

Modular Ethernet/IP Valve Interface



EX600
S E R I E S

- **Dual Port EtherNet/IP with Device Level Ring and QuickConnect™ (under 250 ms)**
- **IP67 Protection Rating**
- **Fixed I/O Mapping for Easy Configuration**
- **Remote Module & Channel Level Diagnostics**
- **Full Parameter Customization to Optimize Installation and Functions**
- **Compatible with Power Supplied from Safety Output Module with Pulse Test Function**

Valve and Communication Interface



EX600-SEN5-X16
Specifications

| Model | EX600-SEN-X16 | |
|-----------------------------|---|---|
| Protocol | EtherNet/IP™ | |
| Communication Speed | 100 Mbps/10 Mbps | |
| Communication Method | Full Duplex/Half Duplex | |
| IP Address Setting Range | SI Unit switch settings: 136.129.2.1 to 254 Through DHCP server: Optional address | |
| Device Information | Vendor ID: 7 (SMC Corporation) Product Code: 182 Device Type: 12 (Communication Adapter) | |
| Quick Connect™ Function | Supported, QC time under 250ms | |
| DLR Function | Supported | |
| WEB Server Function | Supported | |
| Output Spec | Number of Outputs | 16 Outputs |
| | Output Type | Source/PNP (Negative Common) |
| | Load | Solenoid valve with surge voltage suppressor of 24VDC and 1.0w or less, (manufactured by SMC) |
| Operating Temperature Range | -10 to 50°C | |
| Storage Temperature Range | -20 to 60°C | |
| Operating Humidity Range | 35 to 85% RH (No dew condensation) | |
| Vibration Resistance | 10 to 57 Hz: Constant amplitude 0.75mm p-p 57 to 150Hz: Constant acceleration 49m/s ² for 2 hours each in the direction of X, Y and Z respectively (De-energized) | |
| Impact Resistance | 147m/s ² 3 times each in the direction of X, Y, and Z respectively (De-energized) | |
| Standards | CE Marked, UL (CSA), RoHS compliant | |
| Weight | 300g or less | |

Ford VO Body Construction

Embedded Switch

Within the valve islands Ford requires and embedded Ethernet switch with D-Coded M12 female connectors. The two ports should be labeled ETH1 and ETH2.

Default IP

Default IP of the valve will be 136.129.2.xxx. Where the last octet shall be configured by using dials, dipswitches or buttons.

Subnet Mask: 255.255.0.0

Gateway: 0.0.0.0

Out of the box IP set to: 136.129.2.1 (this is important with networks supporting quick connect).

Valve Island Boot Modes

The valve islands shall have 2 modes: Normal and Quick Connect. The valve islands shall utilize Configuration Byte 9 Bit 0 as a single value to manipulate the Quick Connect configuration.

Byte 9 Bit 0 Options:

A value of 0 shall return the valve island to Normal mode:

- Set Eth1 and Eth2 ports to Auto Negotiate.
- Disable the Quick Boot.
- IF the block fails Auto Negotiation, the Eth1 Port should default to 100 Full Duplex Auto-MDIX. Eth2 should default to 100 Full Duplex Auto-MDIX.

A value of 1 shall set the valve island to Quick Connect mode:

- Set Eth1 port to 100 Full Duplex and MDI.
- Set Eth2 port to 100 Full Duplex and MDIX.
- Enable the Quick Boot.

If the module has detected a change to the quick connect mode the module should recognize and store the change to memory with the processing of the Forward Open command. This is would setup the new required boot mode for the next boot.

