

TEPEX

The straight burden checker

INSTRUCTION MANUAL



LASER PROFILER - PDA

CODA TECHNOLOGIES - 10 voie romaine - 24100 LEMBRAS [France] - ☎ +33 (0)5 53 22 82 36

www.tepex.fr



TABLE OF CONTENTS

A - INSTRUCTION MANUAL OF LASER PROFILER-PDA

CONNECTING AND START-UP	1
I - HOW TO DO A MEASUREMENT	
• Step 1 : enter the file name	1
• Step 2 : setting of the height reference	1
• Step 3 : measure the crest of the face	2
• Step 4 : profiling.....	3
• Step 5 : enter the characteristics of the hole	3
• Step 6 : display of the profile	4
• Step 7 : marking on the ground the borehole	4
II - SHOW THE TABLE OF DRILLING	5
III - MANUALLY MODIFY OF THE PROFILE	5
IV - SHOW TABLE OF VALUE	6
V - HEIGHT MEASUREMENT.....	6
VI - HOW TO RESET THE PDA	7
VII - RECHARGING THE PDA	7
IX - PC CONNECTION	8

B - HOW TO USE THE SOFTWARE OPTIMIZATION AND EDITING PROFILES

I - OVERVIEW	9
II - APPLICATION MENU	10
III - SHOW TABLE OF VALUE	11
IV - PRINTING	12

ANNEX

TILT SENSOR ALIGNMENT	13
-----------------------	----

A - INSTRUCTION MANUAL OF LASER PROFILER-PDA

CONNECTING AND START-UP



Bluetooth with automatic connection

- Power on the laser (1)
- Start the profiler application on the PDA (2)

Important : before any measurement verify, that the laser stays horizontal on its tripod

I - HOW TO DO A MEASUREMENT

Step 1 : enter the filename

- Menu « File ⇒ FileName »
Enter a filename using the touch keyboard.

This name will be followed by the date.

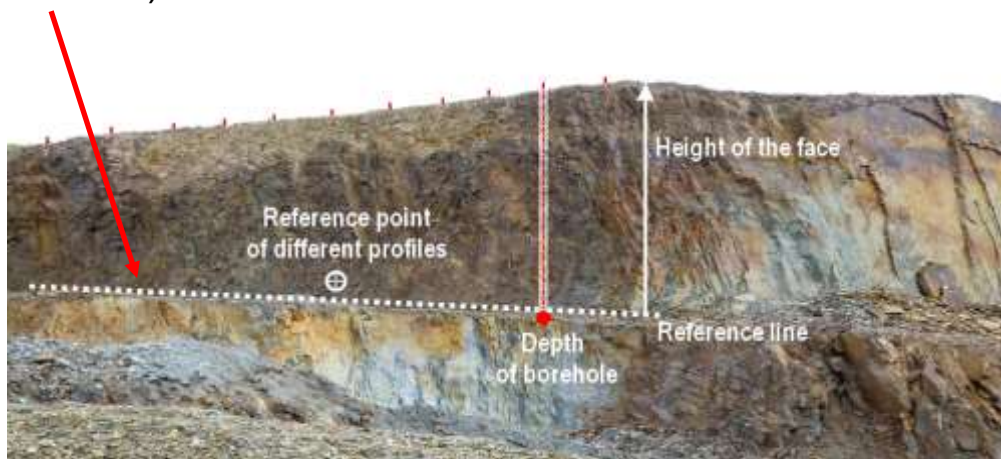


Step 2 : setting of the height reference

- either each profile independently. Each profile has so its own reference level. (level 0)
- or all the profiles bound to a reference level

(All heights measured points are referenced to this level 0 - ⊕ on the picture below)

The calculation of the depth of each hole will be linked to the searched mark (mark line).

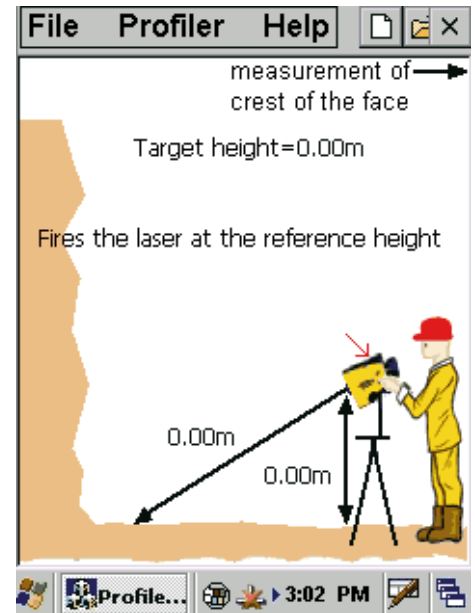


- Set the target height above the reference point using the buttons :



