



# DLTG3000

## 3000 W DC POWER SUPPLY



### FEATURES

- Designed for long life at full power
- Excellent dynamic response to load changes
- Protected against all overload and short circuit conditions
- EMC surpasses CE requirements: low emission & high immunity
- Low audible noise: fans are temperature controlled
- Available options: High Speed Programming, Interfaces, Extra Isolation, Sequencer, Power Sink etc.

### FUNCTIONALITIES

- Master/Slave parallel and series operation with voltage and current sharing
- Stacking is allowed, space between units is not required
- High power system configuration from multiple units
- 19" rack mounting or for laboratory use (feet included)
- Remote sensing

|   |  | DLTG3000   |  |
|---|--|--|--|
| <b>Output</b>                                     |  |  |  |
| voltage   |  | 0-300V   |  |
| current   |  | 0-10A  |  |
| <b>Input</b>                                      |  |  |  |
| <b>AC</b>   | 3 phase, 48 - 62 Hz<br>for use at 380 V, 400 V, 415 V<br>nominal line - line voltage | 342-457V   |  |
|   | current (400 V AC / 3 phase )  | 5.5Arms  |  |
|   | power factor (380 V / 3 phase)   |  |  |
|   | 100% load  | 0.88   |  |
|   | 50% load   | 0.78   |  |
| <b>DC</b>   |  | contact factory                                      |  |
|   | fuses  | 16AT   |  |
|   | standby input power ( $V_o=I_o=0$ )  | 25W  |  |
|   | standby input power ( $V_o=V_{max}$ )  | 50W  |  |
| <b>Efficiency</b>                                 |  |  |  |
|   | AC 3 phase input, full load  | 90%  |  |
| <b>Regulation</b>                                 |  |  |  |
| Load 0 - 100%                                     | <b>CV</b>  | 15mV   |  |
| Line 342 - 457 V AC                               | <b>CV</b>  | 10mV   |  |
| Load 0 - 100%                                     | <b>CC</b>  | 3mA  |  |
| Line 342 - 457 V AC                               | <b>CC</b>  | 3mA  |  |
| <b>Ripple + noise, rms / p-p</b><br>(BW = 20 MHz) |  | <b>CV</b>  |  |
|   |  | 10/50 mV<br><i>below 50V: 25/120mV</i>               |  |
|   |  | <b>CC</b>  |  |
|   |  | 3/10 mA<br><i>below 50V: 60/200mA</i>                |  |
| <b>Temp. coeff., per °C</b>                       |  | <b>CV</b>  |  |
|   |  | typical $10 \cdot 10^{-6}$ , max. $35 \cdot 10^{-6}$ |  |
|   |  | <b>CC</b>  |  |
|   |  | typical $20 \cdot 10^{-6}$ , max. $60 \cdot 10^{-6}$ |  |
| <b>Stability</b>                                  |  |  |  |
| after 1 hr warm-up                                |  |  |  |
| during 8 hrs                                      | <b>CV</b>  | typical $2 \cdot 10^{-5}$ , max. $4 \cdot 10^{-5}$   |  |
|   | <b>CC</b>  | typical $3 \cdot 10^{-5}$ , max. $10 \cdot 10^{-5}$  |  |
| during 30 hrs                                     | <b>CV</b>  | typical $2 \cdot 10^{-5}$ , max. $5 \cdot 10^{-5}$   |  |
|   | <b>CC</b>  | typical $5 \cdot 10^{-5}$ , max. $10 \cdot 10^{-5}$  |  |
| $t_{amb} = 25 \pm 1 \text{ °C}$                   |  |  |  |
| <b>Analog Programming</b>                         |  |  |  |
|   |  | <b>CV</b>  |  |
| <b>Programming inputs</b>                         |  |  |  |
| input range                                       |  | 0-5V   |  |
| accuracy  |  | $\pm 0.2\%$ 0mV... +8mV (on5V)                       |  |
| temp. coeff. offset                               |  | $10 \mu\text{V}/\text{°C}$                           |  |
| input impedance                                   |  | 1M $\Omega$  |  |
|   |  | <b>CC</b>  |  |
| <b>Monitoring output</b>                          |  |  |  |
| output range                                      |  | 0-5V   |  |
| accuracy  |  | $\pm 0.5\%$ -5mV... +0mV                             |  |
| temp. coeff. offset                               |  | $150 \mu\text{V}/\text{°C}$                          |  |
| output impedance                                  |  | 20 $\Omega$  |  |
| <b>Reference voltage</b>                          |  |  |  |
| on prog. connector                                | $V_{ref}$<br>TC  | 5.165 $\pm$ 31mV<br>typical 12ppm/max. 30ppm         |  |
| <b>+ 12 V Output</b>                              |  |  |  |
| on prog. connector                                | $V_o$<br>$I_{max}$<br>$R_o$  | $\pm 12\text{V}$<br>25mA<br>500 $\Omega$             |  |
| <b>Status outputs</b>                             |  |  |  |
| CC-status   |  | 5V/10mA=logic 1                                      |  |
| OVP-status  |  | 5V/10mA=logic 1                                      |  |
| <b>Remote ShutDown</b>                            |  | with +5V or relay contact                            |  |