Quick Connect Response Timing

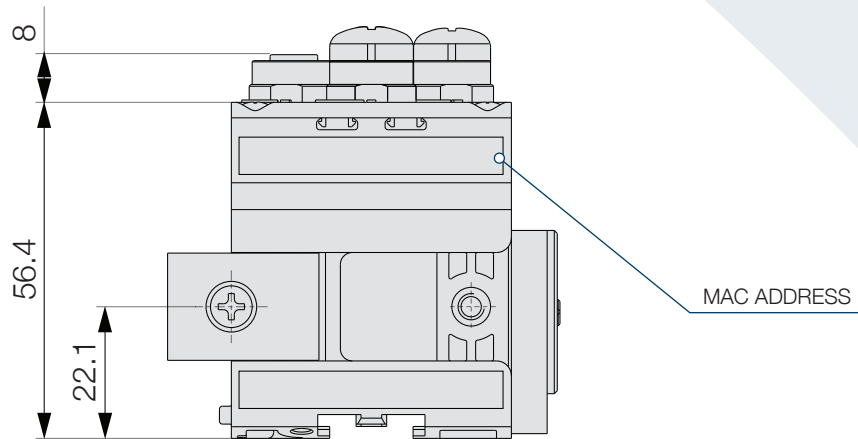
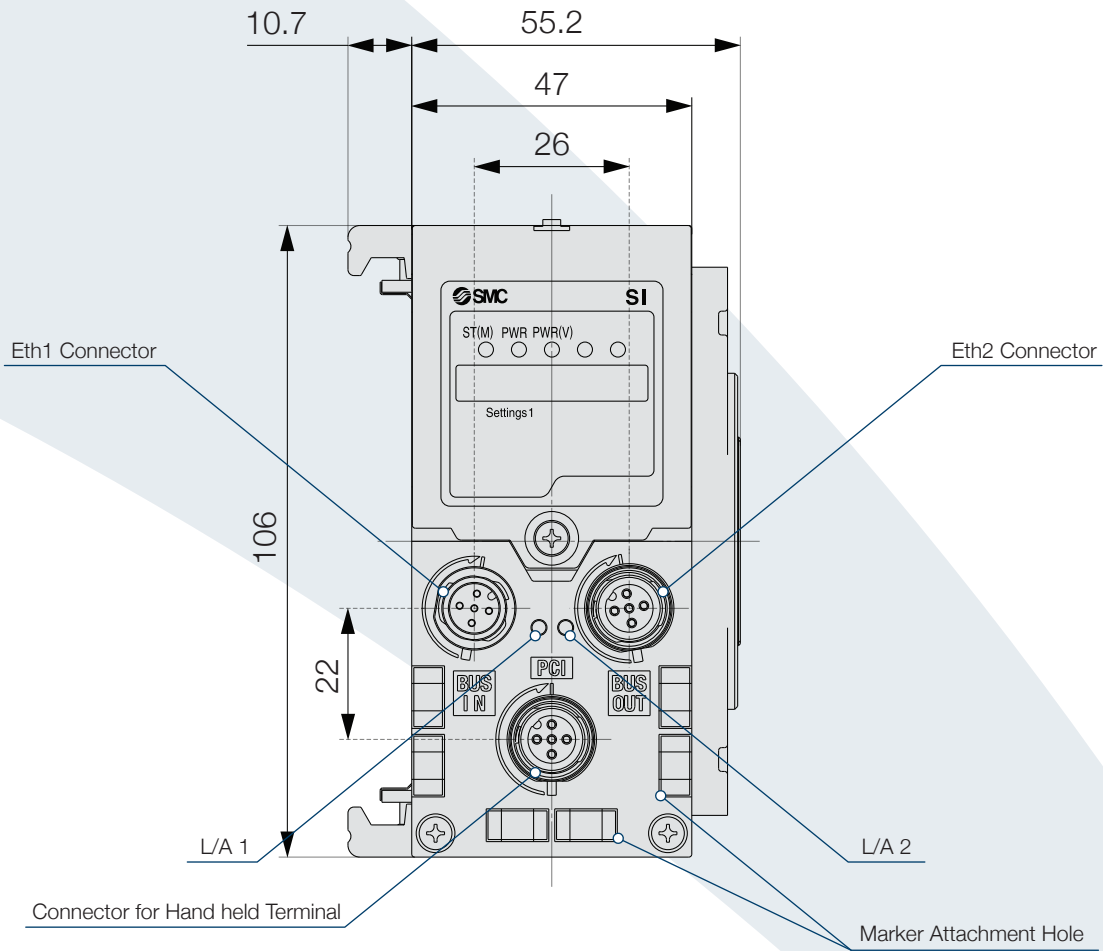
When the valve island is in Quick Connect mode: the module should be reporting inputs to the PLC within 250ms of powering up and also have established a module Entry Status Of "Running" within a AB 1756-L73s PLC.

