









Overview Electronic DC Loads - Mechanics, Power, etc.

Höcherl & Hackl GmbH, Industriestr. 13, 94357 Konzell - Germany

This document shows the differences mechanics between PL, PLA, PLI, ZS, ERI, PMLA and PMLI.
Refer to user manuals for detailed analysis.

Rev. 4
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	Single Channel						Multi Channel	
								
Manufacturer	H&H	H&H	H&H	H&H	H&H	H&H	H&H	H&H
Series	PL (discontinued)	PLA	PLI	PLI	ZS ¹⁾ (discontinued)	ERI	PMLA Master	PMLI Master (discontinued)
			Production Series A	Production Series B				
Power range								
Maximum power	1,500 W	1,200 W	28,800 W	28,800 W	28,800 W	10,800 W	1,800 W	1,800 W
Multi-range devices	-	-	-	-	x only 500 W devices	-	-	-
Mains								
1/N/PE AC 230 V, 2/N/PE AC 400/230 V, 3/N/PE AC 400/230 V	-	-	-	-	-	x	-	-
115/230 V selectable	x	-	x	x	x	-	x	x
115 ... 230 V wide voltage range	-	x	-	-	-	-	-	-
12 V DC supply	-	o	o only PLI14XX	o only PLI14XX	-	-	-	-
Others								
Temperature measurement	-	-	-	-	o ¹⁾	x	-	-
Interface changing or adding possible by customer	-	-	-	-	x	-	-	-
Interface changing or adding possible by H&H	x	x	x	x	x	x	x	x
19" integration with additional option	o	o	o 2 and 3 U	o 2 and 3 U	-	-		
19" integration without additional option	-	-	x >=5 U	x >=5 U	x	x	x ²⁾	x ²⁾

x standard, o optional, - not available, i.p. in preparation

¹⁾ multirange models continued

¹⁾ temperature dependent voltage signal; options ZS01, ZS13/ZS15 necessary









²⁾ parts supplied as standard

Overview Electronic DC Loads - IO-Port

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This document shows the differences IO-Ports between PL, PLA, PLI, ZS, ERI, PMLA and PMLI.
Refer to user manuals for detailed analysis.

Rev. 4
03.04.2019

	Single Channel						Multi Channel	
								
Manufacturer	H&H	H&H	H&H	H&H	H&H	H&H	H&H	H&H
Series	PL (discontinued)	PLA	PLI	PLI	ZS (discontinued) ¹⁾	ERI	PMLA Master	PMLI Master (discontinued)
Port Type			Production Series A	Production Series B				
Standard	x	x	x	x	x	-	x	x
Galvanically isolated	-	-	o	o	o	o	-	-
Analog control								
Constant current control	x	x	x	x	x	x	x	x
Constant voltage control	-	x	x	x	x	x	x	-
Constant power control	-	-	-	-	x	-	-	-
Constant resistance control	-	-	-	-	-	-	-	-
Overcurrent protection control	-	-	x	x	o	x	-	-
Undervoltage protection control	-	-	x	x	o	x	-	-
Digital control								
Remote shut-down (emergency off)	-	-	x	x	x	x	-	-
Input activation state	x	x	x	x	x	x	x	-
Operating mode selection								
Trigger input	x ¹⁾	-	x	x	x	x	-	-
Readable logic input	-	-	x	x	o ²⁾	x	-	-
Ext. control activation input	-	x	x	x	x	x	-	-
Digital outputs								
Input activation state	-	x	x	x	x	x	x	-
Status overload	x	x	x	x	x	x	-	-
Status voltage protection	-	-	-	-	x	-	-	-
Programmable logic output	-	-	x	x	o	x	-	-
Trigger output	x ³⁾	-	x	x	x ³⁾	x	-	-
Analog monitor signals								
Voltage monitor signal	x	x	x	x	x	x	x	x
Current monitor signal	x	x	x	x	x	x	x	x
Power monitor signal	-	-	-	-	x	-	-	-
Sense								
Sense at I/O port	x ⁴⁾	x ⁴⁾	-	-	-	-	x	x

x standard, o optional, - not available, i.p. in preparation

¹⁾ multirange models continued

²⁾ data interface necessary

³⁾ ZS07 option necessary

⁴⁾ only for setting A or setting B









⁵⁾ only for 60 V and 120 V devices

Overview Electronic DC Loads - Functions and Operation

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This document shows the differences functions and operation between PL, PLA, PLI, ZS, ERI, PMLA and PMLI.
Refer to user manuals for detailed analysis.

