(Mahr)

(EN)

Operating instructions

MarCom Standard / Professional[©] **Software**

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Version 5.0

Mahr GmbH **Standort Esslingen**

Reutlinger Str. 48, 73728 Esslingen Tel.: +49 711 9312 600, Fax: +49 711 9312 756 mahr.es@mahr.de, www.mahr.com

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MarCom Professional 5.0[®]

Introduction

With the *MarCom Standard* Software you can transfer your measured values into a text file, into Microsoft Office Excel® or via a keyboard code into any application, all you need is a Mahr measuring instrument connected via a USB port and a Mahr USB data cable or with the integrated wireless receiver (i-Stick). In addition to a USB port it is also possible to use a serial COM interface with the suitable data cable for data transmission. If you have purchased the *MarCom Professional* Software (optional), you can operate up to 127 measuring instruments (subtract the amount of hubs being used) via the USB hubs and one additional serial COM interface; as well as transferring the measuring values via a virtual Interface Box to an further program (e.g. CAQ software). Therefore you can easily centralize the multiple measuring instruments to just one measurement station. With the aid of a USB foot switch (optional) you can also transfer your measured values from each individual measuring instrument to a text file, blank sheets, in separate Microsoft Office Excel® columns or to a CAQ software.

Note: When several USB hubs (e.g. for cascading) are connected together these must be operated in conjunction with an external power supply.

Please read the following operating instructions carefully so that you can become quickly accustomed to the MarCom Software.

Installation

In order to start the installation of the MarCom Software, please execute the Setup-MarCom.exe file in the root directory of your data medium and follow the instructions. Once successfully installed you may plug in the USB cable or the receiver (i-Stick/e-Stick/FM2) and continue with the installation of the driver. If you wish to connect multiple USB data cables we recommend that you install the cable and driver successively.

Note: Once the wireless receiver (i-Stick/e-Stick) has been installed, up to 8 wireless measuring instruments can be used. Should you require a further 8 wireless measuring instruments a second i-Stick/e-Stick should be plugged into a free USB interface. A total of maximum 4 i-Stick/e-Stick wireless receivers with 32 measuring instruments can be connected simultaneously.

Minimum system requirements:

- MS Windows 8, 7
- One free USB-interface 2.0 or higher
- Up to 500 MB of available hard disk space
- Recommended: MS-Excel 97 or higher



Start program

After starting the program a small status window will appear in the screen in which you are to determine where the program files and templates are to be stored (directory) in the future, in either documents or public documents.

ectory for program files		×
Ocuments		
Public Documents		
ſ	<u>O</u> k	Cancel

Once this has been defined, as soon as the program is started the following status window will appear on the screen. In this status window you can instantly see whether a measuring instrument has been connected and recognized (green signal lamp), plus the last transferred measured value will appear. This window must always be open so that the measured values can be transferred!



Open the configuration window with a double click on the status window.

rogram <u>M</u> eas	uring Instrument	s Settings ?			
🧿 0 USE	B-Devices	Description Instrument, Data Cable	Measured Value Status	Data Request Transfer to	
R5232 200072	2	COM1	 ,]	
COM1		 UNDEF	Status		

In this configuration window the connected measuring instruments will be displayed and configured. Normally, after the first installation only the free serial COM interface will be shown.

Now, you can plug in the USB data cable, please follow the instructions regarding the driver installation contained in the brief guide. Once the driver is successfully installed, the new connected measuring instrument will appear in the configuration window. Please plug in the second USB data cable and also install the driver; with multiple USB data cables repeat these steps accordingly (only with MarCom Professional). When you wish to connect a wireless measuring instrument please refer to chapter 6 "**Connecting RF Devices**".

When the driver is successfully installed, the new measuring instrument will appear in the configuration window, along with the description of the connected USB data cable and a description of the measuring instrument. In order to activate the new data cable, click on *"Measuring Instruments – Refresh"*. The connected measuring instrument can be edited (see chapter "**2.4 Edit**").

🚆 MarCom j	professional	(DEFAULT.MCC)		
Program Meas	uring Instrument	s Settings ?		
🥝 1 USE	-Device	Description Instrument, Data Cable	Measured Value Status	Data Request Transfer to
RS232	?	COM1	•	
COM1	<u>े व</u>	UNDEF	Status	
0 US	2	MAOP8U0H	 , 	-
USB1		 2000usb	ок	Excel: Default.xlt/Tabelle1/1

Menu bar and configuration

🔐 MarCo	m professional (DEFAU	LT.MCC)	
<u>P</u> rogram	Measuring Instruments	S <u>e</u> ttings	?

1. Program

MarCom professional (D	EFAULT.MCC)	
Program Measuring Instrur	nents Settings ?	
Close Window	Description	
Exit	Instrument, Data Cable	
R5232	COMI	

1.1 Close window

With this menu you can close the configuration window; alternatively, you can click on the cross with the red background in the top right corner of the configuration window. Even when the configuration window is closed the status window is still open and it is still possible to transfer measured values. With a double click upon the status window the configuration window will reopen.

1.2 Exit

If you click on Exit the complete MarCom Program including the status window will be closed, no further measured values will be transferred. Alternatively you can click on the cross with the red background in the top right corner of the status window.



2. Measuring Instruments

cription ument, Data Cable	Measured Value Status

2.1 Reset Measurement Cycle

In the parameter window the MC-I data cable (e.g. foot switch), or a measuring instrument; the defined measuring cycle will be reset to zero. See sections **"5.1 MC-I Switch"** and **"5.2 Measuring Instrument"**. Alternatively, the measuring cycle can also be reset clicking the Reset button in the status window.

2.2 Previous

The red field highlighted in the configuration window will move to the preceding measuring instrument e.g. from USB2 to USB1. The highlighted measuring instrument can then be edited. *Tip:* You can also select a measuring instrument to be edited by clicking upon it.

2.3 Next

The field highlighted in red in the configuration window will return to the following measuring instrument e.g. from USB 2 to USB 3. The highlighted measuring instrument can then be edited. *Tip:* You can also click upon a measuring instrument to edit it.

2.4 Edit

With *Edit* the parameter window of the aforementioned red highlighted measuring instrument will open. Here the settings for the connected measuring instrument can be made. See "**5. Parameterize Measuring Instruments**"

Tip: The parameter window can also be opened with a double click on the image of the measuring instrument in the configuration window.

Messgeräte parametri	ieren	-	-		
	Anschlussk	abel	2000usb		10000
USB1	Gerät			•	2
	Beschreibu	ing	MAOWCJND		5
	Seriennum	mer	MAOWCJND		<u>िन्द</u>
Anforderung	über	Keine	-		
Ziel		Excel	-		
Excel-Einste	llungen	,	_		
Öffnen als					
Vorlage	e	C:\U	sers\c Global	0FTTN	EN\Documents\
Datei	С	C:\U	sers\osuic.mailin-a	OLITING	EN\Documents\
Eintragen in	@ 5	Spalten	144	CΖe	ilen 😤
Tebelle		Tabelle			
Tuberie O		1			
Sparte		-		_	100
Startzeile		<u> </u>		En	dzeile 100
		Messun	g abschliessen		•
Aktuell	Zyklus	1	Spalte 1		Zeile 1
				0	Abbruch

2.5 Request Value

For test purposes a measuring value from a measuring instrument can be requested.

