

# Meilhaus Electronic Manual

## ME-PowerHouse/ME-5

(ME-5-M2)



1-Channel Analog Amplifier for D/A Boards and  
Signal Generators

# Imprint

## Manual ME-PowerHouse

Revision 3.0E

Revised: 2019-11-27

Meilhaus Electronic GmbH  
Am Sonnenlicht 2  
D-82239 Alling bei München  
Germany  
[www.meilhaus.de](http://www.meilhaus.de)

© Copyright 2019 Meilhaus Electronic GmbH

All rights reserved. No part of this publication may be reproduced or distributed in any form whether photocopied, printed, put on microfilm or be stored in any electronic media without the expressed written consent of Meilhaus Electronic GmbH.

### **Important note:**

The information contained in this manual has been reviewed with great care and is believed to be complete and accurate. Meilhaus Electronic assumes no responsibility for its use, any infringements of patents or other rights of third parties which may result from use of this manual or the product. Meilhaus Electronic assumes no responsibility for any problems or damage which may result from errors or omissions. Specifications and instructions are subject to change without notice.

Note the Meilhaus Electronic general terms of business:

[www.meilhaus.de/en/infos/my-shop/tob/](http://www.meilhaus.de/en/infos/my-shop/tob/)

All trademarks acknowledged. All trademarks are property of their respective owners.

# Content

1	Introduction.....	4
1.1	Important Notes .....	4
1.1.1	Use in Accordance with the Requirements .....	4
1.1.2	Model overview .....	4
1.2	Package Contents .....	5
1.3	Short description .....	5
2	Connectivity and LEDs .....	6
2.1	Power Supply (Phoenix) .....	7
2.2	Amplifier input and output (BNC).....	8
3	Mounting.....	9
3.1	Mounting the ME-PowerHouse into 19“-Racks.....	9
3.2	Mounting the ME-PowerHouse on DIN-rail .....	10
4	Appendix .....	12
A	Specification .....	12
B	Accessories.....	14
C	Technical Questions.....	15
C1	Hotline .....	15
E	Index.....	16

# 1 Introduction

Valued customer,

Thank you for purchasing this device from Meilhaus Electronic. You have chosen an innovative high-technology product that left our premises in a fully functional and new condition.

Please take the time to carefully examine the contents of the package for any loss or damage that may have occurred during shipping. If there are any items missing or if an item is damaged, please contact us immediately.

Before installing the board in your computer, we recommend you read this manual carefully, especially the chapter describing board installation.

## 1.1 Important Notes

### 1.1.1 Use in Accordance with the Requirements

- ME-PowerHouse is designed for qualified personnel.  
Use adapters according to specifications of ME-PowerHouse.
- Do not operate device without housing or front panel. No manual control elements inside.
- Use only fuses according to specifications.
- Do not use ME-PowerHouse if you suspect a failure.
- Do not use the equipment in a humid environment.
- Ensure sufficient heat dissipation from the device, especially when mounting ME-PowerHouse in racks.
- The device is not suitable to be used as a children's toy, in the household or under unfavourable environmental conditions (e.g. in the open). Appropriate precautions to avoid any unforeseeable misapplication must be taken by the user.

### 1.1.2 Model overview

- ME-PowerHouse-M 2.0 (ME-5-M2): Model with metal housing.

## 1.2 Package Contents

We take great care to ensure your delivery is complete. Nonetheless, please check the list enclosed to verify the contents of your delivery. You should find included:

- 1 channel analog power amplifier in one of the three versions.
- Please also read the notes in the appropriate README-files.

