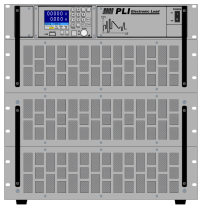
Datasheet Series PLI

H&H Höcherl & Hackl
The electronic load

Model	PLI14030EC	
Order no.	17-058-001-02	

Max. input voltage Vmax	300 V
Min. input voltage Vmin	5 V
Max. load current Imax	1040 A
Continuous power	14000 W
Short-time power [1]	14000 W
Voltage setting	0 ... 300 V
Current setting	0 ... 1040 A
Resistance setting	0.00481 Ohm ... 3.10195 Ohm
Power setting [2]	0 ... 14000 W
Rise and fall time fast / medium / slow [3]	30 µs
Load terminals (front) [4]	
Load terminals (rear) [5]	FKS40/12-SM12
Power consumption	600 VA
Max. noise [6]	77 dB(A)
Weight ca.	104 kg
Housing [7]	19" - 11 HU

1. Level and duration of the peak power, see diagram on page 2.
2. The setting range extends max. to the possible peak power.
3. Rise and fall times are defined of 10 % ... 90 % and 90 % ... 10 % of the maximum current. (current mode, FAST, tolerance ±20 %) Rise and fall time at setting "medium": ca. 500 µs, "slow": ca. 5 ms.
4. PK4-30: Pole terminal touch-protected for 4 mm laboratory jack + stripped wires, max. 30 A
   PK4-60: Pole terminal touch-protected for 4 mm laboratory jack + stripped wires, max. 60 A.
   FK8: Flat copper rail 8x5 mm with M8 screw
   FK25: Flat copper rail 25x10 mm with M10 screw
   FK40: Flat copper rail 40x12 mm with 4 mm hole and M14 screw
5. PK4-30: Pole terminal touch-protected for 4 mm laboratory jack + stripped wires, max. 30 A
   PK4-60: Pole terminal touch-protected for 4 mm laboratory jack + stripped wires, max. 60 A.
   FK8: Flat copper rail 8x5 mm with M8 screw
   FK25: Flat copper rail 25x10 mm with M10 screw
   FK40: Flat copper rail 40x12 mm with 4 mm hole and M14 screw
6. Measured on the front from distance of 1 m
7. 1 HU = 44.45 mm

Technical Data

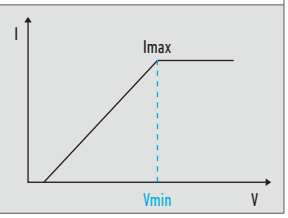
Accuracy of setting		
	of setting	**of corresponding range**
Voltage	±0.2 %	±0.05 %
Current	±0.2 %	±0.05 %
Resistance (t 5 % to 100 % of voltage range)	±1.4 %	±0.3 % of current range
Power (at V and I > 30 % of range) (at V or I < 30 % of range)	±0.35 % ±0.7 %	±0.1 % ±0.25 %
Resolution	14 bits	
Accuracy of adjustable settings		
	of setting	**of corresponding range**
Overcurrent protection	±1.4 %	±0.3 %
Undervoltage protection	±1.4 %	±0.3 %
Resolution	12 bits	
Accuracy of display/measurement slow		
	of measured value (real value)	**of corresponding range**
Voltage	±0.01 %	±0.005 %
Current	±0.2 %	±0.05 %
Resistance	is calculated from current and voltage	
Power	is calculated from current and voltage	
Resolution	23 bits	
Sampling rate	250 ms, not triggerable	
Accuracy of measurement fast		
	of measured value (real value)	**of corresponding range**
Voltage	±0.1 %	±0.05 %
Current	±0.2 %	±0.1 %
Resistance	calculated from voltage and current values	
Power	calculated from voltage and current values	
Resolution	16 Bit	
Sampling rate	200 µs ... 1000 s	
Accuracy of trigger voltage and current measurement		
Voltage	±1 % of range	
Current	±1 % of range	
Dynamic function (LIST)		
No. of load levels	max. 300, ith ramp and dwell time setting	
	min.	**max.**
Dwell time	200 µs	1000 s
Ramp time	0 s	1000 s
Resolution	200 µs	
Accuracy of the setting times	±0.02 %	
Delay at triggered start	max. 300 µs	

