

STOTZ®

FEINMESSTECHNIK

MSM User Manual

Content

Title page.....	1
Content	2
General Service and Copyright information	3
1. Introduction	4
1.1. Greeting	4
1.2. Usage of the user manual	4
1.3. Symbolism.....	4
1.4. Required knowledge.....	4
2. Requirements for the MSM measuring system	5
3. MSM Software	6
3.1. MSM Main Menu.....	6
3.2. F-Key Layout	8
3.2.1. F-Key Layout: MSM.....	8
3.2.2. F-Key Layout: MRA	9
3.3. Editor.....	10
3.3.1. Editor: MSM	10
3.3.2. Editor: MRA.....	11
3.4. Data Export	11
3.5. Cal. Check	11
3.6. Network.....	12
3.7. Time Set	14
3.8. System	15
3.8.1. Trigger.....	16
3.8.2. Air Cut Off	17
3.9. Info	18
4. Digital I/O	19
Appendix	23
A. RS232 Export Formats	23
B. Version Comparison.....	23

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Service

All described components and products in this manual are subject to our quality control. The technical design assures a long life cycle and reliability.
If you have questions or ambiguities please contact the proper distributor or send your question directly per E-Mail to info@stotz.com

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1. Introduction

1.1. Greeting

We thank you for your trust in our SPC software and hardware products and are happy to welcome you as our new customer. During the selection of the components, we paid attention to a high functionality, easy handling, safety and reliability. By using a well-balanced hardware and software concept, we can present you with a forward-looking measurement technology.

1.2. Usage of the user manual

For safety reasons you should familiarise yourself with the content of this manual **before** creating or modifying a program.

1.3. Symbolism

In this text, symbols are used to improve the readability of the document and respectively point out all operating and safety conditions.

Symbol: Meaning:



Please note!



Warning!



STOP (**Danger**)! Do not use the device in this way!



Warning, Parts susceptible to electrical discharge

1.4. Required knowledge

To successfully use this manual the following basics are required:

- a) General knowledge of the measuring technology

2. Requirements for the MSM measuring system

3. MSM Software

MSM software is basically the same as MRA software, only the display resolution is smaller. This document is only describing parts that are different on MSM. To familiarize yourself with MRA software, please read the MRA User Manual.

3.1. MSM Main Menu

To open MSM main menu click on the middle header button on top of the display.



Figure 1: MSM on start-up

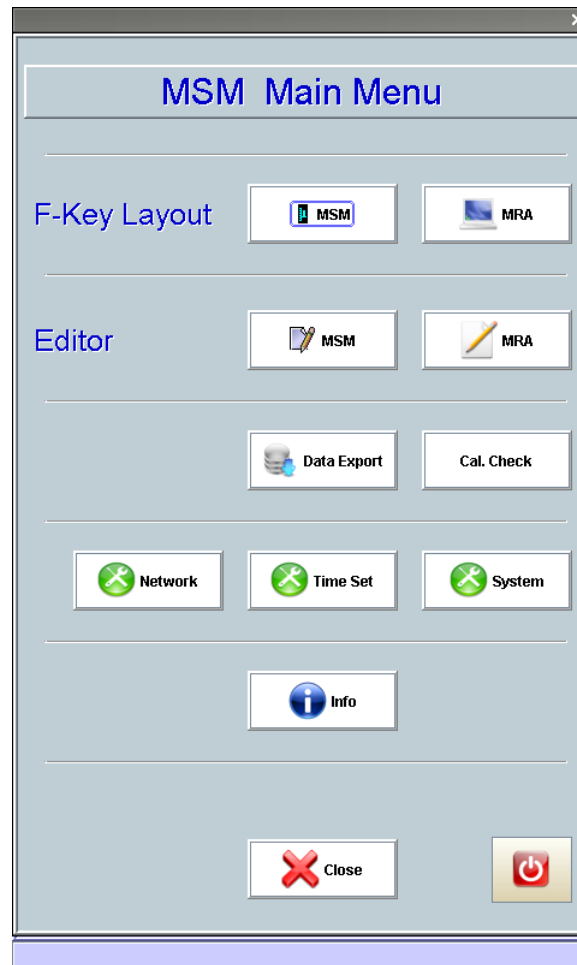


Figure 2: MSM main menu

Short description of functions in MSM main menu:

F-Key Layout: MSM	Show only basic function buttons on the bottom of display
F-Key Layout: MRA	Show all function buttons on the bottom of display
Editor: MSM	Open MSM editor dialog
Editor: MRA	Open MRA editor dialog
Data Export	Open Data Export dialog
Cal. Check	Open calibration check settings dialog
Network	Open network settings dialog
Time Set	Open time settings dialog
System	Open system settings dialog
Close	Close MSM menu and return to measuring program
Info	Open device info dialog
Power	Safely shut down MSM

3.2. F-Key Layout

3.2.1. F-Key Layout: MSM

By default, MSM has three function buttons on the bottom of the display.

- Start – Starts and stops measuring. (Label changes to “Stop” when measuring is running).
- F2 Display+ - Toggles display in case there are more than one display assigned to the current measuring / calibration group
- F6 Calibrate – Starts calibration

The number and the function of these buttons can be changed by Stotz to reflect the customer needs.

