

## Electronic Load PLI



# Electronic Loads, PLI Series



Interface overview	
RS-232	X
USB	X
LAN	X
GPIB	/
CAN	X
Analog	X
Analog isolated	O

X Standard O Option /not available

- Ethernet + USB + RS-232 + CAN as standard
- Analog-interface as standard
- Intuitive operation
- Quick operation by shortcuts
- SCPI programming with measurement function
- USB stick as measurement data memory
- Current resistance and voltage mode

- Protections for current and voltage
- Depending on model, temporary overload capacity
- High power density up to 2,100 W in 2HU
- Dynamic loads
- Full electronic protection
- Silent fan cooling
- Digital input and programmable control output

**Description**

The Electronic Loads of series PLI provide a comfortable operation by a graphical user interface.

The highlight of the Series PLI is the extensive variety of standard interfaces.

Apart from Ethernet, USB, RS-232 and Analog there is a standard CAN interface.

Programming is done in SCPI syntax.

**Function**

The units provide constant current mode, constant voltage mode and constant resistance mode.

In addition protections for current and voltage can be set in any mode.

Dynamic operation can be configured by up to 250 list point settings.

A data acquisition function allows to store measurement data on an external USB flash drive.

**Loading capacity**

The model range covers three power classes with 600 W, 1,400 W und 2,100 W continuous power rating.

In addition the models up to 300 V have an overload capability. The height and duration of the possible overload depends on the temperature of the power stage. The unit indicates the currently possible overload.

Therefore the units can be used even for considerably more powerful applications.

- Protections**
- Current limitation
  - Power limitation
  - Over-temperature protection
  - Over-voltage protection
  - Reverse polarity protection up to rated current
  - Under-voltage indicator
  - Protection of the GND lines at the Analog-I/O-Port



**Data Interfaces**

The following interfaces are included as standard:

- Ethernet
- USB
- RS-232
- CAN
- Analog



LabVIEW driver is available

**Analog-I/O-Port**

The standard Analog-I/O-Port provides the following functions:

- Load setting C and V
- Analog setting the C and V protections
- Load on-off
- Voltage monitor output
- Current monitor output
- Trigger input
- Trigger output
- Programmable digital input and control output

**Galvanically isolated Analog-I/O-Port**  
(Option PLI06)

For the galvanic isolation between the Analog-I/O-Port and the load terminals the PLI06 option can be installed.

Using this board also prevents ground loops.

**Factory Calibration Certificate**  
(Option FCC-PLIxx)

A Factory Calibration Certificate (FCC) can be supplied with the devices. The FCC meets the requirements according to DIN EN ISO 9000ff. This calibration certificate documents the traceability to national standards to illustrate the physical device in accordance with the international System of Units (SI).

The recommended calibration interval is 1 year.

Model (order number)	Continuous power	Short-time power <sup>1)</sup>	Voltage	Current	Rise/fall time <sup>2)</sup>	Resistance	Housing <sup>3)</sup>	Noise max. <sup>4)</sup>	Load connection <sup>5)</sup>	
									front	back
PLI606	600 W	1,200 W	60 V	60 A	60 µs	0.033 ... 10.8 Ω	½19", 2 HU	60 dB(A)	PK 4-60	FK 8
PLI612	600 W	1,200 W	120 V	20 A	60 µs	0.100 ... 64.5 Ω	½19", 2 HU	60 dB(A)	PK 4-30	PK 4-30
PLI630	600 W	900 W	300 V	16 A	50 µs	0.125 ... 202 Ω	½19", 2 HU	60 dB(A)	PK 4-30	PK 4-30
PLI660	600 W	600 W	600 V	8 A	40 µs	0.25 ... 807 Ω	½19", 2 HU	60 dB(A)	PK 4-30	PK 4-30
PLI680	600 W	600 W	800 V	6 A	40 µs	0.33 ... 1 430 Ω	½19", 2 HU	60 dB(A)	PK 4-30	PK 4-30
PLI1406	1,400 W	2,800 W	60 V	120 A	60 µs	0.017 ... 5.37 Ω	19", 2 HU	62 dB(A)	-	FK 8
PLI1412	1,400 W	2,800 W	120 V	40 A	60 µs	0.05 ... 32.3 Ω	19", 2 HU	62 dB(A)	-	PK 4-60
PLI1430	1,400 W	2,100 W	300 V	32 A	50 µs	0.063 ... 101 Ω	19", 2 HU	62 dB(A)	-	PK 4-60
PLI1460	1,400 W	1,400 W	600 V	16 A	40 µs	0.125 ... 403 Ω	19", 2 HU	62 dB(A)	-	PK 4-30
PLI1480	1,400 W	1,400 W	800 V	12 A	40 µs	0.167 ... 717 Ω	19", 2 HU	62 dB(A)	-	PK 4-30
PLI2106	2,100 W	4,200 W	60 V	180 A	60 µs	0.011 ... 3.58 Ω	19", 2 HU	63 dB(A)	-	FK 8
PLI2112	2,100 W	4,200 W	120 V	60 A	60 µs	0.033 ... 21.5 Ω	19", 2 HU	63 dB(A)	-	PK 4-60
PLI2130	2,100 W	3,150 W	300 V	48 A	50 µs	0.042 ... 67.2 Ω	19", 2 HU	63 dB(A)	-	PK 4-60
PLI2160	2,100 W	2,100 W	600 V	24 A	40 µs	0.083 ... 269 Ω	19", 2 HU	63 dB(A)	-	PK 4-30
PLI2180	2,100 W	2,100 W	800 V	18 A	40 µs	0.111 ... 478 Ω	19", 2 HU	63 dB(A)	-	PK 4-30

1) The possible short-time power depends on the temperature of the output stage, i.e. on the previous load.