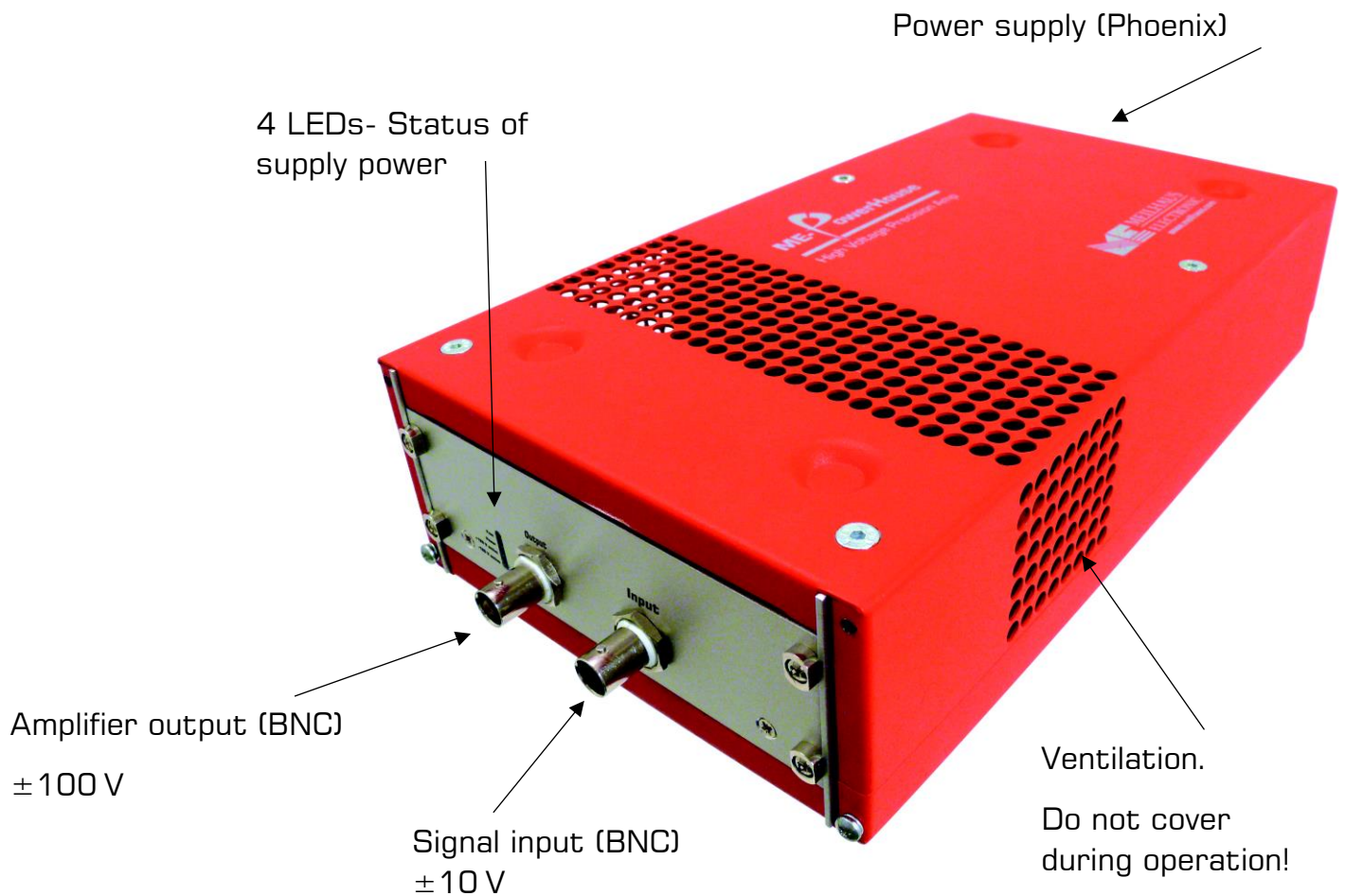
*Optional accessories:*

- ME-Synapse-USB-RM-kit  
Use to mount the ME-PowerHouse-M in 19"-systems (also used for ME-Synapse-USB). Includes 2 angular guidance plates and a front panel.
- UTA-130  
Universal DIN rail adaptor, use to mount ME-PowerHouse-M on standard DIN-rails. 2x required!
- ME-SIG32-PWR desktop power supply for ME-PowerHouse (and ME-SIG32)
- ME-Synapse LAN PWR: DIN-rail mains adapter for ME-PowerHouse (ME-Synapse LAN, ME-Synapse Express, ME-Neuron).