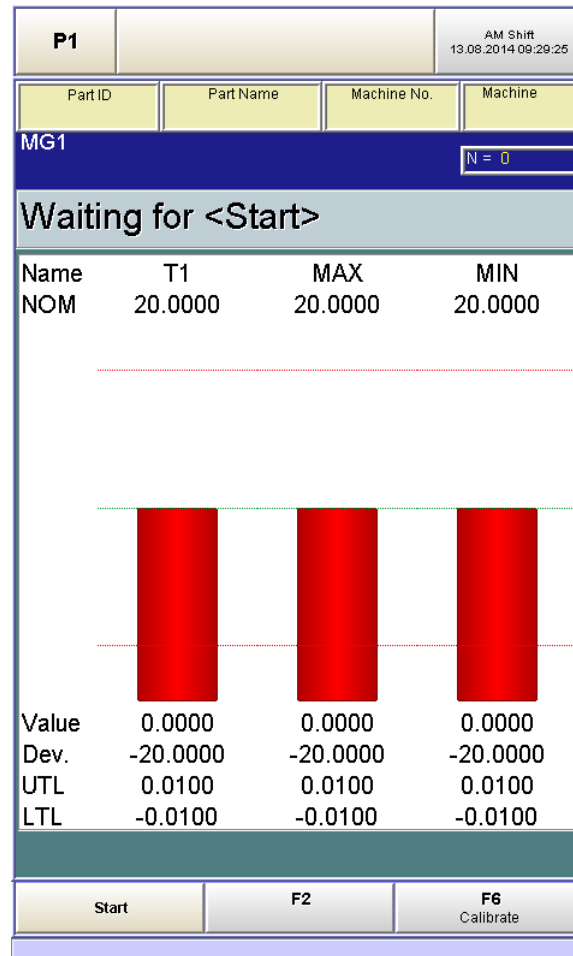


Figure 3: MSM F-Key layout

3.2.2. F-Key Layout: MRA

MRA function key layout can be used to access all options that are available in MRA software. Description of each function key is available in MRA User Manual section 4.

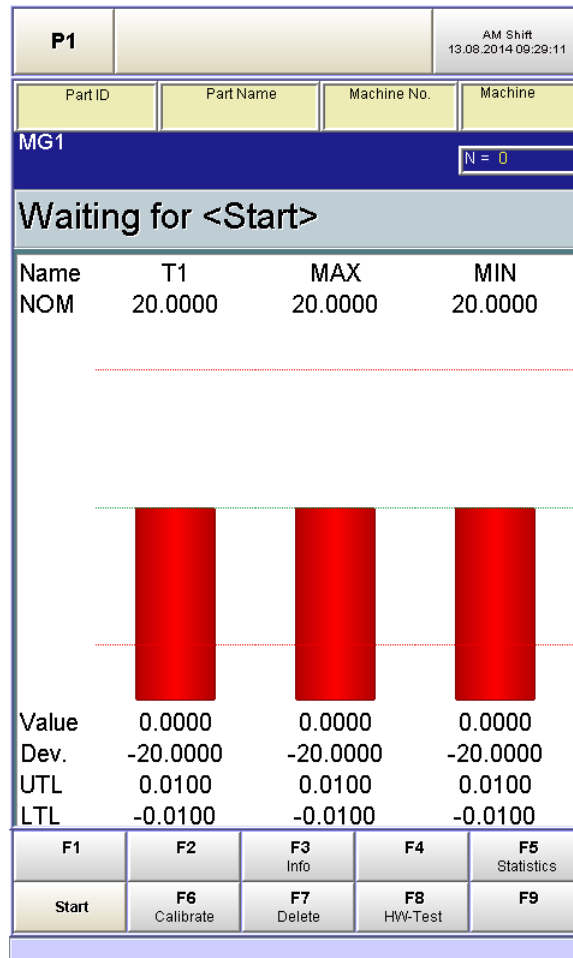


Figure 4: MRA F-Key layout

3.3. Editor

3.3.1. Editor: MSM

MSM editor is the fastest way to change program data or feature properties. To change the properties user level of at least "2" is required. If the current user is of a lower level, a dialog prompting for user name and password is shown when MSM editor button is clicked.

Which features and which feature properties are shown in the menu is configurable through MRA menu. This is described in MRA User Manual in section 5.7.2.

Property	Value
CAL1	19.99000
CAL2	20.01000
CALDIFF	0.00400
CALRDIFF	0.00600
LTL	-0.01000
LWL	-0.00600
NOM	20.00000
UTL	0.01000
UWL	0.00600

Figure 5: MSM editor

3.3.2. Editor: MRA

MRA editor is described in MRA User Manual. All functions described there are also available on MSM.

