SIEMENS

# Calibrating SIWAREX MS with SIWATOOL MS

**FAQ Release 1.0** **Aug 2007**

**Keywords:** SIWATOOL MS software, SIWAREX MS module, zero, range, adjustment, calibration, commissioning

## Q: How is the SIWAREX MS calibrated with SIWATOOL MS?

A: Following hardware parts and software are requested: SIWAREX MS module, S7-200 CPU, SIWATOOL MS software, RS232 cable, computer with Windows XPor higher and a calibration weight bigger than 5% of the sum of the nominal value of all load cells.

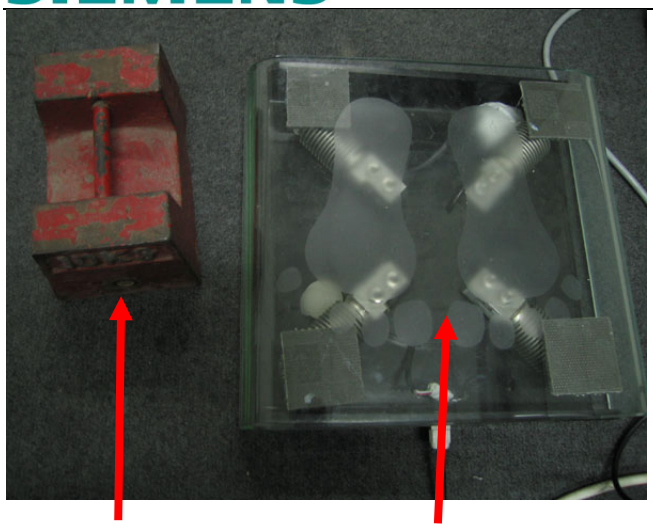
Requested parts:

S7-200 PLC

SIWAREX MS:
7MH4930-0AA01

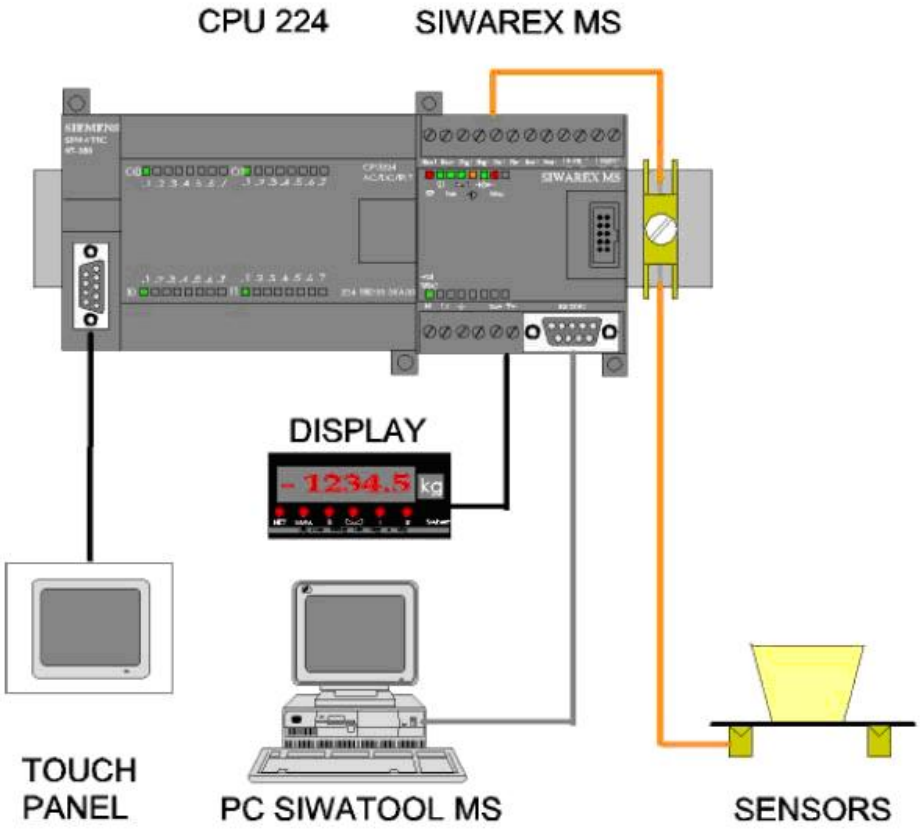
SIWATOOL RS232 Cable:
7MH4702-8CA

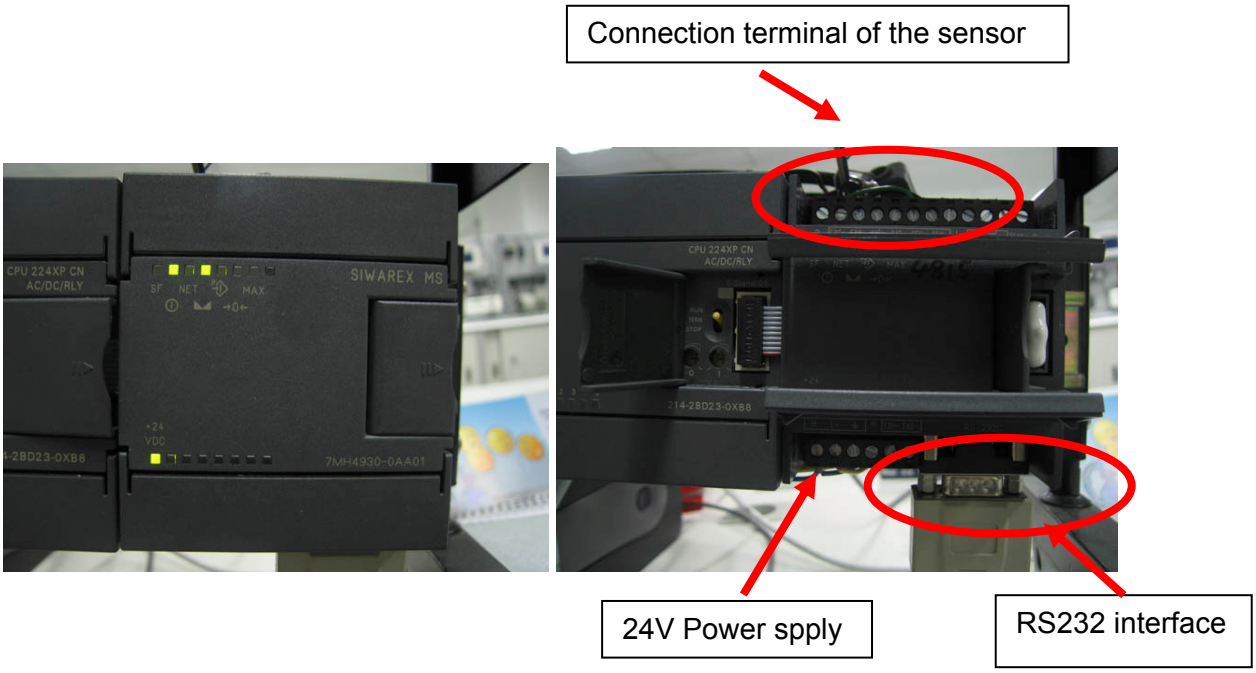

Software for SIWAREX MS:
7MH4930-0AK01



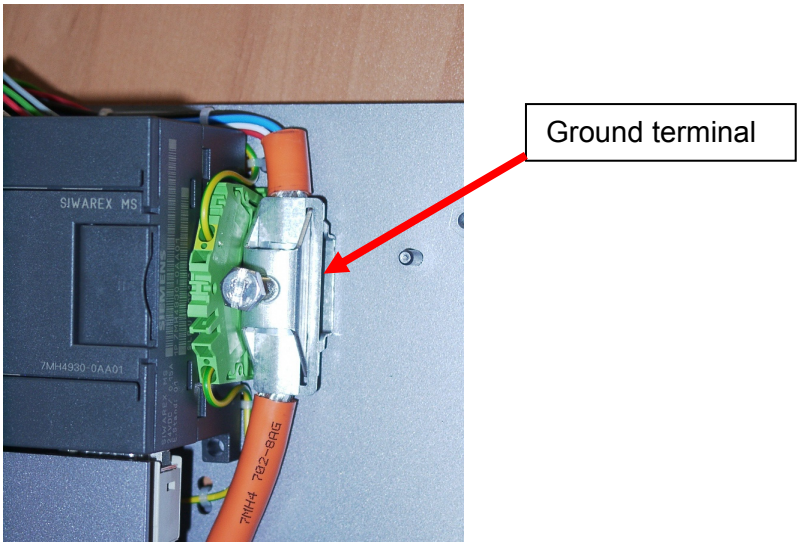
Adjustment weight Scale

The physical connection is as shown below:

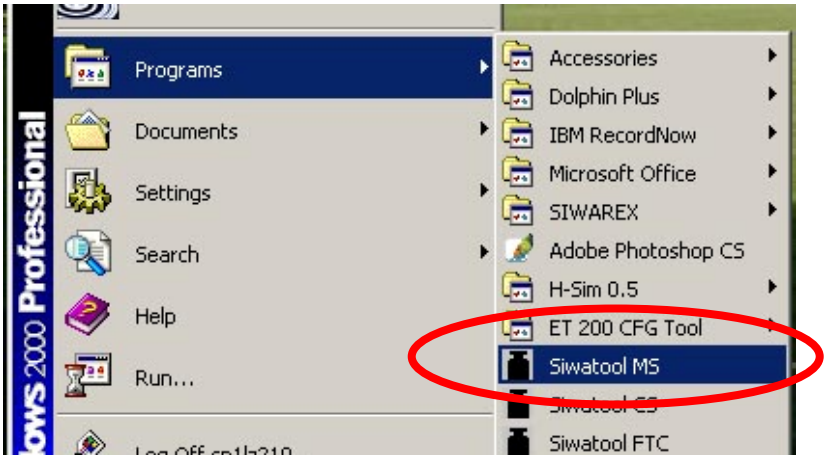




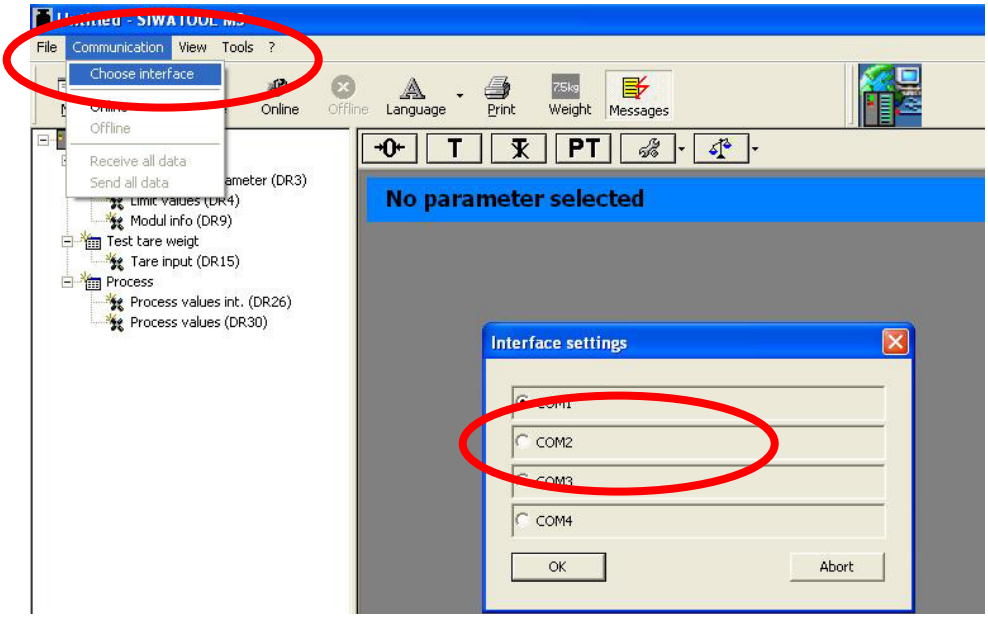

| Connection and signal designations | Comment |
|---|---|
| SEN+ | Sensor line + |
| SEN- | Sensor line - |
| SIG+ | Measurement line + |
| SIG- | Measurement line - |
| EXC+ | Load cell supply output + |
| EXC- | Load cell supply output - |



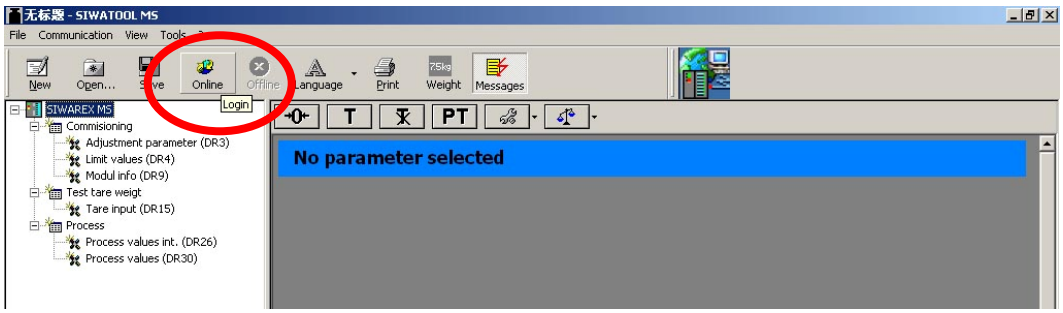
Start SIWATOOL MS.




Select COM1 as the communication interface.




Click **Online**.



