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TP-L6 series pipe laser

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6. BASIC OPERATION

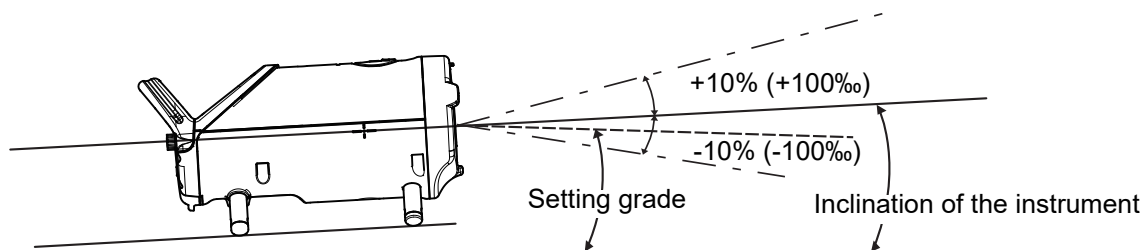
6.1 Setting up the Instrument

1. Always position the instrument so the bubble in the digital level vial is centered.



- The laser might move from side to side in order to adjust the position of laser beam after the instrument is turned ON (See WAIT display on p.15). The instrument is not operable during this adjusting process (for about 30 seconds).

The instrument has a self-leveling range of $\pm 10\%$. To assure proper self-leveling the instrument must be positioned to within 10% of the grade entered.



- A warning indication will appear depending on the instrument's installed condition.
 "Warning indications" (p.15)
- For the details of Self-centering Feet to be used, "Self-centering Feet" (p.42)

6.2 Grade setting procedure

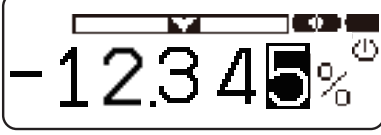
■ Direct entry of grade value

(Example) Setting grade of -12.345% (Format $\pm AB.CDE\%$)



- Input range: -15.000 to 40.000% (-150.00 to 400.00‰)
- Setting grade is not possible when the instrument is locked.

Procedure	Key operation	Display
1. Press [Set/Lock] key. The previous data will be shown, and $\pm$ mark is highlighted.		
2. Press [Down] or [Up] key to change the sign to -.	or	
3. Press [Right] key to shift to digit A. Digit A is highlighted.		
4. Press [Down] or [Up] key to change value to "1".	or	

Procedure	Key operation	Display
5. Press [Right] key to shift to digit B. Disit B is highlighted.		
6. Press [Down] or [Up] key to change value to "2".	 or 	
7. Repeat previous steps to change values of digit C to "3", digit D to "4" and digit E to "5".		
8. Press [Set/Lock] key. After entering, the instrument starts repositioning the laser to the grade. The auto leveling indication blinks during the grade setting process. The laser beam blinks at the same time.		

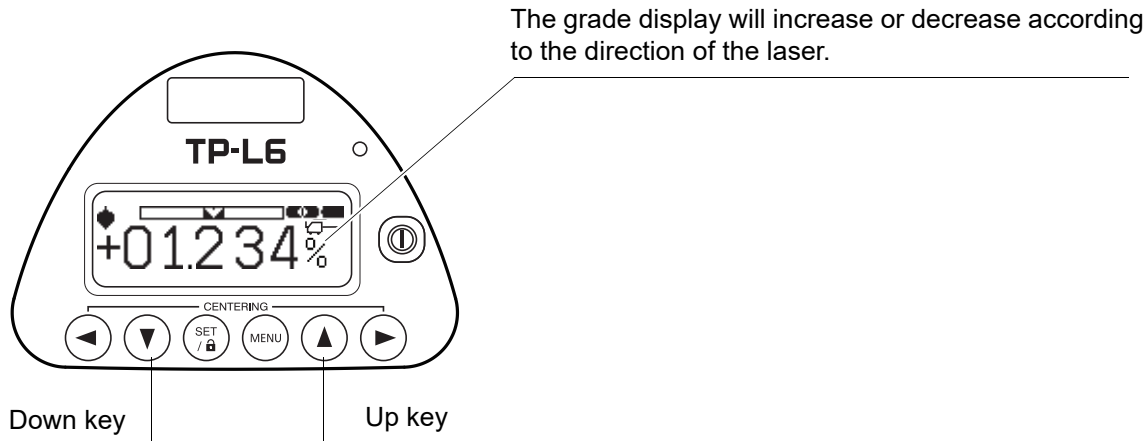


- The grade value displayed on the screen will be set automatically if no value is entered within 15 seconds.

