HV302 Hands-on Training

Contractors-Tools.com

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HV302 Controls

Scan Button

Rotation Button

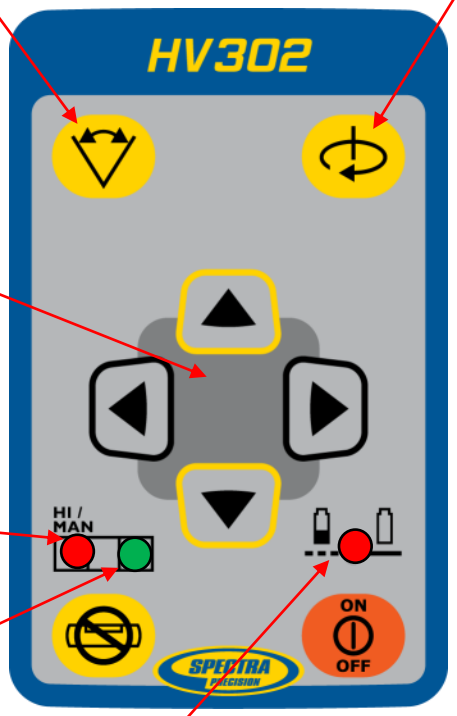
Slope/Alignment Buttons

HI-/Manual-Standby - LED

Level-LED

Power Button

Manual/Single Slope Mode/ Standby Button



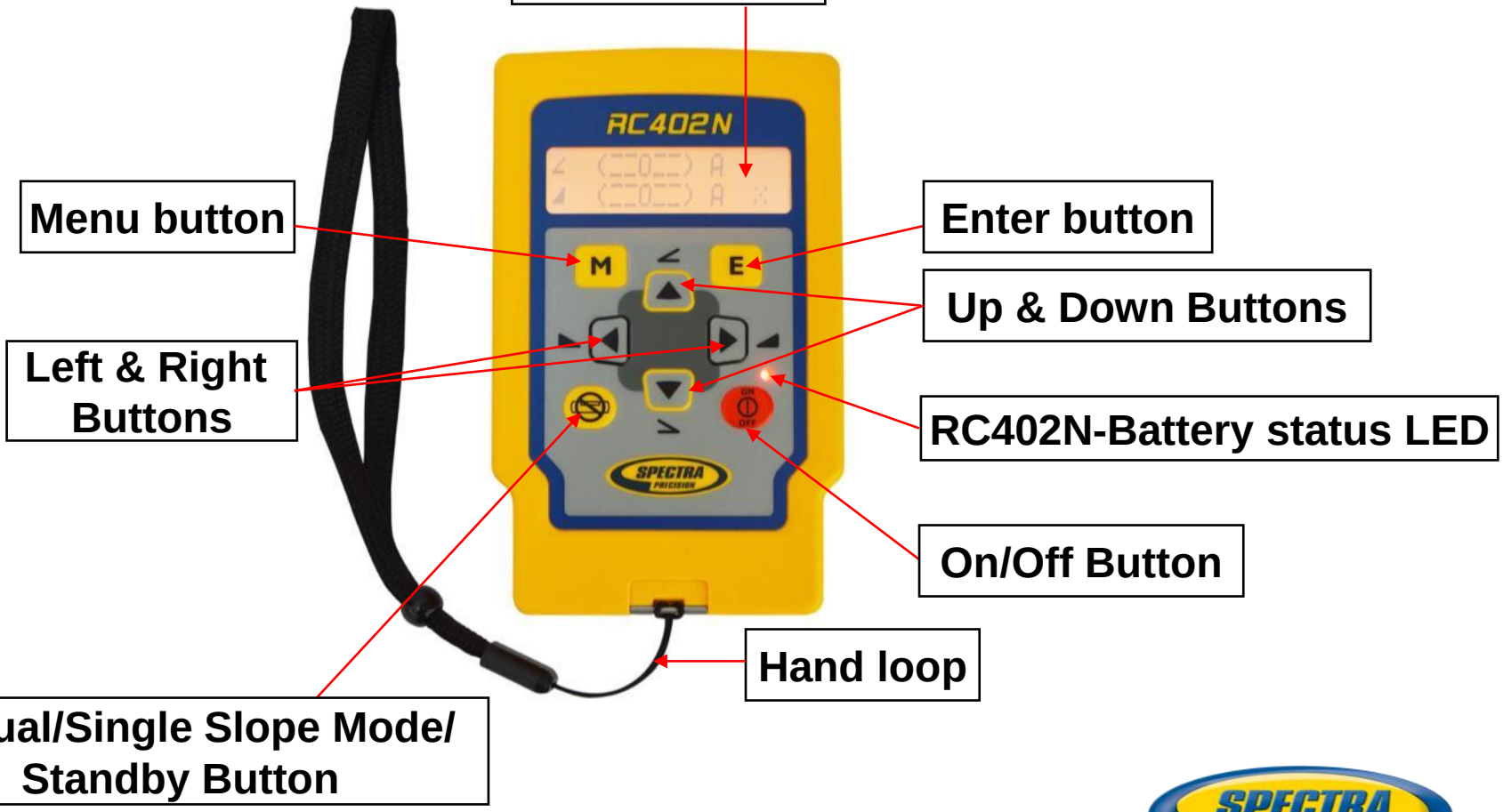
Scan Button

Rotation Button

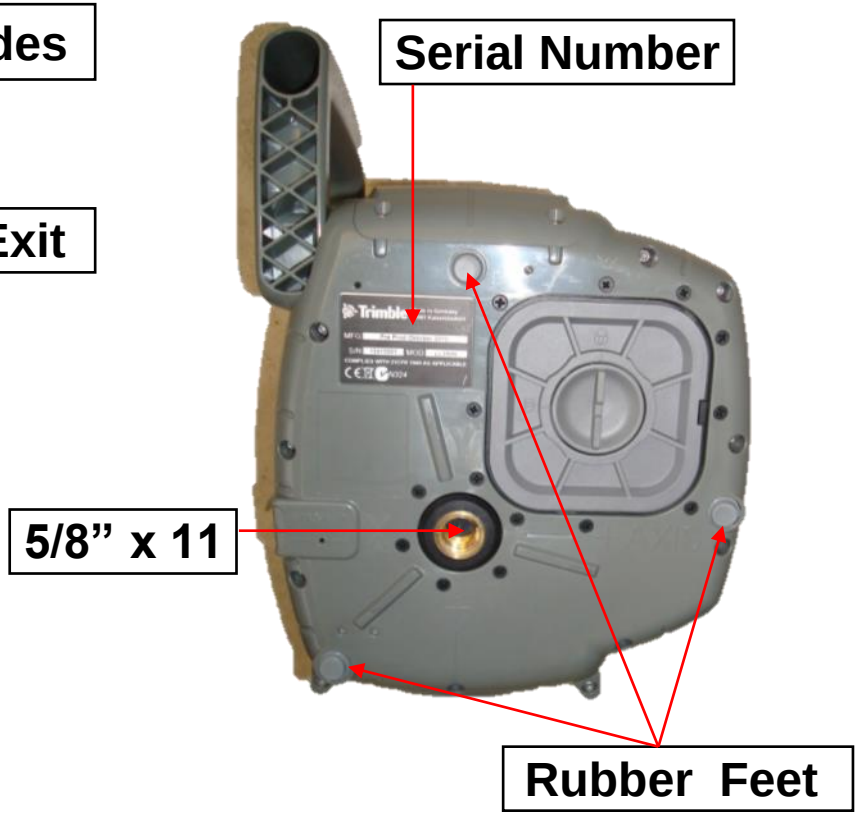
Battery Status LED

SPECTRA PRECISION

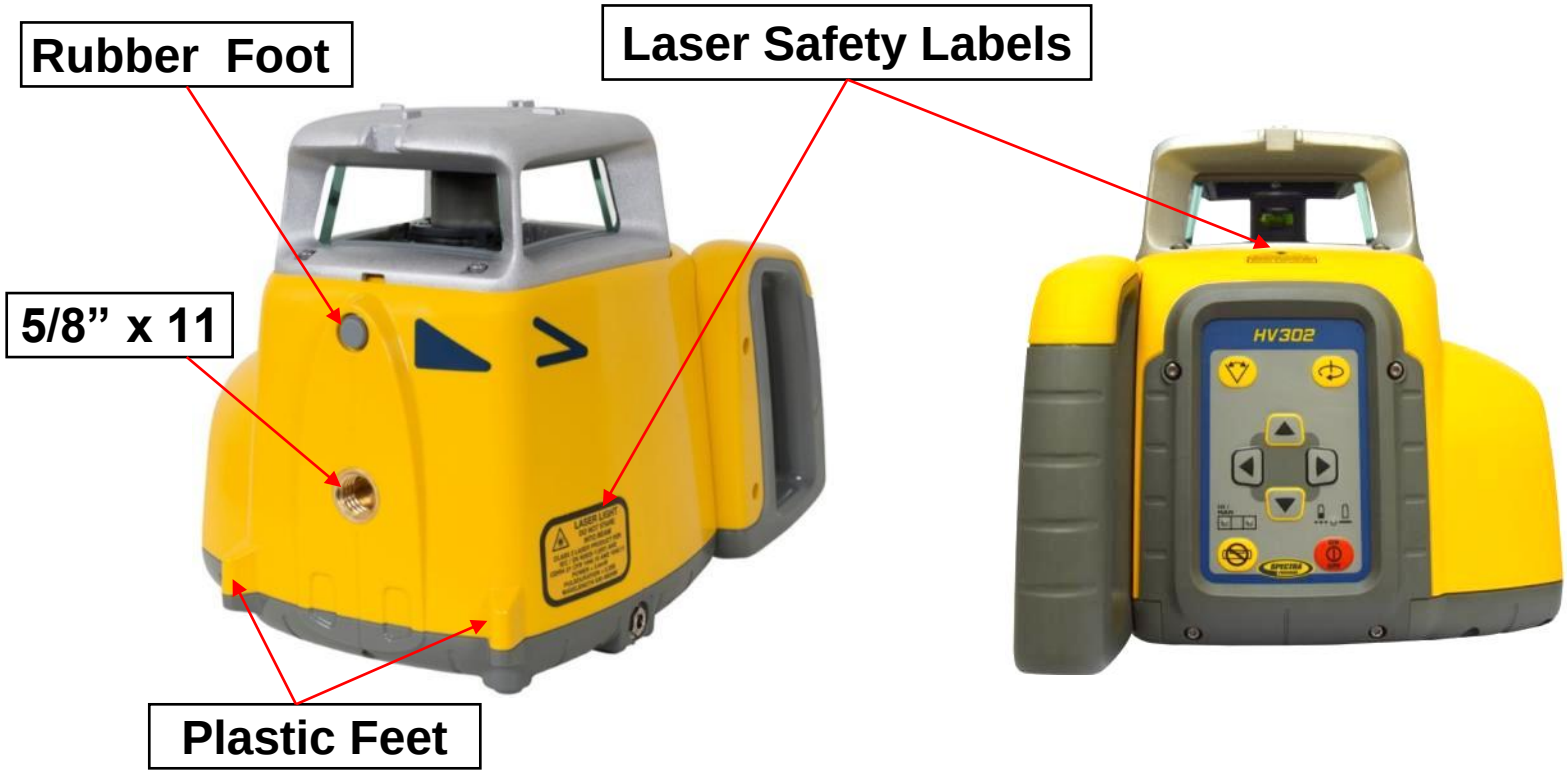
RC402N Radio Remote Control



HV302 Peripherals



HV302 Peripherals



Installing The Batteries

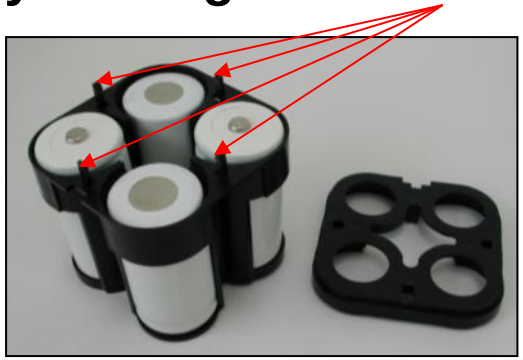
- Enter the battery housing, by turning the battery-door knob counterclockwise
- Install/remove the rechargeable battery Pack. It is keyed to prevent miss-insertion. The cage prevents accidental charging of Alkaline batteries
- Do not try to open the cage for exchanging the rechargeable batteries
- Worldwide charger has plugs for US, EU, AU and GB
- Recharge time is about 10 hours

Installing The Batteries