When the valve island is in Quick Connect mode: the module should start actions from outputs sent from the PLC within 250ms of powering up.

Additional Clarification

- The valve islands should be shipped with Quick Connect disabled.
- Web server features enabled
- ODVA Objects Required:
 - Class code 0x01 – Identity Object
 - Class code 0xF5 – TCP/IP Object
 - Class code 0xF6 – Ethernet Link Object

Product Dimension



Digital Input Module



EX600-DXPD-X16

General Specifications

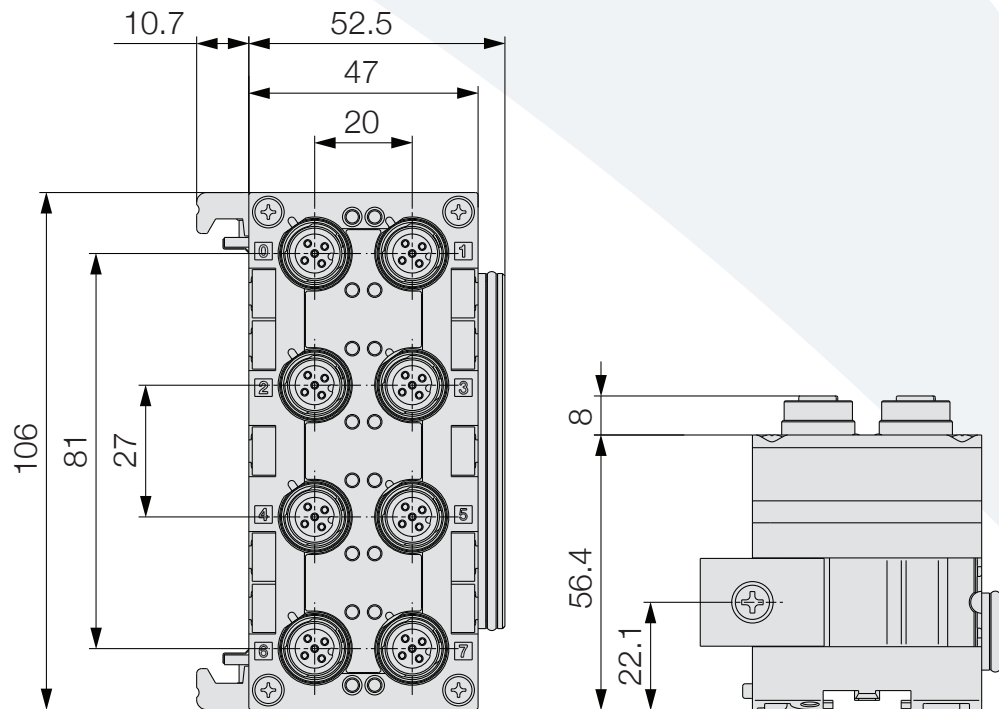
| Item | Specifications |
|--------------------------|---|
| Enclosure | IP67 (combination with valve manifold) |
| Ambient Temperature | Operating Temperature: -10 to +50°C |
| | Storage: -20 to +60°C |
| Operating Humidity Range | 35%~85% RH (no dew concentration) |
| Vibration Resistance | 10Hz~57Hz (constant amplitude) 0.75mm P-P 57Hz~150Hz (constant acceleration) 49m/s ² X, Y and Z directions for 2 Hours Each. (without energizing) |
| Impact Resistance | 147m/s ² in directions for 3 times each. (Without Energizing) |
| Weight | 340g |
| Standards | UL (CSA), CE marked |

