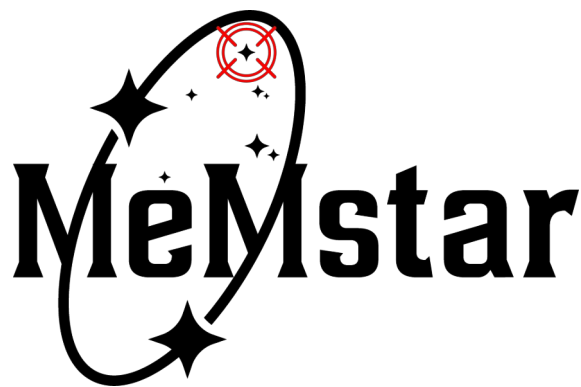




The box that makes astronomy accessible to all!

Instructions for use

First, a few precautions!

- The MeMstar box is a star-pointing aid compatible only with instruments fitted with alt-azimuth mounts.
- MeMstar is not waterproof. So don't use it in the rain!

How to install the MeMstar box on your astronomical instrument?

1. Inserting the batteries

- Open the MeMstar box by pinching it at the edges. You'll find the battery compartment and the screws for closing it later.
- Insert three AAA batteries, making sure to connect in the correct direction.
- Once batteries installed, the red light on the front of the MeMstar box will start flashing.
- Replace the cover on the housing and screw it in place using the screws supplied.
- Do not use force when reassembling the MeMstar housing! The MeMstar is fitted with coding pins to prevent assembly errors. If you notice any resistance, check that the assembly direction has been respected.

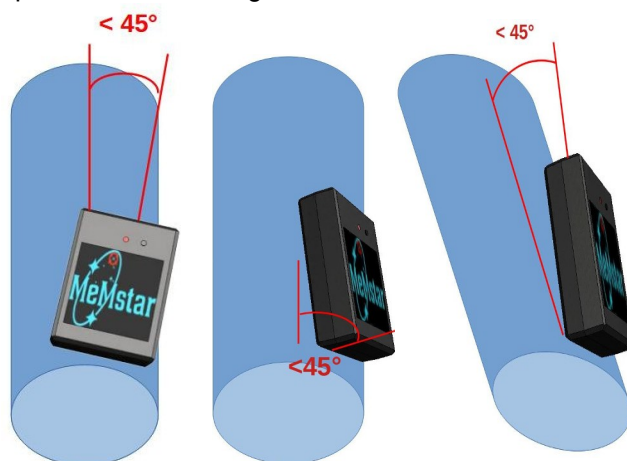
N. B. MeMstar can be operated with rechargeable batteries. For reasons of autonomy, however, we advise you to use conventional batteries.

2. Attaching the MeMstar housing to its telescope

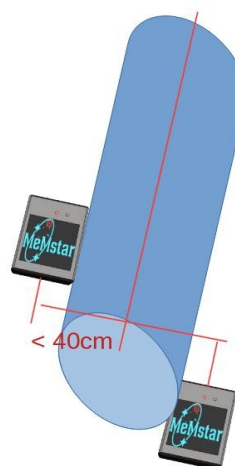
- The MeMstar box must be installed in the direction of your telescope's optical axis. It can be attached directly to the tube or to a part integral with the axis of your astronomical instrument.



- Place the MeMstar box on the lower part of your telescope, in the green area shown in the diagram.
- Make sure that the mounting direction is correct: the arrow on the label must point towards the aiming axis.
- Attach it securely to your instrument using the adhesive strips supplied. This way, it won't move during your observation sessions.
- There's no need to position it perfectly parallel. MeMstar's internal algorithm will automatically make the necessary corrections during the calibration procedure.
- Note that a maximum deviation of 45 degrees is possible at three angles.



- The MeMstar box can also be offset within a limit of around 40 cm.





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How do I commission the MeMstar box?

1. Download MeMstar application

Download the MeMstar application onto your smartphone from the Google Play Store or App Store.



2. Connection to MeMstar application

- Activate your phone's GPS or enter your coordinates in the "Settings" menu of the MeMstar application.
- Press the power button on the MeMstar box. The red light on the front will start flashing.
- Launch the application, click on "Connection", then select the "MeMstar" device to pair the two devices via Bluetooth.
- An internal calibration lasting few seconds is performed during connection. Do not move the MeMstar box during this procedure.
- Once the connection has been established, the red light will remain on without flashing.

3. Calibration of equipment on first use

- When first used, the MeMstar application prompts you to calibrate your equipment by aiming for four stars.
- This installation procedure corrects the position of the box on your instrument's optical axis. Here's how it works:
 - a) Select a star in the application.
 - b) Point it with your telescope.
 - c) Place it in the center of your eyepiece. For optimum centering, use a 12 mm eyepiece or a reticulated eyepiece.
 - d) Confirm it in the application.
 - e) Repeat this procedure with three other stars at different heights. The MeMstar application will automatically filter out any stars that don't meet this criterion.

- Have you validated the four stars? Wait for MeMstar to perform the calculations, and don't move your instrument! Calibration usually takes about 30 seconds.
- Once completed, the MeMstar box is ready for use.

N. B. If you choose to dismantle the MeMstar box after your observation session, you will need to recalibrate the equipment the next time you use it. If you opt for a permanent mounting, you won't need to carry out this installation procedure again.