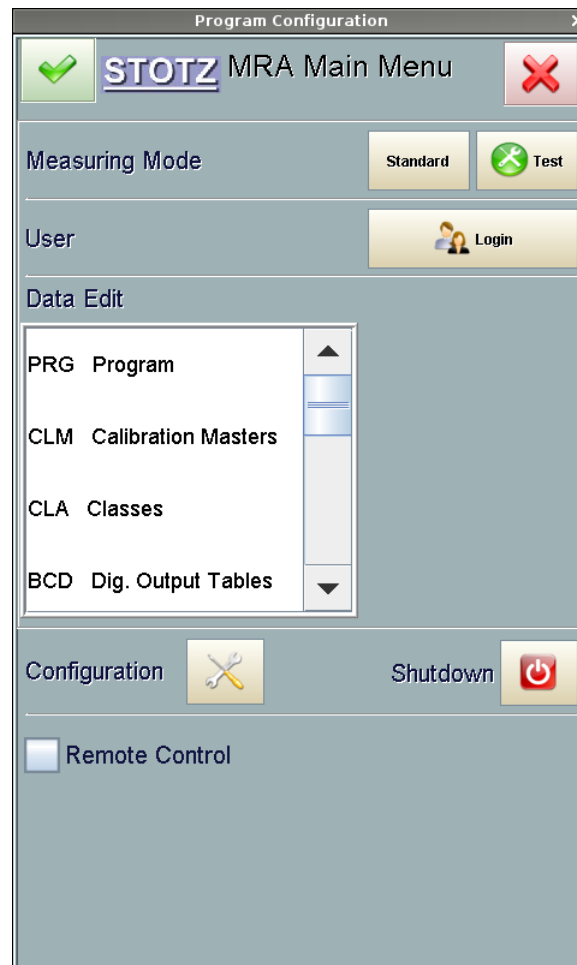


Figure 6: MRA editor

3.4. Data Export

Data export is described in MRA User Manual in section 5.6.4.

3.5. Cal. Check

Calibration check dialog is described in MRA User Manual in section 4.2.

3.6. Network

If MSM is connected to a computer network, network dialog can be used to change network settings. Some of these settings are available if optional modules are ordered. User level “4” is needed to change these settings.



Figure 7: Network settings

Parameter description:

Device Name	MSM network name
Workgroup	Network workgroup name
Domain	Network domain name
DNS Server	Optional, can be retrieved through DHCP is “Use DHCP” is selected
Obtain an IP...	IP, netmask, gateway and DNS settings will be retrieved from DHCP server
MAC	Read only, for info
IP Address	IP address, read only if ‘Obtain an IP...’ is selected
Subnet Mask	Subnet mask, read only if ‘Obtain an IP...’ is selected
Gateway	Optional, read only if ‘Obtain an IP...’ is selected

If Network File Server option is installed, user can access measurement values files on the USB memory stick, which is connected to the MSM, through network. On the Server tab, the name of the shared USB folder, with user name and password can be specified. If user name field is left empty, guest access without password is enabled.

If Network File Client option is installed, which enables MSM to save measurement values to a shared folder on a customer network, tab Client is also available.

The image shows a software dialog box titled 'File client settings'. It has two tabs: 'Server' and 'Client', with 'Client' being the active tab. The dialog contains several input fields and two buttons. The fields are: 'Server Name' with the value 'Server', 'Server IP' which is empty, 'Share' with the value 'Measurements', 'Workgroup' which is empty, 'User' with the value 'User', and 'Password' which is masked with seven dots. To the right of the 'User' field is a 'Ping' button, and to the right of the 'Password' field is a 'Test' button.

Figure 8: File client settings

Parameter description:

Server Name	Name of the computer on which the files will be stored
Server IP	IP address of the computer on which the files will be stored
Share	Name of the shared folder
Workgroup	Computer workgroup name
User	User name used to access shared folder (leave empty to use guest account)
Password	User password

To test the configuration, click on the "Test" button. A dialog will be shown indicating if the configuration is valid. In case of an error, please check the settings and try again. Ping button is used to test the physical connection to the server. Depending on the server firewall configuration it is possible that ping will fail regardless if the network settings are OK or not.

3.7. Time Set

Time Set dialog is used to adjust date and time on the device. In addition, user can change date and time format shown on the top right corner of the display. User level “2” is needed to adjust date and time.

The screenshot shows a 'Date and Time Settings' dialog box. The title bar reads 'Date and Time'. The main area is titled 'Date and Time Settings'. It features six dropdown menus for date and time components: Year (2016), Month (6), Day (8), Hour (13), Minute (13), and Sec (35). Below these are two more dropdown menus for 'Date format' (DD.MM.YYYY) and 'Time format' (hh:mm:ss). At the bottom are 'OK' and 'Cancel' buttons.

Figure 9: Setting date and time

3.8. System

In system dialog, several system settings can be changed. User level “4” is needed to change these settings.

