DLTG1500

1500 W DC POWER SUPPLY

FEATURES

- cTUVus safety approval
- 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, Digital Encoders, 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
- Interlock

...SOWAS VON LICHT!

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	DTLG1500
Output	
voltage	0 - 300 V
current	0 - 5 A
AUTORANGING (2 ranges)	no
max. output current / voltage	-
Input	
AC single phase, 48 - 62 Hz	90 - 265 V
rated voltage range	100 - 240 V
rated frequency	50 / 60 Hz
Power Derating vs input:	
90 V : $P_{out\ max}$ (W), I_{in} (A)	1200,16
100 V : $P_{out\ max}$ (W), I_{in} (A)	1350,16
110 V : $P_{out\ max}$ (W), I_{in} (A)	1500,16
230 V : $P_{out\ max}$ (W), I_{in} (A)	1500, 7.4
power factor, 100%, 50% load	0.99, 0.98
internal fuses	25 AT
standby input power (V_o=I_o=0)	12 W
standby input power (V_o=V_{max})	22 W
Efficiency	
AC 230 V input, full load	91 %
AC 115 V input, max. load	86 %
Regulation	
Load 0 - 100% **CV**	10 mV
Line 120 - 265 V AC **CV**	3 mV
(measured on sense block)	
Load 0 - 100% **CC**	0.5 mA
Line 120 - 265 V AC **CC**	0.1 mA
(internal voltage sense)	
Ripple + noise	
rms (BW=300 kHz) **CV**	7 mV
p-p (BW=20 MHz) **CV**	50 mV
rms (BW=300 kHz) **CC**	0.5 mA
p-p (BW=20 MHz) **CC**	4 mA
CC-ripple at full load	
Temp. coeff., per °C **CV**	35.10^{-6}
CC	60.10^{-6}
Stability	
after 1 hr warm-up	
during 8 hrs **CV**	6.10^{-5}
CC	9.10^{-5}
t_{amb} = 25 ± 1 °C, V_{in} = 230 V AC	
(int. voltage sensing for CC-stab.)	

Analog Programming	**CV**	**CC**
Programming inputs		
input range	0 - 5 V	0 - 5 V
accuracy	± 0.2%	± 0.5%
offset	- 0.1 ... +1.3 mV (on 5V)	0 ... +2.2 mV (on 5V)
temp. coeff. offset	10 µV / °C	50 µV / °C
input impedance	> 1 MOhm	> 1 MOhm
Monitoring output		
output range	0 - 5 V	0 - 5 V
accuracy	± 0.2%	± 0.5%
offset	- 1... 0 mV (on 5V)	- 1.1... 0 mV (on 5V)
temp. coeff. offset	3 µV / °C	60 µV / °C
output impedance	2 Ohm / max. 4 mA	2 Ohm / max. 4 mA

Reference voltage		
on prog. connector	V_{ref}	5.114 V ± 15 mV (Ro = 2 Ohm, max. 4 mA)
	TC	20 ppm
+12 V output	V_o	12 V ± 0.2 V
on prog. Connector	I_{max}	0.2 A
	R_o	3 Ohm
Relay Outputs		
ACF	AC - Fail	both NO and NC contact
DCF	DC - Fail [1])	both NO and NC contact

[1]) output voltage ± 5% beyond set point

Status outputs			
CC - status	CC - operation	5 V = logic 1	(R_o = 500 Ohm)
LIM- status	CV or CC limit	5 V = logic 1	(R_o = 500 Ohm)
OT - status	Over Temperature	5 V = logic 1	(R_o = 500 Ohm)
PSOL - status	Power Sink Overload	5 V = logic 1	(R_o = 500 Ohm)
ACF - status	AC - Fail	5 V = logic 1	(R_o = 500 Ohm)
DCF - status	DC - Fail [2])	5 V = logic 1	(R_o = 500 Ohm) [2]) output voltage ± 5% beyond set point
Remote ShutDown	with + 5V, 1 mA or relay contact		
Interlock	contact at rear panel, see photo of rear panel on page 1-6		
Indicators (front panel)	Voltage meter, Ampere meter, AC-Fail, DC-Fail, Over Temperature, Power Sink Overload, Remote-ShutDown, Remote-CV, Remote-CC, Output On, CV-limit, CC-limit, CV- and CC- mode		
Controls (front panel)	Mains on/off switch, CV-and CC-potmeter, CV- and CC-limit-potmeter, Display-Settings button, Display-Limits button, Remote/Local button, Output On/Off button, Front panel Lock button.		