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2.6 Add a RF Device

Add a new RF device to the MarCom Software. In the submenu there are 3 RF systems available.

i-Stick

Integrated Wireless system based on ANT+ technology.

e-Stick

A new series of external RF module units which are similar to FM2; however, with a new and compact USB receiver which uses low Energy RF (wireless) technology.

FM2

An older range of external RF module unit, these can be connected via the cable interface.

For further detailed information regarding how to add an RF device, please refer to chapter "6 Connecting integrated wireless measuring instruments".

2.7 Delete a RF Device

Connected RF devices can be deleted in the MarCom configuration. To reinstall an instrument in the MarCom Software, please refer to chapter "2.6 Add a RF device".

2.8 Delete all RF Devices

All connected RF devices can be deleted in the MarCom configuration. To reinstall these instruments in the MarCom Software, please refer to chapter "2.6 Add a RF device".

2.9 Refresh

The USB port will be examined for a detached or a newly connected cable, additionally the configuration window will return to the last saved version.

Attention: When the cable is either plugged in or out the configuration will automatically be refreshed! Amended settings and settings that have not been saved will be lost!



3. Settings



3.1 Password Protection

Here you can determine a password for your MarCom configuration, thus protecting against unauthorized third-party access. Simply enter any desired password, repeat the process a second time, and subsequently activate the password protection by pressing Activate.

assword protected		Password protecte	ed	
Password	9	Password	••••	2
Repeat	٩	Repeat	••••	٩,
Activate	A	ctivate		
Abort			Abort	

In order to revoke the password protection, enter the password and then press Abort. To reactivate a password simply enter any desired password, repeat the process a second time, subsequently activate the password protection with the Activate icon.

Attention: Please store your password carefully otherwise you cannot deactivate the password protection!



3.2 Load (Only available with MarCom Professional)

Here the previously saved configuration settings can be reloaded.



3.3 Save (Only available with MarCom Professional)

The actual configuration settings will be saved under the actual opened file (e.g. DEFAULT.MCC). **Attention:** previously saved configuration settings will be overwritten!

3.4 Save As (Only available with MarCom Professional)

The actual configuration settings can be saved under a different file name, therefore it is possible to save and reuse multiple configuration settings. **Note:** If the cable does not have a USB plug, which is required for stored configuration, it will not be shown. If an additional cable is attached which is not for the stored configuration, then this will be shown in its initial non-configured state.



3.5 Measuring Station No.

When using several integrated wireless receiver to transmit the measured values to different PCs that are in close proximity we therefore recommend that before connecting each of the integrated wireless measuring instruments, every PC should be assigned on the with a different Measuring Station No. (No. 1 to 64 are possible). Therefore, you will avoid inadvertently sending measured values from an integrated wireless receiver to a PC (measuring station) which has not been appropriately assigned.

3.6 Wireless (Radio Frequency)

The user can specify that when the digital indicator is switched off whether MarCom continues to seek a wireless connection with the digital indicator or not. When *"Disconnect Wi-Fi"* has been selected and subsequently the digital indicator is switched off the integrated wireless connection will also be disconnected. Once the digital indicator is switched on, the connection has to be once again selected in both the MarCom software and on the digital indicator. If this *"Disconnect Wi-Fi"* mode has not selected then once the digital indicator is switched on again the wireless connection is found automatically.

RF-Connection Setting		×
🔲 Wi-Fi will start automatically on switch on		
Disconnect Wi-Fi, if the device is switched off		
	<u>O</u> k	Cancel



3.7 COM

This menu offers a clear overview of the serial COM interface that is being used; they can be shown or hidden in the configuration window. (Only COM1 is available with MarCom Standard).

		×
	COM 1	
	COM 2	
<u>O</u> k	<u>C</u> ano	cel
	<u>Q</u> k	СОМ 1 СОМ 2 <u>О</u> к <u>С</u> алс

3.8 File

The global Excel file settings for all measuring instruments are conducted here.

If global is activated, then the following settings under "**Open As**" are valid for all measuring instruments. The measured values of all measuring instruments are then transferred into a combined Excel file, however the settings under "**Open As**" in the parameter window for measuring instruments are marked in a light gray and thus cannot not be edited.

If global is deactivated, then the following settings under "**Open As**" in the parameter window of the individual measuring instruments can be altered separately, therefore for example the values from each individual measuring instruments can be send to a different Excel file.

With "**Open As**" you can select an Excel file and the path (push button with 3 dots) for all the measuring instruments. Additionally you can choose whether to open a particular template (.xlt or .xltx) or a particular file (.xls or .xlsx) for data acquisition.

Global	[
Open As		
Template	0	C:\Program Files\MarCom\Default.xlt
File	0	C:\Program Files\MarCom\dat\MarCom.xls

3.9 Virtual Interface Box (only with MarCom Professional)

One or two virtual interface boxes can be activated, these interface boxes must be assigned to an interface (e.g. COM 3) and to a box type (e.g. Mux50 Mahr-Box).

Additionally, to each designated Virtual Box a Foot Switch can also be assigned, which can be later used to trigger the data request.

	Interfa	ace	Type of Interface B	ox		Footsw	itch
Virtual Interface Box 1	COM 3	•	Mux50 Mahr-Box	•	Active	-	
Virtual Interface Box 2	COM 4	•	Mux50 Mahr-Box	•	Active	-	4
Virtual Interface Box 3	COM 5	•	Mux50 Mahr-Box	•	Active	-	
Virtual Interface Box 4	COM 6	•	Mux50 Mahr-Box	•	Active		



Note: Once the type of box has been selected, a tick must be positioned in the respective check box. This is important so that the box will appear subsequently in the configuration window as an option.

In the Parameter window the individual measuring instruments can be subsequently assigned to a virtual interface box, the individual measuring instrument is effectively connected directly to the determined virtual interface box (see Chapter 7 "**Virtual Interface Box**"). Therefore you can connect a USB or an integrated wireless measuring instrument simply to third-party software such as, for example, CAQ program, whether you are connected via an interface box (Multiplexer).

3.10 Autostart

Specify whether MarCom starts automatically with a Windows start, this is useful when for example using MarCom as a virtual Interface Box.

3.11 Language

Select a different language.

Language		×
English	T	✓ ×

3.12 Beep

A beep (audible signal tone) as a Wave file can be selected (enabled / disabled) for the transmission of measured data and for the end of a measuring series.

Beep		×
Measured value		 C:\Program Files (x86)\MarComPro\Mw.Wav
End	₹	 C:\Program Files (x86)\MarComPro\End.Wav
		(<u>Ok</u>) <u>C</u> ancel



4. Information (?)

MarCom professional (DEFAULT.MCC)							
Program Measuring Instruments Settings ?							
1 USB-Device	Description Instrument, Data	Info Mahr Homepage	le				
R5232 17771-0	СОМ1	a					

4.1 Info

Information regarding the MarCom Software, for example which version.



