



Electronic Load PL



500 W bis 1,500 W
60 V bis 400 V
5 A bis 150 A



We support you from the first contact





Until delivery of your product

Electronic Loads, PL Series

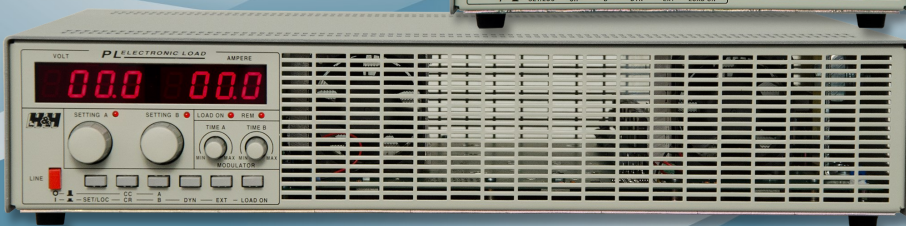
SCPI
60 Commands

Interface overview

RS-232	o
USB	/
GPIOB	o
LAN	o
System bus	o
Analog	x
Analog isolated	/

x Standard o Option / not available

PL506



PL1006

Operating Modes

The devices have constant-current and constant-resistance operating modes in both static and dynamic operation.

If fitted with an RS-232 or GPIB interface, software-controlled constant power control is possible.

The manual setting of the load values takes place via two precise ten-turn potentiometers. Switch from value A to value B by a keystroke.

Dynamic Operation

In dynamic mode the inbuilt modulator performs the switch between the setpoints A and B. For each load level it is possible to set a corresponding pulse duration of 0.5 ... 500 ms. In addition, pulse-pause ratios can be varied within a broad time range.

Switching between the two load levels can also be via the Analog I/O Port at all levels between 3 V and 30 V.

Protective Devices

- Overcurrent protection
- Overpower protection
- Overtemperature protection
- Protection of the GND lines at the Analog I/O Port

If a protected value is exceeded the respective display flashes.

Overload Capacity

The type spectrum comprises three power classes with 500 W, 1000 W and 1500 W continuous load capacity. Depending on the model the devices have temporary overload capacity. The level and duration of the possible overload depends on the operating temperature of the power stage.

The device can therefore be used for short-term significantly higher power tasks.

Model (order number)	Continuous power	Short-term power ¹⁾	Voltage	Current	Rise and fall time ²⁾	Resistance ³⁾	Housing	Terminals ⁴⁾
PL506	500 W	900 W	60 V	50 A	30 µs	0.1 Ω ... ∞	½ 19", 2HU	FKS15/5-SM8
PL506 SC5	300 W	300 W	60 V	5 A	30 µs	1 Ω ... ∞	½ 19", 2 HU	PK4-35L
PL512	500 W	900 W	120 V	20 A	30 µs	0.2 Ω ... ∞	½ 19", 2 HU	PK4-35L
PL524	500 W	900 W	240 V	10 A	30 µs	0.5 Ω ... ∞	½ 19", 2 HU	SBU4-32
PL540	500 W	600 W	400 V	8 A	30 µs	1.5 Ω ... ∞	½ 19", 2 HU	SBU4-32
PL1006	1000 W	1800 W	60 V	100 A	60 µs	0.05 Ω ... ∞	19", 2 HU	FKS25/8-SM8
PL1006 SC10	600 W	600 W	60 V	10 A	50 µs	0.5 Ω ... ∞	19", 2 HU	PK4-35L
PL1012	1000 W	1800 W	120 V	50 A	50 µs	0.1 Ω ... ∞	19", 2 HU	FKS25/8-SM8
PL1024	1000 W	1800 W	240 V	20 A	50 µs	0.3 Ω ... ∞	19", 2 HU	SBU4-32
PL1040	1000 W	1200 W	400 V	16 A	50 µs	1 Ω ... ∞	19", 2 HU	SBU4-32
PL1506	1500 W	2700 W	60 V	150 A	50 µs	0.04 Ω ... ∞	19", 2 HU	FKS25/8-SM8
PL1506 SC15	900 W	900 W	60 V	15 A	50 µs	0.4 Ω ... ∞	19", 2 HU	PK4-35L
PL1512	1500 W	2700 W	120 V	80 A	50 µs	0.06 Ω ... ∞	19", 2 HU	FKS25/8-SM8
PL1524	1500 W	2700 W	240 V	30 A	50 µs	0.2 Ω ... ∞	19", 2 HU	SBU4-32
PL1540	1500 W	1800 W	400 V	25 A	50 µs	0.5 Ω ... ∞	19", 2 HU	SBU4-32