## Resolution of SIWAREX MS

The weight is converted into a 16 bits value.
The value is comprised between 0 and 64000
The value is then transmitted as a signed integer to the SIMATIC PLC

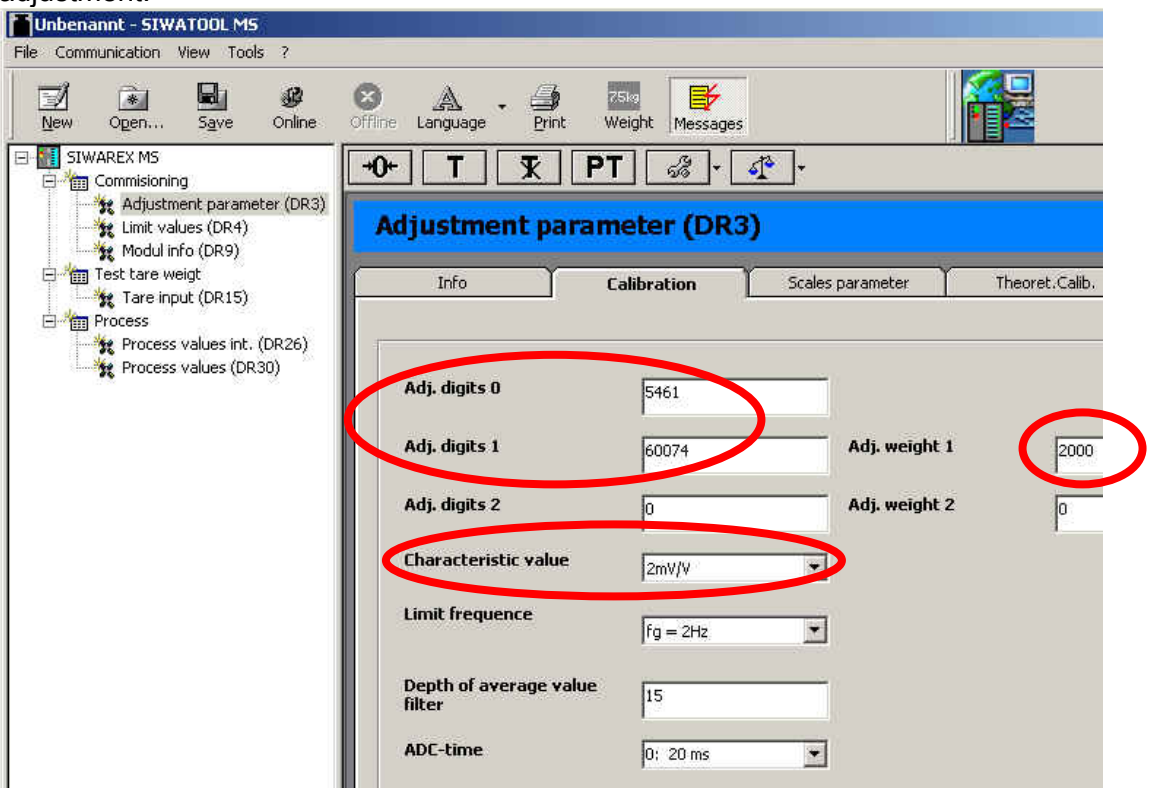
**INT Data Type**

| Data Type | Length (bits) | Format | Format Examples | |
|---|---|---|---|---|
| | | | Min. | Max. |
| INT | 16 | Signed integer | -32768 | +32767 |

INT has no comma and no units, the maximum value is 32767
For a 20kg scale you may use a resolution of 1 g:
Range 0 g to 20000 g

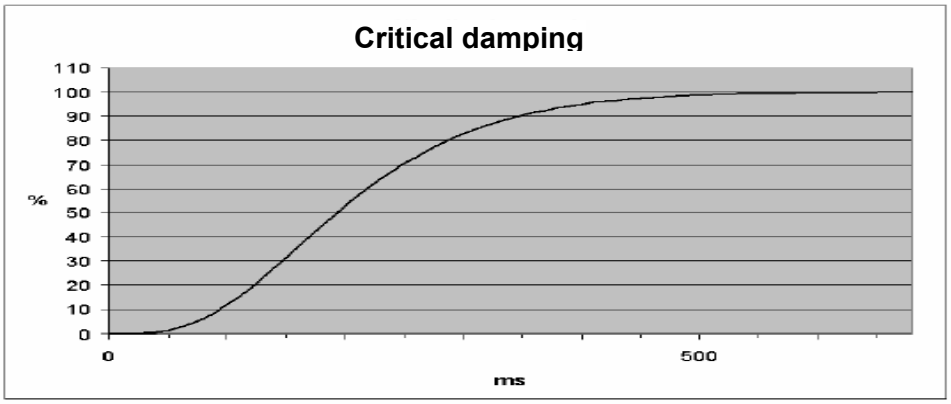
For a 40 kg scale you may use only a resolution of 10 g
Range 0.00 kg to 40.00 kg
The comma is not part of an integer and is only used for the display
→ **Choose resolution and comma <u>before</u> parameterization.**

When the communication is established, follow the procedure below to make the adjustment.




