Syntax description

Sartorius

MINI - SICS Interface

Contents

1. Intended Use

MINI-SICS (Standard Interface Common Set) consists of commands that are used to control Cubis MSA and MSU balances through interfaces. The command scope covers functions for reading measurement data and triggering weighing commands (e.g., tare), and functions for access to the balance (query parameters, executing commands, saving weight values to alibi memory). Automatical printing is available. Use a program such as the SartoTerminal from Sartorius to communicate with the balance.

The following commands are available:

S   – Send weight value at stability
SI   – Send weight value without stability
SIR – Send automatic weight values at and without stability
T   – Tare the balance at stability
TI   – Tare the balance without stability

Additional Sartorius commands:

SA   – Send weight value at stability and store in alibi memory (with optional label)
CMD – Execute application command
PAR – Query parameter

2. Settings for Cubis MSA and MSU Balances

MINI-SICS commands can be used via the following interfaces:

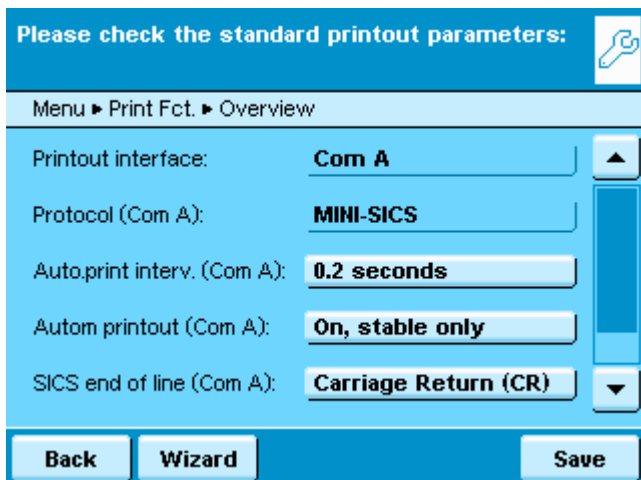•   Serial interfaces (RS-232)
•   USB
•   Bluetooth
•   Ethernet

In "Menu ->Device Parameters ->Configure ports -> Configure serial ports," the interface must be set to "MINI-SICS" mode:
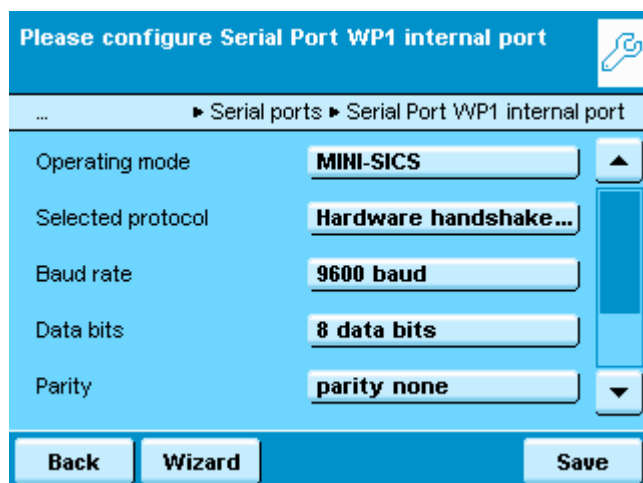
Additional settings:

▶ Selected protocol:
  – No handshake
  – Software handshake XON/OFF
  – Hardware handshake RTS/CTS

▶ Baud rate:
  – 300 baud
  – 600 baud
  – 1200 baud
  – 2400 baud
  – 4800 baud
  – 9600 baud
  – 19200 baud
  – 38400 baud
  – 57600 baud
  – 115200 baud

▶ Data bits:
  – 7 data bits
  – 8 data bits

▶ Parity:
  – No
  – Odd
  – Even

▶ Stop bits:
  – 1 stop bit
  – 2 stop bits

▶ Record data:
  – Turn off
  – Turn on

For using autom. printing in standard weighing, standard weighing shall be activated and parameter "autom. printout" in Menu -> Device parameters -> Configure Data output shall be on:

Please check the standard printout parameters:

Menu ▶ Print Fct. ▶ Overview

Printout interface:	**Com A**
Protocol (Com A):	**MINI-SICS**
Auto.print interv. (Com A):	**0.2 seconds**
Autom printout (Com A):	**On, stable only**
SICS end of line (Com A):	**Carriage Return (CR)**

Back **Wizard** **Save**

▶ Auto. print interval:
- 1 time per second
- 2 times per second (0.5 sec.)
- 5 times per second (0.2 sec)
- 10 times per second (0.1 sec.)

