

GUIDE

OnStepX SWS Control User Guide

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Introduction and requirements

OnStepX SWS Control lets you control a mount running OnStepX firmware from your phone or tablet. It works in the field even without an internet connection: it communicates only with the mount. Only place search on the map and Weather forecast, which is off by default, use the internet.

The app is independent and is not affiliated with the OnStep project or its authors. It does not install or update firmware.

What you need:

- a mount with OnStepX, version 10 or later, already installed and working. Any 10.x version works for control and GoTo. Some settings pages require newer firmware and will let you know when you open them;
- a WiFi connection, via the Smart Web Server or the controller's built-in WiFi;
- alternatively, on Android only, Bluetooth Classic with the mount already paired with your phone. Serial Bluetooth is not available on iOS.

If the controller is running the older OnStep rather than OnStepX, the connection stops with the message "This controller runs OnStep …. The app supports OnStepX only (version 10 or newer)."

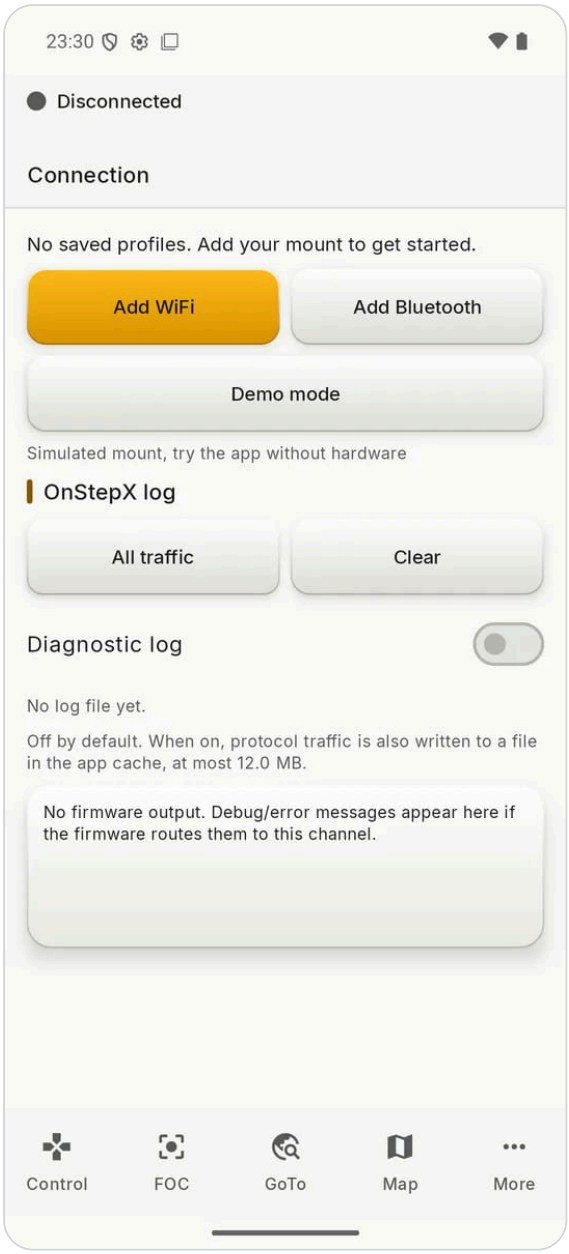
How the app is laid out

The bottom bar has five tabs: **Control**, **FOC** (focuser), **GoTo**, **Map** and **More**. On tablets in landscape orientation, the same bar sits on the side. At startup, the app opens the **Connection** page, which can also be found under More.

At the top of every page is the status bar. It shows the connection state ("Connected · name" or "Disconnected"), the telescope's RA and Dec coordinates, the distance from the meridian and the current status: "Parked", "Slewing", "Tracking" or "Not tracking". If the mount reports an error, a red badge appears with a short label: tap it to read the full explanation. Tapping the status bar opens the Connection page.

First connection

On first launch, the Connection page says “No saved profiles. Add your mount to get started.” Below it are three buttons: “Add WiFi”, “Add Bluetooth” (Android only) and “Demo mode”.



On first launch: Add WiFi, Add Bluetooth and Demo mode.

WiFi profile

1. Connect your phone to the mount’s WiFi network, or to your home network if the Smart Web Server is connected there.
2. Tap “Add WiFi”.
3. Enter a “Name” of your choice and the mount’s “Host or IP address”.
4. Choose the “Port”. It defaults to 9998; the list also includes 9997 and 9996, and with “Custom…” you can enter any port you like.

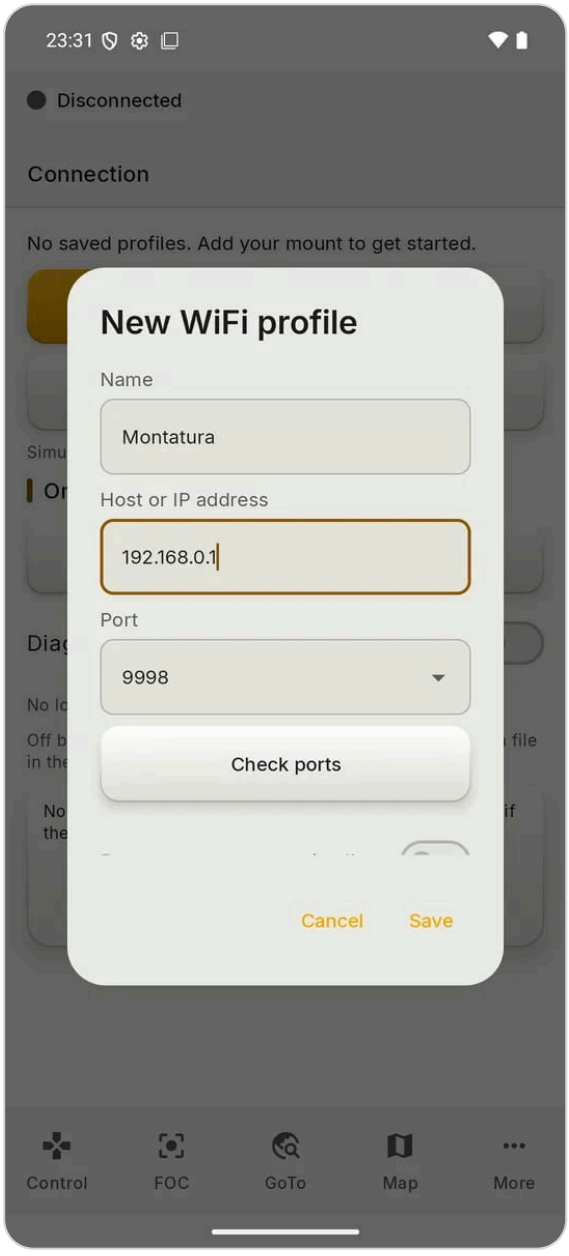
5. Tap “Save”.

If you do not know the address, tap “Scan network”. The app probes addresses on the WiFi network and keeps only those that respond like an OnStep mount. On Android, it also listens for devices announcing themselves on the network. Tap a mount from the results: host and port are filled in automatically.

The Smart Web Server accepts only one client per port. If another app is already using the chosen port, the connection fails with a message suggesting a different port. “Check ports” tests the ports on that host and reports whether each one is “free”, “not responding” or “unavailable”.

The profile has two toggles, off by default for WiFi:

- **Reconnect automatically**: if the connection drops, the app retries on its own;
- **Checksum framing (noisy links)**: adds a check to every command. Useful on slow or noisy links.



The WiFi profile: name, host or IP address, port.

Bluetooth profile (Android only)

1. First pair the mount in Android's Bluetooth settings.
2. In the app, tap "Add Bluetooth". The first time you do this, Android asks for permission to access nearby devices.
3. Select the mount under "Paired device", give it a name and tap "Save".

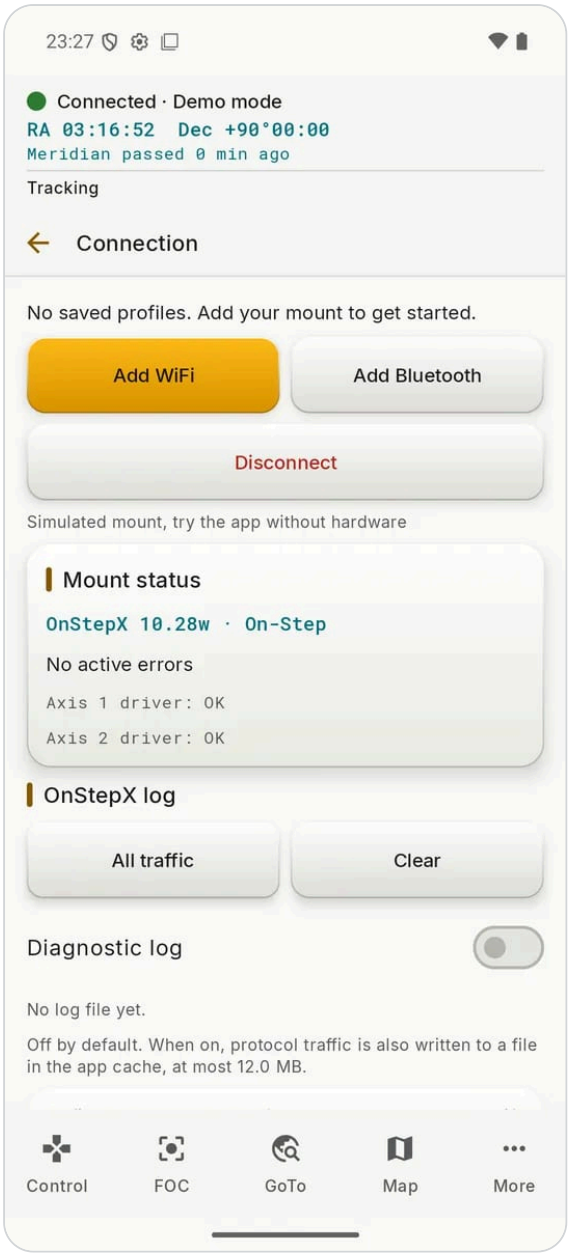
For Bluetooth, "Checksum framing" is on by default, as that channel has no built-in error checking.

Connecting and disconnecting

Each saved profile is a card with "Connect", "Edit" and "Delete". After tapping "Connect", you stay on the Connection page: the card shows "Disconnect" and alongside it appears the "Mount status" panel, showing the firmware version, active errors and axis driver status. To move the mount, switch to Control from the bottom bar.

If you tap "Connect" on another profile while already connected, the app asks "Change mount?". "Disconnect" asks for confirmation.

If the connection drops, the status bar shows the ongoing attempts, for example "Reconnecting to … (2/12)…". The app retries automatically if "Reconnect automatically" is on in the profile, or if "Keep the connection alive with the screen off" is on under More → App. After a controller reboot, the app waits for it to come back and shows "Waiting for … to reboot".



Connect in demo mode: the card shows Disconnect and the mount status.

Demo mode

“Demo mode” connects the app to a simulated mount with no hardware required. You can try out every page: pad, GoTo, map, alignment, focuser and accessories. The demo does not create a profile and writes nothing to a real mount. To exit, tap “Disconnect” on the same button.

The simulated mount’s site is near Rome and uses your phone’s time zone.

OnStepX log

On the Connection page, below the mount status, the “OnStepX log” section shows unsolicited messages sent by the firmware and any errors. With “All traffic” enabled, you also see every command and reply. “Clear” empties the list.

Control

The Control page gathers the commands for moving the mount. When disconnected, it shows only “Connect to a mount to use the controls.”

