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Q-24 POWER SUPPLY

OPERATING INSTRUCTIONS

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I General

The power supply incorporates an advanced switch mode design to achieve high efficiency, outstanding load and AC line regulation with excellent transient response even under very heavy capacitive loading. The DC output voltage 24VDC is super clean of electronic noise (exceeds class A of FCC sub part 15 standard) and able to source high amperage of up to 5 Amps and therefore very suitable for heavy loads in both the Access and Traffic Industries; for example, the Q-24 power supply is easily suitable to support large traffic detector racks, video detection, or RADAR detection. It comes in the standard traffic cabinet card form factor and utilize the same pin out as specified by the NEMA and CALTRAN standards.

Active power factor correction provides lower operating cost and keeps the AC line clean of unwanted conductive emissions and transients. As a by-product of power factor correction, a much larger amount of energy is available for storage in the bulk capacitors of the power supply, so on loss of AC power, the Q-24 maintains much longer hold-times than NEMA standard even under full loading. The Q-24 model

meets and exceeds the NEMA TS-2 2003 standards; thus, makes it easy to save lives through its support of low or high power traffic and access applications.

Additionally, the output is connected to eight (8) pins on the edge card connector (see **Connector / Pin Assignments**). All eight output pins are fused through a single 5 Amp slow blow 2AG fuse.

⚠ ***Verify rack wiring before applying power.***

⚠ ***Turn the power switch OFF before inserting or removing the power supply module.***

II Indicators and Controls

24 VDC LED Output Indicator

Illuminated

Output Voltage ≥ 21.6 ±0.2 VDC

Extinguished

Output Voltage < 21.6 ±0.2 VDC

120 VAC Power Switch

CAUTION
RISK OF ELECTRICAL SHOCK

ALERT: When input power is applied, un-insulated voltages of sufficient magnitude to constitute a risk of electrical shock are present on the printed circuit board. Refer servicing to qualified service personnel.

III Protective Features

A. **Fuse**. The Model Q-24 AC input is protected with a 2 Amp (2AG slow blow) fuse. The DC power output is protected with a 5 Amp (Slow blow) fuse. The two 2AG fuses are located on the PC board and are easily replaced.

	Fuse Rating
Input	2AG, 250V, 2A, Slow Blow
Output	2AG, 125V, 5A, Slow Blow

B. **Automatic Current Fold Back.** The output is prevented from exceeding 6.75 Amps even if the output is shorted.

C. **Automatic Short Detection.** If a short is detected, the power supply will shut down within 130 msec and will not return to operation until short is removed.

IV Special Features

The Model Q-24 power supply incorporates active power factor correction (≥0.95) and low harmonic distortion**.**

Super clean of electronic noise (exceeds class A of FCC sub part 15 standard)

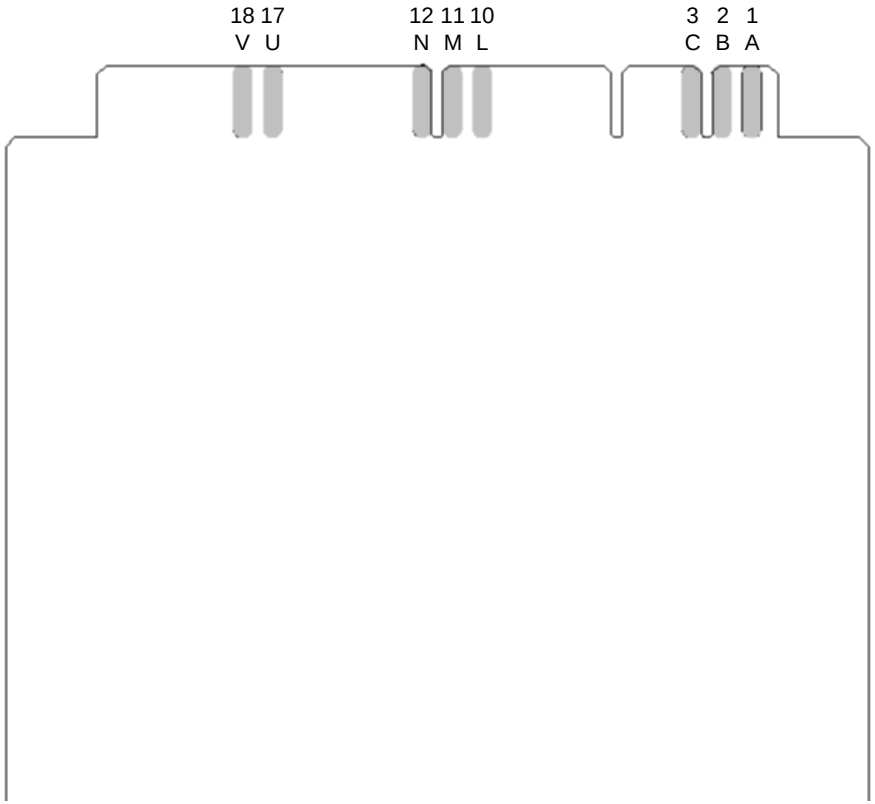
V Connector / Pin Assignments

Connector: 2 x 22 contact edge card connector with 0.156-inch (0.396 cm) pin centers. Key slots located between B/2 & C/3, E/5 & F/6, and M/11 & N/12.

Pin Assignments:

Pin	Function
1 / A	Output (DC Common)
2 / B	Output (+24 VDC)
3 / C	Output (+24 VDC)
10 / L	Chassis Ground
11 / M	AC Neutral
12 / N	AC Line
17 / U	Output (+24 VDC)
18 / V	Output (+24 VDC)

NOTE: All other pins have no contact pads.



Specifications

Electrical:

Input Line Voltage: 80 VAC to 265 VAC

Input Line Frequency: 40 to 70 Hz

Power Factor: > 0.95

Output Voltage: 24 VDC ±2%

Output Ripple Voltage: < 80 mVp-p

Maximum Output Current: 5 Amps

Load Regulation: ≤ ±2%

Line Regulation: ≤ ±0.1%

Minimum Efficiency: >76%

Physical:

Weight: 0.862 lb

Size: 4.50" high x 2.00" wide x 6.88" deep (not including front handle). Handle adds 1.00 inch to depth measurement.

Operating Temperature: -40°F to +180°

PC Board: Printed circuit board is 0.062 inch thick FR4 material with 2 oz. copper on both sides with plated through holes

Load Current Derating:

Ambient Temperature (ºC)	Maximum Load (Output) Current (DC AMPs)
<30	5
< 40	4
< 60	3
< 85	2