2) Rise and fall times are defined from 10 ... 90 % and 90 ... 10 % of the maximum current. (Constant current operation, tolerance +/- 20 %).

3) 1 HU = 1 height unit = 44.45 mm  
4) Measured on the front from distance of 1m  
5) PK 4-30: Pole terminal touch-protected for 4 mm laboratory jack + stripped

wires; max. 30 A.  
PK 4-60: Pole terminal touch-protected for 4 mm laboratory jacks + stripped wires, max. 60 A.  
FK 8: Flat copper rail with M8 screw



## Technical Data PLI Series

Settings		
	of the setting value	of the corresponding range
<b>Current</b>	±0.2 %	±0.05 %
<b>Voltage</b>	±0.2 %	±0.05 %
<b>Resistance</b> (bat 5 % to 100 % of the voltage range)	±1.4 %	±0.3 % of current range
Limitations		
<b>Current</b>	±1.4 %	±0.3 %
<b>Voltage</b>	±1.4 %	±0.3 %
Measurement / Display		
	of the measured value (actual value)	of the corresponding range
<b>Voltage</b>	±0.2 %	±0.05 % ±1 digit
<b>Current</b>	±0.2 %	±0.05 % ±1 digit
<b>Resistance</b>	is calculated from current and voltage	
<b>Power</b>	is calculated from current and voltage	
<b>Resolution</b>	18 bit	
Dynamic		
<b>No. of load levels</b>	max. 250, with the corresponding time settings	
	min.	max.
<b>Pulse time</b>	100 µs	400,000 s
Data Acquisition (on external USB flash drive)		
<b>Measurement rate</b>	0.5 s, 1 s, 5 s, 10 s	
<b>Measurement data</b>	time stamp, voltage, current	
<b>File format</b>	.CSV format	
Input		
<b>Input resistance</b>	>50 kΩ when load input is off	
<b>Input capacity</b>	approx. 2 µF / 600 W	
<b>Parallel operation</b>	up to 5 units in Master-Slave mode (hardware-controlled)	
<b>Input voltage</b>	see type overview	
<b>Minimum voltage</b>	min. 1.4 V for max. current, including linear derating of current with respect to 0 V	
<b>Permissible operating voltage</b>	negative load input - housing 125 V DC	
<b>Protective devices</b>	over-voltage up to 105 % of rated voltage over-current over-power over-temperature reverse polarity up to rated current under-voltage display (if the input voltage is too low for the set voltage)	
<b>Connections</b> Load input: Sense:	see type overview PK 4-30 (Pole terminal touch-protected for 4 mm laboratory jack + stripped wires)	
<b>Continuous power</b>	see type overview (where $T_A = 21\text{ °C}$ )	
<b>Derating</b>	-1.2 %/°C for $T_A > 21\text{ °C}$	
<b>Overload capability</b>	see type overview	

Analog-I/O-Port		
Analog control inputs 0 ... 10 V		
	of the setting value	of the corresponding range
<b>Current</b>	±0.2 %	±0.1 %
<b>Voltage</b>	±0.2 %	±0.1 %
<b>Current protection</b>	±1 %	±0.4 %
<b>Voltage protection</b>	±1 %	±0.4 %
Input resistance of analog inputs >10 kΩ		
Analog measurement outputs 0 ... 10 V		
	of analog signal of	offset voltage
<b>Voltage</b>	±0.2 %	±15 mV
<b>Current</b>	±0.2 %	±15 mV
Load capacity: minimal 2 kΩ		
Control inputs and outputs		
<b>Control outputs</b>	load switching on/off overload trigger output programmable output selectable, 3.3 V, 5 V, 12 V, or external programmable up to 30 V	
Output level		
<b>Control inputs</b>	input on/off mode selection trigger input digital input 3 V to 30 V	
Input level		
Operating conditions		
<b>Operating temperature</b>	5 °C ... 40 °C	
<b>Cooling</b>	3-stage air-cooling	
<b>Supply voltage</b>	115/230 V ~ ±10 %, switchable 50 ... 60 Hz	
Power consumption	PLI6XX max. 40 VA	PLI14XX max. 60 VA
		PLI21XX max. 75 VA
<b>Dimensions</b> W x B x D (mm) Weight	PLI6XX 222 x 88 x 520 8.5 kg	PLI14XX 444 x 88 x 520 14.5 kg
		PLI21XX 444 x 88 x 520 17.5 kg
<b>Color</b> Front panel, side panels top	RAL7032 (pebble grey) RAL7037 (stone grey)	
<b>Electrical safety</b>	DIN EN 61010	
<b>EMC, CE marking</b>	DIN EN 61326-1 DIN EN 61000-3-2 DIN EN 61000-3-3	
<b>19" mounting kits</b>	for models 1 PLI6XX 2 PLI6XX PLI14XX or PLI21XX	order number PLI10 PLI11 PLI12
<b>Warranty</b>	2 years	

Subject to technical modifications

## Hoecherl & Hackl GmbH

Industriestr. 13

94357 Konzell

Germany

Tel.: +49 9963/94301- 0

Fax.: +49 9963/94301-84

E-Mail: office@hoecherl-hackl.com

http://www.hoecherl-hackl.com