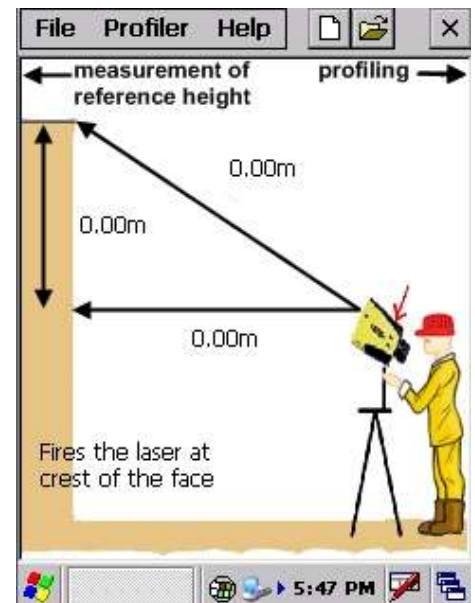
Reference line = reference point level + target height
 the target height is the searched value. This value can be positive or negative

- Aim at a point of reference height and click on the screen or press the « **FIRE** » button of the laser until you hear a beep.
- Press the button on the right side of the PDA (1) to go to the next step.



Step 3 : measure the height of the face

- Aim at the crest of the face and click on the screen or press the « **FIRE** » button of the laser until you hear a beep.
- Press the button on the right side of the PDA (1) to go to the next step or the button on the left side of the PDA (2) to return to the previous step.



Step 4 : profiling

- To insert a measuring point, aim it and press the « **FIRE** » button of the laser until you hear a beep.

The absence of « beep » means that the software has not received the information. Repeat the operation.

150 measuring points can be recorded to represent a profile.

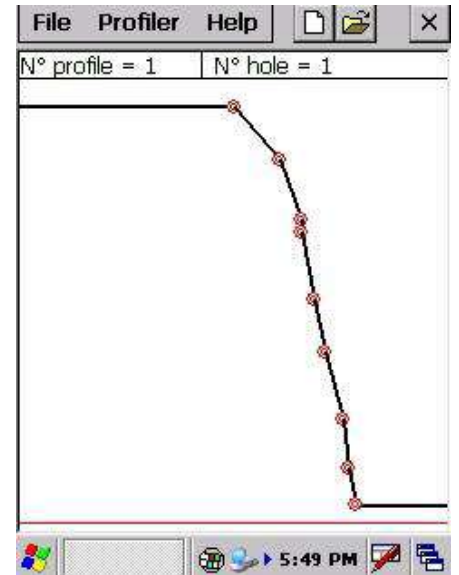
- To delete the last point :

Menu «Profiler ⇒ Delete last point »

or

Press the left side button of the PDA (2)

- To delete a other point, you have to go to the next step for editing the profil.
- When the profiling is finished, press the right side buton of the PDA (1).



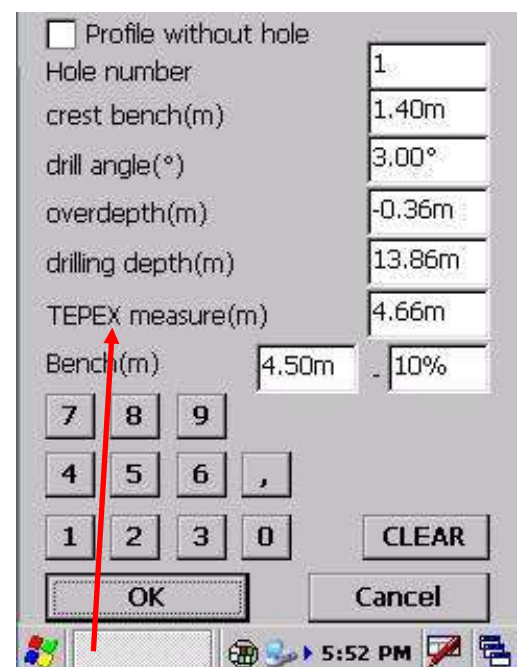
Step 5 : enter the characteristics of the borehole

- A borehole may or not appear on the profile.

Enter values using the touch keypad and press the « **OK** » button to confirm.

The information entered remain in the memory of the device. The characteristics of a borehole can be easily visualized indicating the number of borehole

- To locate a mining borehole, enter the value of overdepth drilling. The depth of drilling is automatically calculated depending on the drilling angle and the measured height of the face. For control, enter the value of the depth of drilling. The drilling overdepth is automatically calculated depending on the drilling angle and the measured height of the face.