Electric Specifications

| Item | Specifications |
|-------------------------------------|----------------------------|
| Sensor Supply Voltage | 24VDC (Dependent on 24V_C) |
| Max. Sensor Supply Current | 0.5A/Connector |
| | 2A/Unit |
| Internal Current Consumption at 24v | 70mA or Less |
| Current Protection | Short-Circuit Protection |

Input Specifications

| Item | Specifications |
|-------------------------|-------------------------|
| Input Channels | 16 Channels |
| Input Type | PNP |
| Connector Type | 8 M12 Sockets, 5 Pins |
| Input Resistance | 2.7k Ω |
| OFF Voltage/OFF Current | 5V or Less/1 mA or Less |
| ON Voltage/ON Current | 17V or More/5mA or More |



Power Supply Module

Compatible with pulse test function of Rockwell Automation safety output module



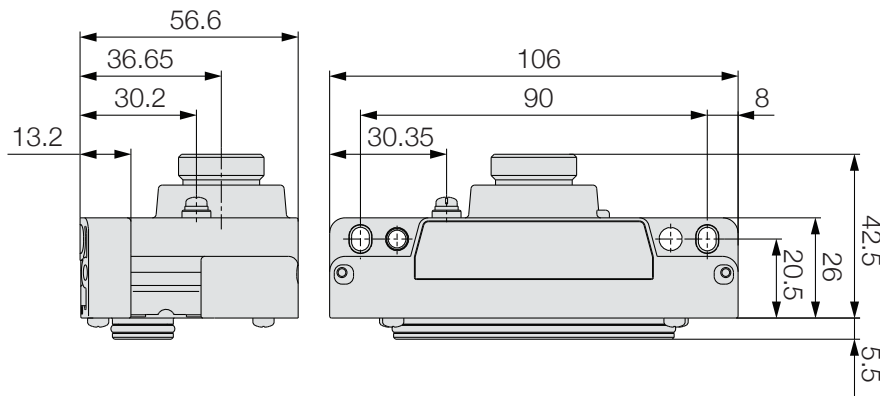
EX600-ED3-X16

General Specifications

| Item | Specifications |
|--------------------------|---|
| Enclosure | IP67 (combination with valve manifold) |
| Withstand Voltage | 500VAC 1min. (between FE and external terminal block.) |
| Insulation Resistance | 10MΩ or more (500VDC, between FE and external terminal block.) |
| Ambient Temperature | Operating Temperature: -10 to +50 |
| | Storage: -20 to +60 |
| Operating Humidity Range | 35%~85%RH (no dew concentration) |
| Vibration Resistance | 10Hz~57Hz (constant amplitude) 0.75mm P-P 57Hz~150Hz (constant acceleration) 49m/s ² X, Y and Z directions for 2 Hours Each. (without energizing) |
| Impact Resistance | 147m/s ² in directions for 3 times each. (Without Energizing) |

Electrical Specifications

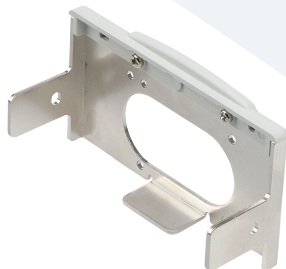
| Item | Specifications |
|----------------|--|
| Connector Type | 7/8 Inch Plug, 4 pins |
| Rated Voltage | Power Supply for Output 24VDC+10%/-5% |
| | Power Supply for Input and Control 24VDC±10% (unit shut down when voltage falls below approx. 17V) |
| Rated Current | Power Supply for Output Max 2A |
| | Power Supply for Input and Control Max 2A |



