



# 8cW95!\$&' ,

Your Power House  
**VP ELECTRONIQUE**

3PH AC - DC DIN RAIL MOUNTABLE POWER SUPPLY  
INDUSTRIAL CONTROL EQUIPMENT



## FEATURES

- 3 PHASE AC INPUT VOLTAGE
- SELV COMPACT DESIGN
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILER
- OVER TEMPERATURE PROTECTION



## Three Phases

# 120 - 24

Wattage  12 : 12V OUT 24 : 24V OUT

## MODEL LIST

| MODEL NO. | INPUT VOLTAGE | OUTPUT WATTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | EFF. (min.) | EFF. (typ.) |
|-----------|---------------|----------------|----------------|----------------|-------------|-------------|
|-----------|---------------|----------------|----------------|----------------|-------------|-------------|

### Single Output Models

|        |                      |           |          |      |     |     |
|--------|----------------------|-----------|----------|------|-----|-----|
| 120-12 | 3 $\phi$ 340~575 VAC | 120 WATTS | + 12 VDC | 10 A | 85% | 87% |
| 120-24 | 3 $\phi$ 340~575 VAC | 120 WATTS | + 24 VDC | 5 A  | 87% | 89% |

## SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

### GENERAL

| Characteristics               | Conditions                                      | min.                  | typ.    | max.       | unit       |
|-------------------------------|---|-----------------------|---------|------------|------------|
| Switching frequency           | Vi nom, Io nom                                  |                       | 70      |            | KHz        |
| Isolation voltage             | Input-Output                                    | 3,000 / 4,242         |         |            | VAC / VDC  |
|                               | Input-FG  | 1,500 / 2,121         |         |            | VAC / VDC  |
|                               | Output-FG                                       | 500 / 710             |         |            | VAC / VDC  |
| Isolation resistance          | Input-Output, @ 500VDC                          | 100                   |         |            | M $\Omega$ |
| Ambient temperature           | Operating at Vi nom                             | -40                   |         | + 71       | °C         |
| Derating (see derating curve) | Vi nom, from +61 to +71°C                       |                       |         | 2.5        | % / °C     |
| Storage temperature           | Non operational                                 | -40                   |         | + 85       | °C         |
| Relative humidity             | Vi nom, Io nom                                  | 20                    |         | 95         | % RH       |
| Temperature coefficient       | Vi nom, Io min                                  |                       |         | $\pm$ 0.03 | % / °C     |
| MTBF                          | Bellcore Issue 6 @40°C, GB                      | 12V                   | 527,000 |            | Hours      |
|                               |   | 24V                   | 559,000 |            | Hours      |
| Altitude during operation     | EN 60950-1                                      |                       |         | 5,000      | m          |
| Dimension                     | Screw terminal type                             | L124 x W74.3 x D118.8 |         |            | mm         |
| Cooling                       | Free air convection                             |                       |         |            |            |
| Installation position         | Vertical ( other direction may derating using ) |                       |         |            |            |
| Pollution degree              |   |                       | 2       |            |            |

### INPUT SPECIFICATIONS

| Characteristics           | Conditions                 | min.                               | typ.       | max. | unit |
|---------------------------|----------------------------|------------------------------------|------------|------|------|
| Nominal voltage *1        |                            | 1 $\phi$ or 3 $\phi$ 380 / 480 VAC |            |      |      |
| Rated input voltage       | Io nom                     | 400                                |            | 500  | VAC  |
| Absolute input max. range | Ta min ... Ta max, AC in   | 340                                |            | 575  | VAC  |
|                           | Io nom, DC in              | 480                                |            | 820  | VDC  |
| Input current             | Vi : 400 / 500 VAC, Io nom |                                    | 0.36 / 0.3 |      | A    |
| Rated input current       | Vi : 340 VAC, Io nom       |                                    |            | 0.5  | A    |
| Line frequency            | Vi nom, Io nom             | 47                                 |            | 63   | Hz   |

\*1. Single phase input is permissible, but output load is derated to 75%

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### INPUT SPECIFICATIONS

| Characteristics   | Conditions           | min. | typ. | max. | unit |
|-------------------|----------------------|------|------|------|------|
| Inrush current    | Vi nom, Io nom       |      | 10   | 12   | A    |
| Power dissipation | Vi : 400 VAC, Io nom | 12V  | 20   |      | W    |
|                   |                      | 24V  | 16   |      | W    |
| Leakage current   | Input-Output         |      |      | 0.25 | mA   |
|                   | Input-FG             |      |      | 3.5  | mA   |
| P.F.C. (Passive)  | Vi nom, Io nom       |      | 0.55 |      |      |