1) The possible short term 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 %)

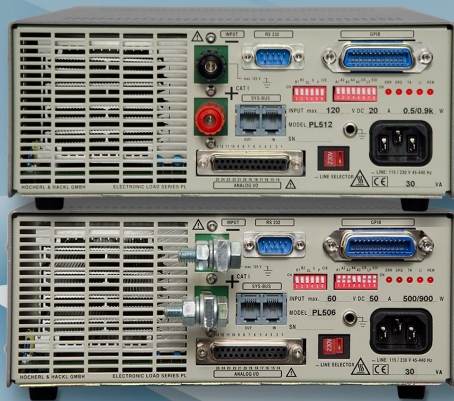
3) ∞ is achieved in the context of reproducibility of resistance operation.

4) Load terminals Type of terminals

FKS15/5-SM8	Flat copper bar 15 x 5 mm vertically installed with screw M8
FKS25/8-SM8	Flat copper bar 25 x 8 mm vertically installed, with screw M8
PK4-35L	Pole terminal 4 mm with connection possibility for wire, max 35 A
SBU4-32	Protected laboratory socket 4 mm, max. 32 A

PL Series

H&H introduces itself
PL Series
PLA Series
PLI Series
ZS Series
ZSLC Series
ZSLV Series
ERI Series
PMLI Series
PMLA Series
ZSAC Series
NL Series
Accessories
SE Series
Application Notes
GTC



Analog I/O Interface

Standard Analog I/O Interface with 0 ... 10 V level for:

- Input voltage
- Load current
- Power consumption
- Nominal current
- Master-Slave circuit

The control of the load current can be via an analog signal with optionally 0 ... 5 V or 0 ... 10 V.

The Analog I/O Interface also has the following logical inputs and outputs:

- "Overload" status for the overload display
- Trigger output during dynamic operation
- Trigger input for external control of the dynamic load change
- Control input for battery test
- Control Input for external load activation
- Sense terminals (for 60 V and 120 V models)

Interfaces

Optional interfaces are an RS-232 and a combined GPIB + RS-232 interface.

The interfaces enable all settings functions including comprehensive dynamic settings incl. programmable rise and fall times.

There is also a measurement function for input voltage and load current. All interfaces are electrically isolated from the load input to prevent earth loops forming with the test structures. Programming is done in SCPI syntax.

RS-232 Interface (Option PL01)

The RS-232 interface is the most economical option for controlling devices by PC. It also includes the system bus interface which allows multi-channel systems to be constructed.

GPIB + RS-232 Interfaces (Option PL02)

Combined GPIB + RS-232 interface + system bus interface

External LAN-RS232 Adapter (Option PL04)

Enables the device to be con-

trolled via LAN interface. Requires PL01 or PL02.

Software Tools

The H&H Homepage has a program library for Windows with the following applications:

- Load control via PC
- Programming of custom load profiles
- Recording of current limitation characteristics
- Endurance test with memory function for voltage and current
- Battery testing with recording of discharge curves
- LabVIEW driver

Factory Calibration Certificate (Option FCC-PLxx)

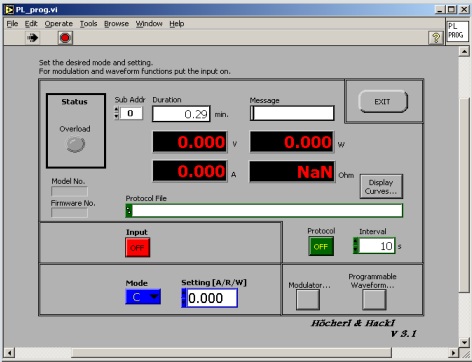
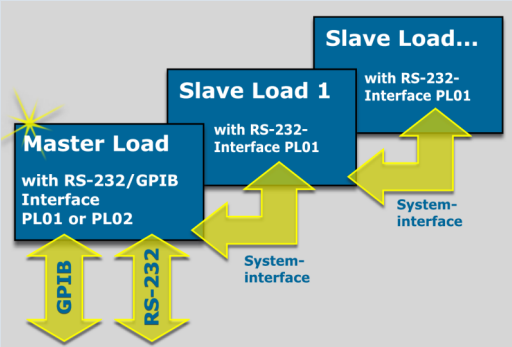
A Factory Calibration Certificate (FCC) can be supplied with the devices. The FCC meets the requirements according to DIN EN ISO 9000ff.