4.2 Mahr Homepage

www.mahr.com



5. Parameterize Measuring Instruments

5.1 MC-I Switch

The MC-I Cable is fitted on one end with a jack bush so that it can connected to a relay (e.g. foot switch 4102058) with a jack plug (according to JIS C 6560, 3.5 mm), therefore multiple foot switches can be utilized via USB hubs to control individual or multiple measuring instruments.

arameterize M	easuring Instruments			
÷	Connection	MC-I		
USB1	Instrument	Switch		
	Description	foot switch		/ L
	Serial Number	MAOP8TUJ		
Measur	ements per Cycle	2		
Actual M	deasurement No.	0		
			<u>O</u> k	Cancel

- Connection: Description of the connected data cable (e.g. MC-I).
- Device: Description of the connected device type (e.g. switch)
- Description: A more detailed description can be entered (e.g. foot switch) in order to clearly identify the switch
- Measurements per Cycle:

Enter the number of measurements per cycle for example: when you enter 3, the foot switch must be operated 3 times before a cycle can begin, this is important to the allocation of the measuring instruments.

- **Example:** If by "Measurements per cycle" 3 is entered then select parameterize a measuring instrument (see **5.2 Measuring Instruments**) as "Data Request" via MC-I Switch. Select the appropriate switch and the option "with Measurement No. 2", then every second time (2 times) the foot switch is operated a measured value will be transferred in the cycle. The first and third (1 and 3) are not activated, therefore no measured data will be transferred. In this situation another instrument could be allocated in in this first or third cycle. When measuring instruments with "Measurement No. 1" and "Measurement No. 3" have been allocated, those measured values which are obtained by the first and third activation of the foot switch transferred.
- *Note:* Please make sure that when entering in *"Measurements per cycle"* and *"with Measurement No."* that in the parameter window the measuring instruments correspond logically. For example do not enter "*with Measurement No"* 5, although by *"Measurements per cycle"* only 3 has been entered.
- Actual Measurement No:

Here the actual status of the cycle is shown, if necessary one can skip to a certain point in the cycle.



In this menu all the most important settings for the individual measuring instruments can be administered.

Parameterize Measuri	ing Instruments)			×
÷	Connection	ı	16EXu		
USB3	Instrument		MarCator 1086		A
	Description	n	Dial Indicator 1		
	Serial Num	iber	MASI4THO		
Data Reque	st via	MC-I-Swit	ich 💌 foot swi	tch 🔹	
		 ● per Me ○ with Me 	asurement easuring No.	1	
Transfer to		Excel	-		
Excel-Settin	gs				
Open As					
Template	c	C:\Use	ers\c Clobal	GEN\Do	cuments\
File	С	C:\Use	BIS/0501C.MATH-GO	GEN\Do	cuments\l
Insert in	• (Columns	144	C Rows	茎
Sheet		sheet1			
Column		1			
Start Row		1		End row	100
		Conclude	measurement		-
Actual	Cycle	1	Column 1	Row	1
				<u>O</u> k	Cancel

- Connection cable: Select the connected data cable (e.g. 16EXu or Opto Duplex). When connecting the USB data cable, the cable will automatically be recognized and cannot be edited.
- Instrument: Select the connected measuring instrument (e. g. MarCator 1086) the selected instrument will also be displayed as a picture for easier recognition.
- Description: Enter an appropriate description of the connected measuring instrument (e.g. Dial Indicator 2) or the measuring task being conducted.
- Data Request: Select a data request, request measured values

Parameterize Me	easuring Instrume	ents	Canadian (F			
*** ***	Connect	ion	16EXu			
USB3	Instrument		MarCator 1086 🔹			
	Descript	ion	Dial Indicator 1			
	Serial N	umber	MASI4THO			
Data Re	quest via	None	-			
		None				
		Keypa	d			
		MC-I-S	Switch			
l ranster	to	Limer				
Excel-Se	ettings					

With *"None"* the value must be send with the measuring instrument, for example with the Data button on the data cable or on the measuring instrument.

Note: Regardless of which data request has been selected the measured value can always be send directly from the instrument.

If the window is a light gray, the contents cannot be selected and the connected measuring instrument will not support request measured values. In this instance the measured value can be sent from the measuring instrument (e.g. by pressing the DATA button).

Via a "keypad", request measured values with a predetermined button on the keyboard e.g. F1, F2 up to F12.

Note:

The functions buttons F1, F2 etc. are deactivated in MS Excel!



Via a "*MC-I Switch*" (foot switch). Here you can select additional values with either "*per Measurement*" (i.e. each time the switch is operated a value will be sent) or "*with Measurement No.*" (i.e. the values that are to be send to the measuring cycle after X-times activation of the switch).

How to define the measuring cycle can be found in section 5.1 MC-Switch.

Parameterize Me	easuring Instruments			×		
***	Connection	•	16EXu			
USB3	Instrument		MarCator 1086 💽			
	Description	n	Dial Indicator 1			
	Serial Num	ber	MASI4THO			
Data Re	Data Request via MC-I-Switch 🔹 foot switch 🔹					
		● per ○ with	Measurement Measuring No. 1			

Via the *"Timer";* here you can set the time control of a cyclical data request. The cycle can be entered in hours, minutes and seconds. The timer cycle will be shown as a Timer symbol in the configuration window, the symbol can be used to start or stop the timer.

Parameterize Me	asuring Instrume	nts	Company of the local division of the local d	
***	Connect	on	16EXu	
USB3	Instrume	nt	MarCator 1086 💌	0000
	Description		Dial Indicator 1	
	Serial N	umber	MASI4THO	
Data Re	quest via	Timer	• 00:00:03	
Global S	start/Stop	Button	-	
Transfer	to	None Keypac MC-I-Sv	l witch	
Open As	sungs	Button		

Additionally, a pull-down menu for starting and stopping the timer is available. You can select whether the timer is to be also started and stopped via a function key (e.g. F1), MC-I switch (e.g. foot switch) or global via the timer button in the status window. In this way several timers for various measuring instruments can be simultaneously started and stopped.

Note:

The Timer key to start and stop the timer is with selection of a transfer to using a *"keyboard code"* is not available and is not practical.



Zero setting:

When using a RF device an additional point appears in the menu.



Here the type of action can be selected in which the RF device gives the command for zero setting. Whilst *"Keypad"* and *"MC-I Switch"* function identically to that of Data Request it is also possible to create an additional button on the user window which is clicked with the mouse.



• Transfer to: Select the data format in which the values should be sent to (e.g. MS Excel, text file, keyboard code or a virtual interface box).



With *"Text file"* the measured values taken from a measuring instrument will be transferred to a text file; you can enter the path and the description of the text file with *"File"* and then *"Text file-Settings"*.

Note:

When using several measuring instruments the values of each individual measuring instrument should be transferred into separate text file.