- If using 4 x D-cell Alkaline's, note the plus (+) and minus(-) diagram on the battery door. Do NOT try to install Alkaline batteries in the rechargeable battery Pack!

New warning label at the battery cage

- Special screws are used to ensure only autorized service centers can replace the batteries. Trying to open the cage will destroy the cage lid holders.



SPECTRA PRECISION

Special Features using the optional RC402N

The remote control mirrors the basic functionality of the HV302 keypad and offers additional features.

M-Button M: Quickly press and release **starts the MENU entry** and can be used to return to the previous menu position

E-Button E: Quickly press and release starts the selected mode

Manual Button : Quickly press and release activates/deactivates the manual mode/ single slope mode; press and hold for 3 seconds activates/deactivates the Standby mode

Up/Down Arrow Buttons

Left/Right Arrow Buttons

ON/OFF button - press for 1 second to turn on the unit; press and hold for 2 seconds to turn off the unit

RC402N Battery- Status-LED (red)

SPECTRA PRECISION

Using the optional Radio Remote Control

Powering the RC402N

1. Open the battery door using a coin or similar pry device to release the battery door tab on the RC402N.
2. Insert two AA batteries noting the plus (+) and minus (-) diagrams inside the battery housing.
3. Close the battery door. Push down until it “clicks” into the locked position.

Turning On/Off the Radio Remote Control

Press the ON button to turn on the radio remote control.

Display at RC402N
HV302 – horizontal setup

Display at RC402N
HV302 - vertical setup

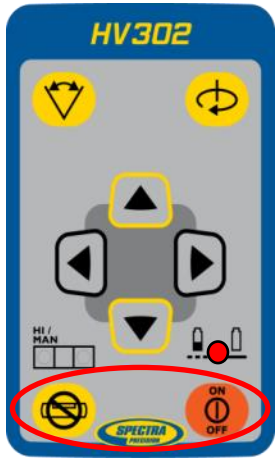
To turn off the radio remote control, press and hold the ON button for 2 seconds.

SPECTRA PRECISION

Pairing the remote control with the transmitter

- First, make sure the transmitter and the remote control are turned off. Then press and hold the button and turn on the transmitter.
  - The battery LED flashes fast.
- During the next 6 seconds repeat the same steps on the remote control.

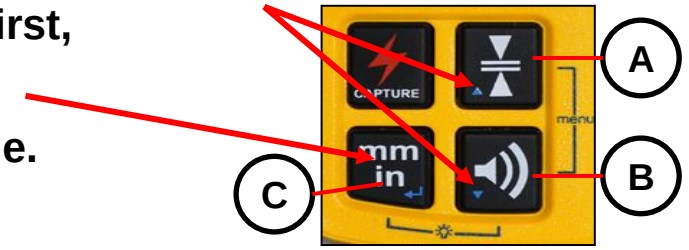
- The Laser's red battery LED flashes fast and the remote's display shows Pairing OK for one second and then the same function as the laser is actually working to indicate the transmitter has been matched with the remote control.

