Reference Manual

METTLER TOLEDO

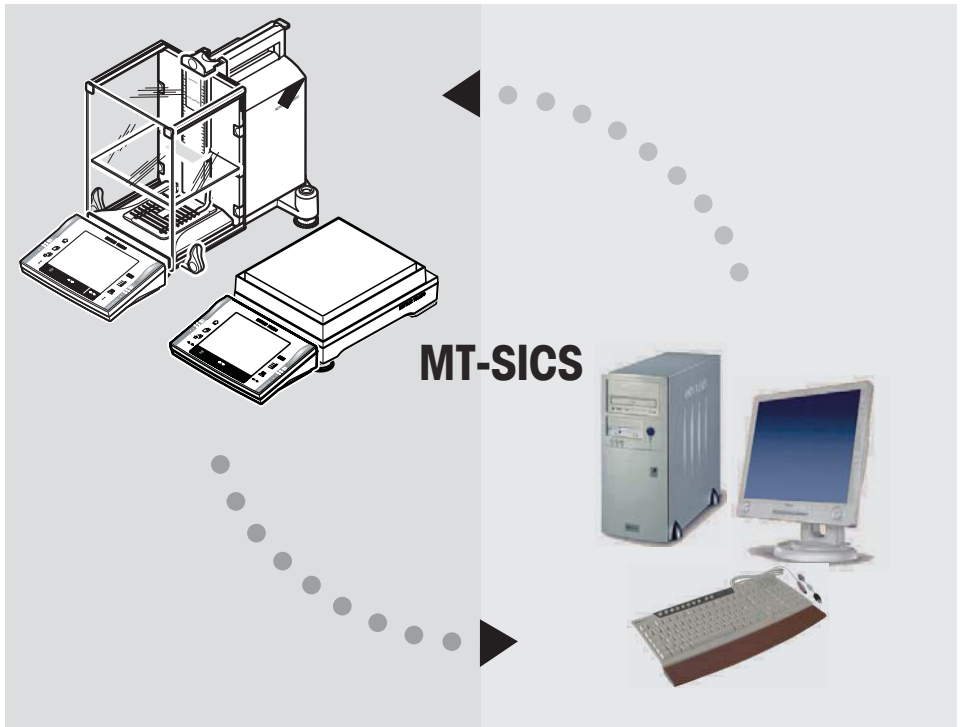**METTLER TOLEDO**
Standard Interface Command Set
MT-SICS 0 version 2.3x
MT-SICS 1 version 2.2x
MT-SICS 2 for Excellence Balances
MT-SICS 3 for Excellence Balances

MT-SICS

## Contents

1   Introduction

In weight measurements the demands on the readability and maximum capacity of balances and scales range from less than one microgram up to several hundred tonnes. To meet these and other requirements, METTLER TOLEDO offers an extensive range of balances and scales. Many of the balances and scales used have to be capable of integration in a complex computer or data acquisition system. To enable you to integrate balances in your system in a simple manner and utilize their capabilities to the full, most balance functions are also available as appropriate commands via the data interface.

Standardization of the commands

All new METTLER TOLEDO balances launched on the market support the standardized command set "METTLER TOLEDO Standard Interface Command Set" (MT-SICS), which is divided into 4 levels, depending on the functionality of the balance:

- MT-SICS level 0   Command set for the simplest balance, e.g. weighing cell.
- MT-SICS level 1   Extension of the command set for standard balances, i.e. balances without integrated applications.
- MT-SICS level 2   Extension of the command set by the commands specific for a balance family, e.g. MT-SICS level 2 for the Excellence balance line.
- MT-SICS level 3   Application-specific commands as an extension of the command set,   e.g. MT-SICS level 3 for piece counting or FreeWeigh application with Remote -x software.

A particular distinguishing feature of this concept is that the commands combined in MT-SICS level 0 and 1 are identical for all balances. Both the simplest weighing balance and a fully expanded weighing work station recognize the commands of MT-SICS level 0 and 1. Investigations of various applications have shown that the vast majority of all system solutions can be handled with the commands of MT-SICS level 0 and 1. This means for you: if you restrict yourself to the commands of MT-SICS level 0 and 1, you can expand your system with additional balances from METTLER TOLEDO without having to change your application programs.
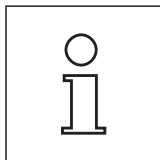
The commands written in this booklet contain MT-SICS commands for Excellence balances. As the balances can differ based on model and software version, not all the MT-SICS level 2 and 3 commands are usable on every model. We therefore recommend to use the "I0" command to get an overview of all commands that are supported by a particular balance. Commands that are listed with the "I0" command, but not described in this booklet, are not available for the user.

What do the commands of MT-SICS level 0 and 1 offer?

You can use the commands of MT-SICS level 0 and 1 to perform the following operations via the interface:
- Request weighing results,
- Tare the balance and preset the tare weight,
- Zero the balance,
- Identify MT-SICS implementation,
- Identify the balance,
- Reset the balance,
- Control the display,
- Control the keys for operation of the balance.

The commands of MT-SICS level 2 and 3

You can naturally use the data interface to exploit all functions available with your current balance or application. These additional functions are collected in the commands of MT-SICS level 2 and 3.

When creating your software application, please note that whereas the commands of MT-SICS level 2 have been specially tailored to your balance family, the commands of MT-SICS level 3 apply to your weighing application and can not be supported by every METTLER TOLEDO balance. In the enclosure with this manual, you can see what commands are supported by your balance and application.

Additional documentation on data interface

Settings of the interface such as baud rate, number of data bits, parity, handshake protocols and connector pin assignment are described in the operating instructions of the peripheral instrument or cable in question.

Version number of the MT-SICS

Each level of the MT-SICS has its own version number which can be requested with the command I1 from level 0.

This manual describes

> MT-SICS level 0, version 2.3x
> MT-SICS level 1, version 2.2x
> MT-SICS level 2 for Excellence balances
> MT-SICS level 3 for Excellence balances

You can use the command **I1** via the interface to request the MT-SICS level and MT-SICS versions implemented on your balance.

Please make sure that the versions implemented on your balance agree with those listed above.

2   Overview of all commands

Commands MT-SICS level 3 for Excellence balances   Page

Additional commands – FastHost for Excellence balances   Page

3   Data interchange with the balance

Each command received by the balance via the data interface is acknowledged by a response of the balance to the transmitter.
Commands and responses are data strings with a fixed format, and will be described in detail in chapter 3.

3.1   Command formats

Commands sent to the balance comprise one or more characters of the ASCII character set. Here, the following must be noted:

- Enter commands only in uppercase.

- The possible parameters of the command must be separated from one another and from the command name by a space (ASCII 32 dec., in this description represented as ␣).

- The possible input for "text" is a sequence of characters of the 8-bit ASCII character set from 32 dec to 255 dec.

- Each command must be closed by C_RL_F (ASCII 13 dec., 10 dec.).

The characters C_RL_F, which can be inputted using the Enter or Return key of most entry keypads, are not listed in this description, but it is essential they be included for communication with the balance.

Example

Command to balance which writes Hallo into the balance display:

D␣"Hallo"   The command terminator C_RL_F is not shown.

Comment

The quotation marks " " must be inserted in the entry.

3.2   Response formats

All responses sent by the balance to the transmitter to acknowledge the received command have one of the following formats:

- Response with weight value

- Response without weight value

- Error message

3.2.1 Format of the response with weight value

A general description of the response with weight value is the following.

```
ID ⎵ Status ⎵ WeightValue ⎵ Unit CR LF
```

1 - 2   1 character   10 characters   1 - X characters
characters

ID	Response identification.
⎵	Space (ASCII 32 dec.).
Status	Status of the balance, see description of the commands and responses.
WeightValue	Weighing result; shown as number with 10 digits, incl. decimal point and sign – directly in front of the first digit if value negative. The weight value appears right-aligned. Preceding zeros are not shown with the exception of the zero to the left of the decimal point. With METTLER TOLEDO DeltaRange balances, outside the fine range the last decimal place is shown as a space.
Unit	Weight unit actually set under unit 1.
C_R	Carriage Return (ASCII 13 dec.).
L_F	Line Feed (ASCII 10 dec.).

Comment

$C_R L_F$ will not be shown in this description.

Examples

Response with stable weight value of 0.256 g:
S⎵S⎵⎵⎵⎵⎵⎵0.256⎵g

Response with stable weight value outside the fine range:
S⎵S⎵⎵⎵⎵4875.2⎵⎵g

3.2.2 Format of the response without weight value

A general description of the response without weight value is the following.

| ID | ␣ | Status | ␣ | Parameters | C_R | L_F |

1 - 4   1 character
characters

ID	Response identification.
␣	Space (ASCII, 32 dec.).
Status	Status of the balance, see description of the commands and responses.
Parameters	Command-dependent response code.
C$_R$	Carriage Return (ASCII 13 dec.).
L$_F$	Line Feed (ASCII 10 dec.).

Comment

C$_R$L$_F$ will not be shown in this description.

Example

Response to **D␣"Hallo"** when Hallo appears unabridged in the display: **D␣A**.

3.2.3 Error messages

ID	C_R	L_F

There are three different error messages. The identification always comprises two characters.

ID   Error identification
    Possible error messages are

    ES   Syntax error

        The balance has not recognized the received command.

    ET   Transmission error

        The balance has received a "faulty" command, e.g. owing to a parity error or interface break.

    EL   Logical error

        The balance can not execute the received command.

C_R Carriage Return (ASCII 13 dec.).
L_F Line Feed (ASCII 10 dec.).

Comment

$C_R L_F$ will not be shown in this description.

3.2.4 Tips for the programmer

Command and response

You can improve the dependability of your application software by having your program evaluate the response of the balance to a command. The response is the acknowledgement that the balance has received the command.

Reset

To be able to start from a determined state, when establishing the communication between balance and system, you should send a reset command to the balance. When the balance or system is switched on or off, faulty characters can be received or sent.

Quotation marks " "

Quotation marks included in the command must always be entered.
                    Set/get configuration for options.

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4 Commands and responses

4.1 Commands and responses MT-SICS level 0

I0	**Inquiry of all implemented MT-SICS commands**

Command **I0**   Send list of all implemented MT-SICS commands.

Response **I0␣B␣x1␣"1.Command"**
                x1 =   Number of the MT-SICS level where the 1. Command belongs to.

           I0␣B␣x1␣"2.Command"
               :   2nd (next) command implemented.
               :

           I0␣A␣x1␣"last Command"
                Last command implemented.
           I0␣I   The list cannot be sent at present as another operation is taking place.

Example

Command **I0**   Send list of commands.

Response **I0␣B␣0␣"I0"** Level 0 command "I0" implemented.
           I0␣B␣0␣"I1" Level 0 command "I1" implemented.
               :   :
               :   :
               :   :
           I0␣B␣0␣"S"   Level 0 command "S" implemented.
               :   :
               :   :
           I0␣B␣0␣"Z"   Level 0 command "Z" implemented.
           I0␣B␣0␣"@"   Level 0 command "@" (reset) implemented.
           I0␣B␣1␣"D"   Level 1 command "D" implemented.
           I0␣B␣1␣"DW" Level 1 command "DW" implemented.
               :
           I0␣A␣3␣UPD (last command).

Comments

- The **I0** command lists all commands implemented in the present software. Thus, there is no need of the supplement sheet delivered with the previous versions of this manual.

- All level 0 commands are listed in alphabetical order before all commands of level 1 etc. This order corresponds th the order how the commands are described in this manual.

I1	**Inquiry of MT-SICS level and MT-SICS versions**

Command   **I1**   Inquiry of MT-SICS level and MT-SICS versions.

Response   **I1␣A␣"x1"␣"x2"␣"x3"␣"x4"␣"x5"**

	$x1 = 0$	Balance with MT-SICS level 0 (simplest balance).
	$x1 = 01$	Balance with MT-SICS level 0 and 1 (standard balance).
	$x1 = 012$	Balance with MT-SICS level 0, 1 and 2 (standard balance with extensions).
	$x1 = 03$	Balance with MT-SICS level 0 and 3 (simplest balance with a special application).
	$x1 = 013$	Balance with MT-SICS level 0, 1 and 3 (standard balance with a special application).
	$x1 = 0123$	Balance with MT-SICS level 0, 1, 2, and 3 (standard balance with extensions and a special application).
	$x1 = 3$	Application device with MT-SICS level 3 (not necessarily a balance).
	$X2$	Version of the implemented MT-SICS 0 commands.
	$X3$	Version of the implemented MT-SICS 1 commands.
	$X4$	Version of the implemented MT-SICS 2 commands.
	$X5$	Version of the implemented MT-SICS 3 commands.
I1␣I		Command understood, not executable at present.

Example

Command   **I1**   Inquiry of MT-SICS level and versions.

Response   **I1␣A␣"01"␣"2.30"␣"2.22"␣""␣""**

                             01 Level 0/1 implemented.

                             2.30 Level 0, version V2.30

                             2.22 Level 1, version V2.22

Comments

- In the case of the MT-SICS level, only fully implemented levels are listed. In other words, if it is not possible to implement all commands from a certain level, the level is not specified.

- In the case of the MT-SICS version, all levels are specified even those only partially implemented.

I2	Inquiry of balance data

Command	`I2`	Inquiry of balance data.
Response	`I2␣A␣"text2`	Balance data as "text".
	`I2/I`	Command understood, not executable at present.

Example

Command	`I2`	Inquiry of balance type.
Possible responses	`I2␣A␣"PR5002DR␣R-Standard␣5100.90␣g"`	
	`I2␣A␣"X205BDU Excellence␣220.0090␣g"`	

Comments

• With DeltaRange balances, the last decimal place is available only in the fine range.

• The number of characters of "text" depends on the balance type.

I3	Inquiry of balance SW version and type definition number

Command	`I3`	Inquiry of balance SW version and type definition number.
Responses	`3␣A␣"text"`	Balance SW version and type definition number as "text".
	`I3/I`	Command understood, not executable at present.