Param	eterize Measuri	ng Instrument	s			
		Connectio	n	16EXu		
US	B3	Instrument Description		MarCator 1086	-	
				Dial Indicator 1	Dial Indicator 1	
		Serial Nur	nber	MASI4THO		
	Data Reques	st via	None	-		
	Transfer to Excel-Setting	15	Excel	×		
	Open As	,.				
	Template File	ه د	C:\U	Isers\cGlob		GEN\Documents\ GEN\Documents\

With "Excel" the values are transferred into Microsoft Excel. If global (see **3.8 File**) is deactivated, you can select a separate Excel file or template as the destination. If global (see **3.8 File**) is activated then the measured values of all measuring instruments are transferred into a common Excel file or template. The set up possibilities in "Open As" for the individual measuring instruments are deactivated, the global Excel file settings can be conducted; see section "**3.8 File**". Additionally, you can enter in the respective "Sheet", the respective "Column" and the respective "Start Row" in which the values will be prompted.

Note: When a write protected Excel file or template is used, the write protection must be removed from column 256 (IV)!

Insert in Columns Columns Columns Columns Columns Columns Columns Columns Column 1 Sheet Sheet1 Column 1 Start Row 1 Conclude measurement Column 1 Actual Cycle 1 Column 1 Row 1 Column 2 Column 1 Column 2 C

Use "Insert in" to select whether the measured values will be transferred into a column or row.

With "Sheet" enter the name of the sheet; with "Column" select a column and with "Start row" select the start row for the measured values. Once this has been conducted, define last row "End row" in which the measured values will be transferred to. Finally determine what should happen once the measured values have been transferred to the last column / row (cell):

With "Conclude measurement" the transmission will stop and a message window will appear on the screen, informing you that the measurement has been concluded.

Insert in	Columns	144	C Rows	¥.
Sheet Column	sheet1		F. d 10	0
Start How	Conclude r	neasurement		
Actual	Cycle 1	Column 1	Row 1	Cancel

With *"Continue measurement in next column/row"* measurement will continued in the next column or row, here it is possible to define an additional end column and/or end row. In this way yon can transfer measured values to columns or rows in a zigzag form from a measuring instrument.

At the end of the defined last column and row, appears a message that the series of measurements has been concluded.

Insert in	Columns	1/4	C Rows	壒
Sheet	sheet1			
Column	1		End column 10	D
Start Row	1		End row 10	D
	Continue i	measurement in the	e next column/row	•
Actual	Cycle 1	Column 1	Row 1	
			<u>O</u> k	Cancel

With *"Continue measurement in..."* appears another bar in which you can define where (Sheet, column etc.) the measurements should continue. *"Continue measurement in..."* can be cascaded up to 99 times.



When "Insert in" row is selected, then the above description applies according to the row.

Insert in	C Columns	144	© Rows 😤
Sheet Column Start Ro w	sheet1 1 1		End row 100
Actual	Cycle 1	Column 1	Row 1

In the field "Actual", the cycle and the actual cell (row and column) in which the data is to be transferred is shown (defined). These values can be also changed, for example after deletion of measured values into a certain cell to be transferred. In this way data can be transferred to cells in which the previous value was deleted. Once the empty cells are used, "fill up" the transmission normally, continues without overwriting the previously transferred value.

The measurement cycle can be reset be either in the menu *"Measuring Instruments - Reset Measuring Cycle"* (see **2.1 Reset Measuring Cycle**) or the push button *"Reset"* in the status window.

With *"keyboard code"* transfer to, the measured values of the measuring instrument are transferred into the actual current position of the cursor. Therefore, it is possible to transmit the measured value independently of the software application. Measured values can therefore be transferred into MS Access, OpenOffice or into a CAQ program.

Parameterize Measu	ring Instruments			×
use C	Connection	2000usb		
USB2	Instrument	Extramess 2001		
	Description	Dial Indicator 2		
	Serial Number	MAOWCJND		
Data Requ	est via None	•		
Transfer to Keyboard o	Keyboar code settings	rd code 🔻		
End mark	ker 1		Character	
1 x	(ENTER)		ENTER	-
End mark	ker 2			
1 x			Decimal sep	arator
В	eset		 Comma 	
			. Simila	
			<u>O</u> k	Cancel

Keyboard code settings: you can define 2 end markers (End marker 1 and End marker 2), once a measured value has been transferred the sequence of the End markers will be conducted, i.e. if, for example ENTER is selected, that corresponds to pressing the enter key on the keyboard (measured value is transferred and the position of the measured value depends upon the chosen End markers / sequence). In this way you can jump to any field in your form or table after a measured value has been transmitted.

Parameterize Meas	uring Instruments			X
	Connection	2000usb		
USB2	Instrument	Extramess 2001	-	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)
	Description	Dial Indicator 2		•
	Serial Number	MAOWCJND		
Data Req	uest via None			
Transfer to Keyboard	code settings	oard code 💌		
End ma	rker 1		Character	
1 >	((ENTER)		ENTER	-
End ma	rker 2		ENTER	<u>^</u>
1 ,	c		LEFT	E
	Reset		RIGHT	
			HOME	-
			<u>O</u> k	Cancel

In order to select the End marker you must click on the ENTER field and select the required character from the Pull-Down menu.

De	ezimaltrennzeichen
С	Punkt
e	Komma

With the decimal separator select the decimal separator according the type used in the country you are in or according to type used in the application.

With *"virtual interface box code"* the measured values from the measuring instrument will be transferred to a virtual interface box, which for example is connected to a CAQ software.

Parameterize Measuring Instruments	×
RS232 Connection	Opto 🔹
Instrument	MarCator 1087Ri
Description	СОМ1
COM1	
Data Request via	None 🔹
Transfer to Settings of Interface Box	Virtual Interface Box
Virtual Interface Box	1: COM 3 / Mux50 Mahr-Box 🗸
Select port number	1 2 3 4 5 6 7 8
	<u>O</u> k <u>C</u> ancel

Select a virtual interface box from the pull down menu (activate beforehand, see **3.9 Virtual Interface Box**). Subsequently use the mouse to click on a free connection port number in order to virtually connect the measuring instrument to the interface box; the port connection port number for the measuring instrument is marked with an X in the green box. If the connection port number is allocated to another measuring instrument the box will appear in dark gray and cannot be selected as a connection port. Please refer to **Chapter 7 Virtual Interface Box** for further information.

Parameterize Measuring Instrume	nts 📃
((•)) Channel	01
Instrumen	MarCator 1087Ri
ECO Descriptio	RF2
RF2 Device No.	d 01 002 Reassign
Data Request via	None
Transfer to Settings of Interface B Virtual Interface Box	Virtual Interface Box
Select port number	1 2 3 4 X
	<u>Qk</u> <u>Cancel</u>

EN

6. Connecting RF Devices

6.1 i-Stick - Integrated Wireless

To install a new Integrated Wireless (RF) device, please proceed as follows:

- 1. Start the MarCom Software
- 2. Insert the i-Stick receiver in a free USB interface
- 3. Windows usually displays a "Found new Hardware" window
- 4. Install the USB2 driver for the i-Stick receiver (the new Hardware indicates the installation path of the "USB2 driver" on the MarCom data medium and install the driver); once installed the receiver can be connected up to 8 integrated wireless measuring instruments. Should you require a further 8 integrated wireless measuring instruments a second i-Stick receiver should be plugged into a free USB interface. A total of max. 4 i-Stick wireless receivers with 32 integrated wireless measuring instruments can be simultaneously connected.