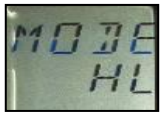


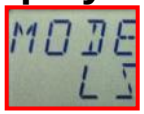
Pairing the HL760 receiver with the transmitter

Make sure the transmitter is turned off.

First, turn on the receiver, then press and hold the (A) and (B) buttons for two seconds. After two seconds, the display shows MENU first, then RDIO.  Press and release the button – display shows the current radio mode.



 or  or 

If not already set to LS, press (C) button (current mode flashes) then press (A) or button (B) until LS is displayed.
Press (C) button again to enter selection. 

Press and release the (B) button – display shows PAIR. 
Press the (C) button again – the display shows PAIR and a rotating bar.
Then press and hold the button and turn on the transmitter (Battery LED flashes fast). After completing, PAIR/OK will be displayed.  

The laser pairs now automatically with the new receiver and turns back to the standard function.
Press and release the HL760 button two times to exit the menu at the receiver.
A laser symbol and an antenna is lit to confirm the receiver is ready for communication with the laser. 

SPECTRA PRECISION

Turning On/Off the Laser

- To turn the unit on, press and release the ON/OFF button
  - The unit always powers up in automatic self-leveling mode
  - All LEDs are turned on for 3 seconds (diagnostic mode).
  - Green LED flashes during self-leveling once a second
  - When leveled, the green LED lights solid for the first five minutes or 30 seconds (depending on Settings), then flashes every 4 seconds indicating the laser remains level and the HI-alert has been activated

To turn the unit off, press and hold the ON/OFF button for 2 seconds!

Activating/Deactivating Standby mode

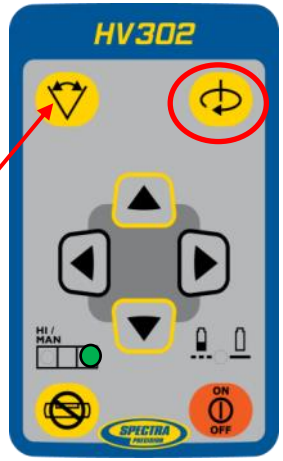
Standby mode helps to increase the battery life and controls the laser setup during breaks. The self-leveling and rotation will be stopped and the beam will be turned off while the HI alert is still active.

- **Press and hold the button at the laser or remote control for 3 seconds activates the Standby mode.**
  - **The HI/MAN LED at the laser flashes red every 5 seconds while the RC402N display shows Standby.**

- **To deactivate Standby mode and restore full operation of the laser, press and hold the button at the laser or remote control again for 3 seconds.**

Rotation mode at the HV302

- Repeatedly pressing the button toggles through 0, 10 (short moving line), 80, 200, 600 rpm regardless if the unit is in automatic or manual mode.
  - When set up horizontally in automatic mode, using buttons increase/decrease the rotor speed from 10 to 80 and then continuously in 10 rpm increments up to 600 rpm.



Note: To stop the beam's rotation immediately, press and release the button.

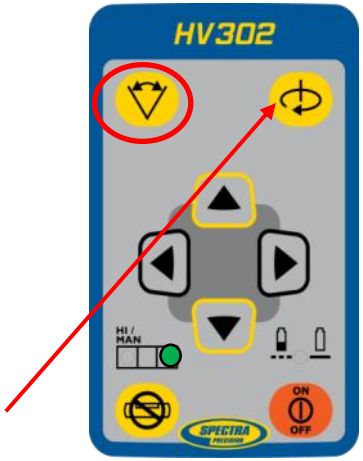
Pointing mode

- At 0 rpm, the beam stops automatically close to the +Y-axis center position.
  - Buttons move the beam to the Left/Right side.
  - When set up vertically at 0 rpm, buttons can be used for moving the beam clockwise/ counterclockwise and to align the rotor vial to establish an exact plumb down beam.

SPECTRA PRECISION

Scan mode at the HV302

- Repeatedly pressing the button toggles through pre-selected scan sizes 5˚ , 15˚ , 45˚ , 90˚ , 180˚ and 0 regardless if the unit is in automatic or manual mode.
  - When set up horizontally in automatic mode, using buttons increase/decrease the line size in 5˚ increments. Press and hold button moves the scan line to the right/left direction.



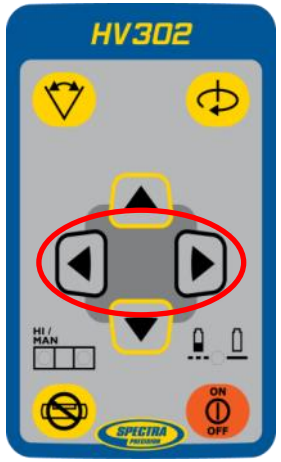
Note: The button can be used to stop the scan mode immediately.

When used in automatic vertical mode, pressing and holding button moves the scan line counterclockwise/ clockwise. The buttons moves the scan line into the right/left direction regardless if in automatic or manual mode. For the first 4 seconds, the scan line moves slowly than faster.

Line Scan – Vertical Setup (Standard mode)

When setting up the unit vertical, Line Scan centers the rotor horizontally and can be used to align the laser reference to a desired line position. Line Scan can be activated as a standard feature as well as using the menu.

