جامعة الفرات الاوسط التقنية /المعهد التقني سماوة

قسم / تقنيات المساحة

المحاضرة الثانية عشر

اسم المادة / المساحة-٢

المرحلة الدراسية / الثانية

العام الدراسي / 2022 - 2023

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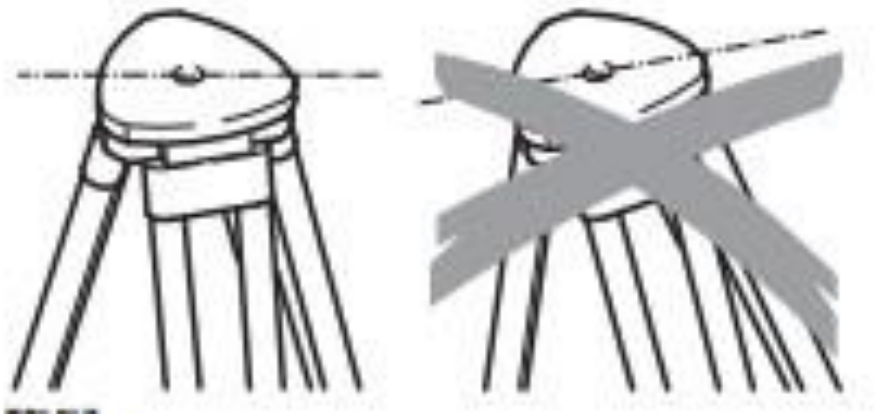
Instrument Setup(Level/Plummet)

- Important features
- • It is always recommended to shield the instrument from direct sunlight and avoid uneven temperatures around the instrument.
- • The laser plummet described in this topic is built into the vertical axis of the instrument. It projects a red spot onto the ground, making it appreciably easier to center the instrument.
- • The laser plummet cannot be used in conjunction with a tribrach equipped with an optical plummet.

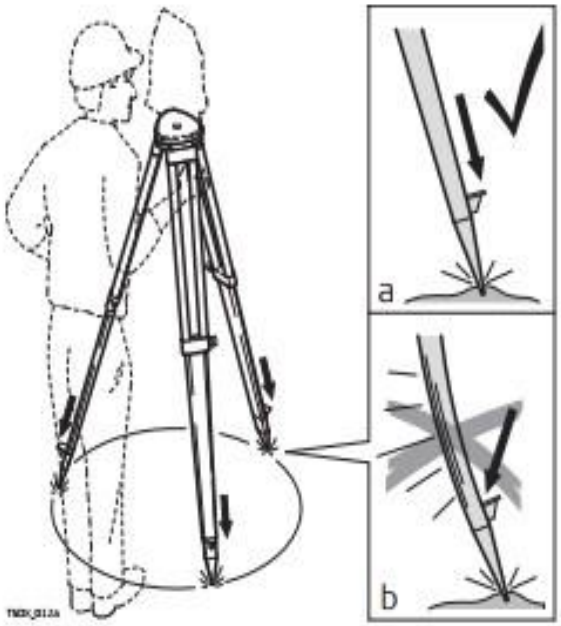
Instrument Setup(Level/Plummet)

- When setting up the tripod pay attention to ensuring a horizontal position of the tripod plate. Slight corrections of inclination can be made with the foot screws of the tribrach. Larger corrections must be done with the tripod legs.



Instrument Setup(Level/Plummet)

- Loosen the clamping screws on the tripod legs, pull out to the required length and tighten the clamps. a In order to guarantee a firm foothold sufficiently press the tripod legs into the ground. b When pressing the legs into the ground note that the force must be applied along the legs. Careful handling of tripod.
- Check all screws and bolts for correct fit.
- During transport always use the cover supplied.
- Use the tripod only for surveying tasks.

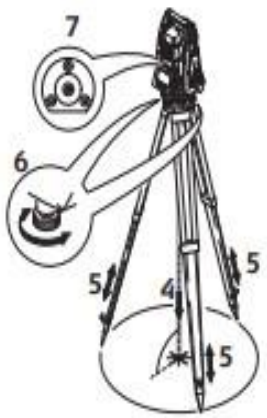


Instrument Setup(Level/Plummet)

- 1. Extend the tripod legs to allow for a comfortable working posture. Position the tripod over the marked ground point, centering it as best as possible.
- 2. Fasten the tribrach and instrument onto the tripod.
- 3. Turn on the instrument, and, if tilt correction is set to 1- or 2-axis, the laser plummet will be activated automatically, and the Level/Plummet screen appears. Otherwise, press FNC from within any application and select Level/Plummet.
- 4. Move the tripod legs (1) and use the tribrach foot screws (6) to center the plummet (4) over the ground point.