Rev. 4
03.04.2019

	Single Channel						Multi Channel	
								
Manufacturer	H&H	H&H	H&H	H&H	H&H	H&H	H&H	H&H
Series	PL (discontinued)	PLA	PLI	PLI	ZS ¹⁾ (discontinued)	ERI	PMLA Master	PMLI Master (discontinued)
			Production Series A	Production Series B				
User interface								
Graphical user interface	-	-	x	x	-	x	x	-
Keyboard	-	-	x	x	-	x	x	-
Analog setting potentiometer	x	-	-	-	x	-	-	-
Digital rotary encoder	-	x	x	x	-	x	x	-
Display								
Graphical color LCD	-	-	x	x	-	x	x	-
Graphical monochrome LCD	-	-	-	-	-	-	-	-
Alphanumeric LCD	-	-	-	-	-	-	-	-
LED 7 segments	x	x	-	-	x	-	-	-
Data interfaces								
RS-232	o	o	x	x	o	x	x	x
Ethernet	-	o	x	x	o	x	x	o
USB	-	o	x	x	o	x	x	-
CAN	-	o	x	x	-	x	o	-
GPIB	o	o	o	o	o	o	o	x
USB flash drive	-	x	x	x	-	x	x	-
Operating modes								
Constant Current	x	x	x	x	x	x	x	x
Constant Resistance	x	x	x	x	x	x	x	x
Constant Voltage	-	x	x	x	x	x	x	x
Constant Power	-	x	x	x	x	x	x	x
Variable protections								
Undervoltage protection	x	x ¹⁾	x	x	x	x	x ¹⁾	x
Overcurrent protection	-	x ¹⁾	x	x	x	x	x ¹⁾	x ²⁾
Regulation speed								
Variable regulation time constant (fast/medium/slow)	-	x	x	x	x	x	x	x
By parameters								
By parameters	-	CP, CR mode	CP mode	CP mode	-	CP mode	CP, CR mode	-
Functions and operation								
Master-Slave operation in system connection	-	x	-	x	-	-	-	-
Battery capacity determination	-	-	x	x	o ^{3) 4)}	x	i.p.	-
Discharge function	-	-	x	x	-	x	i.p.	-
Internal resistance measurement	-	-	x	x	-	-	-	-
MPP tracking	-	x	x	x	o ³⁾	-	-	-
X/Y characteristics	-	x	-	-	-	-	-	-
Watchdog function	-	x	x	x	o ³⁾	x	x	-
Simulation of exponential inrush currents	-	-	-	-	o ³⁾	-	-	-

Setting memories								
No. of setting memories	-	10	2	10	-	2	10	-
Last settings at power off	-	-	1	1	-	1	-	-
LIST/waveform function								
No. of setting points	o ³⁾ 256	100 ⁴⁾	300 ⁴⁾	300 ⁴⁾	o ³⁾ 50	300 ⁴⁾	100	-
Dwell time min./max.	o ³⁾ 5 ms ... 20,000 s	1ms / 100 s	200 µs / 800,000 s	200 µs / 1,000 s	200 µs / 2,000 s	200 µs / 800,000 s	1 ms / 100 s	-
Ramp time min./max.	-	1ms / 100 s	0 s / 800,000 s	0 s / 1,000 s	0 s / 2,000 s	0 s / 800,000 s	1 ms / 100 s	-
Resolution	5 ms	1 ms	200 µs	200 µs	50 µs	200 µs	1 ms	-
Start by trigger	-	-	-	x	x	x	-	-
Start by variable trigger voltage	-	-	x	x	-	x	-	-
Modulation								
2 load levels (programmable)	x	x	x	x	x	x	x	x
Measuring function via data interface								
Current, voltage, power	o ³⁾	x	x	x	o ³⁾	x	x	x
Resistance, power stage temperature	-	x	x	x	-	x	x	-
Data logging								
to USB MSD	-	-	x	x	-	x	-	-
Sampling rate	-	-	0.5, 1, 5, 10 s	0.5 ... 30 s, resolution 0.1 s	-	0.5, 1, 5, 10 s	-	-
Data acquisition								
Data acquisition memory	-	x	x	x	x	x	x	-
LIST/waveform synchronous	-	-	x	x	x	x	-	-
No. of sampling points	-	100	8,000	40,000	2,000	8000	100	-
Sampling rate min. / max.	-	1 ms / 100 s	200 µs / 800,000 s	200 µs / 1,000 s	200 µs / 2000 s	200 µs / 800,000 s	1 ms / 100 s	-
Resolution	-	1 ms	200 µs	200 µs	200 µs	200 µs	1 ms / 100 s	-
Start by trigger	-	-	x	x	x	x	-	-
Start by trigger voltage	-	-	x	x	-	x	-	-
Start by trigger current	-	-	-	x	-	-	-	-
Data transfer								
Data transfer to USB MSD	-	-	x	x	-	x	-	-
Data transfer from USB MSD	-	-	x	x	-	x	-	-
Trigger								
External via I/O port	o	-	x	x	x	x	-	-
Via user interface	-	-	x	x	-	x	-	-
Via data interface	o	-	x	x	x	x	x	-
Variable trigger voltage	-	-	x	x	-	x	-	-
Drivers, tools								
LabVIEW driver	x	x	x	x	x	x	x	x
LXI	-	-	-	-	-	-	-	-
CANopen	-	-	-	-	-	-	-	-
Software tools (LabVIEW)	x	i.p.	x	x	x	x	i.p.	x
Firmware update, calibration								
Firmware update by	EPROM change	USB flash drive	USB flash drive	USB flash drive	RS-232 interface + flashing software	USB flash drive	USB flash drive	RS-232 interface + flashing software
Calibration free of charge ⁵⁾	x	x	x	x	x	x	x	x

x standard, o optional, - not available, i.p. in preparation

*) multi-range models continued

1) either overcurrent protection or undervoltage protection

2) variable by parameters

3) data interface necessary

4) locally 99 possible at PLA, 20 possible at PLI and ERI

5) free calibration once upon delivery and a second time within warranty period