User Manual / Configuration Guide

J-Switch PoE+

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Rev 2.2 (10-17-2014)

J-Systems, Inc.

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1.0 - <u>INTRODUCTION</u>

The *J-Switch PoE+* is a rugged, small foot print IEEE compliant 10/100Mbps Ethernet switch designed to provide both PoE and PoE+ power from either a 12VDC or 24VDC source.

When the unit is powered from a 12VDC source the switch can provide up to 30 watts of power in total to the group of four IEEE compliant Ethernet ports. If the source voltage is 24VDC, the switch can provide up to 60 watts of total power to the group of four Ethernet ports. These ports (J2-J5) conform to the IEEE 802.3af / at standard.

The first port (J1) is unique from the standpoint that it can be used to power legacy PoE equipment such as a wireless radio or IP camera. This port will accept a source voltage from 0-55VDC, under this scenario PoE power is sent via the CAT5 cable with Pins (4-5) as positive and Pins (7-8) as negative.

The switch conforms to the PC/104 mounting format standard and a hole layout drawing is contained on page 4 of this manual.

Every I/O pin on the switch is surge and lightning protected with a system operating temperature of -40C to +85C without derating.

2.0 - <u>MOUNTING</u>

The switch should be mounted with four male / female PC/104 4-40 stainless steel hex standoffs and four 4-40 machine screws (not supplied). We also recommend using Loctite 222MS (not supplied).

Drill and tap your back panel to accept the hex standoff 4-40 male thread. Screw the hex standoffs into the back panel. Use the four 4-40 machine screws to secure the PoE switch to the tops of the hex standoffs.

If you are using other PC/104 cards such as the J-Systems PWM IP PTZ Controller card, the switch can mount above or below the respective card depending on your setup.
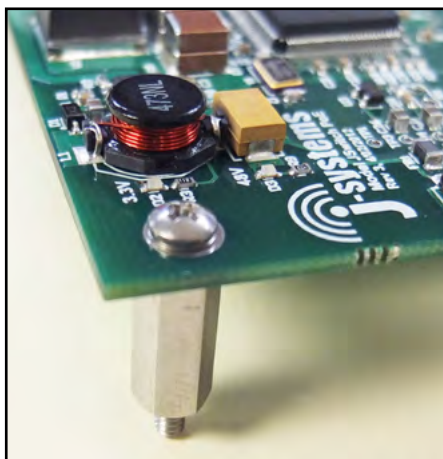
3.0 - WIRING

The green header on the right side of the board labeled J7, is the Main Power Connector. It will accept 10-30VDC, but is nominally designed for 12VDC or 24VDC power. When power is applied to J7, it provides main power for the PoE switch and Ethernet jacks J2-J5.

Be careful to observe the polarity of J7; it is clearly marked + (Positive) and - (Negative).

If you need to send PoE power through J1 (Legacy PoE Port), you may either connect another power source to the green header labeled J6 (0-55VDC) OR you may add two jumpers to the board and connect J1 to the main 55VDC on-board power supply so this jack is now supplying 48VDC power.

When either J6 (Green Header) or (Jumpers) have voltage applied the CAT5 cable will deliver power in the following manner; Pins (4-5) positive and Pins (7-8) negative.

NOTE: J1 DOES NOT CONFORM TO IEEE 802.3af / at STANDARDS; I.E. THERE IS NO PoE SENSING.
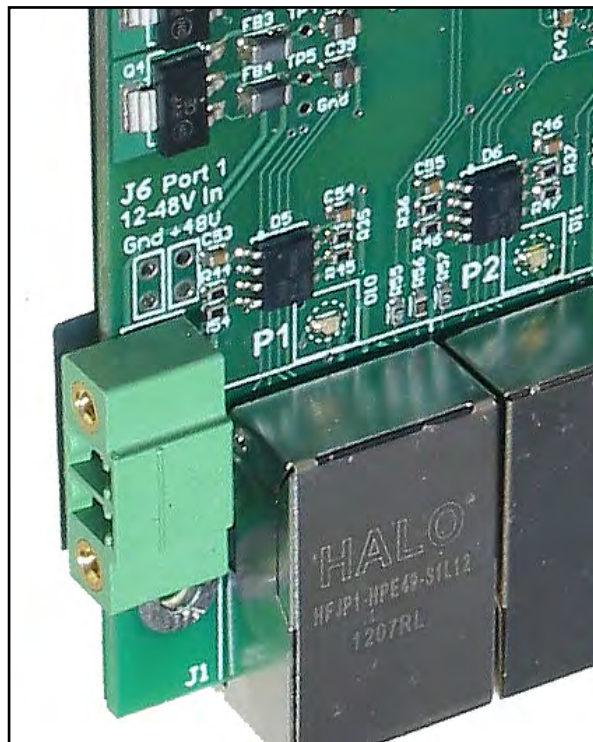
A typical use of J1 is to power a WiFi radio that accepts either 12VDC, 18VDC, or 24VDC power across Pins (4-5) Positive and Pins (7-8) Negative.