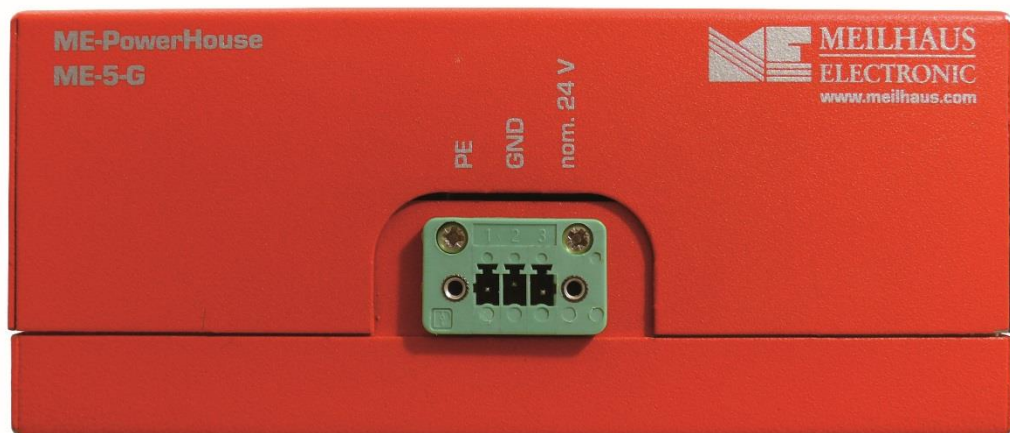
## 1.3 Short description

- Transparent 1-channel analog output amplifier for D/A boards.
- In a rugged metal housing.
- Amplifies the analog output signal of a D/A board or a signal generator from the range of  $\pm 10$  V to  $\pm 100$  V, other gain levels available on request.
- Just connect between the analog output and the application - no software modification required.  
BNC or SMB/LEMO connectors. BNC connectors match the ME terminal blocks. For use with ME-FoXX ME-46xx, ME-6x00 and optional with ME-1600 and boards from other manufacturers.
- Bandwidth max. 250 kHz at  $\pm 100$  V, 500 kHz at  $\pm 50$  V, 930 kHz at  $\pm 25$  V, 1.1 MHz at  $\pm 20$  V (Tschebyscheff-characteristic).
- Connector for power supply: pluggable Phoenix terminal.
- LEDs for power supply status.
- Over voltage protection (transient diodes) for power supply input.
- Protection 9 x 20 10 AT.
- Reverse polarity protection.