■ Set grade value by moving laser

Grade value can be set directly by moving laser up or down.

1. Be sure that the lock is disengaged before operating.
2. Press [Up] or [Down] key, the laser beam moves up or down.



- 0 setting
Pressing the [Up] and [Down] key at the same time, the display and the laser will return to 00.000% (0‰).

6.3 Setting Laser Line

After setting the grade value, set the laser line.

Use [Left] key and [Right] key to set the laser line.

The maximum adjusting range is 9 m (29.5 ft.) at a distance of 30 m (100ft.)

The speed of the line travel is variable. When the key is first pressed, the speed will be slow.

By pressing the key continuously, the speed of line travel will increase.

The relative position of the laser beam is shown on the display as indicated below.

1. By pressing the [Right] or [Left] key, move the horizontal laser position to the right or left required.



- Setting Laser Line is not possible when the instrument is locked.



This display indicates that the laser line is positioned at the left end of the adjustment range. The laser line will not travel to the left even if the [Left] key is held down. In addition, the laser will blink to alert the user of this condition. It is always a good idea to pre-position the laser to the center of its adjusting range prior to setup.

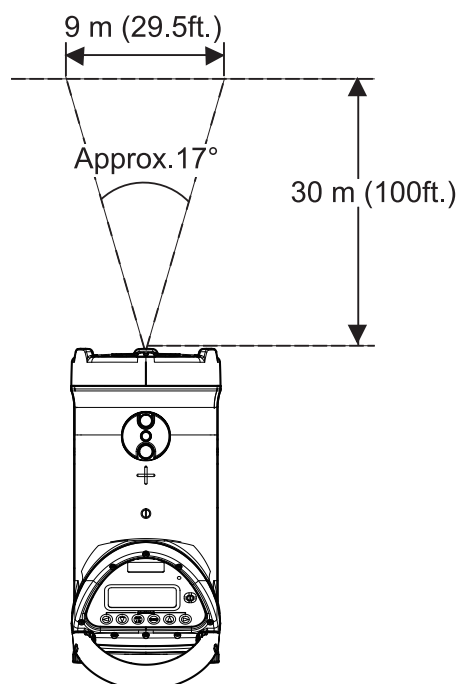
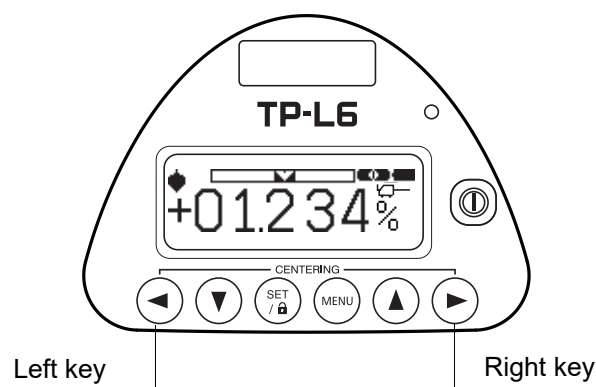


LASER LINE INDICATOR



This display indicates that the laser line is positioned at the right end of the adjustment range. The laser line will not travel to the right even if the [Right] key is held down. In addition, the laser will blink to alert the user of this condition. It is always a good idea to pre-position the laser to the center of its adjusting range prior to setup.

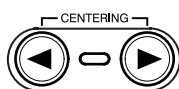
Maximum line adjust range



When operating through RC-500

1. Make sure that the basic screen is indicated on the TP-L6W.
2. In order to emit the laser beam correctly to the reference point of laser line, press [Laser right/left] keys of the remote controller RC-500 and move the laser emission position horizontally.