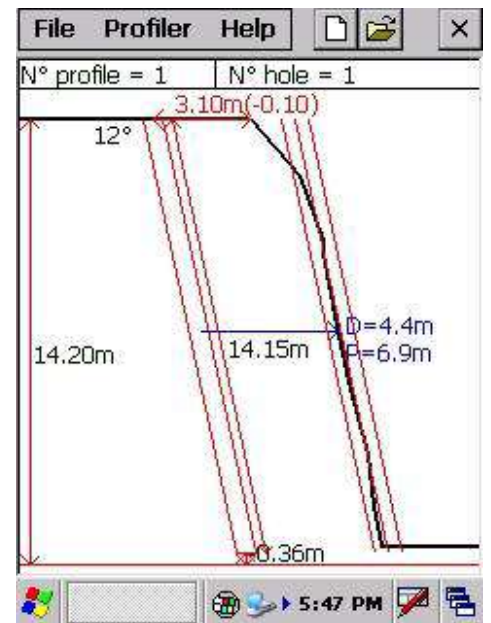


<input type="checkbox"/> Profile without hole	
Hole number	1
crest bench(m)	1.40m
drill angle(°)	3.00°
overdepth(m)	-0.36m
drilling depth(m)	13.86m
TEPEX measure(m)	4.66m
Bench(m)	4.50m
	10%

TEPEX measure :
épaisseur de la banquette qui sera ensuite vérifiée avec la sonde TEPEX.

Step 6 : display of the profile

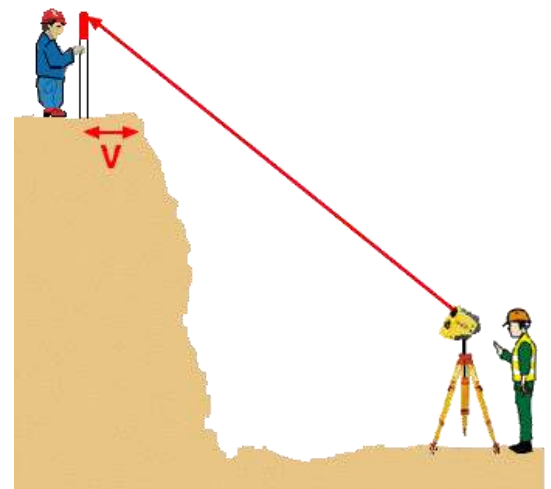
- By clicking at a point on the curve, the information displayed in blue: the borehole depth (6.9m) and the distance between the front and the borehole (4.4m).
- On this screen its possible to
 - delete the profile ;
 - modify the profile manually ;
 - change the characteristics of the borehole via « profiler ⇒ hole property » or via the arrowkeys :
 - to select the parameter(shown in red) : arrows « Up and Down »,
 - to change the parameter : arrows « Left and Right ».
- In « Read file » mode, if the profile has changed, a confirmation screen appears during the transition to the next screen or to the previous screen.



Step 7: marking on the ground the borehole

The attendance of a second operator and the use of a reflector target are necessary.

- For this measurement, aim at the target and press the button « FIRE » of the laser. The value appears in the view finder.
- The operator on the top of the face , according to the indications of the other operator, moves forward or back to put the target at the distance **V** selected point 6 (3,00 on screen above).

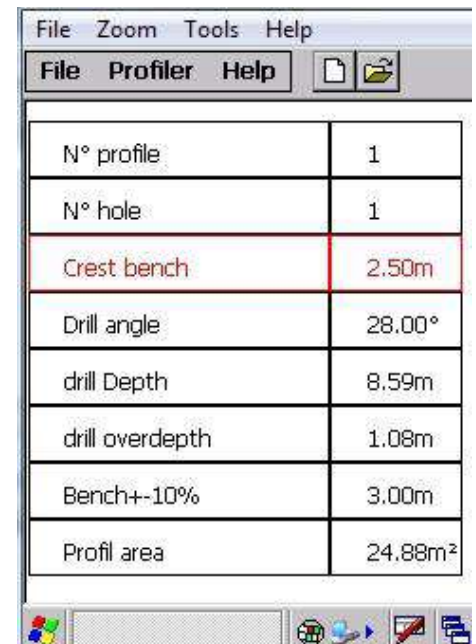


II - SHOW THE TABLE OF DRILLING

To show the table press the **5** button.



