

Microcontroller based – digitally controlled DC Load Electronic DC Load

DCL 3000 Series Power 3000Watt



Zentro-Elektrik is announcing topically with its electronic DC load series DCL3000 a load for highest demands.

In not more than 3 U of a 19" rack, the power pack delivers 3000Watt. This was only possible to achieve by choosing the most demanding and available semiconductors and by an optimized construction combined with fast monitoring and regulation.

The controller is a fully digital PID controller with 100 kHz Sample rate with 16bit resolution of set point and 24bit resolution of actuating variable. The innovative controller design with automatically offset correction achieves an excellent accuracy of 0.2% of max. load current combined with extremely short transient time.

One of the big advantages is the opportunity to adapt the controller characteristics according to the attributes of the control path. The user easily can adjust the rise time in the range of 50 μ s...2s or optimizing the controller performance by varying the coefficients of the controller. That means, the load can be adapted fully flexible by the user to the situation of the load circuitry.

The novel control concept offers excellent flexibility. The load directly can be controlled from a computer by USB, IEEE, RS232, LAN (Ethernet) or an isolated analogue interface or via an operation panel which communicates via a Bluetooth.

Summing up, this is a generation of DC loads which fulfils the high requirements of each customer and is an excellent choice for complex test devices or single test places.

Since many years Zentro-Elektrik DC loads are a leader in demanding applications such as Fuel Cells, Accumulators, Power Supplies, Generators and Motors.

Input:

Input voltage	100...240VAC, +10%, 47–63Hz
Load Voltage	0,3V 60V (0,6V at I_{max})
Load Current	320A
Load Power	3000W (Derating at 30°C)

Modes of operation	I-Mode, P-Mode, U-Mode, G-Mode (R-Mode), MPP-Mode
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Isolation	Isolation between load terminals and Control board
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Environmental Conditions:

Operating Temperature Range	4 .. 35°C
Cooling	internal Fan temperature controlled

Control, Operation and Instruments:

Interface	USB (Connector at front panel) USB (Connector at rear panel) Bluetooth (SMA connector at front panel)
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Regulation:

Controller	digital PID-Controller ($f_s=100kHz$)
Resolution of digital controller (actuating variable)	24Bit
Resolution of set point	16Bit
Resolution measured values	16Bit
Accuracy	0,2% I_{max}
Rise time (10% - 90%, I-Mode)	50 μ s ... 2s user defined by coefficients of PID-Controller

Mechanics:

Dimensions	19" Plug-in chassis 3U
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Options:

RS232-Interface
IEEE488-Interface (GPIB)
LAN-Interface (Ethernet)
Analog-Control-Port 12Bit ($T_s=10\mu$ s) (Isolated from load terminals as well as control board.)