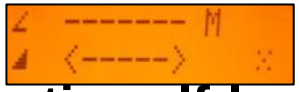
- **Pressing and releasing the**  **buttons simultaneously starts Line Scan while the rotor checks the limits of the X- axis (beeps) and stops at the center position (all laser LEDs are turned off) .**



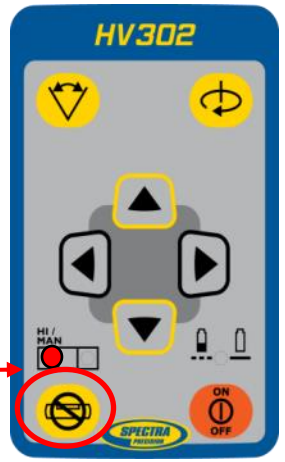
- **Pressing the**  **button stops the movement and changes the unit into manual mode.**
- **Fine corrections left and right can be done using**  **buttons.**
- **Press and release the**  **button again to change the unit back to full automatic mode.**

Activating/Deactivating Manual Mode

- **“Manual” bypasses the laser’s automatic leveling, to use the laser in slope or vertical mode**
- **Press and release the button at the transmitter or remote control**
  - **Manual LED will flash red once a second**
- **Change the slope using the arrow buttons at the laser (Y-/X-axis) or remote control.**
- **When set up vertical, buttons changes the slope of the vertical reference while the buttons can be used for fine line adjustments.**



- **To resume automatic self-leveling mode, press the button three times.**



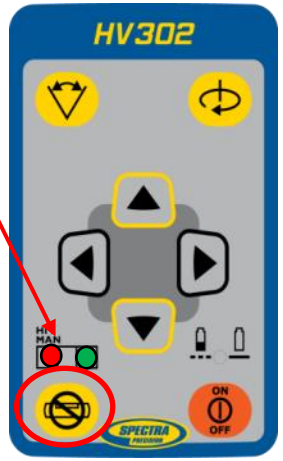
SPECTRA PRECISION

Single Y-Axis Slope Mode

- To activate the single Y-axis slope mode, press the mode button at the laser or remote twice.
  - The red and green LED's will flash simultaneously once a second.
- To resume automatic self-leveling mode, press the button (transmitter or remote) two times.
- When in Y-Slope Mode, the buttons change the slope of the Y-axis; the X- axis will self level to maintain a consistent elevation of the sloped reference plane.

Single X-Axis Slope Mode

- To activate the single X-axis slope mode, press the button at the laser or remote three times.
  - The red and green LED's will flash simultaneously every 3 seconds.
- To resume automatic self-leveling mode, press the button (transmitter or remote) again.
- When in X-Slope Mode, the buttons change the slope of the X-axis; the Y- axis will self level to maintain a consistent elevation of the sloped reference plane.



SPECTRA PRECISION

Mask Mode using the standard method

Mask Mode – allows you to electronically turn off the laser beam (electronic shutters) in up to 3 lighthouse windows to prevent interference with other receivers on the jobsite.

- **To activate the mask mode on the + or -Y-axis, press the button at the laser or remote control, then within <1 second press and release the button.**

- **To activate the mask mode on the + or -X-axis, press the button at the laser or remote control, then within <1 second press and release the button.**

Note: The unit always powers up with the mask mode deactivated (default).

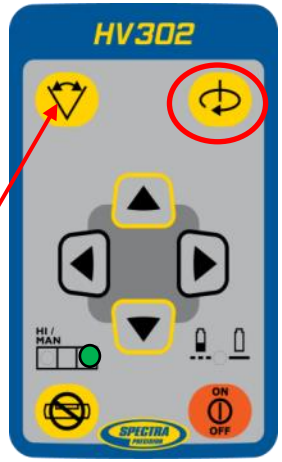
Rotation mode using the RC402N

- Press and release the M button and select >>Rotation<<.
- Press and release button E to display the actual rotation speed.
  - Use the ▲ ▼ buttons to select toggle through the pre-selected rotation speeds 0, 10 (short moving line), 80, 200 and 600 rpm.

- Confirm the desired speed by pressing the E button.
- When set up horizontally in automatic mode, using the ▲ ▼ buttons increase/decrease the rotor speed from 10 to 80 and then continuously in 10 rpm increments up to 600 rpm.
  Pressing button E shows the actual rpm. 

  At 0 rpm, the beam stops automatically close to the +Y- axis center position. Buttons  move the beam to the Left/Right side.

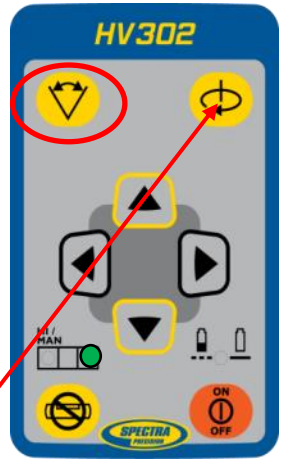
Note: To stop the beam's rotation immediately, press and release the laser's ▽ button.



Scan mode using the RC402N

- Press and release the M button and select >>Scan<<.
- Press and release button E to display the actual scan size.
- Use the Up/Down buttons to toggle through the pre-selected scan sizes 5˚ , 15˚ , 45˚ , 90˚ , 180˚ and 0.