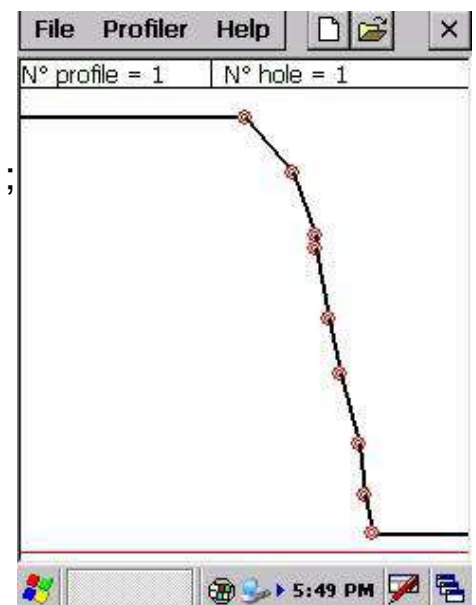
- On this screen you can change a value by clicking it and pressing buttons **1** or **2** to increase or decrease the values ;
- By pressing the button **5** it is possible to visually modify the characteristics of the borehole with the same buttons ;
- To enter a value, click on « Profileur ⇒ Hole property »



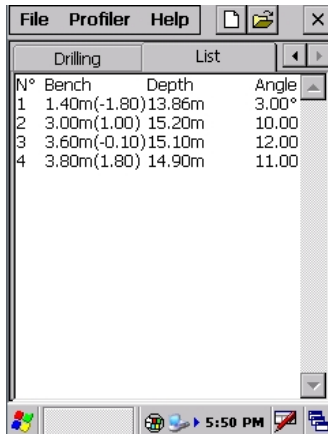
File Profiler Help	
N° profile	1
N° hole	1
Crest bench	2.50m
Drill angle	28.00°
drill Depth	8.59m
drill overdepth	1.08m
Bench+-10%	3.00m
Profil area	24.88m ²

III - MANUALLY MODIFY OF THE PROFILE

- To modify the position of a point :
 1. click on the menu « Profiler ⇒ Edition mode » ;
 2. press and hold a point on the curve ;
 3. move it on the screen.



IV - SHOW TABLE OF VALUE



N°	Bench	Depth	Angle
1	1.40m(-1.80)	13.86m	3.00°
2	3.00m(1.00)	15.20m	10.00
3	3.60m(-0.10)	15.10m	12.00
4	3.80m(1.80)	14.90m	11.00

List of all drilling



Depth	Bench	mini/maxi
0.00m	3.10m	mini
1.84m	4.22m	
3.99m	4.57m	maxi
4.40m	4.49m	
6.75m	4.40m	
8.59m	4.41m	
10.94m	4.53m	
12.68m	4.36m	
13.90m	4.31m	

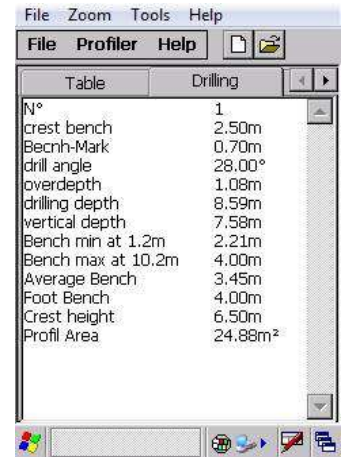


Table	Drilling
N°	1
crest bench	2.50m
Bench-Mark	0.70m
drill angle	28.00°
overdepth	1.08m
drilling depth	8.59m
vertical depth	7.58m
Bench min at 1.2m	2.21m
Bench max at 10.2m	4.00m
Average Bench	3.45m
Foot Bench	4.00m
Crest height	6.50m
Profil Area	24.88m ²

To show this table click on
« Profiler ⇒ Table of value

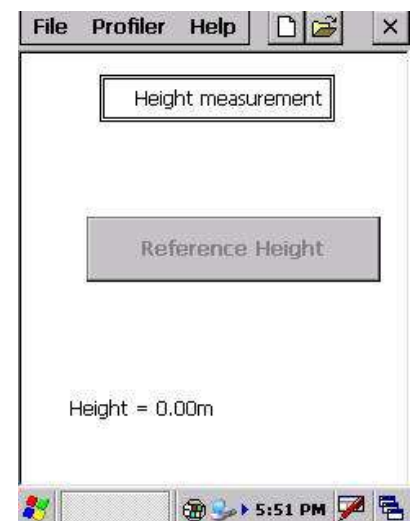
V - HEIGHT MEASUREMENT

This function allow to measures a height between a reference and a point.

