Device driver program QMSOFT®/Optimar100Drv

The device driver program **QMSOFT®/Optimar100Drv** is used to get a communication between the dial gauge inspection program **QMSOFT®/QM-DIAL** (inspection of dial gauges, dial indicators, dial test indicators, inductive probes) and the inspection device „Mahr Optimar 100“. Both software modules substitute the older Mahr-Optimar-software of the device manufacturer to get a perfect integration of the Optimar 100 device into the QMSOFT®-environment.

QMSOFT®/Optimar100Drv supports the following features:

- display of the actual device position of the Optimar 100 (referenced to the reference point of the device or to an self-setted point such as the start of the measuring range of the gauge),
- different display settings (display value, change sign, preset) and settings for the device movement (safety distance, speed, acceleration)
- functions for the manually and also for the command-initiated positioning of the the Optimar 100,
- three position repositories for quick re-positionings,
- drift-compensation of the actual gauge deviations for the positioning while manually measurements.

The communikation between the Optimar-100-hardware and the computer is based on a serial port connection. The program **QMSOFT®/Optimar100Drv** sends the received measures to the evaluation software by using a DDE communcation.

The installation of the driver program **QMSOFT®/Optimar100Drv** contains native QMSOFT®-components and also two additional DLL-files, which are protected separately by an additional hardware key (USB-dongle), which you can order only from Mahr directly. This second dongle is needed beside the QMSOFT®-own dongle.

Please note:

- Without this second dongle from Mahr the driver program **QMSOFT®/Optimar100Drv** can not be used!

- The QMSOFT® delivery CD-ROM contains the both Mahr-DLL-files (Optimardll.dll, Supercom.dll), which are protected by this second dongle. They will be installed automatically.

- Please check with the help of the Mahr service partner, if the Optimar 100 device needs to have a firmware update.

Because of the very high speed of the development of the computer hard- and software there may be differences between this manual and the installed software !

1 Installation and initiation of the driver program

The installation of the driver software **QMSOFT®/Optimar100Drv** is done automatically as a part of the common QMSOFT®-installation, if an inspection module such as **QMSOFT®/QM-DIAL** is installed. There is no need to switch on the Optimar 100 device at this moment. In the most cases you can use the option „Standard installation“.

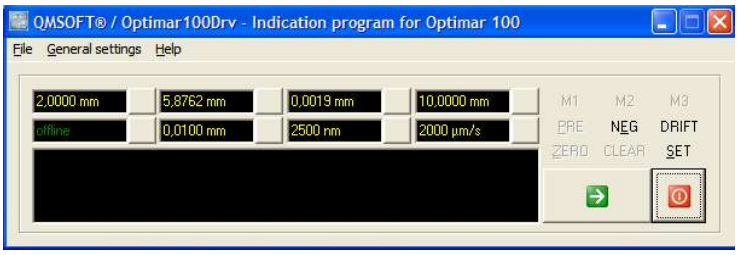
When the installation procedure of the software is done you find a Qmsoft32-icon on the windows desktop. Click onto this icon, this will start QMSOFT® (also possible by clicking onto „Start | Programs | Qmsoft32 | QMSOFT® GaugeMan). Now plug in the QMSOFT®-own hardware protection key and execute the licence procedure (see the yellow key-icon).

Now connect the Optimar 100 device to the power supply and to the serial port of the computer and switch it on.

Please keep in your mind, to which serial port you have connected the Optimar 100 device, you will need this information later!

