Micro Application Example

applications & TOOLS

Quality Assurance
Weighing, Controlling and Logging

Micro Automation Set 6

SIEMENS

Note

The Micro Automation Sets are not binding and do not claim to be complete regarding the circuits shown, equipping and any eventuality. The Micro Automation Sets do not represent customer-specific solutions. They are only intended to pro-vide support for typical applications. You are responsible in ensuring that the de-scribed products are correctly used. These Micro Automation Sets do not relieve you of the responsibility in safely and professionally using, installing, operating and servicing equipment. When using these Micro Automation Sets, you recognize that Siemens cannot be made liable for any damage/claims beyond the liability clause described. We reserve the right to make changes to these Micro Automation Sets at any time without prior notice. If there are any deviations between the recommendations provided in these Micro Automation Sets and other Siemens publications - e.g. Catalogs - then the contents of the other documents have priority.

Warranty, liability und support

We do not accept any liability for the information contained in this document.

Any claims against us - based on whatever legal reason - resulting from the use of the examples, information, programs, engineering and performance data etc., described in this Micro Automation Sets shall be excluded. Such an exclusion shall not apply in the case of mandatory liability, e.g. under the German Product Liability Act (“Produkthaftungsgesetz”), in case of intent, gross negligence, or injury of life, body or health, guarantee for the quality of a product, fraudulent concealment of a deficiency or breach of a condition which goes to the root of the contract (“wesentliche Vertragspflichten”). However, claims arising from a breach of a condition which goes to the root of the contract shall be limited to the foreseeable damage which is intrinsic to the contract, unless caused by intent or gross negligence or based on mandatory liability for injury of life, body or health The above provisions does not imply a change in the burden of proof to your detriment.

Foreword

Micro Automation Sets are fully functional and tested automation configurations based on A&D standard products for easy, fast and inexpensive implementation of automation tasks in small-scale automation. Each of these Micro Automatic Sets covers a frequently occurring subtask of a typical customer problem in the low-end range.

The sets help you to obtain answers with regard to required products and the question how they function when combined.

However, depending on the system requirements, a variety of other components (e.g. other CPUs, power supplies, etc.) can be used to implement the functionality on which this set is based. Please refer to the respective SIEMENS A&D catalogs for these components.

The Micro Automation Sets are also available by clicking the following link:

http://www.siemens.de/microset

Table of Contents

1 Fields of Application and Benefit

Automation task

To provide good comprehensibility, the features of the Micro Automation Set are explained using the example of an automation task.

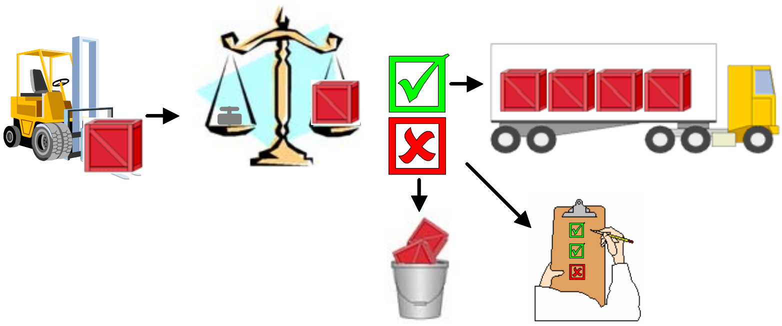
In a packaging system, a check for completeness of the packaged goods is required before delivery. In the course of this quality assurance measure the goods are to be uniquely identified and all relevant data including time stamp are to be logged.

It is to be possible to import the log data to Office Excel. The automation of the logging process and the integration of the required components into the existing infrastructure of the packaging system are to be possible.

It must be possible to apply the check for completeness of the packaged goods also to other products with different content without extra work.

The packaging system is to be operated and maintained exclusively via an HMI device. Operation is to be possible in German and in English.

Figure 1-1



Automation solution – Set 6

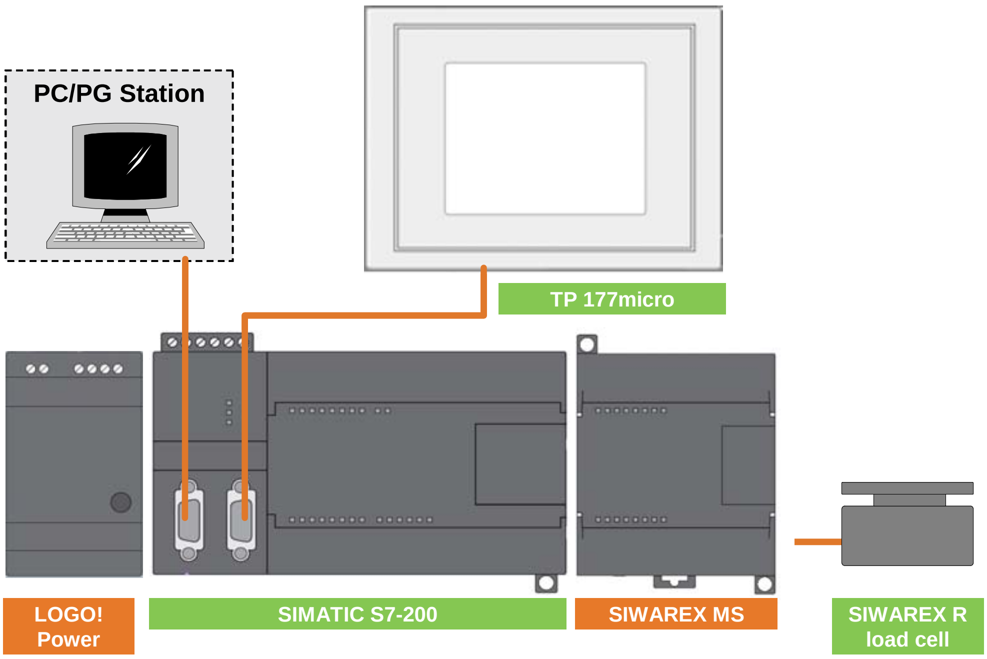
The automation solution uses an **S7-200 controller** and the **SIWAREX MS weighing module** with **single point load cell**. The weight value of the packaged goods is captured and compared to a reference value. This enables to check whether all components are complete. The packages of goods can be uniquely identified via a batch number.

The integrated time of day function and the **memory module** of the **S7-200 controller** enable a logging of the currently measured weight values with time stamp.
Interfacing the **S7-200 controller** to a Windows PC using the **PPI cable** enables an automatic readout of the log data. Alternatively to the PPI connection data can be transferred via Ethernet, PROFIBUS or the telephone network.

The recipe function of the **S7-200 controller** is used to manage the reference weight of different production series.

Using a **TP 177micro** touch panel the currently running packaging process can be monitored by screens providing German-English change language.

Figure 1-2



Fields of application

The Micro Automation Set is suitable for many industrial applications in which cost-effective weight measurements have to be performed with little engineering overhead. This set is particularly suitable if additionally automated logging functions are required in the framework of the measurement.