Instrument Setup(Level/Plummet)

- 5. Adjust the tripod legs (5) to level the circular level (7).
- 6. By using the electronic level, turn the tribrach foot screws (6) to precisely level the instrument. Refer to "Level up with the electronic level step-by-step".
- 7. Center the instrument precisely over the ground point by shifting the tribrach on the tripod plate (2).
- 8. Repeat steps 6. and 7. until the required accuracy is achieved.

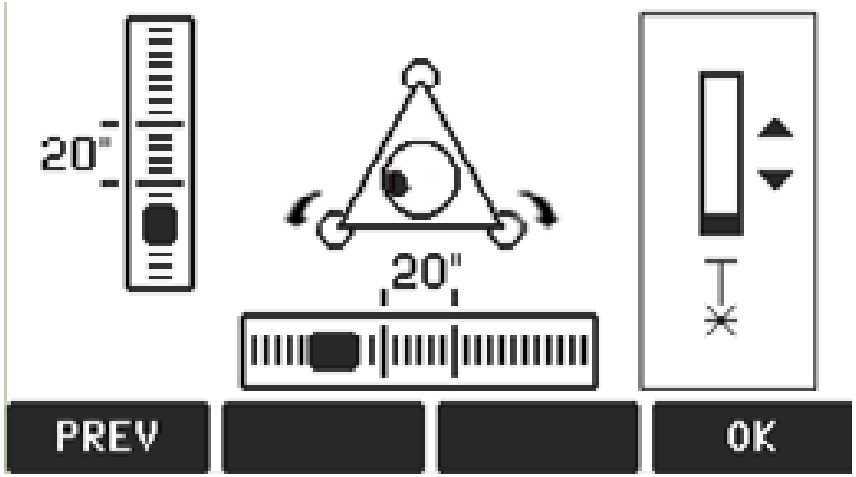


Instrument Setup(Level/Plummet)

- The electronic level can be used to precisely level up the instrument using the foot screws of the tribrach.
- 1. Turn the instrument until it is parallel to two-foot screws.
- 2. Center the circular level approximately by turning the foot screws of the tribrach.
- 3. Turn on the instrument, and, if tilt correction is set to 1 or 2-axis, the laser plummet will be activated automatically, and the Level/Plummet screen appears. Otherwise, press FNC from within any application and select Level/Plummet.

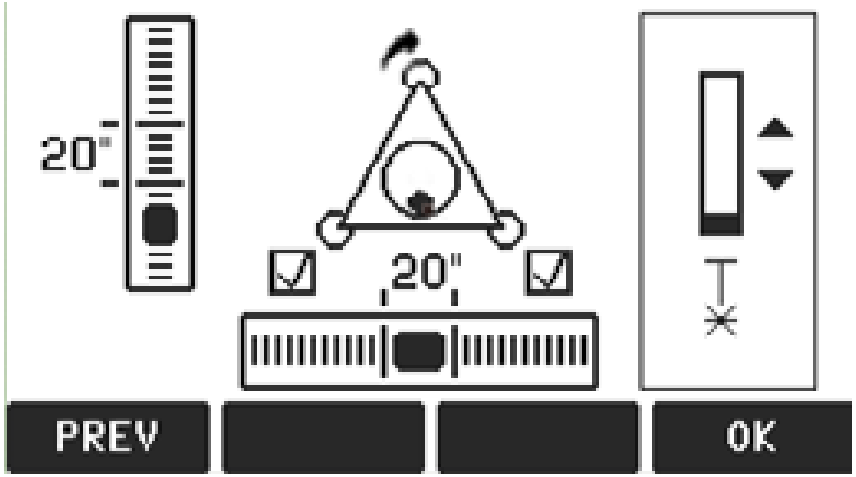
Instrument Setup(Level/Plummet)

- The bubble of the electronic level and the arrows for the rotating direction of the foot screws only appear if the instrument tilt is inside a certain levelling range.
- 4. Center the electronic level of the first axis by turning the two-foot screws. Arrows show the direction of rotation required. When the electronic level is centered the arrows are replaced by checkmarks.