Slew rate and pad

At the top is “Slew rate”, with ten steps from 0.25× to Max: 0.25×, 0.5×, 1×, 2×, 4×, 8×, 20×, 48×, ½Max and Max. The selected rate applies to the pad.

The pad has the four directions N, S, E and W. The mount moves while you press and hold, and stops when you release. It also stops if a dialog opens, if the app moves to the background or if an error occurs. When the mount is parked, the pad is disabled: tapping it prompts you to “Unpark”.



The Control page with the status bar at the top, the rates and the pad.

STOP

The **STOP** button at the centre of the pad halts all motion: pad, GoTo, park, home, flip and spiral search. It is always active, even if the mount has an error. The same STOP button appears in every confirmation dialog, in the error dialog and in the pads on other pages. During a long slew, a banner also appears at the top of the page showing the motion name, elapsed time and a “Stop” button.

If the connection drops before STOP can be sent, the app warns you: “Connection lost before the stop could be sent: the mount may still be moving. Reconnect to stop it.”

Home

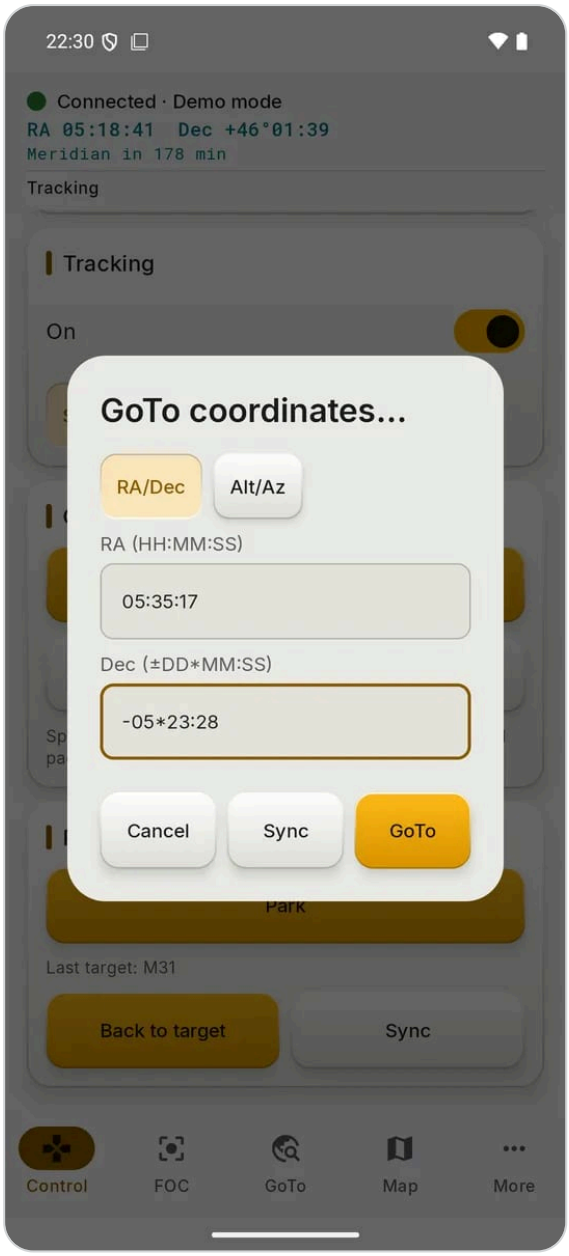
- **Go to home** moves the mount to its reference position.
- **Set home here** sets the current position as home. Only do this when the mount is physically in the home position.

Tracking

The switch turns tracking on and off. Below it, choose the rate: “Sidereal”, “Lunar”, “Solar” or “King”. When compensation is active, the firmware does not report the rate and the app notes this. Compensation and tracking frequency are adjusted in More → Mount.

GoTo coordinates and spiral search

- **GoTo coordinates…** opens a dialog where you enter RA and Dec (“RA (HH:MM:SS)”, “Dec (±DD*MM:SS)”). With recent firmware, you can choose “Alt/Az” and enter azimuth and altitude. “GoTo” slews to the coordinates, while “Sync” (RA/Dec only) tells the mount the telescope is already pointed there. The dialog warns you if the point is below the horizon or behind an obstacle at the site.
- **Spiral search** moves the telescope outwards in a spiral from its current position at the pad rate. Use a low rate for a slower spiral. Tapping it a second time stops the search.

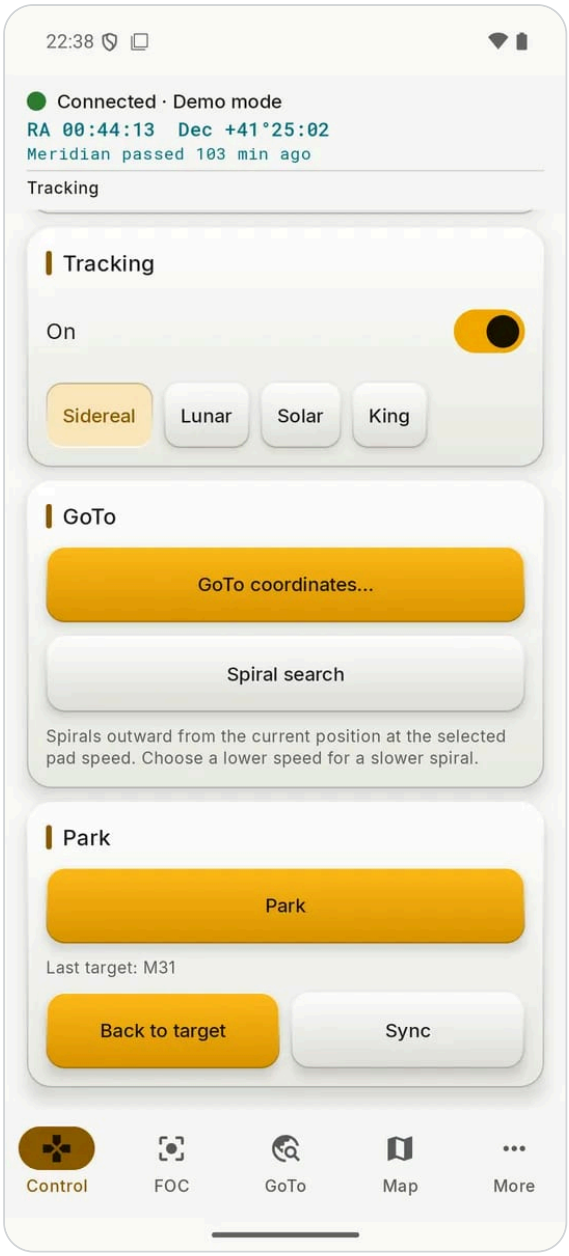


GoTo coordinates: RA and Dec, or azimuth and altitude.

Park and last target

- **Park** sends the mount to the park position and stops tracking. When the mount is parked, the button changes to **Unpark**.
- **Last target** shows the last object slewed to. “Back to target” returns the telescope to it; “Sync” tells the mount the telescope is centred on that target. A wrong Sync shifts all subsequent GoTo slews.

Park, Home, flip, back to target and Sync ask for confirmation before moving. You can turn confirmations off under More → App with “Ask before moving the mount”.



Further down: Home, Tracking, GoTo coordinates, spiral search and Park.

Date, time and site warnings

Warnings about the mount may appear below the status bar:

- “Mount date and time are not set.” or “Mount site is still 0°/0°.”: tap “Set up” to open Date, time and site;
- “Mount site and time differ from this phone”, listing the fields that do not match. “Set up” opens the page to fix them; “OK” hides the warning for the current session without writing anything;
- “Mount time source did not respond: pad below 2× and guiding blocked.”: the mount’s GPS or clock failed to provide the date and time. Tap “Resend date and time”.

The app never writes date, time or site to the mount automatically, not even on connection: it only does so when you tap a button.

GoTo

The GoTo page lists objects you can slew to. A connected mount is required, as the site and time used to calculate altitudes come from the mount.

Searching for an object

Type a name, common name or designation in the “Search objects” field: “M 31”, “NGC 7000”, “Andromeda”, “Vega”, “Jupiter”. The search covers stars, Messier, NGC and IC objects, Sharpless regions, van den Bergh nebulae, Barnard and Lynds dark nebulae, Abell planetary nebulae, Arp galaxies, the Sun, the Moon and the planets.

When the field is empty, the list shows Messier objects, the brightest deep-sky objects, the brightest stars and solar system bodies, ordered from highest in the sky downwards.

Each row shows magnitude (or size) and altitude. A filled dot marks an object above the horizon; an open circle marks one below. A small triangle shows whether it is rising or setting. Notes may appear beneath the name:

- “below the horizon” and “behind an obstacle”: the row is dimmed;
- “faint for this sky”: the object is hard to see under the site’s sky (see Light pollution);
- “moonlight” and “faint: moonlight”: the object lies within the Moon’s glare.

These notes are informational and do not block GoTo.



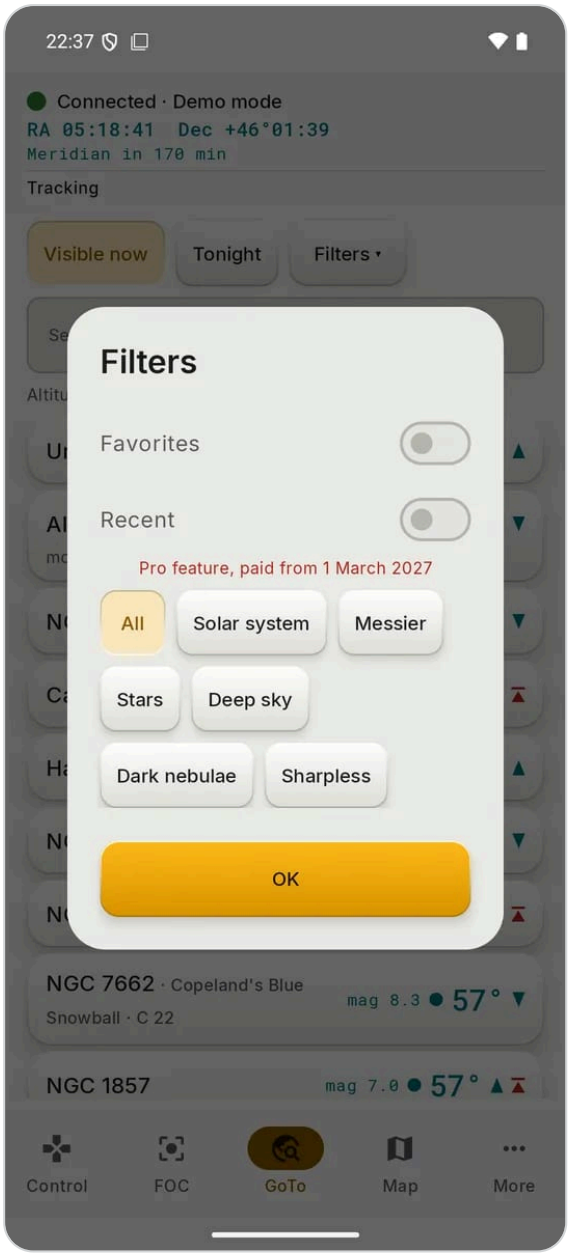
The GoTo list: altitude, direction and notes for each object.

Filters

- **Visible now** keeps only objects above the horizon and clear of the site's obstacles.
- **Tonight** keeps objects that reach at least 20° altitude during darkness, ordered by best time. That best time is shown on the row.
- **Filters** opens a dialog with "Favorites", "Recent" and the categories: "All", "Solar system", "Messier", "Stars", "Deep sky", "Dark nebulae", "Sharpless".

"Visible now" and "Tonight" reset to off each time you open the page.

