

METRAwin 90

Calibration Software

Version 2/05.13



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We make every effort to keep these instructions up-to-date in accordance with the latest software version. It is nevertheless possible that differences may exist between the software and the instructions. Further information and corrections may be provided in a "README.TXT" file included on the provided data storage medium or in the program directory after the software has been installed. Use the Windows Notepad to read this file.

Subject to change without notice.

Preface

Contents of these Operating Instructions

This document provides information regarding the specific functions and system requirements of METRAWin®90 calibration software when being used with the **METRAHit 18C** Process Calibrator .

Note: Detailed information regarding device-specific functions and their use is included in the operating instructions for the device.

Use of the general functions of this software is described in a separate document which can be accessed by clicking **Program Functions** in the **Help** menu.

Target Group

These instructions are intended for users of the software.

The software is designed for use with the Microsoft Windows® graphic user interface. Users must be familiar with basic Windows® functions.

Scope of Validity

These instructions are valid for METRAWin®90 as of version 4.00.

Note: The version number is specified on the program CDROM. It is also displayed when program installation is initialized or when the installed program is started and can be displayed via menu **Help : About** as well.

Support

If you have any questions regarding use of this software, please contact

- your GOSSEN METRAWATT sales representative,
- the address which can be accessed under menu **Help : About**:
GMC-I Messtechnik GmbH
Product Support Hotline
Phone: +49 911 8602-0
Fax: +49 911 8602-709
E-Mail: support@gossenmetrawatt.com

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1 Features

1.1 Scope of Functions

The **METRAHit 18C** Process Calibrator is used primarily for testing and calibrating electrical measuring instruments and equipment in the field of process measuring and control technology like transmitters, temperature meters/recorders/regulators, signalling and metering devices etc.. It includes the following functions: DC voltage source, DC current source and sink, pulse generator with adjustable frequency and magnitude, as well as simulation of resistors and temperature sensors (thermocouples and RTDs).

Combination of the **METRAHit 18C** and a precision multimeter with IR interface METRAHit 18S, 26S, 28S or 29S builds a calibration system for automated calibration of isolation amplifiers, temperature transmitters and the like.

In conjunction with this calibrator METRAWin®90 offers the following operating modes:

DIRECT	Convenient, interactive control of the calibrator from the PC.
TEST	Sequence-controlled setup of the calibrator from the PC and automatic PASS/FAIL analysis of measured values entered manually or read in from the multimeter via interface, as well as documentation and archiving of calibration results in a calibration report. Calibration procedures for each respective calibration object can simply be generated and tested with the program.
PROCEDURE	Frequently used settings sequences (procedures) may be created in the program, and transferred to the nonvolatile memory of the calibrator. From there, a procedure can be called and executed by simply pressing forward or backward stepwise. The memory of the calibrator can hold up to 10 procedures each with a maximum of 99 steps.

1.2 System Requirements

Refer to the description of the program functions in section 1.2 (**Program Functions** in the **Help** menu) for general requirements.

Special requirements for connecting the calibrator and multimeter(s):

Hardware Requirements

- Computer**
 - 1 free RS232 serial port COM
 - or 1 USB port with connected USB Serial Converter
- Calibrator** 1 METRAHit 18C
- Multimeter**
 - 1 or 2 METRAHit 18S
 - or 1 or 2 METRAHit 26S, 28S, 29S
- Adapter** For the calibrator: 1 BD232 Interface Adapter
Per multimeter: 1 Memory Adapter SI232 or SI232-II

- Software Requirements** Installed METRAWin 90 software (version 4.00 or higher) with device drivers for METRAHit 18C (*KALIL_A.DLL*).
- If using a USB-Serial Converter: Installed associated USB driver.

2 Calibration System Setup and Start-Up

The figure below shows the structure of a calibration system using the Process Calibrator **METRAHit 18C** and the combined adapter and multimeter types.

If only one meter is used in the system, this can also be coupled with a BD232. But then the connection of the system on the PC must be made at a real COM port as USB-to-Serial converters do not support the baud rate of 8192 baud being used in this case.

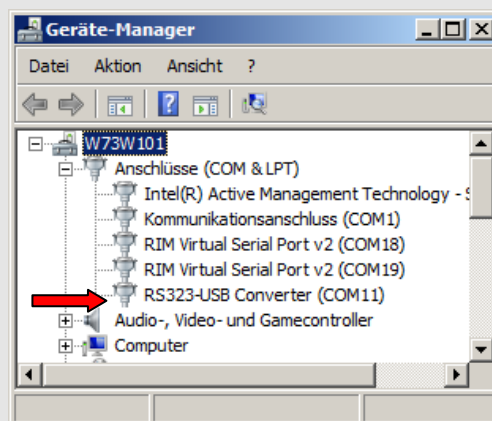


- Mount the devices as shown in the illustration and secure the mechanical connections (adapter, cable) using the fixing screws. The connection of a second multimeter with Memory Adapter as a reference multimeter for the measurement of calibration signals, which are not generated by the calibrator (in the TEST program function) is optional.