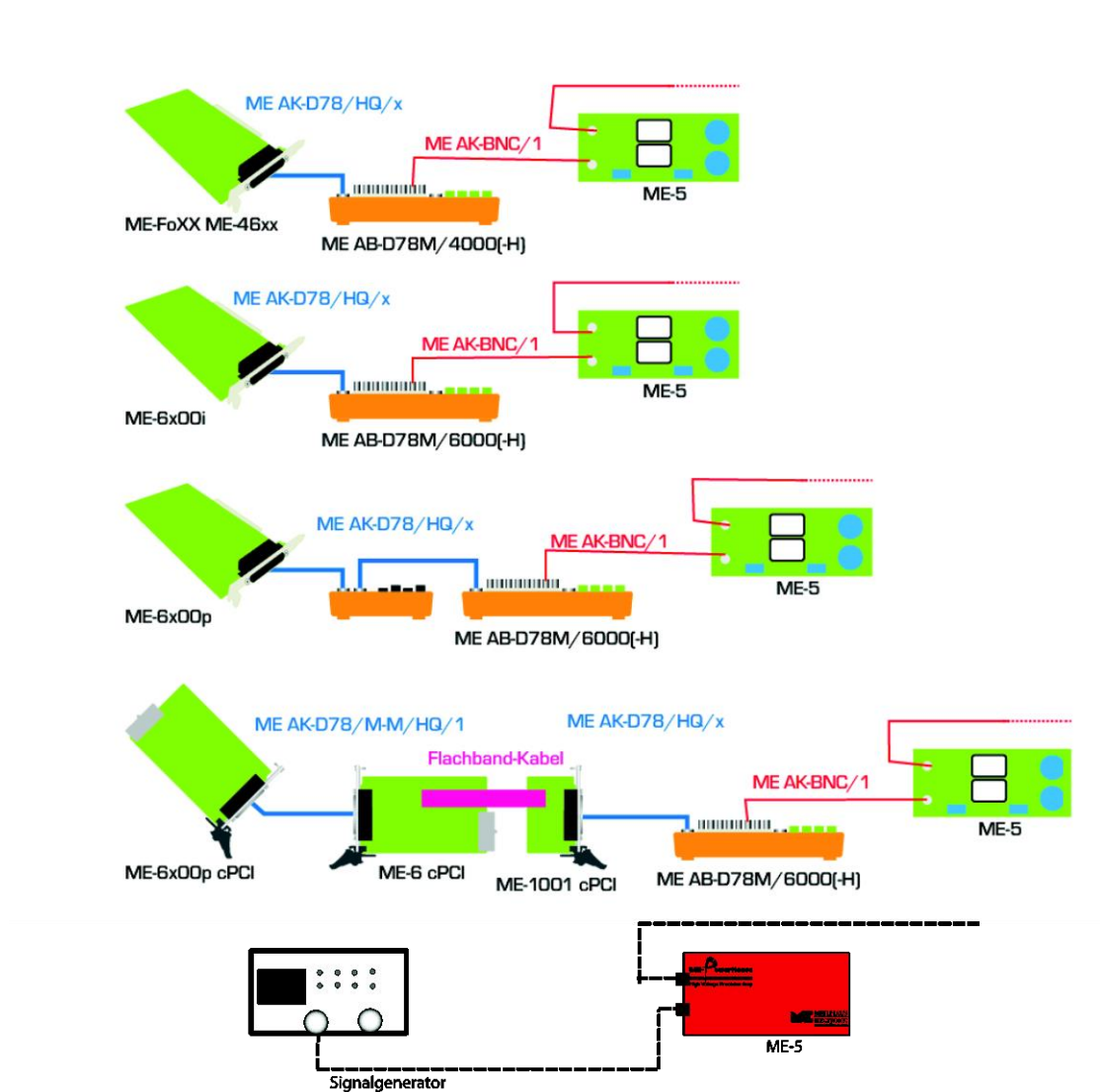
## 2 Connectivity and LEDs



## 2.1 Power Supply (Phoenix)



## 2.2 Amplifier input and output (BNC)





## 3 Mounting

### 3.1 Mounting the ME-PowerHouse into 19“-Racks

To mount the ME-PowerHouse into a 19“-systems a mounting kit (available as optional accessory) is required. The kit includes 2 angular guidance plates and a front panel. To mount the guidance plates, screw out the 4 screws on the ME-PowerHouse top side. Use the 4 screws to fix the guidance plates to the ME-PowerHouse top side, as shown in the picture below.