Favorites are the objects you mark with the star in the object details. **Recent** lists the last 20 GoTo slews accepted by the mount, started from the list or the map. Manually entered coordinates are not added to Recent.



Filters: Favorites, Recent and object categories.

Object details

Tap a row to open the object details. They show:

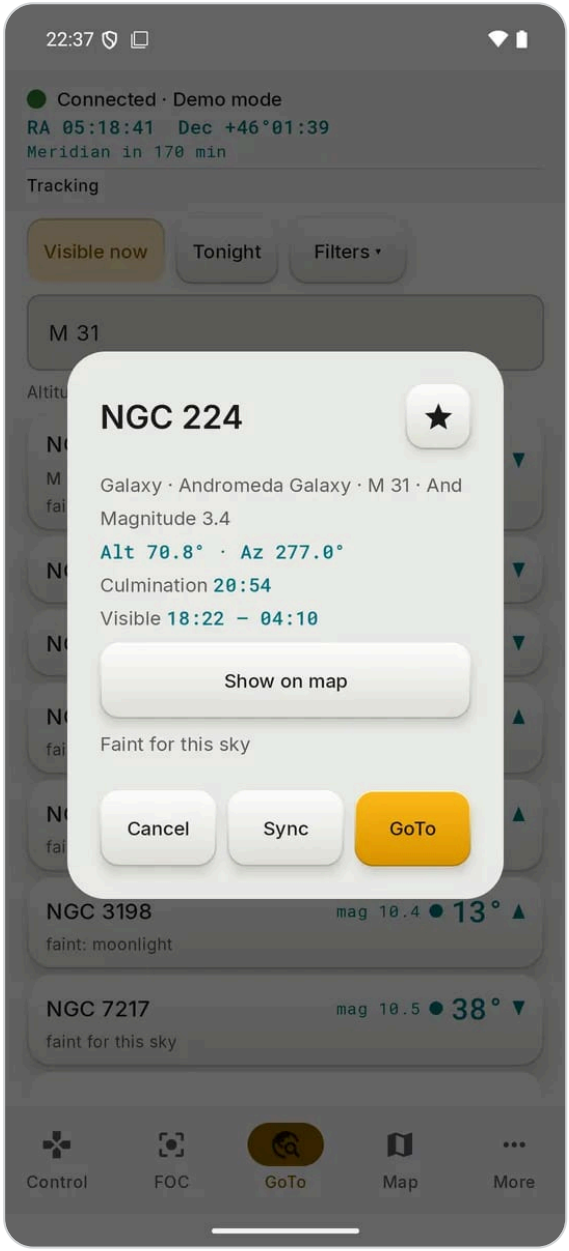
- type, names, designations and constellation; for the Moon, its phase;
- magnitude or size;
- current altitude and azimuth;
- **Culmination**: the time when the object is highest in the sky;
- **Visible**: from what time to what time the object can be observed tonight. This window falls within darkness, with the object above the horizon and clear of the site's obstacles. Times are in the mount's local time.

Darkness means astronomical darkness, with the Sun 18° below the horizon. Where the Sun does not reach that depth in summer, the app falls back to nautical twilight and then civil twilight.

At the top, the star adds the object to or removes it from your favourites. “Show on map” opens the Map centred on the object without moving the telescope.

At the bottom are “GoTo” and “Sync”. After an accepted GoTo, the app switches to the Map, where you follow the telescope as it slews. GoTo is disabled if the object is below the horizon. If the object is about to cross the mount’s zenith limit, the details page warns you before slewing.

For the Sun and objects near the Sun, the app shows a warning and asks for confirmation: slew to them only with a certified solar filter fitted to every optical tube, including the finder scope.



The object details: altitude, culmination, visibility window, GoTo.

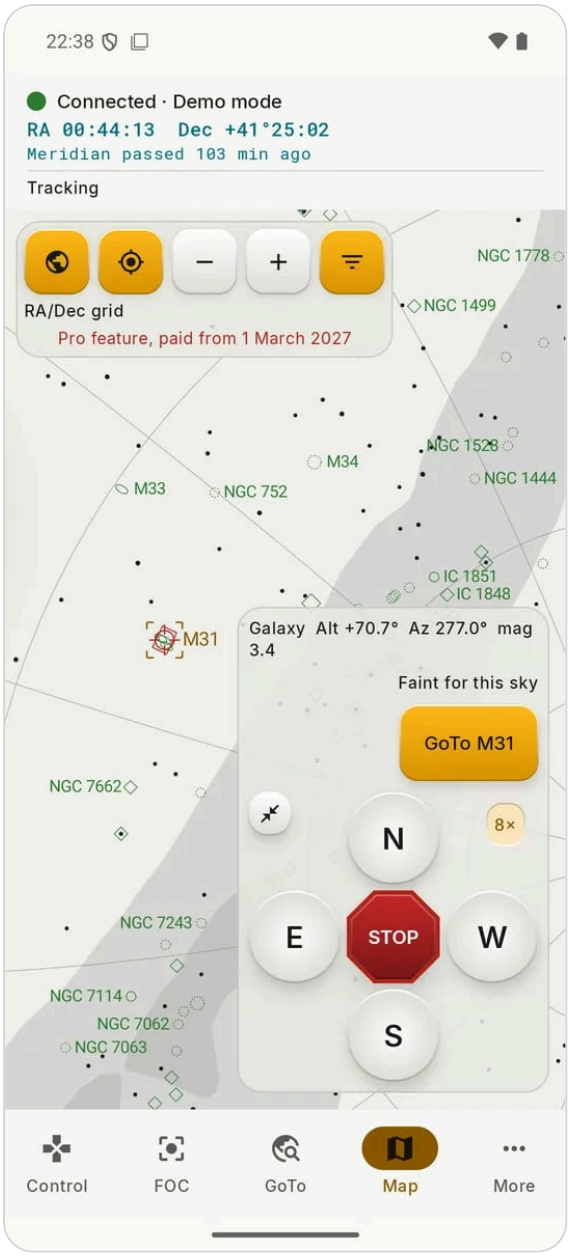
Sky map

The Map draws the sky as seen from the mount's site, with the horizon, cardinal points and a red crosshair showing where the telescope is pointing. A connected mount is required.

- Drag to pan, and pinch or spread two fingers to zoom. "Zoom in" and "Zoom out" do the same in steps.
- **Follow telescope** keeps the crosshair centred. It turns off when you pan the map manually and turns back on when the mount moves.
- The grid button cycles through "No grid", "Alt/Az grid" and "RA/Dec grid".
- Tap an object to select it. At the bottom appear its name, altitude, azimuth, magnitude and the "GoTo" button showing the object's name.

The site's horizon obstacles appear as shaded areas above the horizon. Objects behind them remain visible, though dimmed. When the Moon is high, a halo shows its glow, wider and brighter near full Moon.

The map also includes a small pad with STOP at the centre. The rate button cycles through slew rates on each tap. "Collapse pad" leaves only STOP visible; "Expand pad" opens it again.



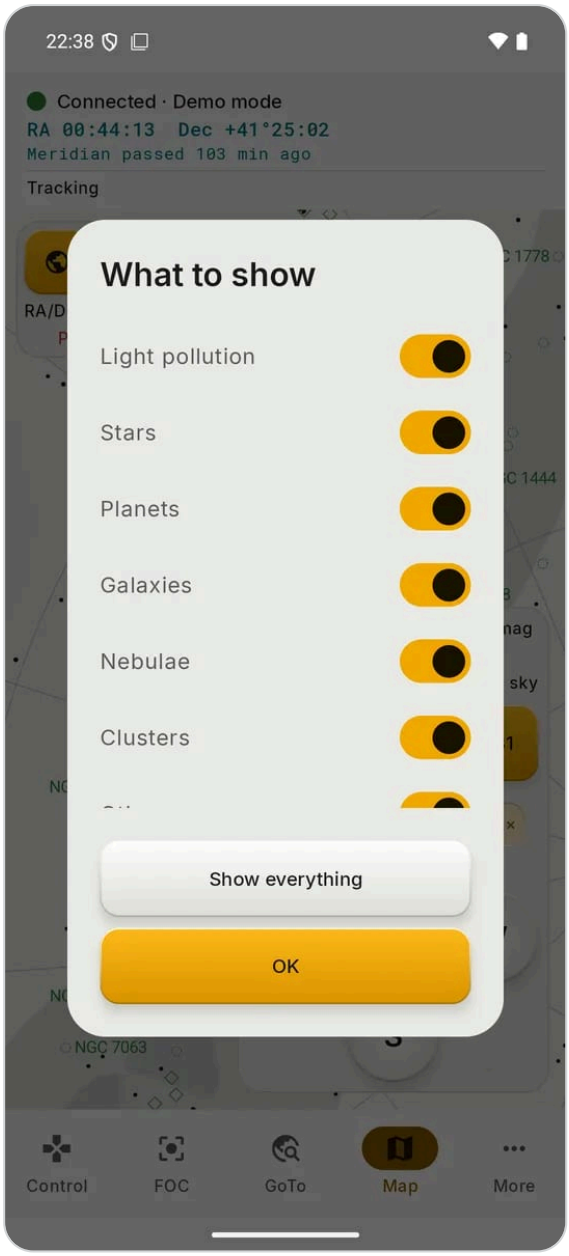
The Map: selected object, GoTo and pad with STOP.

What to show

The filters button opens “What to show”:

- **Light pollution**: hides stars too faint to be seen under the site’s sky. Appears only if the site has a sky brightness value;
- object types: Stars, Planets, Galaxies, Nebulae, Clusters, Other, Dark nebulae;
- Sharpless, Constellation lines, Constellation names and Milky Way, off by default;
- **Grid and line brightness**: dims or brightens the grid and lines;
- **Field of view (FOV)**: draws your camera or eyepiece field around the telescope position.

“Show everything” turns all types back on. Whenever any type is hidden, “Some types hidden” appears beneath the map buttons.



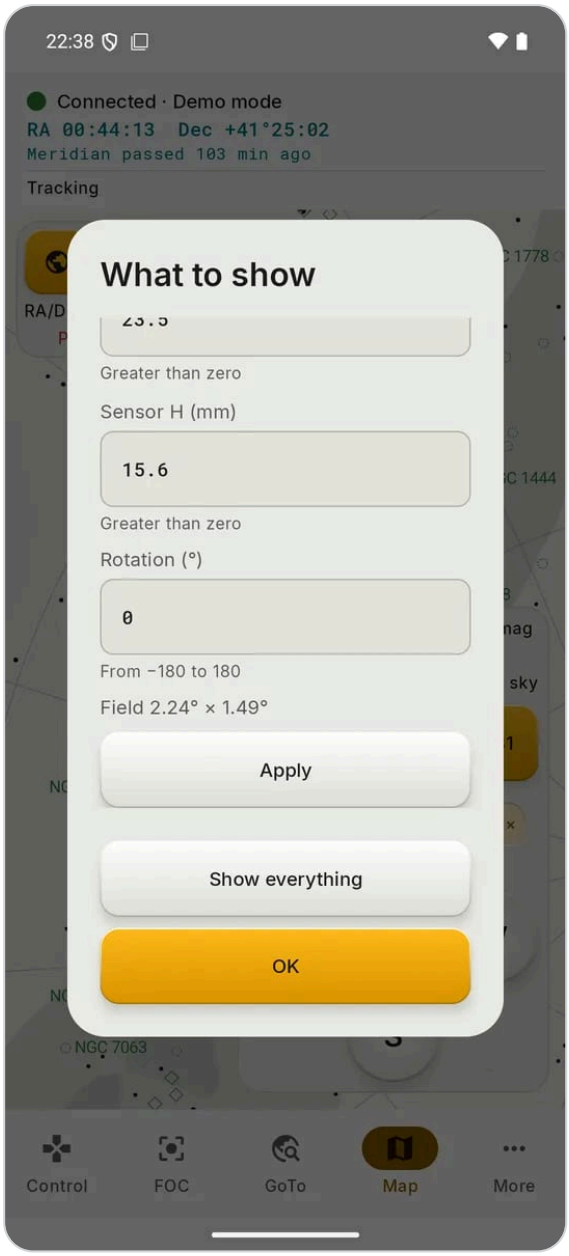
What to show: object types, constellations, Milky Way, line brightness.

