SMT - XMT commands

Interface parameters:
RS485, 9600,N,8,1

M[addr]CrLf	Measure request
D[addr]CrLf	Diagnostic request
T[addr]CrLf	Temperature request
V[addr]CrLf	Version request
X[addr]CrLf	Reset SW
A[addr]CrLf	Set Alarm point in dmm

Note:
Cr=Carrige return, HEX code: 0xd
Lf=Line feed, HEX code: 0xa

Command M[address]CrLf

Per sonde fino a 5,5 mt / For probes up to 5,5 mt

indirizzo (address)	5 char
=	
stato (status)	0 – 3 value
=	
temperatura in decimi di grado (temperature in 10th of degree)	3 char + sign
=	
prodotto in decimi di mm (product in 10th of mm)	5 char
=	
acqua in mm (water in mm)	4 char
=	
chk	3 char
CrLf	

Esempio: (example)   Interrogazione (enquiry)   : M00006CrLf
                      Risposta (Reply)   : 00006=0=+180=00663=0033=164CrLf

status:

  0 is OK,
  1 is looking for signal or lackof float,
  2 is chk error of data linearization,
  3 is chk error of parameter
  The chk is computed by CRC16 operation and is controlled only once at reset.
  To perform another chk control execute the command X

Per sonde dai 5,5 mt ai 13 mt / For probes over 5,5 mt up to 13 mt

indirizzo (address)	5 char
L	
stato (status)	0 – 3 value
=	
temperatura in decimi di grado (temperature in 10th of degree)	3 char + sign
=	
prodotto in mm (product in mm)	5 char
=	
acqua in mm (water in mm)	4 char
=	
chk	3 char
CrLf	

Command D[address]CrLf

Meaning of the diagnostic measured for probes up to 5,5 mt

acqua in dmm	water in dmm
prodotto in dmm	product in dmm
lunghezza tot in impulsi	total lenght in pulse value
Kappa: valore per la compensazione in temperatura	temperature compensation factor
offset: posizionamento del trigger	offest signal
picchi: numero di picchi trovati	pulse signal
Vcc: tensione di alimentazione	power supply
Allarme impostato in dmm (dalla rev. SMT16)	
Stato di allarme 1:alm, 0: no alm (dalla rev SMT16)	

Meaning of the diagnostic measured for probes above 5,5 mt:

acqua in mm	water in mm
prodotto in mm	product in mm
lunghezza tot in impulsi	total lenght in pulse value
Kappa: valore per la compensazione in temperatura	temperature compensation factor
offset: posizionamento del trigger	offest signal
picchi: numero di picchi trovati	pulse signal
Vcc: tensione di alimentazione	power supply
Allarme impostato in dmm (dalla rev. SMT16)	
Stato di allarme 1:alm, 0: no alm (dalla rev SMT16)	

Command A[address]CrLf

Answer after Set alarm point command:

write the alarm value followed by CrLf (in dmm or in mm related to the class length type)
[the sensor waits for the value i.e 100 dmm]
alarm value set at 100
If the alarm value is set to 0 the alarm feature is disabled
To reset the alarm point simply set it to 0 value

From the rev 23 and on it is possible to choose the function of the open collector: normally open or normally close. Follow the instruction gave back by the probe.

Answer after Reset sensor command:

reset 00001

Command T[address]CrLf

Below the probe reply on Temperature profile command.