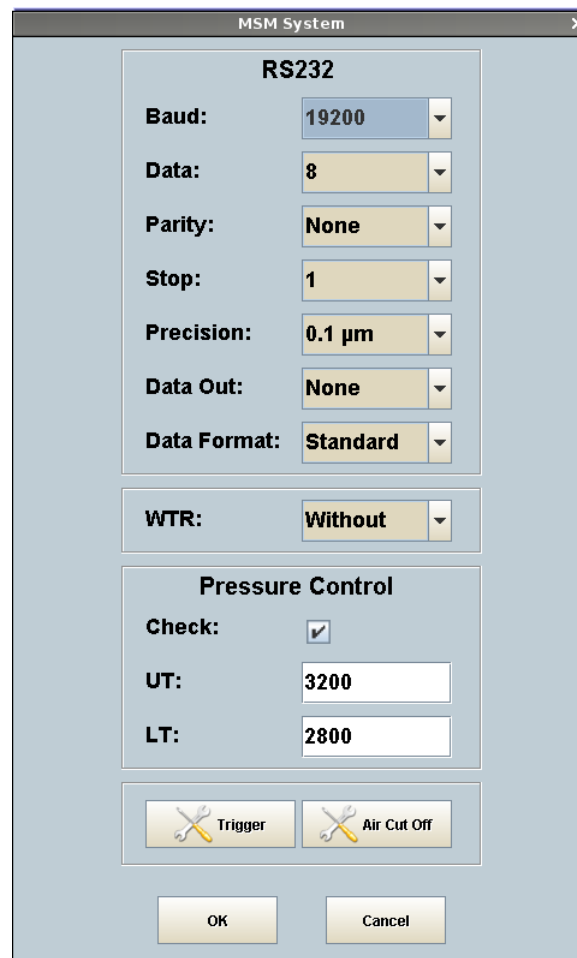


Figure 10: System settings

RS232

MSM can send values over RS232 connection. The parameters for the RS232 connection are set with baud, data, parity and stop settings. Precision determines the number of decimal places that are sent.

Data Out has following options:

- None – No RS232 data export
- Meas. End – Values are sent after the measurement is finished
- Constant – Values are sent with each sample

Data Format has following options:

- Standard
- Extended
- Mitotoyo
- User

Example for each format is shown in [Appendix A](#).

WTR

WTR setting is used to configure if external operator box is used to select active program.

WTR has following options:

- Without – program selection through top left button on the display
- With – program selection through operator box

Pressure Control

If 'Check' checkbox is selected, then MSM will check if the input air pressure is inside limits specified in 'UT' (upper tolerance) and 'LT' (lower tolerance) fields when measuring or calibration starts and will notify the user in case that air pressure is not inside specified limits.

3.8.1. Trigger

If automatic triggering is used to start/stop the measuring or calibration, this dialog can be used to adjust the trigger levels.

Column description:

ID	Trigger index
V ID	Input pressure channel index (0 for LVDT)
M ID	Measuring channel index
S1	Component removed level
S2	Component present level
S2 Delay	Start delay after detecting that component is inserted

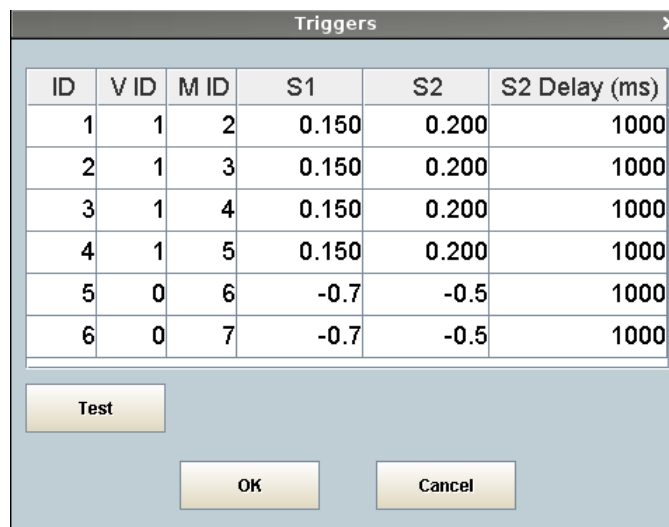


Figure 11: Trigger settings

To test the settings click on the 'Test' button.

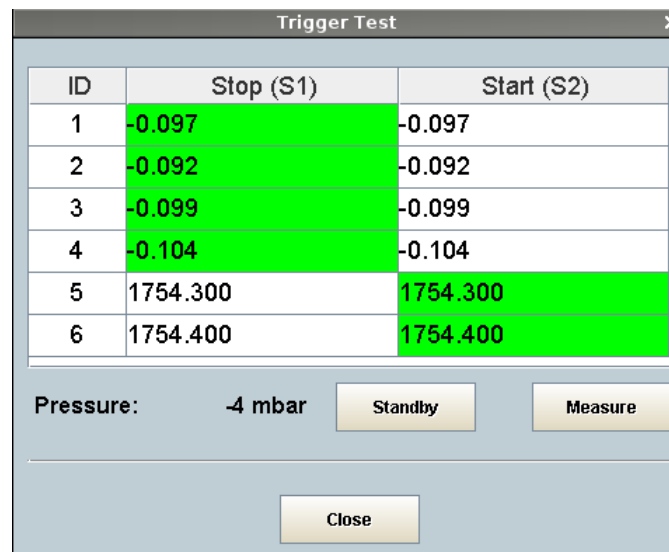


Figure 12: Trigger test

Here you can test if the component is recognized when inserted or removed from gauge with standby or standard measuring pressure. Green cell marks if start or stop trigger is recognised. 'Stop' will be recognised if channel value is smaller than S1 and 'Start' will be recognised if channel value is bigger than S2.