Examples

Command	`I3`	Inquiry of SW version number(s) and type definition number.
Response	`I3␣A␣"1.05␣1.1.1.17.7"`	
		1.05 Software version number
		1.1.1.17.7 Type definition number

Comments

The first number (digits prior to the first space in the text string) is the SW version number. The second SW version number is optional, and depends on the balance type. The last number (following the last space) is the type definition number for service purposes.

I4	**Inquiry of serial number**

Command	**I4**	Inquiry of serial number.
Responses	**I4␣A␣"text"**	Serial number as "text".
	I4␣I	Command understood, not executable at present.

Example

Command	**I4**	Inquiry of serial number.
Response	**I4␣A␣"0123456789"**	

Comments

• The serial number agrees with that on the model plate and is different for every balance.

• The serial number can be used, for example, as a device address in a network solution.

• The response to **I4** appears unsolicited after switching on and after the reset command (**@**).

I5	**SW-Identification number**

Command	**I5**	Inquiry of SW-Identification number.
Responses	**I5␣A␣"x"**	SW-Identification number as Text. x: SW-Identification number.
	I5␣I	Command understood, not executable at present.

Example

Command	**I5**	Inquiry of SW-Identification number.
Response	**I5␣A␣"12345678A"**	
		SW-Identification number with index.

Comment

The SW-Identification number is unique for every Software.

S	**Send stable weight value**

Command	**S**	Send the current stable net weight value.
Response	**S␣S␣WeightValue␣Unit**	
		Current stable weight value in unit actually set under unit 1.
	S␣I	Command not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
	S␣+	Balance in overload range.
	S␣-	Balance in underload range.

Example

Command	**S**	Send a stable weight value.
Response	**S␣S␣␣␣␣␣100.00␣g**	
		The current, stable weight value is 100.00 g.

Comments

• The duration of the timeout depends on the balance type.

• To send the stable weight value in actually displayed unit, see "**SU**" command in level 2

• The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.

SI	Send weight value immediately

Command	**SI**	Send the current net weight value, irrespective of balance stability.
Response	**S␣S␣WeightValue␣Unit**	
		Stable weight value in unit actually set under unit 1.
	S␣D␣WeightValue␣Unit	
		Nonstable (dynamic) weight value in unit actually set under unit 1.
	S␣I	Command not executable (balance is currently executing another command, e.g. taring).
	S␣+	Balance in overload range.
	S␣-	Balance in underload range.

Example

Command	**SI**	Send current weight value.
Response	**S␣D␣␣␣␣␣129.07␣g**	
		The current weight value is unstable (dynamic) and is 129.07 g.

Comments

- The response to the command **SI** is the last internal weight value (stable or dynamic) before receipt of the command **SI**.

- To send weight value immediately in actually displayed unit, see "**SIU**" command in level 2.

SIR	**Send weight value immediately and repeat**

Command	**SIR**	Send the net weight values repeatedly, irrespective of balance stability.
Response	**S␣S␣WeightValue␣Unit**	
		Stable weight value in unit actually set under unit 1.
	S␣D␣WeightValue␣Unit	
		Nonstable (dynamic) weight value in unit actually set under unit 1.
	S␣I	Command not executable (balance is currently executing another command, e.g. taring).
	S␣+	Balance in overload range.
	S␣-	Balance in underload range.

Example

Command	**SIR**	Send current weight values at intervals.
Response	**S␣D␣␣␣␣␣129.07␣g**	
	S␣D␣␣␣␣␣129.08␣g	
	S␣S␣␣␣␣␣129.09␣g	
	S␣S␣␣␣␣␣129.09␣g	
	S␣D␣␣␣␣␣114.87␣g	
	…	The balance sends stable or nonstable weight values at intervals.

Comments

- **SIR** is overwritten by the commands **S**, **SI**, **SR**, **@** and hardware break and hence cancelled.

- The number of weight values per second depends on the balance type.

- To send weight value in actually displayed unit, see "**SIRU**" command in level 2

Z	**Zero**	

Command	**z**	Zero the balance.
Response	**Z⌴A**	The following then holds: gross = net + tare = 0. Zero setting performed, i.e. stability criterion and zero setting range complied with.
	Z⌴I	Zero setting not performed (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
	Z⌴+	Upper limit of zero setting range exceeded.
	Z⌴-	Lower limit of zero setting range exceeded.

Example

Command	**z**	Zero.
Response	**Z⌴A**	Zero setting performed.

Comments

• The tare memory is cleared during zero setting.

• The zero point determined during switching on is not influenced by this command, i.e. the measurement ranges remain unchanged.

• The duration of the timeout depends on the balance type.

• The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.

ZI	Zero immediately	

Command the	**ZI**	Zero the balance immediately regardless the stability of balance.
Response	**ZI␣D**	Re-zero performed under non-stable (dynamic) conditions.
	ZI␣S	Re-zero performed under stable conditions.
	ZI␣I	Zero setting not performed (balance is currently executing another command, e.g. taring).
	ZI␣+	Upper limit of zero setting range exceeded.
	ZI␣-	Lower limit of zero setting range exceeded.

Example 1

Command	**ZI**	Zero immediately.
Response	**ZI␣S**	Zero setting performed, weight value was stable.

Example 2

Command	**ZI**	Zero immediately.
Response	**ZI␣D**	Zero setting performed, weight value was dynamic (nonstable).

Comments

• The tare memory is cleared after zero setting.

• The zero point determined during switching on is not influenced by this command, i.e. the measurement ranges remain unchanged.

@	Reset

Command **@**   Resets the balance to the condition found after switching
                             on, but without a zero setting being performed.

Response **I4␣A␣"text"** Serial number of the balance, the balance is ready for
                             operation.

Example

Command **@**

Response **I4␣A␣"1114350697"**

                             Balance is reset, its serial number is 1114350697.

Comments

• All commands awaiting responses are cancelled.

• Key control is set to the default setting **K␣1**.

• The tare memory is reset to zero.

• The "reset" command is always executed.

• If the balance is on standby, it is switched on.

4.2 Commands and responses MT-SICS level 1

D	Balance display

Write into balance display

Command	D␣"text"	Write text into balance display.
Response	D␣A	Text appears unabridged left-aligned in the balance display marked by a symbol, e.g. *.
	D␣I	Command not executable.
	D␣L	Command understood, parameter wrong or balance with no display.

Example

Command	D␣"HALLO"	Write "HALLO" into the balance display.
Response	D␣A	The full text "HALLO" appears in the balance display.

Clear balance display

Command	D␣""	Clear balance display.
Response	D␣A	Balance display cleared, marked by a symbol, e. g. *.
	D␣I	Clear balance display.

Comments

- A symbol in the display, e.g. * indicates that the balance is displaying an invalid weight value.

- The maximum number of characters of "text" visible in the display depends on the balance type.

DW	Weight display (Display show Weight)

Command	DW	Switch main display to weight mode.
Response	DW␣A	Main display shows the current weight value.
	DW␣I	The command has been understood, but is not executable.

K	Key control

Commands	**K␣1**	When a key is pressed, execute the corresponding function, but do not send.
	K␣2	When a key is pressed, do not execute the corresponding function and send nothing.
	K␣3	When a key is pressed, do not execute the key function, but send the corresponding key code.
	K␣4	When a key is pressed, execute the corresponding function and send its function code.
		If the corresponding function can not be executed immediately, the function code **K␣B␣y** for the start of the function and **K␣A␣y** or **K␣I␣y** for the end of the function are sent. This behavior applies to taring, zeroing, calibrating, testing, printing, etc.
		If a function may not be executed, the function code **K␣I␣y** is sent.
Response	**K␣A**	Key control command understood and successfully executed.
	K␣I	Key control command understood but not executable at present, e.g. balance actually in menu or input mode.
	K␣L	Key control command understood, but command parameter wrong.

The key commands of the activate **K␣3** command are defined as follows:

Key commands of the Excellence XP balances

1		9
2		8
3	4	7
5	10	5

Response when pressed long.
When a code with a long press is sended, new key commands will not be accepted.

Example with an activated K␣3 command:

K␣R␣5	Key 5 was pressed and held around 2 seconds.
K␣C␣5	Key 5 was released.

Response when **K␣4** is active

K␣A␣y	Function y was released by pressing the correspondent key and successfully executed.
K␣I␣y	Function y was released by pressing the correspondent key, but it could not be successfully executed, e.g. calibration was aborted by user.
K␣B␣y	Function y was released and started, the execution needs time to complete. These functions are marked with an asterix (*).
	After this response, either **K␣A␣y** or **K␣I␣y** follows.
	The balance functions are coded as follows:

Calibration*	y = 0
Tare*	y = 1
Re-zero*	y = 2
Data transfer to printing device*	y = 3
Test*	y = 7

Command	**K␣4**	When a key is pressed, execute the corresponding function and send the function code as an acknowledgement.
Responses	**K␣A**	Each time a key is pressed, immediate acknowledgement with the corresponding function code will be sent.
	K␣B␣1	The taring function has been started -> taring active.
	K␣A␣1	Taring completed successfully.
	K␣B␣1	The taring function has been started -> taring active.
	K␣I␣1	Taring not completed successfully, taring aborted.

Comments

- **K␣1** is the factory setting (default value).

- **K␣1** active after balance switched on and after the reset command

- Only one K command is active at any one time.

- A distinction must be made between key code **K␣3** and function code **K␣4**. The key code is specific to the balance type, the function code corresponds to the above table.

SR	Send weight value on weight change (Send and Repeat)

Command	**SR␣PresetValue␣Unit**	
		Send the current stable weight value and then continuously after every weight change greater or equal to the preset value a nonstable (dynamic) value followed by the next stable value, range = 1d to max. load.
	SR	If no preset value is entered, the weight change must be at least 12.5 % of the last stable weight value, minimum = 30d.
Response	**S␣S␣WeightValue␣Unit**	
		Current, stable weight value in unit actually set under until 1. Weight change.
	S␣D␣WeightValue␣Unit	
		Dynamic weight value in unit actually set under until 1.
	S␣S␣WeightValue␣Unit	
		Next stable weight value in unit actually set under until 1.
	S␣I	Command not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
	S␣L	Command understood, parameter wrong.
	S␣+	Balance in overload range.
	S␣-	Balance in underload range.

Example

Command	**SR␣10.00␣g**	Send the current stable weight value followed by every load change • 10 g.
Response	**S␣S␣␣␣␣␣␣100.00␣g**	Balance stable.
	S␣D␣␣␣␣␣␣115.23␣g	100.00 g loaded.
	S␣S␣␣␣␣␣␣200.00␣g	Balance again stable.

Comments

- **SR** is overwritten by the commands **S**, **SI**, **SIR**, **@** and hardware break and hence cancelled.

- If, following a nonstable (dynamic) weight value, stability has not been reached within the timeout interval, the response "**S␣I**" is sent and then a nonstable weight value. Timeout then starts again from the beginning.

- The preset value must be entered in unit actually set under until 1.

T	**Tare**	

Command	**T**	Tare, i.e. store the next stable weight value as a new tare weight value.
Response	**T␣S␣WeightValue␣Unit**	
		Taring performed, i.e. stability criterion and taring range complied with.
		The tare weight value returned corresponds to the weight change on the balance in the unit actually set under unit 1 since the last zero setting.
	T␣I	Taring not performed (balance is currently executing another command, e.g. zero setting, or timeout as stability was not reached).
	T␣+	Upper limit of taring range exceeded.
	T␣-	Lower limit of taring range exceeded.

Example

Command	**T**	The balance is tared and has a value of 100.00 g in the tare memory.
Response	**T␣S␣␣␣␣␣100.00␣g**	

Comments

• The tare memory is overwritten by the new tare weight value.

• The duration of the timeout depends on the balance type.

• The function of the combined tare and zero setting key corresponds to the zero setting (Z) command of the interface.

• Clearing tare memory: see command **TAC**.

• Unit 1 is the weight unit displayed after the balance has been switched on.

• The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.

TA	Inquiry/presetting of tare weight value

Inquiry of tare weight value

Command   **TA**   Inquiry of the tare weight value.

Response   **TA␣A␣TareWeightValue␣Unit**

                                Current tare weight value in unit actually set under until 1.

            TA␣I   Current tare weight value can not be transfered at present as another operation is taking place.

Setting of tare preset value

Command   **TA␣TarePresetValue␣Unit**

                                Entry of a tare preset value in unit actually set under unit 1.

Response   **TA␣A␣WeightValue␣Unit**

                                Entry accepted, returned value rounded to actual readability. The balance display shows the net value referred to the inputted tare value.

            TA␣I   Taring not performed (balance is currently executing another command, e.g. zero setting, or timeout as stability was not reached).

            TA␣L   Command understood, parameter wrong.

Example

Command   **TA␣100.00␣g** Tare.

Response   **TA␣A␣␣␣␣␣100.00␣g**

                                The balance has 100.00 g in the tare memory.

Comments

• The tare memory will be overwritten by the preset tare weight value.

• The inputted tare value will be automatically rounded by the balance to the current readability.

• The preset value must be entered in the unit actually set under unit 1.

• The taring range is specified to the balance type.

TAC	Clear tare value

Command	**TAC**	Clear tare value.
Response	**TAC␣A**	Tare value cleared, 0 is in the tare memory.
	TAC␣I	Command not executable (balance is currently executing another command, e.g. zero setting, or timeout as stability was not reached).

TI	Tare Immediately

Command	**TI**	Tare immediately, i.e. store the current weight value, which can be stable or non stable (dynamic), as tare weight value.
Response	**TI␣S␣WeightValue␣Unit**	
		Taring performed, stable tare value.
		The new tare value corresponds to the weight change on the balance since the last zero setting.
	TI␣D␣WeightValue␣Unit	
		Taring performed, non-stable (dynamic) tare value.
	TI␣I	Taring not performed (balance is currently executing another command, e.g. zero setting).
	TI␣L	The command is not executable, e.g. certified version of balance.
	TI␣+	Upper limit of taring range exceeded.
	TI␣-	Lower limit of taring range exceeded.

Example

Command	**TI**	Tare immediately.
Response	**TI␣D␣␣␣␣␣117.57␣g**	
		The tare memory holds a non-stable (dynamic) weight value.

Comments

• The tare memory will be overwritten by the new tare weight value.