Adj.digits 0 and Adj.digits 1: Accept the default values.
Adj.weight 1: Enter the value of adjustment (calibration) weight.
Characteristic Value: Sensor characteristic value. Indicated on sensor. Default value is 2 mV/V.

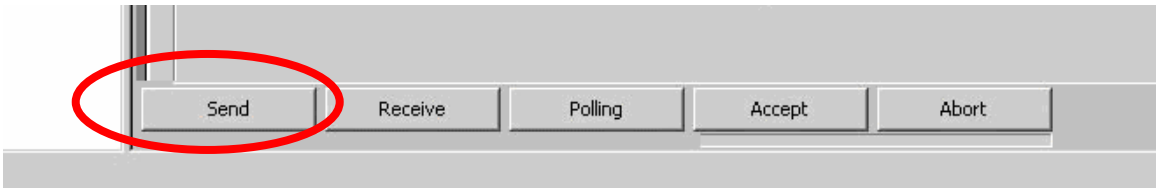
Limit frequency: Low-pass filter (0.05 Hz ~ 5 Hz).
If it is set to 5 Hz, the scale will respond quickly to the weight change; if it is set to 0.5 Hz, the scale will “move slowly”.



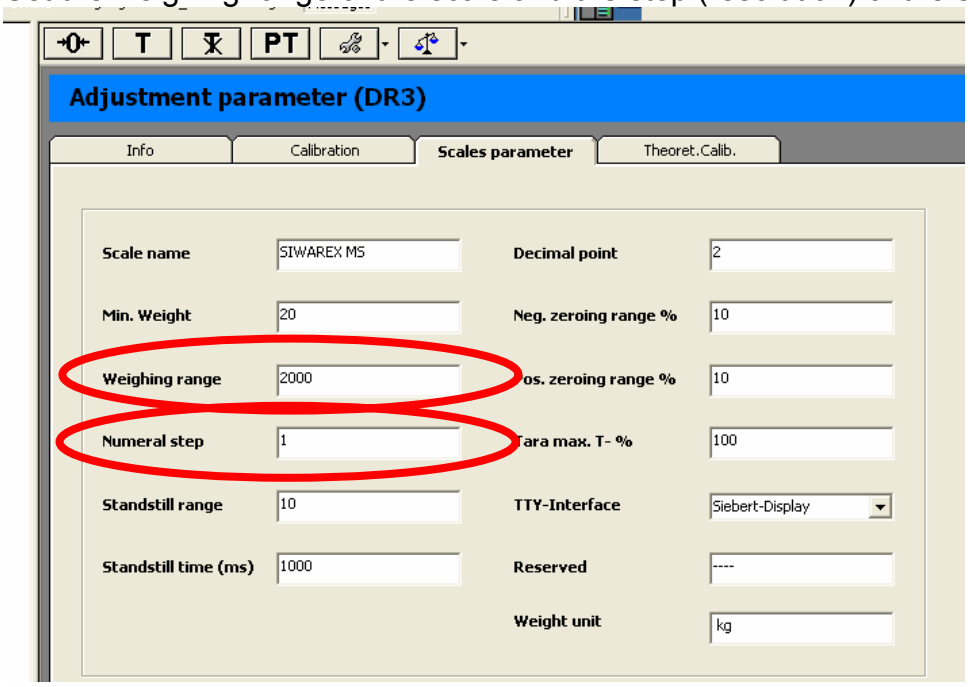

Step response of the digital low-pass filer for fg = 2 Hz

Depth of average value filter: n=2 ~ 255.
The average value filter ensures a stable weight value and prevents interference. The weight is measured according to the average value of n weight values.
If n = 10, 10 weight values will be used for calculating the average value. The earliest value is discarded every 20 (or 33.3) milliseconds and the latest value will be added for the calculation.
Measuring time depends on the power supply frequency. For 50 Hz. select 20 ms and for 60 Hz select 33.3 ms.

