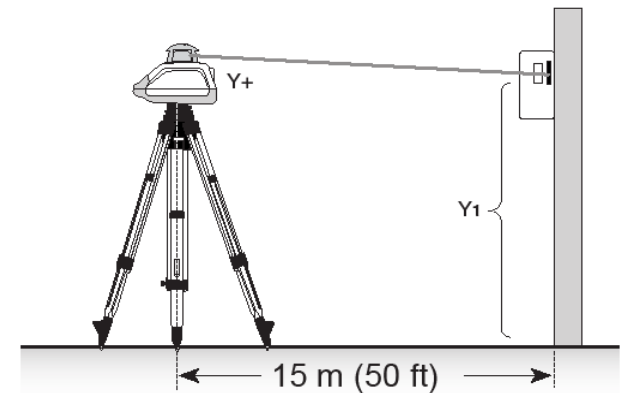# Laser Calibration Check

Checking Calibration of the Y- and X-Axes

1. Set up the tripod 15 m (50 ft) from a wall and make sure the tripod head is leveled.

2. Attach the laser to the tripod with the handle pointing into the opposite direction of the wall.
   Note: Make sure that all three plastic or rubber feet are touching the tripod head.

3. Turn on the laser and allow it to level.
   Note: Let the laser run for 5 minutes to warm up the leveling system.

4. If the green LED starts flashing every 4 seconds, the calibration check can be performed.

Laser Calibration Check

5. Raise/lower the receiver until you get an on-grade reading for the +Y axis.

6. Using the on-grade marking notch or the flat surface on top (right above the photocell) as a reference, make a mark on the wall.

Note: For increased precision, use the fine-sensitivity setting (1,5 mm//1/16 in.) on the receiver.

In order to avoid wrong markings caused by the deadband of the receiver, always adjust the receiver to the on-grade position coming from the same side (bottom or top)!

Laser Calibration Check

7. Rotate the laser 180° (-Y axis toward the wall) and allow the laser to re-level.
   Note: Make sure that all three plastic or rubber feet are still touching the tripod head.

8. Raise/lower the receiver until you get an on-grade reading for the –Y axis and make a second mark on the wall.

9. The distance between the two marks (Y_1 and Y_2) determines the calibration error. If they differ more than 3 mm//1/8 in. (HV101/LL100) at 15 m (50 ft), the laser needs calibrating on the Y-axis.

10. After checking the Y-axis, rotate the laser 90°. Repeat the above starting with the + X axis facing the wall.

11. When made the mark for the +X axis, rotate the laser again 180° (-X axis toward the wall) and allow the laser to re-level. Make the next mark at the wall and check the difference between the two X axis marks.
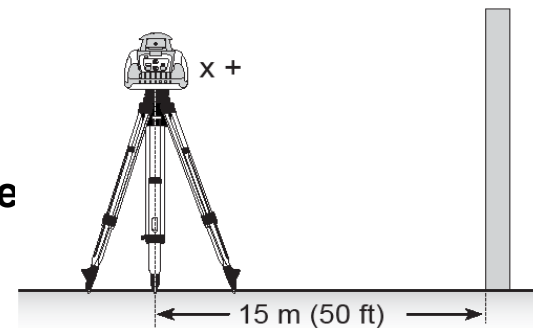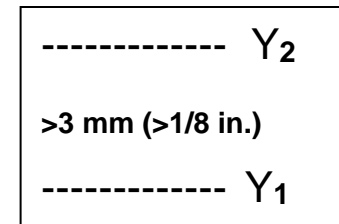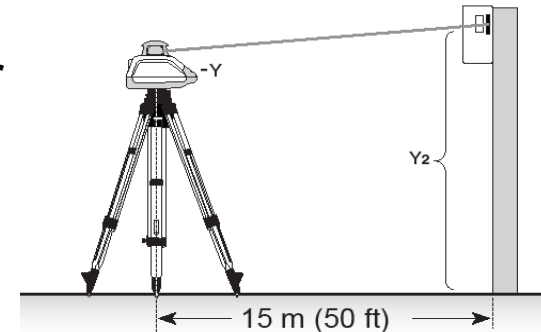
HV101 Entering the Service Mode

For best result, place the unit on a level platform or a leveled tripod to begin calibration.

The unit must be leveled on both X- and Y-axes before proceeding to calibration mode. Turn the unit on and allow it to level, then turn it off after both axes are leveled.