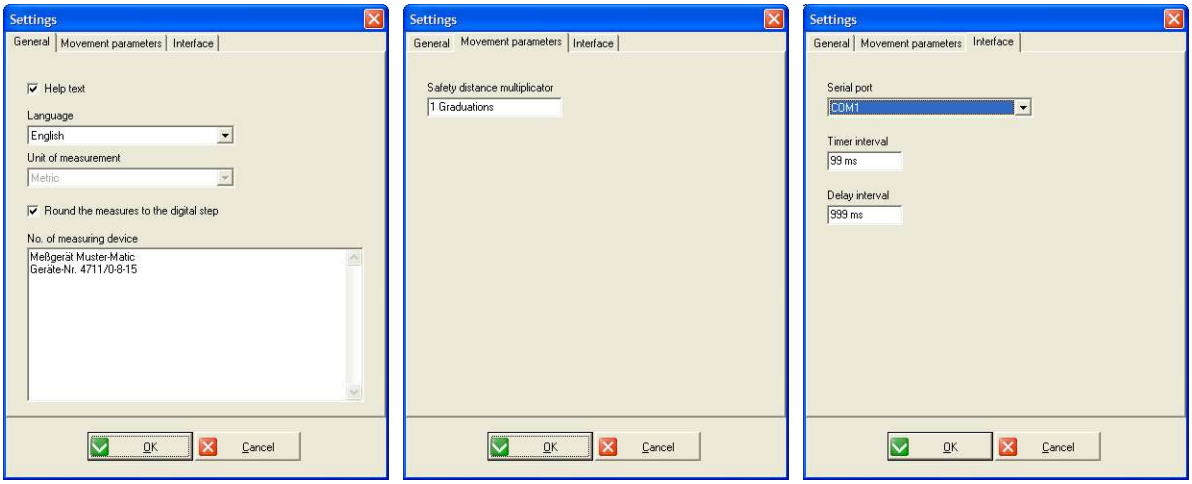
Plug in the second dongle (the Mahr dongle) into a free USB-port. We suggest to test the basic functions of the driver program **QMSOFT®/Optimar100Drv** by starting it directly. Please click onto **QMSOFT®/Optimar100Drv** icon

in the area „Inspection devices“ of the **QMSOFT®/GaugeMan**-window. The driver program is starting and shows its own program window on the screen:



If a hardlock error message appears before the driver program window is visible, the Mahr hardlock key was not found. Please check the corresponding USB-port and start **QMSOFT®/Optimar100Drv** again.

Click now onto the menu item „General settings“, an a configuration dialog appears, which consits of three several pages with parameters:



The following text will describe this parameters.

Page „General“

Help text	This parameter switches on or off the display of short tooltip texts, if the user moves the mouse cursor over a button or datafield. Keep it activated to learn the handling of the driver program.
Language	Here you can change the language of all of the dialogs of the driver program. Normally there is no need to change it here, because the central setting in **QMSOFT®/GaugeMan** is used to change the language for all parts of QMSOFT®.
Unit of measurement	Here you can switch the unit between metric and imperial. But note: this setting will be overwritten by using the driver program together with the dial gauge inspection program **QMSOFT®/QM-DIAL**.

Round the measures ... The accuracy of the device Optimar 100 is much higher than the accuracy of digital dial gauges. Thats why it may be, that the inspection results also show a higher accuracy than the digital step of the gauge. For digital gauges the measures should be rounded to this digital step. This setting only will have an effect by inspecting digital gauges with a direct connection to the „Gauge“-port o the Optimar 100.

No. of measuring device Here you can type in the serial number of the Optimar 100, but this information will not be used somewhere.

Page „Movement parameters“

Safety distance multiplicator The positioning of the machine to a nominal position can be executed only with a limited accuracy. To avoid a movement „behind“ a nominal position while inspecting a gauge you can use a multiplicator for the safety distance to get a larger distance.

Page „Interface“

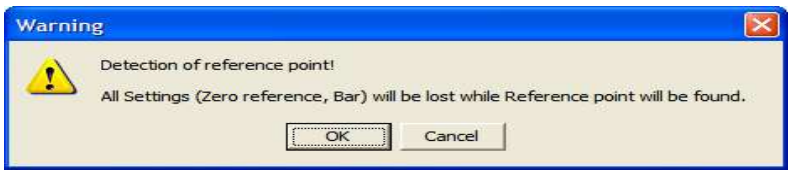
Serial port Please select the serial COM-port, to which the Optimar 100 is connected.

Timer interval The timer interval is used to setup the frequency of reading measures from the Optimar 100 and showing this values in the display area f the driver program window. Normally there is no need to change the default value.

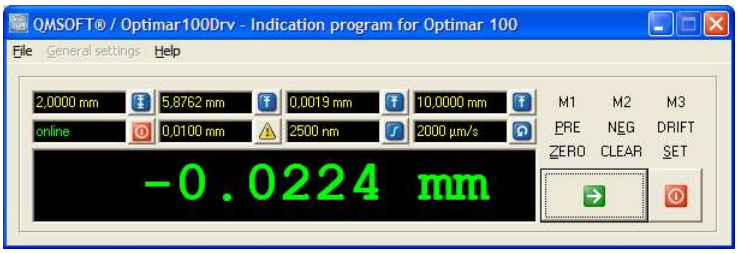
Delay interval Because of the „slow“ data connection to the digital gauges a dynamic inspection of this gauges is not possible. This parameter is the delay time between finnishing the movement and readout the measures.