To measure the height reference :

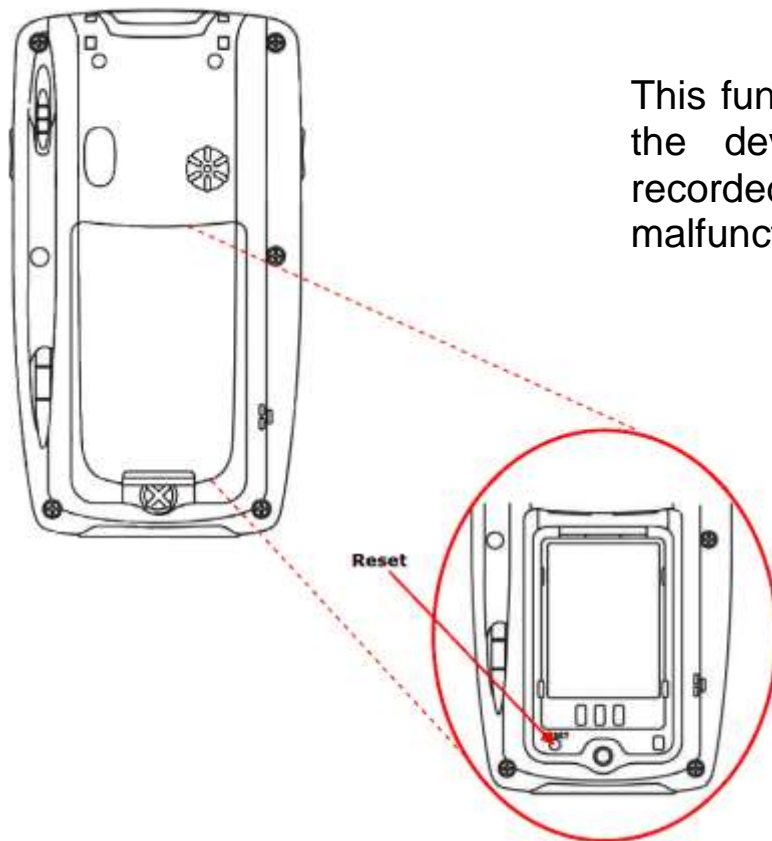
1. click on the button « Reference height » ;
2. aim to a point at the reference height and press the FIRE button of the laser ;
3. aim to the point to measure and press the FIRE button of the laser.

The height is display



To show this screen
« Profiler ⇒ Height measurement »

VI - HOW TO RESET THE PDA



This function allows you to reboot the device without losing the recorded data, if a software malfunction is found.

VII - RECHARGING THE PDA

To recharge the PDA, connect the laser cable or USB cable on the PDA and then connect the supplied charger on it. Caution, only use this charger connected to a 230V (110V adapter is optional).



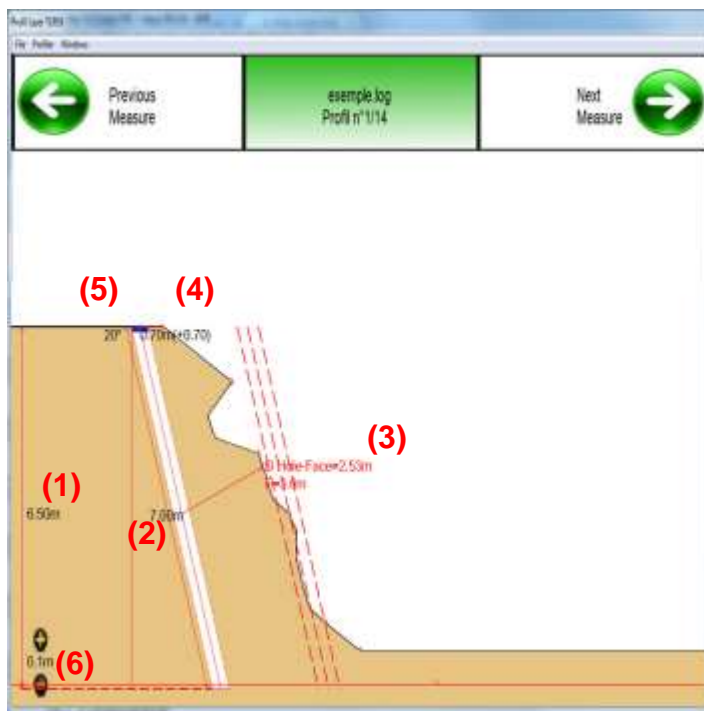
VIII - RACCORDEMENT ORDINATEUR

Printing or changing profile on PC is possible by two methods :