The Micro Automation Set is particularly suitable for the following sectors and fields of application:

- Foodstuff industry
- Packaging industry
- Basic industry
- Engineering industry
- Level monitoring of silos and bunkers
- Measurement of crane and rope loads
- Load measurement in industrial elevators and rolling mills
- Monitoring of belt tension
- Force measurement
- Container scales, platform weighing machines and crane scales
- E.g. …

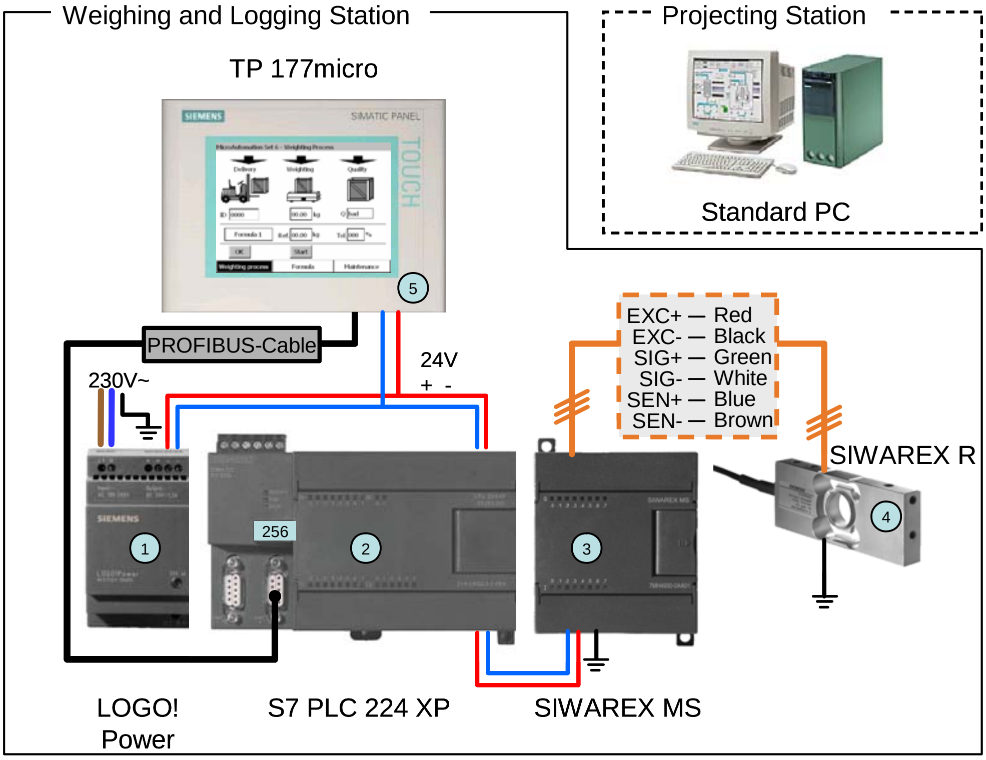
Benefit

- The integration of the SIWAREX MS module into the S7-200 ensures that the technological functions of the weighing module are combined with all advantages of the PLC world (expansion capability, flexibility, software, HMI, drives, communication interfaces, etc.)
- Configuration of SIWAREX MS via SIWATOOL MS
- High accuracy of SIWAREX MS of 0.05 percent with a 16-bit resolution
- Economic combination of S7-200 und TP 177micro with software packages specially adapted to the requirements of micro automation
- Quick and easy configuration via WinCC flexible und Micro/WIN
- The user interface of TP 177micro can be configured in up to 32 languages

2 Configuration

Layout diagram of Micro Automation Set 6

Figure 2-1



Micro Automation Set 6 consists of an **S7-224 XP CPU (2)** with integrated time of day function and additional **256 KB memory module**.

The **SIWAREX MS weighing module (3)** is used as expansion module. The associated **SIWAREX R single point load cell (4)** is connected to SIWAREX MS t via a 6-wire cable (plus shielding).

TP 177micro (5) uses a PPI connection via a PROFIBUS cable for the data exchange with the **S7-224 XP CPU**.

The 24V power supply of the devices is provided by a **LOGO! Power 1.3A (1)**.

A Windows PC with **STEP 7-Micro/WIN** and **WinCC flexible** is used for the configuration of the **S7-200 controller** and **TP 177micro**. The **SIWAREX MS weighing module** is configured via the **SIWATOOL MS** software.

3 Hardware and Software Components

Products

Table 3-1

Component	No.	MLFB / Order number	Note
LOGO! Power 24V/1.3A	1	6EP1 331-1SH02	
S7-200 CPU 224 XP	1	6ES7 214-2AD23-0XB0	DC
SIWAREX Micro Scale	1	7MH4 930-0AA01	
SIWAREX R load cell	1	7MH4 107-1LC01	Stainless steel
SIWAREX R load cell	1	7MH4 107-2DC01	Aluminum, see note
TP 177micro touch panel	1	6AV6640-0CA11-0AX0	

Note

In this set the stainless steel load cell can be replaced by the more inexpensive aluminum load cell **for test purposes**; this cell, however, is not suitable for industrial use.

Accessories

Table 3-2

Component	No.	MLFB / Order number	Note
256 KB memory module	1	6ES7 291-8GH23-0XA0	
PROFIBUS cable 830-IT	1	6XV1 830-1CH30	3 meters
Standard DIN rail 35mm	1	6ES5 710-8MA11	483 mm

Configuration software/tools

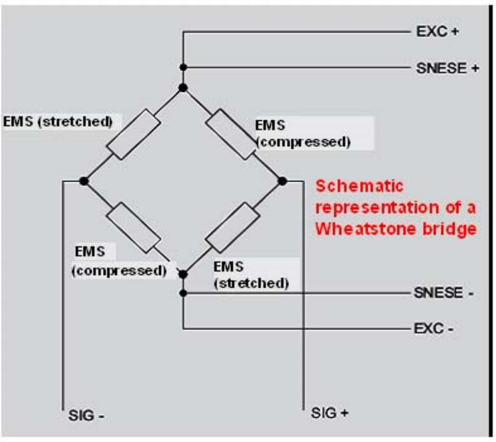
Table 3-3

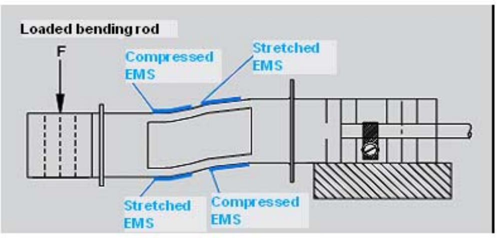
Component	No.	MLFB / Order number	Note
PC/PPI cable	1	6ES7 901-3CB30-0XA0	COM
SIWATOOL connecting cable	1	7MH4 702-8CA	
SIMATIC STEP 7-Micro/WIN	1	6ES7810-2CC03-0YX0	
SIMATIC WinCC flexible 2005 micro	1	6AV6610-0AA01-1CA8	
SIWAREX MS configuration package	1	7MH4 930-0AK01	

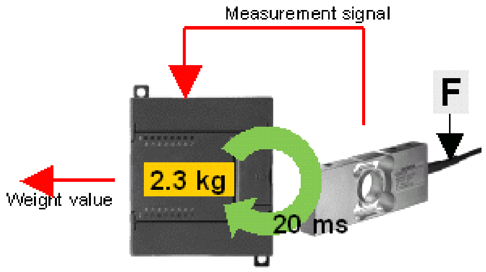
4 Principle of Operation

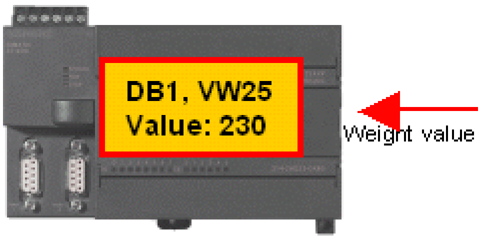
4.1 Capturing weight as measured variable and providing as value

Table 4-1

<table>
<tr><th>No.</th><th>Function</th><th>Note</th></tr>
<tr><td>1.</td><td>The SIWAREX R load cell SB series is used to convert a mechanical force into an electrical signal.
Four expansion measuring strips (EMS) interconnected to a Wheatstone bridge are attached to the spring rod of the load cell.</td><td>


</td></tr>
<tr><td>2.</td><td>If a force acts upon the spring rod and compresses or stretches the expansion measuring strips attached to it, an overall misalignment of the spring rod can be determined from the positive and negative changes in resistance. (Measurement voltage proportional to change in resistance)</td><td>