Field of view

Turn on “Field of view (FOV)” and choose “Camera” or “Eyepiece”.

- Camera: “Scope focal (mm)”, “Sensor W (mm)”, “Sensor H (mm)” and “Rotation (°)”.
- Eyepiece: “Scope focal (mm)”, “Eyepiece focal (mm)” and “Apparent FOV (°)”.

The app calculates the field and displays it. Tap “Apply” to save the dimensions.



Field of view: telescope focal length and sensor dimensions.

Alignment

Star alignment builds the mount's pointing model. Open it from More → **Align**.

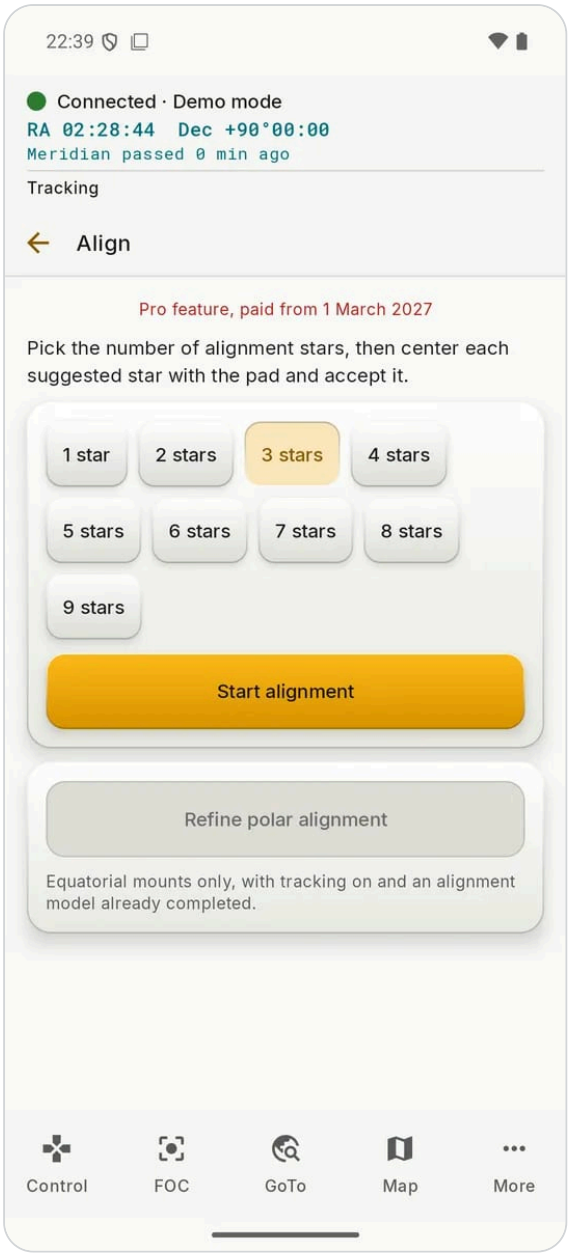
Star alignment

1. Move the mount to the home position and unpark it.
2. Choose how many stars to use, from 1 up to the maximum the mount accepts.
3. Tap "Start alignment". The app asks you to confirm the home position: "The mount is at home — start" if it is already there, or "Set home here and start".
4. Choose one of the suggested stars. You can also search by name with "Search alignment stars".
5. Tap "GoTo" with the star's name and wait for the mount to arrive.
6. Centre the star in the eyepiece or on the camera using the pad. You can change the rate.
7. Tap "Accept star". The app moves on to the next star.

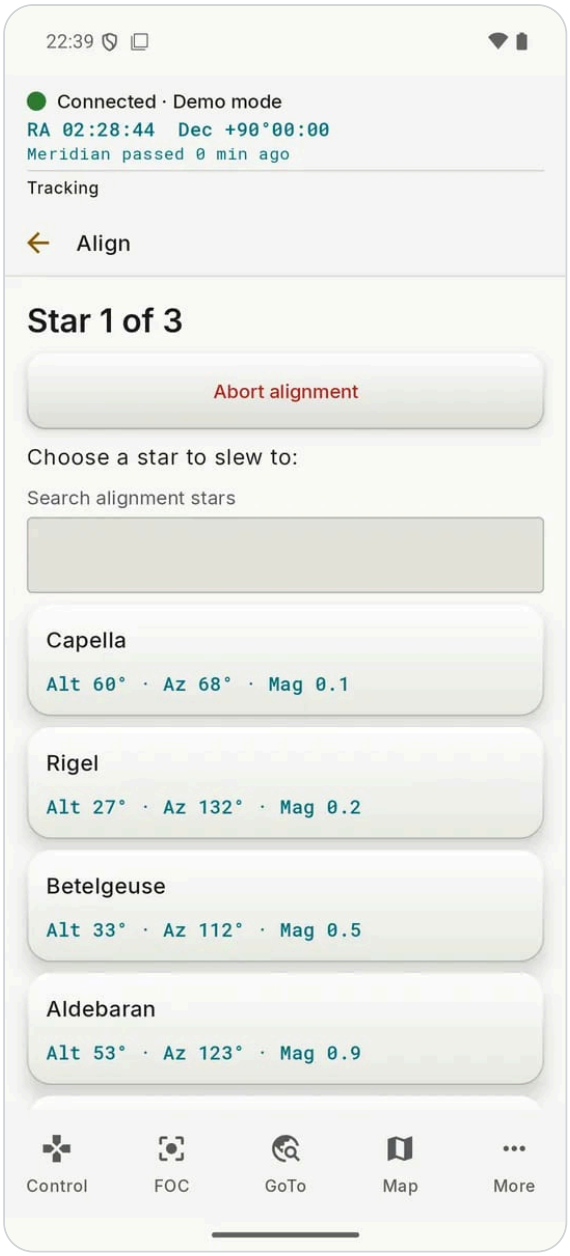
At the end, "Alignment complete. Model saved." appears.

The app suggests bright stars between 20° and 80° altitude, clear of the site's obstacles. After the first star, it prefers stars on the opposite side of the meridian and well away from those already used. If you search for an unsuitable star, it appears greyed out with the reason: "Too high to align now", "Too low to align now", "Behind an obstacle", "Too close to the pole to align", "Faint for this sky".

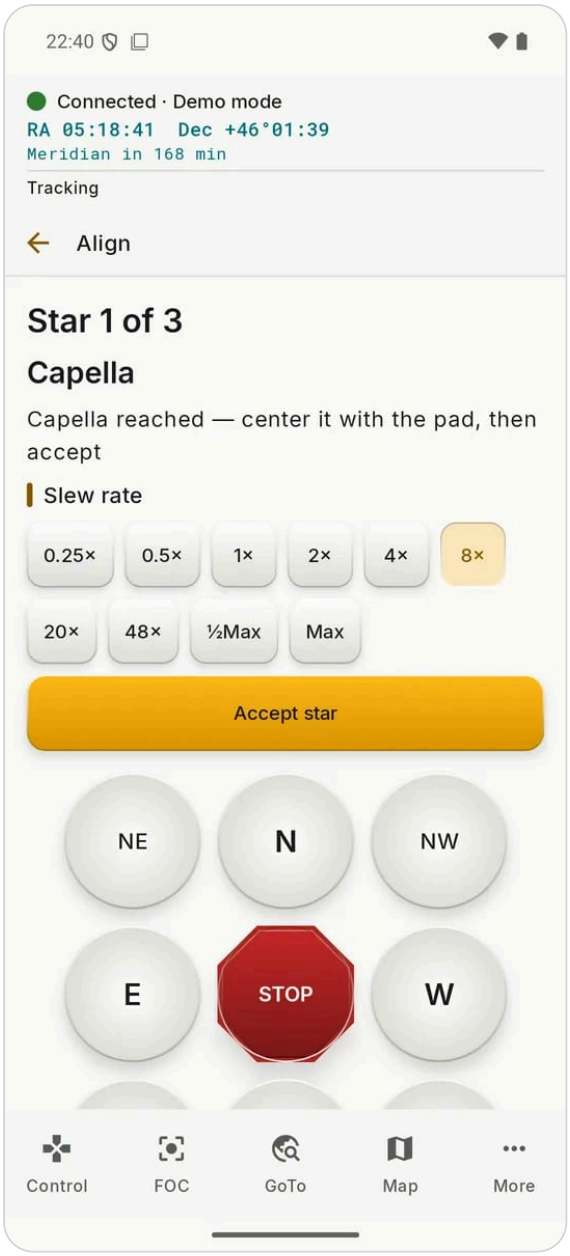
"Choose another star" changes the star. "Abort alignment" stops the procedure and, if the firmware allows, clears the model in progress.



Start: how many stars to use and Refine polar alignment.



Suggested stars, with the reason when a star is not suitable.



Star reached: centre it with the pad, then Accept star.

Refine polar alignment

On equatorial mounts, with tracking on and a model already completed, “Refine polar alignment” slews to a star without polar corrections applied. Recentre the star using the mount’s altitude and azimuth bolts, not the pad.

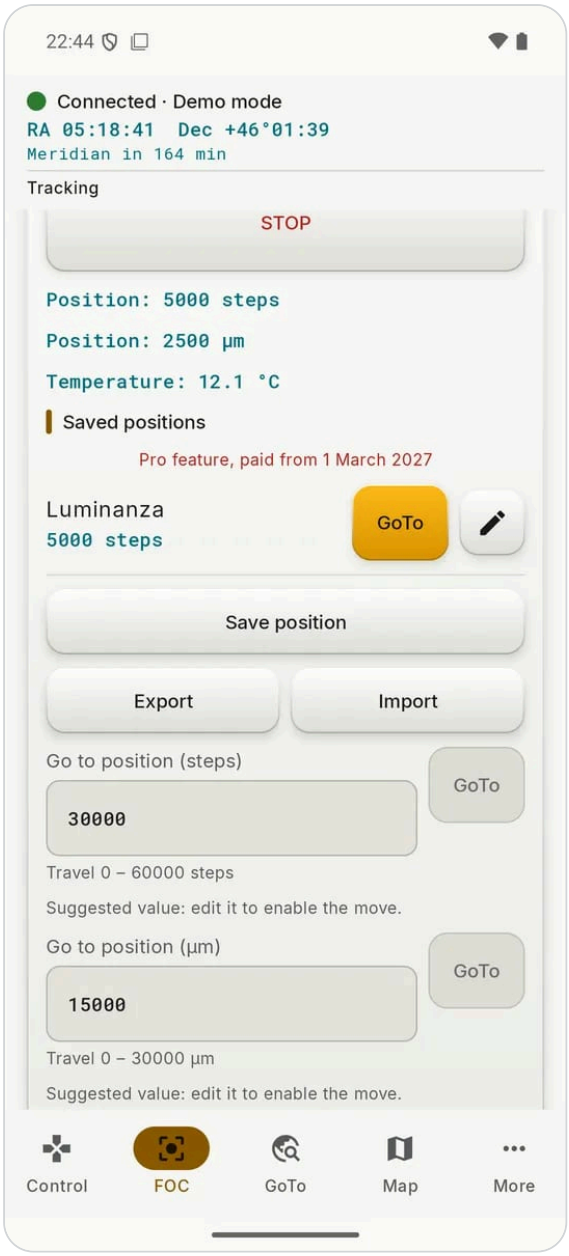
Focuser and accessories

FOC: the focuser

The FOC tab on the bar opens the focuser configured in OnStepX.

