Electronic DC Load

Series ELA Precision
Power 250 Watt
DC-Load of high Precision at low load current

Constant I-Mode or R-Mode
Master-Slave Mode

ext. programmable I-constant, without a G-Module installed
ext. programmable I-, P-, U- or G- constant with a G-Module installed

Options a.o.:
Installed IEEE488.2 (GPIB) / RS232* / USB* interface with Lab-View Driver (Series INT2E)
Installed USB Interface with driver software
External CAN Open Interface (on request)
G- Module
Front-End Unit
*selectable RS232 or USB

The loads of the ELA 250 precision series are electronically-regulated DC-loads with a power up to 250W. They are differentiated from the loads on the ELA 250 series by their maximum resolution in the range of load current smaller than 10A. They are configured using the latest MOS technology with a DC load range of just 0.35VDC to 75VDC and a maximum load range (depending on type) of 0A to 1A, 2A, 4A, 5A, 8A. In this load current range the DC load offers maximum resolution and precision and is suitable, along with other precision applications, for operating with solar cells, fuels cells and power supply elements. Wherever a DC load is used, be it alone or in a systems application, integrated via an interface, the 'Precision ELA 250' offers such intelligent features as:
minimum load voltage of 0.35V / maximum load current, regardless of type, of 1A and less / load ON/OFF / RCP (Remote Controller Port) interface with additional +15VDC voltage for powering external components / local-lockout / buffered U- and I-monitor outputs / load-on delay during power-up and much else besides.

Input:

Input voltage	230VAC -10% +6%, 50-60Hz
Load voltage	see table
Load current	see table
Continuous Power	see table

Regulation:

Set point accuracy (Voltage change ± 20%)	≤ 0,1% I_{max}
Rise time (at 10-90% nominal value change I-Mode)	
ELA250/75/20, ELA250/75/40	U_L > 3V ≤ 60µs U_L < 3V ≤ 400µs
ELA505/160/50	U_L > 6V ≤ 60µs U_L < 6V ≤ 400µs
Temperature coefficient (after 15 min. working time, const. $T_{ambient.}$ and U_{mains})	≤ 0.01%/°C I_{max}

Protection:

Overload protection	power limit, short circuit protection
Overvoltage protection	power shutdown U_{max} +6%
Thermal protection	power shutdown, auto recovery
Reverse polarity	wattless current diode and fuse

Environmental Condition:

Operating temperature	0 - +40°C (non condensing)
Cooling	int. fans, temperature controlled

Safety:

Safety standard	EN 61010-1
Isolation	
AC input - load input	2.3kV$_{eff}$
AC input - protective ground	1.35kV$_{eff}$
Load input - protective ground	U_L ≤ 75V: 500V$_{eff}$ U_L = 160V: 1kV$_{eff}$

EMC:

Input EMI filter	EN61000-6-3
Input immunity	EN61000-6-1

Control, operation and instruments:

Manual adjust	current and resistance 2 set values each (A and B) for 2 channels selectable with a coarse and fine potentiometer each per channel
Pulse-generator I, R	100Hz or 1kHz switch-selected, waveform: square-wave, duty cycle 1:1
Load ON/OFF-function	load to be switched at high Ohm state
Load ON function	load current ≙ setpoint
Load OFF function	load current ≙ 0 at any setpoint
Instruments	load current, load voltage: LED digital load current ≤ 50A:3-digits load current = 100A: 3.5-digits load voltage ≤ 75V: 3-digits load voltage 160V: 3.5-digits accuracy: 0.2% ±1d
Error indication	LED red: over temperature or over voltage LED yellow: current limiting or power limiting
Parallel operation	same units possible

Programming Interface (Remote Control Port):

	jack RJ45 ext. control voltage 0 - 10V = 0 - I_{max} any waveform, bandwidth: (-3dB): 0 - 6kHz accuracy: 0.2% I_{max}
Load ON/OFF function	Load to be switched at high Ohm state
Monitor signal	Load current, load voltage accuracy 0.2% I_{max}, U_{max}
Disturbance signal	composit failure (active low) (OR-link at following failures: over temperature, over voltage, power limiting, current limiting)

Electrical Connections:

Input voltage	Euro-plug with switch, rear side
Load	jack 4mmØ ≤ 40A

Dimensions and weight:

mounting form	see table
Dimensions	
Weight	The loads can be delivered as tabletop unit or as 19" rack mounted module.