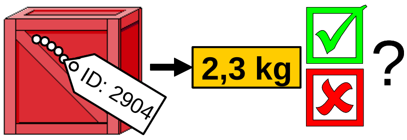
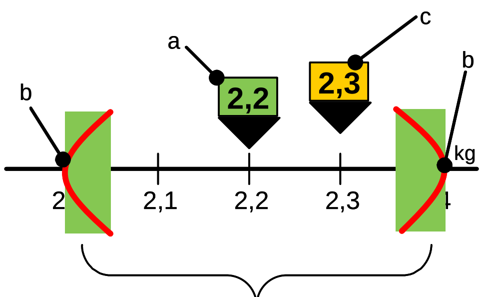
</td></tr>
<tr><td>3.</td><td>With the aid of the analog-digital converter integrated in the SIWAREX MS weighing module, a weight value is continuously calculated from the measurement voltage.</td><td>


</td></tr>
<tr><td>4.</td><td>This weight value is provided to the S7-200 controller in the variable memory. The transferred value is a 16-bit integer value.</td><td>


</td></tr>
</table>

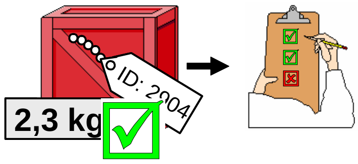
4.2 Identifying product and assessing quality by weight comparison

Table 4-2

No.	Function	Note
1.	For each product a unique identification number is read in e.g. by a bar code scanner. This product ID will later be used for tracking in the log data. After the product identification a subprogram for the quality assessment is started.	 In this set, the product ID is generated in a subprogram.
2.	The subprogram checks the weight value by comparison with two reference values: • Weight reference value (optimum product weight) • Tolerance reference value (maximum permissible deviation from the weight reference value expressed as a percentage) If the real weight value of the product is in the tolerance range of the requirements, the quality of the current product is assessed as good.	**(a)** Reference weight: e.g. 2,2 kg **(b)** Tolerance: e.g. ± 10% **(c)** Real weight: e.g. 2,3 kg  Tolerance range (good quality)
3.	After completing the quality inspection the result of the quality inspection is assigned to the product ID.	Quality status: • 0 (poor) • 1 (good)

4.3 Logging the quality inspection

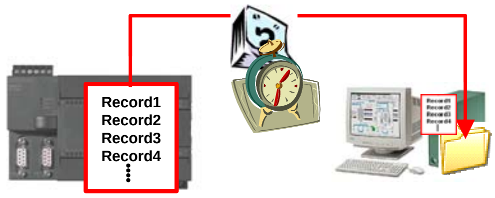
Table 4-3

<table>
<tr><th>No.</th><th>Function</th><th>Note</th></tr>
<tr><td>1.</td><td>In the framework of the configuration, the logging is prepared using the “Data-Log” wizard.
The structure of the data to be logged is configured: A data record includes 6 values (a total of 13 bytes)
A standard block for starting the logging with specified data structure is generated</td><td>
<table>
<tr><th></th><th>Field Name</th><th>Data Type</th><th>Comment</th></tr>
<tr><td>1</td><td>log_id</td><td>DWORD</td><td>unique product ID</td></tr>
<tr><td>2</td><td>log_recipe</td><td>WORD</td><td>recipe used for the product</td></tr>
<tr><td>3</td><td>log_weight</td><td>WORD</td><td>weight of the product</td></tr>
<tr><td>4</td><td>log_tolerance</td><td>WORD</td><td>difference in per cent used for the product</td></tr>
<tr><td>5</td><td>log_reference_w</td><td>WORD</td><td>reference weight (ideal product weight)</td></tr>
<tr><td>6</td><td>log_quality</td><td>BYTE</td><td>good(1) or bad (0)</td></tr>
<tr><td>7</td><td></td><td></td><td></td></tr>
</table>
1: Product ID (4 bytes)
2: Recipe ID (2 bytes)
3: Weight (2 bytes)
4: Tolerance expressed as a percentage (2 bytes)
5: Reference weight (2 bytes)
6: Product quality (1 byte)</td></tr>
<tr><td>2.</td><td>The “Data-Log” standard block is called after completion of the quality inspection.</td><td>
</td></tr>
<tr><td>3.</td><td>If the logging process is started, the “Data-Log” standard block writes the current values of the data block into the 256 KB module. During each call a new data record is added to the already existing log data. Up to 1000 data records can be stored before the oldest record is overwritten. (Ring buffer)</td><td>The maximum number of data records to be stored on the memory module can be set using the “Data-Log” wizard
In addition, a date and time stamp are stored for each data record</td></tr>
</table>

4.4 Automated archiving of the log data

Archiving the log data

Table 4-4

No.	Function	Note
1.	Via S7-200 Explorer integrated in STEP 7-Micro/WIN, the log data can be exported from the 256 KB memory module to the local hard disk of a Windows PC and saved as CSV file[1]. Each archiving process generates a new file with the new current log data since the last archiving.	A data connection between S7-200 controller and a Windows PC is required.
2.	The “Scheduled Tasks” standard function in MS Windows enables to automate the archiving of the log data via S7-200 Explorer at freely definable intervals.	

Possible data connections between S7-200 and Windows PC

Aside from the option of loading data from the S7-200 controller to a Windows PC via a PPI connection for archiving purposes described in this set, the following alternatives exist additionally:

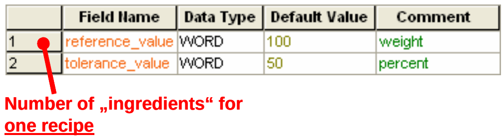
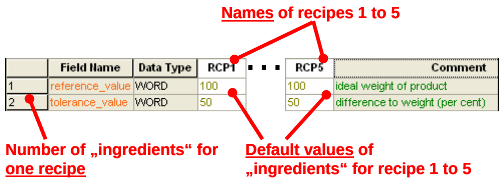
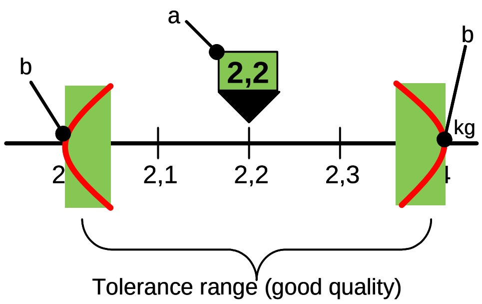
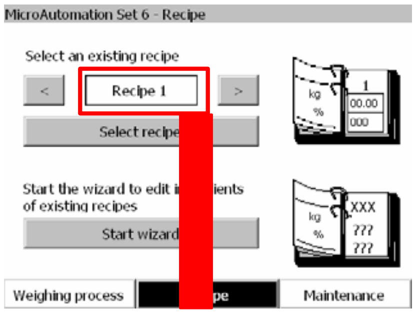
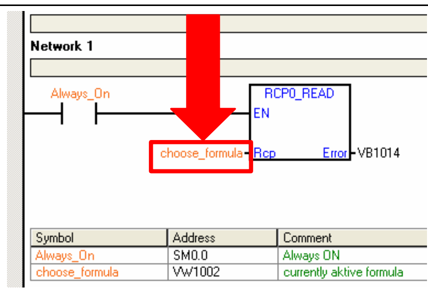
Table 4-5

No.	Communication	S7-200 expansion module	Note
1.	Ethernet	6GK7 243-1GX00-0XE0	The PC requires an Ethernet interface. Installation note under Entry ID: 18975343
2.	Profibus	6ES7 277-0AA22-0XA0	The PC requires a PROFIBUS interface. Installation note under Entry ID: 1109582 chapter 7 ff
3.	Modem	6ES7 241-1AA22-0XA0	Installation note under Entry ID: 1109582 chapter 10 ff

[1] A CSV file is an ASCII file for storing or exchanging simply structured data. CSV is the abbreviation for *Character Separated Values* since the individual values are separated by a special separator. A general standard for the file format does not exist. In this application the end of line is respectively characterized by CR, LF and the individual data are separated by semicolon.