This calibration certificate documents the traceability to national standards to illustrate the physical device in accordance with the international System of Units (SI).

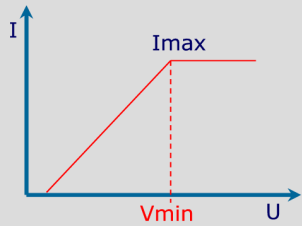
The recommended calibration interval is 2 years.

Configuration of a Multi-Channel System

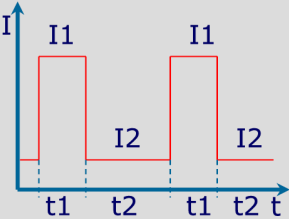
For control of additional devices via the GPIB or RS-232 interface of the primary device, any number of devices can be connected via the system bus interface (Option PL01 in all other devices). Despite the shared interface, the devices are electrically isolated from each other and can be operated with potential differences of up to 125 V.



Technical Data PL Series

Accuracy of manual setting, no preset function		
	of the setting value	of the corresponding range
Current	±0.4 %	±0.05 %
Resistance (at 5 ... 100% of the voltage range)	±5 %	±0.5 % of current range
Accuracy of manual setting, with preset function		
	of the preset value	of the corresponding range
Current	±1 %	±0.05 %
Accuracy of display		
	of the measured value (actual value)	of the corresponding range
Voltage	±0.2 %	±0.05 % ±1 digit
Current	±0.4 %	±0.05 % ±1 digit
Accuracy of analog control 0 ... 5 V / 0 ... 10 V for current setting		
	of the setting value	of the corresponding range
Current		
10 V	±0.5 %	±0.2 %
5 V	±1.5 %	±0.4 %
Input resistance of analog inputs 10 kΩ/20 kΩ at 5 V/10 V GND max. ±2 V with respect to negative load input		
Accuracy of analog measurement outputs 0 ... 10 V for current, voltage, power		
	of analog signal of actual value	offset voltage
Voltage	±0.2 %	±20 mV
Current	±0.3 %	±20 mV
Power	±5 %	±30 mV
Reference voltage 10.5 V	±4 %	
Load capacity: minimum 2 kΩ		
Input		
Input resistance	>50 kΩ when load input is off Diode function in reverse polarity up to rated current	
Input capacity	Approx. 2 µF/500 W	
Parallel operation	Up to 5 units in Master-Slave mode (hardware-controlled)	
Input voltage	See model overview	
Minimum voltage	Min. 1.4 V for max. current including linear derating of current with respect to 0 V	
		
Permissible operating voltage	Negative load input - housing 125 V DC	
Connections: Load input: Sense:	See model overview up to 120 V: available on I/O interface from 240 V: unavailable	
Continuous power	See model overview (where T _A = 21 °C)	
Derating	-1.2 %/°C for T _A > 21 °C	
Overload capacity	See model overview	
Protection and monitoring		
Protective devices	Overcurrent Overpower Overtemperature	
Monitoring signals	Undervoltage indication (if the input voltage is too low for the set current)	

- 1) Height indication including equipment feet, largest width and depth. Built-in depth without connection cable.
1 HU = 44.45 mm