- Choose the speed: 1, 10 or 100 µm/s, or ½ GoTo.
- Press and hold “In” or “Out” to move the focuser. STOP halts it.
- The page shows the position in steps and microns, and the temperature if a probe is fitted.
- “Go to position (steps)” and “Go to position (µm)” move the focuser to an exact position within the stated travel range.
- “Saved positions”: save frequently used positions by name (for instance, one for each filter) and return to them with a tap. “Export” and “Import” transfer them to another device via a file.
- Under “Advanced”, you will find focuser home and zero, backlash and temperature compensation.

With multiple focusers, select the active one at the top. If none is found, the app tells you: it is either not connected and configured on the controller, or the board is not responding.



The focuser: movement, position and saved positions.

Rotator and Auxiliary accessories

Under More, in the Accessories group:

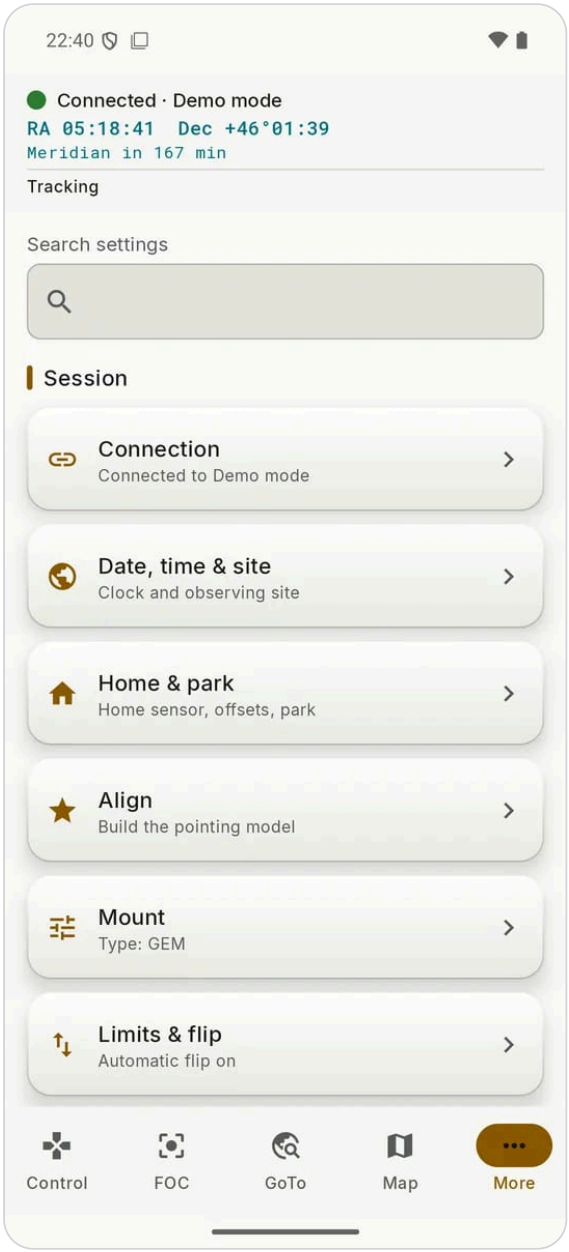
- **Rotator**: clockwise and anticlockwise rotation, angle, GoTo angle and derotator;
- **Auxiliary accessories**: outputs configured in OnStepX, such as switches, dew heaters and an intervalometer.

More

More gathers all the remaining pages into three groups: **Session**, **Accessories** and **Calibration and app**. Beneath each item, a summary line shows its status, for example “Automatic flip on” or the site’s sky brightness.

At the top is “Search settings”. It also searches keywords that are not in the title: “dew” finds Weather sensor, “park” finds Home and park.

Pages that read the mount show “Connect to the mount to read and change these values.” when disconnected, along with a button to open the Connection page.



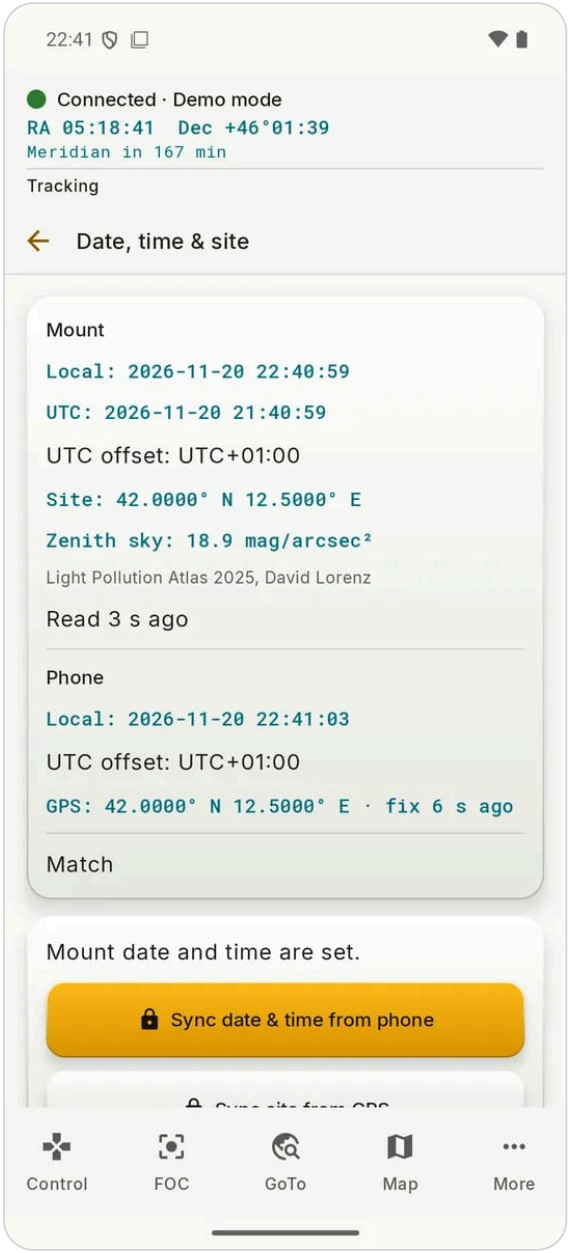
More: pages in three groups, with search at the top.

Date, time and site

This page compares the mount and the phone. The “Mount” panel shows local time, UTC, time zone and site coordinates; the “Phone” panel shows the time and, with Location permission, the GPS position. Below them is the result: “Match”, or what does not match.

- **Sync date and time from phone** sends your phone’s date, time and time zone.
- **Sync site from GPS** sends your phone’s position as the site. This requires Location permission and a recent fix: outdoors, GPS finds it faster.
- **Selected site** chooses one of the four sites stored in the mount (No. 0, No. 1, No. 2, No. 3).

The app sends data only when you tap a button. The mount’s site and time are the basis for all calculations when connected: altitudes, the map, visibility windows, Night and Moon, and Planets.

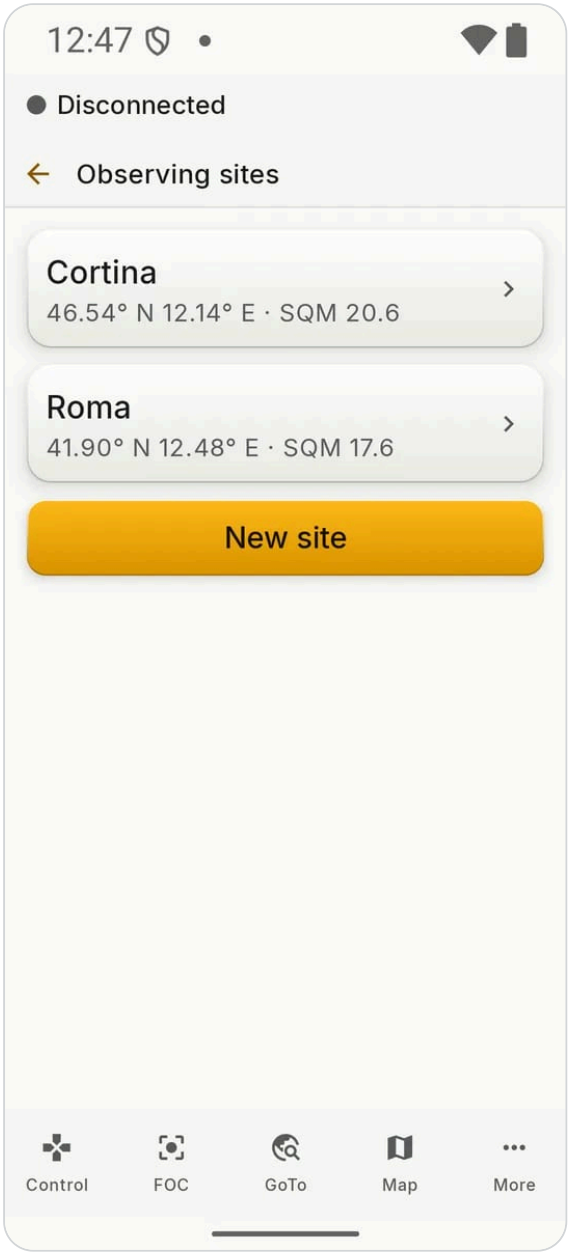


Date, time and site: mount and phone compared.

Observing sites

A site is a place where you observe: it has a name, coordinates, sky brightness and horizon obstacles, such as trees, buildings and hills. Sites stay on your phone and you can view them even when disconnected. This page replaces “Local horizon” from earlier versions.

For each site, the list shows the name, coordinates and sky brightness (“SQM”). When no sites are saved, it reads “No sites saved: add one with “New site”.” If the mount is connected at a location you have not saved, “Mount site not saved” appears at the top. On connection, the app can suggest a “New site” with the mount’s position: “Not now” postpones it.

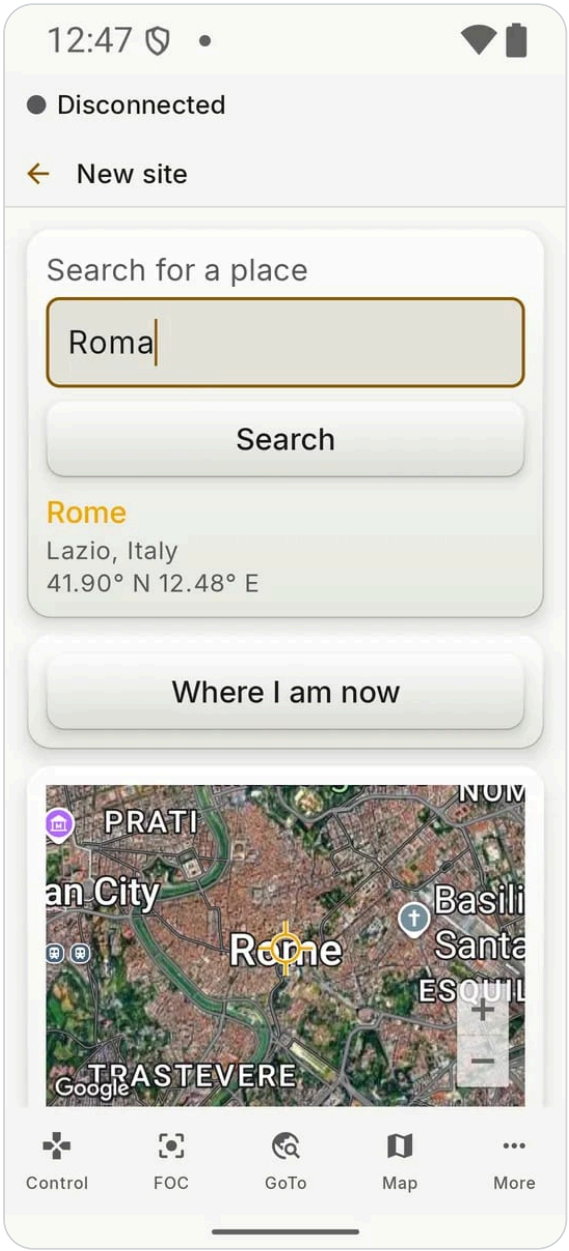


Observing sites: name, coordinates and sky brightness for each site.