### OUTPUT SPECIFICATIONS

| Characteristics                                     | Conditions  | min. | typ.                           | max.  | unit   |
|---|---|------|--------------------------------|-------|--|
| Output voltage accuracy (Adjusted before shipment)  | Vi nom, Io max  | 0    |                                | + 1   | %  |
| Minimum load  | Vi nom  | 0    |                                |       | %  |
| Line regulation                                     | Io nom, Vi min ... Vi max   |      |                                | ± 1   | %  |
| Load regulation                                     | Vi nom, Io min ... Io nom   |      |                                | ± 1   | %  |
| Voltage trim range                                  | Vi nom, 0.8 Io nom  | 12V  | 11.4                           | 14.5  | VDC  |
|   |   | 24V  | 22.5                           | 28.5  | VDC  |
| Rated continuous loading                            | Vi nom  | 12V  | 10 A @ 12Vdc / 8.2 A @ 14.5Vdc |       |  |
|   |   | 24V  | 5 A @ 24Vdc / 4.2 A @ 28.5Vdc  |       |  |
| Hold up time  | Vi nom, Io nom  | 20   |                                |       | ms   |
| Turn on time  | Vi nom, Io nom  |      |                                | 1,000 | ms   |
|   | Vi nom, Io nom → 12V model : with 7000 µF CAP<br>24V model : with 3500 µF CAP |      |                                | 1,500 | ms   |
| Rise time   | Vi nom, Io nom  |      |                                | 150   | ms   |
|   | Vi nom, Io nom → 12V model : with 7000 µF CAP<br>24V model : with 3500 µF CAP |      |                                | 500   | ms   |
| Fall time   | Vi nom, Io nom  |      |                                | 150   | ms   |
| Transient recovery time                             | Vi nom, I ~ 0.5 Io nom  |      |                                | 2     | ms   |
| Ripple & noise                                      | Vi nom, Io nom, BW = 20MHz  |      |                                | 100   | mV   |
| Power back immunity                                 | Vi nom, Io nom  | 12V  | 18                             |       | VDC  |
|   |   | 24V  | 35                             |       | VDC  |
| Capacitor load                                      | Vi nom, Io nom  | 12V  |                                | 7,000 | µF   |
|   |   | 24V  |                                | 3,500 | µF   |
| DC ON indicator threshold at start up (Green LED)   | Vi nom, Io nom  | 12V  | 10                             | 11.2  | VDC  |
|   |   | 24V  | 17.6                           | 19.4  | VDC  |
| DC LOW indicator threshold after start up (Red LED) | Vi nom, Io nom  | 12V  | 10                             | 11.2  | VDC  |
|   |   | 24V  | 17.6                           | 19.4  | VDC  |
| Efficiency  | Vi nom, Io nom, Po / Pi   |      |                                |       | Up to 89%, See model list and typ efficiency curve |

### CONTROL AND PROTECTION

| Characteristics                   | Conditions  | min.                           | typ. | max. | unit |
|-----------------------------------|---|--------------------------------|------|------|------|
| Input fuse                        |   | 2 A / 600 VAC internal / phase |      |      |      |
| Internal surge voltage protection | IEC 61000-4-5   | Varistor                       |      |      |      |
| Rated over load protection        | Vi nom (see typ current limited curve)  | 115                            |      | 135  | %    |
| Power Rdy (for 24V model only)    | Threshold voltage of contact closed(at start up)  | 17.6                           |      | 19.4 | VDC  |
|                                   | Electrical isolation  | 500                            |      |      | VDC  |
|                                   | Contact rating at 60VDC   |                                |      | 0.3  | A    |
| Over voltage protection           | Vi nom, 0.8 Io nom (Auto Recovery)  | 12V                            | 15   | 16.5 | VDC  |
|                                   |   | 24V                            | 30   | 33   | VDC  |
| Output short circuit              |   | Hiccup mode                    |      |      |      |
| Over temperature                  | Detect on heat sink, shut down O/P voltage, recovers automatically after temperature goes down. | 100                            |      | 110  | °C   |
| Degree of protection              |   | IP20                           |      |      |      |