1. To get the unit into **service** mode make sure the unit has been turned off.

2. Press and hold the Power Button and then press and release the **Rotation** Button two times

3. Release the **Power** Button in less than 1 second after the Rotation button has been released.

   Note: The unit is now in the service mode.

   Note: All LEDs start flashing once a second to confirm the service mode has been entered.

HI/Man-LED

Level-LED

Rotation button

Battery-LED

PowerButton
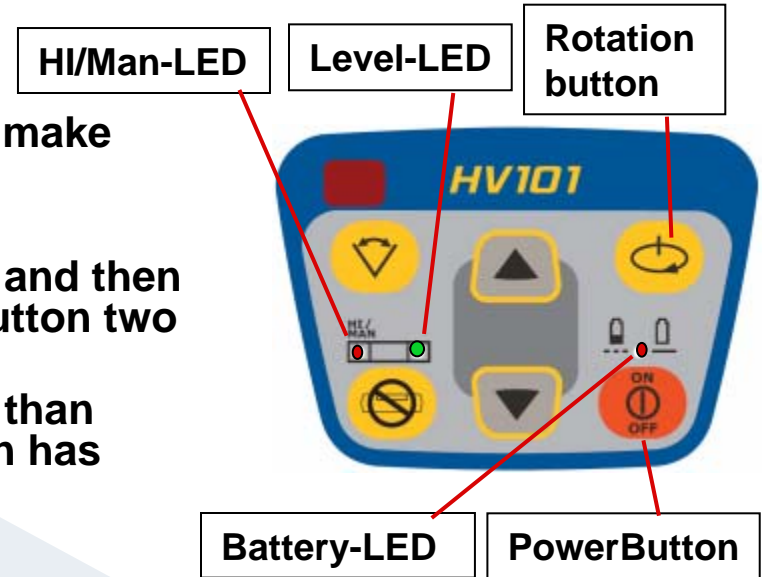
HV101 Calibration Procedure (X-Axis)

The unit must be leveled on both X- and Y-axes and has to run in **rotation mode with 600 rpm** before proceeding with calibration mode.
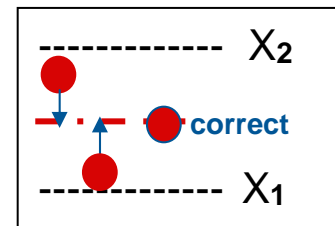
1. To get the unit into **X-axis calibration** mode, press and release the **Up** button at the laser or remote control. (Laser beam is off, the battery LED is flashing in a rate of 2 seconds.)

• After starting the X-axis calibration mode, the compensator will drive from the current position to one end of the X-axis limit then back to the other and stop at the center position. (Laser beam is flashing until the rotor stops at the center position, then the beam is on.) **Wait 10 seconds until the unit starts the rotation (600rpm). Now you can start calibrating the unit.**

2. To have access to the calibration change, press and release the **rotation** button (Laser beam is on, battery LED is on).

Up Arrow Button

Rotation Button

Battery-LED

PowerButton
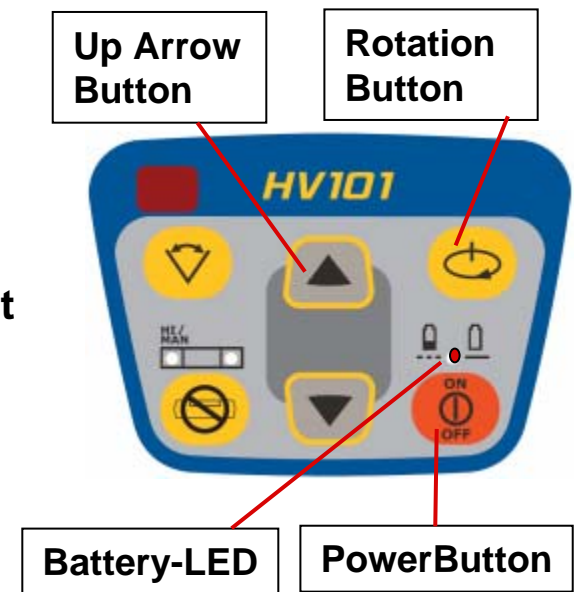
HV101 Calibration Procedure (X-Axis)

3. To correct a calibration error, mark a new line at the midpoint of the distance between the first and second readings of the X-axis, and calibrate the unit to that point pressing **repeatedly** the Up and Down buttons on the laser or the remote control.