If J1 is NOT powered from J6 (Green Header) or (Jumpers), it will simply function as a un-powered 5th port for the Ethernet switch.

4.0 - <u>OPERATION</u>

Each RJ45 jack has a combined Link Light / Activity Light. When the LED is illuminated as solid yellow it indicates there is a link and when it blinks this signifies there is ethernet traffic.

Ports J2 through J5 have red PoE indicator LED's (behind each jack) that illuminate when a PoE device is plugged in and IEEE PoE power is being supplied.

Port J1 PoE power LED is only illuminated when J6 has power applied to it. When jumpers are installed to power J1 from the 55VDC power supply, you should be able to plug a PoE device into this jack and use it normally.

There is also a 3.3VDC and 5.5VDC red LED located in the upper left hand corner of the switch board to show that these power supplies are operating.

<u>A Note on Component Operating Temperature:</u>

As with all PoE switches, it is normal for some power handling components to dissipate heat; this is to be expected. The switch will run cooler when powered from a 24VDC source than it does when being powered from a 12VDC supply.

The switch and components have been carefully tested and will operate at full power from -40C to +85C.   If you intend to mount this switch inside a very confined space, adequate temperature heat rise testing should be conducted to ensure your overall internal enclosure temperature does not rise too high without venting or forced air cooling.

<u>CAUTION</u>
As this is an open PCB (no cover), do not touch the components on the switch PCB as some are running at elevated temperatures.
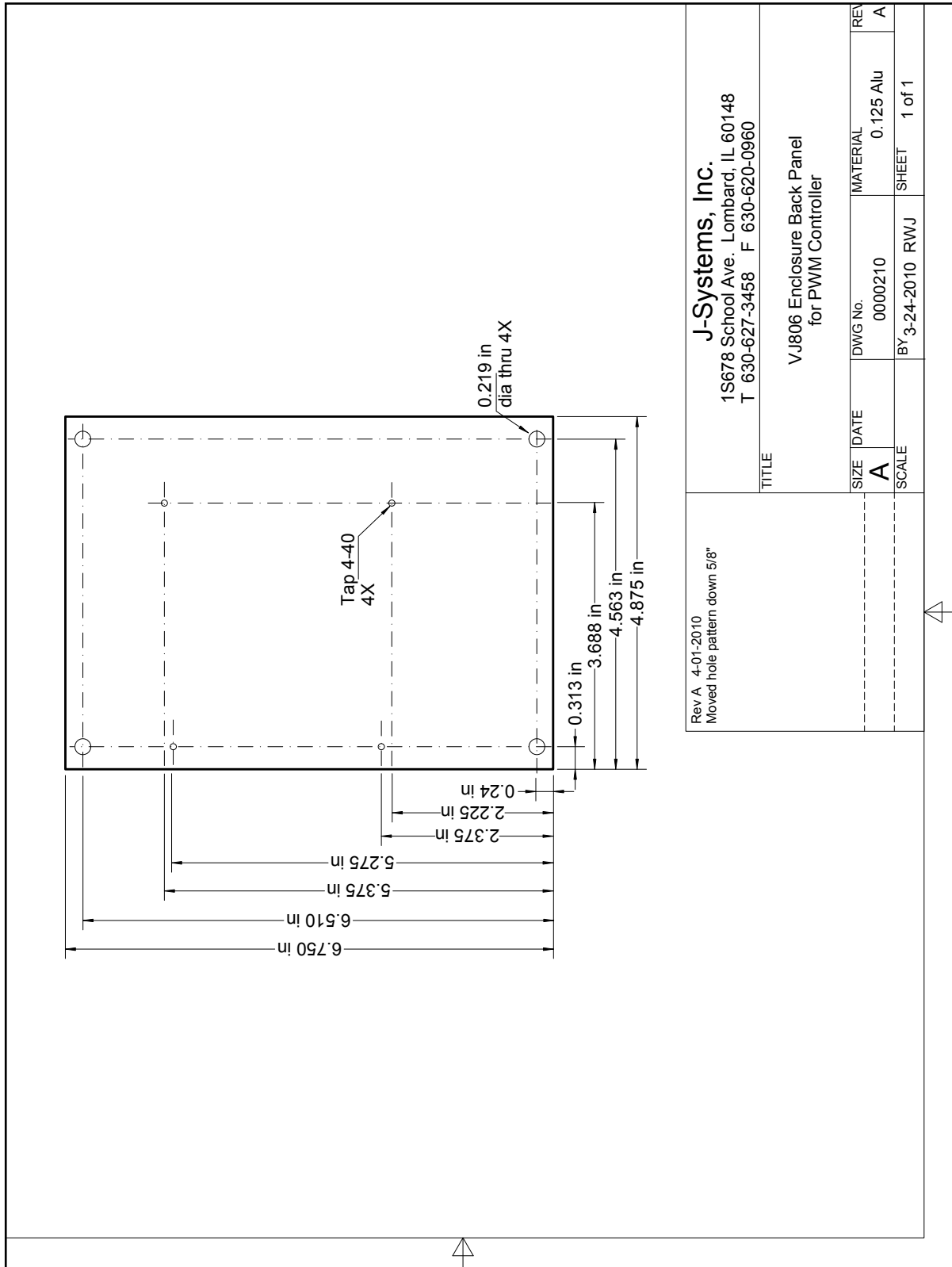
Sample back panel layout for the J-Switch PoE which is PC/104 format