MarCom professional	\sim	
Mahr		•
((()))		Reset

5. Double click on the Mahr Logo

Program Measuring Instrur	ments Settings ?			
1 USB-Device	Description Instrument, Data Cable	Measured Value Status	Data Request Transfer to	

Once the driver of the i-Stick receiver has been successfully installed; "1 USB-Device" will appear in the top left of the window.

6. Select the Menu "Measuring instruments \rightarrow Add RF Device \rightarrow i-Stick"

🔐 MarCom	professional (DEFAULT.MCC)			_ 0 <mark>_ X</mark>
Program N	Aeasuring Instruments Settings ?			
🧿 1 t	Reset Measurement Cycle	Measured Value Status	Data Request Transfer to	
	Previous			
	Next			
	Edit			
	Request Value			
	Add RF-Device			
	Delete RF-Device			
	Delete All RF-Devices			
	Refresh			
		-		

7. The "Parameterize Measuring Instruments" window will appear.

()) Channel	01 💌	
onnect Instrument		2
CO 🔲 Description	RF1	
F1 Device No.	d 01 001	-
Data Request via	None	
Transfer to	Excel *	
Excel-Settings	1	
Open As		
Template 6	C:\Users\C-ticlocal	rof\Default.x
	GILLON	
File C	C:\Users\GauctocumentstmarComP	of\dat\MarC
File C Insert in @	Columns Conversion Comp	OraM/tab/for
File C Insert in ©	Columns Concernation	rof\dat\MarC
File C Insert in @	Clusers/GenreywarComP Columns M C Rows	rof\dat\MarC
File C Insert in C Sheet Column	C:Users(Serre; Serre; S	rof\dat\MarC
File C Insert in C Sheet Column Start Bow	C:USers/Gourcyoocumensywar.ComP Columns M C Rows	w 100
File C Insert in C Sheet Column Start Row	CUSERS/Sourcements/sourcement	w 100
File C Insert in C Sheet Column Start Row	C:Users(CourceCourcemens)warComP Columns M Rows Tabello1 1 1 End ro Conclude measurement	w 100
File C Insert in C Sheet Column Start Row	C:USers/Gourcyoocumensywer/ComP Columns M C Rows Tabello1 1 1 End rc Conclude measurement 1 Column 1 Ro	w 100 v 1

8. Select a channel (01 to 03). We recommend that when connecting for the first time, that you leave channel set at 01, only change the channel if at a later date you experience any problems with transmission, then change the channel in the MarCom Software and the integrated wireless measuring instrument.

Note:

The channel number must match the channel number of the measuring instrument!

9. Select the measuring instrument that is to be connected (e.g. MarCal 16EWRi or MarCator 1086Ri).

Parameterize Measu	uring Instruments)		-	- X -
Connect ECO E RFI	Channel Instrument Description Device No.	đ	01 MarCator 1086R MarCator 1085R MarCator 1087BR MarCator 1087R		•
Data Requ	est via	None	•		
Transfer to Excel-Setti Open As Template	ngs e	Excel	sers\CGloba	fomProf	ADefault x
Insert in	• (Columns	M	C Rows	
Sheet Column Start Ro	-	Tabelle1 1 1 Conclude	e measurement	End row	100
Actual	Cycle	1	Column 1	Row	1
				<u>O</u> k	Cancel

- 10. Enter an appropriate description for the Measuring Instrument (e.g. RF1)
- 11. Allot the measuring instrument an individual instrument number (from 001 to 999). The prefix e.g. 01 is the measuring station, this can be set under "Settings → Enter a Measuring Station No." (see Chapter 3.5 Measuring Station No.). The Measuring Station No. enables that several measuring positions in close proximity can be used as each instrument has its own individual number. Therefore, you will avoid inadvertently sending measured values from an integrated wireless receiver to a PC (Measuring Station) which has not been appropriately assigned.
- *Note:* Never assign the same instrument number to several integrated wireless measuring instruments!

(e))) Chann	el	01	-	1
connect Instrum	nent	MarCator 1086	iR 🕑	
CO 🔲 Descr	iption	RF1		W
F1 Device	e No.	d 01 001		
Data Request via	None	•	This .	
Transfer to	Excel	•		
Excel-Settings	[Excel			
Open As	-			
Template	@ C:	Users\C-	obal	of\Default.x
File	C C:	Users\65mc,000	amentsynarComPr	of\dat\MarC
Insert in	Column	s W.	C Rows	W
Sheet	Tabe	lle1		
Column	1			
Start Bow	1		End roy	w 100
	Conc	ude measurement	l.	•
	100110			

- 12. In the Checkbox "*ECO*" you can activate the energy saving mode for the wireless data transmission, thus reducing energy consumption of the integrated wireless wire measuring instrument up to 30 %.
- *Note:* In the *"ECO mode"*, the transmission speed will be reduced; rapid transmission intervals of <7 seconds are not recommended or possible. If the *"ECO mode"* is to be activated then the *"ECO mode"* on the integrated wireless measuring instrument must also be activated!
- 13. All other settings such Data Request, Transfer, etc. can be configured in MarCom just as if using a cable (see Chapter "**5.2 Parameterize Measuring Instruments**").
- Subsequently, you must press the "Connect RF-Device" button in order to establish a connection. The MarCom software will search for active integrated wireless measuring instruments; next select the connected measuring instrument (e.g. MarCal 16EWRi or MarCator 1086Ri).



- 15. Switch on the wireless measuring instrument.
- 16. Press the "Menu button" on the wireless measuring instrument for > 2 seconds.
- "d OFF" (Digital Indicator) or "UnLoc" (Digital Caliper 16 EWRi) will appear in the display. With "UnLoc" press the "Menu" button 3 times until "OFF d" appears in the display (the wireless function is deactivated).
- 18. Press either the "ON/OFF" button and/or the "OI" button to activate the wireless function.
- 19. "d - -" appears in the display (at present noinstrument number has been allocated).
- *Note:* If a instrument number has already been allocated (e.g. d 01002) this can be deleted by pressing the "**PRESET**" button (on a Digital Indicator) or the "**OI**" button (on a Digital Caliper), a new instrument number can now be assigned.
- 20. Press the "DATA" button on the wireless measuring instrument to establish a connection.
- 21. The "Wireless symbol" in the digital indicator's display will blink, once the connection has been established the wireless symbol will remain in the display; additionally the allocated instrument number will also appear in the display (digital indicator).
- 22. With a digital indicator briefly press the "**Menu**" button to exit the menu. When using a Digital Caliper 16 EWRi, press and hold the "**Menu**" button to exit the menu.

ameterize Measuring Instrument				- ×
Channel	01 MarCator 10 BE1	986R 🛫	C	
RF1 Device No.	d 01 001			
Data Request via	None •			
Transfer to	Excel •			
Excel-Settings Open As				
Template C	C:\Users\C-+	Olekel	ComProf∖De	faultx
File C	C:\Users\Gamero	осяшен <i>сьт</i> мат Сторат	ComProf\dat	MarC
Insert in 🔹	Columns 🔢	C	Rows	W
Sheet	Tabelle1			
Column	1			
Start Row	1		End row 10	0
	Conclude measureme	ent		-
Actual Cycle	1 Column	1	Row 1	
			01	Cancel

- 23. The "**Connection symbol**" in the top left corner becomes green. To exit the Parameterize Measuring Instruments window, press OK, this also confirm the setting in MarCom.
- 24. The first measuring instrument is connected, if further integrated wireless measuring instruments are required, repeat from step 6...

