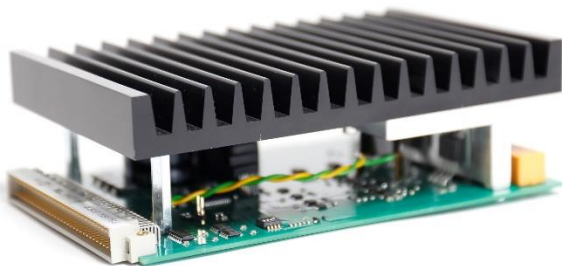


## Features

- Programmable current supply
- Potential-free output voltage  $\pm 25V$
- Current limit 0.01 to 2.5A
- Integrated measurement of the voltage and current
- Series and parallel switching available
- AC voltage mode 10 to 100 Hz
- Suitable for use as an electronic load.



The PSU board features a four-quadrant amplifier and can generate voltages in the range of  $\pm 25V$ . The integrated A/D converters can be used to measure the output current and voltage. As the output is potential-free, two boards can be connected in series without any issues in order to double the output voltage to  $\pm 50V$ . Sense inputs are provided to compensate for the voltage drop in the connecting cables to ensure a precise power supply for the assemblies under test.

## Application

- Power supply for PCBS or devices under test
- Testing reserve polarity protection switches with negative voltages
- Use as a constant current source
- Loading outputs with a programmable current (electronic load)
- Generating a single-phase supply voltage with variable amplitude and frequency up to 200W with the use of a transformer (AC source)
- Generating a three-phase supply voltage with 3 synchronised PSU boards with variable phase angles

## Specification

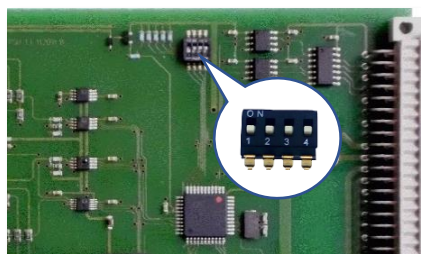
Current limit	0.01 - 2.5A, 16-bit resolution, accuracy $\leq 0.1\%$ MBE
Measurement (only in DC mode)	Voltage and current, 16-bit resolution, accuracy $0.1\% \leq$ MBE
AC voltage	0-50 V <sub>pp</sub> (17.0 V <sub>rms</sub> ), 10 Hz to 100 Hz sine, increment 0.1V
X1 connector	4-pin header RM 5 mm
X2 connector	64-pin multipole connector DIN 41612
Operating voltage	5V $\pm 0.1V$ , 300mA and 2x 20VAC for the amplifier
Dimensions	PCB 100 x 160 mm, height 51 mm incl. heat sink
Weight	0.78 Kg
Interface	RS-422 Guardian log

## Pinout

X1		X2	
PIN	NAME	PIN	NAME
1	Out+	AC1	5 V
2	Out-	A2	GND
3	Sense +	C2	RXD +
4	Sense-	A3	RXD -
		C3	GND
		A4	TXD +
		C4	TXD -
		AC5	GND
		AC9	Thermal switch
		AC10	Thermal switch
		AC11	AC-Input1
		AC12	AC-Input Common
		AC13	AC-Input2

## Addressing

The standard base address for the PSU boards is 1. A 4-pin DIP switch is installed on the PCB for configuring the board address.

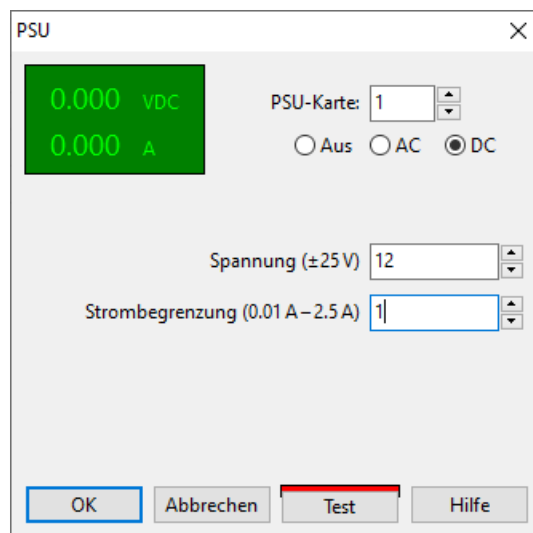


1 indicates switch position ON  
0 indicates switch position OFF

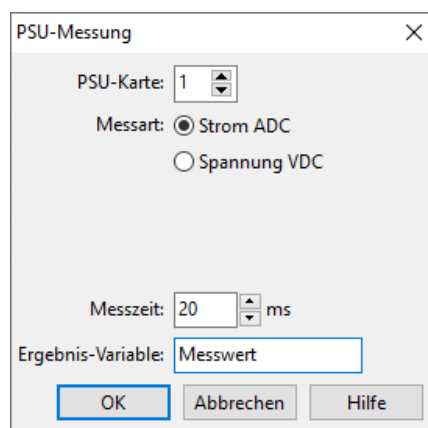
Board address	Switch number
	4 3 2 1
1	0 0 0 1
2	0 0 1 0
3	0 0 1 1
4	0 1 0 0

## WinGuard

This dialog box controls the PSU board in DC mode. In addition to board numbers 1 to 4, it can also be used to enter the voltage and current limit. Selecting 'Off' will cause the relay to switch off the board.