4.5 Recipe management

Table 4-6

No.	Function	Note
1.	In the framework of the configuration, the recipe management is prepared using the “Recipe” wizard. • The recipe structure is generated: A recipe contains two ingredients • Two standard blocks for reading and writing the recipes are generated	
2.	Five recipes are predefined and stored in the 256 KB memory module of the S7-200. They can be selected via two buttons on TP 177micro.	
3.	The recipes include the weight reference value of the product and the maximum deviation expressed as a percentage (tolerance).	**(a)** Reference weight: e.g. 2,2 kg **(b)** Tolerance e.g. 10% 
4.	Using TP 177micro the values of the predefined recipes can be edited. The recipe ID with the value 1 stands behind the selectable “Recipe 1”.	
5.	The two standard blocks “RCP0_READ” and “RCP0_WRITE” for reading and writing the recipes in the 256 KB memory module always determine the recipe to be edited via the recipe ID.	

5 Configuring the Startup Software

5.1 Preliminary remark

For the startup we offer you software examples with test code and test parameters as download. The software examples support you during the first steps and tests with your Micro Automation Sets. They enable quick testing of the hardware and software interfaces between the products described in the Micro Automation Sets.

The software examples are always assigned to the components used in the set and show their basic interaction. However, they are not real applications in the sense of technological problem solving with definable properties.

5.2 Download of the startup code

The software examples are available on the HTML page from which you downloaded this document.

Table 5-1

No.	File name	Content
1	Set06_S7-200_v1d0_en.zip	STEP 7-Micro/WIN configuration for the S7-200 CPU 224 XP.
2	Set06_WinCC_flex_V1d0_en.zip	Archived WinCC flexible configuration for TP 177micro.

5.3 Configuring components

Note At this point, it is assumed that the necessary software has been installed on your computer and that you are familiar with handling the software.

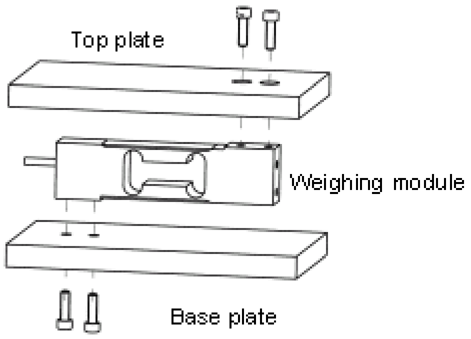
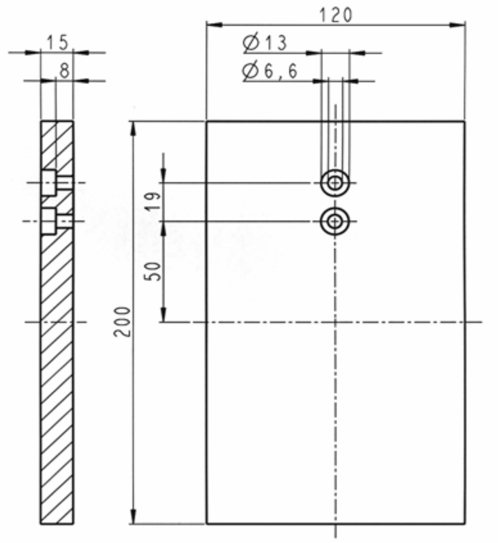
Note To parameterize the SIWAREX MS load cell, only the essential settings are shown via SIWATOOL MS. If further parameter changes are to be performed, the device manual with Entry ID: 22600601 is to be used.

Hinweis If the S7-200 controller used is not an S7-224 XP (with integrated analog inputs and outputs), then the addressing of the SIWAREX MS expansion module must be adjusted accordingly in the STEP 7-Micro/WIN project. (network 1 in OB1)

The actual addressing can be read via “PLC/Information“ in STEP 7-Micro/WIN.

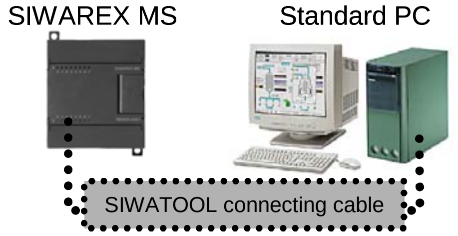
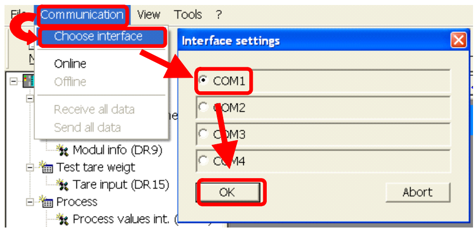
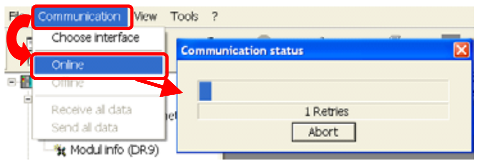
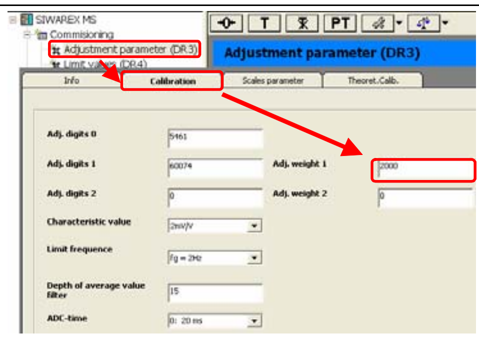
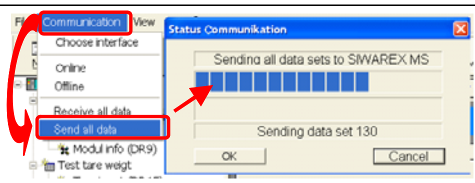
Installing and wiring components

Table 5-2

No.	Instruction	Note
1.	Mount LOGO! Power, S7-200 CPU and the SIWAREX MS weighing module to the DIN rail and attach the plug for the expansion module to SIWAREX MS. Do not yet switch on the power supply for LOGO! Power.	See chapter 2 “Layout diagram of Micro Automation Set 6”
2.	Connect the S7-200 CPU and the SIWAREX MS weighing module to the DC 24V supply voltage of LOGO! Power.	See chapter 2 “Layout diagram of Micro Automation Set 6”
3.	A base and top plate has to be attached to the SIWAREX R load cell. The drawing in the “Note” column is to be used for base plate and top plate. M6 x 20 with washers are required as screws. 	
4.	Connect SIWAREX R load cell to the SIWAREX MS weighing module.	See chapter 2 “Layout diagram of Micro Automation Set 6”
5.	Connect all ground connections to earth.	
6.	Switch on the power supply for LOGO! Power.	