Please check the parameter „Serial port“ at page „Interface“. It should be setted up to the port, to which you have connected the serial cable from Optimar 100. An incorrect port will avoid a communication to the machine!

Save the setting by clicking onto „OK“-button. Now we will see, if all steps were successful: click onto the green button with the white arrow. This will switch the driver program into the „Online“-status and starts the communication with the Optimar 100 device. If the communcation is running correctly you will see the following message window on the screen:



Please follow this meassge and continue with „OK“. Now the device is looking for his reference point by moving up and down. If the reference point is found you see the actual machine position inside of the display area of the driver program window, and the status area shows the text „online“.

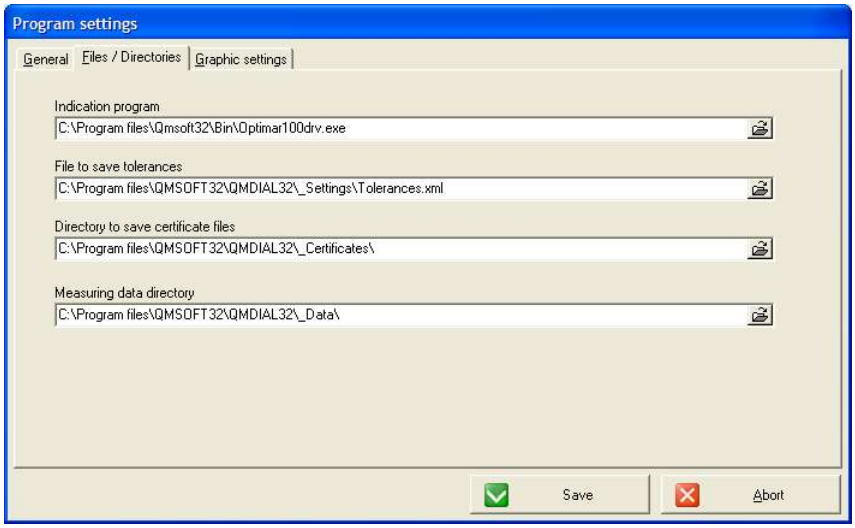


The driver programm is ready for work now and can be used together with the dial gauge inspection program **QMSOFT®/QM-DIAL**.

2 Settings of the dial gauge inspection program QMSOFT®/QM-DIAL

Immeditely after the installation of QMSOFT® the installed software doesn't „know“, with which length measuring device the software has to communicate, because QMSOFT® can used with different families of devices. Thats why QMSOFT® will ask for the standard measuring device, if you start one of the inspection programs at the first time. This standard device will be linked to every inspection module. This is usefully for the most of the inspection programs, but not for the use of specialized inspection devices as the Optimar 100, because this device is used only by the inspection program **QMSOFT®/QM-DIAL**! Here you have to setup the link to the driver program **QMSOFT®/Optimar100Drv** manually.

To do this please start **QMSOFT®/QM-DIAL** (see the icon in **QMSOFT®/GaugeMan** in the area „Inspection programs“) and cklick onto the menu item „Settings | Program settings“, setup the inputfield „Indication program“ to the complete name and path to the driver program (see pciture below):



Please note, that international Windows version are using different names for the „Program“ directory „C:\Program files“, such as „C:\Programme“. Save your changes by clicking onto the „Save“-button. Now you can use the software.

3 Dialogue elements of the driver program

The human interface of the driver program is designed as a hardware display device, so a user should be able to use it intuitively. Beside the display area with the actual position you find some buttons, which can be activated by mouseclicks or hotkeys.

M1/M2/M3 – button

The buttons „M1“ to „M3“ can be used to store the actual position of the Optimar 100 as a target position 1/2/3 into the corresponding inputfield above the display area. We suggest the use of this buttons to move the gauge back to this position after an inspection more quickly than using the hand wheel of the device.

PRE - button

The "PRE" - button is setting up the actual display value of the position to the preset-value, which you can set with the „SET“ button. The machine is not moved, only the reference position is changed.