Accuracy of setting Programming via Data Interface (Option PL01 or PL02)			
	of the setting value	of the corresponding range	
Current	±0.4 %	±0.05 %	
Resistance (at 5 ... 100 % of the voltage range)	±5 %	±0.5 % of current range	
Resolution setting	12 bits		
Accuracy of measurement, read out via Data Interface			
	of the measured value (actual value)	of the corresponding range	
Voltage	±0.2 %	±0.06 %	
Current	±0.5 %	±0.12 %	
Resolution	13 bits		
Sampling rate	300 ms, not triggerable		
Control via Analog I/O Port			
Status outputs (open collector 30 V)	overload trigger output at dynamic load		
External control functions (level 3 ... 30 V)	load switching off - on battery test off - on trigger input for switching dynamic load level		
Dynamics			
	two load levels in I and R mode, two separately adjustable times External triggering of load level switching 		
Time range for internal modulator	1 ... 500 ms (2 Hz ... 1 kHz)		
Accuracy of the time setting	±10 % ±0.2 ms		
Battery test			
Adjustable cut-off voltage	the load is reduced to 0 on reaching the cut-off voltage (I/V mode, R/V mode)		
Presetting function			
Current mode	Direct display of load current		
Resistance mode	Display of expected load current with applied input voltage		
Operating conditions			
Operating temperature	5 ... 40 °C		
Cooling	2-stage air-cooling		
Noise	PL5XX 55 dB(A)	PL10XX 59 dB(A)	PL15XX 60 dB(A)
Supply voltage	115/230 V~ ±10 %, switchable, 50 ... 60 Hz		
Power consumption	PL5XX max. 30 VA	PL10XX max. 50 VA	PL15XX max. 60 VA
Dimensions W x B x D (mm) weight	PL5XX 222 x 88 x 390 6.5 kg	PL10XX 444 x 88 x 390 11 kg	PL15XX 444 x 88 x 390 12 kg
Colour Front panel, back panel side panels, top	RAL7032 (pebble grey) RAL7037 (stone grey)		
Electrical safety	DIN EN 61010: 2002-08		
EMC, CE marking	DIN EN 61326-1: 2006-10 DIN EN 61000-3-2: 2006-10 DIN EN 61000-3-3: 2006-06		
19" mounting kits	for models 1 PL5XX 2 PL5XX PL10XX or PL15XX	order number ES PL05-1 ES PL05-2 ES PL2	
Warranty	2 years		

General Standard Terms and Conditions of Business (GTC) of Höcherl & Hackl GmbH (H&H)

Version 05.03.2015

§ 1 General Information - Scope of Application

(1) Our General Standard Terms and Conditions of Business shall apply exclusively; we shall not recognize any terms or conditions on the part of the customer that oppose or deviate from our General Standard Terms and Conditions of Business unless we have expressly agreed to their applicability in writing. Our General Standard Terms and Conditions of Business shall apply even if we carry out delivery to the customer without reservation in the knowledge of terms or conditions on the part of the customer that oppose or deviate from our General Standard Terms and Conditions of Business.

(2) Any agreements reached between us and the customer for the purpose of performance of the present agreement shall be recorded in the present agreement in writing.

(3) Our General Standard Terms and Conditions of Business shall apply only with regard to entrepreneurs within the meaning of Section 310 Paragraph 1 of the German Commercial Code [BGB].

(4) We operate under the name: H&H Höcherl & Hackl GmbH, Industriestraße 13, 94357 Konzell, Germany, Tel.: +49 (0) 9963/94301-0, Fax: +49 (0) 9963/94301-84, Email: office@hoecherl-hackl.com.

§ 2 Offer - Performance Specifications

(1) If the purchase order is to qualified as an offer in accordance with Section 145 of the German Civil Code [BGB], then we can accept such within a period of two weeks.

(2) The performance specifications applicable upon conclusion of contract shall form the scope of the service to be provided. In the case of subsequent changes the additions and/or deletions shall be charged and/or credited in accordance with the expenditure.

§ 3 Offer Documents

We reserve the right of ownership and copyright to illustrations, drawings, drafts, circuit diagrams, calculations and other documents. This provision shall also apply to those written documents designated as "confidential." The customer shall be required to obtain our express consent in writing prior to disclosure to third parties.

(2) Any and all documents shall be immediately returned or destroyed to the extent that an order is not placed.

§ 4 Delivery Period

(1) Commencement of the delivery period indicated by us presupposes clarification of all technical matters.

(2) Compliance with our delivery obligation also presupposes timely and proper fulfillment of customer obligations. The plea of nonperformance of the agreement shall remain reserved.

(3) If the customer is in default of acceptance or culpably violates any other duties to cooperate, then we shall be entitled to require compensation for the damage and any additional expenditures incurred as a result. The right to assert other rights or claims shall be reserved.

Insofar as the prerequisites of Paragraph (3) are given, then the risk of accidental perishing or deterioration of the purchase item shall pass to customer at the point in time in which the purchaser defaults on acceptance or is in debtor's delay.

