

## Zero up programmable power supplies

### Features

- ◆ Constant Voltage / Constant Current
- ◆ Last Setting Memory
- ◆ Digital Meters
- ◆ Built-in RS232 & RS485 Interface w/ GPIB optional
- ◆ Bench or Rack Mount
- ◆ Embedded Microprocessor Controller
- ◆ Voltage up to 120V, Current up to 132A



### Key Market Segments & Applications



| Specifications                 |     |   |          |           |           |           |           |           |
|--------------------------------|-----|---|----------|-----------|-----------|-----------|-----------|-----------|
| Model                          |     | ZUP6  | ZUP10    | ZUP20     | ZUP36     | ZUP60     | ZUP80     | ZUP120    |
| Load Regulation                | -   | 2mV + 0.005% over 0 - 100% load change  |          |           |           |           |           |           |
| Line Regulation                | -   | 1mV + 0.005% over 85 - 132 or 170 - 265VAC line change  |          |           |           |           |           |           |
| Recovery Time (1)              | ms  | 1ms   | 0.5ms    | 0.2ms     |           |           |           |           |
| Temperature Coefficient        | -   | 30ppm/°C following 30 minute warm up  |          |           |           |           |           |           |
| Temperature Drift(2)           | -   | 0.01% + 2mV change in output  |          |           |           |           |           |           |
| Up programming response time   | ms  | 50 - 60ms   |          |           |           |           | 80ms      | 120ms     |
| Down prog. resp. time (CV)     | ms  | 50ms (70ms ZUP60-14)  |          |           |           |           |           |           |
| Down prog. resp. time (CV)     | ms  | 250ms   | 350ms    | 400ms     | 500ms     | 750ms     | 600ms     | 800ms     |
| Load Regulation                | -   | 0.01% + 5mA on 200W and 400W models, 0.07% + 10mA on 800W models                                  |          |           |           |           |           |           |
| Line Regulation                | -   | 0.01% + 2mA on 200W and 400W models, 0.01% + 5mA on 800W models                                   |          |           |           |           |           |           |
| Temperature Coefficient        | -   | 100ppm/°C from rated current after 30 minute warm up time   |          |           |           |           |           |           |
| Temperature Drift(2)           | -   | 0.02% + 5mA, 200W and 400W models, 0.05% + 10mA 800W models                                       |          |           |           |           |           |           |
| Prog Voltage resolution        | -   | Better than 0.028% of rated voltage   |          |           |           |           |           |           |
| Prog Voltage accuracy          | mV  | .02%+5mV  | .02%+8mV | .02%+12mV | .02%+20mV | .02%+35mV | .02%+50mV | .02%+70mV |
| Prog Current resolution        | -   | Better than 0.03% of rated voltage  |          |           |           |           |           |           |
| Prog Current accuracy          | -   | 0.4% + 40mA   |          |           |           |           |           |           |
| Overvoltage Shutdown           | V   | 0 - 7.5   | 0 - 13   | 0 - 24    | 0 - 40    | 0 - 66    | 0 - 88    | 0 - 132   |
| Thermal Protection             | -   | Over temperature protected  |          |           |           |           |           |           |
| Display - Voltage              | -   | 3 digits (6, 20, 36, 60, 80V models), 3.5 digits (10, 120V models). Accuracy 0.2% ± 2 digits      |          |           |           |           |           |           |
| Display - Current              | -   | 3 digits, (3.5 digits 132A model). Accuracy 0.5% ± 3 digits                                       |          |           |           |           |           |           |
| Display - Status               | -   | CV / CC, Alarm, Foldback, Local/Remote, On/Off  |          |           |           |           |           |           |
| Remote On/Off                  | -   | TTL signal or dry contact relay   |          |           |           |           |           |           |
| Output Good                    | -   | Open Collector  |          |           |           |           |           |           |
| Voltage & Current Programming  | -   | By either Voltage (0-4V) or Resistance (0-4k)   |          |           |           |           |           |           |
| Remote Sense                   | -   | Up to 0.5V compensation per output cable  |          |           |           |           |           |           |
| Communication Interface        | -   | RS232 & RS485 standard, IEEE488 optional  |          |           |           |           |           |           |
| Series & Parallel Operation    | -   | Series: Up to two units; Parallel: Up to five units in master-slave configuration                 |          |           |           |           |           |           |
| AC Input Voltage range         | VAC | 85-265VAC (47-63Hz)   |          |           |           |           |           |           |
| Inrush Current (100/200VAC)(3) | A   | 15/30A, 200W models, 15A, 400W models, 30A, 800W models   |          |           |           |           |           |           |
| Hold Up Time (Typ) at 100VAC   | ms  | 20  |          |           |           |           |           |           |
| Power Factor Correction        | -   | Complies with EN61000-3 Class A (0.99 typ)  |          |           |           |           |           |           |
| Temperature Range              | -   | Operating: 0 - 50°C; Storage: -20 to +70°C  |          |           |           |           |           |           |
| Humidity (non condensing)      | -   | Operating: 30 - 90% RH, Storage 10 - 95%RH  |          |           |           |           |           |           |
| Cooling                        | -   | Internal fan  |          |           |           |           |           |           |
| Withstand Voltage              | -   | Input to Ground 2kVAC, Input to Output 3kVAC, Output to Ground 500VAC for 1 min.                  |          |           |           |           |           |           |
| Isolation Resistance           | -   | >100M at 25°C & 70%RH   |          |           |           |           |           |           |
| Vibration & Shock (non-op.)    | -   | Vibration:10-55Hz(1 min.) 2G constant X, Y, Z, when correctly mounted; Shock: <20G                |          |           |           |           |           |           |
| Safety Agency Approvals        | -   | UL3111-1, EN61010-1, CE Mark  |          |           |           |           |           |           |
| Conducted & Radiated EMI       | -   | EN55022-B conducted, A radiated, FCC Class B conducted, A radiated, VCCI-2 conducted, -1 radiated |          |           |           |           |           |           |
| Warranty                       | yrs | Three Years   |          |           |           |           |           |           |