▶ Autom. printout:
- Off
- On, stable and unstable weight values
- On, stable weight values only

For using autom. printing in task, configure parameter "autom. printout" in task configuration:

3. Syntax of MINI-SICS Commands

A MINI-SICS command consists of an identifier (ID) and optional parameters.

ID [Parameter1] [Parameter2] [Parameter3] … [Parametern]<CR><LF>

The identifiers (IDs) consist of ASCII characters and are written in capital or small letters. The parameters must be separated with a space. Each command must be concluded with carriage return and line feed
(#0D#0A or <CR><LF>).

Example: Get weight value   S<CR><LF>

4. Syntax of MINI-SICS Responses

The balance sends a response to each MINI-SICS command except T and TI. The responses may contain one or more weight values and/or texts. After starting MINI-SICS, balance sends response "AT".

Characters 1-2: command ID
Character 3: space
Characters 4-12: weight value
Character 13: space
Characters 14…19 unit (without spaces)
<CR><LF>

Response for additional Sartorius commands:
ID Status [Parameter1] [Parameter2] [Parameter3] … [Parametern]<CR><LF>
„Status" reproduces how the command was executed:
- A – Command was executed, no further response will be sent
- D – Weight value without stability
- I – Command could not be executed (e.g., because balance is already tared)
- L – Command has a syntax error and could not be executed
- S – Weight value at stability
- + – Weight value too high
- − – Weight value too low

The return parameters are weight values with corresponding weight units, numerical parameters, or texts.

5. Description of MINI-SICS Commands

S – Send weight value at stability

If the balance has a motorized draft shield and is set to automatic draft shield, the draft shield is shut first and then the weight value is sent at stability.

Syntax:
Command: S<CR><LF>
Response: S   w1 u1<CR><LF>   S: Weight value at stability
                                           w1:   Weight value
                                           u1:   Units of weight

              S+<CR><LF>   +:   Balance overload
              S–<CR><LF>   –:   Balance underload
              or
              SI <CR><LF>   I: Command cannot currently be executed

Example:
Command: S<CR><LF>
Response: S   99.528 g <CR><LF>   Current weight value at stability is 99.528 g

SI – Send weight value without stability

Syntax:
Command: SI<CR><LF>
Response: S   w1 u1<CR><LF>   S: Weight value at stability
              SD w1 u1<CR><LF>   D: Weight value without stability
                                           w1:   Weight value
                                           u1:   Units of weight

              SI+<CR><LF>   +:   Balance overload
              SI–<CR><LF>   –:   Balance underload
              or
              SI<CR><LF>   I: Command cannot currently be executed

Example:
Command: SI<CR><LF>
Response: S   99.528 g <CR><LF>   Current weight value at stability is 99.528 g
              SD   362.359 g <CR><LF>   Current weight value without stability is 362.359 g

SIR – Send automatic weight values at and without stability

The SIR command is used by the balance to query weight values cyclically.
The frequency for weight value queries is set as part of the task ("Print Settings" menu, with the parameter "Interval For Automatic Printout") – once, twice, 5 times, or 10 times a second. If no task is activated, set this parameter in
"Menu -> Configure Device -> Configure Data Output."
SIR is terminated with the commands @, S, SI, and SR or by turning the balance off.

Syntax:
Command: SIR<CR><LF>
Response: S   w1 u1<CR><LF>   S: Weight value at stability
         SD w1 u1<CR><LF>   D: Weight value without stability
                       w1:   Weight value
                       u1:   Units of weight
         SI+<CR><LF>   +:   Balance overload
         SI-<CR><LF>   –:   Balance underload
  or
         SI <CR><LF>   I: Command cannot currently be executed

Example:
Command: SIR<CR><LF>
Response: SD   -94.821 g<CR><LF>
         SD   228.896 g<CR><LF>
         S   228.890 g<CR><LF>

T – Tare the balance at stability

If the T command is sent to the balance, the balance waits for stability to be achieved and is then tared.
The tare memory is overwritten with the new tare value. If the current weight value is less than zero, the balance cannot
be tared (but can be zeroed).
If the "Second tare" application is active, tare memory T1 is overwritten with this command. If the "Second tare" application
is not active, the balance tare memory is overwritten with this command. In this case, it is not possible to preset the
balance tare memory with an entered (non-weighed) weight value.
This command sends no response.

