Datacolor Weigh 1.0

Mettler Communication protocols

Overview.

General info on Mettler communication protocols

How to test a scale in Hyperterminal

Mettler PM or Mettler SICS?

- All recent scales of Mettler Toledo are using the MT-SICS protocol to communicate with a pc. These are scales of type (PB,PG,Viper, SG, etc)
- Scales of the PM-Family are using a different protocol. I name it the PM-protocol. Hence you will find **different types of scaledrivers in Datacolor Weigh** depending on the protocol that the scale is using

REMARK

- **Scales that are originally built with the SICS-interface can be reprogrammed to PM-scales. Therefore Mettler needs to change a chip inside the scale. This means that a 'new' scale could have the behaviour of an 'old'-scale.**

- **There are 4 different levels of MT-SICS (0,1,2,3). See further.**

MT-Sics levels description

Commands MT-SICS level 0

I0	Inquiry of all implemented MT-SICS commands
I1	Inquiry of MT-SICS level and MT-SICS versions
I2	Inquiry of balance data
I3	Inquiry of balance SW version and type definition number
I4	Inquiry of serial number
I5	SW-Identification number
S	Send stable weight value
SI	Send weight value immediately
SIR	Send weight value immediately and repeat
Z	Zero
ZI	Zero immediately
@	Reset

Commands MT-SICS level 1

D	Balance display
DW	Weight display (Display show Weight)
K	Key control
SR	Send weight value on weight change (Send and Repeat)
T	Tare
TA	Inquiry/setting of tare weight value
TAC	Clear tare value
TI	Tare Immediately

Commands MT-SICS level 2

C0	Inquiry/setting of calibration setting
C1	Initiate calibration according to current setting
C2	Initiate calibration with external weight
C3	Initiate calibration with internal weight
COM	Inquiry/Setting the communication parameters
COPT	Command to configure interface options
DAT	Date
I10	Balance ID – Inquiry of balance identification
I11	Balance type
I14	Inquiry of balance info
M01	Inquiry/setting of weighing mode
M02	Inquiry/setting of environment
M03	Inquiry/setting of AutoZero
M04	Inquiry/setting of SmartSens functions
M05	Inquiry of user list/method
M06	Inquiry/setting of current user/method number
M08	Inquiry/setting of display brightness
M09	Inquiry/setting of display contrast
M11	Inquiry/setting of beeper volume
M12	Creating beeper tone
M13	Inquiry/setting of Touch function
M14	Inquiry of available languages
M15	Inquiry/setting of language
M16	Inquiry/setting of standby mode
M17	Inquiry/setting of ProFACT time criteria
M18	Inquiry/setting of ProFACT/FACT temperature criterion
M19	Inquiry/setting of adjustment weight
M20	Inquiry/setting of test weight

M21 Inquiry/setting of unit
M22 Inquiry/setting of custom unit definitions
M23 Inquiry/setting of readability, 1d/xd
M24 Inquiry/setting of print key function
M25 Inquiry/setting of application selection
M26 Inquiry/setting of current application
M27 Inquiry of adjustment history
M28 Inquiry of temperature probe
M29 Inquiry/setting of value release
P100 Print out text on the printer
P101 Send stable weight value to printer channel
P102 Send weight value to printer channel immediately
P120 Reset SmartTrac according to application
P121 Set SmartTrac as +/- display
P122 Activate individual pointers of SmartTrac
P123 Activate SmartTrac by segments
P124 Switch off SmartTrac
PWR Power on/off
SIRU Send weight value with currently displayed unit immediately and repeat
SIU Send weight value with currently displayed unit immediately
SNR Send stable weight value and repeat after each deflection
SNRU Send stable weight value with currently displayed unit and repeat after each deflection
SRU Send stable weight value with currently displayed unit after deflection
ST Send stable weight value after pressing F (transfer) key
SU Send stable weight value with currently displayed unit
TIM Time
TST0 Inquiry/setting of the test function
TST1 Initiate test function in the current setting
TST2 Initiate test function with external weight
TST3 Initiate test function with internal weight
UPD Inquiry/setting of the update rate of the host interface

Commands MT-SICS level 3

PW Inquiry/setting of the piece weight (piece counting application)
A01 Inquiry/setting of reference in % (percent weighing application)

Datacolor Weigh requirements

- When the scale support **MT-SICS level 1** then Smartweigh will be completely compatible.
- Under certain conditions the **MT-SICS level 0** could also be sufficient because the Tare-function **T** has moved to the level 1 since SICS **version 2.2**
  This means that scales using a protocol version older than 2.2 can work with Datacolor Weigh wil MT-SICS level 0 as this tare function was then still included in level 0.
  For newer scales, level 1 is at least required.