Notes: (1) Recovery to within +/-50mV after load change of 50-100% (2) Over 8 hour period following 30 minute warm up time  
 (3) 25°C ambient (cold start)

| Model Selector |                      |                      |           |                    |                   |                    |                           |           |
|----------------|----------------------|----------------------|-----------|--------------------|-------------------|--------------------|---------------------------|-----------|
| Model          | Voltage Adjust Range | Current Adjust Range | Max Power | Ripple 5Hz-1MHz mV | Noise 20MHz BW mV | Ripple 5Hz-1MHz mA | Efficiency % (100/200VAC) | Weight kg |
| ZUP6-33/U      | 0-6                  | 0-33                 | 198       | 5                  | 50                | 50                 | 69 / 72                   | 2.9       |
| ZUP6-66/U      | 0-6                  | 0-66                 | 396       | 5                  | 50                | 100                | 74 / 77                   | 3.2       |
| ZUP6-132/U     | 0-6                  | 0-132                | 792       | 8                  | 100               | 200                | 74 / 77                   | 5.8       |
| ZUP10-20/U     | 0-10                 | 0-20                 | 200       | 5                  | 50                | 25                 | 73 / 77                   | 2.9       |
| ZUP10-40/U     | 0-10                 | 0-40                 | 400       | 5                  | 50                | 50                 | 79 / 82                   | 3.2       |
| ZUP10-80/U     | 0-10                 | 0-80                 | 800       | 8                  | 90                | 100                | 77 / 81                   | 5.8       |
| ZUP20-10/U     | 0-20                 | 0-10                 | 200       | 5                  | 50                | 15                 | 74 / 78                   | 2.9       |
| ZUP20-20/U     | 0-20                 | 0-20                 | 400       | 5                  | 50                | 30                 | 79 / 83                   | 3.2       |
| ZUP20-40/U     | 0-20                 | 0-40                 | 800       | 5                  | 80                | 60                 | 79 / 82                   | 5.8       |
| ZUP36-6/U      | 0-36                 | 0-6                  | 216       | 5                  | 50                | 7.5                | 76 / 80                   | 2.9       |
| ZUP36-12/U     | 0-36                 | 0-12                 | 432       | 5                  | 50                | 15                 | 80 / 84                   | 3.2       |
| ZUP36-24/U     | 0-36                 | 0-24                 | 864       | 5                  | 70                | 30                 | 80 / 84                   | 5.8       |
| ZUP60-3.5/U    | 0-60                 | 0-3.5                | 210       | 5                  | 50                | 5                  | 75 / 79                   | 2.9       |
| ZUP60-7/U      | 0-60                 | 0-7                  | 420       | 5                  | 50                | 10                 | 80 / 84                   | 3.2       |
| ZUP60-14/U     | 0-60                 | 0-14                 | 840       | 5                  | 60                | 20                 | 80 / 84                   | 5.8       |
| ZUP80-2.5/U    | 0-80                 | 0-2.5                | 200       | 30                 | 80                | 5                  | 77 / 82                   | 2.9       |
| ZUP80-5/U      | 0-80                 | 0-5                  | 400       | 30                 | 80                | 10                 | 83 / 87                   | 3.2       |
| ZUP120-1.8/U   | 0-120                | 0-1.8                | 216       | 30                 | 80                | 5                  | 77 / 82                   | 2.9       |
| ZUP120-3.6/U   | 0-120                | 0-3.6                | 432       | 30                 | 80                | 10                 | 83 / 87                   | 3.2       |

| Options & Accessories                            |                 |                           |
|--|-----------------|---------------------------|
| Option   | Model Suffix    | Part Number               |
| Front panel terminals (20A max) <sup>5</sup>     | /L <sup>4</sup> | ZUP200/400/L <sup>4</sup> |
| Front panel terminals (20A max) <sup>6</sup>     | /L <sup>4</sup> | ZUP800/L <sup>4</sup>     |
| IEC320 cable USA plug                            | /U              | ZUP/U                     |
| Serial link cable RJ-45                          | /W              | ZUP/W                     |
| GPIO Controller                                  |                 | GP485A*                   |
| Dual Unit Assembly (accepts 200W or 400W models) |                 | NL200*                    |
| 19" 3U rack (accepts up to 6 200/400W models)    |                 | NL100*                    |
| Blanking panels for NL100 (19 in. rack)          |                 | NL101*                    |
| RS232 Communications Cable DB-9                  |                 | ZUP/NC401                 |
| RS232 Communications Cable DB-25                 |                 | ZUP/NC403                 |
| RS485 Communications Cable DB-9                  |                 | ZUP/NC402                 |
| RS485 Communications Cable DB-25                 |                 | ZUP/NC404                 |
| User Manual                                      |                 | NL102                     |

\* (See website for more details)  
<sup>4</sup> Not available with ZUP80 or ZUP120 models.  
<sup>5</sup> 200W and 400W models  
<sup>6</sup> 800W models



For Additional Information, please visit [www.tdk-lambda.com/lp/products/zup.htm](http://www.tdk-lambda.com/lp/products/zup.htm)



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