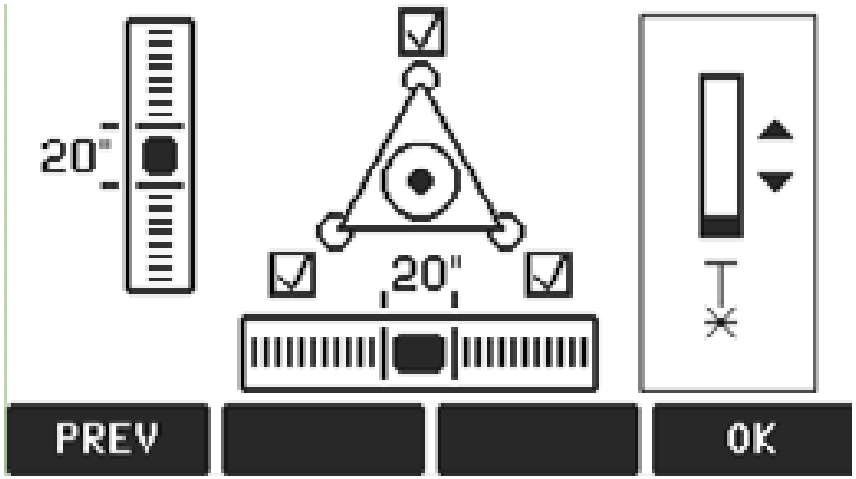
Instrument Setup(Level/Plummet)

- 5. Center the electronic level for the second axis by turning the last foot screw. An arrow shows the direction of rotation required. When the electronic level is centered the arrow is replaced by a checkmark.



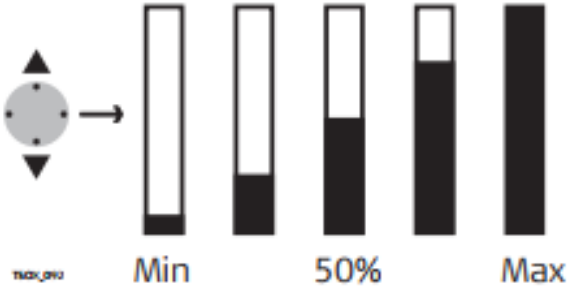
Instrument Setup(Level/Plummet)

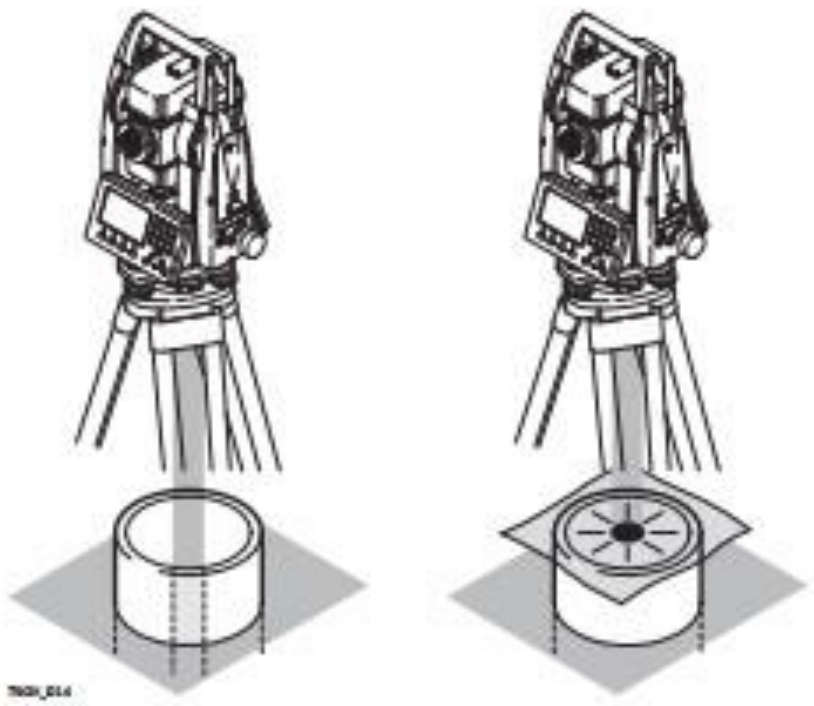
- When the electronic level is centered and three checkmarks are shown, the instrument has been perfectly levelled up.
- 6. Accept with OK.



Instrument Setup(Level/Plummet)

- Change the intensity of the laser plummet
- External influences and the surface conditions may require the adjustment of the intensity of the laser plummet.
- In the Level/Plummet screen, adjust the intensity of the laser plummet using the navigation key. The laser can be adjusted in 25% steps as required.



Instrument Setup(Level/Plummet)

- Position over pipes or holes
- Under some circumstances the laser dot is not visible, for example over pipes. In this case, using a transparent plate enables the laser dot to be seen and then easily aligned to the center of the pipe.