O Modules

ROSS Serial Bus System

The Serial Bus family of I/O modules includes:

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



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. | 24 volts DC | 24 volts DC |
| Voltage, On-State Input, Min. | 10 volts DC | 10 volts DC |
| Voltage, On-State Input, Max. | 28.8 volts DC | 28.8 volts DC |
| 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 @ 28.8 volts DC | 1.0 W @ 28.8 volts DC |

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

Digital DC Output Modules

| | RPSSN8M8A RPSSN8M12A RPSSN8M23A |
|--------------------------------|---------------------------------------|
| Number of Outputs | 8 sourcing |
| Keyswitch Position | 1 |
| Voltage, On-State Output, Nom. | 24 volts DC |
| Voltage, On-State Output, Min. | 10 volts DC |
| Voltage, On-State Output, Max. | 28.8 volts DC |
| Output Current Rating, Max. | 3.0 A per module, 1.0 A per channel |
| PointBus Current (mA) | 75 |
| Power Dissipation, Max. | 1.2 W @ 28.8 volts DC |

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 @ 240 volts AC |
| PointBus Current (mA) | 90 |
| Power Dissipation, Max. | 0.5 W |

*Time from valid output off signal to relay de-energization by module.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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C3.7

Step 2 & 3

Select I/O & Valve Driver Modules

ROSS Serial Bus System

Analog Input Modules

| Model Number | 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 in unipolar 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 @ 28.8 volts DC | 0.6 W @ 28.8 volts DC |

* 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

| Model Number | 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 in unipolar 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 @ 28.8 volts DC | 1.0 W @ 28.8 volts DC |

* 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.

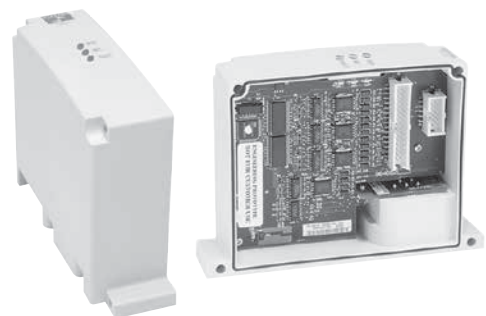
Step 3

Select Valve Driver Module for ROSS Bus System

Valve Driver Module Specifications

| Model Number | RPSSV32A |
|---|--|
| Outputs per Module | 32, sourcing |
| Voltage Drop, On-State Output, Maximum | 0.2 volts DC |
| Voltage, Off-State Output, Maximum | 28.8 volts DC |
| Voltage, On-State Output, Maximum Minimum Nominal | 28.8 volts DC 10 volts DC 24 volts DC |
| 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 ¹ | 0.1 ms |
| Output Delay Time, ON to OFF, Maximum ¹ | 0.1 ms |
| External DC Power Supply Voltage Range | 10 to 28.8 volts DC |
| External DC Power Supply Voltage Nominal | 24 volts DC |

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



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

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Select the Appropriate 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

| Model 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 | 24 volts DC | 10...28.8 volts DC | 24 volts DC (+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 | | | | | | |

Expansion Power Unit

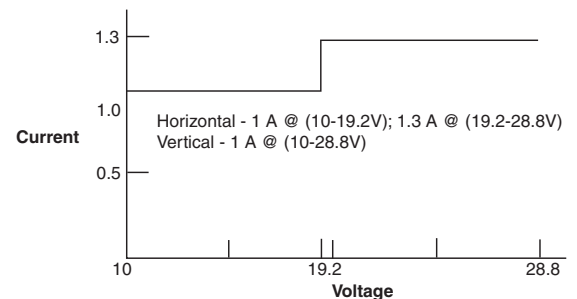
The RPSSSE24A expansion power unit passes 24 volts DC field power to the I/O modules to the right of it. This unit extends the backplane bus power and creates a new field voltage partition segment for driving field devices for up to 13 I/O modules. The expansion power unit separates field power from 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.

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

RPSSSE24A Current Derating for Mounting



Power Distribution General Specifications

| Model Number | 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 | 24 volts DC (+20% = 28.8 volts DC 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. | 24 volts DC |
| Operating Voltage Range | 10...28.8 volts DC |
| Power Consumption, Max. | 9.8 W @ 28.8 volts DC |
| Power Dissipation, Max. | 3.0 W @ 28.8 volts DC |
| Thermal Dissipation, Max. | 10.0 BTU/hr @ 28.8 volts DC |
| Isolation Voltage | 1250 V rms |
| Field Power Bus Supply Voltage, Nom. | 12 volts DC or 24 volts DC |
| Field Power Bus Supply Current, Max. | 10 A |

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Serial Bus Digital Input Module Cables

| Model 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 | | | |

Serial Bus Analog Inputs and Outputs

| Model Number | For Using: | Recommended Cable |
|---|------------------------|---------------------------|
| RPSSNAV12A | 1 input per connector | 804507P20M020 (Shielded)* |
| RPSSNAC12A | | |
| RPSSTAV12A | 1 output per connector | |
| RPSSTAC12A | | |
| * Refer to www.connector.com | | |