Note

If the PC does not have a real COM port, the system can also be connected to a USB port using a USB-to-Serial converter. However, not all converters available on the market have the necessary control signal pins and current capacity to supply the Interface/Memory Adapter. We therefore recommend to use our RS232-USB Converter Z501L.



For these converters a driver has to be installed. By driver installation an individual virtual COM port is assigned to each adapter. In the Device Manager of Windows, you can verify the success of the installation and identify the assigned COM port number:
Start : Settings : Control Panel: System : Hardware : Device Manager.

This also appears in the port selector fields of the **Port Setup** dialog box.

- ▶ Enter the following settings to the devices (refer to the operating instructions for the respective devices for details concerning device operation):

Calibrator 18C

- ▶ Simultaneously press the $\uparrow$ and **ON** keys when switching the device on.
- ⇒ "REMOTE" appears at the display (remote control).

Multimeter 18S

- ▶ Simultaneously press the **DATA** and **ON** keys when switching the device on.
- ⇒ The  symbol blinks at the display (transmission mode on).

Multimeter 2XS

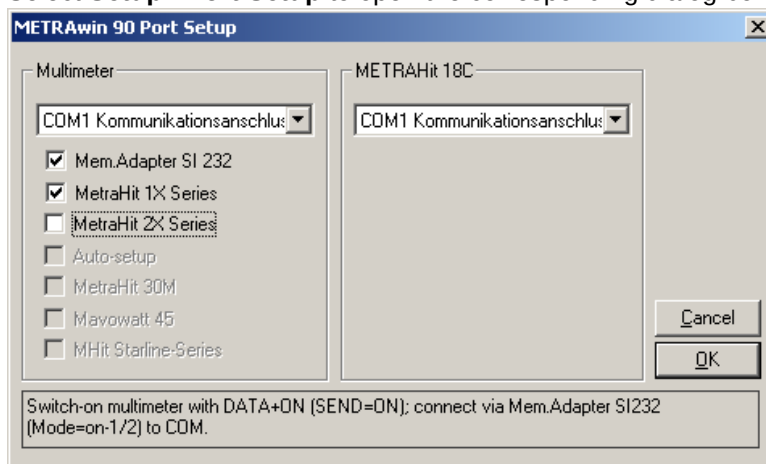
- ▶ Switch the device on as usual with the **ON** key.
- ▶ Enter the following parameter configurations to the **SEt** menu:
`> rAlE 0 .1`
`> Addr 01> 51232 onLi nE> ModEN no`
- ▶ Now activate transmission mode operation via the menu **SEnd on**
- ⇒ The  symbol blinks at the display (transmission mode on).

Memory Adapter

- ▶ Switch the device on as usual with the **ON** key.
- ▶ Enter the following parameter configurations to the **SEt** menu:
SI232: `> bAud 9600 > Addr 01>` (at optional reference multimeter: **02**)
SI232-II: `> bd-i n 8192 > bd-au 9600 > Addr 1>` (at optional reference multimeter: **02**) `> ModEN no`
- ▶ Activate transmission mode operation via the menu **on li nE**
- ⇒ **on-1** appears at the display and "DATA" blinks.

- ▶ Start the program METRAWin 90: **Start : Program Files : Gossen-Metrawatt : METRAWin 90 : Kalib** and in the menu **Setup : Device Type** select **METRAHit 18C**.

- ▶ Select **Setup : Port Setup** to open the corresponding dialog box:



- ▶ For Calibrator and the Multimeter select the port on which the respective device is connected to the PC.
- ▶ Specify the multimeter model and adapter being connected by checking the corresponding box(es).



Notes

When you place the mouse pointer on the check boxes, "tooltips" with detail information will be displayed.

After marking the check boxes, setting instructions for the corresponding device appear in the Info field of the dialog box.

- ▶ Confirm the selected settings with **[OK]**.
- ⇒ The program now checks the communication based on these settings. If this test failed, the dialog window opens again, so that you can verify the configuration and correct the settings. If the test is successful, then the calibration system is now ready for operation.
- ▶ In the **DIRECT** mode, you can now check the integrity of the calibration system.