

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 Process Calibrator **METRAHIT 28C** or **28C light**.

Note: Detailed information regarding device-specific functions and their use is included in the operating instructions for the respective 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 Process Calibrators **METRAHIT 28C** and **28C light** are 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.. They include 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 28C light** and a precision multimeter with IR interface METRAHit 26S, 28S, 29S or 30M builds a calibration system for automated calibration of isolation amplifiers, temperature transmitters and the like.

With **METRAHIT 28C** this functionality is created by the multimeter functions existing in the device itself.

In conjunction with these calibrators 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. In addition, such TEST procedures can also be transferred into device memory and executed by the calibrator autonomously (without a PC). The values obtained here (V, mA) can be automatically stored and later read in on a PC, analyzed and included in a calibration report.

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

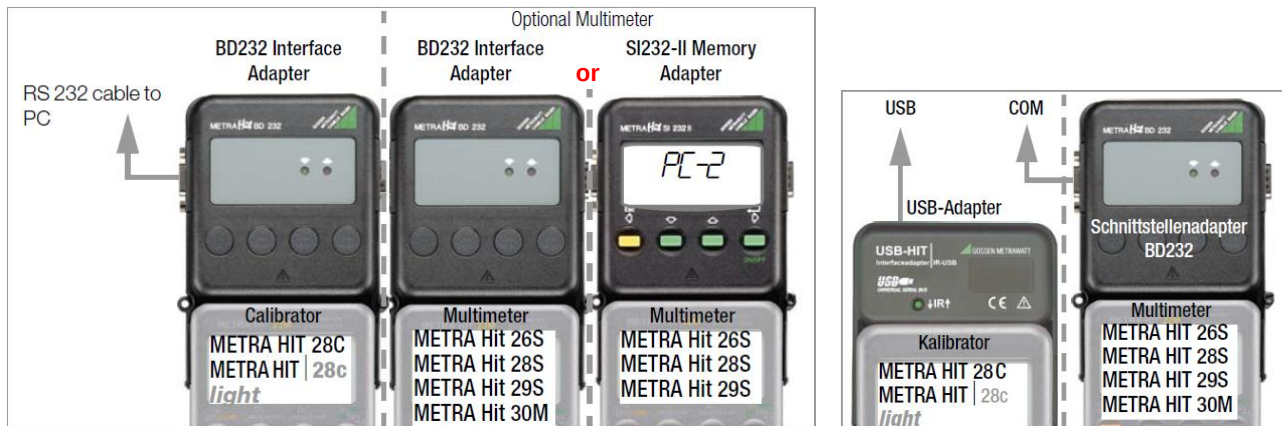
- Computer**
 - 1 free RS232 serial port COM
 - or at least 1 free USB port
- Calibrator** 1 METRAHIT 28C or 28C *light*
- Multimeter** 1 or 2 METRAHit 26S, 28S, 29S or 30M
- Adapter**
 - For the calibrator: 1 Interface Adapter BD232 or USB-HIT
 - Per multimeter: 1 Memory Adapter SI232-II (not for 30M) or 1 Interface Adapter BD232 or USB-HIT

Software Requirements Installed METRAwin 90 software (version 4.00 or higher) with device drivers for METRAHIT 28C and 28C *light* (KALIL_F.DLL).

If using Interface Adapter USB-HIT: Installed USB driver „GMC Driver Control“.

2 Calibration System Setup and Start-Up

The figures below show the possible structure variants of a calibration system using the Process Calibrator **METRAHIT 28C light** or Process Calibrator & Multimeter **METRAHIT 28C** and the adapter and meter types suitable for combination.