Laser right/left key



For the details of RC-500, refer to the following chapter.  "8.2 Remote Controller (RC-500)" (p.43)

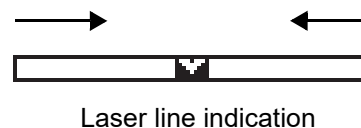
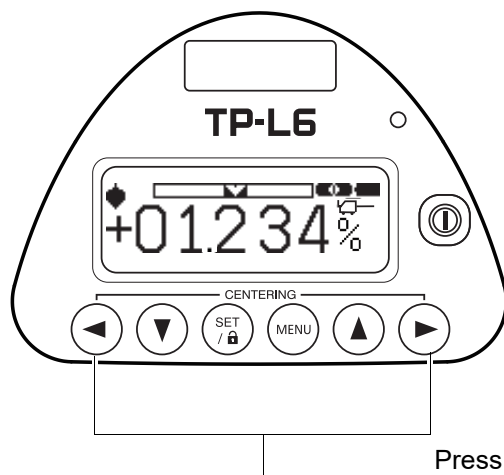
■ Automatic Centering

1. Press both [Right] and [Left] keys at the same time.

The laser will return to the center of the line adjustment range automatically.



- Automatic centering is not possible when the instrument is locked.

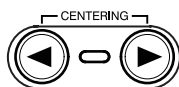


Press the [Left] and [Right] key at the same time.

When operating through RC-500

1. Make sure that the basic screen is indicated on the TP-L6W.
2. Press [Laser right/left] keys of the remote controller RC-500 at the same time.
The laser will return to the center of the line adjustment range automatically.

Laser right/left key



For the details of RC-500, refer to "8.2 Remote Controller (RC-500)" (p.43)

■ Automatic alignment with the target (TP-L6WGV/WG/WAV/WA only)

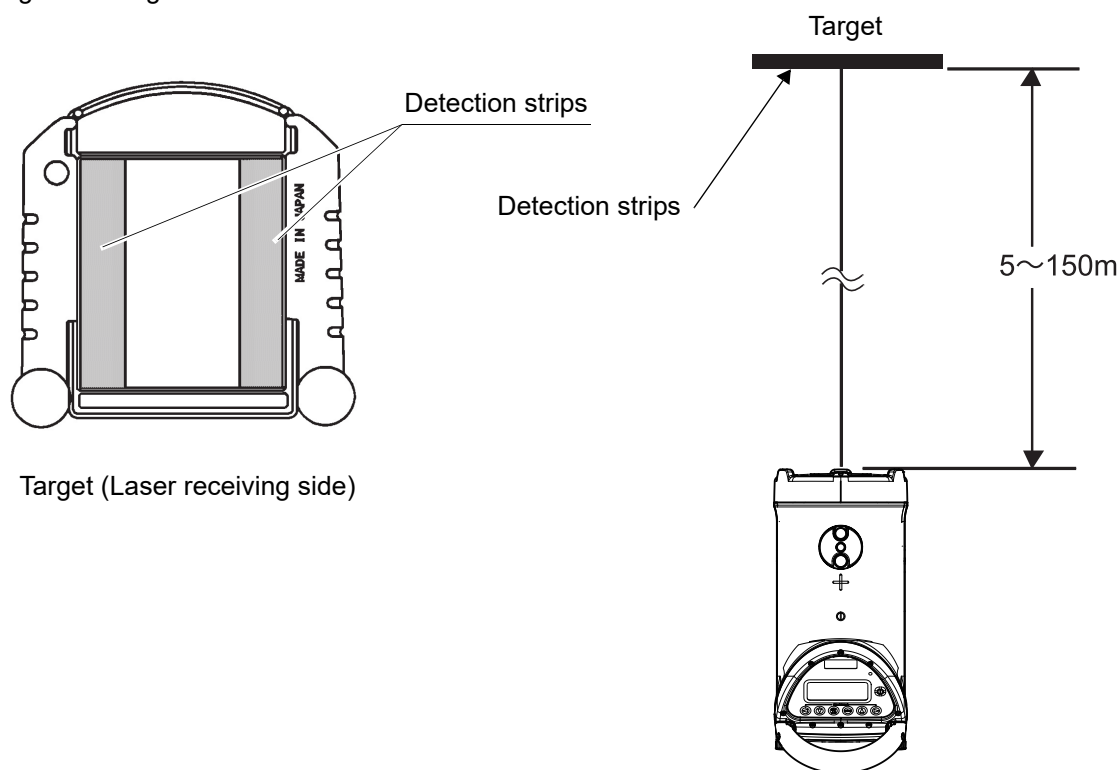
When the alignment is placed on centerline so it is in the alignment path of the beam, the laser will search the horizontal center of the target and automatically align the beam to it.