Configuring Triggers

If the device is not equipped with air cut off or if it is not used, make sure that pressure is approximately 3000 mbar, remove component from gauge and check if 'Stop' cell is green. If not, adjust the S1 value to be bigger than value shown in cell. When 'Stop' is working OK, insert the component into / onto gauge and check if 'Start' cell is green. If not, adjust S2 value to be smaller than value shown in cell.

In case that air cut off is used, follow these steps:

1. Remove all components
2. Click on 'Standby' button
3. Check that pressure is approximately 500 mbar
4. Insert the component into / onto gauge
5. If Start cell is not green adjust S2 value to be smaller than value shown in cell
6. Click on 'Measure' button
7. Check that pressure is approximately 3000 mbar
8. Remove the component
9. If Stop cell is not green adjust S1 value to be bigger than value shown in cell

3.8.2. Air Cut Off

If MSM is equipped with air cut off, user can select if it is used by selecting 'Standby Pressure Enabled' checkbox. User can also adjust standby pressure limits and delays after measuring pressure is turned on or off for each measuring channel.

ID	On Delay (ms)	Off Delay (ms)
1	500	1000
2	500	1000
3	500	1000
4	500	1000

Figure 13: Standby pressure settings

3.9. Info

Info dialog shows basic device information and it can be used to add licenses to turn on specific modules. Usually the device comes preconfigured with necessary licenses, but in case that customer needs changes after some time, he can order a new license. In order to create a new license, Stotz needs the device ID. It is shown in the “License ID” field. To save it to a file, connect a USB stick to the device and click on the button with “Save” icon. When you receive the new license file, copy it to USB stick and connect it to the device. Click on the “Add License” button and select the new license file.

