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M1100

Serial connection

General



The M1100 can communicate with external equipment using the RS-232 port. Weighing results can be printed on an external printer or the data can be transmitted to a PC for storing and further processing. The M1100 settings can also be changed by transmitting serial commands from a PC.

The settings for the RS-232 serial ports are :

Rate : 4800 Baud, Data Bits :8, Parity : none, Stop Bits : 1, Handshake on RS-232 port: XON and XOFF are sent from the M1100, but are not received. This can be deactivated by the A13, Application Switch in the M1100 scales setup (A13 set to OFF).

The data format of the weight messages are either application messages or continuous messages. The message format is coded in the message itself with a radix-encoded message table.

Note : In the radix code : A = 0, B =1, ..., Z = 25, a = 26, b = 27, ..., z = 51, 0 = 52, ..., 9 = 61, + = 62, / = 63

The M1100-Message-Format :

application record: xxx.xxx kg Pn TNNCC<CR><LF>
continuous record: same record but with different record types

A-Z, a-z, 0-9, + /
NN -- decimal two-digit sequence number incremented with each transmission
CC -- radix-64 encoded 12-bit checksum
T -- radix64 encoded 6-bit record type

Table D-1 : Table of record types

num	Radix-64	Zsn*	type
0	A	000	fixed rate continuous printout
1	B	001	-- " --
2	C	010	-- " --
3	D	011	-- " --
4	E	100	-- " --
5	F	101	-- " --
6	G	110	-- " --
7	H	111	-- " --
8	I	000	printout requested by serial command
9	J	001	-- " --
10	K	010	-- " --
11	L	011	-- " --
12	M	100	-- " --
13	N	101	-- " --
14	O	110	-- " --
15	P	111	-- " --
16	Q	000	event-driven printout (triggered by becoming steady or unsteady)
17	R	001	-- " --
18	S	010	-- " --
19	T	011	-- " --
20	U	100	-- " --
21	V	101	-- " --
22	W	110	-- " --
23	X	111	-- " --
24	Y		manual recording in packing mode
25	Z		manual recording in grading mode
26	a		automatic recording in packing mode
27	b		automatic recording in grading mode using reverse grading method
28	c		Automatic recording in grading mode using positive grading method
29-63	d-z, 0-9, +, /		not used

* zsn : Zero – Stable – Net.

If Net is 1 then the weight is tared

Application Switches:

A01	Zero Tracking, (ON)
A02	Automatic Tare, (OFF)
A03	Automatic Recording, (OFF)
A04	Reserved, must be OFF
A05	Response time 1*, (OFF)
A06	Response time 2*, (OFF)
A07	Optimize Reverse Grading for accuracy (OFF=Speed)
A08	Remote IR enabled, (OFF)
A09	Extra resolution *10 enabled for testing only, (OFF)
A10	Continuous transmission 1*, (OFF)
A11	Continuous transmission 2*, (OFF)
A12	Disable power down mode on battery models only, (OFF)
A13	Disable XON/XOFF transmission on RS-232, (OFF)
A14	CAN transmission rate 1*, (OFF)
A15	CAN transmission rate 2*, (OFF)
A16	Enable Calibration, (OFF)

Switch values for Response time 1 and 2

05	06	Description of functionality
OFF	OFF	Variable response time , ~ 0.5 seconds variable
ON	OFF	Fast response time, ~ 0.5 seconds fixed
OFF	ON	Medium response time, ~ 0.9 seconds fixed
ON	ON	Slow response time, ~ 1.2 seconds fixed

Switch values for Continuous transmission 1 and 2

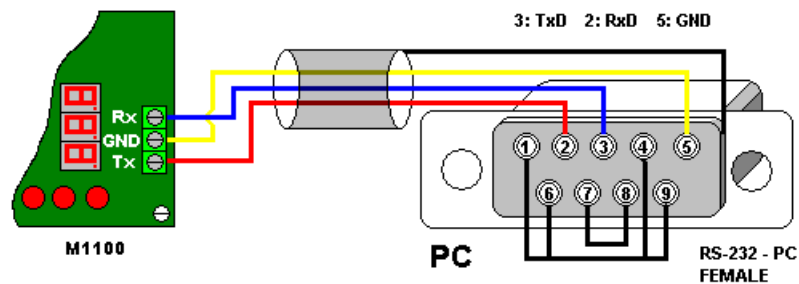
10	11	Description of functionality
OFF	OFF	No PDO
ON	OFF	Event driven transmission (transmit changes)
OFF	ON	Slow transmission
ON	ON	Continuos transmission (CAN only)

Note: Some S- and A- switches are not settable via the serial port as it is an protected mode interface. Therefore it is neccesary to open them via the keyboard of the scale, entering the correct password and set the WM lock switches to ON (open).

Warning. *Modifying S-switches breaks the WM seal of certified scales!*

Connection diagram

When connecting the M1100 to a PC, we have to take care that the cable is a screened version and the screening is connected to ground at the PC's chassis. In the M1100's control head, there are three connectors at the bottom left hand for the purpose of RS232 connection. The connection between the scale and the PC must always follow the rule that the scales Tx line is connected to the PC's Rx line and vice versa.



The above drawing describes the connection as for a 9 pin female RS-232 cable connector, that fits to a PC with a 9 pin RS-232 interface.

To eliminate handshake problems, we must connect pins 7 and 8 together and then the pins 1, 4, 6 and 9.