1. Memory card method. The memory card is available below the battery by removing the cover on the rear of the PDA. The profiles are stored in the directory « PROFILES »
2. USB method. This method needs to have the Active Sync software for Windows 95, 98 and XP or Sync mobil Center for Windows Vista or Windows 7. The PC connection is via the USB cable supplied with the kit. On connection, the tree of the PDA is displayed (if it is not the case, this means that the synchronization software is not installed). The profiles are stored in the « Storage Card/PROFILES »
 - Link to download Active Sync :
<http://www.microsoft.com/downloads/fr-fr/details.aspx?FamilyID=9e641c34-6f7f-404d-a04b-dc09f8141141&displaylang=fr>
 - Link to download sync mobil center for Vista ou plus récent (32 bits) :
<http://www.microsoft.com/downloads/fr-fr/details.aspx?FamilyID=46f72df1-e46a-4a5f-a791-09f07aaa1914>
 - Link to download sync mobil center for Vista ou plus récent (64 bits) :
<http://www.microsoft.com/downloads/fr-fr/details.aspx?FamilyID=4F68EB56-7825-43B2-AC89-2030ED98ED95>

B - HOW TO USE THE SOFTWARE OPTIMIZATION AND EDITING PROFILES

I - OVERVIEW



1. Height of the face (Top height - reference height)
2. Depth of the borehole
3. Bench (D) at selecting point at le depth (P) of drilling
4. Bench at the top of the face (back from the measured mark in brackets)
5. Angle of borehole
6. OverDepth (between the downhole and the height reference)
7. Profile information (click on + or – to increase or decrease the value). The button « Apply to all profiles » modify automatically changes the settings file.
8. List of measured points

II - MENU OF THE APPLICATION

File	Profiler	Windows
Open		Display Profiles F3
Save file	Ctrl+S	Top view F4
Save screen	F12	Delete profilefil Ctrl+Suppr
Print this Profile	Ctrl+P	Editing mode F5
Print all profiles	Ctrl+A	Mode Edition Points F6
Exit	Ctrl+Q	
		Profile information F7
		Setting of drilling F2
		Bench table

Open

Open a profil file

Save File

Save the file with an other name

Save screen

To save the screen (format bitmap [bmp])

Print this profile

Print the visual of the profil with drilling informations and table of value

Print all profiles

Print all profiles of the file

Exit

Exit from application
(save confirmation)

Display Profiles

2D display of the profiles stored in the file

Top view

Display the view of all profiles on the top

Delete Profile

To delete the profil displayed

Table of value

Display the table of the value

Edition mode

To modify the point position

Profile information

Display or not of the Profile information window

Setting of drilling

Display or not of the Setting of drilling window

Bench table

Display or not of the Bench table window

III - SHOW TABLE OF VALUE

Click on the menu « Profiler ⇒ Table of value »

Value	Drilling	Borehole list		
Depth	Vert. Depth	Bench	Bench-theoretical	Notes
0.24m	0.00m	0.66m MIN	-2.34m	Outside Tolerance
1.86m	1.00m	2.20m	-0.80m	Outside Tolerance
2.19m	1.60m	1.33m	-1.67m	Outside Tolerance
2.63m	2.00m	1.38m	-1.62m	Outside Tolerance
3.36m	2.30m	2.50m	-0.50m	Outside Tolerance
3.80m	2.70m	2.55m	-0.45m	Outside Tolerance
4.25m	3.10m	2.60m	-0.40m	Outside Tolerance
4.70m	3.40m	2.97m	-0.03m	
5.05m	3.70m	3.06m	0.06m	
5.52m	4.20m	2.89m	-0.11m	
6.06m	4.70m	2.90m	-0.10m	
6.50m	5.10m	2.95m	-0.05m	
6.96m	5.40m	3.32m	0.32m	Outside Tolerance
7.77m	5.90m	4.09m MAX	1.09m	Outside Tolerance

← List of measured point

By clicking on the row « remarques » It's possible to change the text

Value	Drilling	Borehole list
Nom	Valeur	
Number	1	
Bench at top	0.70m	
Bench-Landmark	0.70m	
Angle	20.00°	
OverDepth	0.08m	
Depth	7.00m	
Vertical Depth	6.58m	
Height of face	0.10m	
Profile Area	14.29m ²	
Bench min	0.66m à 0.24m	
Bench max	4.09m à 7.77m	
Average Bench	2.53m	
Foot Bench	4.09m	
Bench theoretical	3.00m-10%	
Height of face	6.50m	