To add a site, tap “New site”:

1. Enter a name and a place in “Search for a place”, then tap “Search”. The first result moves the map to that point; the list below shows the others, with the selected one marked. If nothing is found, “No results” appears.
2. Alternatively, tap “Where I am now” to use your phone’s location (this requires Location permission), or “Mount position” if you are connected.
3. Check the point on the satellite map: the crosshair at the centre is the site. “Drag the map to move the point”. Below appear the coordinates of the centre and the sky brightness from the atlas at that point.
4. Tap “Save”.

Place search requires Android 13 or later; on older phones the page states this, while the map, “Where I am now” and the mount’s position remain available. Without Google Play services, there is no map: the page says “Map unavailable without Google Play services”.

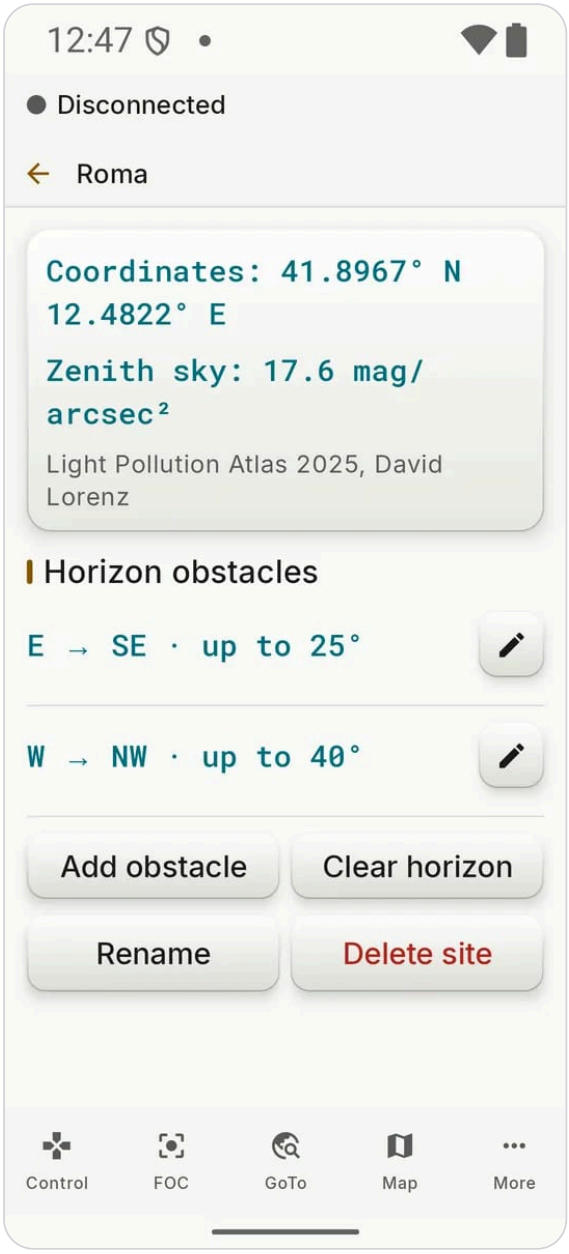


New site: search for a place, check the point on the map and save.

Tap a site to open its page: coordinates, sky brightness, “Rename” and “Delete site”. Below is “Horizon obstacles”:

1. Tap “Add obstacle”.
2. In “From (°)” and “To (°)”, choose the directions using cardinal points or degrees.
3. In “Height (°)”, enter how high the obstacle reaches. At arm’s length, a fist covers about 10° and a hand span about 20°.
4. Tap “Save”.

Obstacles can also be edited when disconnected. You can save up to 64 per site. Obstacles previously saved for a connection profile transfer automatically to the site matching the mount, within 1 km; if they do not, the list states this.



The site page: coordinates, sky brightness and horizon obstacles.

The app uses the obstacles in the GoTo list (“behind an obstacle”), in the “Visible now” filter, in visibility windows, on the Map, when choosing alignment stars, in Planets and in Night plan. They do not change the firmware limits.

When connected, the chosen site applies if the mount is within 1 km, otherwise the nearest site within 1 km; if there is none, the horizon is free. When disconnected, the site you choose with the “Site: …” row on the following pages applies. “Delete all sites” appears only if the saved list cannot be read.

Light pollution

The “Light pollution” switch, on by default, makes the app take the site’s sky brightness into account. Below it appears the zenith sky brightness in mag/arcsec², read for the mount’s site coordinates from the David Lorenz atlas bundled with the app. No network connection is needed. When connected, the value appears only once the mount has reported its site.

When the switch is on:

- GoTo marks objects as “faint for this sky”;
- the Map can hide stars that cannot be seen under that sky;
- alignment avoids proposing stars that are too faint.

Moonlight adds to the sky according to its phase, producing the “moonlight” and “faint: moonlight” notes.

When disconnected, the page uses the site you choose with the “Site: … ▾” row at the top, see Night and Moon.



The site's sky brightness from the atlas bundled in the app.

Night and Moon

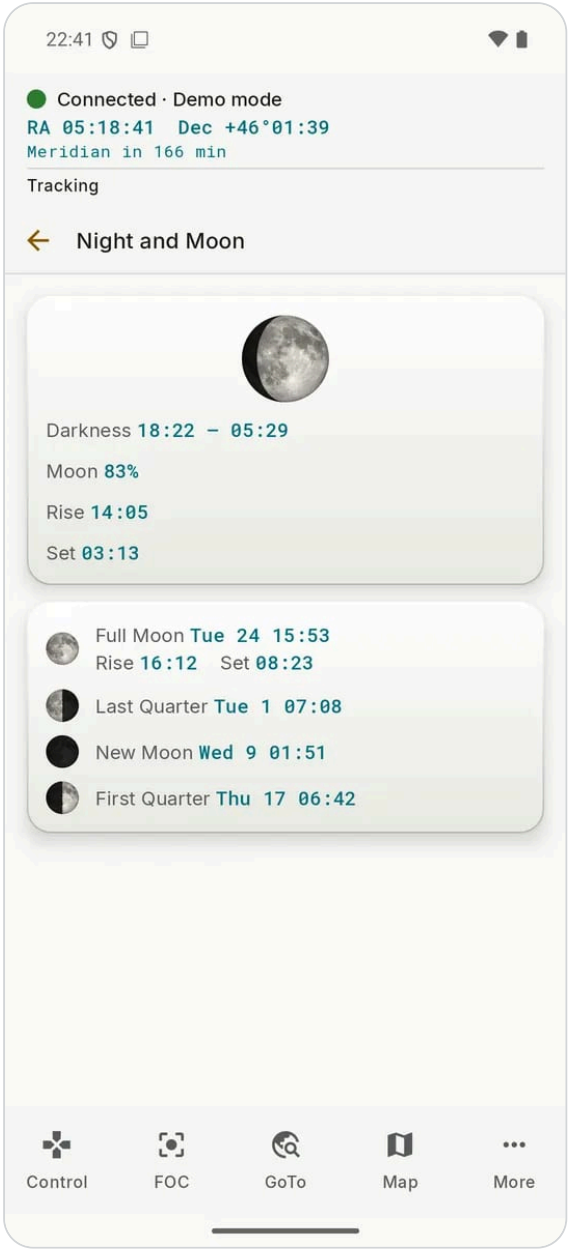
This page shows a photo of the Moon with tonight's phase and four lines:

- **Darkness**: start and end of astronomical darkness. "—" if it does not occur tonight, "24 h" if it lasts all day;
- **Moon**: percentage illuminated;
- **Rise** and **Set**: the Moon's rise and set times.

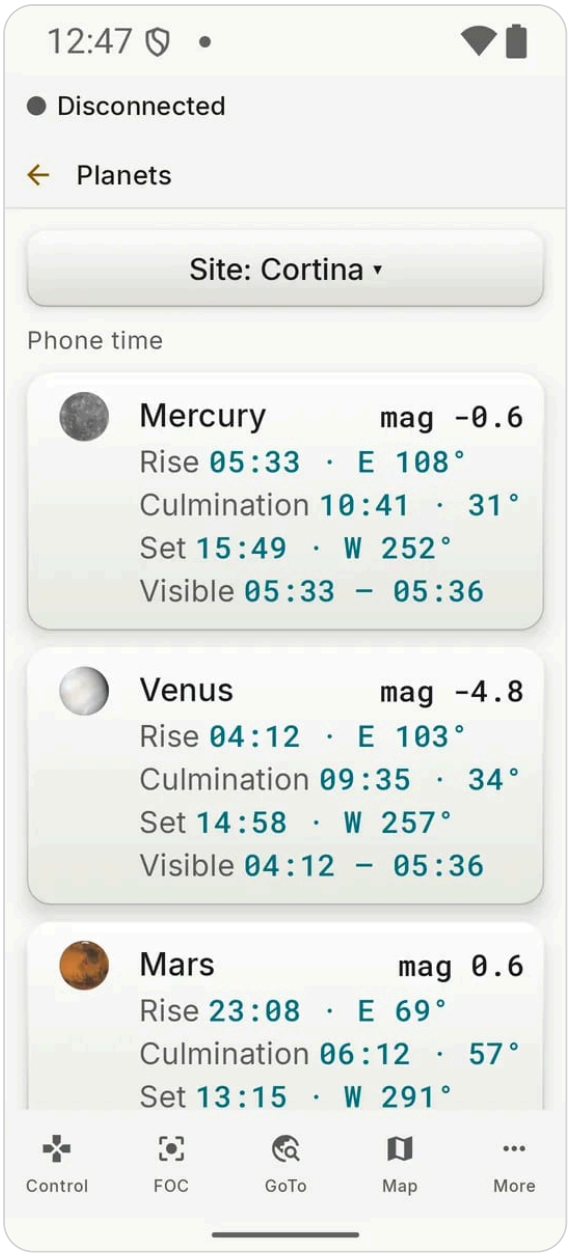
Below are the upcoming phases (New Moon, First Quarter, Full Moon, Last Quarter) with date and time.

When connected, the calculations use the mount's site and time. Without a valid site or time, the page shows the same error as GoTo.

When disconnected, the page still works. At the top, the “Site: … ▾” row selects from your sites and “Phone time” notes that the phone’s time is used. The same applies to Planets and Light pollution. With no sites, the page prompts you to create a “New site”. If you have turned on Weather forecast, a “Clouds …” line for the night also appears.



Night and Moon: astronomical darkness, tonight's Moon and upcoming phases.