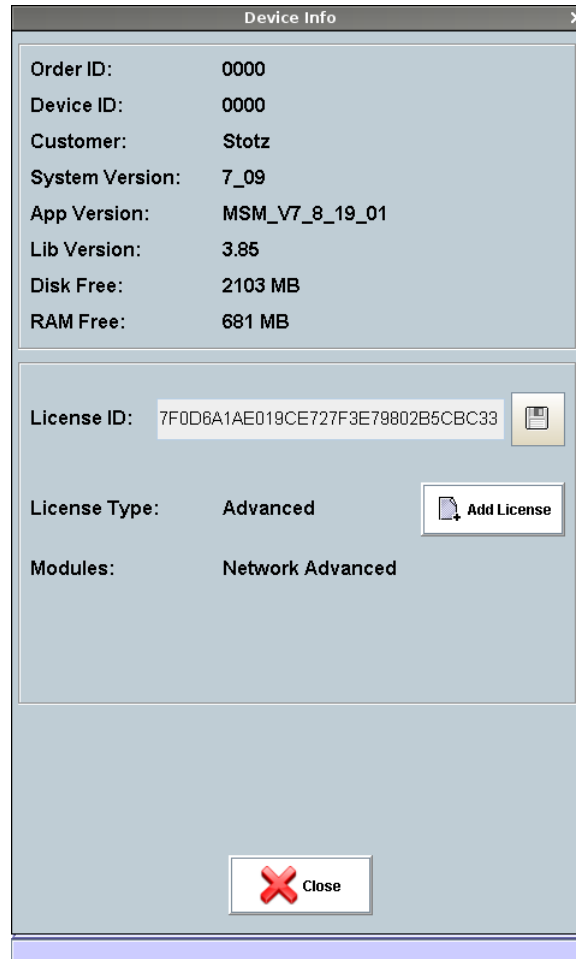


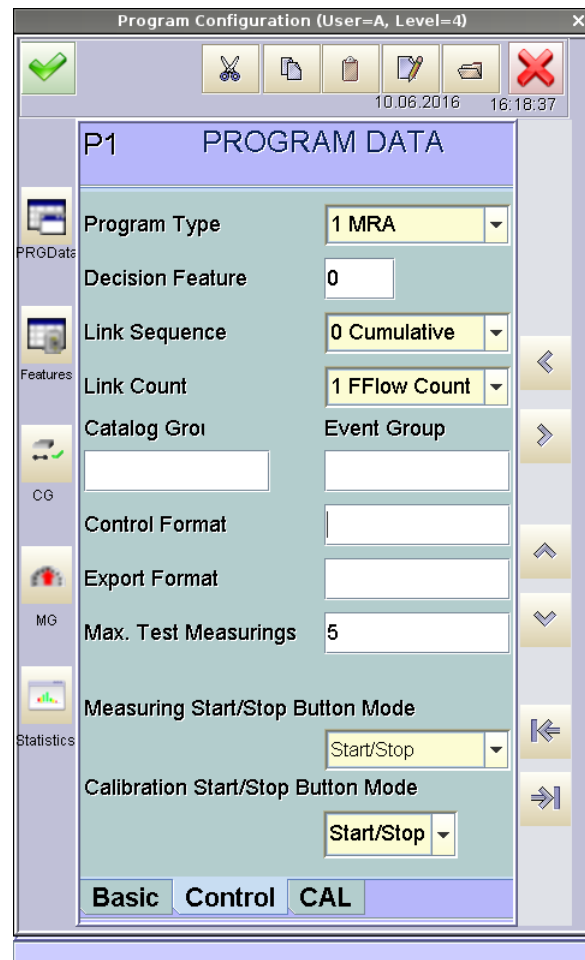
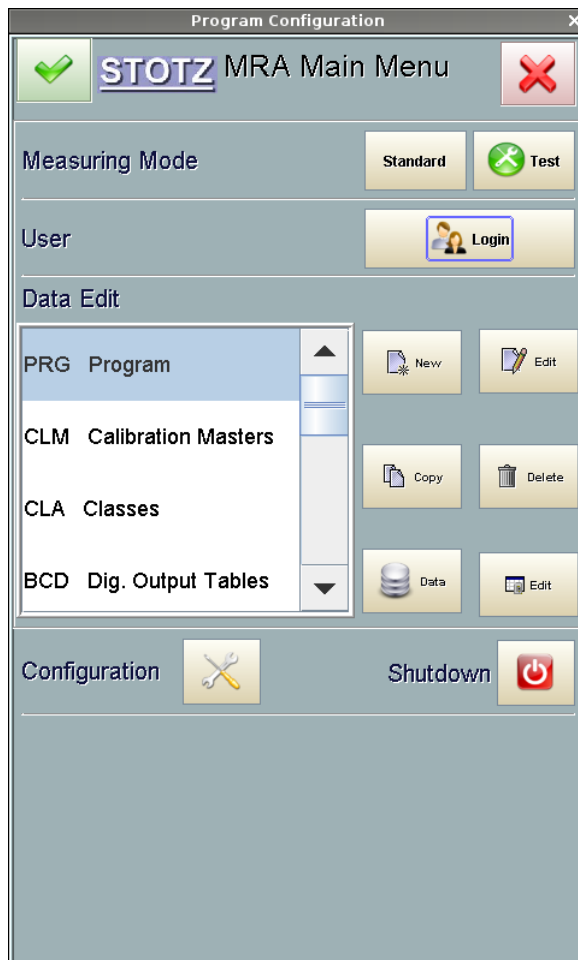
Figure 14: Info dialog

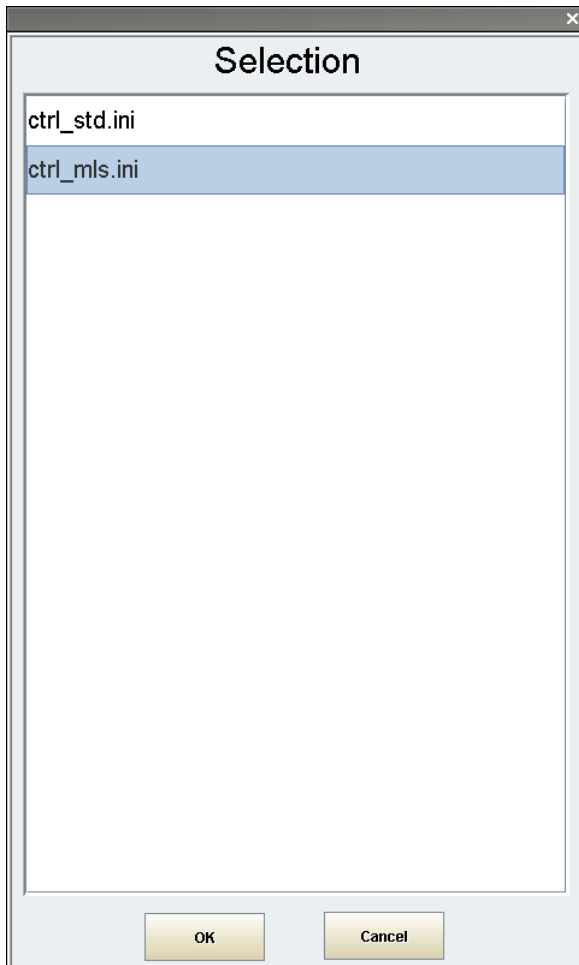
4. Digital I/O

MSM can be configured to set measurement status on digital outputs and the measuring can be started and stopped over digital inputs so it can be used in simple automation projects.

To enable digital I/O control in the current program, open MSM Main Menu by clicking on the middle top button and click on 'MRA' editor button. Make sure that you are logged in with user that is at least level 3 and then select 'PRG Program' in the list and click on the 'Edit' button.

If 'Program Data' tab is not shown click on 'PRGData' button on the left and select 'Control' tab on the bottom. Click on the 'Control Format' field so it gains focus and then click on the 'Open' button on the top.





Select the 'ctrl_mls.ini' file in the list and click on the 'OK' button. There should be 'ctrl_mls.ini' text in 'Control Format' field. Finally, save the changes by clicking on button with green check mark on the top left of the dialog and confirm the saving of changes by clicking on the 'Yes' button.

Digital outputs can be configured to work in five different modes. Behaviour of each mode can be seen in the table below.