• After a non-stable (dynamic) stored tare weight value, a stable weight value can be determined. However, the absolute value of the stable weight value determined in this manner is not accurate.

• The stored tare weight value is sent in the unit actually set under unit 1.

• The taring range is specified to the balance type.balances

4.3 Commands and responses MT-SICS level 2 for Excellence balances

C0	Inquiry/setting of calibration setting

Inquiry of calibration setting

Command   **C0**   Inquiry of the calibration setting.

Response   **C0␣A␣x1␣x2␣"WeightValue␣Unit"**

Weight value and unit specify the value of the weight for an external calibration requested from the user via the display (see command **C2**). The unit corresponds to the factory setting of unit 1, e.g. gram (g) with standard balances or carat (ct) with carat balances respectively. With internal calibration, neither weight value nor unit appears.

x1   **Calibration mode**

$x1=0$ Mode = Manual
The calibration can only be triggered manually. A change in the ambient conditions has no influence on the initiation of the calibration procedure.

$x1=1$ Mode = Auto, status display AutoCal or Cal not activated.
The sensors built into the balance monitor the ambient conditions; however, the change is so small that a calibration is not necessary.

$x1=2$ Mode = Auto, status display "AutoCal" or "Cal" flashes.
The sensors built into the balance have determined a considerable change in the ambient conditions. The balance requests a calibration or at least a test (see "**TST**" command).

x2   **Calibration weight**

$x2=0$ Internal weight (factory setting)
$x2=1$ External weight
The current value of the external weight can be seen in the menu of the balance under "Calibration" (see Operating instructions).

C0␣I   The calibration status and the current setting of the calibration can not be transferred at present as another operation is taking place.

Example

Command	`C0`	Inquiry of status and setting of the calibration.
Response	`C0␣A␣2␣1␣"␣␣␣100.000␣g"`	
		Current setting of mode is "Auto". The ambient conditions of the balance have changed so much that the balance requests a calibration (x1=2) with the external weight (x2=1). For a calibration initiated with the command `C2`, a weight of 100.000 g is needed.

Setting the calibration setting

Command	`C0␣x1␣x2`	Set calibration setting.	
		x1	**Calibration mode**
		x1=0	Mode = Manual A change in the ambient conditions has no influence on the initiation of the calibration procedure.
		x1=1	Mode = Auto, the sensors built into the balance monitor the ambient conditions. When a considerable change in the ambient conditions is determined, the status display AutoCal or Cal will be activated; this means the balance will ask for calibration.
		x2	**Calibration weight**
		x2=0	Use internal weight (factory setting)
		x2=1	Use external weight The current value of the external weight can be seen in the menu of the balance under "Calibration" (see Operating instructions.
Response	`C0␣A`	Calibration setting set.	
	`C0␣L`	Calibration setting can not be set, e.g. parameter wrong or certified version of the balance.	
	`C0␣I`	Commend not executable as the balance is, e.g. being tared.	

Example

Command	`C0␣0␣1`	Set calibration setting to manual and external.
Response	`C0␣A`	Calibration setting set.

Comment

Setting x1=1 and x2=0 corresponds to the menu setting "FACT" under "Calibration".

C 1	**Initiate calibration according to current setting**

Command	**C1**	Start calibration in the current setting.
First response	**C1␣B**	The calibration procedure has been started. Wait for second response (see Comment).
	C1␣I	A calibration can not be performed at present as another operation is taking place. No second response follows.
	C1␣L	Calibration operation not possible, e.g. with certified balance. No second response follows.
Further responses	**C1␣"text"**	Weight request with external calibration.
	C1␣A	Calibration has been completed successfully.
	C1␣I	The calibration procedure was aborted as, e.g. stability not attained or wrong weights loaded.

Example

Command	**C1**	Start calibration.
Response	**C1␣B**	Calibration operation started.
	C1␣"␣␣␣␣␣0.00␣g"	Prompt to unload the balance.
	C1␣"␣␣␣2000.00␣g"	Prompt to load calibration weight 2000.00 g.
	C1␣"␣␣␣␣␣␣␣0.00␣g"	Prompt to unload the balance.
	C1␣A	Calibration completed successfully.

Comment

Commands sent to the balance during the calibration operation are not processed and responded to in the appropriate manner until the calibration is at an end.

C2	**Initiate calibration with external weight**

Command	**C2**	Initiate external calibration. Inquiry of the weight used by means of the **C0** command.
First response	**C2␣B**	The calibration procedure has been started.
	C2␣I	A calibration can not be performed at present as another operation is taking place. No second response follows.
	C2␣L	Calibration operation not possible, e.g. as a calibration with an external weight is not admissible (certified balance). No second response follows.
Further responses	**C2␣"text"**	Prompt to unload or load the balance.
	C2␣A	Calibration has been completed successfully.
	C2␣I	The calibration procedure was aborted as, e.g. stability not attained or wrong weight loaded.

Example

Command	**C2**	Start calibration.
Response	**C2␣B**	Calibration operation started.
	C2␣"␣␣␣␣␣␣␣0.00␣g"	Prompt to unload the balance.
	C2␣"␣␣␣2000.00␣g"	Prompt to load calibration weight 2000.00 g.
	C2␣"␣␣␣␣␣␣␣0.00␣g"	Prompt to unload the balance.
	C2␣A	Calibration completed successfully.

Comment

Commands sent to the balance during the calibration operation are not processed and responded to in the appropriate manner until the calibration is at an end.

C3	Initiate calibration with internal weight

Command	**C3**	Initiate internal calibration.
First response	**C3␣B**	The calibration procedure has been started. Wait for second response.
	C3␣I	A calibration can not be performed at present as another operation is taking place. No second response follows.
	C3␣L	Calibration operation not possible, e.g. as internal weight missing. No second response follows.
Further responses	**C3␣A**	Calibration has been completed successfully.
	C3␣I	The calibration was aborted as, e.g. stability not attained or the procedure was aborted with the C key.

Example

Command	**C3**	Initiate internal calibration.
Response	**C3␣B**	Calibration operation started.
	C3␣A	Calibration completed successfully.

Comment

Commands sent to the balance during the calibration operation are not processed and responded to in the appropriate manner until the calibration is at an end.

COM	**Inquiry/setting the communication parameters of the serial interface**

We recommend to use these parameters only for weighing platforms (without terminal).

Inquiry of the parameters of the serial interface

Command **COM** Inquiry of the current settings for all currently installed interfaces.

Response **COM␣A␣0␣Baud␣Bit␣HS**

Baud Baud rate (transmission speed)
Baud = 4 2400 baud
Baud = 5 4800 baud
Baud = 6 9600 baud (factory setting)
Baud = 7 19200 baud
Baud = 8 38400 baud

Bit Number of bits per character, parity, and number of stop bits
Bit = 0 7 bits / even parity / 1 stop bit
Bit = 1 7 bits / odd parity / 1 stop bit
Bit = 2 7 bits / no parity / 1 stop bit
Bit = 3 8 bits / no parity / 1 stop bit (factory setting)
Bit = 4 7 bits / even parity / 2 stop bits
Bit = 5 7 bits / odd parity / 2 stop bits
Bit = 6 7 bits / no parity / 2 stop bits
Bit = 7 8 bits / no parity / 2 stop bits

HS handshake (data-flow control)
HS = 0 No handshake (factory setting)
HS = 1 Software handshake (Xoff – Xon protocol)
HS = 2 Hardware handshake (CTS – RTS protocol)

Command **COM** Inquiry of the current settings for serial interface

Response **COM␣A␣0␣Baud␣Bit␣HS**

For an explanation of baud, bit, and HS see the above explanation of the COM command.

COM␣L Command understood, parameter incorrect, e.g. specified COM port does not exist.

Example 1 (weighing platform with fix interface)

Command **COM** Transmit the current setting of the interface parameters for the installed interface.

Response **COM␣A␣0␣7␣3␣2**

Fix interface (RS-232) is set to 19200 baud, 8

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Setting of the interface parameter

Command   **COM␣A␣0␣Baud␣Bit␣HS**

Set the parameters of the specified interface to the desired values.

Baud Baud rate (transmission speed)
Baud =   4 2400 baud
Baud =   5 4800 baud
Baud =   6 9600 baud (factory setting)
Baud =   7 19200 baud
Baud =   8 38400 baud
Bit Number of bits per character, parity, and number of stop bits
Bit   = 0 7 bits / even parity / 1 stop bit
Bit   = 1 7 bits / odd parity / 1 stop bit
Bit   = 2 7 bits / no parity / 1 stop bit
Bit   = 3 8 bits / no parity / 1 stop bit (factory setting)
Bit   = 4 7 bits / even parity / 2 stop bits
Bit   = 5 7 bits / odd parity / 2 stop bits
Bit   = 6 7 bits / no parity / 2 stop bits
Bit   = 7 8 bits / no parity / 2 stop bits
HS handshake (data-flow control)
HS =   0 No handshake (factory setting)
HS =   1 Software handshake (Xoff – Xon protocol)
HS =   2 Hardware handshake (CTS – RTS protocol)

Response   **COM␣A**   Command successfully executed.

COM␣L   Command understood but cannot be executed (e.g. incorrect parameter or specified interface (COM port) not installed.

Example (weighing module with two interfaces)

Command   **COM␣0␣8␣3␣0**

Setting the parameters for the serial interface to 38400 baud, 8 data bits, no parity, 1 stop bit, no handshake.

Response   **COM␣A**   The parameters have been set to the desired values.

Comments

- The response takes place with the current settings, the settings are changed after the response.

COPT	**Command to configure interface options**

Only for weighing platforms (without terminal) with interface option.

1   COPT command in general

Command	`COPT␣"x1"␣"x2"␣"x3"␣"x4"`	
		Set/get configuration for options.
		x1 = Function: "start", "get", "set", "end"
		x2 = Identifier of the datum (get/set)
		x3 = Type of the datum (for "set" only)
		x4 = Value of the datum (for "set" only)
Start	`COPT␣"start"`	Starts configuration. Host connection is suspended.
End	`COPT␣"end"`	Ends the configuration. The host connection is resumed.
Read	`COPT␣"get"␣"id"`	
		Read a datum.
		id = Identifier of the datum
Set	`COPT␣"set"␣"id"␣"typ"␣"val"`	
		Sets configurations for options.
		id = Identifier of the datum
		type = Type of the datum
		value = Value of the datum
Responses	`COPT␣A␣"a1"`	Command is successful.
		a1 = for "get" only
	`COPT␣L`	Illegal parameter.
	`COPT␣I`	Command not executable:
		– No option inserted.
		– COPT command already active.
		– "start" command not executed for "set" commands

Example

We change the baud rate of an RS232 option:

Command   **COPT␣"start"**

Response   **COPT␣A␣""**

Command   **COPT␣"get"␣"System.Infos.DeviceName"**

Response   **COPT␣A␣"Value='RS232␣Option'"**

Command   **COPT␣"set"␣"Connection.ConnectionList.1.Baudrate"␣**
              "i4"␣"5"

Response   **COPT␣A␣""**

Command   **COPT␣"end"**

Response   **COPT␣A␣""**

Comments

Identifier: These are not case sensitive. For details, see option specific section.

Data type: For details, see option specific sections.

2   Specific interface option information

2.1   For all options

Following read only parameters ("get") apply to all options:

Identifiers:	Type:	Length:
"**System.Infos.DeviceName**"	"string"	MinLengh: 0, MaxLengh: 20
"**System.Infos.SWNumber**"	"string"	MinLengh: 0, MaxLengh: 20
"**System.Infos.SWVersion**"	"string"	MinLengh: 0, MaxLengh: 20

Example

Command   **COPT␣"get"␣"System.Infos.DeviceName"**

Response   **COPT␣A␣"Value='Ethernet␣Option'"**

2.2   RS232 option

Additional read only parameters:

Identifier:	Type:	Possible values:
"**System.Infos.Status**"	"**i4**"	"**-4**" ("busy")
		"**-3**" ("wrongly/not configured")
		"**-2**" ("starting up")
		"**-1**" ("out-of-order")
		"**0**" ("ready")

Additional read/write parameters:

Identifiers:	Type:	Possible values:
"**Connection.ConnectionList.1.Baudrate**"	"**i4**"	"**2**" ("600")
		"**3**" ("1200")
		"**4**" ("2400")
		"**5**" ("4800")
		"**6**"("9600")
		"**7**" ("19200")
		"**8**" ("38400")
"**Connection.ConnectionList.1.Parity**"	"**i4**"	"**0**" ("7Bit/None")
		"**1**" ("7Bit/Even")
		"**2**" ("7Bit/Odd")
		"**3**" ("8Bit/None")
"**Connection.ConnectionList.1.Handshake**"	"**i4**"	"**0**" ("None")
		"**1**" ("XON/XOFF")
		"**2**" ("RTS/CTS")
"**Connection.ConnectionList.1.EndOfLine**"	"**i4**"	"**1**" ("<CR><LF>")
		"**2**" ("<CR>")
		"**3**" ("<LF>")
"**Connection.ConnectionList.1.CharSet**"	"**i4**"	"**0**" ("ANSI/WIN")
		"**1**" ("IBM/DOS")

Example
Commands:

COPT␣"set"␣"Connection.ConnectionList.1.Baudrate"␣"i4"␣"5"

COPT␣"set"␣"Connection.ConnectionList.1.Parity"␣"i4"␣"1"

Set the baud rate to 4800 Bd and the format to 7 Bit odd parity.