Up and Down Arrow Button

4. If the beam has been adjusted correctly, press and release the **rotation** button at the laser or remote control (laser beam turns off, unit needs four seconds to check and store the new calibration data).

- If the calibration was inside the calibration range, the unit goes back to the service menu (laser beam off, all LEDs flash).

- If the laser beam and the battery LED flash two times a second, the unit is outside of the field calibration range and can only be calibrated at an authorized service center.
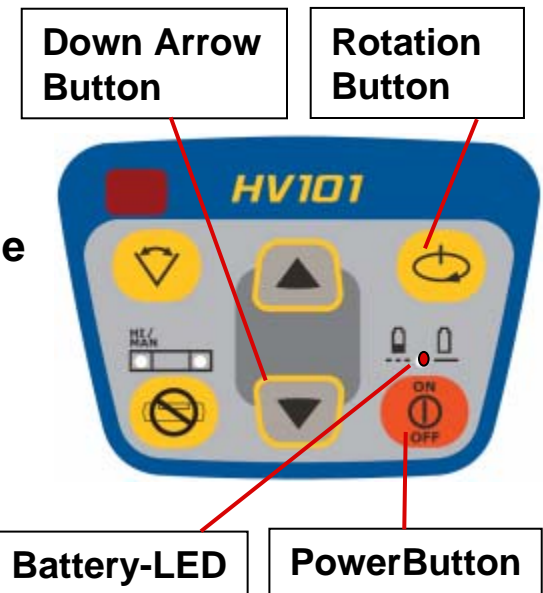
HV101 Calibration Procedure (Y-Axis)

- Note: If calibration is not required, press and release the power button and the previous calibration value will be maintained.

1. To get the unit into **Y-axis calibration** mode press and release the **Down** button at the laser or remote control. (The laser beam is off, the battery LED is flashing in a rate of 2 seconds.)

- After starting the Y-axis calibration mode, the compensator will drive from the current position to one end of the Y-axis limit then back to the other and stop at the center position. (Laser beam is flashing until the rotor stops at the center position, then the beam is on.) **Wait 10 seconds until the unit starts the rotation (600rpm). Now you can start calibrating the unit.**

2. To have access to the calibration change, press and release the **rotation** button (Laser beam is on, battery LED is on).

Down Arrow Button

Rotation Button

Battery-LED

PowerButton

HV101

HV101 Calibration Procedure (Y-Axis)

3. To correct a calibration error, mark a new line at the midpoint of the distance between the first and second readings of the Y-axis, and calibrate the unit to that point pressing **repeatedly** the Up and Down buttons on the laser or the remote control.

Up and Down Arrow Button

4. If the beam has been adjusted correctly, press and release the **rotation** button at the laser or remote control (laser beam turns off, unit needs four seconds to check and store the new calibration data).

*   If the calibration was inside the calibration range, the unit goes back to the service menu (laser beam off, all LEDs flash).

*   If the laser beam and the battery LED flash two times a second, the unit is outside of the field calibration range and can only be calibrated at an authorized service center.
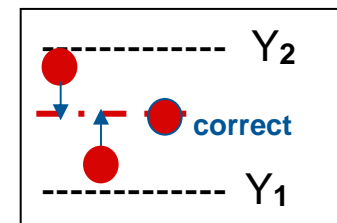
Laser Calibration Check (Z-Axis)

Checking Calibration of the vertical (Z-Axis) on HV101

To check vertical calibration, you need a plumb bob with at least 10m (30 ft) of string.

1. Suspend the plumb bob from the ceiling of a room whose ceiling height is at least 10m (30 ft).

2. Set up the laser in vertical so that the laser beam strikes the top of the string.
   Stop the beam's rotation.

3. Using the left/right arrow button, guide the beam from the top of the string to the bottom of it.

4. Look for any deviation in the beam from the top of the string to the bottom of it.
   If the deviation is more than 2 mm (3/32 in.), the vertical axis needs calibrating.