## SPECIFICATION

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### APPROVALS AND STANDARDS

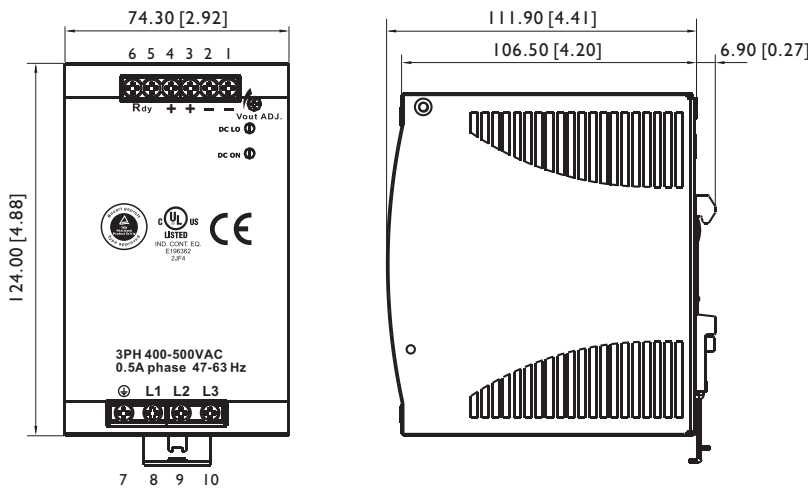
|                      |  |
|----------------------|--|
| UL / cUL             | UL 508 Listed<br>UL 60950-1 Recognized<br>ISA 12.12.01(Class I, Division 2, Groups A, B, C and D)  |
| TUV                  | EN 60950-1<br>EN 61558-1, EN 61558-2-16 (meet EN 60204-1)  |
| CE                   | EN 61000-6-3, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3<br>EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3<br>EN 61000-4-4 Level 4, EN 61000-4-5 L-N Level 3, L / N-FG Level 4<br>EN 61000-4-6 Level 3, EN 61000-4-8 Level 4, EN 61000-4-11<br>ENV 50204 Level 2, EN 61204-3 |
| CQC                  | GB4943.1, GB9254, GB17625.1  |
| Vibration resistance | meet IEC 60068-2-6 (Mounting by rail : 10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)   |
| Shock resistance     | meet IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 Faces, 3 times for each Face)  |

### PHYSICAL CHARACTERISTICS

|               |   |
|---------------|---|
| Case size     | Screw terminal type 124 x 74.3 x 118.8 mm (4.88 x 2.92 x 4.68 inches) |
| Case material | Metal   |
| Weight        | 800g  |
| Packing       | 0.92kg ; 20pcs / 19.5kg / 2.02CUFT                                    |

### MECHANISM & PIN CONFIGURATION

mm [inch]



#### CONSTRUCTION

Easy snap-on mounting onto the DIN-Rail (TS35/7.5 or TS35/15), unit sits safely and firmly on the rail.

#### INSTALLATION

Ventilation / Cooling  
Normal convection  
All sides 25mm free space  
For cooling recommended  
Connector size range  
AWG24-10 (0.2~4mm<sup>2</sup>) flexible / solid cable,  
-Input connector can withstand torque at maximum 9 pound-inches.  
-Output connector can withstand torque at maximum 5.5 pound-inches.  
8 m/m stripping at cable end recommends  
Use copper conductors only, 60 / 75°C

