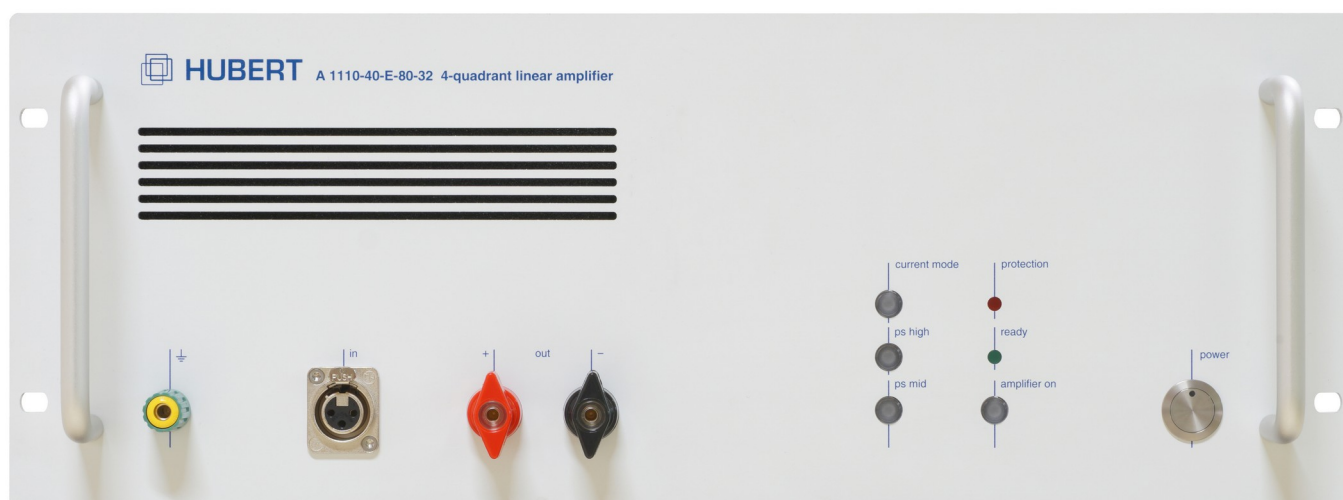


Datasheet



A1110-40-E-80-32

4-Quadrant Voltage and Current Amplifier

Rev. A



1 Product Description

The A1110-40-E-80-32 is a linear, extreme-broadband, precision power amplifier with optimized voltage ranges for automotive wiring system simulation.

The A1110-40-E-80-32 can be operated as a voltage or current amplifier. The current amplifier offers a constant, frequency-independant output current for inductive loads.

Three optional operating voltages are available for high-voltage/low-current or low-voltage/high-current applications. Especially in case of very low-impedance loads, the operating voltage can be reduced which is associated with a corresponding reduction of the power loss.

Output voltage and output current can be limited and observed on low-impedance monitor outputs.

The device is equipped with a temperature-controlled, quietly-running fan. As well as an over-temperature protection, a power-loss calculation and an absolute-current monitoring guarantees perfect short-circuit and overload protection.

An interlock offers the possibility of a remote-controlled security system.

The device can be operated by using elements on the front panel. Additionally the device can be controlled with the supplied HUBERT-Control Software via an USB or Ethernet connection.

The device's functionality can even be extended by several product options.

amp up your process



2 Feature

- 4-quadrant voltage and current amplifier
- Fully configurable and operable by means of the supplied software
- Output voltage max. $+80 V_{\text{peak}} / -32 V_{\text{peak}}$
- Output current max. $40 A_{\text{peak}}$
- Output current $80 A_{\text{peak}} / 5 \text{ ms}$
- Symmetrical input
- Series / parallel input connection in case of higher voltage / current requirements
- USB port and LAN interface as standard
- Interlock
- Voltage / current monitor output
- Sensing Inputs
- Up to 6 configurable compensation networks for inductive loads in current amplifier mode. Five general-purpose networks are available onboard per default (see Chapter 6).