- Confirm the desired scan size by pressing the E button.
- When set up horizontally in automatic mode, using buttons ▲ ▼ increase/decrease the scan size in 5˚ increments. Pressing button E shows the actual scan size. Press and hold button ◀ ▶ moves the scan line to the right/left direction. In automatic vertical mode, pressing and holding button ▲ ▼ moves the scan line counterclockwise/ clockwise; buttons ◀ ▶ moves the scan line into the right/left direction regardless if in automatic or manual mode.



Note: To stop the scan mode immediately, press and release the laser's button.

SPECTRA PRECISION

Automatic Grade Match using the RC402N

1. Set up the laser at the first elevation point and align it to the second desired slope/ elevation hub using the sighting guides on the sunshade.

2. Attach the HL760 receiver to a grade rod. Check the laser beam elevation close to the laser.

Automatic Grade Match using the RC402N

3. Press and release the M button and select >>Grade Match<<.

4. Set the grade rod with the receiver attached to it on the second desired slope/elevation hub.

   NOTE: DO NOT change the receiver position at the rod

5. Press and release button E to open the Grade Match submenu; then press button E to start Grade Match (GM Y).

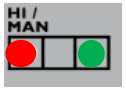
Exiting of Grade Match can be done by pressing the button where the unit goes always back to automatic mode.

Automatic Grade Match using the RC402N

6. The laser starts to search for the receiver.
   The HL760 display shows a flashing –GM– during the time the laser is searching and adjusting the beam to the on-grade position.

7. When Grade Match has been completed, the HL760 goes back to the standard elevation display while the laser stays at Y-axis single slope mode.

The red and green LED flash simultaneously (once a second).



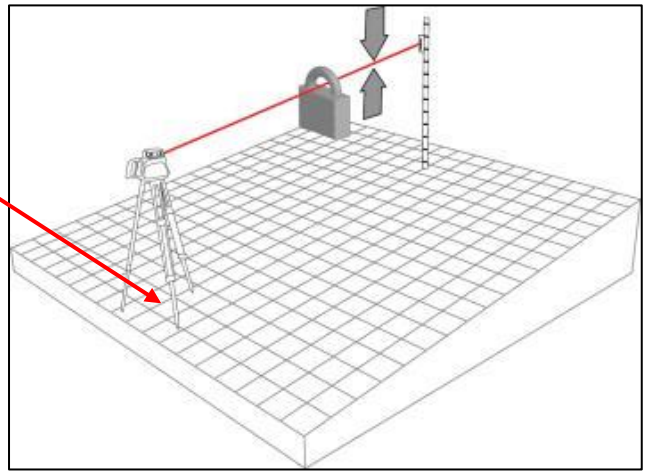
1 Hz

8. Check the elevations along the direction of the slope.

When the slope work has been finished, press the button two times to go back to automatic self-leveling mode.

Automatic Horizontal-PlaneLok

1. Set up the laser at the first elevation point and align it to the second desired slope/elevation hub using the sighting guides on the sunshade.



2. Attach the HL760 receiver to a grade rod.
   Place the receiver at the second point and adjust it to the On-grade position.
   The receiver should be permanently mounted at this location and at the desired elevation.

Automatic Horizontal-PlaneLok

3. Press and release the M button and select >>PlaneLok<<.

4. Press and release button E to open the PlaneLok submenu; then press button E to start PlaneLok (PL Y)

.

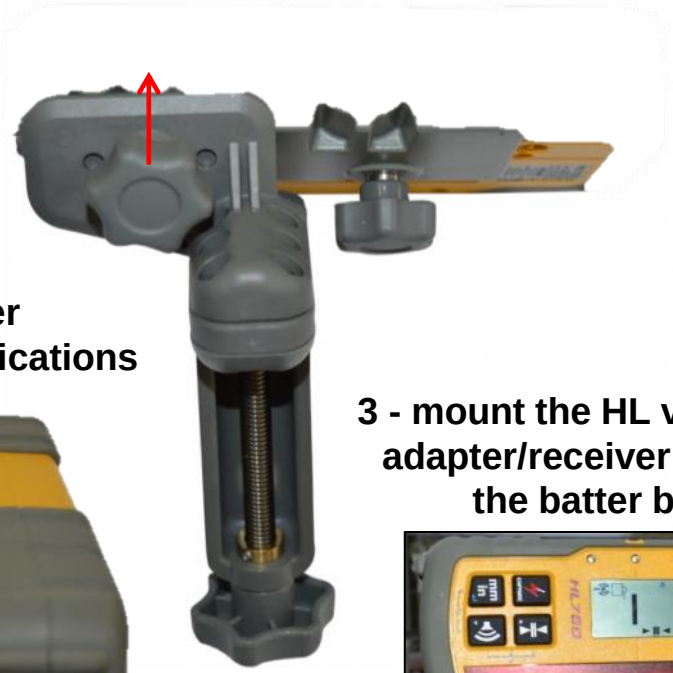
5. The laser starts to search for the receiver while the RC402N display shows flashing PL.
   The HL760 display shows a flashing –PL– during the time the laser is searching and adjusting the beam to the on-grade position.