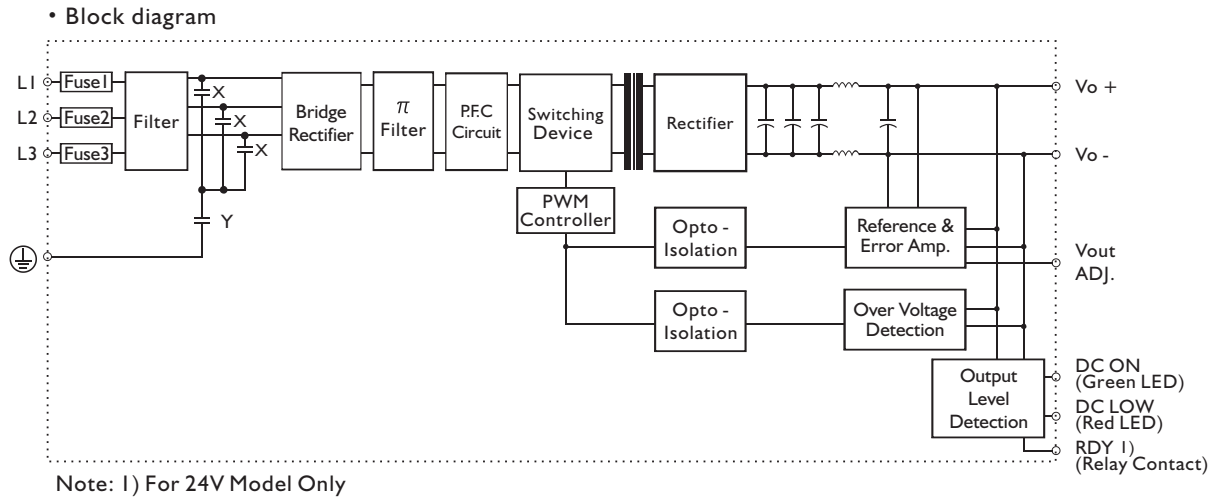
#### GENERAL TOLERANCE

|                              |             |
|------------------------------|-------------|
| 0.00[0.00] - 30.00[1.18]     | ±0.30[0.01] |
| 30.00[1.18] - 120.00[4.72]   | ±0.50[0.02] |
| 120.00[4.72] - 400.00[15.75] | ±0.80[0.03] |

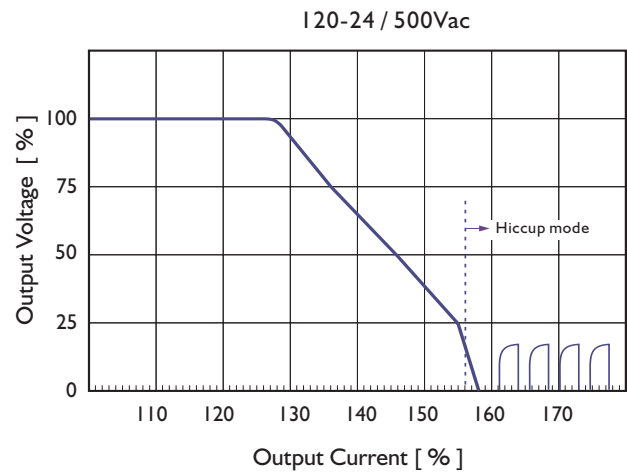
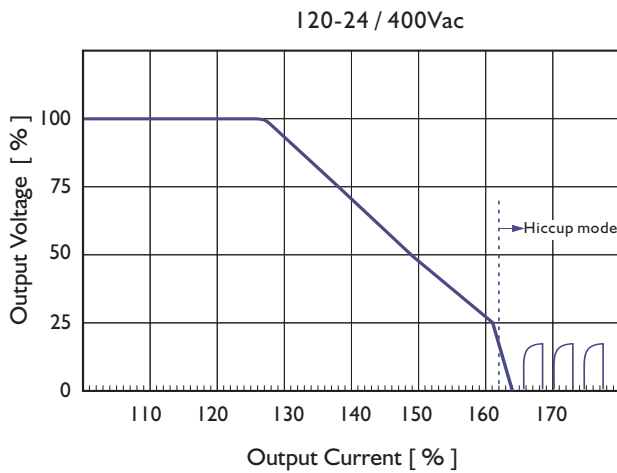
### PIN ASSIGNMENT

| PIN NO. | Designation | Description   |
|---------|-------------|---|
| 1, 2    | V -         | Negative output terminal                                  |
| 3, 4    | V +         | Positive output terminal                                  |
| 5       | RDY         | A normal open relay contact for DC ON level control       |
| 6       |             | (Never connect except 24V model)                          |
| 7       | ⊕           | Ground this terminal to minimize high-frequency emissions |
| 8       | L1          | Input terminals   |
| 9       | L2          | Input terminals   |
| 10      | L3          | Input terminals   |
|         | DC ON       | Operation indicator LED                                   |
|         | DC LO       | DC LOW voltage indicator LED                              |
|         | Vout ADJ.   | Trimmer-potentiometer for Vout adjustment                 |

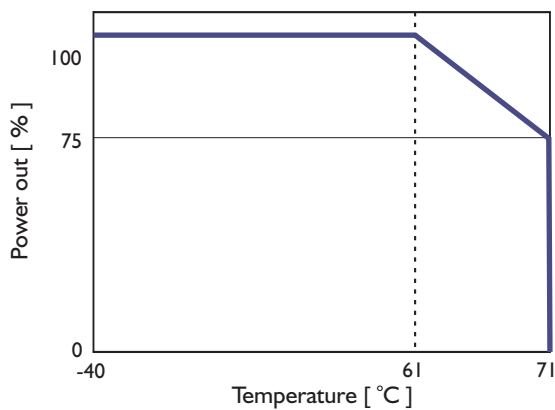
## CIRCUIT SCHEMATIC



## TYP. CURRENT LIMITED CURVE



## DERATING CURVE



## TYP. EFFICIENCY CURVE