Option G-Module:

Programming	2 set values each at I-,U-, P-, G-Mode ext. voltage 0 - 10V = 0 - I_{max} ext. voltage 0 - 10V = 0 - P_{max} ext. voltage 0 - 10V = 0 - G_{max} ext. voltage 0 - 10V = 0 - U_{max}
Load ON function	Load current ≙ setpoint
Load OFF function	Load current = 0 at any setpoint
Pulse generator I, G, P, U	1Hz, 10Hz, 100Hz or 1kHz* to be switched, waveform: square wave duty cycle 1:1 *1kHz in U-Mode not available
Feed back signal	load current, load voltage (0 -10V) accuracy: 0.2% I_{max}, U_{max}
Disturbance signals	signal: composit failure (active low) signal: over temperature, over voltage signal: over load, current limitation signal: under voltage
Lead for programming	25 pol. Sub D jack

Option INT2E:

Programming	2 set values each at I-, P-, G-Mode with G-module, (1 set value at I-Mode without G-module) resolution : 12Bit (4000 steps per range) accuracy: 0.25% I_{max} (I-Mode)
Puls generator I, G, P, U	1Hz, 10Hz, 100Hz or 1kHz* to be switched, waveform: square wave duty cycle 1:1 *1kHz in U-Mode not available
Monitor signal	load current, load voltage resolution: 12 Bit (I_{max}/4000; U_{max}/4000) accuracy: 0.25% I_{max}, U_{max}
Load ON function	Load current ≙ setpoint
Load OFF function	Load current = 0 at any setpoint
Function Local Lockout	in remote the operation instruments at the front panel are not active
Error signal	signal: composit failure signal: over temperature, over voltage signal: powerlimiting, current limiting signal: under voltage
Connectors	9 pole Sub D conncetor (RS232) 24 pole IEEE488/GPIB-jack USB-jack type B

output-power (W)	DC load-voltage (V)	Load-current (A)	Load-resistance (Ohm)	Model-Number
75	0.35 - 75V	0 - 1	0,15 - 300kΩ	ELA250/75/1...*
150	0.35 - 75V	0 - 2	0,10 - 150kΩ	ELA250/75/2...*
250	0.35 - 75V	0 - 4	0,08 - 75kΩ	ELA250/75/4...*
250	0.35 - 75V	0 - 5	0,08 - 60kΩ	ELA250/75/5...*
250	0.35 - 75V	0 - 8	0,07 - 37,5 kΩ	ELA250/75/8...*

* ... please add mounting form

Pin assignment RCP-Interface (Remote Control Port):

RCP	SIGNAL (RJ45)
Pin8	Analog-GND
Pin7	Control Voltage 0-10V
Pin6	Actual load current 0-10V
Pin5	Actual load voltage 0-10V
Pin4	Signal composit failure
Pin3	Command Load ON/OFF
Pin2	Digital-GND
Pin1	Auxiliary voltage +15V (max. 20mA load capacity)

Shape, Dimensions, Weight						
Description		Shape	Width (mm)	High (mm)	Deep (mm)	Weight (kg)
Load without Interface						
Load as tabletop unit	6U	A	70	220	340	4
Load with sub front panel for 19" rack mounting	6U	A - T FPL	70	220	340	4
Load as 19" rack mounting unit with 2pcs ELA250	2U	E	483	88,1	340	7,3
Load as 19" rack mounting unit with 1pcs ELA250, mounting on left hand side	2U	E - L	483	88,1	340	4
Load as 19" rack mounting unit with 1pcs ELA250, mounting on right hand side	2U	E - R	483	88,1	340	4
Load with Interface						
Load as tabletop unit	6U	A	95	220	340	4
Load with sub front panel for 19" rack mounting	6U	A - T FPL	95	220	340	4
Load as 19" rack mounting unit with 2pcs ELA250	3U	E	483	132,5	340	8,2
Load as 19" rack mounting unit with 1pc ELA250, mounting on left hand side	3U	E - L	483	132,5	340	4

Options:

- Sub front panel
  colour AL nature anodized
  ELA 250 without INT2E: 6HE, 16TE
  ELA 250 with INT2E: 6HE, 19TE
- Front-End unit without operation instruments
- CAN Open interface (on request)
- G-Module
- RJ45 connector for ELA 250 (with option G-module at ELA 250 ...: Sub D connector is a standard)
- Integrated Interface IEEE488.2 (GPIB)/RS232*/USB* INT2E with Lab-View driver

Options:

- Cable for external stand alone interface INT2
- IEEE 4888/GPIB - cable
- zero modem cable
- USB cable