RF1 Auroration MarCator 1066R K Excel: Default.xit/Tabelle1/1,1	1 UPP Device	Description	Measured Value	Data Request
RF1 MarCalor 1066R RF 01001 OK Excel: Default.xit/Tabelle1/1,1	T USB-Device	Instrument, Data Cable	Status	Transfer to
MarCator 1066R RF 01001 OK Excel: Default.xtt/Tabelle1/1,1		RF1	0	
		MarCator 1086R RF 01001	🧿 ок	Excel: Default.xlt/Tabelle1/1,1

6.2 e-Stick

The e-Stick wireless module connection is identical to connecting an FM2 System. (see "6.3 FM2").

6.3 FM2

To install a new FM2 wireless module device, please proceed as follows:

- 1. Start the MarCom Software
- 2. Insert the FM2 receiver in a free USB interface
- 3. Windows usually displays "Found new Hardware" window
- 4. Install the FTDI driver for the FM2 receiver If this does not happen automatically, the driver we have to be manually installed (the Device Manager, use the installation path "FTDI Driver" on the MarCom data carrier and install the driver).



5. Double click on the Mahr Logo

Program Measuring Instrume	ents S <u>e</u> ttings ?			
O 1 USB-Device	Description Instrument, Data Cable	Measured Value Status	Data Request Transfer to	

Once the driver of the FM2 receiver has been successfully installed; "1 USB-Device" will appear in the top left of the window.

6. Select the Menu "Measuring instruments → Add RF Device → FM2"

Program	Measuring Instruments Settings ?			
<u>)</u> 1 ι	Reset Measurement Cycle	Measured Value Status	Data Request Transfer to	
	Previous			
	Next			
	Edit			
	Request Value			
	Add RF-Device			
	Delete RF-Device			
	Delete All RF-Devices			
	Refresh			

7. The "Parameterize Measuring Instruments" window will appear.

X	Channel		01		-		
onnect	Instrument		MarCo	onnect 16EXf	•		(
	Description		FM2-R	F1		° (Mahr
42-RF1	Serial Number		UNKNO	NWN			6
Data Requ	est via	No	ne		•		
Transfer to	N.	Exe	cel		•		
Excel Set	tings						
open As							
Template			C:\User	s\Rist.MAHR-	GOETTINGEN	Documents	MarCo
Template File		 	C:\User	rs\Rist.MAHR- rs\Rist.MAHR-	GOETTINGEN	\Documents	\MarCoi \MarCoi
Template File Insert in		 … … … Colu 	C:\User C:\User mns	rs\Rist.MAHR- rs\Rist.MAHR- M	GOETTINGEN GOETTINGEN ©	\Documents \Documents Rows	MarCo MarCo
Template File Insert in	6	 … … … Colu 	C:\User C:\User mns abelle1	rs\Rist.MAHR- rs\Rist.MAHR- M	GOETTINGEN GOETTINGEN ©	\Documents \Documents Rows	\MarCoi \MarCoi
Template File Insert in Sheel	E In	 Colu T 1 	C:\User C:\User mns	rs\Rist.MAHR- rs\Rist.MAHR- M	GOETTINGEN GOETTINGEN ©	\\Documents \\Documents Rows	\MarCo
Template File Insert in Sheel Colum	: In Row	 … … Colu T 1 	C:\User C:\User mns	rs\Rist.MAHR- rs\Rist.MAHR-	GOETTINGEN GOETTINGEN ©	\\Documents \\Documents Rows	\MarCol \MarCol
Template File Insert in Sheel Colum Start	t in Row	 Colu T 1 (C:\User C:\User mns abelle1	rs\Rist.MAHR- rs\Rist.MAHR-	GOETTINGEN GOETTINGEN ©	I\Documents I\Documents Rows End row	\MarCoi \MarCoi \\MarCoi

- 8. Select a channel (01 to 05). We recommend that when connecting for the first time, that you leave channel set at 01, only change the channel if at a later date you experience any problems with transmission, then change the channel in the MarCom Software and the FM2 sender.
- 9. Enter an appropriate description for the Measuring Instrument (e.g. FM2 1)

1	Channel		01
onnect	Instrument		MarConnect 16EXf -
	Description		FM2-RF1
42-RF1	Serial Number		UNKNOWN
Data Requ	iest via		Keypad • F1 •
Request-1	limeout		00:00:00 ?
iransfer t	0		Excel •
Excel Set	ttings		
Open As			
		0	C:\Users\Rist.MAHR-GOETTINGEN\Documents\MarCo
Template	2	٢	
File	2	0	C:\Users\Rist.MAHR-GOETTINGEN\Documents\MarCoi
File Insert in	2	0	Columns Rist.MAHR-GOETTIINGEH\Documents\MarCo
File Insert in	2 *	0	Columns Rist.MAHR-GOETTIIIGEH\Documents\MarCo
File Insert in Shee Colur	e st no	0	Columns Column Rows Rest
File Insert in Shee Colur Start	e t nn t Row	0	Tabelle1
File Insert in Shee Colur Start	et nn t Row		Image: C:Users(Rist.MAHR-GOETTINGEH)Documents(MarCol Columns Rows Tabelle1 1 End row 100 Conclude measurement
File Insert in Shee Colur Start	et nn t Row I Cycle	•	Image: Column state Image: Column state Tabelle1 Image: Column state 1 Image: Column state Conclude measurement Image: Column state Column 1 Row 1
File File Insert in Shee Colur Start Actual	e nn Row I Cycle	1	Image: Column state Image: Column state Tabelle1 Image: Column state 1 End row 100 Conclude measurement Column 1 Row

10. Once a request type has been selected (triggering the sending of the measured values to a PC) a new box will appear *"Request Timeout"*. In this box you are able to set the stand-by duration of the transmitter module, maximum duration is **30 minutes**. Due to technical reasons with this module it is not possible for periods longer than 30 minutes.

This internal timer will be automatically reset after each measurement.

11. All other settings such as Request of, Transfer to etc. can be configured just as a cable connection in MarCom (see Chapter "**5.2 Parameterize Measuring Instruments**").