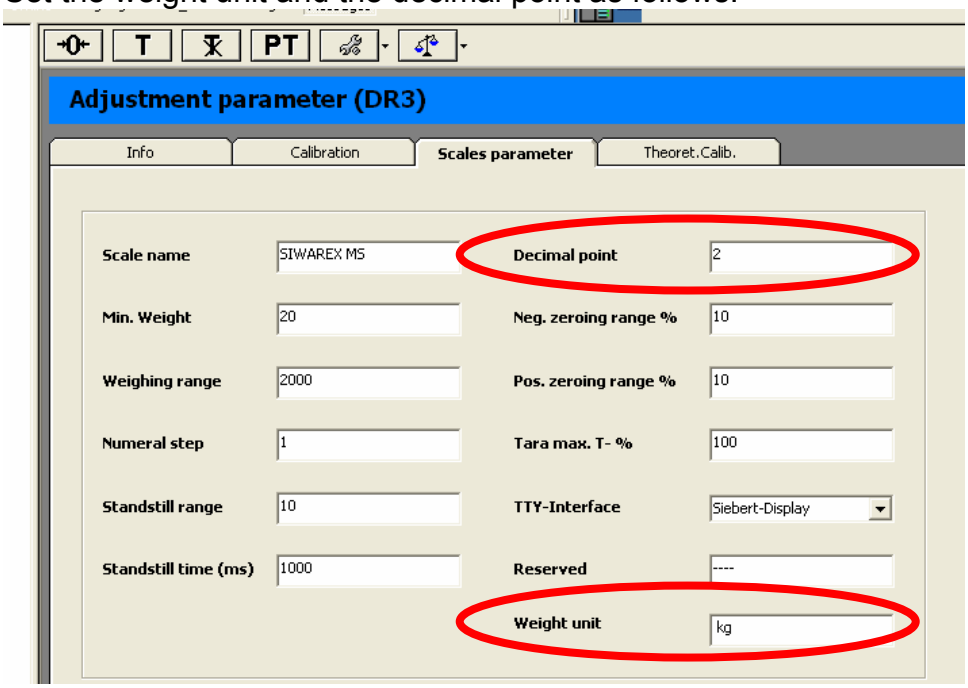
After setting the parameters, click **Send**.



Set the weighing range of the scale and the step (resolution) of the scale.



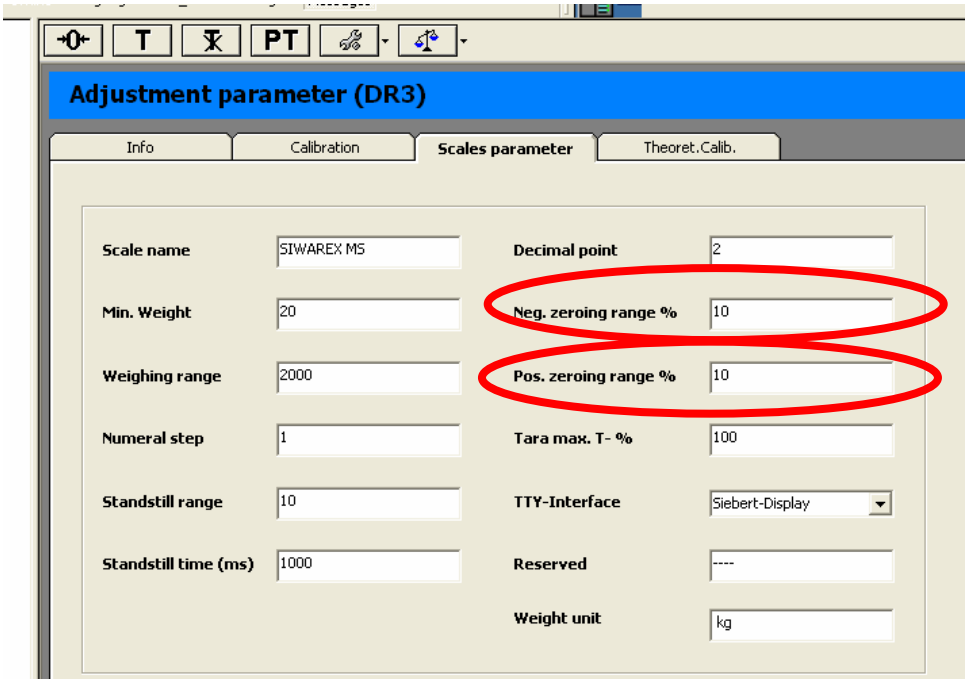

Set the weight unit and the decimal point as follows:



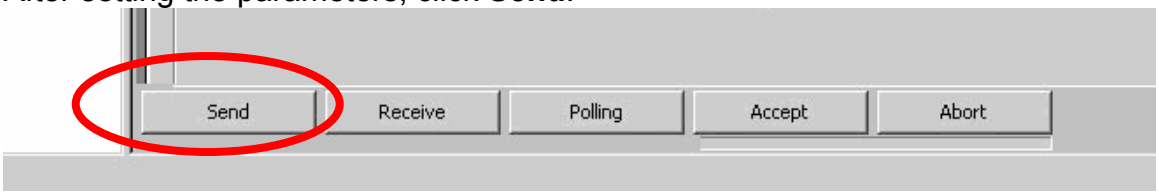

Standstill time (ms) and Standstill range are used to monitor when the scale stand still.
If the weight change is lower than the specified range (standstill value) within the specified period (standstill time), then the scale stands still.