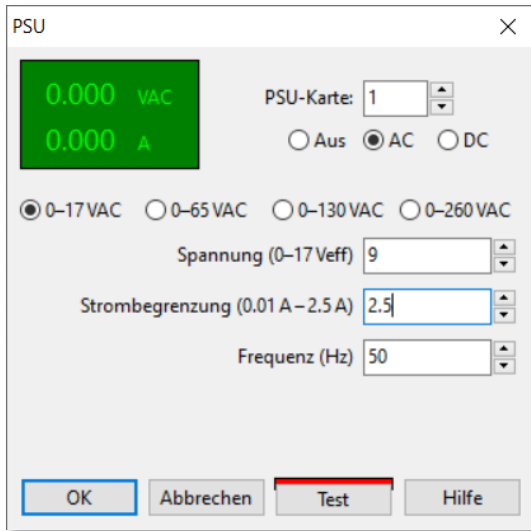


As the input fields are interpreted by WinGuard at runtime, variables or mathematical expressions are permitted in addition to constant values. The command can be executed immediately using the 'Test' button. The current readings for voltage and current are then displayed in the green field.



This dialog measures the current or voltage output.

## WinGuard



PSU

0.000 VAC  
0.000 A

PSU-Karte: 1

☐ Aus ☒ AC ☐ DC

☒ 0-17 VAC ☐ 0-65 VAC ☐ 0-130 VAC ☐ 0-260 VAC

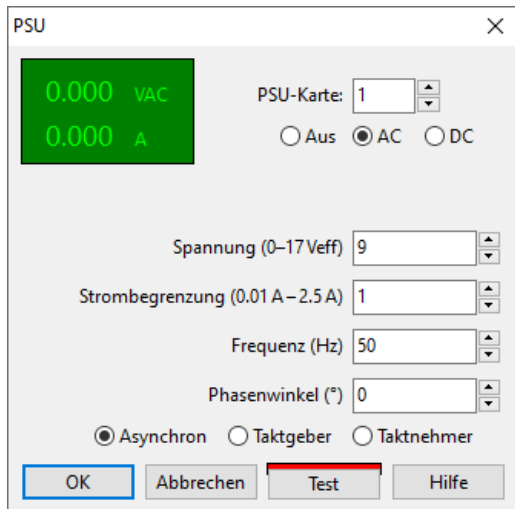
Spannung (0-17 Veff) 9

Strombegrenzung (0.01 A - 2.5 A) 2.5

Frequenz (Hz) 50

OK Abbrechen Test Hilfe

In AC mode, additional fields are integrated for setting the AC voltage. The frequency can be set from 10 Hz to 100 Hz. In this operating mode, the voltage and current cannot be measured.



PSU

0.000 VAC  
0.000 A

PSU-Karte: 1

☐ Aus ☒ AC ☐ DC

☒ 0-17 VAC ☐ 0-65 VAC ☐ 0-130 VAC ☐ 0-260 VAC

Spannung (0-17 Veff) 9

Strombegrenzung (0.01 A - 2.5 A) 1

Frequenz (Hz) 50

Phasenwinkel (°) 0

☒ Asynchron ☐ Taktgeber ☐ Taktnehmer

OK Abbrechen Test Hilfe

If the PSU boards are equipped with the optionally available **Sync Adapter**, the boards can be synchronised in order to generate a three-phase supply voltage, for example. The phase angle or displacement between the clock (master) and slave can be set from 0° to 359°.

A TRF board (transformer board) can step up the sine-wave AC voltage of the PSU in order to provide a DUT with 230 supply voltage, for example. 4 voltage ranges are available:

### 0-17 VAC

Here the signal of the PSU board is passed through the transformer board; the transformer is not used.

### 0-65 VAC

Lowest transformer transmission ratio

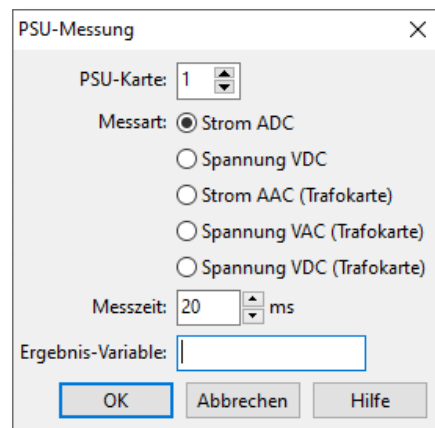
### 0-130 VAC

Average transformer transmission ratio

### 0-260 VAC

Largest transformer transmission ratio

Please consult the data sheet to learn more about the TRF board.



PSU-Messung

PSU-Karte: 1

Messart: ☒ Strom ADC  
☐ Spannung VDC  
☐ Strom AAC (Trafokarte)  
☐ Spannung VAC (Trafokarte)  
☐ Spannung VDC (Trafokarte)

Messzeit: 20 ms

Ergebnis-Variable:

OK Abbrechen Hilfe

When used in conjunction with a TRF board, the PSU measurement is extended by 3 options.

### Current AAC (TRF board)

Supplies the current drawn from the transformer

### Voltage VAC (TRF board)

Measures the AC voltage at the TRF board's output

### Voltage VDC (TRF board)

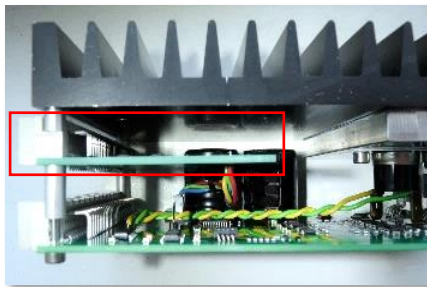
Measures the rectified and smoothed output voltage of the transformer board (TRF DC mode)

## Synchronization

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This optimal sync adapter is installed between the PSU PCB and extends the PSU board to include clock inputs and outputs. A DIN 41612 connector is used to connect the signals to the Guardian System's bus boards.



The PSU board configured as the master outputs a clock signal. The slaves start generating the AC voltage with the master clock and run synchronously.