J-Systems, Inc.
1S678 School Ave. Lombard, IL 60148
T 630-627-3458 F 630-620-0960

TITLE

VJ806 Enclosure Back Panel
for PWM Controller

DWG No.   0000210

BY 3-24-2010 RWJ

MATERIAL   0.125 Alu

SHEET   1 of 1

SIZE **A**

SCALE

REV A

DATE

Rev A 4-01-2010
Moved hole pattern down 5/8"

0.219 in
dia thru 4X

Tap 4-40
4X

0.313 in
3.688 in
4.563 in
4.875 in

0.24 in
2.225 in
2.375 in
5.275 in
5.375 in
6.510 in
6.750 in

6.0 TECHNICAL SUPPORT

Technical support is available for no charge during normal business hours.

Business Hours:

Monday - Friday 9:00AM to 4:00PM CST

Contact Information:

Tele: 630-627-3458

Fax: 630-620-0960

E-Mail: info@J-Systems.com

7.0 SUPPORT INFORMATION

7.1 Warranty Policy

The J-Switch PoE carries a 1-year manufacturer's warranty.   This warranty applies to failure of the product under normal operating conditions.   Situations that are not covered by this warranty include, but are not limited to the following abnormal stresses:

- Lightning Strikes

- ESD (electrostatic discharge damage)

- Damage Due to Bullets or Other Projectiles

- Applied Voltage Greater Than Allowable Limits

- Overloading Electronic Components

- Attempted Repair By An Unauthorized Individual

Any other damage that in J-Systems, Inc.'s opinion have been caused as a result of abnormal or abusive use will also void the warranty.

To return a unit for repair, an RMA (Return Material Authorization) must be obtained prior to sending the unit back. Units received without a prior RMA being issued will be returned to the sender unopened.

When returning a unit for warranty or out of warranty repair, the cost of shipping back to the factory will be borne by the customer. Warranty repaired items will be returned to the customer postage free.

Call 630-627-3458 during normal business hours or e-mail info@J-Systems.com to obtain an RMA.

7.2 Specifications

The following are general specifications for the J-Switch PoE+. These specifications are subject to change at any time.

J-Switch PoE+

PSE Port 1	Legacy PoE systems not meeting IEEE specifications Pins (4-5) Positive, (7-8) Negative; 0-55VDC Input
PSE Ports 2 thru 5	802.3af / at compliant w/ self-resetting fuses
PoE Power Output	30 watts @ 12VDC input voltage
	60 watts @ 24VDC input voltage
Ethernet Speed	10/100 Mbps full duplex auto-negotiated
VLAN Support	Supports port based VLAN's
MDI/MDIX Support	Automatic MDI/MDIX crossover 10BASE-TX & 100BASE-TX
Input Power LED's	48VDC PoE and 3.3VDC LED's (RED)
PoE Output Power LED's	LED's on ports 1-5 activate when PoE output power supplied (RED)
Size	Approx 4.75" x 3.75", mounting conforms to PC/104 Std

Operating Parameters

Operating Voltage	10-30 VDC
Operating Temperature	-40C to +85C (No derating required)
Connectors	2-Pin edge connectors with removable screw terminal headers
ESD Protection	TVS surge suppressors on all I/O pins (225W on power and PoE pins and 500W on Tx/Rx pins). High speed data line protection meets IEC 61000-4-2 (ESD) +/-15kV (air), +/-8kV (contact), IED 61000-4-4 (EFT) 40A (5/50nS). IEC 61000-4-5 (lightning) 24A (8/20uS)
Acceptance Testing	Each port fully tested using a Fluke LinkRunner AT 2000