NEG - button

This button will change the sign of the actual position.

DRIFT - button

This button can switch on/off the drift-compensation to compensate systematically deviations of the inspected gauge while moving to nominal positions. This is helpful to avoid to large distances for manual positionings.

NULL- button

This button will set the display value to zero.

CLEAR- button

This button clear the internal offset to the hardware reference point of the machine (the reference value will become zero), and the displayed machine position is the distance to the actual distance to the hardware reference pointof the machine.

SET- button

With this button you can setup the values of the actual display and of the preset. The preset will become active after using the „PRE“-button, the display value will become active immediately.

START-button

This button will switch the driver program to the „online“ status (if the stus before is „offline“) or will trigger a measurement with sending the values to the QMSOFT® inspection program (if the status is „online“ always).

STOP-button (ESC-key)

This button stops the display and bring it to the status „offline“, so you can use the menu item „General settings“. If the status always was „offline“, the driver program will be finnished.

Inputfield with -button (Move relative, hotkey CTRL + R)

This button is enabled in the „Online“ status only. Into the inputfield you can type in the distance for the relative movement, and a cklick onto the button will start the movement of the machine.

Inputfield with -button (Move to target position 1/2/3, hotkey CTRL + 1/2/3)

This button is enabled in the „Online“ status only. Into the inputfield you can type in the target position, and a cklick onto the button will start the movement of the machine to this position.

Status-display with -button (Stop !, hotkey CTRL + S)

This button is enabled in the „Online“ status only. A click will stop the movement (emergency stop) imediately to avoid collisions.

Inputfield with -button (Set safety distance)

This button is enabled in the „Online“ status only. Into the inputfield you can type in the safety distance value. This value is used to calculate the inspection target positions for mechanical gauges (target = nominal position minus safety distance, see also the „Safety distance multiplicator“ value in the „General settings“ of the driver program).

Inputfield with -button (Set manipulator resolution)

This button is enabled in the „Online“ status only. Into the inputfield you can type in the manipulator resolution value. In the most cases there is no need to change the default value of 2500 nm.

Inputfield with -button (Set speed)

This button is enabled in the „Online“ status only. Into the inputfield you can type in the speed value for the movement of the machine. In the most cases there is no need to change the default value of 2000 µm/s.

4 Debug-Mode of the driver program

The driver program can be switched into a debugging mode to support the troubleshooting. In this mode the program window contains additional dialog elements to show the internal communication between the driver program itself and the Mahr-driver-DLL and the DDE-communication. This debug-mode can be switched on or off by using the menu item „File | Debug mode on/off“ (hotkey „CTRL + D“). Please use the debug-mode only if the software service team request it from you.

5 Executing a gauge inspection

Executing a gauge calibration is controled by the inspection program **QMSOFT®/QM-DIAL** itself. Please read the manual of this program before your first inspection!

The driver program will be started and switched to the „Online“-status automatically in the situation, when **QMSOFT®/QM-DIAL** needs measure values.

The inspection of mechanical gauges needs only measure values from the reference device (Optimar 100), not from the gauge (the gauge hase to be moved to nominal vaues manually). So you have the following procedure:

- Move the gauge display to the first nominal position, which is shown in the dial gauge inspection program,
- set the display value of the driver program to this first nominal position (in the most cases this will be the value „0“,use the „NULL“- button or the „SET“- button)
- trigger a measure and send it to the dial gauge inspection program by clicking the button
- after finnishing the movement to the next position adjust the gauge to the next nominal position, continue with triggering the measure (see above) etc.

The inspection of digital types of dial gauges the procedure is the following:

- connect the digital gauge to the „Gauge“-port of the Optimar 100. Contact the Mahr-Service or your Mahr-dealer to get more informations about the types of digital gauges, which Optimar 100 can support.
- Move the machine to the start of the measuring range of the gauge, set the display of the digital gauge to „0“,
- set the display of the machine also to „0“ by clicking onto the „NULL“-button,
- trigger the first measure and send it to the dial gauge inspection program by clicking the button
- the next inspection steps will be done automatically: all of the nominal positions will be approached, and after a delay the measures will be triggered automatically.

After finnishing the inspection **QMSOFT®/QM-DIAL** will send the command „Hide!“ to the driver program, which will switch itself to a symbol icon in the task bar of Windows.

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