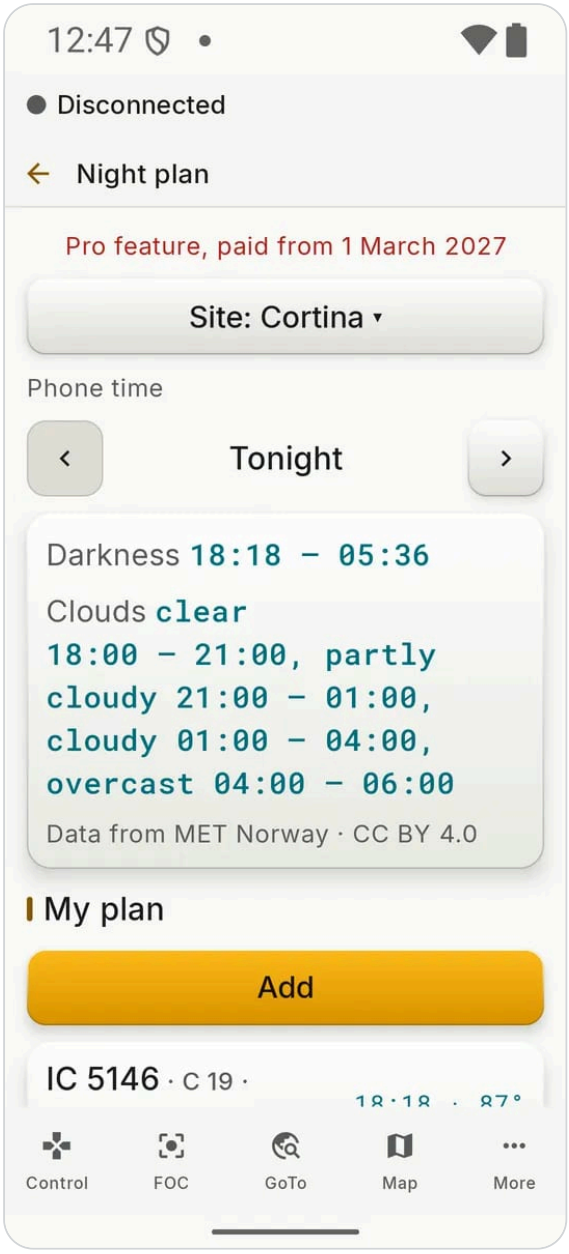
When disconnected: the Site row chooses where to calculate.

Night plan

Night plan collects the objects you want to observe on a given night. It also works when disconnected, using the site chosen at the top. At the top, choose the night with “Previous night” and “Next night”: tonight and the following six nights.

- **My plan** contains your favourites, which are added automatically, and the objects you add manually. On each row you find the “Visible hh:mm – hh:mm” window and, where applicable, “Moon nearby …”. If an object does not rise high enough on that night, the row reads “Not visible this night”.
- **Add** opens the GoTo catalogue search: you search for an object, add it to the plan and immediately see when each one is visible. “Remove from plan” removes it.
- **Suggested for tonight** (“Suggested” on later nights) suggests favourites, planets and the highest Messier and Caldwell objects, with best time and altitude. A planet is suggested only if it reaches 20°. Tapping “Add” puts it in the plan.

If the night does not reach darkness, the page says “No darkness”. When connected, tapping a row opens the GoTo object details and no command is sent. With the “Clouds …” line, the page also shows the cloud forecast if you have Weather forecast turned on.



Night plan: the objects you chose and those suggested for tonight.

Alerts

At the bottom of Night plan, the “Alerts” section is off by default. If you turn it on, the app schedules one notification per night on your phone, one hour before astronomical darkness, for the next 14 nights. It triggers when an object in the plan stays at least 20° above the site’s obstacles for one hour, away from the Moon. For example, the title reads “Tonight: M 31, M 42 and 2 more” and the text “Darkness 18:40–05:10”.

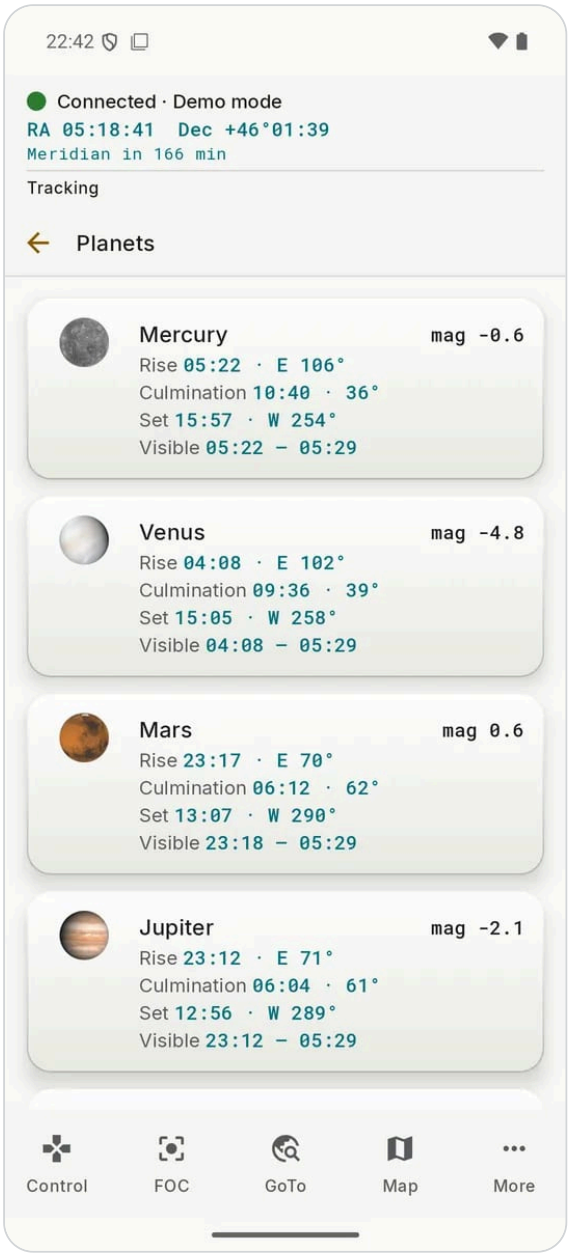
A saved site and notification permission are required. The page shows “Alerts computed until …” and reports “Notifications are not allowed for the app.” or “Alerts need a saved site.” Notifications are computed when you open the app: if you do not open it for more than two weeks, they stop. After a phone reboot, they

are rescheduled the next time you open the app.

Night plan and Alerts are Pro features, see below.

Planets

For every planet from Mercury to Neptune: image, magnitude, “Rise” with time and direction, “Culmination” with time and altitude, “Set”, and either the “Visible” window or “Not visible tonight”. The window takes darkness and the site’s obstacles into account, just like the GoTo object details. Here too, the site and time are the mount’s when connected, or the chosen site and phone time when disconnected.



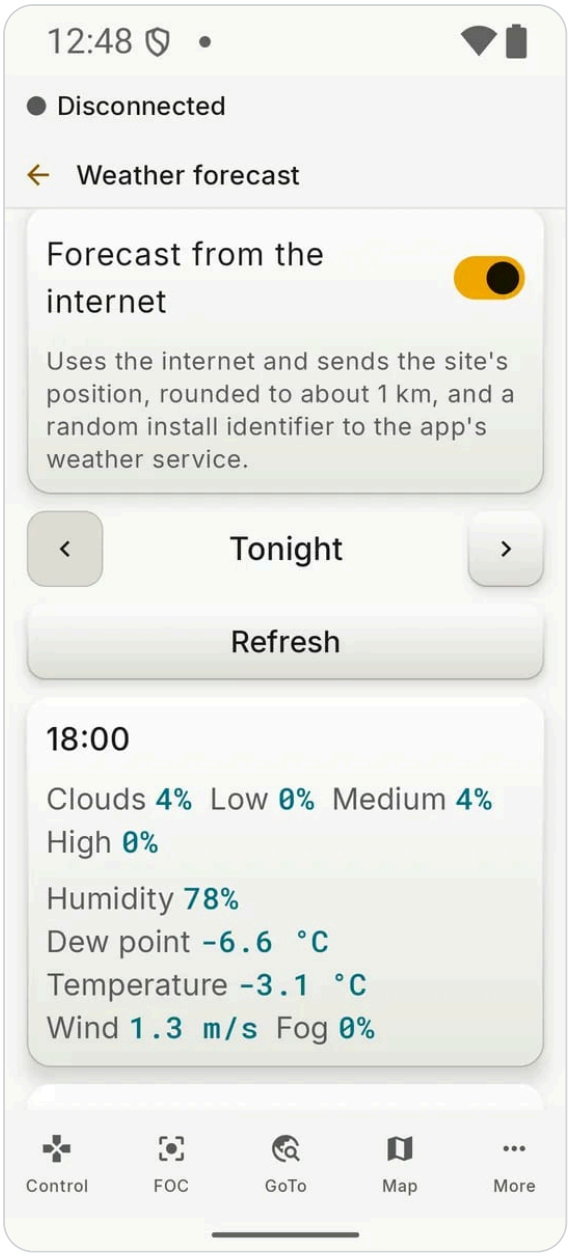
Planets: rise, culmination, set and visibility tonight.

Weather forecast

This page shows the hour-by-hour weather forecast through the night for the chosen site: clouds (low, medium and high), humidity, dew point, temperature, wind and fog. Data comes from MET Norway, the Norwegian weather service.

- “Forecast from the internet” is off by default. When on, the app uses the internet and sends the site’s position, rounded to about 1 km, and a random install identifier to the app’s weather service. Nothing else.
- A site is required: without one, the page says “Create or choose a site to get the forecast”.
- “Updated at …” shows when the forecast was read; “Refresh” reads it again. If the service does not respond, you see “Not up to date: the weather service did not respond” and the last forecast remains on screen.
- If the forecast does not cover the night, the page says “No forecast for this night”.
- Your phone must have Google Play services (Android) to verify the app. Otherwise, the page says “Forecast not available on this device”.

When the forecast is turned on, a “Clouds …” line appears in Night plan and Night and Moon. Weather forecast is a Pro feature, see below.



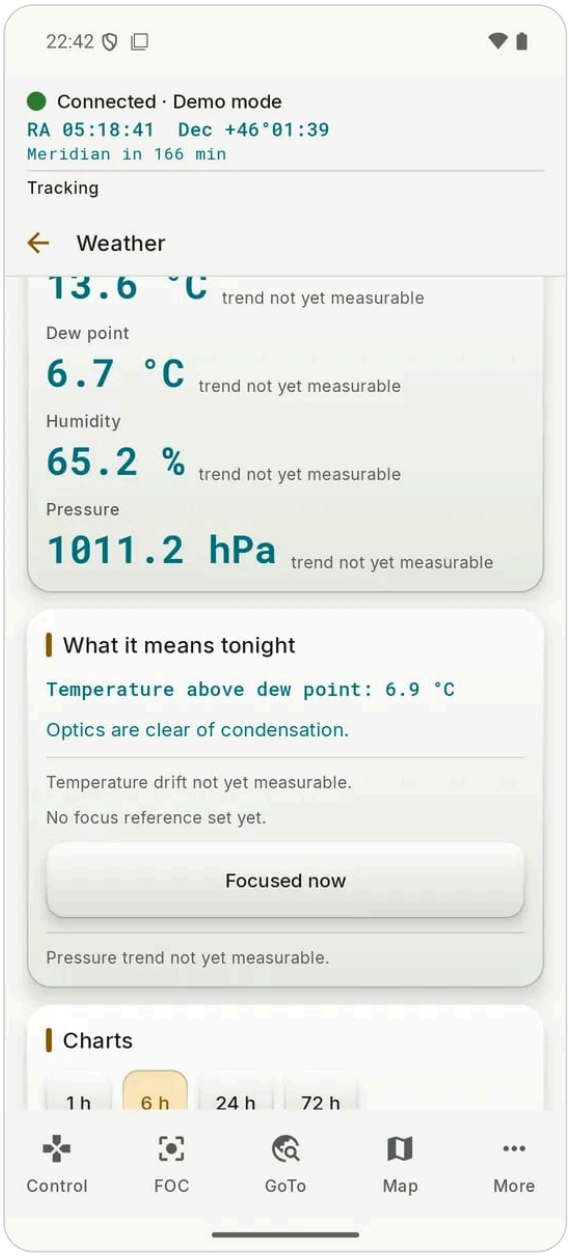
Weather forecast: clouds, humidity, dew point and wind hour by hour.