3 Applications

- General lab applications for research, development and testing
- EMC testing
- Material testing
- Electric Vehicle Test Systems



4 Control Software

The scope of delivery includes an application software that ensures fully remote-controlled operation and comprehensive configuration of the amplifier via the USB or LAN interface. In this context, disclosure of the line commands guarantee trouble-free integration of existing automated test systems.

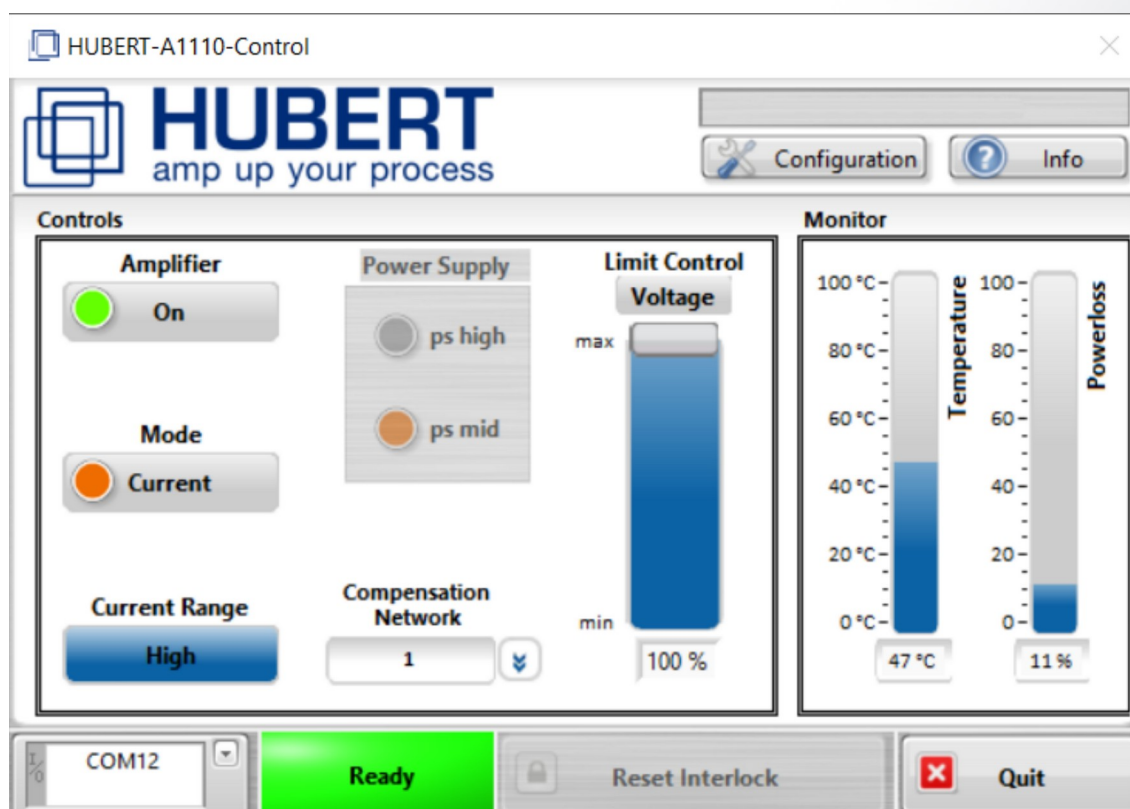


Figure 1: HUBERT-A1110-Control Main Menu



5 Pictures



Figure 2: Backpanel elements

6 Current Amplifier

In current control mode, the A1110-40-E-80-32 behaves like a voltage-controlled current source and delivers a nearly frequency-independent constant load current to an inductive load.

The following five compensation networks are equipped ex works.

No	Load	Rc	Cc	Current Range
1	1 Ohm + 500 uH	100 kOhm	10 nF	high
2	0,1 Ohm + 200 uH	68 kOhm	4,7 nF	high
3	1 Ohm + 1mH	150 kOhm	22 nF	high
4	4 Ohm + 1,8 mH	200 kOhm	1 nF	high
5	0,078 R + 88 uH	80 kOhm	6,8 nF	high
6	Reserved for Option-01			

Table 1: Compensation networks

The selection is made by our HUBERT-A1110-Control software. Please also note the corresponding recommended current measuring range.