(5) We shall be liable in accordance with statutory provisions insofar as the underlying purchase agreement represents a fixed-date purchase within the meaning of Section 286 Paragraph 2 No. 4 of the German Civil Code [BGB] or Section 376 of the German Commercial Code [HGB]. We shall also be liable in accordance with statutory provisions if as a consequence of a delay in delivery for which we may be held responsible the customer is entitled to assert that the customer's interest in further performance of the agreement has ceased.

(6) Furthermore, we shall be liable in accordance with statutory provisions if delay of delivery is based on intentional or grossly negligent violation of contract for which we may be held responsible; we shall be attributed culpability on the part of our representatives or vicarious agents. Insofar as delay of delivery is based on intent or grossly negligent violation of contract for which we may be held responsible, then our liability for payment of damages shall be limited to foreseeable, typically occurring damage.

(7) We shall also be liable in accordance with statutory provisions if delay of delivery is based on culpable violation of a material contract obligation; in this case, however, liability for payment of damages shall be limited to foreseeable, typically occurring damage.

§ 5 Prices and Terms of Payment

(1) Unless otherwise indicated in the confirmation of order our prices shall apply "ex factory" excluding packaging; this shall be separately invoiced. We shall reserve the right to accordingly modify our prices if after conclusion of the agreement cost increases occur, in particular due to collective wage agreements or changes in the price of materials. We shall be obliged to proceed in the same manner in the event of cost reductions. We shall verify both cost increases and cost reductions to the customer on request insofar and once they occur.

(2) Our prices do not include the legally valid value added tax; it shall be shown separately in the invoice in the respective legally valid amount on the day of the invoice. As a rule the day of invoicing shall be the date of dispatch or the day of readiness for shipment.

(3) The net purchase price (without any deduction) shall be due for payment within 30 days as of the date of invoice unless otherwise indicated in the order confirmation. Statutory regulations shall apply with regard to the consequences of delayed payment. As of a net order value of EUR 25,000 a 30% prepayment upon order receipt and 70% as of the date of invoice shall apply. In the case of the prepayment obligation calculation of the delivery period begins only when the complete prepayment amount is credited to our bank account.

(4) A discount shall be granted with receipt of payment by 14 days after the date of invoice at the latest. If payment is made upon notification of readiness for shipment, then a total of 3% may be discounted. Any other discount deduction shall require special written agreement.

(5) We reserve the right to only delivery against payment in advance in the case of first and delinquent customers.

(6) The customer shall be entitled to assert rights to setoff only if the customer's counterclaims are the subject of a declaratory judgment, are undisputed or recognized by us. Furthermore, the purchaser may only exercise a right of retention only insofar as the purchaser's counterclaim is based on the same contractual relationship.

§ 6 Cancellation Regulation

Unilateral cancellation of the order shall be excluded. In the case of cancellation overall cancellation fees in the amount of 30% of the net order value shall become due. A deviating agreement, e.g. in the case of special equipment shall remain reserved.

§ 7 Terms and Conditions of Delivery - Passage of the Risk

(1) Unless otherwise indicated in the confirmation of order carriage and insurance paid delivery "CIP" (Incoterms® 2010, ICC) shall be agreed. This means that we deliver the commodity to the carrier or another person designated by us - if agree: at an agreed location - and that we conclude the shipping agreement and pay the freight charges incurred for transport of the commodity up to the designated place of destination. We also conclude a contract of insurance against the risk of loss for which the customer shall be responsible or damage to the commodity during transport. The customer shall charged extra for the cost of insurance and transport; exceptions shall require written agreement. Passage of the risk shall be effected with delivery to the carrier or the other designated person.

(2) We shall be entitled to make partial deliveries.

(3) In the case of default of acceptance the customer shall be responsible for any associated costs as a result, in particular storage costs.

(4) Orders from sales partners shall be delivered exclusively to the principal place of business of the sales partner and/or to the principal place of business of the sales partner's forwarding depot.

§ 8 Export Control

(1) We have no obligation to make deliveries concerning those goods that are in regard to an export control subjects to an authorization requirement by relevant export regulations and embargos, especially of the European Union (EU), Germany respectively other member states and the USA because of their kind or their purpose of use or the designated end-use.