SIWAREX MS weighing module

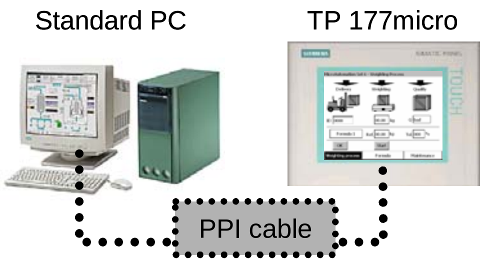
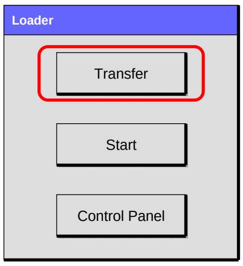
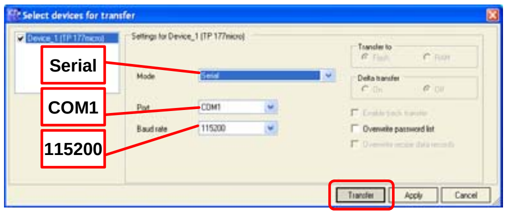
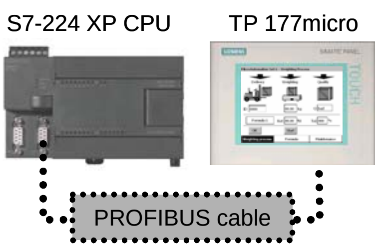
Table 5-3

No.	Instruction	Note
1.	Use COM 1 to connect the PC to the SIWAREX MS module at the RS 232 interface with the SIWATOOL connecting cable.	
2.	Install the SIWATOOL MS software included in the delivery of the SIWAREX configuration package and start by selecting “Start/Programs/SIWATOOL MS”.	
3.	In the program, click “Communication/Choose interface”, select serial port COM 1 and confirm by clicking “OK”.	
4.	Select “Communication/Online” to establish the connection to the SIWAREX MS weighing module.	
5.	In data record DR3, select the “Calibration” tab to make the following input: In the “Adjustment weight 1” input box, a weight value is to be entered with which the SIWAREX MS weighing module will later be adjusted. In this case the decimal point is set to 2[2]. The default value 2000 is thus 20.00 kg. The specified weight must be at least 5% of the rated load of all connected load cells. A weight value should be used which exactly corresponds to the item currently to hand.	
6.	Select “Communication/Send all data” to send all data records to the SIWAREX MS weighing module	
7.	Close SIWATOOL MS.	

2 See *"Decimal point"* in the *"Scales parameter"* tab

Configuring SIMATIC TP 177micro panel with WinCC flexible

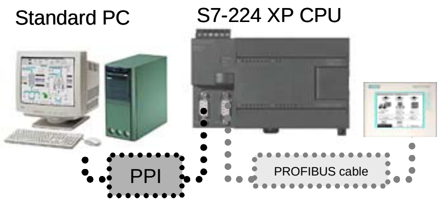
Table 5-4

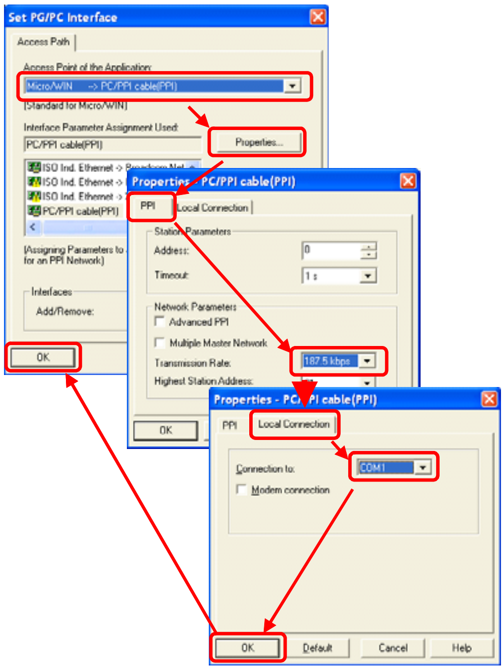
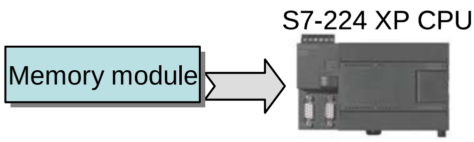
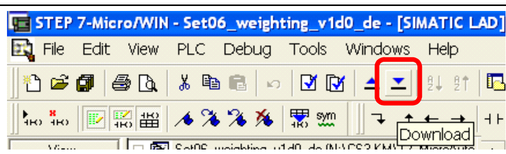
<table>
<tr><th>No.</th><th>Instruction</th><th>Note</th></tr>
<tr><td>1.</td><td>Switch off the power supply for LOGO! Power.</td><td></td></tr>
<tr><td>2.</td><td>Connect TP 177micro to the DC 24V supply voltage of LOGO! Power.</td><td>See chapter 2 “Layout diagram of Micro Automation Set 6”</td></tr>
<tr><td>3.</td><td>Use an RS232/PPI cable to connect the COM 1 port of the PC to the RS485 interface of TP177micro.
The DIP switches of the RS232/PPI cable are to be set as follows:
<table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table></td><td></td></tr>
<tr><td>4.</td><td>Extract the WinCC flexible project to the hard disk. (Table 5-1)</td><td></td></tr>
<tr><td>5.</td><td>Open the WinCC flexible project “Set06_WinCC_flex_Vxdy_en.hmi”.</td><td></td></tr>
<tr><td>6.</td><td>Switch on the power supply for LOGO! Power and select the “Transfer” button on TP 177micro after the “bootloader” sequence. [3]
The download of the WinCC flexible project can start if a dialog box named “Transfer….” is displayed on the panel.</td><td></td></tr>
<tr><td>7.</td><td>In WinCC flexible, now start the transfer of the project to TP 177micro by selecting “Project/Transfer/Transfer Settings”.</td><td></td></tr>
<tr><td>8.</td><td>Close the WinCC flexible project.</td><td></td></tr>
<tr><td>9.</td><td>Use the PROFIBUS cable to connect the RS485 interface of TP 177micro to port 0 of the S7-200 CPU.</td><td></td></tr>
<tr><td>10.</td><td>Switch off the power supply of LOGO! Power.</td><td></td></tr>
</table>

[3] The "bootloader" sequence occurs after a start delay time; after this time has elapsed, an already loaded application starts. You consequently have to select Transfer in the start delay time.

Configuring S7-200 controller with STEP 7-Micro/WIN project

Table 5-5

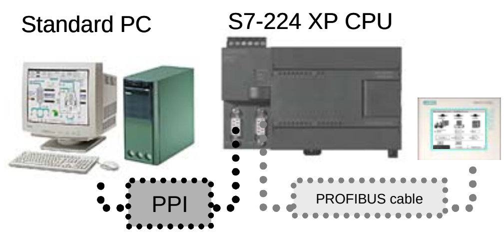
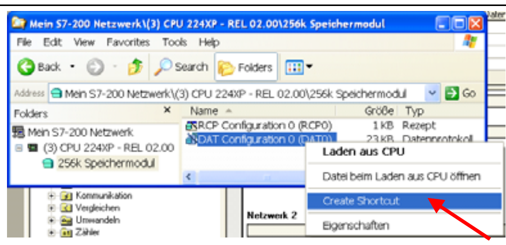
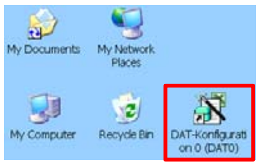
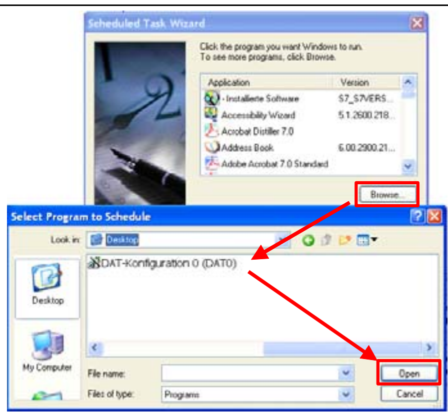
<table>
<tr><th>No.</th><th>Instruction</th><th>Note</th></tr>
<tr><td>1.</td><td>Use an RS232/PPI cable to connect COM 1 of the PC to port 1 of the S7-200 CPU. The DIP switches of the RS232/PPI cable are to be set as follows:
<table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td></tr></table></td><td>
</td></tr>
<tr><td>2.</td><td>Select “Start/Settings/Control Panel” and open the “Set PG/PC Interface” menu.

