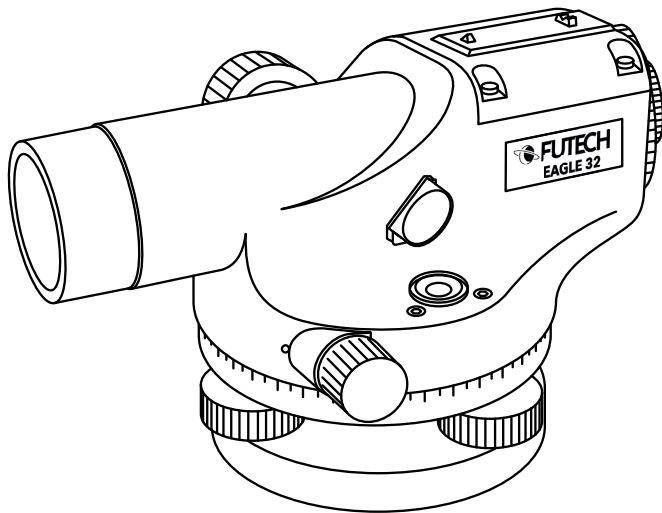


USER MANUAL

072.32 EAGLE 32



EN ENGLISH

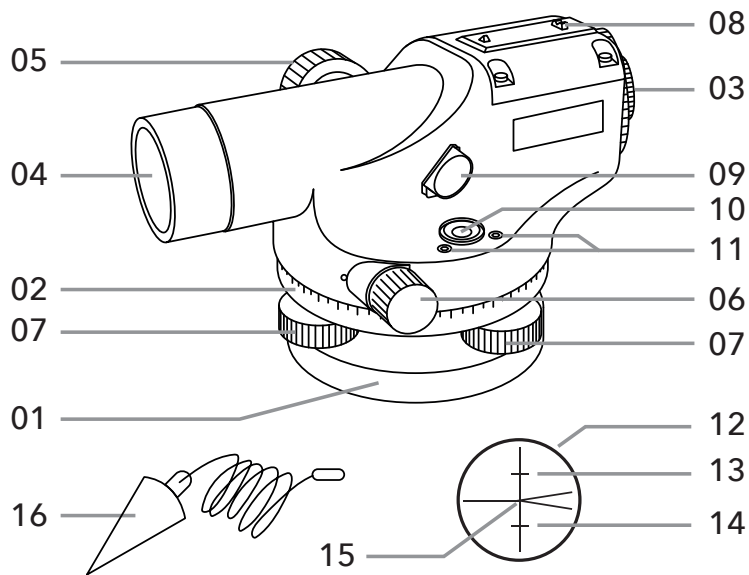
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OVERVIEW



■ HOUSING

- 01 Spheric base plate
- 02 Horizontal turntable
- 03 Eyepiece
- 04 Objective lens
- 05 Focusing knob
- 06 Horizontal drive screw
- 07 Levelling screw
- 08 Open eyepiece
- 09 Bubble level mirror
- 10 Bubble level
- 11 Adjusting screws for bubble level
- 12 Field of view
- 13 TOP stadia line
- 14 BOTTOM stadia line
- 15 Crosshairs
- 16 Plumb bob

SAFETY

Please read the safety instructions provided as separate booklet with the device.

FIRST TIME USAGE

Remove all protection foils.

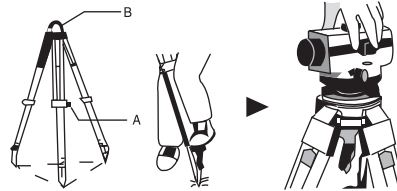
PREPARE THE MEASUREMENT

IMPORTANT

Set up the Eagle 32 on a tripod to ensure its stability.

We recommend a tripod with dome head for maximum working comfort.

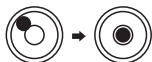
■ SET UP



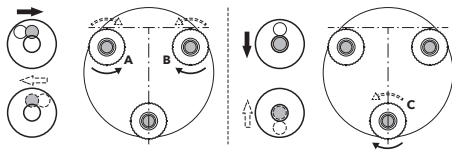
Set up your tripod at the desired height. We recommend setting up the optical viewer at eye level. Push the legs of the tripod firmly into the ground and make sure the tripod is as levelled and stable as possible.

Securely fix the optical level on the tripod with the 5/8" thread in the Spheric base plate [01]. Tighten the locking screw of the tripod.

■ LEVEL THE DEVICE



Level the Eagle 32 by adjusting the Levelling screws [07] so that the air bubble is positioned in the center of the bubble level [10].



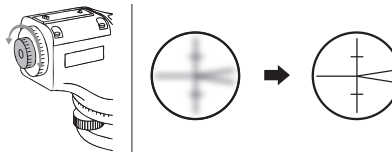
Simultaneously turn levelling screws A and B in opposite directions until the bubble is bisected by the centering line between A and B.

Turn levelling screw C until the bubble is perfectly centered.

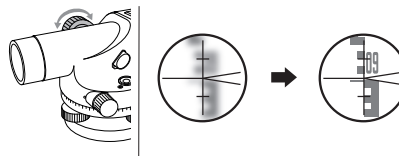
Turn the Eagle32 180° and check if the bubble remains centered.