**Negative and positive zeroing range.**

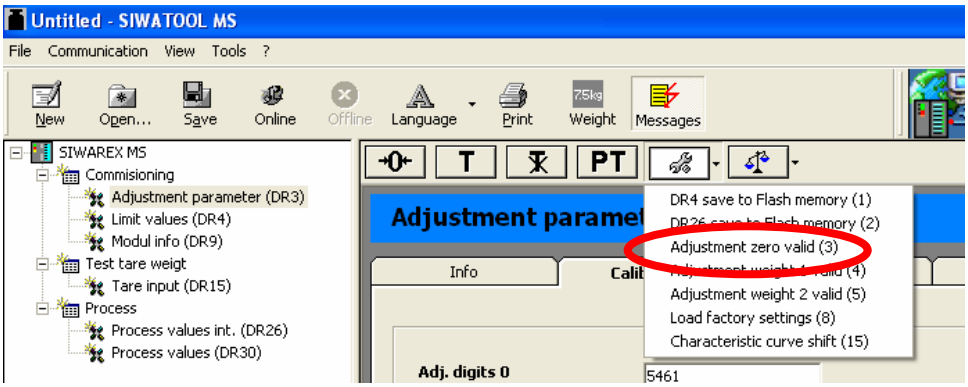
This specification can be used to limit the effect of the function and therefore to protect the process. It is given in % of the max weighing range. Zeroing will be rejected if the current gross weight is too high or too low.

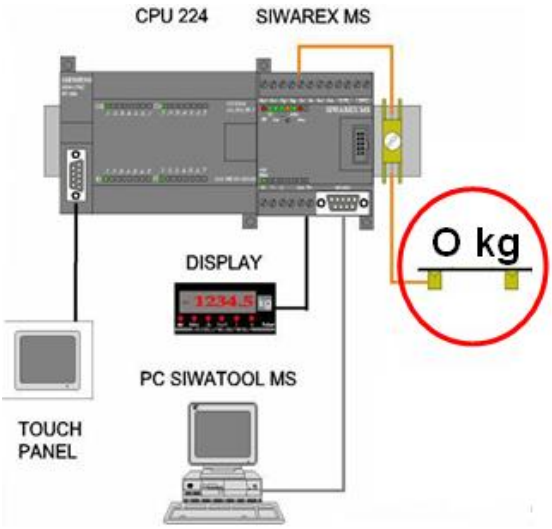



After setting the parameters, click **Send**.

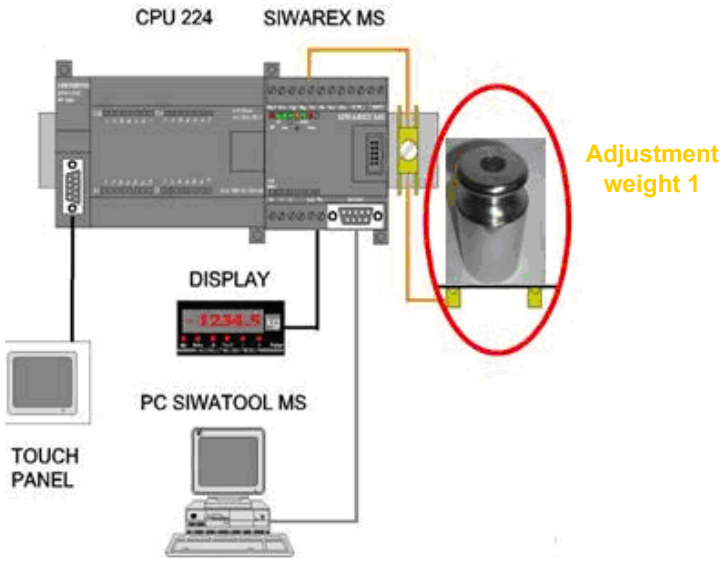


Ensure that the scale is empty (not loaded) and click **Adjustment zero valid (3)**.