2.3   LC options, PS/2 option, BTS option

Additional read only parameters (the devices have no further parameters):

Identifier:	Type:	Possible values:
"**System.Infos.Status**"	"**i4**"	"**-4**" ("busy")
		"**-3**" ("wrongly/not configured")
		"**-2**" ("starting up")
		"**-1**" ("out-of-order")
		"**0**" ("ready")

Example
Command: **COPT␣"get"␣"System.Infos.Status"**

Response: **COPT␣A␣"Value='0'"**

2.4 Ethernet option

Additional read only parameters:

Identifier:	Type:	Possible values / Length:
"**System.Infos.Status**"	"**i4**"	"**-5**" ("lost DHCP lease")
		"**-4**" ("busy")
		"**-3**" ("wrongly/not configured")
		"**-2**" ("starting up")
		"**-1**" ("out-of-order")
		"**0**" ("ready")
"**System.Infos.SerialNumber**"	"**string**"	MinLength: 0, MaxLength: 10

Additional read/write interface option parameters:

Identifiers:	Type:	Possible values / Length:
"**Interface.DHCP**"	"**i4**"	"**0**" ("Off")
		"**1**" ("On")
"**Interface.IPAddress**"	"**string**"	MinLength: 0, MaxLength: 15
"**Interface.SubnetMask**"	"**string**"	MinLength: 0, MaxLength: 15
"**Interface.StandardGateway**"	"**string**"	MinLength: 0, MaxLength: 15
"**Interface.DomainNameServer**"	"**string**"	MinLength: 0, MaxLength: 15
"**Interface.Hostname**"	"**string**"	MinLength: 0, MaxLength: 41
"**Interface.Apply**"		n.a. there is no parameter.

This function has to be called for changes in parameters with an identifier starting with "Interface" to take effect. This command be called to make the previous interface parameters permanent.

Type: ""	two quotes with no space between, i.e. none, its a function
Values: ""	two quotes with no space between, i.e. none, its a function
Call:	`COPT␣"set"␣"Interface.Apply"␣""␣""`

Identifier	Type	Possible values
"**Connection.ConnectionList.1.Client**"	"**i4**"	"**0**" ("Off")
		"**1**" ("On")
"**Connection.ConnectionList.1.ClientAddress**"	"**string**"	MinLength: 0, MaxLength: 40
"**Connection.ConnectionList.1.ClientPort**"	"**i14**"	Min: 1, Max: 65535, Increment: 1
"**Connection.ConnectionList.1.Server**"	"**i4**"	"**0**" ("Off")
		"**1**" ("On")
"**Connection.ConnectionList.1.ServerPort**"	"**i14**"	Min: 1, Max: 65535, Increment: 1
"**Connection.ConnectionList.1.EndOfLine**"	"**i4**"	"**0**" ("<CR>")
		"**1**" ("<LF>")
		"**2**" ("<CR><LF>")
"**Devices.Host.MuxID**"	"**string**"	MinLength: 0, MaxLength: 16

Example

```
COPT␣"set"␣"Interface.DHCP"␣"i4"␣"0"
COPT␣"set"␣"Interface.IPAddress"␣"string"␣"172.24.113.7"
COPT␣"set"␣"Interface.SubnetMask"␣"string"␣"255.255.248.0"
COPT␣"set"␣"Interface.StandardGateway"␣"string"␣"172.24.112.1"
COPT␣"set"␣"Interface.Apply"␣""␣""
COPT␣"set"␣"Connection.ConnectionList.1.ServerPort"␣"i4"␣"8001"
COPT␣"set"␣"Connection.ConnectionList.1.Server"␣"i4"␣"1"
```

These commands switch DHCP off and configure an IP address permanently (Apply). Then we make a server at port 8001 visible to clients.

DAT   Date

Inquiry of date

Command	**DAT**	Inquiry of current date of the balance.
Response	**DAT␣A␣dd␣mm␣yyyy**	"dd␣mm␣yyyy" represents the date in the format day␣month␣year.
	DAT␣I	Inquiry of the date not possible at present as another operation is taking place.

Set date

Command	**DAT␣dd␣mm␣yyyy**	Set date in the format "dd␣mm␣yyyy".
Response	**DAT␣A**	Date has been set.
	DAT␣I	Date can not be set at present as another operation is taking place.
	DAT␣L	Command not executed as the date format was not correct.

Example

Command	**DAT**	Inquiry of date of the balance.
Response	**DAT␣A␣01␣10␣2003**	Current date of the balance is 1 October 2003.

Comment

The set date is retained even after the reset command "**@**".

I10   Balance ID – Inquiry of balance identification

Inquiry of balance identification

Command	**I10**	Inquiry of balance identification.
Response	**I10␣A␣"text"**	
		"text" represents the current balance identification (max. 20 alphanumeric characters).

Set balance identification

Command	**I10␣"text"**	Set balance identification text accordingly.
Response	**I10␣A**	Balance identification has been set.
	I10␣I	The balance identification can not be set at present as another operation is taking place.
	I10␣L	Command not executed as the name is too long (max. 20 characters).

Example

Command	**I10**	Inquiry of balance identification.
Response	**I10␣A␣"My Balance"**	
		Current balance identification is My Balance.

Comments

• A sequence of maximum 20 characters is possible as "text".

• The set balance identification is retained even after the reset command "**@**".

I11   Balance type

Command	**I11**	Inquiry of model designation of the balance.
Response	**I11␣A␣"text"**	"text" represents the model designation.
	I11␣I	The model designation can not be transfered at present as another operation is taking place.

Example

Command	**I11**	Inquiry of model designation of the balance.
Response	**I11␣A␣"XS204"**	
		The balance is a XS204.

Comment

A sequence of maximum 20 characters is possible as "text".

I14	**Inquiry of balance info**

Command   **I14␣No**   Inquiry of balance info.

                              No: 0 = Balance configuration
                                              1 = Balance description
                                              2 = SW-Identification number
                                            3 = SW version
                                              4 = Serial number
                                              5 = TDNR number

Response   **I14␣A␣No␣Index␣"Info"**

                              Index: Number of module
                              Info: Required information

            I14␣L   Parameter wrong.

            I14␣I   Command not executable.

Example

Command   **I14␣2**   Inquiry of SW-Identification number.

Response   **I14␣B␣2␣1␣"11670123"**
                         SW identification number of "bridge".

            I14␣B␣2␣2␣"11670456"
                         SW identification number of "terminal".

            I14␣A␣2␣3␣"11670789"
                         SW identification number of "option".

M01	**Inquiry/setting of weighing mode**

Command	**M01**	Inquiry of weighing mode.
Response	**M01␣A␣x**	x: Weighing
		0 = Normal weighing / Universal
		1 = Dosing
		2 = Sensor mode
		3 = Check weighing
	M01␣L	Parameters are missing, the command can thus not be executed.
	M01␣I	Command not executable.
Command	**M01␣x**	Setting of weighing mode. See Inquiry.
Response	**M01␣A**	Command executed.
	M01␣L	Parameters wrong (value range, …).
	M01␣I	Command not executable.

Example

	M01 0	→ **M01 A**	Setting of weighing mode to normal.

M02	**Inquiry/setting of environment**

Command	**M02**	Inquiry of environment.
Response	**M02␣A␣x**	x: Environment
		1 = Stable
		2 = Standard
		3 = Unstable
	M02␣L	Parameters are missing, the command can thus not be executed.
	M02␣I	Command not executable.
Command	**M02␣x**	Setting of environment. See Inquiry.
Response	**M02␣A**	Command executed.
	M02␣L	Parameters wrong (value range, …).
	M02␣I	Command not executable.

Example

	M02 3	→ **M02 A**	Setting of environment to "unstable".

M03	**Inquiry/setting of AutoZero**

Command	**M03**	Inquiry of AutoZero.
Response	**M03␣A␣x**	x: Weighing 0 = AutoZero is switched off
		1 = AutoZero is activated
	M03␣L	Parameters are missing, the command can thus not be executed.
	M03␣I	Command not executable.
Command	**M03␣x**	Setting of AutoZero. See Inquiry.
Response	**M03␣A**	Command executed.
	M03␣L	Parameters wrong (value range, …).
	M03␣I	Command not executable.

Example

    M03 1   → **M03 A**   Setting on AutoZero function.

M04	**Inquiry/setting of SmartSens functions**

Command	**M04**	Inquiry of SmartSens functions.
Response	**M04␣B␣x1␣x2**	x1: SmartSens number 0 = left SmartSens
	…	1 = right SmartSens
	M04␣A␣x1␣x2	x2: Function of SmartSens 0 = no function
		1 = activate 1st function
		2 = activate 2nd function
		.. = other
	M04␣L	Parameters are missing, the command can thus not be executed.
	M04␣I	Command not executable.
Command	**M04␣x1␣x2**	Setting of SmartSens function. See Inquiry.
Response	**M04**	Command executed.
	M04␣L	Parameters wrong (value range, …).
	M04␣I	Command not executable.

Examples

    M04␣ 0 2 → **M04 A**   Setting of first (left) SmartSens to
                                 2nd function (e.g. door).

    M04   → **M04 B 0 0**   1. SmartSens = no function.

                   M04 A 1 2   2. SmartSens = function 2 (e.g. zeroing).

M05	Inquiry of user list/method

Command	**M05**	Inquiry of user list method.
Response	**M05␣B␣No␣"Name"**	
		No: Number of user method
	M05␣B ...	
	M05␣A␣No␣"Name"	
		Name: Name of user method
	M05␣L	Parameters are missing, the command can thus not be executed.
	M05␣I	Command not executable.

Examples

M05	→	**M04 B 1 "Meier"**
		M05 A 2 "Method EX-2"

M06	Inquiry/setting of current user/method number

Command	**M06**	Inquiry of activ user method number.
Response	**M06␣A␣x**	x: Number of user method.
	M06␣L	Parameters are missing, the command can thus not be executed.
	M06␣I	Command not executable.
Command	**M06␣x**	Setting of user method.
		See Inquiry.
		User number: 0..max. number of users.
Response	**M06␣A**	Command executed.
	M06␣L	Parameters wrong (value range, …).
	M06␣I	Command not executable.

Example

M06 3	→	**M06 A**	User method 3 is activated.

M08	**Inquiry/setting of of display brightness**

Command	**M08**	Inquiry of display brightness.
Response	**M08␣A␣x**	x: 0..100, display brightness in %
	M08␣L	Parameters are missing, the command can thus not be executed.
	M08␣I	Command not executable.
Command	**M08␣x**	Setting of display brightness. See Inquiry.
Response	**M08␣A**	Command executed.
	M08␣L	Parameters wrong (value range, …).
	M08␣I	Command not executable.

Examples

M08 55	→ **M08 A**	Setting of display brightness.
M08	→ **M08 A 60**	Inquiry of display brightness.

M09	**Inquiry/setting of display contrast**

Command	**M09**	Inquiry of display contrast.
Response	**M09␣A␣x**	x: 0..100, display contrast in %
	M09␣L	Parameters are missing, the command can thus not be executed.
	M09␣I	Command not executable.
Command	**M09␣x**	Setting of display contrast. See Inquiry.
Response	**M09␣A**	Command executed.
	M09␣L	Parameters wrong (value range, …).
	M09␣I	Command not executable.

Example

M09	→ **M09 A 60**	Inquiry of display contrast.

M11 Inquiry/setting of beeper volume

Command	**M11**	Inquiry of beeper volume.	
Response	**M11␣A␣x**	x:	Beeper volume 0…100 %
	M11␣L	Parameters are missing, the command can thus not be executed.	
	M11␣I	Command not executable.	
Command	**M11␣x**	Setting of beeper volume.	
		See Inquiry.	
Response	**M11␣A**	Command executed.	
	M11␣L	Parameters wrong (value range, …).	
	M11␣I	Command not executable.	

Example

	M11	→ **M11 A 50**	Inquiry of beeper volume.

M12 Creating beeper tone

Command	**M12␣x**	Creating beeper tone.	
		x:	0 = Variant 1 (e.g. 1x beep) 1 = Variant 2 2 = Variant 3
Response	**M12␣A**	Command executed.	
	M12␣L	Parameters wrong (value range, …).	
	M12␣I	Command not executable.	

Example

	M12 1	→ **M12 A**	Creating beeper tone.

Comment

This command creates an acoustic signal independent of the beeper volume setting (**M11** command).

M13   Inquiry/setting of Touch function

Command	**M13**	Inquiry of the Touch function.	
Response	**M13␣A␣x**	x:	0 = Touch is switched off, inactivated
			1 = Touch function is switched on
	M13␣L	Parameters are missing, the command can thus not be executed.	
	M13␣I	Command not executable.	
Command	**M13␣x**	Setting of Touch function. See Inquiry.	
Response	**M13␣A**	Command executed.	
	M13␣L	Parameters wrong (value range, …).	
	M13␣I	Command not executable.	

Example

      M13 1   → **M13 A**   Switching on Touch function.

Comment

The functions of all other keys (hot keys, etc.) are unaffected.

M14   Inquiry of available languages

Command	**M14**	Inquiry of available languages.	
Response	**M14␣B␣No␣"language"**		
		No:	Number of language
	M14␣B␣…		
	M25␣A␣No␣"language"		
		Language:	Name of language
	M14␣L	Parameters are missing, the command can thus not be executed.	
	M14␣I	Command not executable.	

Examples

      M14   → **M14 B 0**   **"English"**

      M14 B 1   **"Deutsch"**

      M14 A 2   **"Français"**

M15   Inquiry/setting of language

Command	**M15**	Inquiry of actual language.
Response	**M15␣A␣x**	x: Number of language
	M15␣L	Parameters are missing, the command can thus not be executed.
	M15␣I	Command not executable.
Command	**M15␣x**	Setting of language.
		x: Number according to available languages (command **M14**).
Response	**M15␣A**	Command executed.
	M15␣L	Parameters wrong (value range, …).
	M15␣I	Command not executable.

Example

M15 3	→ **M15 A**	Language 3 is activated.

Comment

Language number: Number of the language according to the available languages (command **M14**).

M16   Inquiry/setting of standby mode

Command	**M16**	Inquiry of standby mode.	
Response	**M16␣A␣x**	x:	0 = Mode switched off, inactivated 3 = 30 min. 4 = 60 min. 5 = 120 min. 6 = 240 min.
	M16␣L	Parameters are missing, the command can thus not be executed.	
	M16␣I	Command not executable.	
Command	**M16␣x**	Setting of standby mode. See Inquiry.	
Response	**M16␣A**	Command executed.	
	M16␣L	Parameters wrong (value range, …).	
	M16␣I	Command not executable.	

Example

     M16 1   → **M16 A**   Setting of standby mode (5 min.).

Comments

• The balance switches to standby mode if it is not operated within 5 min.

• Operating the balance includes pressing a key, significant changes in weight, item counter > 0 or interface commands.