* RS232 or USB selectable

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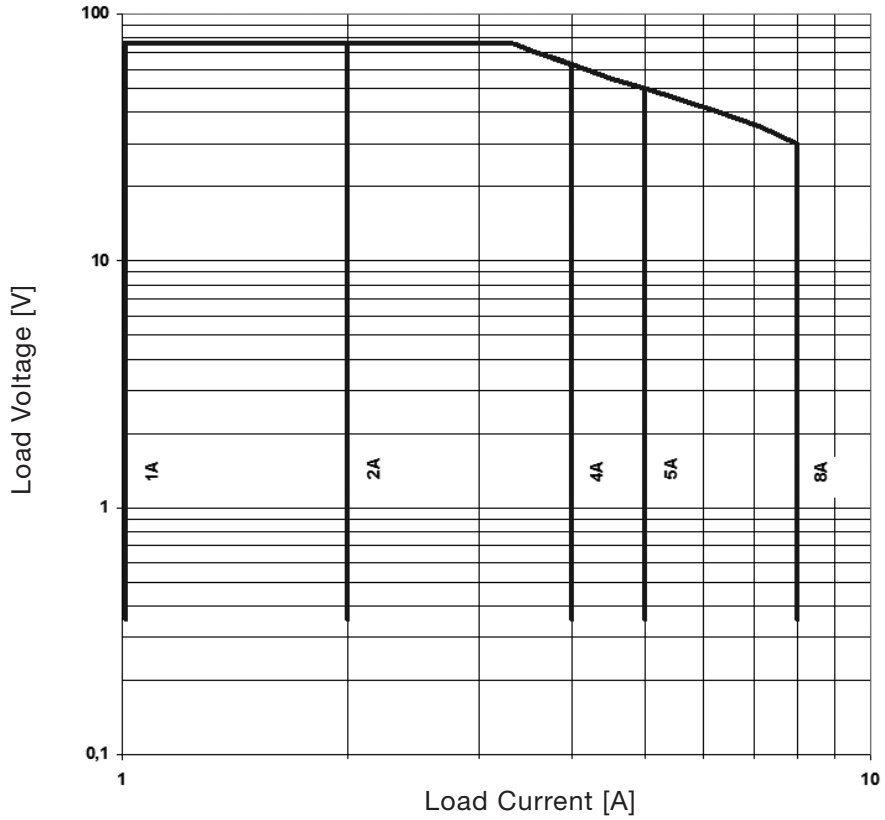
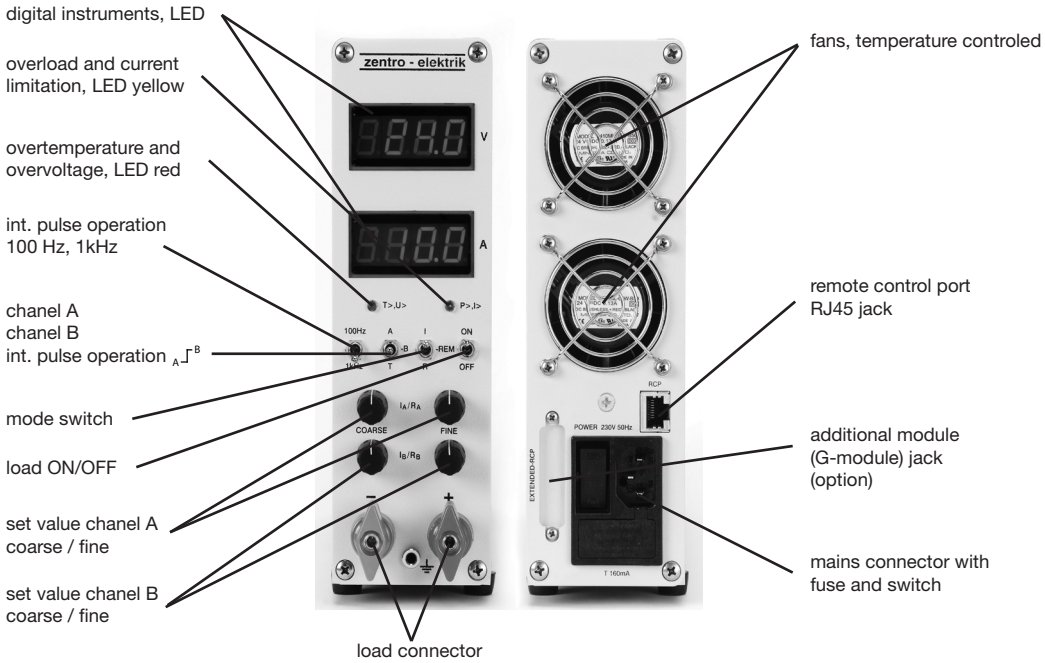
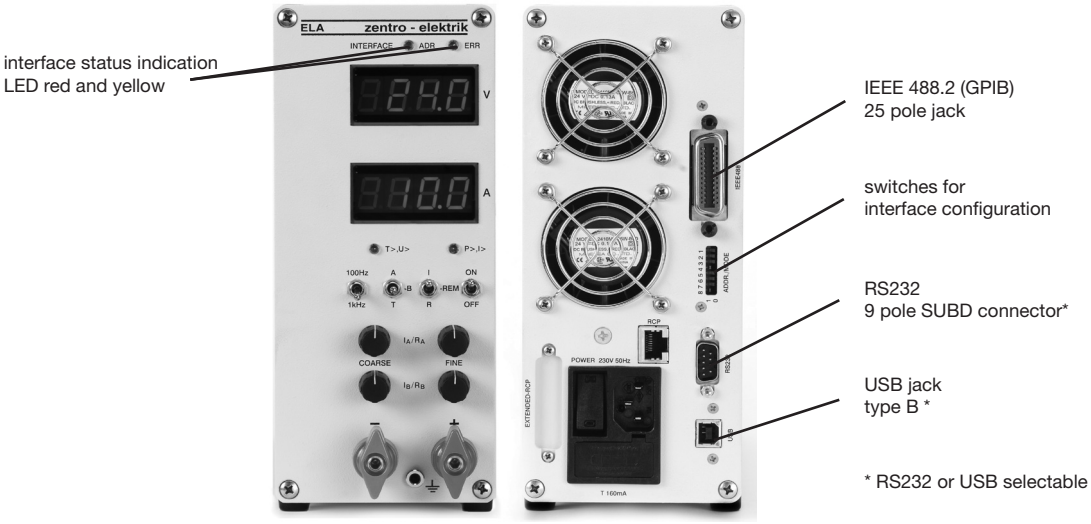
Operating Range ELA250 Precision:



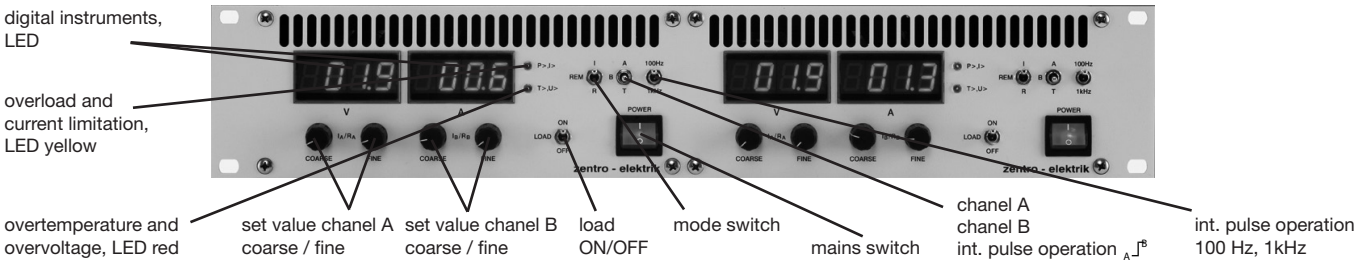
ELA 250 Watt:



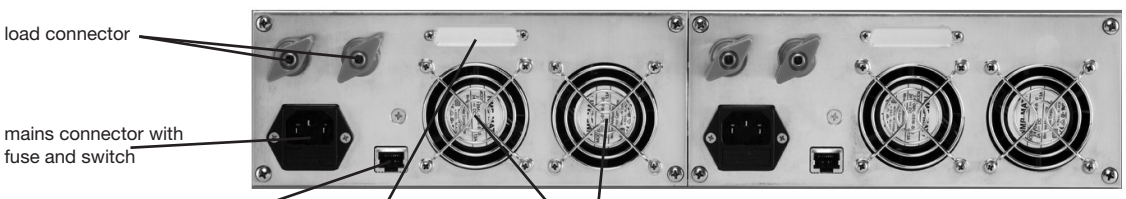
ELA 250 Watt, with Interface:



ELA 250 Watt, 2 pieces 19", 2U Front-view:



ELA 250 Watt, 2 pieces 19", 2U Back-view:



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