Serial Bus Digital Output Module Cables


| Model 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 | | | |

Serial Bus Relay Output Module Cables

| Model 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 | | |

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

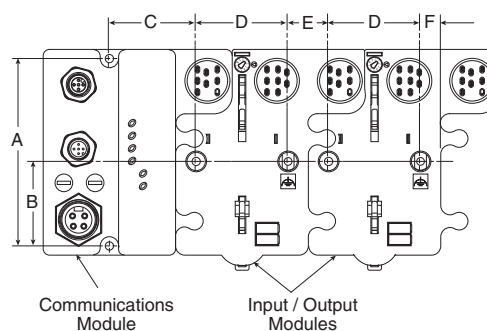
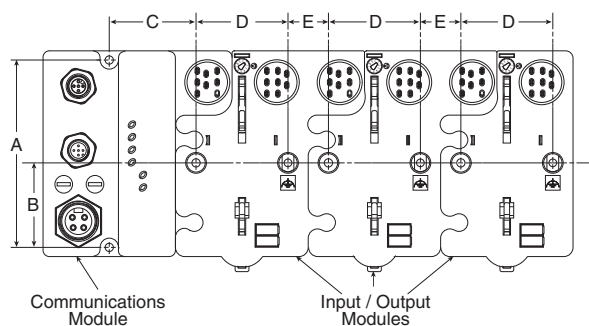
Serial Bus DeviceNet™ and Auxiliary Power Cables

| Model 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 |
| RPSSCNA | ControlNet™ | BNC to TNC Connector is required when using BNC Cordsets. See www.amphenolrf.com  | |
| 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

Serial Bus Valve Driver Module Harness Assemblies

| ISO Size | Model Number | |
|---------------|-----------------|------------------|
| | 1 to 24 Outputs | 25 to 32 Outputs |
| 0 and Size 00 | RPS5624P | RPS5632P |
| 1, 2, & 3 | RPS4024P | RPS4032P |



| Dimensions - inches (mm) | | | | | |
|--------------------------|----------|----------|----------|-----------|-----------|
| A | B | C | D | E | F |
| 4.0 (102) | 1.8 (46) | 1.9 (48) | 2.0 (50) | 0.87 (22) | 0.43 (11) |

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

CAUTIONS, WARNINGS And STANDARD WARRANTY

ROSS OPERATING VALVE, ROSS CONTROLS®, ROSS DECCO®, and AUTOMATIC VALVE INDUSTRIAL, collectively the "ROSS Group".

PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure all sources of energy are turned off, the entire pneumatic system is shut down and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).
2. All ROSS Group Products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any product can be tampered with and/or need servicing after installation, persons responsible for the safety of others or the care of equipment must check ROSS Group Products on a regular basis and perform all necessary maintenance to ensure safe operating conditions.
3. All applicable instructions should be read and complied with before using any fluid power system to prevent harm to persons or equipment. In addition, overhauled or serviced valves must be functionally tested prior to installation and use. If you have any questions, call your nearest ROSS Group location.
4. Each ROSS Group Product should be used within its specification limits. In addition, use only ROSS Group components to repair ROSS Group Products.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

FILTRATION and LUBRICATION

1. Dirt, scale, moisture, etc., are present in virtually every air system. Although some valves are more tolerant of these contaminants than others, best performance will be realized if a filter is installed to clean the air supply, thus preventing contaminants from interfering with the proper performance of the equipment. The ROSS Group recommends a filter with a 5-micron rating for normal applications.
2. All standard ROSS Group filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Use the metal bowl guard, where provided, to minimize danger from high pressure fragmentation in the event of bowl failure. Do not expose these products to certain fluids, such as alcohol or liquefied petroleum gas, as they can cause bowls to rupture, creating a combustible condition and hazardous leakage. Immediately replace crazed, cracked, or deteriorated bowls.
3. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible lubricants are petroleum base oils with oxidation inhibitors, an aniline

point between 180°F (82°C) and 220°F (104°C), and an ISO 32, or lighter, viscosity. Avoid oils with phosphate type additives which can harm polyurethane components, potentially leading to valve failure which risks personal injury, and/or damage to property.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

AVOID INTAKE/EXHAUST RESTRICTION

1. Do not restrict air flow in the supply line. To do so could reduce the pressure of the supply air below minimum requirements for the valve and thereby causing erratic action.
2. Do not restrict a valve's exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and must 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.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

SAFETY APPLICATIONS

1. 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.
2. Safety exhaust (dump) valves without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All safety exhaust valve installations should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.
3. Per specifications and regulations, the ROSS L-O-X® and L-O-X® with EEZ-ON®, N06 and N16 Series operation products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

STANDARD WARRANTY

All products sold by the ROSS Group are warranted for a one-year period [with the exception of Filters, Regulators and Lubricators ("FRLs") which are warranted for a period of seven (7) years] from the date of purchase. All products are, during their respective warranty periods, warranted to be free of defects in material and workmanship. The ROSS Group's obligation under this warranty is limited to repair, replacement or refund of the purchase price paid for products which the ROSS Group has determined, in its sole discretion, are defective. All warranties become void if a product has been subject to misuse, misapplication, improper maintenance, modification or tampering. Products for which warranty protection is sought must be returned to the ROSS Group freight prepaid.

THE WARRANTY EXPRESSED ABOVE IS IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES AND THE ROSS GROUP EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE ROSS GROUP 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 IS THE ROSS GROUP 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 THE ROSS GROUP MAY EXTEND THE LIABILITY OF THE ROSS GROUP AS SET FORTH HEREIN.





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Full-Service Global Locations

There are ROSS Distributors Throughout the World

To meet your requirements across the globe, ROSS distributors are located throughout the world. Through ROSS or its distributors, guidance is available for the selection of ROSS products, both for those using fluid power components for the first time and those designing complex systems.

Other literature is available for engineering, maintenance, and service requirements.

If you need products or specifications not shown in this catalog, please visit ROSS' website, contact ROSS or your ROSS distributor. The ROSS Support Team will be happy to assist you in selecting the best product for your application.

For a current list of countries and local distributors, visit ROSS' at www.rosscontrols.com.