Laser Tech TruPulse® 360i Compass User Calibration Procedure

TruVector 360° Compass Technology® produces accurate and repeatable range, inclination & azimuth measurement values. It recognizes conditions that will affect the reliability of the compass accuracy and prompt you to recalibrate.

The TruPulse 360i produces accurate and repeatable azimuth and inclination results. This is accomplished by combining a 3-axis magnetic sensor with a 3-axis tilt sensor - so the TruPulse 360i always knows its position in 3D space, and the direction of the Earth's magnetic field. TruVector technology allows you the ultimate freedom to "measure any angle." No tilt or roll limitations when taking a measurement.

To begin the routine, you should be holding the TruPulse facing towards Magnetic North. Always perform outside and away from magnetic interference. The user compass calibration allows the unit to discover its own magnetic fields and to mathematically correct for them. See below about magnetic interference.

The compass is susceptible to magnetic interference and should be kept away from all ferro-magnetic materials and strong magnetic fields when performing the compass calibration. Do not perform the calibration inside a building, or in or near vehicles. The user calibration for the compass merely compensates for the magnetic changes of the unit itself.

Procedure

1. Short Press Menu button to enter Settings menu.
2. Press Menu button to scroll to the User Calibration option.
3. Press the Select Button to enter the User Calibration options.
4. Press Navigation Buttons to "Yes 360i Calbrt" display. Press the Select button.
5. At each step, wait approximately 1 second before pressing the FIRE button.
    a. Then wait another second before moving to the next position. It is important that the unit is held steady when the button is pressed.

Calibration Sequence

1. Face North (+/- 10 degrees), hold in Position 1 **(C1_Fd)**, press FIRE button.
2. Hold in Position 2 **(C2_dn)**, press FIRE button.
3. Hold in Position 3 **(C3_bc)**, press FIRE button.
4. Hold in Position 4 **(C4_UP)**, press FIRE button.
5. Hold in Position 5 **(C5_rF)**, press FIRE button.
6. Hold in Position 6 **(C6_rd)**, press FIRE button.
7. Hold in Position 7 **(C7_rb)**, press FIRE button.
8. Hold in Position 8 **(C8_rU)**, press FIRE button.
9. Hold in position 9 **(C9_UF)**, press FIRE button.
10. Hold in position 10 **(C10_Ur)**, press FIRE button.
11. Hold in position 11 **(C11_Ub)**, press FIRE button.
12. Hold in position 12 **(C12_UL)**, press FIRE button.
13. If Fail Message appears, press FIRE or SELECT button and repeat procedure.
    a. The previous compass user field calibration is restored.
14. If Pass Message appears, the new calibration is saved:
    a. Press FIRE or SELECT button return to the measurement screen.

Laser Tech TruPulse® 360i Compass User Calibration Procedure

1

TruPulse Facing North

C1_Fd

2

C2_dn

3

C3_bc

4

C4_UP

5

C5_rF

6

C6_rd

7

C7_rb

8

C8_rU

9

C9_UF

10

C10_Ur

11

C11_Ub

12

C12_UL

Please Note: TruPulse 360i image orientations are from the field user point of view.

Fail Messages

- FAiL2: Magnetic saturation error. Local magnetic field too strong. User should move to a more suitable location and remove metallic and electronic objects from their person.
- FAiL4: Calibration convergence error. User should move to a more suitable location and remove metallic and electronic objects from their person.
- FAiL6: Orientations were wrong during the calibration.

NOTE If the calibration fails, the previous calibration is restored.

Tips

- Always recalibrate your compass when the Calibration icon ✔ flashes. This will flash whenever:
  - Large temperature variations since last calibration.
  - Unit has been exposed to magnetic fields which may subtly magnetize it and its batteries.
  - Battery voltage has changed from last calibration
  - Battery door was opened
  - After a firmware update
- If compass calibration fails repeatedly, perform the User Tilt Calibration then repeat the Compass Calibration steps.

Laser Tech TruPulse® 360i Compass User Calibration Procedure

TruPulse 360i Models Magnetic Interference Guidelines

The following list represents minimum distances that should be kept between the TruPulse 360i models and some common objects to prevent interference to the TruPulse compass. Be aware of what's around you and what you're carrying. Distance yourself from possible disruptions to get a good reading.

A user can use nonferrous metals and nonferrous alloys around a compass. These metals are not based on iron and include alloys of aluminum, copper, titanium, zinc, nickel, cobalt, tungsten, precious metals, and refractory metals.

Be aware that magnetized materials like soft iron, steel, and some stainless steels can become magnetized and demagnetized as they rotate relative to the earth's magnetic field.

Minimum 6″

- Metal Rim Eyeglasses
- Pen/Pencil
- Metal Watch Band
- Pocket Knife
- Belt Buckle
- Batteries
- Binoculars
- Cell Phone
- Keys
- Camera/Camcorder
- Survey Nails
- Metal Tape Measure
- Metal Zippers/Buttons

Minimum 18″

- Clipboard
- Data Collector
- Computer
- GPS/GNSS Receivers/Antennas
- Speakers
- 2-Way Radio
- Hand Gun
- Hatchet
- Cell Phone Case w/ Magnetic Closure

Minimum 6′

- Bicycle
- Fire Hydrant
- Road Sign
- Sewer cap or drain
- Steel Pole
- ATV
- Guy Wire
- Magnets
- Barbed-Wire/Chain-l\Linked Fence
- GPS/GNSS receivers with magnets
- Data Collectors/Smart devices with magnets

Minimum 15′

- Electrical Box
- Power line
- Building Concrete & Steel

Minimum 30′

- Vehicles/EVs
- Steel/Metal Building
- Bridges
- Heavy Machinery

LASER TECH
info@lasertech.com 1.303.649.1000 lasertech.com/Professional-Measurement