M17   Inquiry/setting of ProFACT time criteria

Command	**M17**	Inquiry of ProFACT time criteria.
Response	**M17␣A␣hh␣mm␣ss␣x**	

          hh: hours (00..23h)

          mm: minutes (00..59)

          ss: seconds (00..59)

          x: initiating time of ProFACT in hours, minutes

            and days

           0 = time criterion is inactivated

           1 = Monday

           2 = Tuesday

           4 = Wednesday

           8 = Thursday

           16 = Friday

           32 = Saturday

           64 = Sunday

	M17␣L	Parameters are missing, the command can thus not be executed.
	M17␣I	Command not executable.
Command	**M17␣hh␣mm␣ss␣x**	
		Setting of ProFACT time criterion.
		See Inquiry.
Response	**M17␣A**	Command executed.
	M17␣L	Parameters wrong (value range, …).
	M17␣I	Command not executable.

Example

    M17 12 00 00 5 → **M17 A**

          As 5 = 4 + 1, adjustment takes place on Mondays and Wednesday at 12:00.

M18   Inquiry/setting of ProFACT/FACT temperature criterion (Δ temp.)

Command	**M18**	ProFACT/FACT temperature criterion.
Response	**M18␣A␣x**	
		x: 0 = Temp. criterion is switched off
		1 = 1st setting is activated
		2 = 2nd setting is activated
		3 = 3rd setting is activated
		4 = 4th setting is activated
	M18␣L	Parameters are missing, the command can thus not be executed.
	M18␣I	Command not executable.
Command	**M18␣x**	Setting of ProFACT/FACT temperature criterion. See Inquiry.
Response	**M18␣A**	Command executed.
	M18␣L	Parameters wrong (value range, …).
	M18␣I	Command not executable.

Example

     M18 1   → **M18 A**   1. Setting is activated.

Comments

Temperature difference is defined as the criterion. The balance is automatically adjusted if the temperature of the balance increases by the defined temperature difference.

M19 Inquiry/setting of adjustment weight

Command	**M19**	Inquiry of adjustment weight.
Response	**M19␣A␣Value␣Unit**	
		Value: Value of adjustment weight
		Unit: Weight unit of adjustment weight = Defined unit of balance
	M19␣L	Parameters are missing, the command can thus not be executed.
	M19␣I	Command not executable.
Command	**M19␣Value␣Unit**	
		Setting of external adjustment weight. This must be entered in the defined unit of the balance. See Inquiry.
Response	**M19␣A**	Command executed.
	M19␣L	Parameters wrong (value range, …).
	M19␣I	Command not executable.

Example

M19	→ **M19 A 100.123 g**	Initiate adjustment weight.

Comments

The adjustment weight must be entered in the defined unit of the balance. This unit can be found by entering an inquiry command.

M20   Inquiry/setting of test weight

Command	**M20**	Inquiry of external test weight.
Response	**M20␣A␣Value␣Unit**	
		Value: Value of test weight
		Unit: Weight unit of test weight
	M20␣L	Parameters are missing, the command can thus not be executed.
	M20␣I	Command not executable.
Command	**M20␣Value␣Unit**	
		Setting of external test weight.
		See Inquiry.
Response	**M20␣A**	Command executed.
	M20␣L	Parameters wrong (value range, …).
	M20␣I	Command not executable.

Example

    M20   → **M20 A 100.123 g**   Inquiry of test weight.

M21   Inquiry/setting of unit

Command	**M21**	Inquiry of unit.	
Response	**M21␣B␣Des␣Unit**		
		Des:	Designation of unit
	M21␣B␣…		0 = Unit 1, to MT-SICS
	M21␣A␣Des␣Unit		
			1 = Display unit
			2 = Info unit
		Unit:	0 = g
			1 = kg
			2 = t
			3 = mg
			4 = Microgram
			5 = Carat
			8 = Ounces
			9 = Troy ounces
			10 = Grain
			11 = Penny weight
			12 = Momme
			14 = Tael Hong Kong
			15 = Tael Singapore
			16 = Tael Taiwan
			17 = Tical
			18 = Tola
			19 = Baht
			20 … 24 = Reserved
			25 = no unit
			26 … Custom unit1
	M21␣L	Parameters are missing, the command can thus not be executed.	
	M21␣I	Command not executable.	
Command	**M21␣Des␣Unit**		
		Setting of unit(s).	
		See Inquiry.	
Response	**M21␣A**	Command executed.	
	M21␣L	Parameters wrong (value range, …).	
	M21␣I	Command not executable.	

Examples

`M21 0 1`	→	`M21 A`	Setting of unit 1 to "kg".
`M21`	→	`M21 B 0 0`	Inquiry of unit, unit 1 = "g".
	→	`M21 B 1 3`	Display unit = "mg".
	→	`M21 B 2 5`	Info unit = "carat".

Comments

All S commands are given in Unit 1 according to the definition of the MT-SICS. Only weight units are accepted as Unit 1.

M22   Inquiry/setting of custom unit definitions

Command   `M22`   Inquiry of custom unit definitions.

Response   `M22␣B␣x1␣x2␣x3␣"x4"␣x5`

           …

          `M22␣A␣x1␣x2␣x3␣"x4"␣x5`

	x1:	Number of custom units
		1 = custom unit 1
		2 = custom unit 2
		x = other
	x2:	Formula
		0 = (weight offset) x factor
		1 = factor / (weight offset)
	x3:	Factor
	x4:	Name of unit
	x5:	Rounding step

        `M22␣L`   Parameters are missing, the command can thus not be executed.

        `M22␣I`   Command not executable.

Command   `M22␣x1␣x2␣x3␣"x4"␣x5`

                         Setting of custom units. See Inquiry.

Response   `M22␣A`   Command executed.

        `M22␣L`   Parameters wrong (value range, …).

        `M22␣I`   Command not executable.

Examples

        `M22`   →   `M22␣B␣1␣0␣15.5␣"sfr"␣0.05`

                       The custom unit is set …

                       `M22␣A␣2␣1␣25.4␣"h1"␣0.1`

M23   Inquiry/setting of readability, 1d/xd

Command	**M23**	Setting of readability.		
Response	**M23␣A␣x**	x:	Readability	
			0 = 1 d	
			1 = 10 d	
	M23␣L	Parameters are missing, the command can thus not be executed.		
	M23␣I	Command not executable.		
Command	**M23␣x**	Setting of readability.		
		See Inquiry.		
Response	**M23␣A**	Command executed.		
	M23␣L	Parameters wrong (value range, …).		
	M23␣I	Command not executable.		

Example

     M23 1   → **M23␣A**   Setting readability = 10 d.

M24   Inquiry/setting of print key function

Command	**M24**	Inquiry of print key function.		
Response	**M24␣A␣x**	x:	Function of print key	
			0 = Print stable weight	
			1 = Print weight immediately	
			2 = No print function	
	M24␣L	Parameters are missing, the command can thus not be executed.		
	M24␣I	Command not executable.		
Command	**M24␣x**	Setting of function of print key.		
		See Inquiry.		
Response	**M24␣A**	Command executed.		
	M24␣L	Parameters wrong (value range, …).		
	M24␣I	Command not executable.		

Example

     M24 1   → **M24␣A**   Setting of print key function.

M25 Inquiry of application selection

Command	**M25**	Inquiry of application selection.
Response	**M25␣B␣No␣"Name"**	
		No: Number of application
	M25␣B␣…	
	M25␣A␣No␣"Name"	
		Name: Name of application
	M25␣L	Parameters are missing, the command can thus not be executed.
	M25␣I	Command not executable.

Examples

M25	→	**M25 B 0 "Weighing"**
		M25 B 2 "…"
		M25 A x "Density"

M26 Inquiry/setting of current application

Command	**M26**	Inquiry of actual current application.
Response	**M26␣A␣x**	x: Number of application
	M26␣L	Parameters are missing, the command can thus not be executed.
	M26␣I	Command not executable.
Command	**M26␣x**	Setting application number.
		x: Number according to appl. list (command **M25**).
Response	**M26␣A**	Command executed.
	M26␣L	Parameters wrong (value range, …).
	M26␣I	Command not executable.

Example

M26 3	→ **M26 A**	Application 3 is activated.

Comment

Application number: Number of the application according to the application list (command **M25**).

M27	**Inquiry of adjustment history**

Command   **M27**   Inquiry of adjustment history.

Response   **M27␣B␣Nr␣tt␣mm␣jjjj␣hh␣mm␣Mode␣"Wgt"**

              M27␣B␣...   No: Number of adjustment entry

              M27␣A␣Nr␣tt␣mm␣jjjj␣hh␣mm␣Mode␣"Wgt"

	tt:	Date, day of adjustment
	mm:	Date, month
	jjjj:	Date, year
	hh:	Time, hour
	mm:	Time, minute
	Mode:	Type of adjustment
		0 = internal adjustment
		1 = external adjustment
		Wgt: Adjustment weight used "100.234 g"

M27␣L	Parameters are missing, the command can thus not be executed.
M27␣I	Command not executable.

Examples

M27 → **M27 A 3 1 1 2000 8 26 0 ""**
1rd adjustment, internal
M27 B 2 14 12 1999 14 30 1 "200.1234 g"
2nd adjustment, external
M27 B 1 14 12 1999 8 26 1 "200.1234 g"
3st adjustment, external

M28 Inquiry of temperature probe

Command	**M28**	Inquiry of measured values of temperature probe.
Response	**M28␣B␣No␣Temp**	
		No: Number of the temperature probe.
	M28␣B␣…	Temp: Temperature of the probe in °C.
	M28␣A␣No␣Temp	
	M28␣L	Parameters are missing, the command can thus not be executed.
	M28␣I	Command not executable.

Examples

M28	→ **M28 B 1 21.5**	Temperature of 1st sensor in °C.
	M28 A 2 23.2	Temperature of 2nd sensor in °C.

Comment

No information is available on the location, accuracy or correct temperature offset of the probe.

M29 Inquiry/setting of value release

Command	**M29**	Inquiry of value release.
Response	**M29␣A␣x**	x: Value release
		0 = Very fast
		1 = Fast
		2 = Reliable and fast
		3 = Reliable
		4 = Very reliable
	M29␣L	Parameters are missing, the command can thus not be executed.
	M29␣I	Command not executable.
Command	**M29␣x**	Setting of value release.
		See Inquiry.
Response	**M29␣A**	Command executed.
	M29␣L	Parameters wrong (value range, …).
	M29␣I	Command not executable.

Example

M29 3	→ **M29 A**	Setting of value release to "reliable".

M36   Inquiry/setting of LevelControl

Command   **M36**   Inquiry of LevelControl.

Response   **M36␣A␣sts␣text␣ton**

	sts:	Status
		0 = LevelControl switched off
		1 = LevelControl switched on
	text:	Warning text
		0 = Off
		1 = Once
		2 = Repeat
	sound:	Warning Beep
		0 = Off
		1 = Once
		2 = Repeat

M36␣L   Parameters are missing, the command can thus not be executed.

M36␣I   Command not executable.

Command   **M36␣sts␣text␣ton**

Setting of LevelControl.

	sts:	Status
		0 = LevelControl switched off
		1 = LevelControl switched on
	text:	Warning text
		0 = Off
		1 = Once
		2 = Repeat
	sound:	Warning Beep
		0 = Off
		1 = Once
		2 = Repeat

Response   **M36␣A**   Command executed.

M36␣L   Parameters are missing, the command can thus not be executed.

M36␣I   Command not executable.

Example

M36   → **M36 A 111**   LevelControl switched on. Text once and Beep once.

Example

This command is not supported by weighing platforms without terminal

M37   Inquiry/setting of draft shield door opening

Command	**M37**	Inquiry of door opening.	
Response	**M37␣A␣int**	int:	0...100, door opening in %
			(100 = door completly open)
	M37␣L	Parameters are missing, the command can thus not be executed.	
	M37␣I	Command not executable.	
Command	**M37␣int**	Setting of door opening.	
		int:	0..100, door opening in %
			(100 = door completly open)
Response	**M37␣A**	Command executed.	
	M37␣L	Parameters are missing, the command can thus not be executed.	
	M37␣I	Command not executable.	

Example

M37   → **M37 A 75**   Door opening is set on 75%.

Comment

Only the values available in the Set-Up of the balance are excepted.

M38	Execute reset

Command	**M38⎵int**	Execute Reset.	
		int:	execute Reset
			0 = Reset, Clear Window
			1 = Application Reset
			2 = User Reset
			3 = Master Reset
Response	**M38⎵A**	Command executed.	
	M38⎵L	Parameters are missing, the command can thus not be executed.	
	M38⎵I	Command not executable.	

Example

M38 0	→ **M38 A**	Execute Reset.

Comments

	Reset:	Activated process, such as Zero-ing, Taring, Calibrations, all open entry of result windows will be cancelled or closed.
	Application Reset:	All applications will be reset to default.
	User Reset:	All user settings will be reset to default.
	Master Reset:	All balance parameters are reset to default

P100   Print out text on the printer

Command	**P100␣"text"**	Print out "text" on the printer (24 characters/line).
Response	**P100␣A**	Command executed.
Command	**P100␣I**	Command can not be executed at present as another operation is taking place, e.g. taring.
Response	**P100␣L**	Text could not be printed as, e.g. printer not switched on or connected.

Example

Command	**P100␣"Hallo"**	Print out Hallo on the printer.
Response	**P100␣A**	Printout has been started.

Comments

- A sequence of maximum 24 characters is admissible as text.

- The command **P100␣"text"** has no influence on the function of the printer as a record printer.

P101   Send stable weight value to printer channel

Command	**P101**	Send stable weight value to the printer, corresponds to command **S**.
Response	**P101␣A**	Command executed.
	P101␣I	Command not executable as another operation is taking place.
	P101␣L	Command not executable as no printer connected.

Example

Command	**P101**	A stable weight value appears on the printout, e.g. 200.01 g.
Response	**P101␣A**	Command executed.

Comments

- The command **P101** has no influence on the function of the printer as a record printer.

- The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.

P102   Send weight value to printer channel immediately

Command	**P102**	Send weight value to the printer immediately, corresponds to command **SI**.
Response	**P102␣A**	Command executed.
	P102␣I	Command not executable as another operation is taking place.
	P102␣L	Command not executable no printer connected.