Select “PC/PPI cable(PPI)” as “Interface Parameter Assignment Used”
Set the access point to “Micro/WIN → PC/PPI cable(PPI)”.
Open the “Properties” window and in the “PPI” tab, set the “Transmission Rate” to 187.5 kbps.
In the “Local Connection” tab, set the serial PC interface COM1.
Click OK to confirm the “Properties” window.
Confirm the “Set PG/PC Interface” window with OK.
</td><td>
</td></tr>
<tr><td>3.</td><td>Plug the 256 KB memory module in the S7-200 CPU.</td><td>
</td></tr>
<tr><td>4.</td><td>Switch on the power supply for LOGO! Power.</td><td></td></tr>
<tr><td>5.</td><td>Extract the STEP 7-Micro/WIN project to the hard disk. (Table 5-1)</td><td></td></tr>
<tr><td>6.</td><td>Open the project “Set06_weighing_Vxdy_en.mwp” using STEP 7-Micro/WIN.</td><td></td></tr>
<tr><td>7.</td><td>Download the program to the S7-200 CPU.</td><td>
</td></tr>
<tr><td>8.</td><td>Restart the S7-200 CPU.</td><td></td></tr>
</table>

Preparing S7-200 controller and Windows standard PC for archiving function

This step is only required if the functionality of the automated archiving function is later to be used by the MS Windows standard tool “Scheduled Tasks”.

Table 5-6

<table>
<tr><th>No.</th><th>Instruction</th><th>Note</th></tr>
<tr><td>1.</td><td>Use an RS232/PPI cable to connect COM 1 of the PC to port 1 of the S7-200 CPU. The DIP switches of the RS232/PPI cable are to be set as follows:
<table>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td></tr>
</table></td><td>
</td></tr>
<tr><td>2.</td><td>Start S7-200 Explorer in Windows by selecting “Start/SIMATIC/S7-200 Explorer”.</td><td></td></tr>
<tr><td>3.</td><td>Click the S7-200 CPU and select the 256 KB memory module. In the right window, right-click “DAT Configuration 0(DAT0)” and select “Create Shortcut”.
(The “Open File on Upload” option has to be deactivated)</td><td></td></tr>
<tr><td>4.</td><td>A shortcut to the “Data-Log” file in the 256 KB memory module is now created on the desktop.</td><td></td></tr>
<tr><td>5.</td><td>Select “Start/Settings/Control Panel” and start the Windows program “Scheduled Tasks”.
Add a new task and in the wizard, click “Browse…” to select the DAT configuration shortcut on the desktop.</td><td></td></tr>
<tr><td>6.</td><td>After selecting the program to be executed, the time interval with which the program is to be executed is set.</td><td>For the test in chapter 6 “Live Demo” a time in the near future should be used for the next execution of the archiving.</td></tr>
<tr><td>7.</td><td>Follow the instructions of the wizard and then exit the wizard.</td><td></td></tr>
</table>

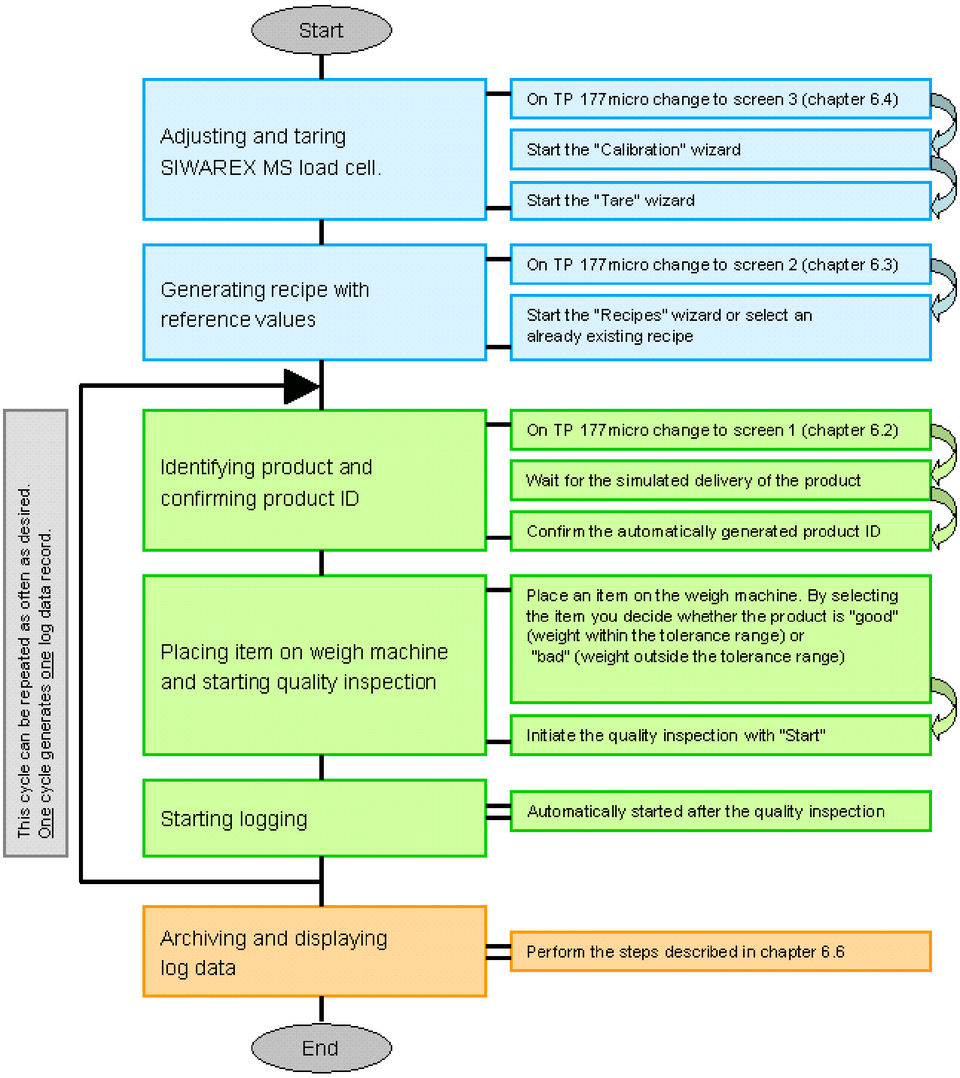
6 Live Demo

The features of Micro Automation Set 6 were “packaged” in an application example of a packaging system looked at from the aspect of quality inspection.

If the components have been correctly configured as described in chapter 5.3, the functionalities and features of program code and hardware can be tested as follows.

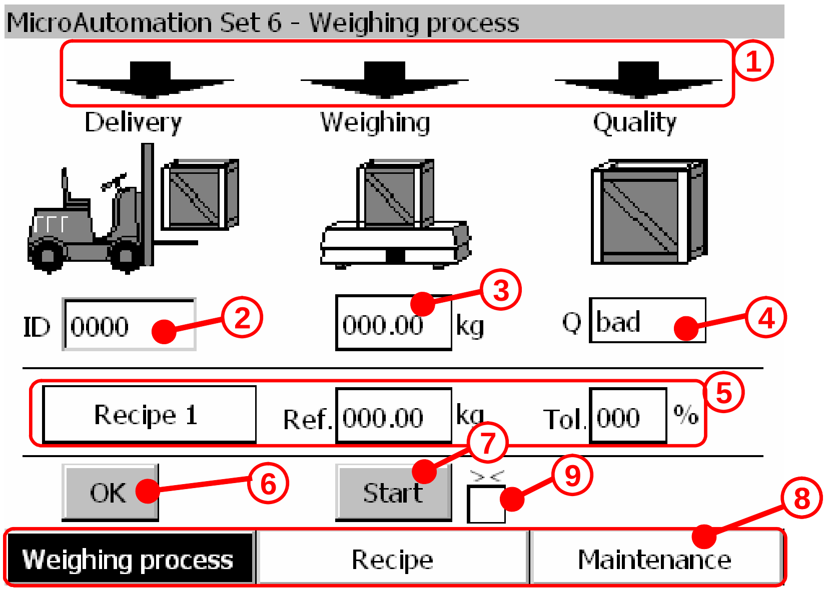
6.1 Process

Figure 6-1



6.2 Screen 1: Micro Automation Set 6 – Weighing process (start screen)

Figure 6-2



What is displayed?