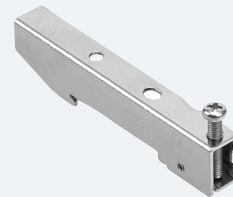
Accessories

| <i>Item</i> | <i>Description</i> |
|------------------|---|
| EX600-ZMV1 | Connecting plate to valve manifold |
| EX600-ZMV2 | Connection plate to SY series valve manifold |
| EX600-ZMA2 | Bracket used for DIN rail mounting |
| EX600-ZMA3 | Bracket used for DIN rail mounting for SY series manifold |
| EX9-AC050EN-PSRJ | EtherNet/IP Communication Cable M12->RJ45, 5m |
| PCA-1446566 | EtherNet/IP Communication Cable M12->lead wire. 5m |
| PCA-1446553 | Fieldwireable connector for EtherNet/IP, use PCA-1446566 |
| PCA-1557769 | Sensor Cable with m12 Connector for sensor, 4pin, 3m |
| PCA-1557743 | Fieldwireable Connector for sensor, M12, 4pin |
| EX9-AWTS | Seal Cap for unused M12 I/O Connector (10pcs) |
| EX600-ZT1 | Marker for I/O device name and address |

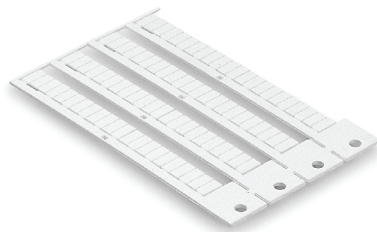
○ EX600-ZMV1



○ EX600-ZMA2



○ EX600-ZT1



○ EX9-AWTS



○ PCA-1557769



○ PCA-1557743



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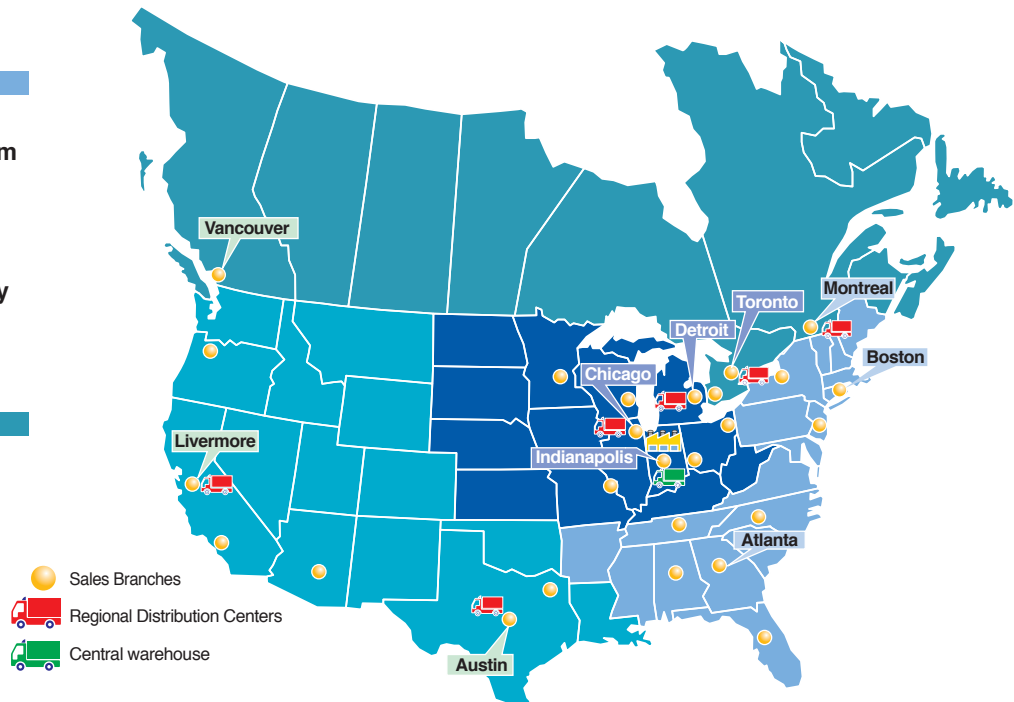
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