- *If the bubble remain centered, you can proceed*
- *If the bubble is no longer centered, the Bubble level has to be adjusted. (See further in this manual)*

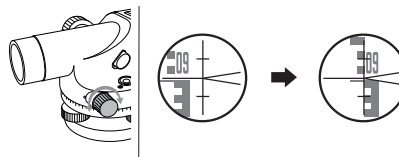
■ FOCUSING



Aim the telescope towards a light-colored/white background. Turn the eyepiece [03] until the crosshairs are in sharp focus.



Aim the telescope at the levelling staff. Turn the focusing knob [05] until the scale on the levelling staff appears clear and sharp.



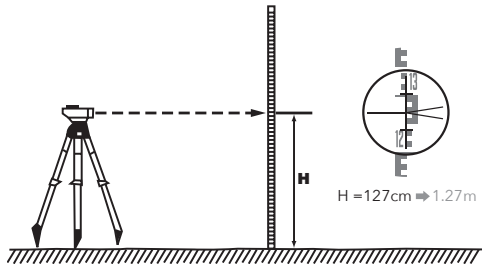
Use the horizontal drive screw [06] to precision-aim at the levelling staff.



When the telescope is correctly focused, the crosshairs and the image of the staff must remain aligned when moving your eye behind the eyepiece.

MEASURING

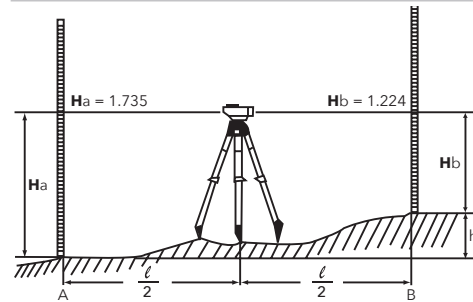
■ MEASURING THE HEIGHT



- Prepare the measurement (see earlier)
- Read the height from the middle line of the crosshairs [15]

In this example:
 $H = 127\text{cm}$ or $1\text{m } 27\text{cm}$.

■ MEASURING THE DIFFERENCE IN HEIGHT



- Prepare the measurement (see earlier)
- For the best accuracy, position the optical level in the middle of both measuring points.
- Read the height from the middle line of the crosshairs [15] from levelling staff A.

In this example:
 $H_a = 1.735\text{ m}$

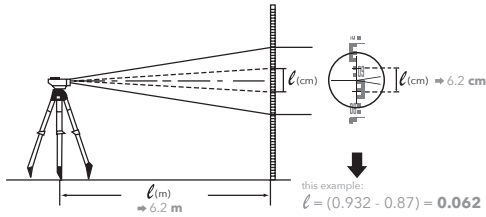
- Read the height from the middle line of the crosshairs [15] from levelling staff B.

In this example:
 $H_b = 1.224\text{ m}$

- Calculate the difference in height by subtracting the lowest result from the highest result.

In this example:
 $h = H_a - H_b = 1.735\text{m} - 1.224\text{m}$
 $= 0.511\text{m}$ or 51.1cm .

■ MEASURING THE DISTANCE



- Prepare the measurement (see earlier)
- Read the heights at the TOP stadia line [13] and the BOTTOM stadia line [14] and calculate the difference between the two values

In this example:

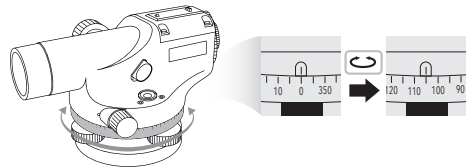
$$l(\text{cm}) = 0.932\text{m (TOP)} - 0.87\text{m (BOTTOM)} \\ = 0.062\text{m} (= 6.2\text{cm})$$

- Calculate the distance by multiplying the calculated difference by 100.

In this example:

$$l(\text{m}) = 0.062\text{m} \times 100 = 6.2\text{m}$$

■ MEASURE ANGLES



NOTE

If your tripod has a hook in the flexing screw, we recommend to pend the plumb bob [16] on the hook. Move your tripod until the your plumb bob is exactly above the corner.

- Prepare the measurement (see earlier)
- Turn the horizontal circle [02] to the 0.
- Aim the telescope to towards the second point.
- Read the angle from the horizontal circle [02].

REMARK

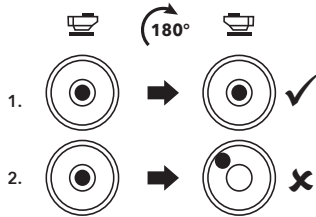
You can use the horizontal turn table [02] to measure existing corners. We don't recommend to use it to layout new corners.



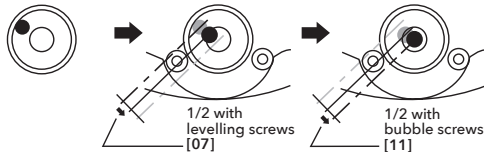
ACCURACY CHECK & ADJUSTING

■ ADJUSTING THE CIRCULAR BUBBLE LEVEL

- Set up a tripod with the telescope and align it by using the levelling screws [07]. The bubble in the bubble level [10] must be centered.
- Turn the telescope 180° and check if the bubble in the bubble level [10] is still centered.