Weather sensor

This page reads the mount's weather sensor, if fitted. In earlier versions it was called "Weather".

- **Current values**: temperature, dew point, humidity and pressure, with hourly trends.
- **What this means tonight**: how many degrees remain above the dew point, with the warning "Condensation imminent: turn the dew heater up." when the margin drops too low. After focusing, tap "Focused now": the app warns you when the temperature has changed enough to refocus. It also shows the pressure change over the last 3 hours.
- **Charts**: temperature and dew point, humidity and pressure over 1, 6, 24 or 72 hours.
- **Settings**: condensation alert and warning thresholds, and the refocus threshold.

The app logs one sample per minute while connected and retains 72 hours per profile on your phone.



Weather sensor: sensor readings, condensation, focus and charts.

Other pages

- **Connection**: the same page that opens at startup.
- **Home and park**: home sensors, offsets, auto-home on startup and park position.
- **Mount**: mount type, slew rate, tracking compensation and frequency, buzzer.
- **Limits and flip**: horizon, zenith and meridian limits, automatic flip and preferred pier side.
- **Periodic error correction**: record and play back the PEC curve.
- **Backlash**: mechanical backlash of both axes.
- **Motors and axes**: driver and axis parameters. Almost all changes take effect after rebooting the controller.
- **Advanced**: coordinate origin, controller reboot and clearing all mount settings.
- **About and credits**: version, “What’s new”, data and library credits. On Android, “Rate the app” is also here.

Pages that change mount configuration ask for confirmation on every write.

A typical night, step by step

1. **Before heading out.** Try the app in demo mode if it is your first time. In More → App, turn on the theme you plan to use, for example “Night”.
2. **In the field.** Set up and power on the mount, connect your phone to its WiFi and tap “Connect” on the profile.
3. **Date, time and site.** If a warning appears below the status bar, tap “Set up” and sync date, time and site from your phone. Without accurate data, every GoTo will miss its target.
4. **Site.** The first time at a location, save the place in More → Observing sites and add the trees and buildings blocking the sky.
5. **Darkness.** Open Night and Moon to see when astronomical darkness begins and whether the Moon will interfere.
6. **Alignment.** Move the mount to home, unpark it and run star alignment from More → Align.
7. **What to observe.** Prepare your Night plan, or in GoTo turn on “Tonight” to list objects rising above 20° during darkness, ordered by best time. Open the object details to check culmination and visibility window. Star the ones you want to come back to.
8. **Slewing.** Tap “GoTo” in the object details. The app switches to the Map and follows the telescope. Fine-tune with the pad and sync if needed.
9. **Through the night.** Keep an eye on Weather sensor for condensation and focus.
10. **Finish.** Tap “Park” on the Control page, then “Disconnect”.

App settings

More → **App** collects settings stored on your phone. It works even when disconnected.

Theme and brightness

“Theme” offers “Light”, “Dark”, “Night” and “Auto”. “Auto”, the default, follows your phone’s theme. “Night” tints the entire app red so you do not lose dark adaptation. With “Night” selected, “Night mode dimming” appears: low values preserve detail, while high values offer greater protection for night vision.



The Night theme: the whole app in red.

Language and size

- **Language**: Auto, English, Italiano, Français, Español, Português, Deutsch. “Auto” follows your phone’s language. On iOS, the new language takes effect the next time you open the app.
- **App size**: “Normal”, “Large” or “Max”. Enlarges text and buttons throughout the app, on top of the size chosen in your phone’s settings.

Connection

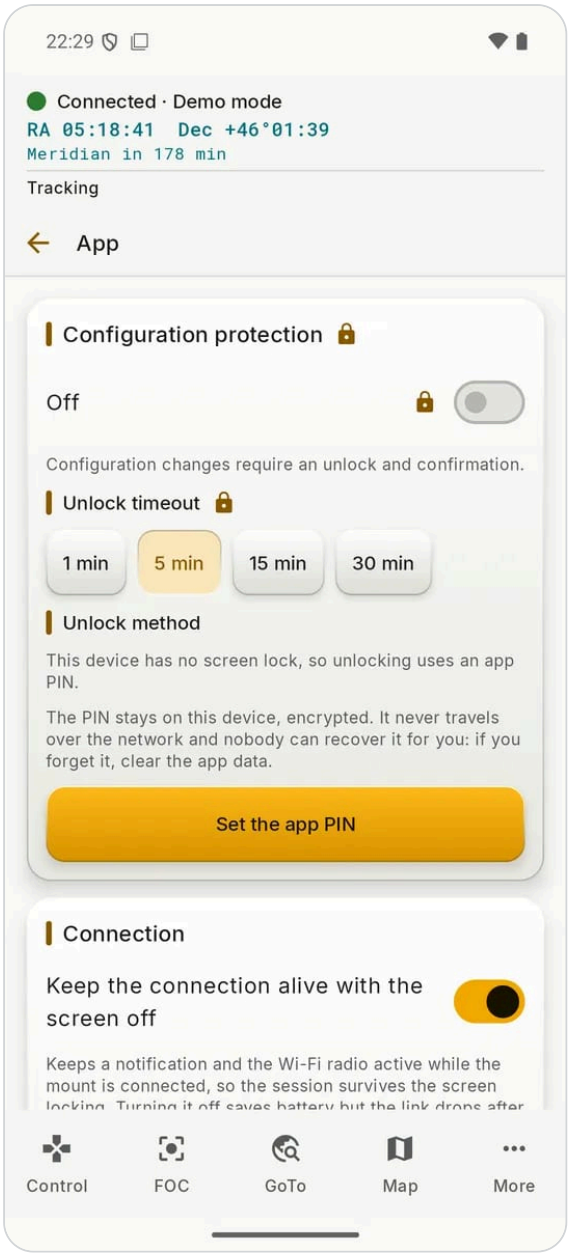
- **Keep the connection alive with the screen off**, on by default. On Android, it keeps a notification and WiFi active while the mount is connected, so the session survives screen lock. On iOS, the system closes background app connections, so with this switch on, the app keeps the screen awake while connected.
- **Ask before moving the mount**, on by default: Park, Home, flip, back to target and Sync ask for confirmation.
- **Hour angle / Distance from meridian**: how the status bar displays distance from the meridian, in minutes, hours and minutes, or degrees.
- Android only: battery optimisation status and “Request exemption”. On some phones you also need to exclude the app from the manufacturer’s power-saving settings.

Configuration protection

With “Configuration protection” turned on, changes to the mount’s configuration require an unlock and confirmation. Unlocking uses your phone’s fingerprint, face unlock or screen lock. If your phone has no screen lock, you set a 4-to-6-digit app PIN.

“Unlock timeout” determines how many minutes you stay unlocked: 1, 5, 15 or 30.

The PIN stays encrypted on your phone and nobody can recover it. If you forget it, you will have to clear the app’s data.



The App page: configuration protection, connection, language and theme.

Diagnostic log

The diagnostic log is used when something goes wrong and you want to send details to the developer.

1. Go to More → App, or About and credits, and turn on “Diagnostic log”. It is off by default.
2. Repeat the action that failed.
3. Tap “Export log” to share it with any app you prefer, or “Save log” to save it to a folder.

The log contains commands exchanged with the mount and errors, so it may contain the site coordinates set in the mount. It stays in the app’s own storage, capped at a maximum size, and leaves your phone only if you share it. “Delete log” erases it.

To report a problem, use the app’s contact form and describe what is happening: we will reply by email and, if needed, ask for the log, which you can send in your reply.

Pro features

All features for operating the mount remain free. From 1 March 2027, some advanced features will require a Pro unlock, via a one-off in-app purchase with no subscription:

- Sky map;
- guided star alignment;
- periodic error correction (PEC);
- Night plan, with alerts;
- Weather forecast;
- Weather sensor, with history and charts;
- advanced Motors and axes settings;
- mount Backlash;
- Rotator;
- focuser temperature compensation and saved positions;
- favourites and recent targets in GoTo.

Currently, these features can be used freely. On their pages, a red line reads “Pro feature, paid from 1 March 2027”. In demo mode, they always remain available.

Privacy

The app has no accounts, no ads and no usage analytics. Profiles, settings, observing sites with their obstacles, favourites, night plan, weather sensor history and logs stay on your phone. Commands, date, time and site go directly from your phone to the mount. Your phone's location is read only when you request it, for example with "Sync site from GPS" or "Where I am now". The map and "Search for a place" in "New site" use Google on Android and Apple on iOS. If you turn on "Forecast from the internet", the app sends the site's position, rounded to about 1 km, and a random install identifier to the weather service.

Details are in the privacy policy.

Troubleshooting

Connection fails to start

- Check that your phone is on the mount's WiFi network and that the mount is powered on.
- If the app says "Connection not tied to the Wi-Fi. Turn mobile data off.", turn mobile data off: some phones route traffic over mobile data when WiFi has no internet access.
- With an active VPN, turn it off or exclude the local network from the VPN.
- "Nothing is listening on … port …": no mount is responding at that address. Check the address and port.
- "Port … not responding" or "The mount closed port … before answering": another app is using that port. Close the other app or choose another port in the profile.
- "The name … could not be resolved": enter the IP address instead of the hostname.
- If "Scan network" finds nothing, enter the IP address manually. On large networks, the scan checks only part of the address range and states this.

Local network permission

- **iOS**: the first scan asks for local network permission. If you denied it, the app cannot see the mount. Enable it in Settings → Privacy & Security → Local Network.
- **Android 17**: Android asks for local network permission on the first WiFi connection. If you denied it, the app shows "Local network permission missing". Grant "Nearby devices" to the app in Android settings, then try again.
- **Bluetooth on Android**: without the "Nearby devices" permission, the app cannot see paired devices.

Connection drops when the screen is off

On Android, turn on "Keep the connection alive with the screen off" under More → App and tap "Request exemption" for battery optimisation. If it still drops, exclude the app from your phone manufacturer's power-saving settings as well. If you denied notifications, the connection stays active, but you cannot stop it from the notification panel.

GoTo and Sync refused: invalid settings

If the mount reports "Saved settings invalid or memory faulty: GoTo and Sync refused. Restart the controller, then check its configuration.", the controller found invalid data in its memory (OnStepX error 15). A frequent cause is PEC worm steps per rotation being out of date or out of range. Restart the controller; if the error persists, check the mount's configuration.

Time source does not respond

"The time source (GPS or clock) gave no date and time: send them from this phone." corresponds to OnStepX error 14. Until date and time are provided, the pad below 2× and guiding will not move the mount. Tap "Resend date and time" in the warning, or use Date, time and site.

Every GoTo misses the target

- Check in Date, time and site that date, time, time zone and coordinates match your phone.
- Before alignment, the mount must genuinely be in the home position.
- A Sync on the wrong object shifts all subsequent GoTo slews. Return the mount to home and repeat the alignment.

Night and Moon, Planets or the visibility window show no values

When connected, these calculations use the mount's site and time: check that it has its date, time and site set. When disconnected, you need a saved site and the "Site: …" row at the top of the page.

Weather forecast does not appear

Check that "Forecast from the internet" is turned on, that your phone has an internet connection and that a site exists: without a site, the page says "Create or choose a site to get the forecast". If the weather service does not respond, the page states this and shows the last forecast with "Not up to date: the weather service did not respond".

I cannot find a feature

Use "Search settings" at the top of More. You can also search by keyword, for example "dew", "flip" or "park".