Example

Command	**P102**	A stable or dynamic weight value appears on the printout, e.g. "D 200.01 g".
Response	**P102␣A**	Command executed.

Comment

The command **P102** has no influence on the function of the printer as a record printer.

P120   Reset SmartTrac according to application

Command	**P120**	Reset SmartTrac according to application.
Response	**P120␣A**	SmartTrac controlled according to last command.
	P120␣I	SmartTrac can not be written to as another operation is taking place.
	P120␣L	SmartTrac can not be activated as it is not present.

P121	Set SmartTrac as +/- display

Command   **P121␣x1␣x2␣x3**

           Set SmartTrac as +/- display with tolerance markers.

           x1:   Value/Unit for the target value (pointer in 12 o'clock position).

           x2:   Value/Unit for the +tolerance value (pointer to + marker).

           x3:   Value/Unit for the -tolerance value (pointer to - marker).

           The specified weight value with unit must lie in the weighing range of the balance.

           Any weighing unit within Unit2 is admissible as unit (see operating instructions of the balance).

Response   **P121␣A**   SmartTrac controlled according to last command.

           P121␣I   SmartTrac can not be written to as another operation is taking place.

           P121␣L   The command could not be executed as the value range of one of the parameters has been exceeded.

Example

Command   **P121␣200.00␣g␣15.00␣g␣20.00␣g**

           Set SmartTrac with target value 200.00 g, +tolerance 15.0 g and –tolerance 20.0 g.

Response   **P121␣A**   Setting performed.

P122	**Activate individual pointers of the SmartTrac**

Command	**P122␣x1␣x2␣x3**	
		Set up to 2 individual pointers of the SmartTrac.
		$x1 = 0$ SmartTrac without tolerance markers.
		$x1 = 1$ SmartTrac with tolerance markers.
		$x2 \ldots x3$ Integers from 0 to 59.
		$x2$ Enter position of 1st pointer.
		$x3$ Enter position of 2nd pointer.
Response	**P122␣A**	SmartTrac controlled according to last command.
	P122␣I	SmartTrac can not be written to as another operation is taking place.
	P122␣L	The command could not be executed as the value range of one of the parameters has been exceeded or the number of parameters is wrong.

Example

Command	**P122␣0␣15␣30**	
		Set pointers of the SmartTrac, similar to cross hairs.
Response	**P122␣A**	Pointer set.

Comment

At least one pointer parameter must be preset.

P123   Activate SmartTrac by segments

Command	**P123␣x1␣x2␣x3**	Switch on up to four pointer segments of the SmartTrac.
		$x1 = 0$ SmartTrac without tolerance markers.
		$x1 = 1$ SmartTrac with tolerance markers.
		x2, x3 Integers from 0 to 59.
		x2 Start of 1st segment.
		x3 End of 1st segment.
Response	**P123␣A**	SmartTrac controlled according to last command.
	P123␣I	SmartTrac can not be written to as another operation is taking place.
	P123␣L	The command could not be executed as the value range of one of the parameters has been exceeded or no SmartTrac.

Example

Command	**P123␣0␣15␣30**	
		Switch on the second quarter of the SmartTrac.
Response	**P123␣A**	Command executed.

Comment

At least one segment parameter must be preset.

P124   Switch off SmartTrac display

Command	**P124**	Switch off SmartTrac display.
Response	**P124␣A**	Command executed.
	P124␣I	SmartTrac display can not be switched off as another operation is taking place.
	P124␣L	The command can not be executed as there is no SmartTrac.

PWR   Power on/off

Command	**PWR␣x**	Switch balance on or off.
		$x = 0$ Set balance to standby mode.
		$x = 1$ Switch balance on.
Response	**PWR␣A**	Balance has been switched off successfully.
	PWR␣A **I4␣A␣"text"**	Balance with the serial number according to text has been switched on succesfully (see also **I4** command).
	PWR␣I	Command not executable as the balance is, e.g. being

SIS   Inquiry of current NetWeight values

Command   **SIS**   Inquiry of NetWeight with actual unit and weighing status.

Response   **SIS␣I**   Command can't be executed now.

Response   **SIS␣A␣status␣"Net weight"␣unit**
␣readability␣step␣approv␣info
   → at status 0 to 3

Response   **SIS␣A␣status␣"Error"**
   → at status 4 to 6

status: 0 = stable weight value

1 = dynamic weight value

2 = stab. inaccurate weight (MinWeight)

3 = dyn. inaccurate weight (MinWeight)

4 = overload

5 = underload

6 = error, not valid

Net weight: Net weight value (string)

Unit: Actual Unit

0 = g	10 = GN
1 = kg	11 = dwt
2 = t	12 = mo
3 = mg	13 = msg
4 = ug	14 = tl H
5 = ct	15 = tl S
6 = N	16 = tl T
7 = lb	17 = tcl
8 = oz	18 = tola
9 = ozt	20 = bath

Readability: Amount of decimal places
   Format = 0...x (integer)

Step	Display step (integer)	
	1 = "1" step	10 = "10" step
	2 = "2" step	20 = "20" step
	5 = "5" step	50 = "50" step
		100 = "100" step

Approv	Approval status (integer)
	0 not approved
	1 e = d
	10 e = 10d
	100 e = 100d
	-1 not approved with * in display

Info	Weight info (integer)
	0 without tare
	1 net with weighted tare
	2 net with tare store

Example

Command	**SIS**	Inquiry of weight value with actual unit and weighing status.
Response	**SIS␣A␣0␣"100.00"␣0␣2␣1␣10␣0**	
	100.0(0) g	
Response	**SIS␣A␣1␣"10.0"␣5␣2␣50␣0␣2**	
	10.0 ct, carat value, with step 50, in coarse range, with tare store and unstable	
Response	**SIS␣A␣6␣"Error7"** or **SIS␣A␣6␣""**	
	Error, not valid	
Response	**SIS␣A␣4␣""**	
	Overload	

Comment

Can't be used with custom unit, piece counting (PCS) or percent weighing (%).

SIRU	Send weight value with currently displayed unit immediately and repeat

Command	**SIRU**	As the "**SIR**" command, but with currently displayed unit.
Response	**S␣S␣WeightValue␣Unit**	
		Command executed.
	S␣D␣WeightValue␣Unit	
		Command executed.
	S␣+	Balance in overload range.
	S␣-	Balance in underload range.
	S␣I	Command not executable as balance is, e.g. being tared.

Example

Command	**SIU**
Response	**S␣D␣␣␣␣␣␣12.34␣lb**

SIU	Send weight value with currently displayed unit immediately

Command	**SIU**	As the "**SI**" command, but with currently displayed unit.
Response	**S␣S␣WeightValue␣Unit**	
		Command executed, stable.
	S␣D␣WeightValue␣Unit	
		Command executed, dynamic.
	S␣+	Balance in overload range.
	S␣-	Balance in underload range.
	S␣I	Command not executable as balance is, e.g. being tared.

Example

Command	**SIU**
Response	**S␣D␣␣␣␣␣␣12.34␣lb**

SNR	**Send stable weight value and repeat after each deflection**

Command   **SNR␣PresetValue␣Unit**

> Send current stable weight value and repeat after each deflection greater or equal to the preset value (see Comment).

Response   **S␣S␣WeightValue␣Unit**

> Current stable weight value (1. value)

S␣S␣WeightValue␣Unit

:	Next stable weight value after preset deflection (2 value)
:	etc.
S␣I	Command not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
S␣L	Command understood, parameter wrong.
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Example

Command   **SNR␣50␣g**

Response   **S␣S␣␣␣␣␣␣12.34␣g**

              S␣S␣␣␣␣␣␣67.89␣g

Comment

The preset value is optional. If no value is defined, the deflection limit depends on balance readability as follows:

readability	min. deflection
0.01 mg	0.01 g
0.1 mg	0.1 g
0.001 g	1 g
0.01 g	1 g
0.1 g	1 g
1 g	5 g

SNRU	**Send stable weight value and repeat after each deflection**

Command	`SNRU␣PresetValue␣Unit`	
		As the `SNR` command, but with currently displayed unit (see Comment).
Response	`S␣S␣WeightValue␣Unit`	
		Current stable weight value (1. value)
	`S␣S␣WeightValue␣Unit`	
	`:`	Next stable weight value after preset deflection (2 value)
	`:`	etc.
	`S␣I`	Command not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
	`S␣L`	Command understood, parameter wrong.
	`S␣+`	Balance in overload range.
	`S␣-`	Balance in underload range.

Example

Command	`SNRU␣50␣g`
Response	`S␣S␣␣␣␣␣␣12.34␣g`
	`S␣S␣␣␣␣␣␣67.89␣g`

Comment

The preset value is optional. If no value is defined, the deflection limit depends on balance readability as follows:

readability	min. deflection
0.01 mg	0.01 g
0.1 mg	0.1 g
0.001 g	1 g
0.01 g	1 g
0.1 g	1 g
1 g	5 g

SRU	**Send stable weight value with currently displayed unit after deflection**

Command	**SRU**	As the "**SR**" command, but with currently displayed unit.
	SRU␣WeightValue␣Unit	
Response	**S␣S␣WeightValue␣Unit**	
		Command executed.
	S␣D␣WeightValue␣Unit	
		Deflection.
	S␣+	Balance in overload range.
	S␣-	Balance in underload range.
	S␣I	Command not executable as balance is, e.g. being tared.

Example

Command	**SRU**
Response	**S␣S␣␣␣␣␣␣12.34␣lb**
	S␣D␣␣␣␣␣␣13.88␣lb
	S␣S␣␣␣␣␣␣15.01␣lb

ST	**Send stable weight value after pressing 🖥 (transfer) key**

Inquiry of the status

Command	**ST**	Inquiry of actual status of the **ST** function.
Responces	**ST␣A␣0**	Function inactive, no weight value is sent when 🖥 (transfer key) is pressed.
	ST␣A␣1	Function active, weight value is sent each time when 🖥 (transfer key) is pressed.
	ST␣I	The current status can not be transfered at present as another operation is taking place.

Set ST function

Command	**ST␣1**	Send the current stable net weight value each time when 🖥 (transfer key) is pressed (see "**S**" command with MT-SICS level 0).
Responces	**ST␣0**	Stop sending weight value when transfer key is pressed.
	ST␣A	Command understood and successfully executed.
	ST␣I	Command understood, but not executable at present, e.g. balance is currently executing another function.
	ST␣L	Command understood, parameter wrong.

Example

Command	**ST␣1**	Activate **ST** function.
Responces	**ST␣A**	Command executed.
		When 🖥 (transfer key) is pressed:
	S␣S␣␣␣␣123.456␣g	
		Current net weight is 123.456g.

Comments

• **ST␣0** is the factory setting (default value).

• **ST** function is not active after switching on and after the reset command.

SU	**Send stable weight value with currently displayed unit**

Command	**SU**	As the "**S**" command, but with currently displayed unit.
Response	**S␣S␣WeightValue␣Unit**	
		Command executed.
	S␣+	Balance in overload range.
	S␣-	Balance in underload range.
	S␣I	Command not executable as balance is, e.g. being tared.

Example

Command   **SU**

Response   **S␣S␣␣␣␣␣␣12.34␣lb**

Comment

The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.

TIM	**Time**

Inquiry of time

Command	**TIM**	Send current time of the balance.
Response	**TIM␣A␣hh␣mm␣ss**	
		"hh␣mm␣ss" represents the time in the 24-hour format (hours␣minutes␣seconds).
	TIM␣I	No inquiry of the time is possible at present as another operation is taking place.

Set time

Command	**TIM␣hh␣mm␣ss**	
		Set time in 24-hour format (hours␣minutes␣seconds).
Response	**TIM␣A**	Time has been set, clock running.
	TIM␣I	The time can not be set at present as another operation is taking place.
	TIM␣L	Command not executed as the time format is not correct (e.g. 22␣67␣25) or no timer is built in.

Example

Command	**TIM**	Inquiry of time.
Response	**TIM␣A␣22␣56␣11**	
		The current time of the balance is 22 hours, 56 minutes and 11 seconds.

Comment

The time setting is retained even after the reset command "**@**".

TST0	**Inquiry/setting of the test function**

Inquiry of the test function setting

Command   **TST0**   Inquiry of the setting for the test function.

Responses **TST0␣A␣x␣"WeightValue␣Unit"**

                                    $x = 0$ The internal weight is used for the test.

                                    $x = 1$ The external weight is used for the test.

                                    Weight value␣Unit Value of the external weight currently set that is requested in the test from the balance user via the display.

          TST0␣I   The current setting of the test function can not be transferred at present as another operation is taking place.

Set test configuration

Command   **TST0␣x**   Set test configuration of the balance.

                                    $x = 0$ Test with internal weight.

                                    $x = 1$ Test with external weight.

Responses **TST0␣A**   Test configuration set.

          TST0␣L   Wrong parameter.

          TST0␣I   Command not executable as the balance is, e.g. being

tared.

Example

Command   **TST0**   Inquiry of current setting for the test and the value of the external test weight.

Response   **TST0␣A␣1␣␣␣␣2000.00␣g**

                                        The current setting corresponds to the test with an external weight.

                                      For a test initiated with the **TST2** command (see below), an external weight of 2000.00 g is needed.

Comments

- The current value of the external weight can be seen in the menu under "Test" (see Operating instructions).

- With an internal test, no weight value appears.

TST1	**Initiate test function in the current setting**

Command	**TST1**	Start test function in the current setting.
First response	**TST1␣B**	The test procedure has been started. Wait for next response (see Comment).
	TST1␣I	The test function can not be executed at present as another operation is taking place. No second response follows.
	TST1␣L	Test not possible. No second response follows.
Further responses	**TST1␣"text"**	Prompt to unload and load the balance.
	TST1␣A␣"WeightValue␣Unit"	
		Test procedure completed successfully.
		Value with unit corresponds to the deviation from the specified value displayed after the test (difference "D").
		No unit is specified if the test has been performed with the internal weight.
	TST1␣I	The test procedure has been aborted as, e.g. stability was not attained or wrong weights were loaded.