1. The bubble is still centered:
The bubble level [10] is correctly adjusted
2. The bubble is no longer centered:
The bubble level [10] needs to be adjusted



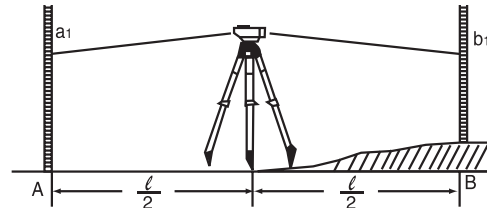
- Turn the Levelling screws [07] until the error is half corrected.
- Use a hex key to turn the adjusting screws for bubble level [11] until bubble level is centered.
- Again, turn the device 180° and check the bubble level [11]
- Depending on the severity of the error, repeat these steps if necessary.

■ CHECKING THE HORIZONTAL LINE

NOTE

Make sure you check the circular bubble level first if this is set correctly.

- Set up the telescope on a tripod halfway between two measuring points. The distance between the two measuring points should be approx. 30m. The bubble in the bubble level [10] must be centered.



- Read the height from the measuring staff A

for example:
 $a1 = 1.924m$

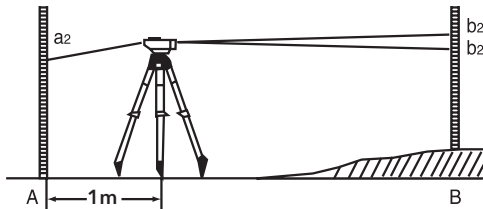
- Turn the measuring tool and read the height from measuring staff B

for example:
 $b1 = 1.712$

- Calculate the difference in height between A and B

in this example:
 $h1 = a1 - b1 = 1.924m - 1.712m = 0.212m$

- Reposition the measuring tool, 1m away from measuring staff A



- Read the new height from measuring staff A

for example:
 $a2 = 1.696m$

In this example:

Since " $h1 = a1 - b1 = 0.212m$ ", the reading of $b2$ needs to be:

$b2 = a2 - h1 = 1.696m - 0.212m = 1.484m$ (with $\pm 3mm$ tolerance).

- Read the new height from measuring staff B.

for example (1):

$b2' = 1.485m$

In this example:

$b2 = b2'$ (with $\pm 3mm$ tolerance)

- If $b2 = b2'$:

Crosshairs [12] should not be adjusted.

for example (2):

$b2 \neq b2'$ (with $\pm 3mm$ tolerance)

In this example:

$b2 \neq b2'$ (with $\pm 3mm$ tolerance)

- If $b2 \neq b2'$:

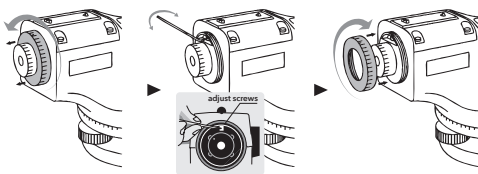
Crosshairs [12] needs to be adjusted.



■ ADJUSTING THE CROSSHAIRS

NOTE

This steps follows only when the crosshairs [12] needs to be adjusted after checking the horizontal line (previous section of this manual). Recheck the horizontal line after adjusting.



- Remove the cover from the eyepiece [3].
- Aim the telescope at measuring staff B and turn the knob to adjust the crosshairs [12] until the difference between the height difference of the horizontal line test and the calculated height difference is less than the tolerance of 3mm.
- Replace the cover of the eyepiece [3].

STORAGE AND TRANSPORT

In order to protect all parts and not lose its accuracy, care must be taken.

Do not stow the device away when it is wet. Allow it to dry completely before stowing it away.

After use, the instrument should be cleaned and kept in its case.

Use only soft brush or soft lint-free cloth for the body and lens tissue to wipe lenses. Do not use abrasive cleaners or solvents.

Comply with the temperature/humidity limits for storing your equipment.

There is a bag of drier (silica) in the case. If this is lost or has lost its efficiency, replace this by a new one.

Avoid shocks, vibrations and extreme heat.

Check the accuracy of your equipment before using it after a long period of storage or transportation.

TECHNICAL SPECIFICATIONS

	072.32 EAGLE 32
Magnification	32X
Accuracy	± 1 mm at 1 km, double run levelling
Levelling accuracy	± 0.3"
Accuracy of bubble level	8' / 2 mm
Compensator working range	± 15'
Compensator	Air-damping compensation system
Horizontal circle protector	360°
Field of view	1°20'
Minimum viewing distance	40 cm
Stadia multiplication	x100
Affective aperture lens size	36 mm
Tripod thread	5/8"
IP rating	IP54
Instrument size	188 x 132 x 140 mm
Net. weight	1.45 kg
Operating temperature	-20 °C ~ ... ~ +50 °C
Storage temperature	-30 °C ~ ... ~ +60 °C



NOTES



USER MANUAL

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