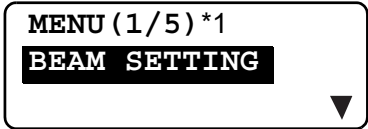
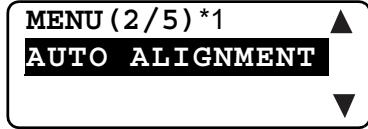
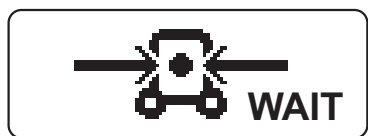
Note

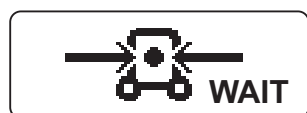
- This function is helpful for second day set ups.

Preparation:

Set the alignment target as follows.



Procedure	Key operation	Display
1. Press [Menu mode] key.		
2. Press [Down] key. [AUTO ALIGNMENT] is indicated.		
3. Press [Set/Lock] key. The instrument starts automatic alignment and the following display is shown.		



The display shows auto leveling is in process.
After auto leveling is completed, automatic alignment starts.



The display shows auto alignment is in process.
Each step shows alignment progress.



Automatic alignment in progress



Automatic alignment will finish soon.



Alignment is completed.
Confirm the laser beam on the target.
If necessary, use the [Right]/[Left] key and align the laser precisely.



Alignment target is lost during auto alignment mode.
Check the instrument and target and perform automatic alignment again.

* 1: The menu number is changed according to models.

When operating through RC-500

1. Make sure that the basic screen is indicated on the TP-L6W.
2. Press [Automatic alignment mode] key.
Automatic alignment starts.

Automatic alignment mode key



3. After automatic alignment is completed, if necessary, use [Laser right/left] keys to set the laser line precisely.
For the details of RC-500, refer to "8.2 Remote Controller (RC-500)" (p.43)



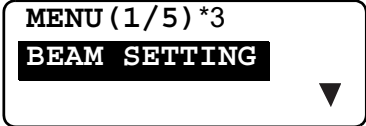
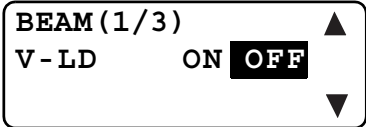
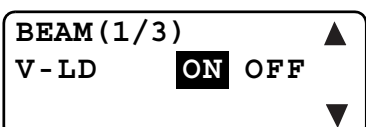
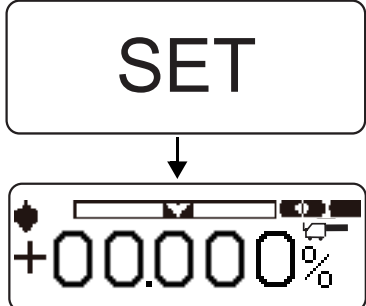
- Automatic alignment is not possible when the instrument is locked.
- Large atmospheric motions could shorten the range of use of automatic alignment. To prevent atmospheric motions from occurring, limit the working range within the shade or use a blower (commercially-available) for working.
- When using the RC-500 remote controller at close range during auto alignment mode, the laser may be subject to stop outside the target. Press the [Automatic alignment mode] key to start automatic alignment again.

6.4 Setting Centerline LED/Setting Laser

■ Setting ON/OFF of Upper/Lower laser and Centerline LED

- Set ON/OFF of Upper/Lower laser. (TP-L6WGV/WAV only): "V-LD" is indicated on the screen.
- Set ON/OFF of Centerline LED. (TP-L6WG/WBG/WA/WB only): "V-LED" is indicated on the screen.

Factory setting : [OFF]

Procedure	Key operation	Display
1. Press [Menu mode] key. *1		
2. Press [Set/Lock] key. *2		
3. Press [Right] key or [Left] key to highlight [ON]. *2	 or 	
4. Press [Set/Lock] key. Setting is completed.		

* 1: Press [Menu mode] key, and the instrument returns to the "Basic screen" status.

* 2: Press [Menu mode] key, and the instrument returns to the "Procedure 1" status.

* 3: The menu number is changed according to models.

When operating through RC-500

1. Make sure that the basic screen is indicated on the TP-L6W.
2. Press [Upper-Lower laser]/[Centerline LED] key.

Upper-Lower laser / Centerline LED key



Upper/Lower laser or Centerline LED is ON.

Each time you press the key, ON and OFF are changed to each other.