*Picture 1: ME-Synapse-USB- ME-PowerHouse LAN analog*

*Assembly of rack mount kit (ME-Synapse-USB shown; ME-PowerHouse analog)*

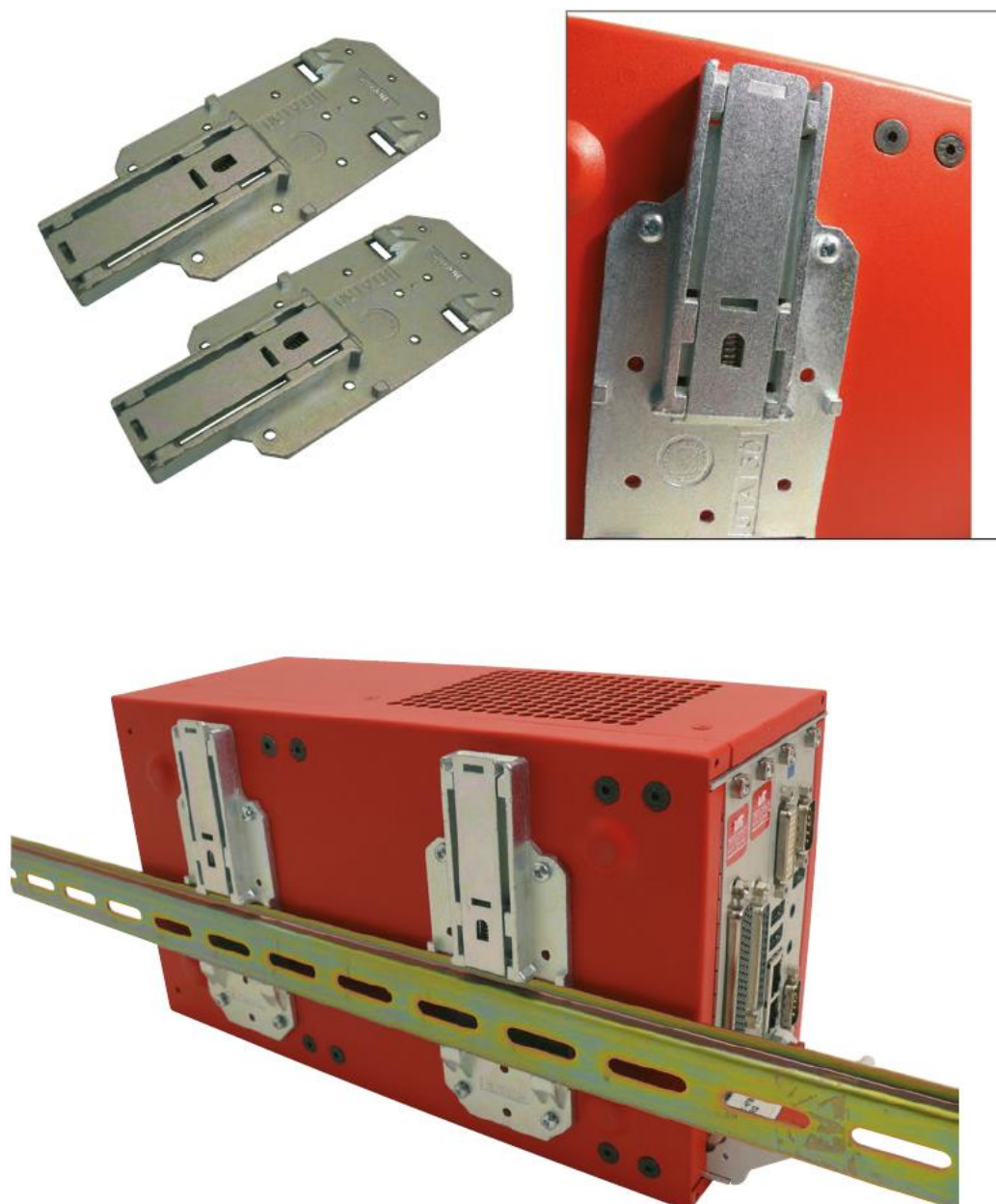
To mount the front panel, screw out the 4 screws on the ME-PowerHouse front side (the side with the slots for DAQ boards). Use the 4 screws to fix the front panel to the front side of the ME-PowerHouse. Now the ME-PowerHouse is ready for 19“-systems, using standard rails as shown in the picture below.



Picture 2: ME-PowerHouse front side with slots (ME-Synapse – Mounting with ME-PowerHouse analogical)

## 3.2 Mounting the ME-PowerHouse on DIN-rail

2 universal DIN-rail adaptors UTA-130 are required to mount the ME-PowerHouse on standard DIN-rails. UTA-130 adaptors are available as an option. Screw both adaptors to the bottom of the ME-PowerHouse (use the provided holes). With the adaptors attached, the ME-PowerHouse can now be mounted to and from DIN-rails easily.