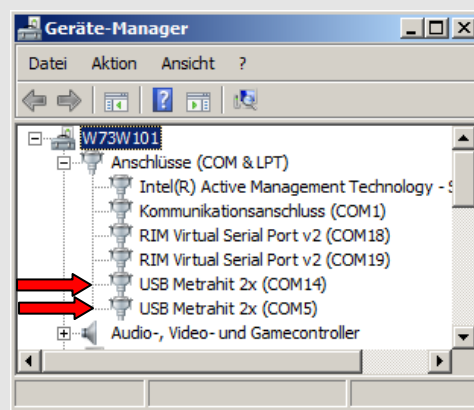


- ▶ Mount the devices as shown in the illustration and secure the mechanical connections (adapter, cable) using the fixing screws. Connect the calibrator **METRAHIT 28C/METRAHIT 28C light** via an interface adapter BD232 and a RS232 cable to a free COM port of the PC. The device address being set on the calibrator must not be 00, but is otherwise irrelevant.
- ▶ An additional METRAHit multimeter of the specified type can be optionally integrated into the calibration system with an additional BD232 or SI232-II adapter. If **Addr-1** is assigned to this multimeter as well as the SI232-II adapter, it is used for acquiring measured values at the device under test instead of at the multimeter integrated into the METRAHIT 28C. If **Addr-2** is assigned to this multimeter as well as the SI232-II adapter, it is used as an additional reference multimeter by the program's TEST function for the measurement of calibration signals, which are not generated by the calibrator.
- ▶ Alternatively, the calibrator and/or multimeter can be connected to a USB port at the PC via a USB-Hit adapter. Before you connect the adapter to the PC, the driver "GMC Driver Control" must be installed (available on CD or download from website <http://www.gossenmetrawatt.com/english/produkte/drivercontrol.htm>).



Note

Note that the driver installation may need administrator rights!



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 28C/28C light

- ▶ Device address ≠ 00.
- ⇒ The devices are switched on automatically by the program via their infrared interfaces. After the device has received a setting command, the display shows "REM" (REMOTE operation). But it can still be operated manually.

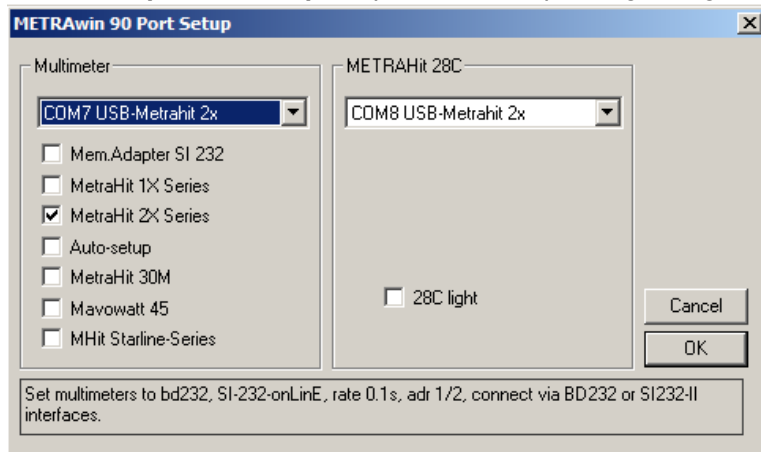
Multimeter 2XS

- ▶ Switch the device on as usual with the **ON** key or by pressing **FUNC & ON** simultaneously, if automatic shut-off (battery saving function) shall be disabled
=> The symbol  appears in the display.
 - ▶ Enter the following parameter configurations to the **SEt** menu:
> for use as calibration multimeter: *Addr 01 > bd 232 > ModEN no*
> for use as reference multimeter: *Addr 02 > bd 232 > ModEN no*
 - ▶ Return to measuring mode by pressing the **Esc** key.
- => The multimeter will also be switched on automatically by the program via the infrared interfaces.

Memory Adapter

- ▶ Switch the adapter on with the **ON** key.
- => The memory adapter will also be switched on automatically as soon as it is addressed at its RS232 interface by the program.
- ▶ Enter the following parameter configurations to the **SEt** menu:
SI232-II: > *bd-1 n 9600 > bd-au 9600 > Addr 1 > (2 at optional reference multimeter) > ModEN no*
 - ▶ Do not activate the Send mode!
- => The adapter will be set to PC mode by the program; the display shows *PC-1* or *PC-2*.

- ▶ Start the program METRAWin 90: **Start : Program Files : Gossen-Metrawatt : METRAWin 90 : Kalib** and in the menu **Setup : Device Type** select **METRAHit 28C**.
- ▶ Select **Setup : Port Setup** to open the corresponding dialog box:



- ▶ For the Calibrator (and the Multimeter if given) select the port(s) 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.