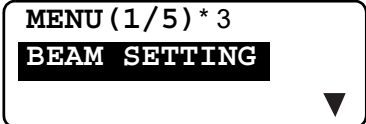
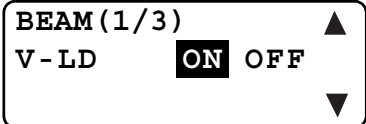
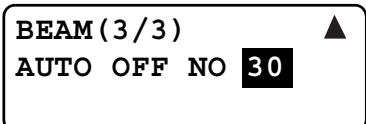
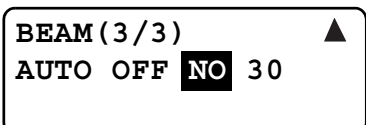
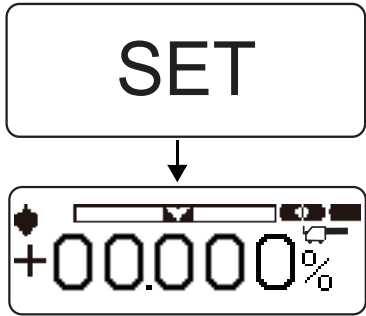
For the details of RC-500, refer to "8.2 Remote Controller (RC-500)" (p.43)

■ Setting Upper/Lower laser and Centerline LED automatic power off

- When you want to activate "automatic power off (after 30 minutes)" for Upper/Lower laser, set this function.
(TP-L6WGV/WAV only):
"V-LD" is indicated on the screen.
- When you want to activate "automatic power off (after 30 minutes)" for Centerline LED, set this function.
(TP-L6WG/WBG/WA/WB only):
"V-LED" is indicated on the screen.

Factory setting : [30]

Set [NO], and this function is invalidated.

Procedure	Key operation	Display
1. Press [Menu mode] key. *1		
2. Press [Set/Lock] key. *2		
3. Press [Down] key twice. *2	 Twice	
4. Press [Right] key or [Left] key to highlight [NO]. *2	 or 	
5. Press [Set/Lock] key. The "automatic power off (after 30 minutes)" function is invalidated.		

* 1: Press [Menu mode] key, and the instrument returns to the "Basic screen" status.

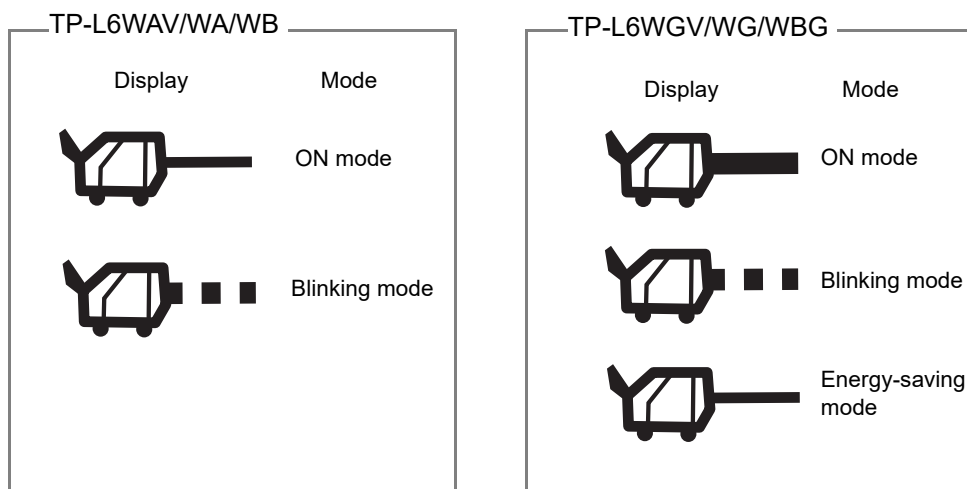
* 2: Press [Menu mode] key, and the instrument returns to the "Procedure 1" status.

* 3: The menu number is changed according to models.

■ Changing the laser mode (ON/Blinking/Energy-saving)

As mentioned below, the laser mode can be changed.

Factory setting : "ON mode"



Procedure	Key operation	Display
1. Press [Menu mode] key. *1		MENU (1/5) * 3 BEAM SETTING
2. Press [Set/Lock] key. *2		BEAM (1/3) V LED ON OFF
3. Press [Down] key. *2		BEAM (2/3) MODE   
4. Press [Left] key or [Right] key to select a mode. The selected mode is highlighted. *2	 or 	BEAM (2/3) MODE   
5. Press [Set/Lock] key. The mode is changed.		SET ↓    +00.0000%

* 1: Press [Menu mode] key, and the instrument returns to the "Basic screen" status.

