

The instruction of the connecting between DTM Series Total Station and Electronic Field Book

This instruction is only used for DTM300 & DTM100 Series Electronic Total Station.

1. Serial port setting standards for the 1200 baud rate, 1 start bit of a start bit, 1 stop bit of a stop bit, no parity bit. Serial RS232 electrical specifications meet the standards.

2. The format and the explanation of the control command that the Computer (or Electronic handbook) sends to the total station as below:

① 61H +0 DH: to get the horizontal and the vertical angle. It can only work normally in the mode of angle measurement .

② 62H +0 DH: the instrument begins the fine measurement , you can get the horizontal angle、 the vertical angle and the value after the measurement is finished. It can only work normally in the mode of distance measurement.

③ 63H +0 DH: the instrument begins the tracking measurement , you can get the horizontal angle、 the vertical angle and the value after the measurement is finished. It can only work normally in the mode of distance measurement.

④ 64H +0 DH: return to the angle measurement after stopping the distance measurement . It can only work normally in the mode of angle measurement .

⑤ 68H +0 DH: set the horizontal angle as 0°00'00". It can only work normally in the mode of angle measurement .

3. The format of the output data

(1) The data transmission format of Control command ①:

30 30 30 30 30 30 30 20 20 36 37 31 35 32 35 20 20 20 34 35 35 33 37 20 FF 80 0A

1234567_3595959_3595959_AA BB 0A

↑ ↑ ↑ ↑
 a b c d

a) slope distance (unit: mm)

b) whatever the standard setting and unit of the vertical angle is , the transmission data would be a vertical angle which zenith is 0degree, the horizontal is 90 degrees at the left side, and 270 degrees at the right side (unit: degree)

c) whatever the unit of the horizontal angle is , the transmission data would be it (unit: degree)

d) To check and (AA) = 0xFFH

e) status byte (BB)

The value here (slope distance) is the result of the last distance measurement (slope distance).

"_" means 0 x20H

(2) The data transmission format of Control command ②③ is the same as Control command①, but the value (slope distance) is the result of the present distance measurement (slope distance).

(3) BB is the standard status bytes of the angle measurement.

D7	D6	D5	D4	D3	D2	D1	D0
D7D6: means the status of the horizontal angle							
D7=0		D6=0: means the horizontal angle is locked.(Can't be used.)					
D7=1		D6=0: means the horizontal angle is positive when turn right.					
D7=0		D6=1: means the horizontal angle is positive when turn left.					

4. When the Total Station is in the mode of "coordinate measurement" and "distance measurement", the sending (SEND) function is to get the horizontal angle, vertical angle and the result of the fine measurement.

The data of the computer sent to the Total Station (the horizontal angle is 0_SET) as below :

0x68H + 0x0DH: the horizontal angle 0_SET, It can only work normally in the mode of angle measurement .

Data explanation:

0x68H: the command of the horizontal angle 0_SET.

0x0DH: the command is over.

The data of the computer sent to the Total Station (H_SET) as below :

0x0BH + 0x33H + 0x35H + 0x39H + 0x35H + 0x39H + 0x35H + 0x39H + 0x0D

↑	↑	↑	↑	↑	↑	↑	↑	↑
a	b	c	d	e	f	g	h	i

Data explanation:

- a: the standard of the angle placement command
- b: place the degree value of the angle on the hundred's place
- c: place the degree value of the angle on the tens place
- d: place the degree value of the angle on the unit place
- e: place the minute value of the angle on the tens place
- f: place the minute value of the angle on the unit place
- g: place the second value of the angle on the tens place
- h: place the second value of the angle on the unit place
- i: the command is over.

For example:

If you input 359 ° 59'59 " through the computer to the total station, its data format is as follows:

0x0BH + 0x33H + 0x35H + 0x39H + 0x35H + 0x39H + 0x35H + 0x39H + 0x0D

If you input 0 ° 39'9 " through the computer to the total station, its data format is as follows:

0x0BH + 0x30H + 0x30H + 0x30H + 0x33H + 0x39H + 0x30H + 0x39H + 0x0D

The data range :

the degree value of the angle: 0 to 359.

the minute value of the angle :0 to 59.

the second value of the angle: 0 to 59.

Note: If the angle range is over the above value, the Total Station will buzz twice for alarm.