← Drilling characteristics

Value	Drilling	Borehole list			
Nb	Bench	Depth	Vertical depth	Overdepth	Angle
1	0.70m	7.00m	6.58m	0.08m	20.00°
2	0.10m	7.10m	6.86m	0.08m	15.00°
3	2.10m	7.50m	7.39m	0.08m	10.00°
4	1.80m	7.80m	7.68m	0.08m	10.00°
5	3.00m	8.90m	8.87m	0.08m	5.00°
6	3.70m	9.30m	9.29m	0.08m	2.00°
7	4.00m	10.10m	10.09m	0.08m	2.00°
8	3.60m	9.70m	9.66m	0.08m	5.00°
9	4.50m	9.20m	9.20m	0.08m	1.00°
10	4.60m	9.70m	9.70m	0.08m	1.00°
11	4.10m	9.90m	9.90m	0.08m	1.00°
12	3.80m	9.70m	9.70m	0.08m	1.00°
13	3.20m	9.20m	9.16m	0.08m	5.00°
14	2.50m	9.20m	9.06m	0.08m	10.00°

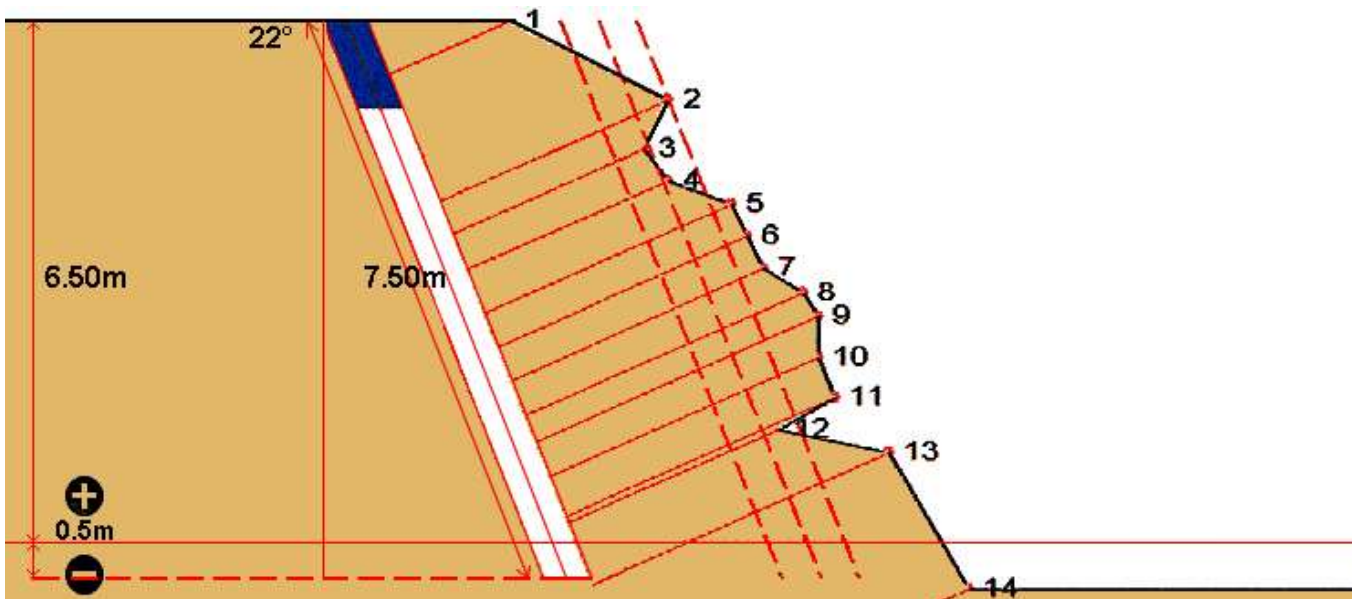
← List of all profiles

IV - PRINTING

Measurement Nr = 1
 Borehole Nr = 1
 planes_25_3_2011
 Height of the face = 6.50m
 Surface of profile = 26.48m²
 Number of measured points = 1

Bench minimum = 1.95m a 0.79m
 Bench maximum = 4.37m a 7.59m
 Bench average = 3.64m
 Bench on top = 2.10m (+0.30)
 Bench down = 4.67m
 Bench theoretical = 3.00m +-15%

Depth of the borehole = 7.5m
 Vertical depth of the borehole = 6.95m
 Overdepth = 0.5m
 Angle of drilling = 22.00°
 Height of = 1.20m
 Maxi.measured distance = 20.10m