6. When PlaneLok is complete, –PL– stops flashing at the HL760 and RC402N display.

How to attach the HL vertical adapter to the receiver

1 - attach the HL vertical adapter to the receiver

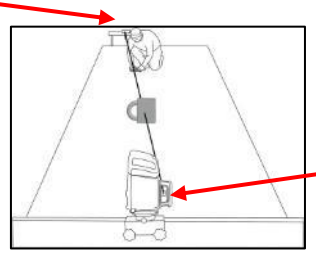
2 - attach the adapter for the receiver to the HL vertical adapter



3 - HL vertical adapter/receiver combo ready for vertical applications

3 - mount the HL vertical adapter/receiver combo at the batter board

Automatic Vertical-PlaneLok



When setting up the transmitter vertical, PlaneLok can be used at the X-axis.

1. Press and release the M button and select >>PlaneLok<<.

2. Press and release button E to open the PlaneLok submenu; select the X-axis;

then press button E to start PlaneLok.

Note: When used in vertical mode, the receiver has to be placed with the photocell on the bottom side. For getting the best performance and a longer operating range set up the HL760 at least 0.5 m (2 ft) above the ground.

Any loss of signal over an extended period of time (1 minute) causes the laser to go into the HI-alert condition (beam turns off, rotor stops and a warning message occurs at the LCD). PlaneLok mode can be reactivated after the Error message has been deleted with the E button.

Exiting of PlaneLok can be done by pressing the button or any HL760 button where the unit goes always back to automatic mode.

Info using the RC402N menu

Info

- Press and release the M button and select >>Info<<. 

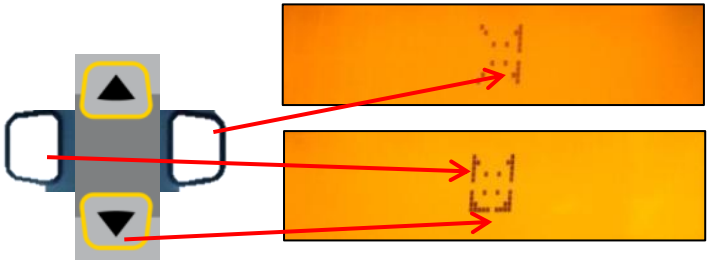
Buttons ▲ ▼ can be used to toggle between About LS, Runtime and Radio.
- Press and release the E button; the laser information (software version, serial number.), the total runtime and the radio channel of the laser will be displayed. 

Mask Mode using the RC402N menu

- Press and release the M button at the Standard Display and select >>Mask Mode<< by pressing the down ▼ arrow button.

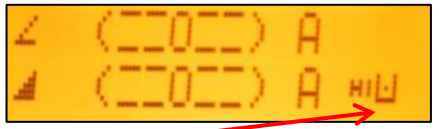
- Press and release the E button, the mask symbol occurs.

- For selecting the side, press and release one of the arrow buttons.



- When all areas have been set, press button E to store the mask sector selection.

The RC402N display indicates which side of the laser the beam has been electronically turned off.



SPECTRA PRECISION

Line Scan using the RC402N menu

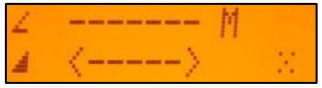
When setting up the unit vertical, Line Scan centers the rotor horizontally and can be used to align the laser reference to a desired line position.

- Press and release the M button at the Standard Display and select >>Line Scan<<. 

- Press and release the E button starts Line Scan.

The rotor checks the limits of the X- axis and stops at the center position in automatic mode. (LS is flashing 

while all laser LEDs are turned off)

Pressing the  button at the laser or RC402N stops the movement and changes the unit into manual mode. 

Line position corrections left and right can be done using  buttons.

Press and release the  button at the laser or RC402N to change the unit back to full automatic mode.

Beam Plunge using the RC402N menu

Beam Plunge centers the rotor vertically and can be used to align the plumb beam to a desired vertical position, e.g., when doing Interior layout.

- **Press and release the M button at the Standard Display and select >>Beam Plunge<<.** Line Scan / »Beam Plunge«
- **Press and release the E button starts Beam Plunge.**

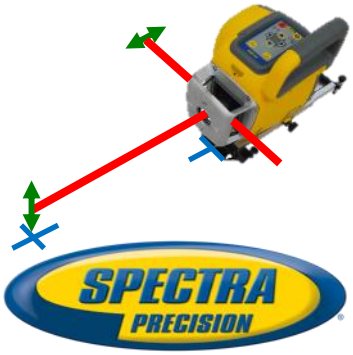
The rotor checks the limits of the Y- axis and switches back to automatic mode at the center position. (BP is flashing ------- BP / ------- while all laser LEDs are turned off)

Pressing the button at the laser or RC402N stops the movement and changes the unit into manual mode. ------- M / <----->

Corrections up and down can be done using buttons;

for left/right corrections use buttons.

Press and release the button to change the unit back to full automatic mode.



Settings: HI-Alert selection at the RC402N

HI-Alert Selection

- Press and release the **M** button and go to >>Settings<< by pressing the down ▼ arrow button.

- Press and release the **E** button, HI-Alert will be marked in arrow brackets; »HI Alert« / Sensitivity ↓ then press the **E** button again.

- The desired HI-alert: 5 min.(Default), 30 seconds and HI-Off) can be selected using the ▲ ▼ buttons.

»HI 5 min« / HI 30 sec ↓ | HI 5 min / »HI 30 sec« ↓ | HI 30 sec ↑ / »HI off«

- Press and release button **E** to confirm the selected HI-Alert.