If none of the above compensation networks is suitable for your application, please order your amplifier with Option-01: Custom Current Amplifier. Our engineers will design a custom compensation network specific for your needs. You can add additional networks to your amplifier. Up to six customs networks are possible as existing ones can be removed.

We would be pleased to assist you in the realization of a compensation network for your application.



7 Specifications

Parameters	Specification	Conditions
	Controlled Voltage Mode	25° C ambient temperature
Input Impedance	100 kOhm	Unbalanced, 1 kHz
	200 kOhm	Balanced, 1 kHz
Small Signal Bandwidth	DC-600 kHz	+0, -3 dB, @ 10 kOhm High Voltage
Large Signal Bandwidth	DC-200 kHz	+0, -3 dB, 10 Ohm High Voltage
Slew Rate	60 V/μs	@10 kOhm
DC-Offset	< 1 mVDC	
Residual Noise	< -68 dBV < -59 dBV	10 Hz - 22 kHz, power out 10 Hz - 500 kHz, power out
Max Output Voltage ...Range I (Low Voltage) ...Range II (Mid Voltage) ...Range III (High Voltage)	+16/-32 Vdc +32/-32 Vdc +80/-32 Vdc	±2 V _p for sensing
Max Output Current	40 Ap	
Current, Pulse, 5ms, 0.25% Duty Cycle, unipolar	80 Ap	
Max Output Power	1 kW	
Voltage Monitor	±1 V ± 10 V ± 0.5%	< 200 kHz
Current Monitor	±1 V ± 10 A ± 1%	< 100 kHz
Gain		
Controlled Voltage Mode	1 V / 10 V; ± 0.1%	U _{in} / U _{out}
Controlled Current Mode	1 V / 10 A	U _{in} / I _{out}
Physical Characteristics		
AC Power	230 VAC / 50 Hz	
Remote control	USB 2.0, LAN	
Operating Temperature	10 °C to 55 °C	
Humidity	80 % or less	non-condensing
Cooling	Forced air	
Dimensions (W x H x D)	450 x 198 x 676 mm	
Weight	Approx. 39 kg	