4. Quick alignment procedure from second use onward

- If you've chosen to leave the MeMstar box attached to your telescope, you'll only need to perform a simple alignment procedure before you can observe the night sky.
- This quick procedure involves pointing at just one star. To do this, follow the advice given in the section "Calibrating of equipment on first use".

How to observe objects in the night sky with MeMstar?

- Finished calibrating your equipment? Consult the MeMstar catalog and search for your target directly on your smartphone. Over 15,000 celestial objects (planets, stars, nebulae, galaxies, etc.) are listed in the app!
- You can browse this astronomical database or search by name. Once you've found the object you want to observe, select it.
- Then move your telescope along the arrows indicating elevation and azimuth (horizontal angle) until two green ticks appear.
- Place your eye on the eyepiece and enjoy the show!

N. B. The accuracy of the MeMstar box is approximately 1 degree. Depending on the eyepiece used, the object pointed at may appear at the edge of the field or slightly outside it. If it is not visible in the eyepiece, rotate your instrument around the coordinates indicated by the application to find it. We advise you to use an eyepiece with low or medium magnification when looking for a celestial object, to increase your field of vision.

- During your observation session, azimuth



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accuracy may decrease. If the deviation is too great, perform the following realignment procedure:

- Select a star in the MeMstar application.
- Aim it through your telescope.
- Place it in the center of the eyepiece.
- Press the "Align Azimuth" button.

How do I put my MeMstar box on standby?

- At the end of your observation session, we recommend that you put the MeMstar box into standby mode to preserve battery life.
- To do this, press the button on the box. The Bluetooth connection is automatically deactivated, and the red light starts flashing.
- When the light flashes, the MeMstar is ready to establish a new connection. If no connection is established within 3 minutes, it automatically switches to standby mode.

What to do in the event of a malfunction?

You press the button on the MeMstar box, but the light remains off:

- Check that the batteries are correctly installed.
- Change batteries.

You can't connect via Bluetooth :

- The Bluetooth connection is established using the MeMstar application, not by the phone's driver!
- Check that your smartphone is compatible.
- Check access rights in the application settings if you're using Android.
- Restart the MeMstar application.
- If the red light on the MeMstar box remains on and steady, press it and try connecting again.
- Change batteries.

The MeMstar box disconnects itself:

- Check that the batteries are correctly installed.
- Change batteries.

During observation, the azimuth (horizontal angle) changes continuously while your instrument remains fixed:

- The MeMstar box may have moved during the Bluetooth connection! Press the button on the box to disconnect Bluetooth.
- Reconnect it, taking care not to move your instrument during the connection procedure.

The coordinates indicated by the MeMstar application do not correspond at all to the object:

- Perform an alignment procedure by pressing the "Align Azimuth" button in the application.
- Check that your smartphone's GPS is active, or that the coordinates you've entered manually are correct. If you've just activated GPS, it may take a few minutes before your position was updated.
- Check that the box is securely fastened to your telescope and repeat the installation procedure.

Equatorial table use

MeMstar can help you find objects with an equatorial table mount:

- Calibration on 4 stars should be carried out with the tracker switched off, as should rapid alignment on 1 star. This step can be performed at the beginning of the table's stroke.
- During table tracking, the coordinates displayed by MeMstar may drift. This is quite normal, as MeMstar is not designed for tracking.
- Once you've reached the end of the stroke and the table has been reset, you can perform another quick alignment on 1 star and MeMstar will help you find a new or the same object!

Additional tips and tricks

Mounting

- The MeMstar box is not affected by magnetism. You can therefore use it on a metal telescope.
- It can be fastened with the self-adhesive strips supplied or with magnetic adhesive.
- We recommend that you mount the MeMstar box as close as possible to your telescope's axes of rotation. This will minimize vibrations that could affect its accuracy.

Installation

- To center the stars precisely during the initial calibration procedure, you can use a reticulated eyepiece.
- If you don't have a reticulated eyepiece, defocus the stars (reduce the focus) to center them more easily.
- During installation, we advise against making azimuth turns with your telescope.



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Use

- If you are observing celestial objects close to the zenith, the accuracy of the MeMstar box may decrease. The slightest error during the installation procedure is amplified.
- When using MeMstar, avoid making azimuth turns with your astronomical instrument. Despite the correction provided by the box's internal algorithms, an azimuth error may occur if your telescope rotates too much on itself.
- For optimum precision, return to the polar axis before each new pointing.
- Are you forced to make several turns and the azimuth is too far off course? Click on the "Align Azimuth" button in the MeMstar application to recalibrate it.

MeMstar is a product developed and manufactured in France.

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Technical specifications

- Pointing accuracy: 1 degree (subject to proper installation).
- MeMstar catalog: 15,000 celestial objects.
- Technology: MEMS.
- Connection: Bluetooth 5.0.
- Compatibility: Android 7+ and iOS 8+.
- Operating time: approx. 150 h.
- Power supply: 3 AAA batteries (1.5 V).
- Display languages: French, English, Dutch.
- Temperature range: -20°C to 50°C.
- Humidity: 10% to 90% (non-condensing).
- Dimensions: 78 x 57 x 21 mm.
- Weight: 85 g (including batteries).