* 2: Press [Menu mode] key, and the instrument returns to the "Procedure 1" status.

* 3: The menu number is changed according to models.

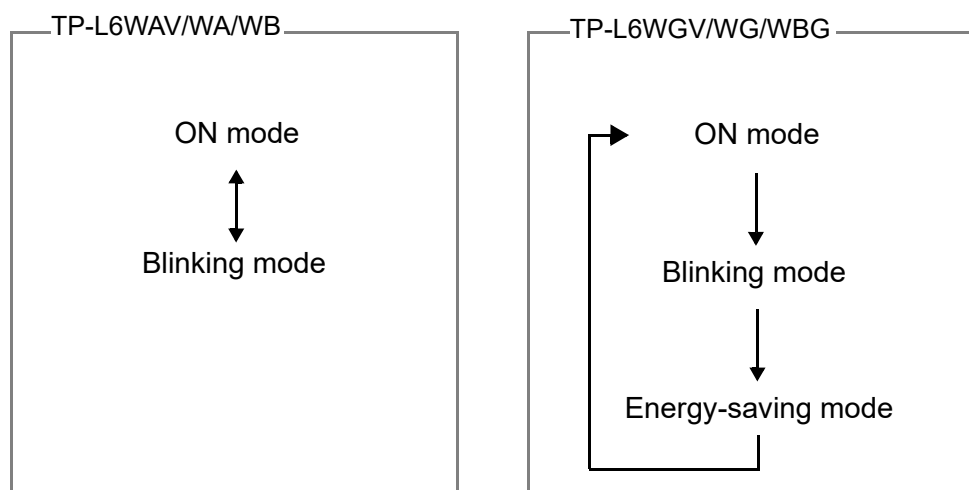
When operating through RC-500

1. Make sure that the basic screen is indicated on the TP-L6W.
2. Press [Laser beam mode] key.

Laser beam mode key



Each time you press [Laser beam mode] key, the mode is changed as shown below.
For the details of RC-500, refer to "8.2 Remote Controller (RC-500)" (p.43)



6.5 Setting Display Method

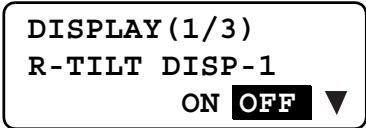
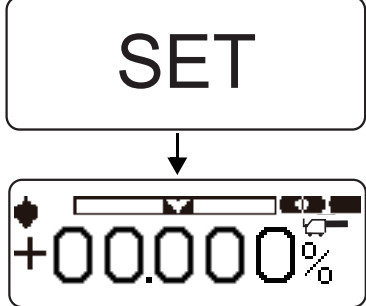
You can set the following items according to the work contents.

■ Enlarging digital level vial indication when power is ON

Press the power key when the power is OFF, and the digital level vial indication is enlarged. Press the power key again, and the instrument starts.

Factory setting : [ON]

Procedure	Key operation	Display
1. Press [Menu mode] key. *1		
2. Press [Down] key twice. *1	 Twice	
3. Press [Set/Lock] key. *2		

Procedure	Key operation	Display
4. Press [Right] key to highlight [OFF]. *2		
5. Press [Set/Lock] key. Setting is set to [OFF].		

* 1: Press [Menu mode] key, and the instrument returns to the “Basic screen” status.

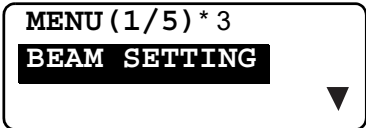
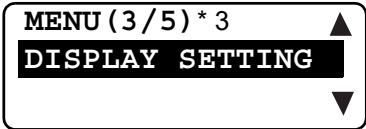
* 2: Press [Menu mode] key, and the instrument returns to the “Procedure 2” status.

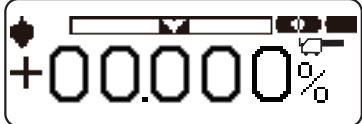
* 3: The menu number is changed according to models.

■ Enlarging digital level vial indication by tilt in rotating direction

If the instrument is tilted during auto leveling, the digital level vial indication is enlarged. This enlarged indication status is released when the instrument is stabilized or when any other key is pressed.