amp up your process



7.1 Pulse Response

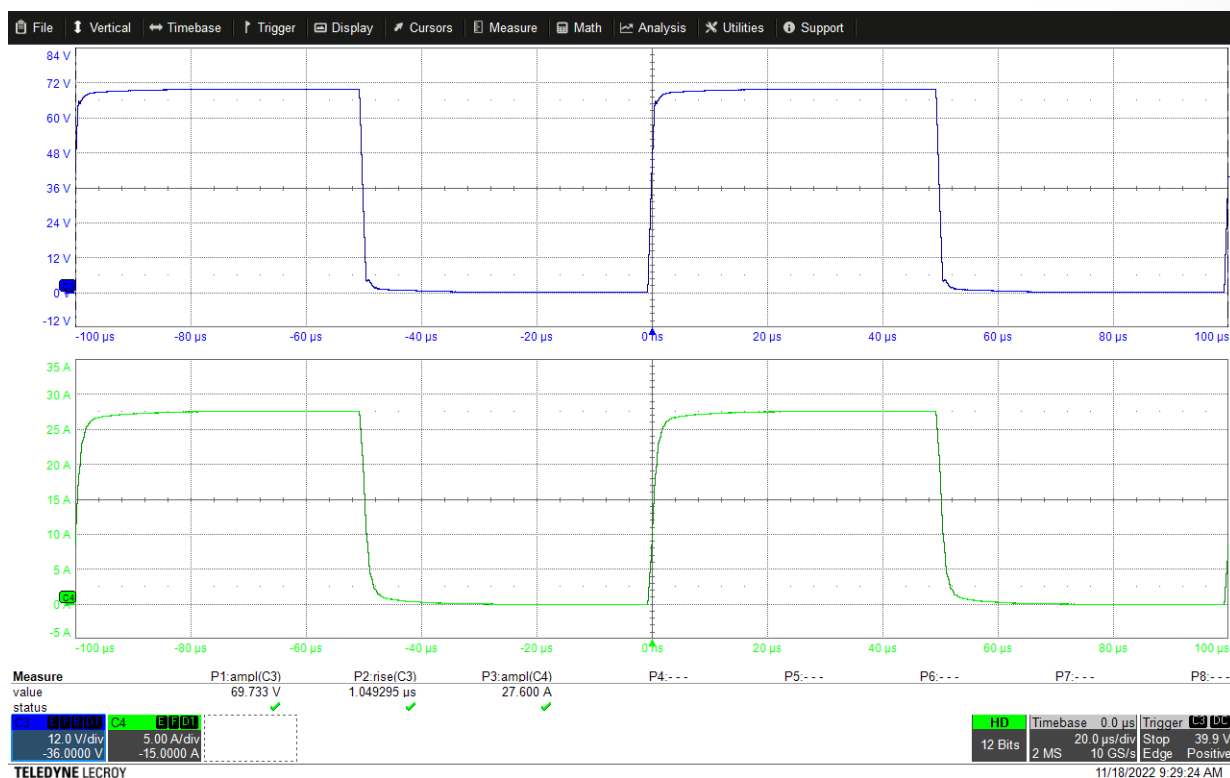


Figure 3: C3: Output Voltage; C4: Output Current; V_{in} : 10 kHz, Load: 2,5 Ohm

amp up your process



7.2 Output Current Capability versus Output Voltage

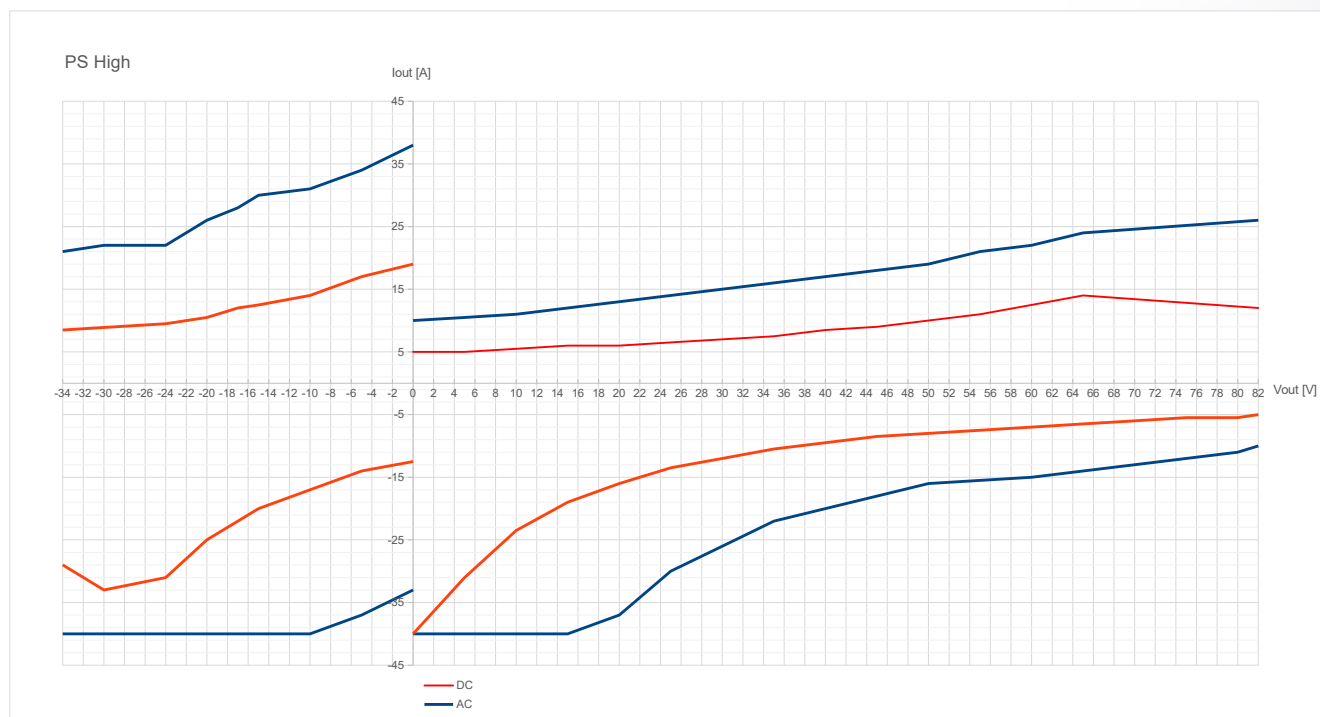


Figure 3: Output current capacity compared to output voltage for PS High

