SECTION 27 21 29

DATA COMMUNICATIONS SWITCHES AND HUBS

Equipment Specified in this section:

Crestron CEN-SWPOE-16

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 SECTION 27 21 29

DATA COMMUNICATIONS SWITCHES AND HUBS

Specifier: The Specifier/Design Professional is responsible for the accuracy of all project specifications, including system application and coordination with related sections. This guide specification is provided as a convenience and requires editing to match actual project requirements. CRESTRON ELECTRONICS, INC. SHALL NOT BE LIABLE FOR ANY DAMAGES ARISING OUT OF THE USE OF ANY OF ITS GUIDE SPECIFICATIONS. For Crestron design assistance and design review please contact Sales Support Services Department at 800.237.2041 or techsales@crestron.com.

1. GENERAL
	1. SUMMARY
		1. Section Includes:
			1. Managed Ethernet switch with 16 PoE ports.

Specifier: Related requirements paragraph is optional. If retaining, edit and coordinate list of sections below to correspond to Project requirements.

* + 1. Related Requirements:
			1. Section 12 24 13 — Roller Window Shades
			2. Section 23 09 23 — Direct Digital Control System for HVAC
			3. Section 25 08 00 — Commissioning of Integrated Automation
			4. Section 25 10 00 — Integrated Automation Network Equipment
			5. Section 25 11 13 — Integrated Automation Network Servers
			6. Section 25 13 13 — Integrated Automation Control and Monitoring Network Supervisory Control
			7. Section 25 13 16 — Integrated Automation Control and Monitoring Network Integration Panels
			8. Section 25 13 19 — Integrated Automation Control and Monitoring Network Interoperability
			9. Section 25 15 16 — Integrated Automation Software for Control and Monitoring Networks
			10. Section 25 50 00 — Integrated Automation Facility Controls
			11. Section 26 09 43.13 — Digital-Network Lighting Controls
			12. Section 26 05 00 — Common Work Results for Electrical
			13. Section 26 09 23 — Lighting Control Devices
			14. Section 26 09 36 — Modular Dimming Controls
			15. Section 26 09 43 — Network Lighting Controls
			16. Section 27 15 00 — Communications Horizontal Cabling
			17. Section 27 41 00 — Audio-Video Systems
	1. REFERENCES
		1. Abbreviations and Acronyms
			+ 1. PoE: Power over Ethernet.
				2. DTE: Data Terminal Equipment.
				3. MDI: Media Dependent Interface.
				4. PSE: Power Sourcing Equipment.
				5. PD: Powered Device.
				6. BTU: British Thermal Unit
		2. Reference Standards

Specifier: Edit below paragraphs to include only those standards that are referenced in this section.

* + - 1. Underwriters Laboratories, Inc. (UL):
				1. UL Standards and requirements listed.
			2. Federal Communications Commission (FCC):
				1. FCC Part 15, Class B digital device compliance.
			3. Industry Canada (IC):
				1. CAN ICES-3(B)/NMB-3(B) - Information Technology Equipment (ITE)
			4. Institute of Electrical and Electronic Engineers (IEEE):
				1. IEEE Std 802.3 - Ethernet based LAN, (Ethernet).
				2. IEEE Std 802.3u - 100 Mb/s (Fast Ethernet), Type 100base-T.
				3. IEEE Std 802.3ab - 1000 Mb/s Operation over copper, Type 1000Base-T.
				4. IEEE Std 802.3af - Data Terminal Equipment (DTE) Power via Media Dependent Interface (MDI), Power-over-Ethernet (PoE).
				5. IEEE Std 802.3at – Power over Ethernet (PoE+)
1. PRODUCTS
	1. NETWORK SWITCH
		1. Manufacturers:
			1. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide products of **Crestron Electronics, Inc., Rockleigh, NJ 07647**, Phone 800-237-2041, Fax: 201-767‑1903, [www.crestron.com](http://www.crestron.com) **[**or comparable products from a single manufacturer approved by Architect prior to bidding**]**, with the following components and characteristics.
		2. Basis of Design Product:
			1. **Crestron** **CEN-SWPOE-16**
		3. Minimum Functional Requirements:
			1. Power over Ethernet
				1. Switchable PoE on all ports
				2. Switches without individual control of port PoE power shall not be accepted.
			2. Port speed configuration:
				1. Individually configurable per port
				2. Detect and Auto-Negotiate
			3. Duplex Mode:
				1. Individually configurable per port
				2. Detect and Auto-Negotiate
			4. Auto MDI and MDIX
				1. Switches requiring separate crossover Ethernet cables shall not be accepted.
			5. Layer 2 managed switching
			6. Port Mirroring
			7. Multiple Configuration methods:
				1. Web browser interface
				2. Software application via direct USB connection
			8. Front panel port label
		4. PoE
			1. General:
				1. PoE enabled ports: 16
			2. Power:

Switch shall meet or exceed the following:

* + - * 1. Internal PoE power supply: 255 watts (total for all ports combined)
				2. IEEE 802.3at Type 1, Class 0-3

Maximum power per port: 15.4 watts

Supported by all ports simultaneously.

* + - * 1. IEEE 802.3at Type 2, Class 4

Maximum power per port: 34.2 watts

Supported by all ports up to the maximum power capability of the main PoE power supply.

* + - 1. PoE Parameters:

PoE enabled ports shall individually support the following:

* + - * 1. Force On mode: PoE power is forced to ON for use with PDs that do not meet IEEE PoE requirements.
				2. Enable: Enable PoE power to selected port.
				3. Enable on Boot: Enable PoE power to selected port on switch boot.
				4. Allocated Power: a predetermined PoE power level in watts is allocated from the overall available PoE power supply total.
		1. Control Processor Accessible PoE Parameters

The following parameters shall be available to remote control processor.

* + - 1. PoE power: Enable/Disable
				1. PoE ports shall be capable of individual PoE power control via remote control processor.
				2. Switch shall provide status feedback.
				3. PoE state at switch boot up
		1. Control Processor Accessible PoE Status Feedback
			1. Link Status: Good/Down
			2. Data Transmission: Full/Half Duplex
			3. Link Speed
			4. PoE device connected
			5. Port PoE power usage in milliwatts
			6. Port PoE power allocated in milliwatts
			7. Port Poe power class
		2. Connectors
			1. Ethernet 10/100/1000Base-T ports:
				1. Number of built-in ports: 16
				2. Connector:

Female RJ-45

* + - 1. Power:
				1. Number of connectors: 1
				2. Connector Type:

IEC C14 Appliance Inlet

* + - 1. Chassis Ground:
				1. Number of connectors: 1
				2. Connector Type:

Single 6-32 screw

* + - 1. USB
				1. Number of connectors: 1
				2. Connector:

USB Type-B female

* + 1. Front Panel Indicators

The following LED indicators shall be provided on the front panel of switch chassis:

* + - 1. Device Power Status
			2. Port Speed and Status, one indicator for each port
			3. Port Activity, one indicator for each port
			4. Port PoE Status, one indicator for each port
		1. Rear Panel Indicators

The following LED indicators shall be integrated into each RJ-45 port:

* + - 1. Port Speed and Status
			2. Ethernet port activity
		1. Power Requirements

Internal auto-sensing power supply:

* + - 1. Voltage:
				1. Minimum: 100 VAC
				2. Maximum: 240 VAC
			2. Frequency:
				1. Minimum: 50 Hertz
				2. Maximum: 60 Hertz
			3. Current:
				1. Minimum Current: 1.6 Amps
				2. Maximum Current: 3.5 Amps
		1. Enclosure
			1. Dimensions:
				1. Height:

1.73 inches (44 mm)

* + - * 1. Width:

17.28 inches (439 mm) rack mounting ears removed

19.0 inches (843 mm) rack mounting ears attached

* + - * 1. Depth:

10.06 inches (256 mm)

* + - * 1. Weight:

6.4 pounds (2.9 kg)

* + - 1. Mounting
				1. Standard 19 inch rack mountable, 1 rack units high.
				2. Rack mounting ears shall be removable for free standing applications.
			2. Ventilation
				1. Fan cooled
				2. Vented side panels
		1. Environmental
			1. Operating Temperature:
				1. 32-104 degrees Fahrenheit (0-40 degrees Celsius)
			2. Humidity:
				1. 10-90 percent Relative Humidity (non-condensing)
			3. Heat Dissipation:
				1. 171 BTU/hour
1. EXECUTION

Not Used

END OF SECTION 27 21 29