Depth	Vert. Depth	Bench	Bench-theoretical	Notes
0.24m	0.00m	0.66m MIN	-2.34m	Outside Tolerance
1.86m	1.00m	2.20m	-0.80m	Outside Tolerance
2.19m	1.60m	1.33m	-1.67m	Outside Tolerance
2.63m	2.00m	1.38m	-1.62m	Outside Tolerance
3.36m	2.30m	2.50m	-0.50m	Outside Tolerance
3.80m	2.70m	2.55m	-0.45m	Outside Tolerance
4.25m	3.10m	2.60m	-0.40m	Outside Tolerance
4.70m	3.40m	2.97m	-0.03m	
5.05m	3.70m	3.06m	0.06m	
5.52m	4.20m	2.89m	-0.11m	
6.06m	4.70m	2.90m	-0.10m	
6.50m	5.10m	2.95m	-0.05m	
6.96m	5.40m	3.32m	0.32m	Outside Tolerance
7.77m	5.90m	4.09m MAX	1.09m	Outside Tolerance




ANNEX

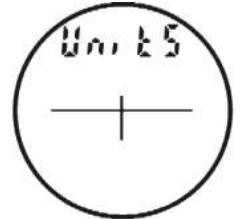
TILT SENSOR ALIGNMENT

The tilt sensor is aligned during assembly.

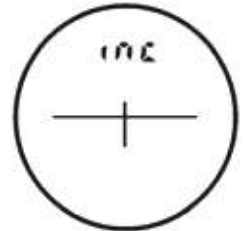
In the rare event that the laser telemeter suffers a severe drop shock, refer to the instructions below to re-align the tilt sensor.

- 1 From the Measurement Mode, press  for 4 seconds to access the System Setup Mode.

« **UnitS** » will appear in the Main Display.



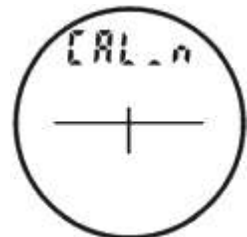
- 2 Press  to display the « **inc** » option.





- 3 Press  to select the « **inc** » option.

The message « **CAL_n** » appears in the Main Display.

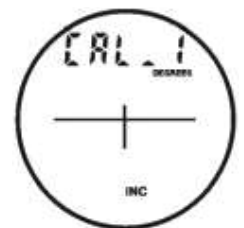
Press  or  to display the previous or next « **CAL** » option.



- A If « **CAL_n** » is displayed, press  to exit the « **inc** » option and return to the Measurement Mode

- B If « **CAL_Y** » is displayed, press  to align the tilt sensor.

The message « **CAL_1** » appears in the Main Display



- 4 Place the laser telemeter on a flat horizontal surface. Position the TruPulse on a flat, as shown in Figure #1. Use one finger to hold the front of the unit is flat on the surface (indicated by the arrow in Figures #1 and 2). Keep the finger in place and do not lift the laser telemeter until the end of step 7.

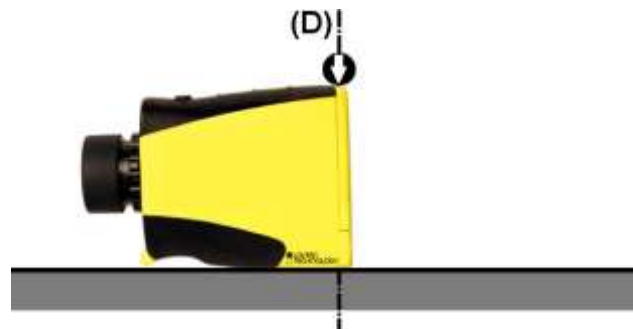


Figure #1

- 5 Press  to store the first inclination measurement.

The message « **CAL_2** » appears in the Main Display.



- 6 **Important** - Without displacement and in permanent contact with the support, rotate the telemeter 180° about the axis (D) and holding the finger at the arrow [cf. Figure #2 below].

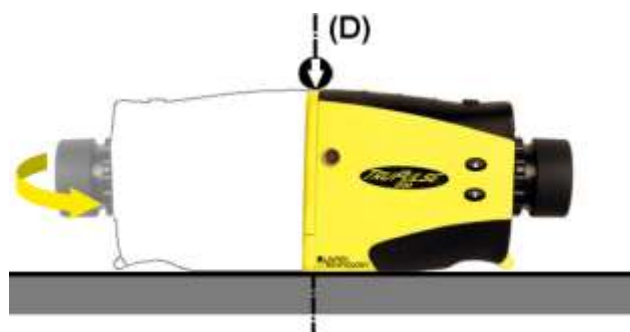

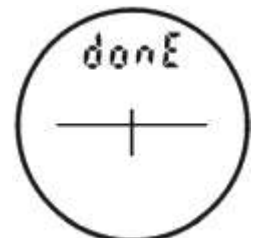


Figure #2

- 7 Press  to store the second inclination measurement and complete the zero offset correction.

The message « **donE** » appears in the Main Display.



- 8 Press  to clear the « **donE** » message and return to the Measurement Mode.