Factory setting : [ON]

Procedure	Key operation	Display
1. Press [Menu mode] key. *1		
2. Press [Down] key twice. *1	 Twice	
3. Press [Set/Lock] key. *2		
4. Press [Down] key. *2		
5. Press [Right] key to highlight [OFF]. *2		

Procedure	Key operation	Display
6. Press [Set/Lock] key. Setting is completed.		 

* 1: Press [Menu mode] key, and the instrument returns to the “Basic screen” status.

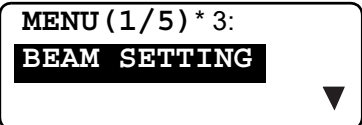
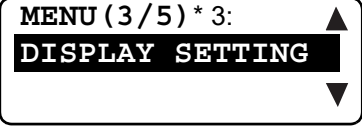
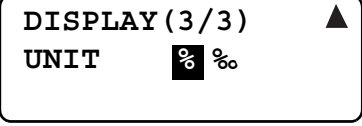
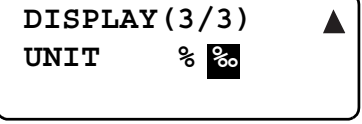
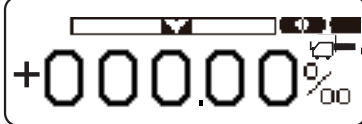
* 2: Press [Menu mode] key, and the instrument returns to the “Procedure 2” status.

* 3: The menu number is changed according to models.

■ Setting grade value unit

Set the grade value unit to [%] or [‰].

Factory setting : [%]

Procedure	Key operation	Display
1. Press [Menu mode] key. *1		
2. Press [Down] key twice. *1	 Twice	
3. Press [Set/Lock] key. *2		
4. Press [Down] key twice. *2	 Twice	
5. Press [Right] key to highlight [‰]. *2		
6. Press [Set/Lock] key. The unit is set to [‰].		 

- * 1: Press [Menu mode] key, and the instrument returns to the "Basic screen" status.
- * 2: Press [Menu mode] key, and the instrument returns to the "Procedure 2" status.
- * 3: The menu number is changed according to models.

6.6 Setting *Bluetooth* Connection

To operate the TP-L6W with smartphone, it is necessary to set *Bluetooth* connection (pairing).

After pairing is performed, connect to the smartphone.



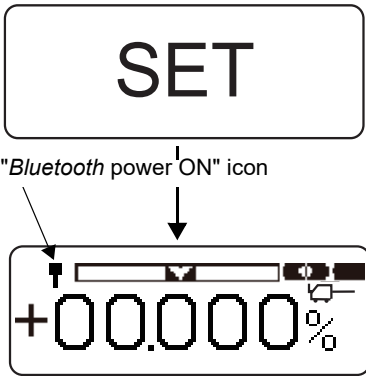
- Pairing with smartphone is stored up to five units. When pairing with more than five smartphone units is done, the pairing data are deleted from the oldest in the chronological order.
- When connected with a smartphone, the connection is held until the time mentioned below.
 - When canceling the connection from the smartphone;
 - or
 - When pairing is performed with any other smartphone.
- Laser Manager is an application on Android Mobile for remote control and support.
 - If TP-L6W is not displayed during the pairing search in Laser Manager, please complete pairing on the OS. After that, please do pairing again by Laser Manager.
 - When pairing with some instruments on Laser Manager, *Bluetooth* connection between instrument and Laser Manager may take some time. Please remove unnecessary instruments from *Bluetooth* connection history list on Laser Manager.
 - After disconnecting *Bluetooth* by Laser Manager, the instrument icon may not be displayed on the search screen. Please wait for a while and re-enter the *Bluetooth* connection screen again.

■ Turning ON the *Bluetooth* power supply

When the *Bluetooth* power supply is ON, the "*Bluetooth* power ON" icon is indicated.