0 180 185 200 0 0 0 0 0 0 0

Each number is referred to a temperature sensor inside the probe.
The first number is always 0.
Then you have temperature in 10th of degree starting from the bottom side position in the probe up to the top. Each temperature is signed number in case the temperature is negative.
In the above example the probe has only 3 temperature sensor installed.
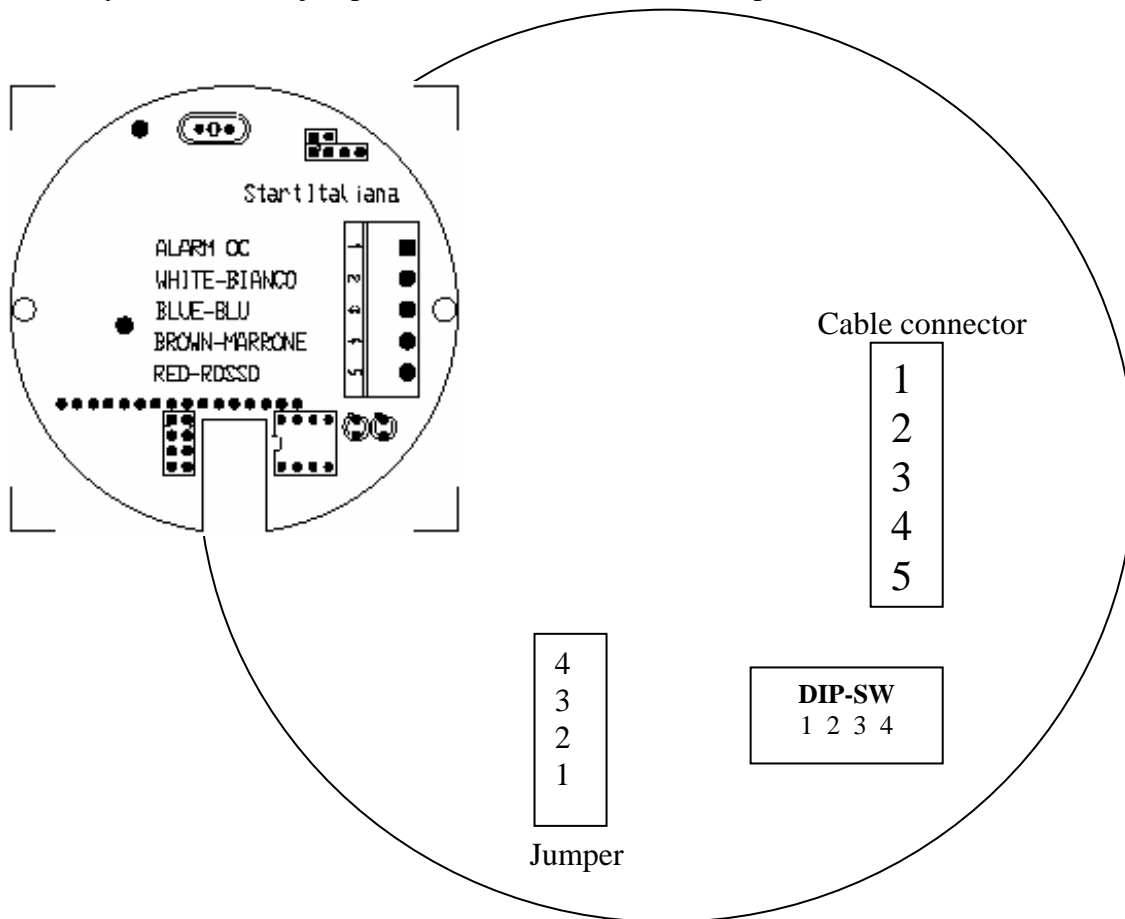
Command V[address]CrLf

The probe replyes with the firmware version installed

Command X[address]CrLf

The probe comes resetted, as if the power will go at off.

DIP-SWITCH, CONNECTOR AND JUMPER SETTINGS

Looking at the PCB with the dip-switch you find these positions:
Use only the indicated jumper. Leave free all the other strips.

StartItaliana

ALARM OC
WHITE-BIANCO
BLUE-BLU
BROWN-MARRONE
RED-ROSSO

Cable connector

1
2
3
4
5

DIP-SW
1 2 3 4

4
3
2
1

Jumper

SETTING OF THE DIP-SWITCH

4	3	2	1	ADDRESS
OFF	OFF	OFF	OFF	EPROM ADDRESS
OFF	OFF	OFF	ON	00001
OFF	OFF	ON	OFF	00002
OFF	OFF	ON	ON	00003
OFF	ON	OFF	OFF	00004
…..				
ON	OFF	OFF	OFF	00008
…..				
ON	ON	ON	OFF	00014
ON	ON	ON	ON	00015

If you need to change the dip-switch settings you need to reset the probe to let it work with the new value.

CABLE CONNECTOR

POSITION	FUNCTION
05	+Vcc (9-30Vdc) RED
04	RS485A BROWN
03	RS485B BLUE
02	GND (0 Vdc) WHITE
01	ALARM OPEN COLLECTOR Use a pull-up resistor. Max current is 150mA not protected

CHK Calculation
Sum all the ASCII value of the incoming data stream up to the last = included, divide them per 255. The CHK is the reminder.

SETTING OF THE JUMPER

JUMPER 1   OPEN: two floats
                SHORTED: one float

JUMPER 2   OPEN: normal operation, **leave it open**
                SHORTED: only for diagnostic and production proposal (explained later)

JUMPER 3:   OPEN: START protocol
                SHORTED: Other proprietary protocol

JUMPER 4   OPEN: remote rewriting enabled
                SHORTED: remote rewriting disable

If you need to change the jumper settings you need to reset the probe to let it work with the new value.

Meaning of Jumper 2

Leave it open for normal operation

You can short it for diagnostic proposal. In this case the **probe must be the only one on the bus** because it doesn't reply according to the address but it replyes always according to the following commands:
Simply you type a letter without anything else and you get the reply

Command	Function
M	Measure transmission
D	Diagnostic transmission
T	Temperature transmission
V	Version transmission

You can use this test mode for examples to get the address if you don't know what is the active address. Use M command and look the address in the protocol.

There are other commands you are not allowed to use. If you by mistake type a different command the sensor can stop and waiting for parameter or signal by our test bench. In this case you MUST switch OFF the probe. If you don't understand what the probe is asking you, please switch it off, if you mistake the commands format you could place the probe out of order.

Meaning of the led

The red led means activity on RS485 data line.
If it stays off for long time it means no data on RS485
If stays on it means data on RS485
If it shortly goes off and then on it means the sensor is replying with the measures

The green led means signal check.
If it flashes fastly means signal founded and ready to give the measure
If it flashes very slow means not ready to give you the measure. Check the float