12. To establish a connection with the sender, the Connect button in the top left must be activated; the MarCom Software only scans after active senders in the transmission range.

((•)))	Channel		01		•		1
onnect	Instrument		MarConne	ct 16EXf	-		1
	Description		FM2-RF1			1 (in the second s	Mahr
M2-RF1	Serial Number		UNKNOWN			L	
Data Requ	est via	Ke	ypad		F1		•
Transfer t Excel Set	meout o tings	Exc	:00:00 <u>?</u> :el]		
Open As		Note					
File		(())	Connect RF-I	Device for Floor			m.xls
Insert in			Tess button	101 3 560.		ose	N4
Shee	t		abelle1				
Colur	nn : Row	1				End row	100
		C	onclude mea	surement			*]
			Caluma	5 m			

- 13. Press the data button on the wireless module so long (ca. 5 seconds) until the red LED on the wireless sender is extinguished and the green LED briefly lights up.
- 14. The Serial No. should appear in the configuration window, the connection window should then close. Press the "OK" button to close configuration window.
- 15. If you changed the operation time "Request Timeout" (see section 10) you will be asked to press the connection button again on the sender. By this you can transfer the new time setting to the module. This will be only possible if you have already connected the transmitter. Afterwards the configuration window closes automatically.
- 16. The Sender must be returned to the measuring mode, to do so briefly press the data button on the sender. The blue LED is now continuously lit.
- *Note:* The sender is now ready for request, as previously set, see section 10. This means after this is completed and the blue LED is extinguished, it first possible to enable a remote request by pressing the data button on the receiver.

7. Virtual Interface Box (only with MarCom Professional)

In order to use the new Mahr virtual interface box and conveniently connect you Mahr measuring instrument to a CAQ software, you must firstly install the actual MarCom Professional 5.0. The driver for the virtual interface box is automatically installed when installing MarCom.

Please proceed as follows:

1. When starting MarCom, the small status window appears on the screen, to open the configuration window double click on the Mahr logo



2. Before you connect the measuring instrument to the virtual interface box, you must beforehand select and activate a virtual interface box. To do this open the *"Emulation of Interface Box"* menu under *"Settings"*.

MarCom p	rofessional (DEFAULT.M	CC)			
Program M	easuring Instru	uments Se	ttings ?			
1 USB	Device	Des Instr	Password protected	e	Data Request Transfer to	
85232 (1997)	?	CON	Save			
сом1		UNDE	Save As			
			Measuring Station No. RF			
			COM File			
			Emulation of Interface Box Autostart			
			Language			
		~	Signalbeep			

3. In the following dialog window you can activate up to 4 virtual interface boxes. These virtual interface boxes must be allocated an interface (e.g. COM 3) and a box type (e.g. Mux50 Mahr-Box), and subsequently the appropriate check box must be activated. Furthermore the allocation of a foot switch for data request to each Interface Box can also be conducted in this window.

Virtual Interface Box		
	Interface	Type of Interface Box
Virtual Interface Box 1	COM 3	Mux50 Mahr-Box Active
Virtual Interface Box 2	COM 4	Mux50 Mahr-Box • Active
		<u>Ok</u> <u>Cancel</u>

In the configuration window the individual measuring instruments can be selected which will be subsequently the transfer to in the virtual interface box, the individual measuring instruments are thus virtually connected to the virtual interface box (see following). Therefore; you can connect a USB or an integrated wireless measuring instrument simply to a third party software, for example, to a CAQ program, as if you are connected via an interface box (Multiplexer).

4. Please proceed as explained in Chapters **"5 Parameterize Measuring Instruments"** and 6 **"Connecting RF Devices"** with the connection of your measuring instruments (e.g. integrated wireless measuring instruments, USB data cable, MC-I foot switch, etc.).

R	F1	0	
1 Ma	arCal 16EWRi F 01001	 ок 	Excel: Default.xlt/Tabelle1/1,1
2 R	F2 arCator 1087Ri = 01002	 ок 	Excel: Default.xlt/Tabelle1/2,1

 To connect individual measuring instruments to the inputs on the virtual interface box, please open the configuration window of the appropriate measuring instrument. In this window please select as "*Transfer to*" the Virtual Interface Box instead of the standard setting; Excel.

Parameterize Measuring Instruments	
ES232 Connection	Opto -
Instrument	MarCator 1087Ri 🔹
Description	СОМ1
СОМ1	
Data Request via	None 🔹
Transfer to	Virtual Interface Box
Settings of Interface Box	
Virtual Interface Box	1: COM 3 / Mux50 Mahr-Box 🔹
Select port number	1 2 3 4 5 6 7 8
	<u>Ok</u> <u>Cancel</u>

In the pull down menu select **Virtual Interface Box**, which you have previously activated in *"Settings – Virtual Interface Box."* Subsequently use the mouse to click on a free connection port number in order to virtually connect the measuring instrument to the interface box. The port connection port number for the measuring instrument is marked with an X in the green box.

Parameterize M	easuring Instruments					X
R5232	Connection	0	pto		•	1
	Instrument	м	arCator 1087	'R	•	
	Description	C	ом1			
СОМ1						
Data Req	uest <mark>vi</mark> a	None		•		
Transfer Settings	to of Interface Box	Virtual	Interface Bo	x •		1
Virtual I	nterface Box	1: COM	3 / Mux50 M	lahr-Box		•
Select p	ort number	1 X 5	2	3 7	4 8	
					Ok	Cancel

If the "Select port number" is allocated to another measuring instrument the box will appear in dark gray and cannot be selected.

Parameterize Measuri	ing Instruments	and the second	×
	Channel	01	
1	Instrument	MarCator 1087Ri	
ECO 🗌 I	Description	RF2	
RF2	Device No.	d 01 002 Reassign	
Data Request	via	None •	
Transfer to		Virtual Interface Box •	
Settings of Ir	nterface Box		
Virtual Interf	face Box	1: COM 3 / Mux50 Mahr-Box 🔹	
Select port n	number	1 2 3 4 X	
		<u>Qk</u> <u>Cancel</u>	

6. Once the *"Select port number"* has been selected, close the configuration window with OK and continue with the next measuring instrument. When all your measuring instruments have been virtually connected to the interface close both configuration windows.

Note: To transfer measured values, the virtual interface box must be activated and the small status window is active.

In order that you do not have to manually start the MarCom software after every new start or reboot of the PC, you can add MarCom to the *"Windows Autostart"*, to do this activate the Autostart in the Settings menu (please refer to Chapter **3.10 Autostart**).



 You have now successfully completed the connection of your measuring instruments to the virtual interface box Mux-50 and activated the Box (in this example) to the COM 3 interface. Subsequently you must assign your CAQ software to the new interface box.

In the following screenshots show an example from qs-Stat to Q-Das.

8. In qs-Stat select the **Characteristics Type** of the **Input Type** of a Mux-50 compatible interface box (e.g. Bobe M (Mux), Brecht Mux 8, Mitutoyo Mux50 etc.).

