

Firecore FC-32N

Firecore Professional Optical Transit Level FC-32N Instruction Manual

Model: FC-32N

1. INTRODUCTION

This manual provides detailed instructions for the safe and effective operation, setup, and maintenance of your Firecore Professional Optical Transit Level, model FC-32N. Please read this manual thoroughly before using the device to ensure optimal performance and safety.

2. SAFETY INFORMATION

Always observe the following safety precautions to prevent injury and damage to the device:

- Do not look directly into the sun through the telescope.
- Ensure the device is securely mounted on a stable tripod before use.
- Protect the device from extreme temperatures, moisture, and direct impact.
- Store the device in its hard carrying case when not in use to protect the compensator.
- Keep out of reach of children.

3. PACKAGE CONTENTS

Verify that all items are present in your package:

- 1 x Firecore FC-32N Optical Level
- 1 x Plumb Bob
- 1 x Adjusting Pin
- 1 x Hexagonal Wrench
- 1 x Hard Carrying Case
- 1 x User Manual



Figure 3.1: Contents of the Firecore FC-32N Optical Level package, including the level, plumb bob, adjusting pin, hexagonal wrench, hard carrying case, and user manual.

4. PRODUCT FEATURES

- **32X Magnification:** Powerful telescope with 32X magnification and 36mm aperture diameter for clear images up to 393ft working distance.
- **High Accuracy:** Achieves 1/16" accuracy at 100ft with a standard deviation of 1.0 mm per kilometer (Dual Barrel Leveling).
- **Magnetic Damping:** Internal magnetic damping system quickly stabilizes the system and reduces vibration effects, ensuring stable and accurate measurements.
- **Lockable Self-Leveling Compensator:** Features a self-leveling compensator with magnetic damping and a shipping lock to protect the pendulum during transport and extend service life.
- **Durable Construction:** Metal body with IP54 protection against dust and water splashes.

High-magnification & precision optical level



Magnification

32×

**Clear objective
aperture**

36mm

**Standard Devia-
tion for 1 km**

1.0mm

**Short focusing
distance**

30mm

**Compensator
setting accuracy**

±0.3"

**Working range
of compensator**

±15°

Figure 4.1: Visual representation of key specifications including 32x magnification, 36mm objective aperture, 1.0mm standard deviation for 1km, 30mm short focusing distance, ±0.3" compensator setting accuracy, and ±15° working range of compensator.



Figure 4.2: The Firecore FC-32N Optical Level covered in water droplets, illustrating its IP54 dust and splash protection.

5. SETUP AND ALIGNMENT

1. **Mounting on Tripod:** The level has a 5/8" mounting thread on the bottom. Securely mount the optical level onto a compatible tripod.
2. **Rough Leveling:** Adjust the tripod legs to bring the circular bubble roughly to the center.
3. **Fine Leveling:** Use the three blade leveling screws on the base of the instrument to precisely center the circular bubble. Rotate two screws simultaneously in opposite directions, then use the third screw to fine-tune.
4. **Unlock Compensator:** Ensure the shipping lock for the self-leveling compensator is disengaged before operation.



Figure 5.1: The Firecore FC-32N Optical Level securely mounted on a tripod, ready for setup and leveling.



Figure 5.2: A close-up top view of the optical level, highlighting the circular bubble for precise leveling and the focusing knob for clear viewing.

6. OPERATING INSTRUCTIONS

1. **Power On:** The device is mechanical and does not require power. Once leveled, it is ready for use.
2. **Aiming:** Use the 90-degree prism or the coarse aiming sight to roughly align the telescope with your target (e.g., a leveling rod).
3. **Focusing:** Look through the eyepiece and use the focus knob to achieve a sharp image of the target.
4. **Reading:** Once the image is clear and the compensator has settled (the crosshairs are stable), read the measurement on the leveling rod.
5. **Horizontal Angle Measurement:** The base of the level features a horizontal circle for measuring angles. Rotate the instrument to align with your first point, set the circle to zero, then rotate to the second point and read the angle.

7. CALIBRATION

Regular calibration ensures the accuracy of your optical level. If you suspect the level is out of calibration, perform the following checks and adjustments:

1. **Circular Bubble Adjustment:** If the circular bubble does not center when the instrument is leveled, use the

hexagonal wrench to adjust the screws around the bubble until it centers properly.

2. **Crosshair Adjustment (Collimation):** This is a more advanced procedure. It typically involves setting up the level between two points, taking readings, and then adjusting the crosshairs using the adjusting pin on the eyepiece. Refer to specialized surveying guides or consult a professional if you are unsure about this procedure.

Note: Incorrect calibration can lead to inaccurate measurements. If in doubt, seek professional assistance.

8. MAINTENANCE

- **Cleaning:** Use a soft, lint-free cloth to clean the lenses and exterior of the instrument. Do not use abrasive cleaners or solvents.
- **Storage:** Always store the optical level in its hard carrying case in a dry, temperature-controlled environment. Ensure the compensator lock is engaged during storage and transport.
- **Inspection:** Periodically inspect the tripod, leveling screws, and other components for wear or damage.

9. TROUBLESHOOTING

Problem	Possible Cause	Solution
Inaccurate readings	Instrument not level, compensator locked, or out of calibration.	Re-level the instrument, ensure compensator is unlocked, perform calibration.
Blurred image	Improper focus, dirty lens.	Adjust focus knob, clean lenses with a soft cloth.
Crosshairs not stable	Excessive vibration, compensator issue.	Move to a more stable location, check compensator lock. If issue persists, contact support.

10. SPECIFICATIONS

Feature	Specification
Model	FC-32N
Magnification	32X
Objective Aperture Diameter	36mm
Working Range	Up to 393ft (120m)
Leveling Accuracy	1/16" at 100ft (1.0 mm per kilometer)
Compensator Type	Magnetic Damping, Self-Leveling with Shipping Lock
IP Rating	IP54 (Dust and Splash Proof)
Mounting Thread	5/8"
Material	Metal
Item Weight	2.44 Kilograms

11. WARRANTY AND CUSTOMER SUPPORT

Firecore is committed to providing high-quality products and excellent customer service. If you encounter any issues or have questions regarding your FC-32N optical level, please contact our customer service team.

- **Customer Service:** Available 7 days a week, 24 hours a day. Refer to the contact information provided in your product packaging or on the official Firecore website.
- **Warranty:** Specific warranty details are typically included with your product documentation. Please retain your proof of purchase for warranty claims.

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ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question