(2) If the customer exports the goods, he has to check whether there are any export restrictions and he has to ensure that the goods do not refer to any armour-relevant, nuclear or gun concerning facilities and / or uses or see use in these things. Furthermore he has to ensure that these goods are not passed to a company or to people, that are named within the framework of an embargo and/or an export restriction of the federal republic of Germany, of the EU or the US abstractly or concretely, and are not delivered to any military recipients.

(3) The customer dispenses us from all damages that result from culpable violation of the prementioned duties according to section 1) and 2).

§ 9 Packaging

(1) Packaging shall be charged separately.

(2) The type and extent of packaging shall be accordingly selected for the respective purpose.

(3) The packaging shall be returnable if it is delivered free of charge.

(4) Packaging shall also be used several times in the interest of environmental protection.

§ 10 Liability for Defects

(1) The customer's claims related to defects shall presuppose that the customer has properly complied with the customer's obligations to inspect and report in accordance with Section 377 of the German Commercial Code [HGB].

If a defect is present in the purchase item, then the customer shall have the option of requiring subsequent performance through elimination of the defect or delivery of a new item free of defects. The place of subsequent performance shall be our principal place of business in Konzell (cf. Section 1 IV); there is where examination of the asserted defect also takes place. The customer shall be responsible for forwarding expenses to us. After subsequent performance the purchase item shall be shipped to the original place of performance; we shall assume the costs of return to the customer. If after consultation with us a warranty repair should take place locally through one or more of our staff, then the material and resulting hours of work shall not be invoiced. The costs of travel and the return journey, mileage and, if necessary, overnight accommodations shall be invoiced.

(3) If subsequent performance fails, then the customer shall have the option of rescission or requiring a reduction.

(4) We shall be liable in accordance with statutory provisions in the event that the customer asserts claims for damages based on intent or gross negligence, including the intent or gross negligence of our representatives or vicarious agents. If we are not held responsible for deliberate violation of contract, then liability for the payment of damages shall be limited to foreseeable, typically occurring damage.

(5) We shall be liable in accordance with statutory provisions insofar as we culpably violate a material contract obligation; however, the liability for the payment of damages shall be limited to foreseeable, typically occurring damage in this case as well. A material contract obligation shall be given if the violation of duty involves a duty, the performance of which the customer has relied upon and is entitled to rely upon.

(6) Insofar as the customer is entitled in all other respects to replacement of the loss instead of performance, our liability shall be limited to foreseeable, typically occurring damage.

(7) Liability due to culpable injury to life, limb or health shall remain unaffected; this shall also apply to mandatory liability in accordance with product liability law.

(8) Liability shall be excluded unless otherwise regulated in the above.

(9) The period of limitation for claims related to defects shall amount to 12 months as of passage of the risk. This shall not apply insofar as the purchase item is normally used for a building and is responsible for the defect.

(10) The period of limitation in the case of a delivery claim to damages in accordance with Sections 478, 479 of the German Civil Code [BGB] shall remain unaffected; it shall amount to five years as of delivery of the defective item.

(11) Required material and working hours shall be calculated following elapse of the warranty period. The purchaser of the service (customer) shall be responsible for both the forwarding expenses to us and return shipment. In the case of on site repairs the costs of travel and the return journey, mileage and, if necessary, overnight accommodations shall be additionally invoiced. The customer shall be charged for any and all costs in the case of unwarranted complaints. A lump sum service fee shall be charged if no error can be determined or if the purchaser of the service (customer) does not wish to have a repair.

§ 11 Joint and Several Liability

(1) Any other liability for payment of damages than provided for in Section 10 shall be excluded without consideration of the legal nature of the claim asserted. This applies in particular to claims for damages from culpability upon conclusion of contract due to other violations of duty or because of claims in tort for the replacement of property damage in accordance with Section 823 of the German Civil Code [BGB].

(2) Limitation in accordance with Paragraph (1) shall also apply instead of a claim to replacement of the damage the customer requires replacement of useless expenditure instead of performance.

(3) If liability for compensation against us is limited or excluded, then this shall also apply with regard to the personal liability for payment of damages on the part of our staff, employees, coworkers, representatives and vicarious agents.