Checking scale in Hyperterminal.

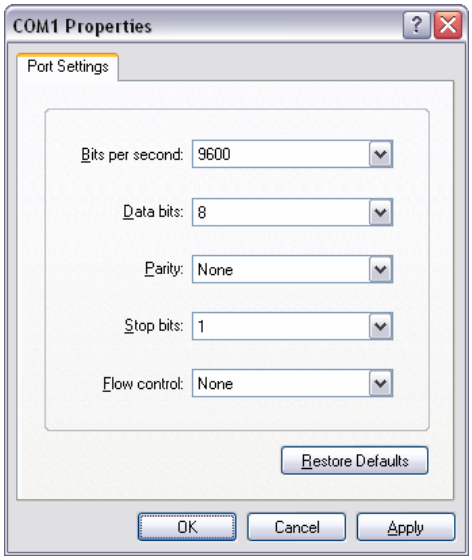
You can access Hyperterminal from the start menu – accessoires – communications.

In this program you can send commands to the scale and check what the scale replies.

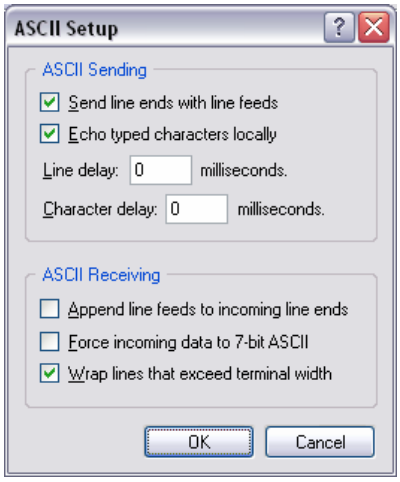
How to connect?

- Open hyperterminal
- Give a name to the session. E.g Scale
- Choose the correct serial port.

- Connect with the communication parameters set correctly (baudrate,databits,parity,handshake). These parameters have to be the same as on the scale. This picture is only an example.



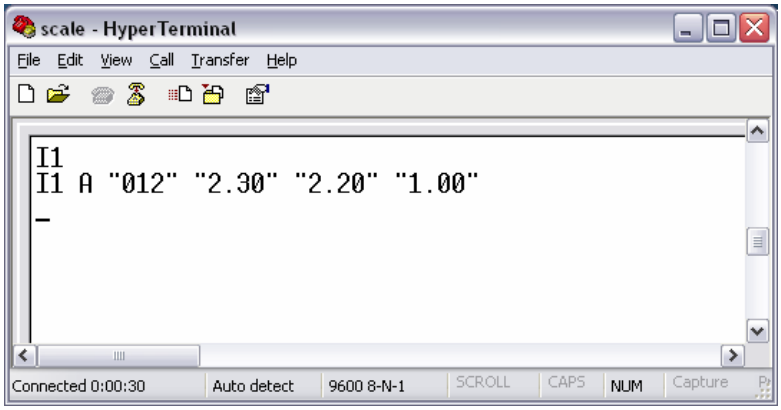
- Open the properties of the connection when connected and activate ‘echo typed characters locally’and ‘send line ends with line feeds’.



- Now you should be connected to the scale.

How to test the scale?

- If you have a scale that support any MT-SICS level protocol, you can send **I1** to the scale. The scale will give you information about the SICS levels that are installed with the corresponding version of the driver.



In this example the scale has following protocols installed

MT-SICS Level 0 – version 2.30
MT-SICS Level 1 – version 2.20
MT-SICS Level 2 – version 1.00

Identifying Mettler PM or Mettler SICS

- If a TARE command ‘**T**’ is sent to a PM scale, the scale will reply with **ZA**
- A SICS-scale will reply with **T S 0 g**