Programming speed ***Standard Version***	
Rise time (10 - 90%)	
output voltage step	0 → 300 V
time, (100 % load)	9 ms
time, (10 % load)	3.9 ms
Fall time (90 - 10%)	
output voltage step	300 → 0 V
time, (100 % load)	9 ms
time, (10 % load)	90 ms
Programming speed ***High Speed Version***	
Rise time (10 - 90%)	
output voltage step	0 → 300 V
time, (100 % load)	1.0 ms
time, (10 % load)	0.51 ms
Fall time (90 - 10%)	
output voltage step	300 → 0 V
time, (100 % load)	1.40 ms
time, (10 % load)	13 ms
Ripple @full load (rms/pp)	25/115 mV
Output capacitance	10 µF
Notes: All specifications regarding programming speed are typical and measured on a resistive load.	

Recovery time	
recovery within	1.0 V
di/dt of load step	0.1 A/µs
output voltage	280 V
time, @ 50 - 100% load step	100 µs
max. deviation	1.5 V
@ 230 V AC input voltage	
Output impedance	
CV, 0-1 kHz	< 125 mΩ
CV, 1-100 kHz	< 1 Ω
Pulsating load	
max. tolerable AC component of load current	
f > 1 kHz	1.2 Arms
f < 1 kHz	5 Apeak

Insulation 1 input / output creepage / clearance input / case output / case	 3750 Vrms (1 min.) 8 mm 2500 Vrms 600 V DC
Safety	cTUVus / EN 60950 / EN 61010
EMC Power Supply Standard **Generic Emission** **Generic Immunity**	**EN 61204-3**, Emission: residential, **light** industrial environment (CISPR22-Class **B**) Immunity: industrial environment **EN 61000-6-3**, residential, **light** industrial environment (EN 55022 **B**) **EN 61000-6-2**, industrial environment
Operating Temperature at full load	− 20 to + 50 °C derate output to 75% at 60 °C
Humidity	max. 95% RH, non condensing, up to 40 °C max. 75% RH, non condensing, up to 50 °C
Storage temperature	− 40 to + 85 °C
Thermal protection	Output shuts down in case of insufficient cooling
MTBF	500 000 hrs

Hold-Up time V_{out} = 100%, I_{out} = 100% V_{out} = 85%, I_{out} = 100% V_{out} = 100%, I_{out} = 50% *@ 230 V AC input*	 16 ms 20 ms 36 ms *(time till DC-fail = 1)*
Turn on delay after mains switch on	 480 ms @ 230 V AC, 700 ms @ 115 V AC
Inrush current	27 A@115 V AC, 22 A@230 V AC

Series operation max. total voltage Master / Slave operation	 600 V yes
Parallel operation max. total current Master / Slave operation	 no limit max. 4 units (including master)
Remote sensing max. volt. drop per load lead	 2 V
Limits Voltage adjust range **Current** adjust range	0 - 102% 0 - 102%
Potentiometers & Encoders front panel control with knobs resolution screwdriver adjustment digital encoders	 standard 0.03 % Option P001 (at front panel) Option P220
Meters scale voltage scale current accuracy read output read limit setting (d = digit)	3.5 digit 0 - 300 V 0 - 5.00 A 0.5% + 2 d 2% + 2 d

Mounting	Stacking of units allowed, air flow is from left to right.
Input Connector	IEC320/C20, EN 60320/C20
Output Terminals	M8 bolts
Programming connector	15 pole D-connector at rear panel (FEMALE)
Cooling audio noise level airflow	Low noise blower, fan speed adapts to temperature of internal heatsink. ca.45 dBA at full load, 25 °C ambient temperature, 1 m distance ca. 50 dBA at full load, 50 °C ambient temperature, 1 m distance from left to right
Enclosure degree of protection	 IP20
Dimensions behind front panel: h x w x d front panel: h x w	 89 x 442 x 365 mm (feet removed) 89 x 483 mm (19", 2 U)
Weight	9.9 kg