Data acquisition	
to external USB flash drive	
Sampling rate	0.5 to 30 s, resolution 0.1 s
Measurement data	timestamp, voltage, current
No. of measurement points	limited by USB memory capacity
File format	.csv
to internal memory	
Sampling rate	200 µs ... 1000 s, resolution 200 µs, synchronized with dynamic function
Measurement data	timestamp, voltage, current
No. of measurement points	max. 40,000
Settings memories	
No. of user settings	9, selectable (incl. programmed list) 1 for last device settings at power-off or power fail
I/O port: accuracy of analog control 0 ... 10 V	
	of setting	**of corresponding range**
Voltage	±0.2 %	±0.1 %
Current	±0.2 %	±0.1 %
Overcurrent protection	±1 %	±0.4 %
Undervoltage protection	±1 %	±0.4 %
	Input resistance of analog inputs >10 kΩ	
I/O port: accuracy of analog monitor outputs 0 ... 10 V		
	of analog signal of real value	**offset voltage**
Voltage	±0.2 %	±15 mV
Current	±0.2 %	±15 mV
	load capacity minimal 2 kΩ	
I/O port: permissible potentials		
	standard I/O port	**isolated I/O port (option PLI06)**
GND - neg. load input	max. 2 V [1]	max. 800 V [1]
GND - PE	max. 125 V [1]	max. 125 V [1]
I/O port: control outputs and inputs		
Outputs	status load input (on/off) overload (OV, OCP, OPP, OTP) trigger output programmable output (by SCPI command)	
Output level	selectable, 3.3 V, 5 V, 12 V or externally programmable up to 30 V	
Control inputs	load input on/off operating mode selection trigger input digital input control input (activates analog control signals) Remote shut-down	
input level	3 ... 30 V	

The specified accuracies refer to an ambient temperature of 23 ±5 °C. The specified accuracies are valid when the unit is connected to undisturbed voltages (ripple and noise < 0.1 %). At voltages with higher disturbance values the accuracy can change for the worse.

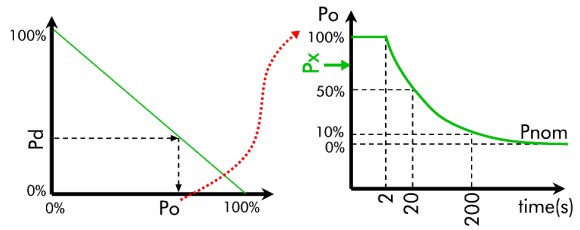
[1] positive/negative DC voltage or RMS value of a sinusoidal AC voltage

Technical Data (continued)

Input		
Input resistance	> 50 kΩ when load input is off diode function at reverse polarity up to nominal current	
Input capacity	ca. 2 µF/600 W	
Parallel operation	up to 5 devices in Master-Slave operation	
Max. input voltage Vmax	see model overview	
Min. input voltage Vmin for max. current Imax	models up to 120 V: 1.2 V models from 300 V: 2 V PLIxxxxEC: 5 V	

Input: permissible potentials		
	standard I/O port	isolated I/O port (option PLI06)
neg. load input - PE	max. 125 V [1]	max. 800 V [1]

Power	
Continuous power	see model overview (at Ta = 21 °C)
Derating	-1,2 %/°C for Ta > 21 °C
Overload capability (short-time power)	see model overview The max. possible overload Po depends on the temperature of the device and therefore on the previously consumed continuous power Pd. The possible overload duration depends on the value of the overload Px.



Protection and monitoring	
Protective devices	overcurrent overpower overtemperature
Monitoring	overvoltage indication reverse polarity indication undervoltage indication (if the input voltage is too low for the set current)

Terminals	
Load input	see model overview
Sense	PH2/7.62-BU16, see starting at page 101

Operating conditions	
Operating temperature	5 ... 40 °C
Stock temperature	-25 ... 65 °C
Max. operating height	2,000 m above sea level
Pollution degree	2
Overvoltage category of mains	II
Max. humidity	80 % at 31 °C, linear decreasing to 50 % at 40 °C
Min. distance rear panel - wall or other objects	70 cm
Cooling	temperature-controlled air cooling
Noise. weight	see model overview
Supply voltage (mains)) with option PLI18	115/230 V AC (±10 %), selectable, 50 ... 60 Hz 11 ... 15 V DC
Power consumption	see model overview

Housing	
Color Front Rear Top, side panels	 RAL7035 (light grey) stainless steel RAL7037 (dusty grey)

Safety and EMC	
Protection class	1
Protection	IP20
Measuring category	O (CAT I according to EN61010:2004)
Electrical safety	DIN EN 61010-1 DIN EN 61010-2-030
EMV	DIN EN 61326-1 DIN EN 55011 DIN EN 61000-3-2 DIN EN 61000-3-3

Calibration, warranty	
FCC-PLIxx	Factory Calibration Certificate, twice for free
Warranty	2 years

[1] positive/negative DC voltage or RMS value of a sinusoidal AC voltage