Syntax:
Command: T<CR><LF>

Example:
Command: T<CR><LF>   Balance was tared, and the weight value 29.817 g was recorded in the tare
                                       memory

TI – Tare the balance without stability

The balance is tared immediately. The tare memory is overwritten with the new tare value. If the current weight value
is less than zero, the balance cannot be tared (but can be zeroed).
If the "Second tare" application is active, tare memory T1 is overwritten with this command. If the "Second tare" application
is not active, the balance tare memory is overwritten with this command.

Syntax:
Command: TI<CR><LF>

Example:
Command: TI   Balance was tared, and the weight value 29.817 g was recorded
                                       in the tare memory

SA – Send weight value at stability and store in alibi memory

The SA command calls up a weight value at stability and stores it in the alibi memory. As an option, a label can be assigned when you store the weight value in the alibi memory.

Syntax:
Command: SA "Text"<CR><LF>   Text: Label (optional)
Response: SA A "w1" "w2" "w3" "w4" "w5" "n1" "n2" "Text"<CR><LF>
                                          w1: Net weight value
                                          w2: Balance tare memory
                                          w3: Appl. tare memory 1
                                          w4: Appl. tare memory 2
                                          w5:Gross weight value
                                          n1: Balance serial number
                                          n2: Consecutive number of data record in alibi memory
                                          Text: Label (optional), if entered
                                          A: Command executed

         or
         S I<CR><LF>   I: Command cannot currently be executed

Example 1:
Command: SA "Art.23"<CR><LF>
Response: SA A "N2   228.86[6]g" T   0.00[0]g" "T1   0.00[0]g"
           "T2   99.50[5]g" "G#   328.37[1]g" "SerNo. 23201202"
           "MemNo. 503" "MemID Art.23"<CR><LF>

Example 2:
Command: SA<CR><LF>
Response: SA A "N1   173.51[1]g" "T   0.00[0]g" "PT1   125.00[0]g"
           "T2   0.00[0]g" "G#   298.51[1]g" "SerNo. 23201202"
           "MemNo. 504" "MemID "<CR><LF>

CMD – Execute application command

This command executes application commands.

Syntax:
Command: CMD "m1.c1" P1<CR><LF>   m1:   Application module
                                  . :   Separator for application module and command
                                  c1:   Application command
                                  P1:   Optional parameter
Response: CMD "m1 c1" P1 A<CR><LF>   A: Command executed
             or
             CMD I<CR><LF>   I: Command cannot currently be executed

Example 1:
Command: CMD WEIGH.DO_TARE1 1
Response: CMD WEIGH.DO_TARE1 1 A   Balance tared

Example 2:
Command: CMD MESSAGE.SHOW_ERROR   "Weight too low!"
Response: CMD MESSAGE.SHOW_ERROR   "Weight too low!" a
                                          Error message displayed

Example 3:
Command: CMD MESSAGE.HIDE_ERROR
Response: CMD MESSAGE.HIDE_ERROR A   Error message deleted from display

Example 4:
Command: CMD RECIPE.START
Response: CMD RECIPE.START A   Recipe application started

PAR   – Query parameter

This command queries the values of a current valid parameter.

Syntax:
Command: PAR "m1 P1"<CR><LF>   m1:   Application module
                                       . :   Separator for application module and parameter
                                       P1:   Parameter from application module
Response: PAR A h1 v1<CR><LF>   h1:   Header of queried parameter
                                       v1:   Value of queried parameter
                                       A: Command executed

           or
           PAR I<CR><LF>   I: Command cannot currently be executed

Example 1:
Command: PAR   Name of active user to be queried
Response: PAR A User Tom Smith   Header and name of active user are returned

Example 2:
Command: PAR CHECK.MIN   Minimum limit for checkweighing application to be queried
Response: PAR A 12.230 g   Minimum limit for active application is returned

Example 3:
Command: PAR DENSITY.RHO_SAM   Density of current sample to be queried
Response: PAR A 1.4 g/cm3   Density of current sample is returned

Example 4:
Command: PAR TASK.TITLE   Name of active task to be queried
Response: PAR A Task Dichtebest.   Header and name of active task are returned

Example 5:
Command: PAR COUNT.WREF   The average weight for the piece count application to be queried
Response: PAR A 9.95010 g   The current average weight is returned