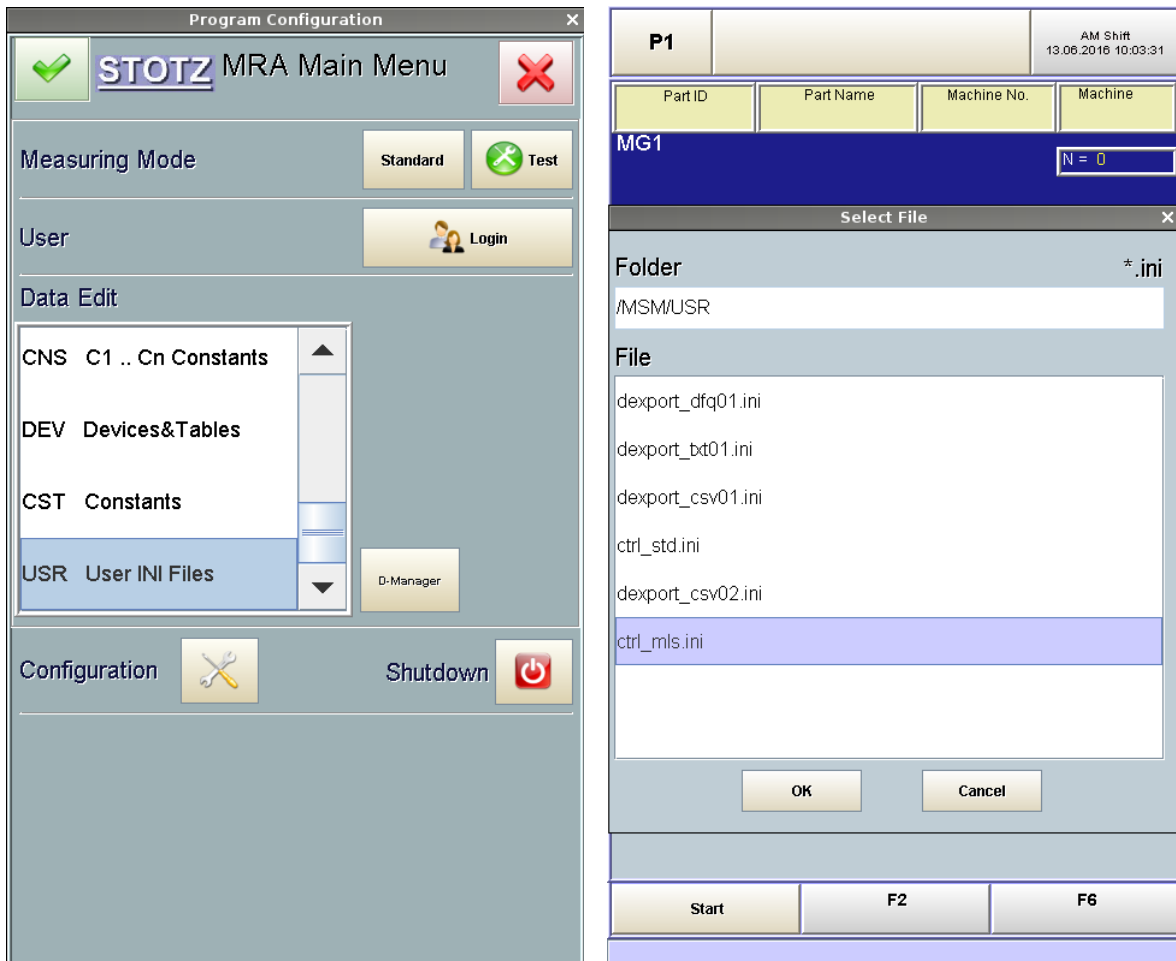
Digital inputs:

Pin	Function	Description	Use
21	Input 0	E9	Start measuring / calibration
20	Input 1	E10	Stop measuring / calibration
19	Input 2	E11	Switch to calibration
18	Input 3	E12	None
17	Input 4	E13	None
16	Input 5	E14	None
15	Input 6	E15	None
14	Input 7	E16	None