Comment

Commands sent to the balance during the test procedure are not processed and responded to in the appropriate manner until the test procedure is at an end.

TST2	**Initiate test function with external weight**

Command	**TST2**	Start test function with external weight. Inquiry of the weight used by means of the **TST** command (see above).
First response	**TST2␣B**	The test procedure has been started. Wait for next response (see Comment).
	TST2␣I	The test function can not be executed at present as another operation is taking place. No second response follows.
	TST2␣L	Test not possible. No second response follows.
Further responses	**TST2␣"text"**	Prompt to unload and load the balance.
	TST2␣A␣"WeightValue␣Unit"	
		Test procedure completed successfully.
		Weight value with unit corresponds to the deviation from the specified value displayed in the top line after the test. (difference "D", see operating instructions of balance).
		The test procedure has been aborted as, e.g. stability was not attained or wrong weights were loaded.

Example

Command	**TST2␣I**	Initiate test with external weight.
Response	**TST2␣B**	The test procedure could be started.
	TST2␣"␣␣␣␣␣␣0.00␣g"	
		Prompt to unload the balance.
	TST2␣"␣␣␣␣␣200.0␣g"	
		Prompt to load the test weight.
	TST2␣"␣␣␣0.00␣g"	
		Prompt to unload the balance.
	TST2␣A␣"␣␣␣0.01␣g"	
		External test completed successfully.

Comment

Commands sent to the balance during the test procedure are not processed and responded to in the appropriate manner until the test procedure is at an end.

TST3   Initiate test function with internal weight

Command	**TST3**	Start test function with built-in weight.
First response	**TST3␣B**	The test procedure has been started. Wait for next response (see Comment).
	TST3␣I	The test function can not be executed at present as another operation is taking place. No second response follows.
	TST3␣L	Test not possible. No second response follows.
Further responses	**TST3␣A␣"WeightValue"**	
	TST3␣I	Test procedure completed successfully.
		Value corresponds to the deviation from the specified value displayed after the test (difference "D").
		The test procedure has been aborted as, e.g. stability was not attained or wrong weights were loaded.

Example

Command	**TST3**	Initiate test with internal weight.
Response	**TST3␣B**	The test procedure could be started.
	TST3␣A␣"␣␣␣␣␣0.01"	
		The difference to the specified value is 0.01.

Comment

The commands received immediately after the first response are not processed and responded to in the appropriate manner until after the second response.

UPD   Inquiry/setting of the update rate of the host interface

Command	**UPD**	Inquiry of the update rate of the host interface.
Response	**UPD␣A␣int**	"int" represents the update rate per second.
	UPD␣L	No parameters available.
	UPD␣I	Command not executable.
Command	**UPD␣int**	Set update rate per second of balance.
Response	**UPD␣A**	Command executed.
	UPD␣I	Command not executable.

Example

Command	**UPD**	Inquiry of update rate of the interface.
Response	**UPD␣A␣20.2**	The update rate per second of the interface is 20.2.

WS – Inquiry/setting of position of draft shield doors

Command	**WS**	Inquiry of position of draftshield doors.
Response	**WS␣A␣x**	x: Position
		0 = door(s) closed
		1 = door open (right)
		2 = door open (left)
		8 = error
		9 = intermediate
	WS␣L	Parameters are missing, the command can thus not be executed.
	WS␣I	Command not executable.
Command	**WS␣x**	Setting of position of draftshield doors.
		int: See Inquiry.
Response	**WS␣A**	Command executed.
	WS␣L	Parameters wrong (value range, …).
	WS␣I	Command not executable.

Example

WS 1 →	**WS A**
	Doors opening or door opening to the right.

Comments

The user must ensure that the doors are in the correct position. If the doors are blocked when closing, then they return to their original position. The position can be monitored by an inquiry command.

4.4   Commands and responses MT-SICS level 3 for Excellence balances

PW	Piece Counting: Inquiry/setting of the piece weight

Command	**PW**	Inquiry of the piece weight for the piece counting application.
Response	**PW␣A␣PieceWeightValue␣Unit**	
		Current piece weight value in unit actually set under unit 1.
	PW␣L	Command not executable as the piece counting application is not active or a parameter is incorrect.
	PW␣I	Command not executable as another operation is taking place.

Command	**PW␣A␣PieceWeightValue␣Unit**	
		Setting of the piece weight value to the according preset value. The unit should correspond to the unit actually set under unit 1.
Response	**PW␣A**	Command executed.
	PW␣L	Command not executable as the piece counting application is not active or a parameter is incorrect.
	PW␣I	Command not executable as another operation is taking place.

Comments

• This command can only be used with the application "piece counting".
• The range of the piece weight value is specified to the balance type.

A01   Percent Weighing: Inquiry/setting of reference in %

Command	**A01**	Inquiry of reference for percent weighing.
Response	**A01␣A␣x**	x: Reference (in %)
	A01␣L	Command not executable as the percent weighing application is not active.
	A01␣I	Command not executable.
Command	**A01␣X**	Setting of reference (in %).
Response	**A01␣B**	Start to set reference (waiting for stable weight).
	A01␣A	Command executed.
	A01␣L	Incorrect parameter.
	A01␣E	Setting reference aborted (not stable, over- or underload, abortkey,…).
	A01␣I	Command not executable.

Example

Command	**A01␣100.00**	Set the reference for percent weighing to 100.00 %
Response	**A01␣B**	Reference is set, waiting for stable weight
	A01␣A	Command executed.

Comment
• This command can only be used with the application "percent weighing".

A06	Dynamic Weighing: Inquiry/setting of dynamic weighing filter

Command	**A06**	Inquiry of dynamic weighing filter.
Response	**A06␣A␣x**	x: 1 = Stable
		2 = Standard
		3 = Unstable
	A06␣L	Command not executable as the dynamic weighing application is not active
	A06␣I	Command not executable.
Command	**A06␣X**	Setting of dynamic weighing filter.
		x: 1 = Stable
		2 = Standard
		3 = Unstable
Response	**A06␣A**	Command executed.
	A06␣L	Incorrect parameter.
	A06␣I	Command not executable.

Example

Command	**A06␣2**	Set dynamic weighing filter on standard
Response	**A06␣A**	Dynamic weighing filter setting has been executed.

Comment

• This command can only be used with the application "dynamic weighing".

A07   Dynamic Weighing: Inquiry/setting of dynamic weighing AutoStart

Command	**A07␣X**	Inquiry of the dynamic weighing AutoStart.
Response	**A07␣A␣x**	x: 0 = off
		1 = on
	A07␣L	Command not executable as the dynamic weighing application is not active
	A07␣I	Command not executable.
Command	**A07␣X**	Setting of the dynamic weighing AutoStart.
		x: 0 = off
		1 = on
Response	**A07␣A**	Command executed.
	A07␣L	Incorrect parameter.
	A07␣I	Command not executable.

Example

Command	**A07␣0**	Set dynamic weighing without AutoStart.
Response	**A07␣A**	AutoStart setting has been executed.

Comment

• This command can only be used with the application "dynamic weighing".

A08	**Dynamic Weighing: Inquiry/setting of dynamic weighing Auto**Tare

Command	**A08**	Inquiry of the dynamic weighing AutoTare.
Response	**A08␣AL␣x**	x: 0 = off
		1 = on
	A08␣L	Command not executable as the dynamic weighing application is not active
	A08␣I	Command not executable.
Command	**A08␣X**	Setting of dynamic weighing AutoTare.
		x: 0 = off
		1 = on
Response	**A08␣A**	Command executed.
	A08␣L	Incorrect parameter.
	A08␣I	Command not executable.

Example

Command	**A08␣0**	Set dynamic weighing without AutoTare.
Response	**A08␣A**	AutoTare setting has been executed.

Comment
• This command can only be used with the application "dynamic weighing".

A09   Dynamic Weighing: Inquiry/setting of Data Acquisition

Command	**A09**	Inquiry of the data acquisition for dynamic weighing.
Response	**A09␣A␣x**	x: 0 = Dynamic Behaviour
		1 = Time Interval
	A09␣L	Command not executable as the dynamic weighing application is not active.
	A09␣I	Command not executable.
Command	**A09␣X**	Setting of the data acquisition for dynamic weighing.
		x: 0 = Dynamic Behaviour
		1 = Time Interval
Response	**A09␣A**	Command executed.
	A09␣L	Incorrect parameter.
	A09␣I	Command not executable.

Example

Command	**A09␣1**	Set the data acquisition for dynamic weighing = time interval.
Response	**A09␣A**	The data acquisition for dynamic weighing has been set to time interval.

Comment

• This command can only be used with the application "dynamic weighing".

SM0   Dynamic Weighing: Reset of all SMx commands

Command	**SM0**	Reset of all SMx commands.
Response	**SM0␣A**	Command executed.
	SM0␣L	Command not executable as the dynamic weighing application is not active or a parameter is incorrect.
	SM0␣I	Command not executable as another operation is taking place.

Comment

• This command can only be used with the application "dynamic weighing".

SM1   Dynamic Weighing: Start immediately and transfer the result

Command	**SM1**	Balance immediately starts a dynamic weighing and transfers the result.
First response	**SM1␣A**	Dynamic weighing has been started, wait for second response. During the weighing operation, i.e. until the second response, no further commands can be executed.
	SM1␣L	Command not executable as the dynamic weighing application is not active or a parameter is incorrect. No second response follows.
	SM1␣I	Command not executable as another operation is taking place. No second response follows.
Second response	**SM␣*␣WeightValue␣Unit**	
		Weight value corresponds to the result of the measurement cycle. The unit corresponds to the current weight unit in the display.
	SM␣+	Abort, overload during the measurement cycle.
	SM␣-	Abort, underload during the measurement cycle.
	SM␣I	The dynamic weighing has been aborted, e.g. with the "C" key.

Example

Command	**SM1**	Start a dynamic weighing immediately and transfer the result.
Response	**SM1␣A**	Command understood, result follows.
	SM␣*␣␣␣␣␣␣ 23.76␣g	
		Result of the dynamic weighing is 23.76 g

Comments
- This command can only be used with the application "dynamic weighing".
- The SM1 command does not test any minimum load.
- Set AutoStart off (see command A07), set AutoTare off (see command A08).
- The balance does not perform stability or plausibility checks for the start.

SM2 Dynamic Weighing: Start after a minimum load is exceeded and transfer the result once

Command	**SM2**	Balance starts a dynamic weighing automatically after the defined minimum load is exceeded and transfers the result (once).
First response	**SM2␣A**	Dynamic weighing has been started, wait for second response. During the weighing operation, i.e. until the second response, no further commands can be executed.
	SM2␣L	Command not executable as the dynamic weighing application is not active or a parameter is incorrect. No second response follows.
	SM2␣I	Command not executable as another operation is taking place. No second response follows.
Second response	**SM␣*␣WeightValue␣Unit**	
		Weight value corresponds to the result of the measurement cycle. The unit corresponds to the current weight unit in the display.
	SM␣+	Abort, overload during the measurement cycle.
	SM␣-	Abort, underload during the measurement cycle.
	SM␣I	The dynamic weighing has been aborted, e.g. with the "C" key.

Example

Command	**SM2**	Start a dynamic weighing after the defined minimum load is exceeded and transfer the result.
Response	**SM2␣A**	Command understood, result follows.
	SM␣*␣␣␣␣␣␣ 24.30␣g	
		Result of the dynamic weighing is 24.30 g

Comments
- This command can only be used with the application "dynamic weighing".
- Set AutoStart on (see command A07)
- The minimum load can be defined in the dynamic weighing application setup in the menu AutoStart.
- The single start standby is cancelled by the SMO and @ commands before start of the weighing.

SM3 Dynamic Weighing: Start after a minimum load is exceeded, transfer the result and repeat

Command	**SM3**	Balance starts a dynamic weighing automatically after the defined minimum load is exceeded and transfers the result. The renewed start standby is restored each time the weight drops below the defined minimum load.
First response	**SM3␣A**	Dynamic weighing has been started, wait for second response. During the weighing operation, i.e. until the second response, no further commands can be executed.
	SM3␣L	Command not executable as the dynamic weighing application is not active or a parameter is incorrect. No second response follows.
	SM3␣I	Command not executable as another operation is taking place. No second response follows.
Second response	**SM␣*␣WeightValue␣Unit**	Weight value corresponds to the result of the measurement cycle. The unit corresponds to the current weight unit in the display.
		Further results follow when the start condition is again fulfilled.
	SM␣+	Abort, overload during the measurement cycle.
	SM␣-	Abort, underload during the measurement cycle.
	SM␣I	The dynamic weighing has been aborted, e.g. with the "C" key.

Example

Command	**SM3**	Start a dynamic weighing when weight drops below and afterwards above the defined minimum load, transfer the result and repeat the process.
Response	**SM3␣A**	Command understood, result follows.
	SM␣*␣␣␣␣␣␣␣25.83␣g	
	SM␣*␣␣␣␣␣␣␣22.91␣g	
	SM␣*␣␣␣␣␣␣␣24.05␣g	
		Result of the first dynamic weighing is 25.83 g.
		Result of the second dynamic weighing is 22.91 g. etc.

Comments
- This command can only be used with the application „dynamic weighing".
- Set AutoStart on (see command A07)
- The minimum load can be defined in the dynamic weighing application setup in the menu AutoStart.
- The recurring establishment of the start standby is cancelled by the SM0, SM1, SM2 and @ commands.

SM4	Dynamic Weighing: Inquiry/setting of Time Interval

Command	**SM4**	Inquiry of the time interval for dynamic weighing.
Response	**SM4␣A␣Time Interval**	
		Time interval in seconds for the data acquisition of the dynamic weighing.
	SM4␣L	Command not executable as the dynamic weighing application is not active.
	SM4␣I	Command not executable at present as another operation is taking place.
Command	**SM4␣Time Interval**	
		Setting of the time interval (1 … 99 seconds) for dynamic weighing.
	SM4␣A	Command executed.
	SM4␣L	Incorrect parameter.
	SM4␣I	Command not executable at present as another operation is taking place.

Example

Command	**SM4␣10**	Set the time interval to 10 seconds.
Response	**SM4␣A**	The actual time interval has been set to 10 seconds.