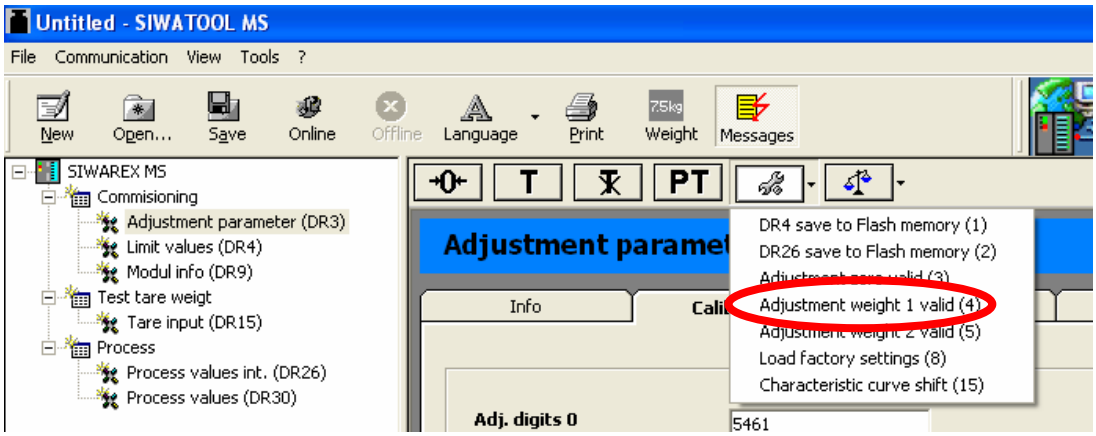



Place the adjustment weight on the scale to adjust the range of the scale.



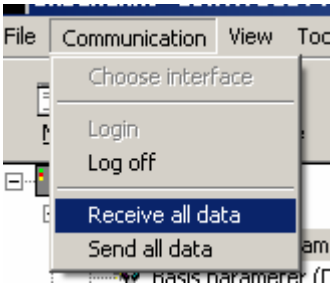

Click **Adjustment weight 1 valid (4)**.



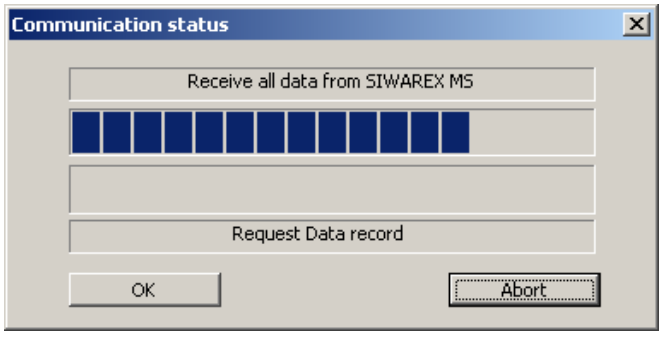

Calibration is complete.

**Eventually you may save the calibration data's into a file**

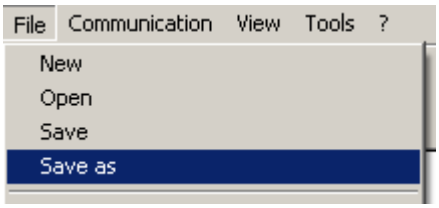
Receive all data from the MS to the PC

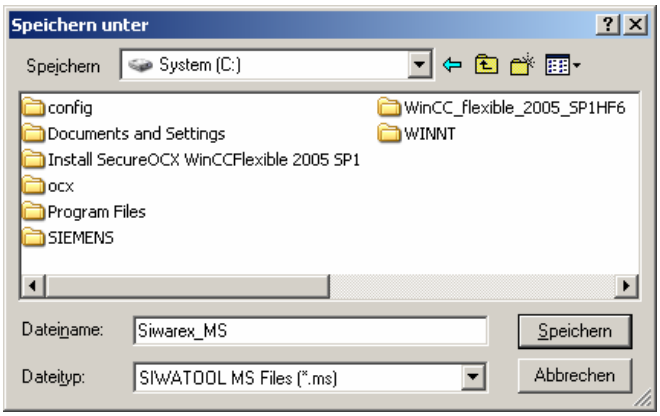



During the tansmission from the Siwarex MS module to the PC, the following message-window appears:




Save the data as a Siwatool MS File:




For other operations, see the related manual.

SIEMENS

**If you have any problems or suggestions regarding the related products or documents, please feel free to contact:**

Technical support for SIWAREX

Tel: +49 721 595 2811
Fax: +49 721 595 2901
E-mail: siwarex.hotline.aud@siemens.com
Website: www.siwarex.com