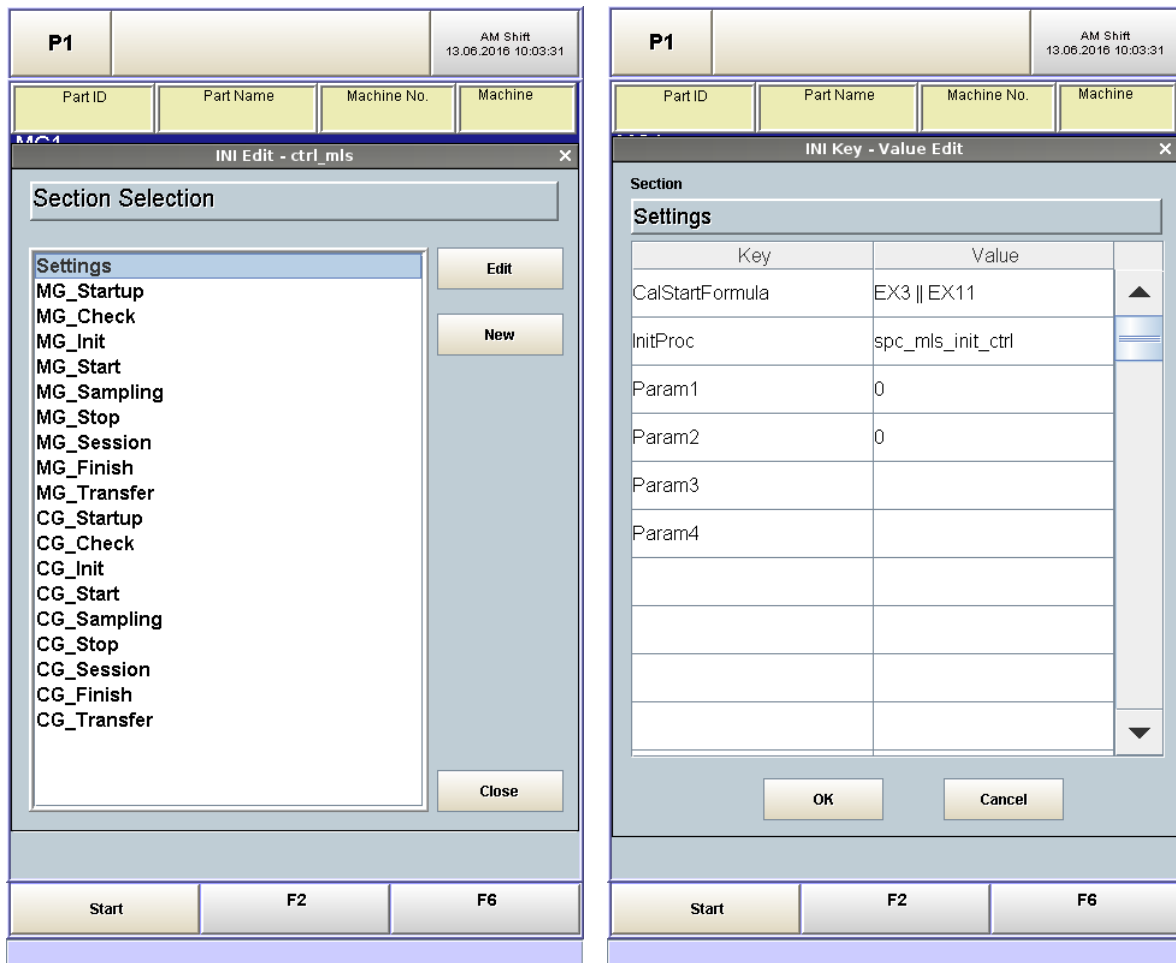
Digital outputs:

Pin	Function	Desc.	Use depends on Param1 parameter				
			STANDARD	CLA 1-63	CLA 1-6	CLA 1-8	LIMITS
1	Output 0	A9	Ready	Class 1-63 binary-coded 000001 Class 1 000010 Class 2 000011 Class 3 ... 111111 Class 63	Class 1	Class 1	Ready
2	Output 1	A10	Green		Class 2	Class 2	>UTL
3	Output 2	A11	Yellow		Class 3	Class 3	>UWL, <=UTL
4	Output 3	A12	Red		Class 4	Class 4	>=0.5*(LTL+UTL), <=UWL
5	Output 4	A13	In calibration		Class 5	Class 5	>=LWL, <0.5*(LTL+UTL)
6	Output 5	A14	In Cal-Max-Mode		Class 6	Class 6	>=LTL, <LWL
7	Output 6	A15	Not OK.		Not OK	Not OK	Class 7 <LTL
8	Output 7	A16	Running	Running	Running	Class 8 Running	

By default, 'Standard' mode is active. To change the mode select the 'USR User INI Files' in the MRA Main Menu and click on the 'D-Manager' button. Select the 'ctrl_mls.ini' file and click on 'OK' button.



Select the 'Settings' section and click on the 'Edit' button.



To change the output mode change the value of 'Param1' parameter. The following values can be used:

- 0 – Standard
- 1 – CLA 1-63
- 2 – CLA 1-6
- 3 – CLA 1-8
- 4 – Limits

Value of Param2 changes the behavior of Green, Yellow and Red signals. The following values can be used:

Param2	Green	Yellow	Red
0 - Red>UTL	LTL <= Value <= UTL	Value < LTL	Value > UTL
1 - Red<LTL	LTL <= Value <= UTL	Value > UTL	Value < LTL
2 - Yellow>UWL	LWL <= Value <= UWL	(LTL<= Value <LWL) or (UWL>= Value <UTL)	(Value > UTL) or (Value < LTL)

Appendix

A. RS232 Export Formats

Standard

M1=19.9777
M1.DEV=-0.0223

Extended

M1=20.0029
M1.DEV=0.0029
M1.MIN=0.0029
M1.MAX=0.0116
M1.MEAN=0.0071

Mitutoyo

+019.9823

Each line in Standard and Extended formats is terminated with carriage return and line feed characters (\r\n). In Mitutoyo format only line feed character is used (\n). If more than one feature is exported then additional carriage return character (\r) is sent at the end when Mitutoyo format is used.

B. Version Comparison

Maximum / Version	Standard	Advanced
Number of programs	18	18
Number of features	4	32
Number of measuring groups	5	128
Number of calibration groups	10	128
Internal statistics		●