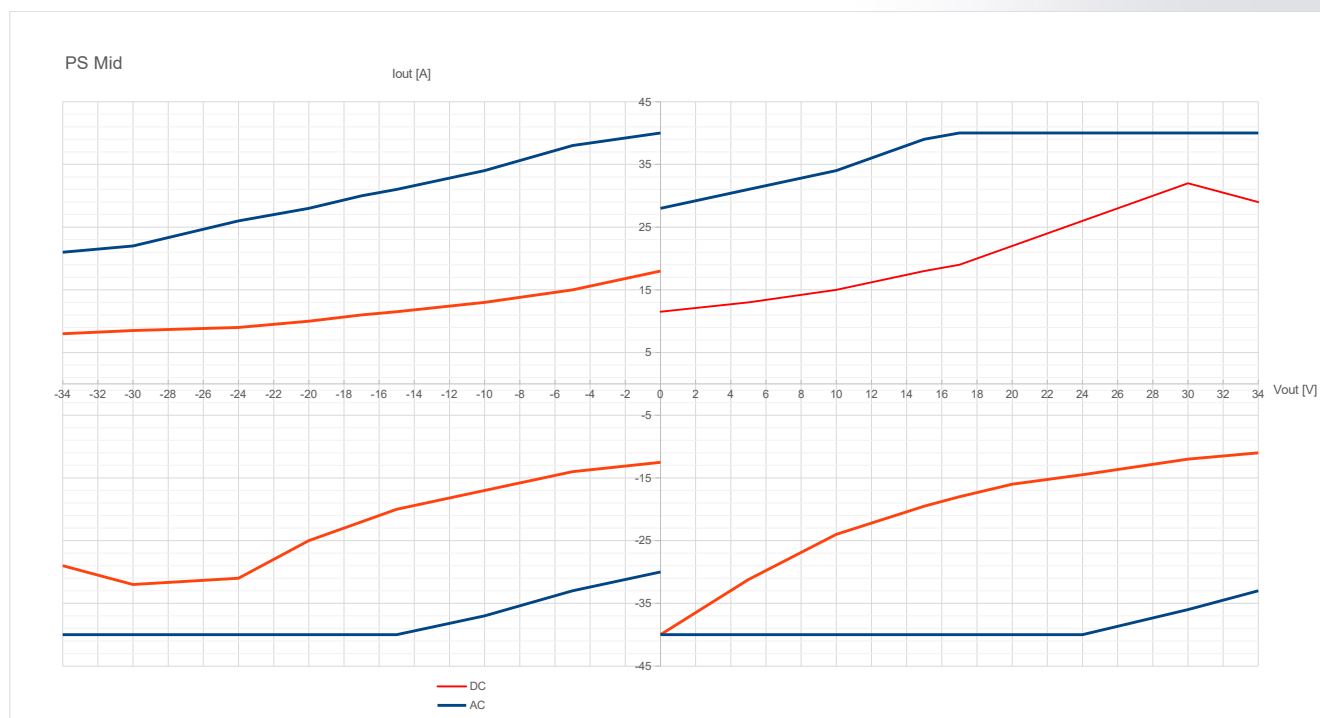


Figure 4: Output current capacity compared to output voltage for PS Mid

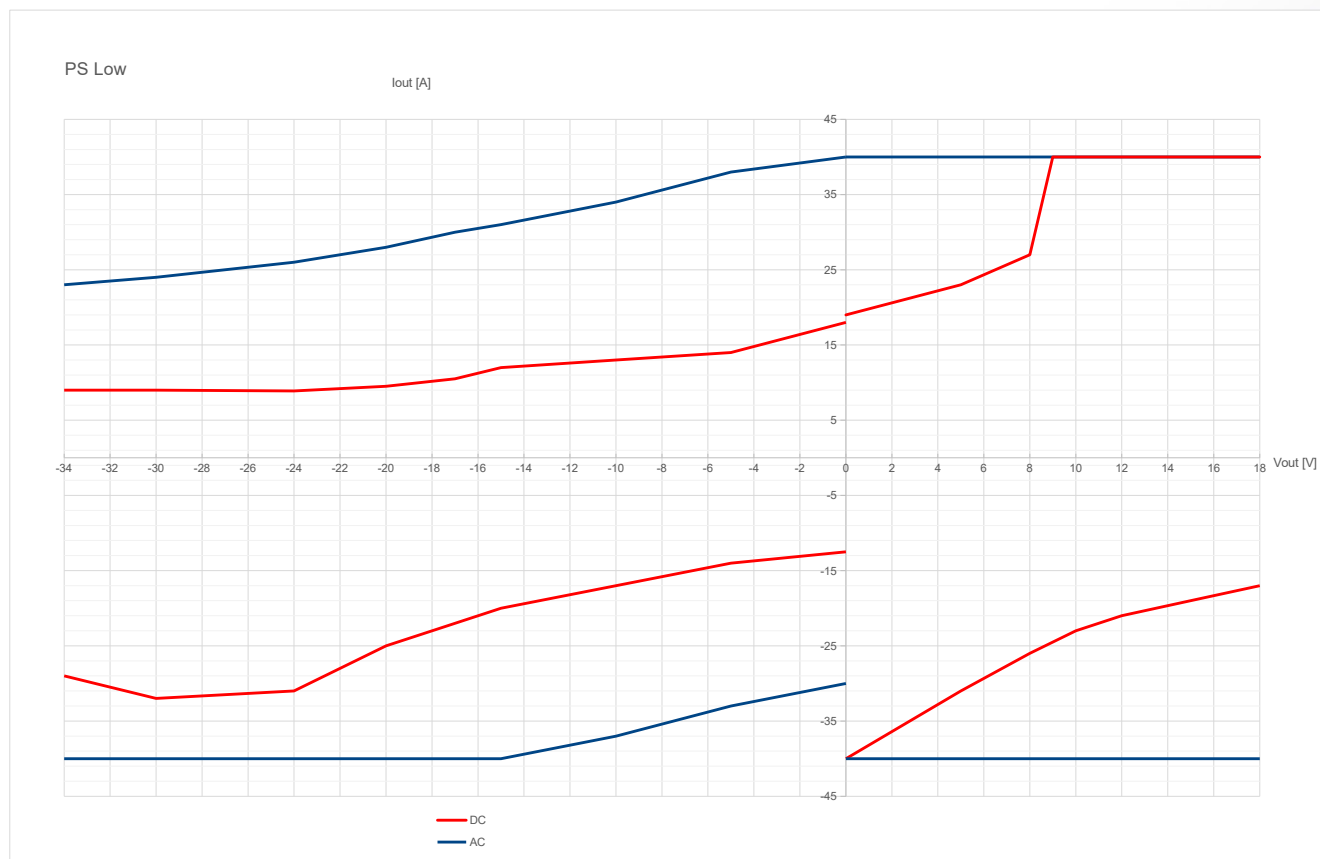
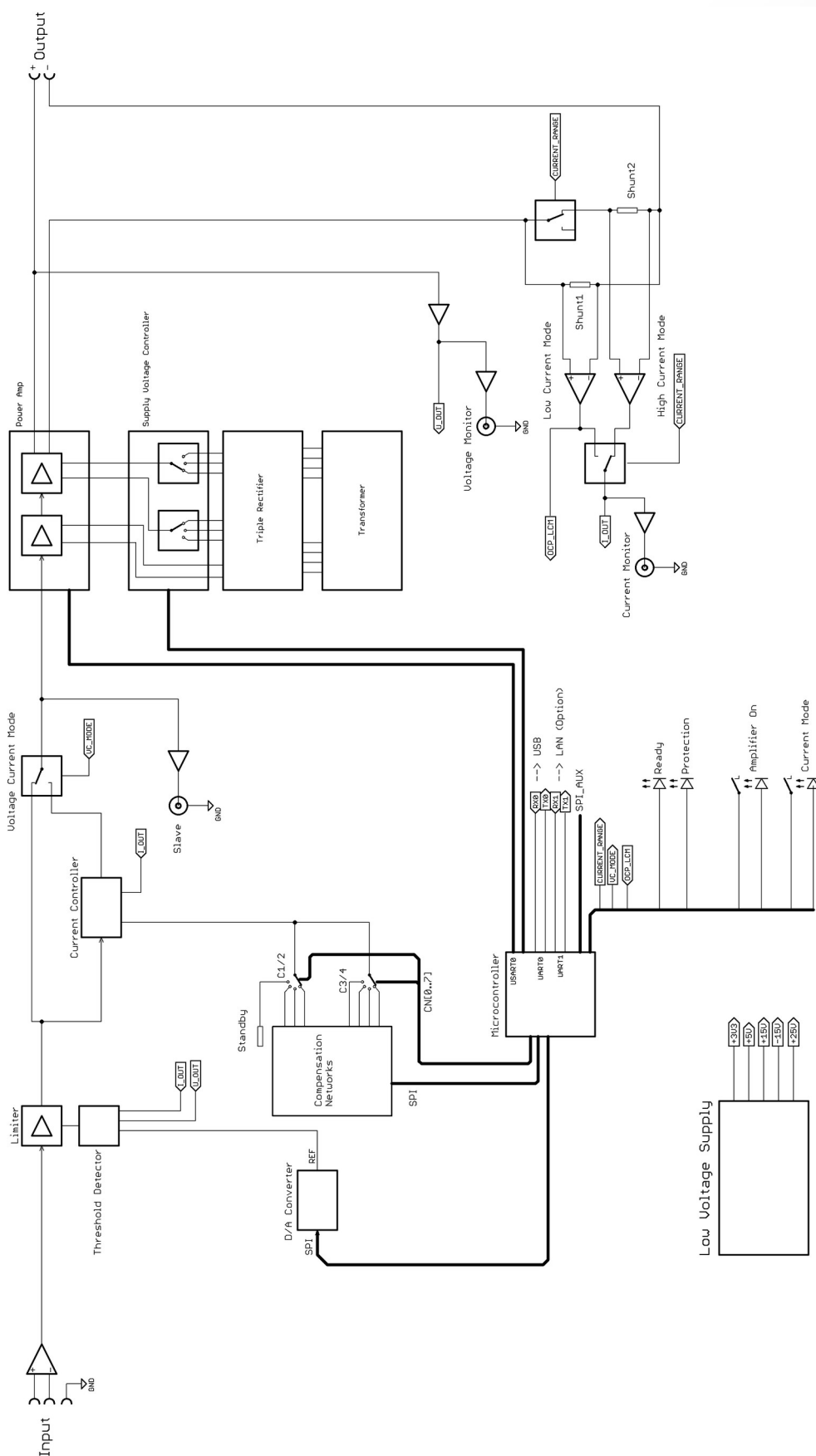


Figure 5: Output current capacity compared to output voltage for PS Low

8 Block Diagram





9 Product Options

The following product options are available at the time of placing the order. Upgrades of existing devices are not possible.

Article Name	Article Description
A1110-40-E-80-32	4-Quadrant Voltage and Current Amplifier
Option: Custom Current Amplifier	Additional compensation network for one specified load. The device is equipped with five general-purpose networks by default.
Option: 3-Channel Isolation Amplifier	For potential isolation of input and output
Option: Overvoltage Protection (OVP)	For protection of amplifier outputs

amp up your process



10 Contact

Dr. Hubert GmbH
Dietrich-Benking-Str. 41
44805 Bochum - Germany
Tel. +49 234 970569-0

Further information is available on our website www.drhubert.com.

amp up your process



11 Document History

Revision	Date	Changes
1	June 2026	First publication

amp up your process