|   |                                 |
|---|---------------------------------|
| <b>Programming speed</b><br><i>Standard Version</i><br>(resistive load)                                 |                                 |
| <b>Rise time (10 - 90%)</b><br>output voltage step<br>time, (100 % load)<br>time, (10 % load)           | 0 → 300 V<br>7 ms<br>7 ms       |
| <b>Fall time (90 - 10%)</b><br>output voltage step<br>time, (100 % load)<br>time, (10 % load)           | 300 → 0 V<br>11 ms<br>91 ms     |
| <b>Programming bandwidth</b><br>small signal<br>large signal, (100 % load)<br>large signal, (10 % load) | 50 Hz<br>50 Hz                  |
| <b>Programming speed</b><br><i>High Speed Version</i><br>(resistive load)                               |                                 |
| <b>Rise time (10 - 90%)</b><br>output voltage step<br>time, (100 % load)<br>time, (10 % load)           | 0 → 300 V<br>1.00 ms<br>0.40 ms |
| <b>Fall time (90 - 10%)</b><br>output voltage step<br>time, (100 % load)<br>time, (10 % load)           | 300 → 0 V<br>1.20 ms<br>11.0 ms |

|  |                                    |
|--|------------------------------------|
| <b>Recovery time</b><br>recovery within<br>di/dt of load step<br>time, @ 50 - 100% load step<br>max. deviation | 1.5 V<br>0.6 A/μs<br>100 μs<br>2 V |
| <b>Noise suppression</b><br>line - line ⇒ output<br>line - earth ⇒ output                                      | 90 dB<br>90 dB                     |
| <b>Output impedance</b><br>CV, 0-100 kHz   | < 800 mOhm                         |
| <b>Pulsating load</b><br>max. tolerable AC component<br>of load current<br>f > 1 kHz<br>f < 1 kHz              | 2.5 Arms<br>10 A <sub>peak</sub>   |

|  |   |
|--|---|
| <b>Insulation</b><br>input / output<br>creepage / clearance<br>input / case<br>output / case | 3750 Vrms (1 min.)<br>8 mm<br>2500 Vrms<br>600 VDC  |
| <b>Safety</b>  | EN 60950/EN 61010   |
| <b>EMC Power Supply Standard</b>   | <b>EN 61204-3</b> ,<br>Emission: residential, <b>light</b> industrial environment (CISPR22-Class <b>B</b> )<br>Immunity: industrial environment |
| <b>Generic Emission<br/>Generic Immunity</b>   | <b>EN 61000-6-3</b> , residential, <b>light</b> industrial environment (EN 55022 <b>B</b> )<br><b>EN 61000-6-2</b> , industrial environment     |
| <b>Operating temperature at full load</b>  | - 20 to + 50 °C   |
| <b>Humidity</b>  | max. 95% RH, non condensing, up to 40 °C<br>max. 75% RH, non condensing, up to 50 °C  |
| <b>Storage temperature</b>   | - 40 to + 85 °C   |
| <b>Thermal protection</b>  | Output shuts down in case of insufficient cooling   |
| <b>MTBF</b>  | 500 000 hrs   |

|  |  |
|--|--|
| <b>Hold-Up time</b><br>100% load $V_{in} = 3 \times 380 \text{ V AC}$<br>50% load $V_{in} = 3 \times 380 \text{ V AC}$ | 6 ms<br>15 ms  |
| <b>Turn on delay</b><br>after mains switch on  | 300 ms   |
| <b>Inrush current</b>  | 5.8 A @ 400 V AC input   |
| <b>Phase loss</b>  | The power supply will continue to operate on one phase but at 90% of $V_{out(max)}$<br>(a SM30-100D adjusted at 27 V will continue to deliver 27 V after phase loss) |

|   |                       |
|---|-----------------------|
| <b>Series operation</b><br>max. total voltage<br>Master / Slave operation   | 600 V<br>yes          |
| <b>Parallel operation</b><br>max. total current<br>Master / Slave operation | no limit max. 4 units |
| <b>Remote sensing</b><br>max. voltage drop per load lead                    | 2 V                   |
| <b>OVP / OVL</b><br>adjustment range  | 0-350 V               |

|   |   |
|---|---|
| <b>Potentiometers</b><br>front panel control with knobs<br>resolution | standard<br>0.03 %                                  |
| screwdriver adjustment<br>at front panel<br>at rear panel             | option P001<br>option P002                          |
| <b>Meters</b><br>scale voltage<br>scale current<br>accuracy           | 3.5 digit<br>0-300 V<br>0-10.00 A<br>0.5% + 2 digit |

|  |   |  |
|--|---|--|
| <b>Mounting</b>  | Stacking of units allowed, air flow is from left to right.  |  |
| <b>Input Terminals</b><br>input connections                              | screw terminals for cable 1.5-4.0 mm <sup>2</sup><br>3 phase + earth (no neutral required)  |  |
| <b>Output Terminals</b>  | 6 mm bind post  |  |
| <b>Programming connector</b>   | 15 pole D-connector at rear panel (FEMALE)  |  |
| <b>Cooling</b><br>audio noise level                                      | Low noise blower, fan speed adapts to temperature of internal heatsink.<br>ca. 50 dBA at full load and 25 °C ambient temperature<br>ca. 60 dBA at full load and 50 °C ambient temperature |  |
| <b>Enclosure</b><br>degree of protection                                 | IP20  |  |
| <b>Dimensions</b><br>behind front panel: h x w x d<br>front panel: h x w | 128.5 x 443 x 416 mm<br>128.5 x 483 mm  | (with option P099, feet are removed)<br>(19", 3 U) |
| <b>Weight</b>  | 15 kg   |  |