FUP E32 Automatic Level Machine

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Product Introduction

The FUP E32 automatic level is a high-precision optical instrument designed for national second-order and third-order leveling, construction surveying, deformation monitoring, mining surveys, and heavy machinery alignment. Equipped with an advanced automatic compensator, it eliminates manual leveling errors and dramatically improves field efficiency. The compensator provides stable horizontal line-of-sight even under slight tilts, ensuring reliable height difference measurements. With a working temperature range of -30° C to +50° C, the E32 performs consistently in extreme environments. Its 32x magnification and clear optics deliver sharp readings for long-distance surveys. Ideal for professional surveyors and engineers, this robust leveling tool reduces rework and boosts productivity on any job site.

Product Key Selling Points

☑ High-Precision Automatic Compensator for Consistent Accuracy

The FUP E32 features a magnetic-damped automatic compensator that rapidly sets the line of sight horizontal within its working range. This eliminates the need for meticulous foot screw adjustment, saving time and reducing operator fatigue. Even on uneven terrain, the compensator ensures repeatable accuracy within 0.5" for reliable height difference results. Perfect for national second/third-order leveling tasks where millimeter-level precision is mandatory.

☑ Wide Operating Temperature for Extreme Environments

Rated from -30° C to +50° C, the FUP E32 withstands freezing cold and scorching heat without optical fogging or compensator lag. This makes it a trusted tool for infrastructure projects in deserts, high-altitude regions, or arctic zones. No long warm-up time needed – just set up and measure. Field crews can maintain productivity regardless of weather, reducing downtime caused by equipment temperature sensitivity.

☑ Rugged & Water-Resistant Construction for Jobsite Durability

Built with a sealed metal body, the E32 resists dust, light rain, and accidental bumps. The rubber armored casing absorbs shocks during transport or setup on rocky grounds. Unlike fragile consumer-grade levels, this instrument survives daily abuse on construction and mining sites. Low maintenance costs and long service life mean lower total cost of ownership for surveying teams.

☑ Fast & Easy Distance and Height Measurement Workflow

Using the stadia lines in the reticle, the E32 enables direct distance estimation without a separate EDM. The simple height difference calculation (a – b) speeds up profile leveling and contour mapping. For contractors needing rapid cross-section checks or foundation elevation monitoring, this all-in-one optical solution eliminates battery dependence and complex electronics – just look, read, and record.

☑ Bright 32x Magnification Optics for Long-Sight Readings

The 32x achromatic objective lens delivers sharp, high-contrast images even in low light or haze. Clear target visibility up to 100+ meters reduces the need to move the instrument frequently. Surveyors covering large open-pit mines or long drainage lines can read staff from a single setup, cutting tripod repositioning time by half. Anti-glare coating minimizes eye strain during all-day operation.

Product Specifications

Parameter	Details
Model	FUP E32
Telescope magnification	32x
Effective aperture	40 mm
Field of view	1° 20'
Shortest focusing distance	0.5 m
Standard deviation per km double run (height)	1.0 mm
Compensator type	Magnetic-damped automatic
Compensator working range	±15'
Compensator setting accuracy	±0.3"
Horizontal accuracy	0.5"
Circular bubble sensitivity	8' / 2 mm
Stadia ratio	1:100
Operating temperature	-30° C ~ +50° C
Storage temperature	-40° C ~ +70° C
Dust/water protection	IP54 (splash and dust resistant)
Tripod connection	5/8" x 11 thread
Weight (instrument only)	1.8 kg
Dimensions	130 x 145 x 210 mm
Power source	No battery required (optical-mechanical)

Included accessories	Protective carrying case, lens cap, cleaning cloth, hex key, inspection certificate

Product Features

Section 1: Automatic Compensation – Eliminate Manual Leveling Errors

The magnetic-damped compensator inside the FUP E32 automatically maintains a horizontal line of sight within ±15' tilt range. In traditional manual leveling, operators spend minutes adjusting foot screws until the circular bubble is perfectly centered – a process prone to parallax and misreading. With automatic compensation, you simply roughly level the instrument, and the compensator takes over. This removes a common pain point: time wasted on tedious bubble centering, especially on soft or uneven ground where settling occurs. Field crews can complete setups in under 10 seconds, boosting daily survey output by 30%. For solo operators, the compensator reduces mental load and guarantees repeatable heights even after accidental kicks or vibration. Result: faster, fatigue-free surveying with first-time-right accuracy.

Section 2: Long-Focus 32x Optics – See Clearly from Safe Distance

Many accidents on construction sites happen when workers get too close to unstable slopes or heavy machinery to read a leveling staff. The FUP E32's 32x magnification allows clear staff readings from over 100 meters away, keeping operators at a safe distance. Combined with a 40mm objective lens, light transmission is excellent even at dusk or in shaded ravines. Customers in open-pit mining and road construction often complain about constant repositioning due to poor visibility. With the E32, a single setup covers longer sections, reducing tripod moves and thus measurement time. The achromatic lens eliminates color fringing, making graduation marks crisp. For projects like pipeline elevation control or bridge pier alignment, this optical power directly translates into fewer traverses and lower risk of slips or falls.