Picture 3: ME-Neuron - ME-PowerHouse analog

# 4 Appendix

## A Specification

### Channel Amplifier

Capacitive load	max. 2.2 nF incl. 2 m BNC cable
Input range	max. $\pm 10$ V
Gain	range of $\pm 10$ V to $\pm 100$ V optional on the amplifying. Please contact us by using other amplifying.
Output range	max. 100 mA
Bandwidth	bandwidth max. 250 kHz of $\pm 100$ V, 500 kHz of $\pm 50$ V, 930 kHz of $\pm 25$ V, 1.1 MHz of $\pm 20$ V (Tschebyscheff-characteristic)
Optional filter	optional lowpass or AC coupling possible, available on request
Protection	over-voltage protection with transient diode for power supply input up to 27 V and above (for a short period of time), protection with LED-display

### General Data

Power supply	9...27 V, nom. 24 V via pluggable Phoenix connector. Power supply for amplifier generated with DC/DC converters and protection.
Optional feature for adapter	ME-SIG32-PWR Desktop adaptor for ME-5 series (and ME-SIG32), connector for pluggable Phoenix terminal. INPUT: 100 – 240 V $\sim$ 1.6 A max., 50 – 60 Hz, 100 – 200 VA. OUTPUT: +24 V, 2.7 A, 65 W max. ME-Synapse LAN PWR DIN rail adapter, connector for pluggable Phoenix terminal. Input: 115/230 VAC, $\sim$ 4.0/2.0 A Output: 24 V, 7.5 A
LED	LEDs for supply power status
Connectors	2x BNC, 1 x Phoenix
Size	metal housing, stackable, $\sim$ 65 mm (L) x 147 mm (W) x 262 mm (H); optional 19"-mountable or DIN-rail-mountable
Certification	CE

<b>Can be Connected to ...</b>
...analog output signals in the range of $\pm 10$ V, for example:
ME-FoXX ME-46x0 family (models with D/A) using a terminal block ME-AB-D78M-4000(-H).
ME-6x00 family using a terminal block ME-AB-D78M-6000(-H).
Keysight waveform generators 33600-series, 33500-series, 33210A, 33220A, 33250A, U2761A
Rigol waveform generators DG1022(A), DG1000Z-series, DG4000-series, DG5000-series
ETC waveform generators M531
PeakTech waveform generators P4055, P4060, P4065, P4105, P4115, P4125
and others

## **B Accessories**

We recommend to use high-quality connector cables with single-shielded lines per channel.

For further accessories please refer to the current Meilhaus Electronic catalog and the internet:

[www.meilhaus.de/en/pc-boards/accessories/](http://www.meilhaus.de/en/pc-boards/accessories/)

## **C Technical Questions**

### **C1 Hotline**

Should you have questions or inquiries concerning your Meilhaus device, please contact us:

**Meilhaus Electronic GmbH**

Repair & Service  
Am Sonnenlicht 2  
D-82239 Alling

**Sales:**

Tel.: (08141) 52 71 – 0  
Fax: (08141) 52 71 – 129

eMail: [sales@meilhaus.de](mailto:sales@meilhaus.de)

**Support:**

Tel.: (08141) 52 71 – 188  
Fax: (08141) 52 71 – 169

eMail: [support@meilhaus.de](mailto:support@meilhaus.de)

**Download-Server and Driver Update:**

To download current driver versions for Meilhaus Electronic devices as well as manuals in PDF format, please go to:

[www.meilhaus.org/driver](http://www.meilhaus.org/driver)

**Service Department with RMA Process:**

In case you need to return a board for repair purposes, we strongly ask you attach a detailed description of the error as well as information regarding your computer/system and the software used.

Please register online using our RMA process:

[www.meilhaus.de/en/infos/service/rma.htm](http://www.meilhaus.de/en/infos/service/rma.htm).

# E Index

---

## A

Accessories .....	15
Appendix .....	13

---

## C

Channel Amplifier .....	13
Connected to .....	14
Connectivity and LEDs .....	7

---

## D

DIN-rail .....	11
----------------	----

---

## G

General Data .....	13
--------------------	----

---

## H

Hotline .....	16
---------------	----

---

## I

Important Notes .....	4
Introduction .....	4

---

## M

Mounting .....	10
----------------	----

---

## P

Package Contents .....	5
Power Supply .....	8

---

## S

Short description .....	5
-------------------------	---

---

## T

Technical Questions .....	16
---------------------------	----