Factory setting: [OFF]

Procedure	Key operation	Display
1. Press [Menu mode] key. *1		
2. Press [Down] key four times. *1	 Four times	
3. Press [Set/Lock] key. *2		
4. Press [Left] key. *2		

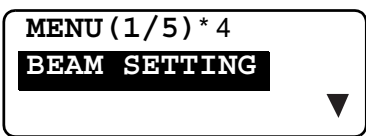
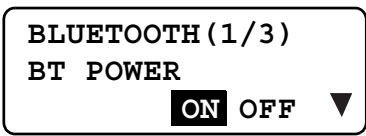
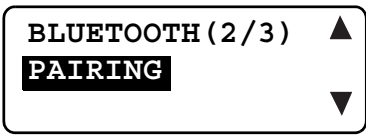
Procedure	Key operation	Display
5. Press [Set/Lock] key. The <i>Bluetooth</i> power supply is ON.		 "Bluetooth power ON" icon

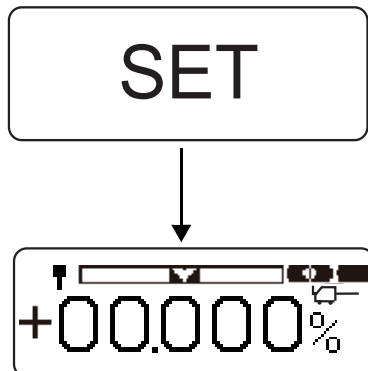
* 1: Press [Menu mode] key, and the instrument returns to the "Basic screen" status.

* 2: Press [Menu mode] key, and the instrument returns to the "Procedure 2" status.

* 3: The menu number is changed according to models.

■ Performing pairing with smartphone

Procedure	Key operation	Display
1. Press [Menu mode] key. *1		
2. Press [Down] key four times. *1	 Four times	
3. Press [Set/Lock] key. *2		
4. Press [Down] key. *2		
5. Press [Set/Lock] key. *3 Press [Set/Lock] key again. Pairing is stopped and the basic screen appears again. In this case, if data is changed in any other item of the menu, the change is stored.		

Procedure	Key operation	Display
6. Search the TP-L6W from the smartphone and perform pairing. When pairing is completed, "SET" is indicated and the basic screen appears again.  - For the searching method, refer to the instruction manual of the software used in the smartphone. - For the searching method, follow the instructions of the software used in the smartphone.		

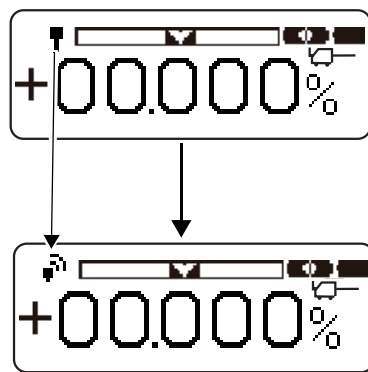
* 1: Press [Menu mode] key, and the instrument returns to the "Basic screen" status.

* 2: Press [Menu mode] key, and the instrument returns to the "Procedure 2" status.

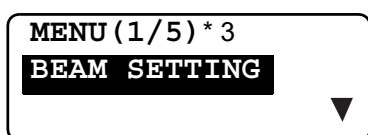
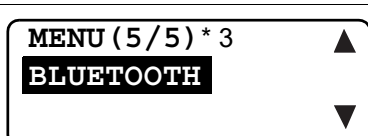
* 3: Press [Menu mode] key, and the instrument returns to the "Procedure 4" status.

* 4: The menu number is changed according to models.

■ Connecting to smartphone

Procedure	Key operation	Display
1. Make sure that the <i>Bluetooth</i> power supply is ON.		
2. Under the condition that the basic screen is indicated, carry out connection from the smartphone for which pairing has already been done. After the connection is completed, the <i>Bluetooth</i> icon status is changed from "power ON" to "Already connected".		

■ Checking the *Bluetooth* address

Procedure	Key operation	Display
1. Press [Menu mode] key. *1		
2. Press [Down] key four times. *1	 Four times	

Procedure	Key operation	Display
3. Press [Set/Lock] key. *2		BLUETOOTH (1/3) BT POWER ON OFF ▼
4. Press [Down] key twice. *2 The <i>Bluetooth</i> address is displayed. (Example:0123456789AB) Press [Set/Lock] key again, and the basic screen appears again. In this case, if data is changed in any other item of the menu, the change is stored.	 Twice	BLUETOOTH (3/3) ▲ BT ADDRESS 0123456789AB

* 1: Press [Menu mode] key, and the instrument returns to the “Basic screen” status.

* 2: Press [Menu mode] key, and the instrument returns to the “Procedure 2” status.

* 3: The menu number is changed according to models.



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