This screen displays the current process step **(1)** of the quality assurance of the packaging system.

In the “Delivery” step, the is product delivery is simulated and a product ID is generated **(2)**. After a restart of the CPU the start is performed with product ID = 1.

In the “Weighing process” step, the weight of the product **(3)** is displayed.

In the “Quality” step, the weight value of the product is compared to the currently selected recipe data **(5)**. The quality status **(4)** is displayed. The logging of the quality result is automatically started but not displayed here.

After the “Quality” step, a new product is automatically delivered, thus the “Delivery” step is started again.

Selecting the screen (8)

Figure 6-3

Step 1

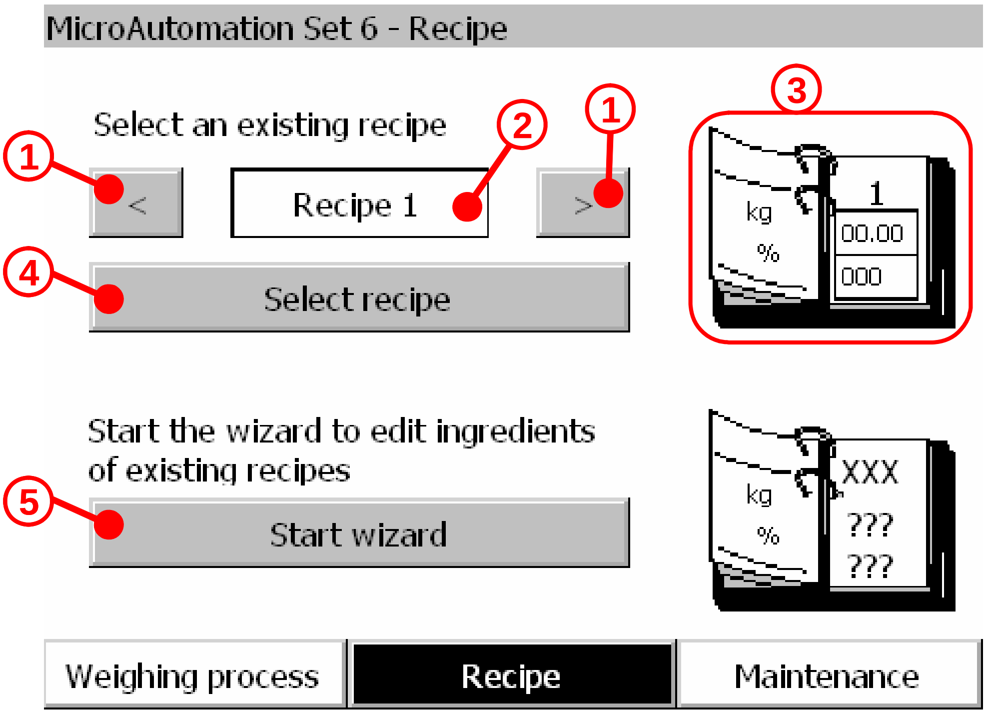
Control function

OK With OK **(6)** the product ID in the “Delivery” step is confirmed and the next process step is started.

START If the load cell is at standstill **(9)**, start **(7)** confirms that the product is on the weigh machine and that the “Weighing process” step is completed. Thus the “Quality” step is started.

6.3 Screen 2: Micro Automation Set 6 – Recipe

Figure 6-4



What is displayed?

This screen provides information **(3)** on the recipe used for the quality assurance **(2)** for the evaluation of good and bad parts.

In addition, an already existing recipe can be selected and confirmed **(4)** using the arrow keys **(1)**.

Another option is to edit the existing recipes. The wizard to be called by clicking this button **(5)** indicates step by step what has to be done.

Selecting the screen

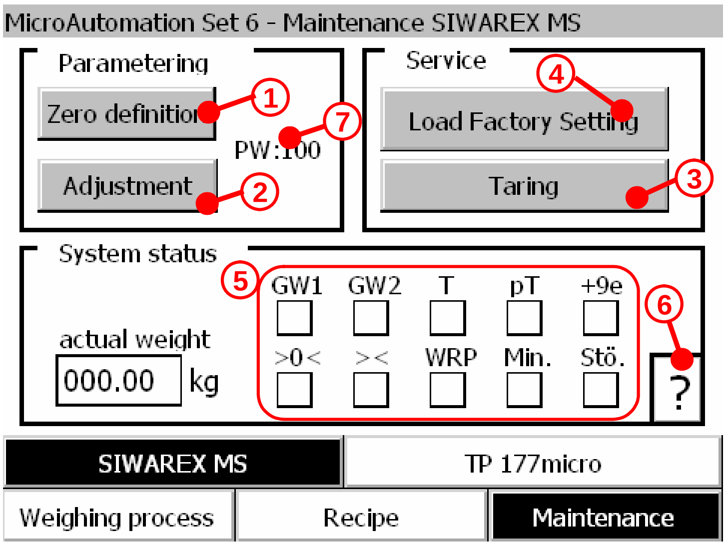
Figure 6-5

Control function

◄►	**(1)** Decreases or increases the recipe number
Select Recipe	**(4)** Selects a recipe based on the selected recipe number
Start Wizard	**(5)** Starts the wizard for editing a recipe

6.4 Screen 3: Micro Automation Set 6 – Maintenance SIWAREX MS

Figure 6-6



What is displayed?

In this screen, the SIWAREX MS module can be parameterized. Clicking the above buttons **(1) (2) (3) (4)** calls wizards which assist in the respective configuration.

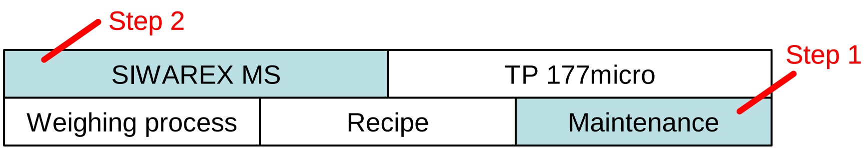
The “Commissioning” buttons **(1) (2)** are protected by a password **(7)**. (Password: 100)

In addition, status information **(5)** of the SIWAREX MS module can be viewed in this screen.

The help function **(6)** provides information on the displayed status information.