Section 3: All-Weather Reliability – No Downtime Due to Temperature or Moisture

Hydrological monitoring or winter construction often forces crews to wait for equipment to acclimate. The FUP E32 operates from -30°C to +50°C without internal fogging or compensator sluggishness. Its IP54-rated body seals out rain splashes and airborne dust – common in concrete batch plants or windy desert sites. A typical pain point for low-cost levels is that lubricants thicken in cold weather, making focusing stiff; the E32 uses low-temperature grease to maintain smooth operation. Similarly, hot asphalt jobs cause optical distortion in cheap scopes – not here. This reliability means you can schedule work year-round without renting special winter-grade instruments. For international buyers in Siberia or the Sahara, the E32 delivers consistent performance, reducing warranty claims and project delays.

Section 4: Direct Distance Measurement via Stadia Lines – No EDM Required

Electronic distance meters (EDMs) require batteries, line-of-sight calibration, and can fail in bright sunlight. The FUP E32 integrates stadia hairs in the reticle, enabling quick distance calculation using the formula: Distance = (upper stadia – lower stadia) × 100. Surveyors performing topographic mapping or stockpile volume estimation often need approximate distances to set up control points. With the E32, you get both height difference and horizontal

distance in one sighting – no extra power source, no signal interference, and no learning curve. This hybrid capability is a lifesaver for remote area work where batteries run out or chargers are unavailable. The practical benefit: lighter field gear, faster data collection, and reduced reliance on electronics that can fail in wet or dusty conditions.

Section 5: Rigid Metal Construction – Survive Drop, Vibration and Daily Abuse

Plastic-bodied levels crack when knocked over by wind or dropped during rush hour. The FUP E32 features a die-cast aluminum body with shock-absorbing rubber armor. Field reports from mining and heavy civil contractors highlight that their biggest equipment cost is not calibration but physical damage. The E32's metal hub holds the compensator firmly even after repeated vehicle transport on unpaved roads. The circular bubble is protected by a recessed housing, and the focusing knob is metal-geared for years of rotation without stripping. This ruggedness reduces downtime for repairs and extends calibration intervals. For fleet managers, a durable level like the E32 lowers replacement frequency, directly improving ROI. Additionally, the 5/8" threaded base fits all standard heavy-duty tripods, eliminating wobble that causes misreadings.

Applications & Pain Points Solved

Scenario	Customer Pain Point	How FUP E32 Solves It
National Second-Order Leveling (Benchmark transfer)	Need sub-millimeter accuracy over long loops; manual bubble leveling is too slow and error-prone.	The ±0.3" compensator setting accuracy ensures consistent height transfer. Setup in 10 seconds, then walk the line – no repeated bubble checks.
Foundation Excavation Depth Control (Construction)	Excavators dig too deep or shallow due to poor laser level visibility in bright sun.	The 32x optical scope with sunshade provides clear staff reading even in direct sunlight. Reduces concrete over-pour waste by 15%.
Mining Pit Deformation Monitoring	Frequent blasting shocks knock levels out of calibration; dust clogs moving parts.	Rugged metal body and sealed compensator resist vibration and dust. Quick re-leveling after blast without recalibration.
Pipeline Gradient Surveying (Oil/Gas)	Long linear sites require hundreds of setups; battery-powered digital levels run out of charge.	No battery needed. Stadia lines give both slope and chainage distance per sight. One person can work 8 hours continuous.
Heavy Machinery Alignment (Paper mill, turbine base)	Laser alignment tools are expensive and fragile; need simple, reliable height reference.	The automatic compensator gives a true horizontal plane. Use with precision staff to level machine bases to 0.1mm tolerance at low cost.

Q&A

Q1: What is the accuracy of the FUP E32 for third-order leveling?

A: The FUP E32 achieves a standard deviation of 1.0 mm per kilometer double run, which meets national second-order and third-order leveling specifications. For typical construction layout, it is

more than sufficient.

Q2: Does the automatic compensator require batteries or external power?
A: No. The compensator uses magnetic damping and gravity – a purely mechanical system. No batteries, no charging, no power failure. It works indefinitely in remote areas.

Q3: Can I use this level in rainy or dusty conditions?
A: Yes. The E32 has an IP54 rating, meaning it is protected against dust ingress and splashing water from any direction. However, do not submerge it. Wipe dry after use in heavy rain.

Q4: How do I calibrate or check the compensator?
A: A simple two-peg test can verify the line of sight. The compensator is factory-set and drift-free for normal use. If needed, calibration screws are accessible under the cover – a full manual is included.

Q5: What tripod thread does the E32 use?
A: Standard 5/8" x 11 thread, compatible with most surveying tripods (e.g., FUP tripods, Sokkia, Leica, or Topcon). For best stability, use a wooden or heavy-duty aluminum tripod.

Package Contents

1. FUP E32 automatic level instrument (with rubber armor)
2. Hard carrying case (foam-lined, impact-resistant)
3. Adjustable sunshade / lens hood
4. Lens cap (objective & eyepiece)
5. Cleaning cloth (microfiber)
6. Multi-function hex key (for calibrations)
7. Dust-proof cover for base plate
8. User manual (English, with calibration guide)
9. Factory inspection certificate / calibration report

Note: Tripod and leveling staff are sold separately – compatible with standard 5/8" threads and 3m/5m E-shaped staffs.