§ 12 Retention of Title

(1) We reserve the right to ownership of the purchase item until receipt of all payments based on the supply agreement. In the event that the purchaser engages in behavior contrary to the terms of the agreement, in particular in the case of delay of payment, we shall be entitled to repossess the purchase item. Repossession of the purchase item by us shall be equivalent to cancellation of the agreement. We shall be entitled to exploit the purchase item following repossession of same, while the proceeds of any exploitation shall be set off with the customer's liabilities less reasonable exploitation costs.

(2) The customer shall be obliged to handle the purchase item with care; in particular the customer shall be obliged to sufficiently insure same for the reinstatement value at the customer's own expense against damage caused by fire, water and theft. If maintenance and inspection work are required, then the customer shall be responsible for timely performance of such.

(3) The customer shall be obliged to immediately notify us in writing in the event of attachment or any other interference by third parties so that we may file a complaint in accordance with Section 771 of the German Code of Civil Procedure [ZPO]. If the third party is unable to reimburse us for the court and out of court costs of a complaint in accordance with Section 771 ZPO, then the customer shall be liable for any loss that we may incur.

(4) The customer shall be entitled to resell the purchase item in the normal course of business; however, the customer shall hereby assign us any and all claims in the amount of the final invoice amount (including the value added tax) for our claim, which accrue to the customer from the latter's customers or third parties from resale, independently of whether the purchase item has been resold without or after processing. The customer shall remain authorized to collect the claim even after such assignment. Our power to collect the claim shall remain unaffected. However, we shall be obliged to refrain from collection of the claim as long as the customer meets the customer's payment obligations arising out of the collected proceeds, is not in delay of payment and in particular no request for institution of insolvency proceedings or composition has been submitted or suspension of payment. However, if this is the case, then we may require that the customer discloses the assigned claims and their debtors, provide any and all information required for collection, surrender the pertinent documents, while notifying respective the debtors (third parties) of assignment.

(5) Processing or reorganization of the purchase item by the customer shall always be performed for us. If the purchase item is processed with items that do not belong to us, then we shall acquire co-ownership of the new item in proportion to the value of the purchase item (final invoice amount including value added tax) to the other processed items at the time of processing. In all other respects the same shall apply for the item created through processing as in the case of the purchase item delivered with reservation.

(6) If the purchase item is inseparably commixed with items that do not belong to us, then we shall acquire co-ownership of the new item in proportion to the value of the purchase item (final invoice amount including value added tax) to the other commixed items at the time of commixture. If commixture takes place in such a way that the item belonging to the customer is to be regarded as the principal item, then it shall be agreed that the customer assigns us proportionate co-ownership. The customer shall safeguard the sole possession or joint possession thus created for us.

(7) The customer shall also assign us the claims to secure our claims against the customer which accrue from combination of the purchase item to real property against a third party.

(8) We shall be obliged to release the collateral to which we are entitled at the customer's request insofar as the realizable value of our collateral exceeds the respectively securable claims by more than 10%. We shall have the option of selecting the releasable collateral.

§ 13 Place of Performance, Place of Jurisdiction and Severability

(1) Insofar as the customer is a merchant our principal place of business shall be the place of jurisdiction; however, we shall also be entitled to bring action against the customer at the court responsible for the customer's place of domicile.

(2) The law prevailing in the Federal Republic of Germany shall apply; application of the United Nations (Vienna) Convention on Contracts for the International Sale of Goods (CISG) shall be excluded insofar as express reference is not made thereto in these terms and conditions.

(3) Unless otherwise indicated in the confirmation of order our principal place of business shall be the place of performance.

(4) Should one of the provisions or a part of a provision of the present agreement be or become invalid, then the validity of the remaining agreement shall not be affected. Instead of the invalid provision, an appropriate regulation shall apply which most closely approximates the intention of the contracting parties if they had considered the point upon conclusion of the present agreement.

H&H introduces itself
PL Series
PLA Series
PLI Series
ZS Series
ZSLC Series
ZSLV Series
ERI Series
PMLI Series
PMLA Series
ZSAC Series
NL Series
Accessories
SE Series
Application Notes
GTC



The H&H Workforce

Electronic Loads

DC & AC

100W 100kW

Sing Multichannel



Johann Hackl

Helmut Höcherl

**After more than 30 years of Electronic Loads
from Höcherl & Hackl GmbH
the managing directors would like to thank
all our customers for their loyalty.**

Höcherl & Hackl GmbH

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PL excerpt from Catalog_E_02

The Electronic Load