Selecting the screen

Figure 6-7

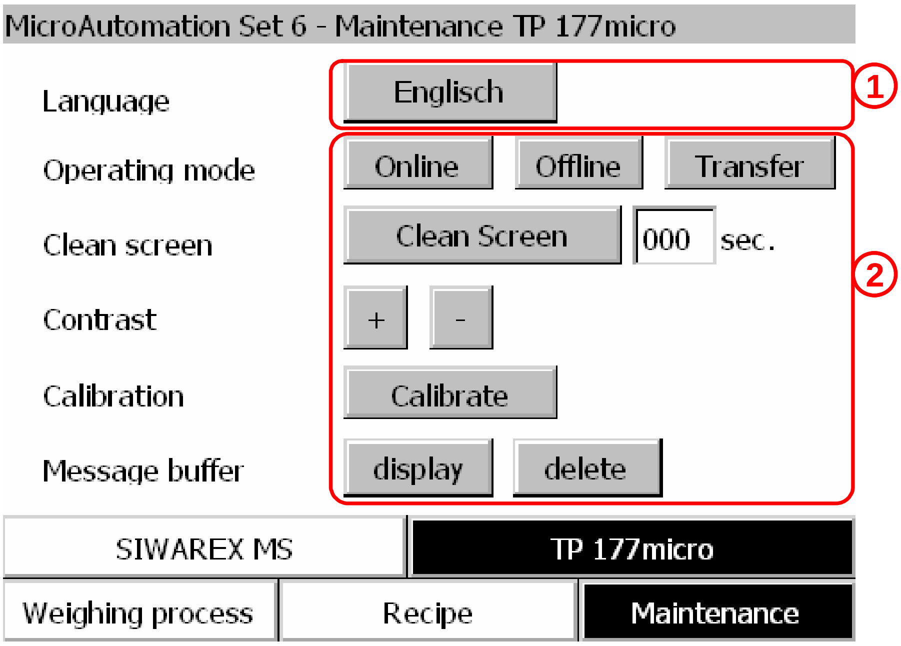


Control function

Set to Zero	Starts the wizard for resetting SIWAREX MS
Adjust	Starts the wizard for adjusting SIWAREX MS
Tare	Starts the wizard for taring SIWAREX MS
Load Factor Setting	Starts a wizard for deleting the current parameterization and loading the factory settings of SIWAREX MS

6.5 Screen 4: Micro Automation Set 6 – Maintenance TP 177micro

Figure 6-8



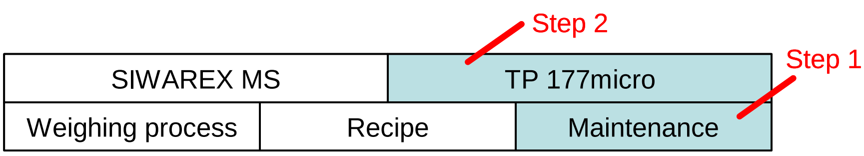
What is displayed?

This screen enables to change the language **(1)** between German and English.

In addition, selected system functions **(2)** of TP 177micro can be called

Selecting the screen

Figure 6-9



Control function

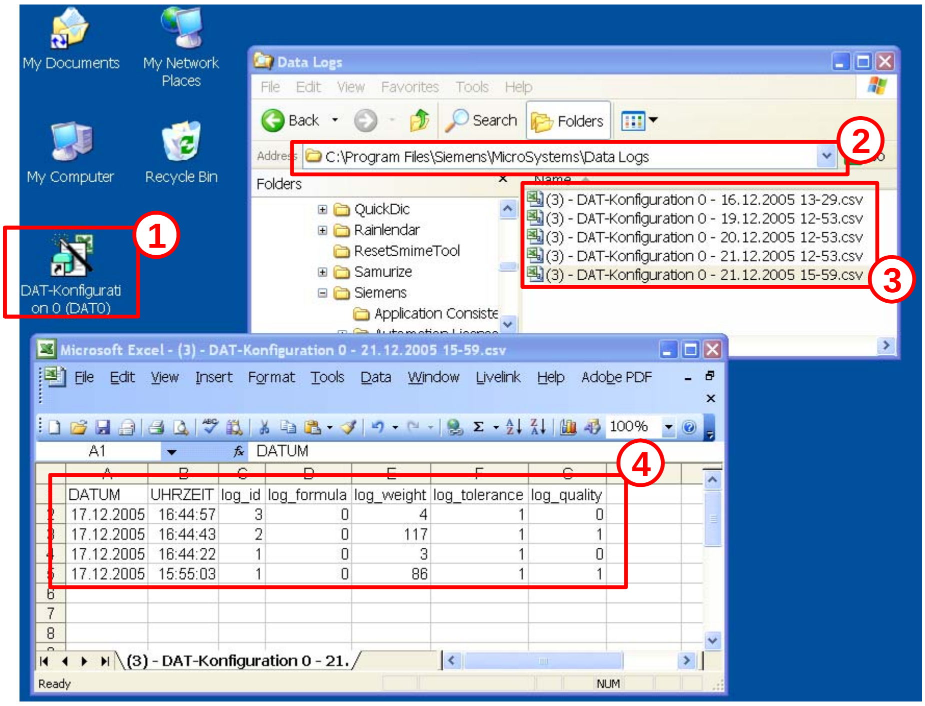
German	Changing between project language German and English
Online, Offline Transfer	Changing the device modes
Clear Display	Deactivates all control elements and enables the cleaning of the device. Input of the duration possible.
+ / -	Increases or decreases the contrast of the display
Calibration	Starts the calibration wizard of the device
Display, Delete	Displays the pending messages or deletes them

6.6 Reading out log data and opening with MS Excel

Note

At this point, it is assumed that the shortcut of the Data-Log file in the 256 KB memory module exists on the desktop. (see chapter 5.3 "Configuring components")

Figure 6-10



Manually reading out log data from the memory module

Double-click the shortcut **(1)** to store the logged data as CSV file **(3)** in the installation path of Micro/WIN (default: "Drive":Program Files\Siemens\MicroSystems\Data Logs) **(2)**

Automatically reading out log data from the memory module

If a task for the automatic readout of the logged data has been created as described in chapter 5.3, the CSV file is stored in the installation path of Micro/WIN depending on the defined time interval.

Evaluating the archived data

To evaluate the archived data, we recommend opening the CSV file with Microsoft EXCEL **(4)** and saving it as XLS file.

Since, according to the parameterization in SIWATOOL MS, the decimal point of the weight is set to "2", the value displayed in the log data record under *log_weight* has to be divided by 100 to receive the weight in "kg".

7 Technical Data

LOGO!Power 24 V/1.3 A

Table 7-1

Criterion	Technical data	Additional note
Supply voltage	AC 85 to 264 V	
Output voltage	DC 24 V (setting range DC 22.2 to 26.4 V)	
Output current	1.3 A	
Dimensions (W x H x D) in mm	54 x 90 x 55	

S7-200 CPU 224 XP

Table 7-2

Criterion	Technical data	Additional note
Input voltage	24 V DC	Direct line connection only as AC/DC version
Current consumption	900 mA	
Output current	280 mA	For expansion modules
Interfaces	2x RS 485 interface 1x expansion bus for modules	
Inputs/outputs	• 14DI/10DO • 2AI/	
EPROM user data	16 Kbytes	
Dimensions (W x H x D) in mm	140 x 80 x 62	

Expansion module SIWAREX MS weighing module

Table 7-3

Criterion	Technical data	Additional note
Supply voltage	24 V DC	
Current consumption	< 140 mA	
Interfaces	1x RS 232C interface 1x TTY interface	
Interface load cells	4-wire or 6-wire DMS full bridge	
Update rate	50 Hz or 30 Hz	
Dimensions (W x H x D) in mm	30 x 80 x 50	

SIWAREX R load cell stainless steel

Table 7-4

Criterion	Technical data	Additional note
Rated load Emax.	6 kg	
Accuracy class	C3	
Degree of protection according to EN 60 529	IP66/IP68	
Nominal characteristic value Cn	2 mV/V	
Maximum used load L_u	150% Emax	
Breaking load L_d	300% Emax	
Platform size	Max. 350 x 350 mm	

SIWAREX R load cell aluminum

Table 7-5

Criterion	Technical data	Additional note
Rated load Emax.	20 kg	
Accuracy class	C3	
Degree of protection according to EN 60 529	IP66/IP68	
Nominal characteristic value Cn	2 mV/V	
Maximum used load L_u	150% Emax	

TP 177micro touch panel

Table 7-6

Criterion	Technical data	Additional note
Supply voltage	DC 20.4 to 28.8 V	
Current consumption	100 mA	
Memory for configuration	256 KB flash	(Typically 250 pictures)
Dimensions (W x H x D) in mm	196 x 142 x 42	