10 m (30 ft)
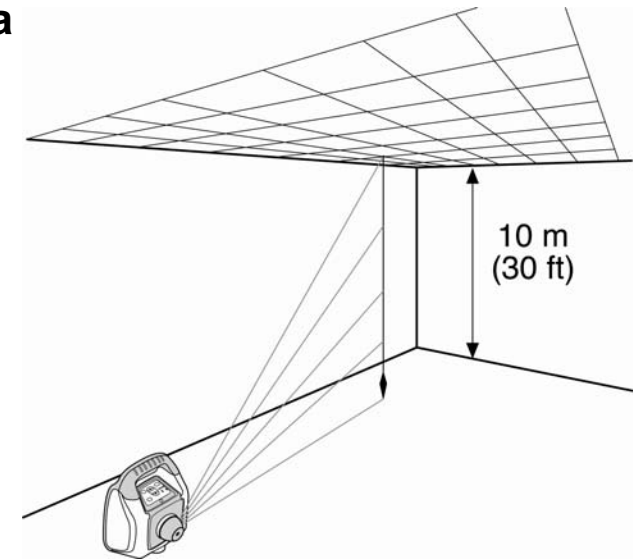
HV101 Calibration Procedure (Z-Axis)

Note: The unit must be setup vertical and leveled on the Z-axis and has to run in rotation mode with 600 rpm before proceeding to calibration mode.

1. To get the unit into **Z-axis calibration** mode press and release the **Scan** button at the laser or remote control. (The laser beam is off, the battery LED is flashing in a rate of 2 seconds.)

- After starting the Z-axis calibration mode, the compensator will drive from the current position to one end of the Z-axis limit then back to the other and stop at the center position. (Laser beam is flashing until the rotor stops at the center position, then the beam is on.) **Wait 10 seconds until the unit starts the rotation (600rpm). Now you can start calibrating the unit.**

2. To have access to the calibration change, press and release the **rotation** button (Laser beam is on, battery LED is on).

Scan Button

Rotation Button

HV101

Battery-LED

PowerButton
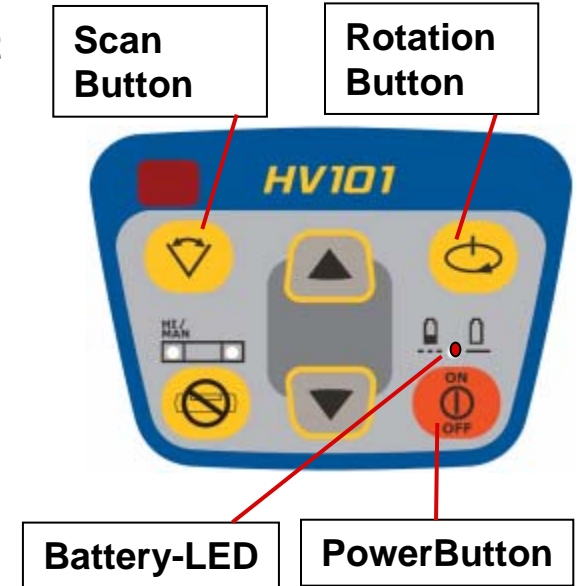
3. To correct a calibration error, mark a new line at the midpoint of the deviation between the top and bottom of the string readings of the Z-axis, and calibrate the unit to that point pressing **repeatedly** the Up and Down buttons on the laser or the remote control.

4. If the beam has been adjusted correctly, press and release the **rotation** button at the laser or remote control (laser beam turns off, unit needs four seconds to check and store the new calibration data).

- If the calibration was inside the calibration range, the unit goes back to the service menu (laser beam off, all LEDs flash).

- If the laser beam and the battery LED flash two times a second, the unit is outside of the field calibration range and can only be calibrated at an authorized service center.
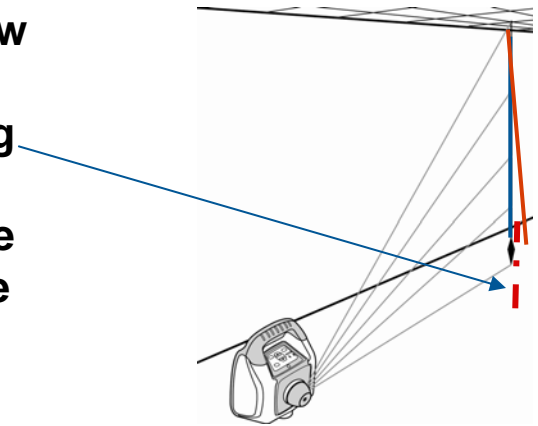
Up and Down Arrow Button

HV101 Calibration Procedure (X, Y, Z)

Note: If calibration is not required, press and release the power button and the previous calibration value will be maintained.

Note: Calibration may be performed with the stopped or rotating beam (dynamically). The unit can be calibrated dynamically with the last set rotation speed (rotation speed when unit was powered down from normal operation mode).

<u>Note: The calibration procedure can be done in the field by a trained customer but our preference is that calibration should be performed at the service center!</u>