Comments
- This command can only be used with the application "dynamic weighing".
- The time interval preset by the SM4 command is automatically set to the actual value indicated in the balance's display when the time interval parameter is selected manually.

4.5   Additional commands – FastHost for Excellence balances

B00	FastHost lists of commands

Command	**B00**	Inquiry of list of FastHost commands.
Response	**B00␣B␣"text"**	Text: Command String.
	…	
	B00␣A␣"text"	
	B00␣L	Inadmissible parameter.

Example

Command	**B00**	Inquiry of list of FastHost commands.
Response	**B00␣B␣"B00"**	Commands B00 to B08 are available.
	B00␣B␣"B01"	
	B00␣B␣"B02"	
	B00␣B␣"B03"	
	B00␣B␣"B04"	
	B00␣B␣"B05"	
	B00␣B␣"B06"	
	B00␣B␣"B07"	
	B00␣A␣"B08"	

B01	Inquiry of FastHost individual value

Command	**B01**	Inquiry of FastHost value.
Response	**<output>**	<output>: as per format specification (cf B04).
	B01␣L	Inadmissible parameter.

Example

Command	**B01**	Inquiry of FastHost value.
Response	**B␣S␣␣␣␣123.45␣unit**	
		As per current format specification.

B02	**FastHost start/stop continuous mode**

Command	**B02␣start**	Start/stop continuous mode.
		Start:
		0 = Stop (Default)
		1 = Start
Response	**<output>**	<output>: continuous as per sampling reduction (cf B06) and format specification (cf B04).
	B02␣L	Inadmissible parameter.

Example

Command	**B02␣1**	Inquiry of Start continuous mode.
Response	**B␣D␣123.45␣g**	Continuous and as per current format specification.
	B␣S␣123.54␣g	
	…	

B03	**FastHost inquiry of time interval of value counter**

Command	**B03**	Inquiry of time interval of value counter.
Response	**B03␣A␣Intval**	Intval: time interval (in seconds).
	B03␣L	Inadmissible parameter.

Example

Command	**B03**	Inquiry of time interval of value counter.
Response	**B03␣A␣0.010923**	
		Time interval is 10.923 ms.

B04   FastHost inquiry and setting of format specification

Command	**B04**	Inquiry of FastHost format specification.
Response	**B04␣A␣"Form"**	Form: format string.
Command	**B0␣A␣"Form"**	Setting of FastHost format specification.
Response	**B04␣A**	FastHost format specification is set.
	B04␣L	Fault in format specification.
	B04␣I	Parameter not permanently saved.

Example 1

Command	**B04␣"S␣%S%␣%W:11:3%␣%U%␣%C:100%"**	
		Setting FastHost format specification.
Response	**B04␣A**	FastHost format specification is set.

Example 2

Command	**B04␣"Weight␣=␣%W::2%␣%U%"**	
		Setting FastHost format specification.
Response	**B04␣A**	FastHost format specification is set.

Example 3

Command	**B04␣"%%W%␣mal␣%%A%␣directly␣%%WA%"**	
		Setting FastHost format specification.
Response	**B04␣A**	FastHost format specification is set.

Example 4

Command	**B04␣"\"%W%\"␣is␣directly␣%W%"**	
		Setting FastHost format specification.
Response	**B04␣A**	FastHost format specification is set.

Comments

• The format specification is permanently stored under user data.

Format table Information	Format specification	Options
Weight value (net value) with selectable representation (number of places, number of decimal places). The unit of the weight value is always in grams.	**%W%**	**%W:10:5%** Total number of places and number of decimal places. Formatting is right-justified as long as the defined number of places for the output display is sufficient. Notes: The maximum possible number of decimal places is limited to the resolution of the balance (Default). Output is always as full range with rounding (Deltarange is not supported).
Unit (as string)	**%U%**	None Unit is fixed to gram
<Absolute weight value> starting from fabrication zero point	**%A%**	**%A:12:3%** Total number of places and number of decimal places. Formatting is right-justified as long as the defined number of places for the output display is sufficient.
Stability information(stable / unstable)	**%S%**	**%S:D:S%** Specification of the Stability value:1st indication for instable (default D), 2nd indication for stable (default S). Only the indications A-Z, A-z, 0-9 and <space> are available
Signal width as measure for the measured value stability.Note: The signal width can be used for a user specific detection stable/ unstable.	**%Q%**	**%Q:5:3%** Total number of places and number of decimal places. Default:10:0.Formatting is right-justified as long as the defined number of places for the output display is sufficient.
Time informationNote: It concerns measured value counter with fixer counting rate and not around one time.	**%C%**	**%C:256%** Supplies the measured value counter modulo with indicated value. Note: By default the counter runs from 0..4294967295 (4 Byte unsigned long)
Temperature level of the measuring cell.Note: The temperature value in the cell isn't identical to the balancing ambient temperature! This can't be derived from the temperature of the measuring cell.	**%T%**	**%T:5:2%** Total number of places and number of decimal places.Formatting is right-justified as long as the defined number of places for the output display is sufficient. **Note:** Maximum number of decimal places is limited to 3 (default)
Constant Text	Insert directly	**%%** Percent sign as constant text at the start of format or after a <Blank> \"Inverted commas are a text component
Information delimitation	<Blank>	

Remarks on the format data

With overload the results %W% and %A% the value 99999999 are given.

With underload the results %W% and %A% the value –99999999 are given.

%C% concerns an internal measured value counter of signal processing. This is initialised after each PowerOn of the weighbridge with 0. With the count 4294967295 (4Byte unsigned long) an overflow occurs and the counter starts again with 0. With Lotus/ Magellan balances with a time interval of measured value counter of 10.923 ms this overflow takes place on the 543rd day after PowerOn. With a „modulo-1000' formatting, the overflow counter runs only to 999 and then returns to 0 and starts again.

B05   FastHost inquiry and setting of stability criteria

Command	**B05**	Inquiry of FastHost stability criteria.
Response	**B05␣A␣Width**	Width:
		Signal width as stable criteria in grams.
Command	**B05␣Width**	Setting of of FastHost stability criteria.
Response	**B05␣A**	FastHost stability criteria is set.
	B05␣L	Inadmissible parameter.
	B05␣I	Parameter not permanently saved.

Example

Command	**B05**	Inquiry of FastHost stability criteria.
Response	**B05␣A␣Width**	Width of signal for stability is 0.0006 g

Comments

- The condition of stability is permanently stored.
- Only the signal width can be adjusted to determine the Fasthost stability by means of B05. The observation time for the determination of the signal width is given by the balance system. This can be different, depending on the adjustment of the balance parameters and on the type.
- If the value of the Fasthost signal width (B05) is more than 1000 times smaller than the smallest resolution of the balance, then the internal stability information of the balancing system will be sent to the stability marking, i.e. same behaviour concerning stability information as with the S-commands.

B06	FastHost inquiry and setting data sampling reduction

Command	**B06**	Inquiry of FastHost data sampling reduction.
Response	**B06␣A␣Rate**	Rate: Sampling reduction
		1 = give all values (max. rate).
		2 = give every second value
		3 = give every third value
		…
Command	**B06␣Rate**	Setting of of FastHost data sampling reduction.
Response	**B06␣A**	FastHost data sampling reduction is set.
	B06␣L	Inadmissible parameter.
	B06␣I	Parameter not permanently saved.

Example

Command	**B06**	Inquiry of FastHost data sampling reduction.
Response	**B06␣A␣4**	Width continuous sending every fourth value will be given.

Comment

Settings are permanently stored.

B07	FastHost inquiry and setting switch-on mode

Command	**B07**	Inquiry of FastHost switch-on mode.
Response	**B07␣A␣Mode**	Mode: switch-on mode.
		0 = normal start
		1 = automatic send after switch-on is activated.
Command	**B07␣Mode**	Setting of FastHost switch-on mode.
Response	**B07␣A**	FastHost switch-on mode is set.
	B07␣L	Inadmissible parameter.
	B07␣I	Parameter not permanently saved.

Example

Command	**B07**	Inquiry of FastHost switch-on mode.
Response	**B07␣A␣1**	Automatic send after switch-on is activated.

Comment

The switch-on mode is permanently stored.

B08 Set to zero with FastHost stability criteria

Command	**B08**	Set to zero with FastHost stability criteria.
Response	**B08␣A**	Set to zero FastHost successfully completed.
Response	**B08␣+**	Command stopped due to overload.
	B08␣-	Command stopped due to underload.
	B08␣I	Command not available, stopped or timed-

out.

Example

| Command | **B08** | Set to zero with FastHost stability criteria. |
| Response | **B08␣A** | Set to zero FastHost successfully completed. |

5   Special features

Parameter values after switching balance On/Off

The commands of the standard command are seved on the permanent memory of the balance. This means that all values changed via the interface are saved when the balance is switched off.

Several commands in succession

If several commands are sent in succession without waiting for the corresponding responses, it is possible that the balance confuses the sequence of command processing or ignores entire commands.

Weight unit of weight value

In response strings with a weight value, unit always signifies the unit actually set under unit 1 in the menu of the balance (exeptions see **SU**, **SIU**, **SIRU** and **SRU** commands (MT-SICS level 2)).

METTLER TOLEDO DeltaRange balances

If the fine range of DeltaRange balances has been exceeded at the time of transmission, the balance sends a weight value as response in which the tenth character is a space.

Repeat rate and timeout

The repeat rate with repeat commands and the duration of the timeout (time-limit function) depend on the balance type, see technical data of the balance in question.

6   An example

The following simple formula weighing application shows the data interchange between the computer with the formula weighing program and the balance.

A substance (S = 55 g) comprising components K1 = 100 g and K2 = 21 g needs to be weighed into a beaker.
If too much or too little of the first component is weighed in, the target weight of the second component should be adjusted so that the ratio of the two components remains the same. The user is guided by the balance display and acknowledges his actions with the tare key.

Command
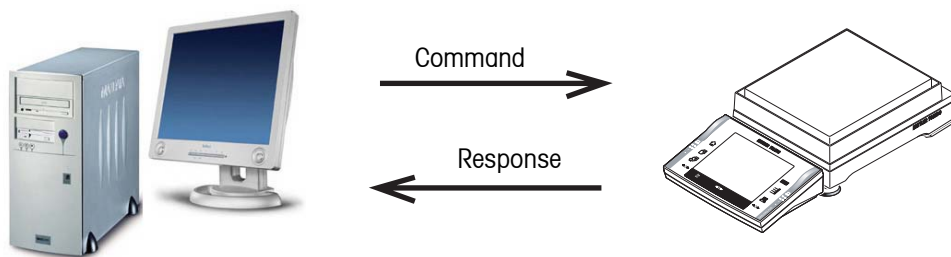
Response

→	**@**	Reset balance.
←	**I2␣A␣"1114350697"**	
→	**K␣3**	Disable key function and report each keystroke.
←	**K␣A**	
→	**D␣"BEAKER"**	
		Prompt "(load) BEAKER" appears in the display.
←	**D␣A**	Response to the prompted text.
←	**K␣C␣10**	Acknowledges pressing of the tare key.
→	**T**	Tare weight on the balance.
←	**T␣S␣␣␣␣␣70.0000␣g**	
		Beaker weighs 70.0000 g.
→	**D␣"C1 100g"**	
		Prompt, add component 1 = 100 g.

Command
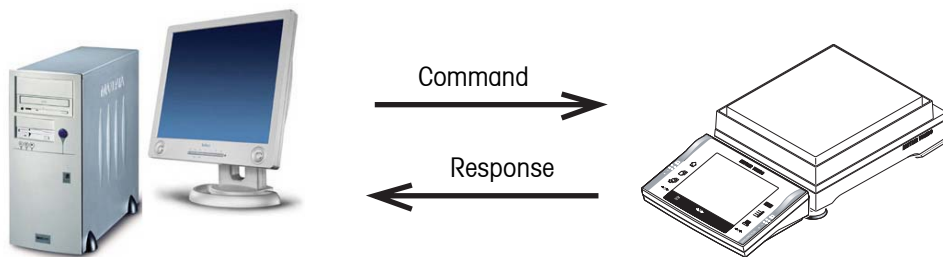
Response

⟵	**D␣A**	Response to the prompted text.
⟵	**K␣C␣10**	Acknowledges pressing of the tare key.
⟶	**S**	Send target weight of component 1.
⟵	**S␣S␣␣␣␣␣105.0000␣g**	
		Target weight of component 1 missed by 5 g.
⟶	**T**	Tare weight on the balance.
⟵	**T␣S␣␣␣␣␣55.0000␣g**	
		Contents of the tare memory, now corresponds to gross weight.
⟶	**D␣"C2␣21␣g"**	
		Prompt, add component 2 = 21 g.
⟵	**D␣A**	Response to the prompted text.
⟵	**K␣C␣10**	Acknowledges pressing of the tare key.
⟶	**D␣"Sub␣76␣g"**	
		Display "76 g substance weighed in".
⟵	**D␣A**	Response to the "Display" command.

7   What if...?

Tips from actual practice when the communication between the system (computer) and the balance does not function.

Establishing the communication

Switch the balance off with the corresponding "Off" key and then on again with the "On" key. The balance must now send identification string **I4**, e.g. **I4␣A␣"0123456789"**.
If this is not the case, check the following points.

Connection

For bidirectional communication, at least three connecting lines are needed:

• Data line from the balance (TxD signal with RS232 interface).

• Data line to the balance (RxD signal with RS232 interface).

• Signal ground line (SG with RS232 interface).

Make sure that all these connections are in order. Check the connector pin assignment of the connection cables.

Interface parameters

For the transmission to function properly, the settings of the following parameters must match at both the computer and the balance:

• Baud rate (send/receive rate)

• Number of data bits

• Parity bit

Check the settings at both devices.

Handshake

For control of the transmission, in part separate connection lines are used (CTS/DTR). If these lines are missing or wrongly connected, the computer or balance can not send or receive data.
Check whether the balance is prevented from transmitting by handshake lines (CTS or DTR). Set the parameter "protocol" for the balance and the peripheral device to "No Handshake" or "none". The handshake lines now have no influence on the communication.

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Subject to technical changes and to the availability
of the accessories supplied with the instruments.