)))))))) (비율은 (교) (교) (교)		◆ ���⊄ / 世 왕 ∧ ⊑	14 dt dt de d B 9, -> +>	·케 말라임법 및·요· 대응립어교물 리 <i>구··</i> ··································
Characteristics mas	k				
Naracleristic Lumber 1	Description 16 EXu	Nominal Value 13,000	Unit	Decimal PL 3	Temperature calculation Calculation after (50/75 15530-3 (E DN 32881-3)
ecording Type BOBE M (MUX)	Events Catalog Events Catalog +	Up Spec Lim	Up Allowance	Up.nat.bound.	Average measuring temperature 0
NKON-BOBE M- BOBE S-25-BOX BOEHM	Description	Lo Spec Lim 12,500	Lo.Allowance -0,500	Low nat bound	Workpiece heat coeff. of expansion uncertainty
RECHT EUROM SRECHT LC MUX 1 SRECHT MUX 3 SRECHT MUX 4	Test Location	Master Number	Description	Actual value	
SRECHT MUX 8 SRECHT MUX 8E SRECHT MUX 16		Calibration uncerta	anty Exp. factor 2,0000	r f. calibr. uncertaint	· · · ·
CARLETON TEST	-		Tolerance class 0	Process Var. 0	
COMPTROL INC. DIATEST AE11 DIAVITE DH-7 AI					Gage display value
DIAVITE DH-7 AI DIAVITE DH-7 SF DIGI DS-425 EDMUNDS ACCL ELIAS INFRA	Reference Measuremen 50	Uncertainty study Preliminary cepat	stage sity study in the plant	•	Measurement uncertainty components description
LIAS INFRA DA ISCHER QS-95 ISCHER DUALS ISCHER ISOSCI					
UCK EA-8000					

(Th.)	42					anti-segret.
Characteristics me	DK					
Number 1	Description 16 EXu	Nominal Value 13,000	Unit	Decimal PL 3	Temperature calculation Calculation after ISO/TS 15530-3 (E DN 32881-3)	
Recording Type	Events Catalog Events Catalog +	Up Spec Lim 13,500	Up Allowance 0.500	Up nat bound.	Average measuring temperature 0	
Jøge Number	Description	Lo Spec Lim 12,500	Lo Allowance -0.500	Low nat bound.	Workpiece heat coeff. of expansion uncertainty 0,0000000000	
Group	Test Location	Naster Number	Description	Actual value		
Resolution		Celibration uncert	ainty Exp. facto 2,0000	r f. callor, utcertaint		
Evaluation Type Type-1 Study	•		Tolerance clasa 0	Process Var. 0		
					Gage daplay value	
	Reference Measuremen	Uncertainty study Preliminary capa	stage billy study in the plant		Measurement uncertainty components description	
ernark						

9. Once the Input Type has been selected (in this example a Bobe M (Mux), select the device settings for this type. Then select the interface for the interface box (in this example COM 3) and a channel (Port Connection No.) of the connection measuring instrument.

device setting	X	III: qs-Stat
Bobe M	-Box (MUX Befehissatz)	
Interface	COM 3 🗸	
Channel	1	
Select port number	1 2 3 4 X 5 6 7 8	III: MarCom

10. Finally check the configuration of the interface settings, usually the default settings can be used.

Interface	COM 3	-	ОК
Baud rate	9600	•	Cancel
		_	Help
Data bits	8	×	Change
Stop bits	1		
Parity	no	-	Save

11. The configuration of the virtual interface box and the CAQ software is now completed and you can now begin your measurements.

8. Overview of the Status and Configuration Windows



9. **Implementing a Remote Control**

FΝ



The Remote Control (4102221) no external driver is required. Once a USB receiver has be connected Windows own driver will be installed. After the this driver has be installed you can press a button on the remote control which simulates a keyboard command, see above illustration.

With MarCom these keyboard commands can be assigned functions.

9	Channel	01	-		
onnect	Instrument	MarConnect	1082f -		
	Description	FM2-RF1		Mahr	
FM2-RF1 Serial Number		UNKNOWN			
Data Requ	iest via	Keypad	• F1	•	
			F1 F2		
Boquert-1	Impourt	00:00:00	F3		
Request-	Imeout	00:00:00	F4		
Transfer t	0	Excel	▼ F6		
Excel Set	tings		F7		
Open As			F9		
Template	6	C:\Users\Rist	MAHR-GOE F10		
File		C:\Users\Rist	MAHR-GOE F11		
Insert in	4	Columns	A Page Page Page Page Page Page Page Page	up down	
Shee	ŧ	Tabelle1			
Colur	nn	1			
Star	Row	1		End row 100	
		Conclude measu	rement	•	
Actua	Cycle 1	Column 1	L R	ow 1	

In the shortlist you can select functions for each button on the remote control. Please be aware the function buttons "Page up" and "Page down" are blocked for all other applications, once the MarCom is exited these functions button resume their original function.

10. RS232 Settings on a measuring instrument

With measuring instruments that have a free configurable RS232 interface and cannot be directly connected to a Serial COM port or a USB port with a USB data cable require a RS232-USB adapter cable. The RS232 parameter must be set up according to the pre-configured MarCom Software, in the majority of cases this is the standard setting of the measuring instrument, nevertheless these should also be checked. As to set up these parameters on the appropriate measuring instrument, please refer to the operating instruments of the measuring instrument.

If an adapter cable is used, the original RS232 data cable of the measuring instrument is required (see Order no. in brackets).

The settings are as follows:

Adapter cable Millimar USB (for Millimar 1240, C1208, C1210, C1216, C1245, S1840 etc.) Order no.: 4102331 + (7024634)

- -----

Millimar Protocol → M1240 Format → 8 N 1 Handshake → kein Baud → 9600	Millitron 1240 R/D \rightarrow COMPUTER Baud \rightarrow 9600 Prot \rightarrow — Interface \rightarrow RS232C
	Char → 8n1
Adapter cable 817 USB (for Digi Order no.: 4102333 + (70)	mar CX1, CX2, 817 CLM etc.) 24634)
817 CLM / MarCheck Menü \rightarrow 13. Data and printer \rightarrow Baudrate \rightarrow 9600	→ Interface RS232 Out → User RS232
Data format → 1. No parity 8 Bit	S

Interface mode \rightarrow 1. Handshake ON (CTS)

CX1

Channel \rightarrow 5 Baudrate → 9600 Data format \rightarrow 1. No parity 8 Bits Interface mode \rightarrow 1. Computer or 4. Data manual transmit Interface mode → 1. Computer requires CTS CX2

FORMAT → 8-N-1 HANDSH → NONE BAUD → 9600

Adapter cable MSP 2 USB Order no.: 4102334 + (4102711)

MSP 2 Transmit value/ Send meas. list Baud \rightarrow 4800 Dat \rightarrow 7 Par \rightarrow E Stp \rightarrow 2 Close → CR

QuadraChek Baud \rightarrow 4800 FORMAT → 7-E-2

Adapter cable Millimar 832 USB Order no.: on Request

Baud \rightarrow 4800



Notes



Notes



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