Settings: Sensitivity selection at the RC402N

Sensitivity Selection

- Press and release the **M** button at the Standard Display and go to >>Settings<< by pressing the down ▼ arrow button.
- Press and release the **E** button, then press the ▼ button until Sensitivity 

will be marked in arrow brackets.
- Press and release the **E** button to open the Sensitivity submenu
- The desired Sensitivity: Low, Middle (Default) and High) can be selected using the ▲ ▼ buttons.

- Press and release button **E** to confirm the selected Sensitivity.

Language selection at the RC402N Remote Control

Language Selection

- Press and release the M button at the Standard Display and go to >>Settings<< by pressing the down ▼ arrow button twice.
- Press and release the E button, then press the ▼ button twice. Language »Language« will be marked in arrow brackets.
- Press and release the E button to open the Language submenu
- Use ▲ ▼ buttons to select the required local language (EN, DE, IT, FR, ES, PT, NL, DA, NO, SV, FI, PL, TR, CZ).

- Press and release button E to confirm the selected Language.

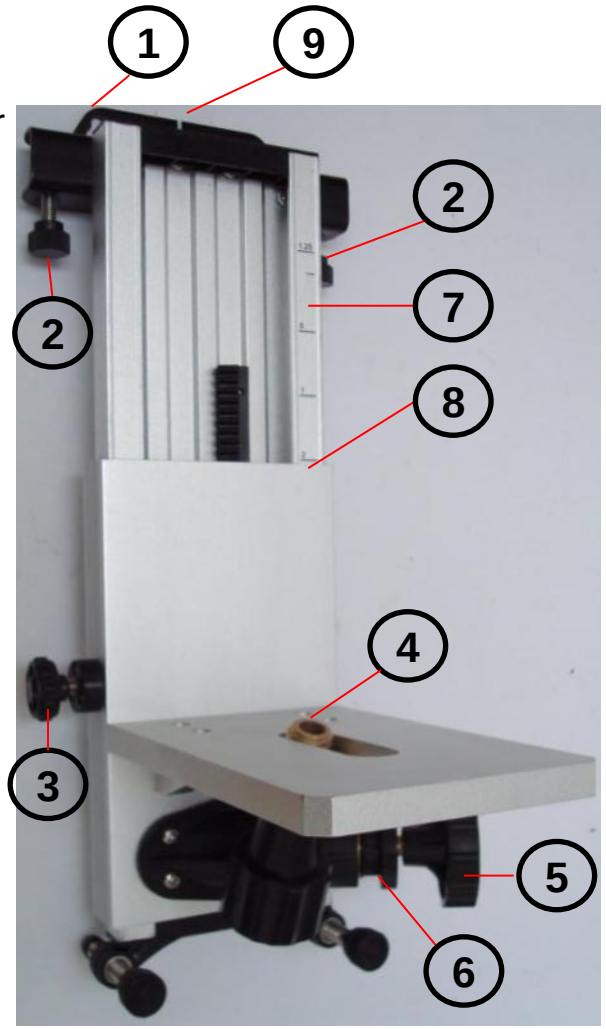
Trouble shooting

Any error message can be deleted with a short press of button E. The table shows the related description and possible solutions.
The next service center should be contacted if a different error message as shown at the table will be displayed.

Error codes	Description	Solution
21	Temporary EEprom problem	Press the E button to deletet the error message
120	HI alert - Unit Height changed	Check laser beam elevation
130	Mechanical Limit during Grade Match / PlaneLok	Check if existing slope is above +/-9%
140	Laser beam blocked	Make sure there are no obstacles between the transmitter and the HL760
141	Time Out - Alignment could not be completed in the allowed time	Check radio operating range/ connection; check stable laser setup
150	No receiver – HL760 Receiver not available for single axis automatic function	Make sure the HL760 is on and paired
152	No receiver - The laser searched for the receiver but could not find it	Check the operating range for auto function and restart the auto alignment
153	Lost Receiver - The laser searched and found the receiver but then lost it	Check the operating range for auto function and restart the auto alignment
155	More than two paired receivers are available during automatic alignment function.	Make sure only two HL760 receivers are turned on.
160	X or Y level sensor defect	Contact service center

Wall mount

1. Nail Holes (3) – allows you to hang the wall mount onto nails or screws.
2. Locking Screws – lock/unlock the wall mount at the wall molding or floor track.
3. Locking Knob - tightens/loosens the sliding bracket in place after it has been positioned along the elevation scale.
4. 5/8“–11 Laser Mount – lets you connect the laser to the wall mount.
5. Fine height adjustment screw - lets you fine adjust the laser’s position on the wall mount.
6. Adjustment screw – adjust the slider‘s movement tightness considering the laser weigth.
7. Elevation Scale – provides graduated marks that indicate the position of the laser relative to the wall molding height. The adjustment range on the scale is from 3.1 cm (1 1/4 in.) above wall-molding height to 5 cm (2 in.) below it.
   (The “2“ position is aligned with the horizontal centerline at the ceiling target.)
8. Reading Edge – allows you to adjust the laser position appropriate for your application needs.
9. Vertical-Alignment Notch— shows the position of the laser beam when the laser is set up in vertical mode and is moved up to the top (3.1 cm [1 1/4 in.]) stop.



Note: The laser handle should be used as a safety hole - provide a place to tie a safety wire when mounted to a wall.