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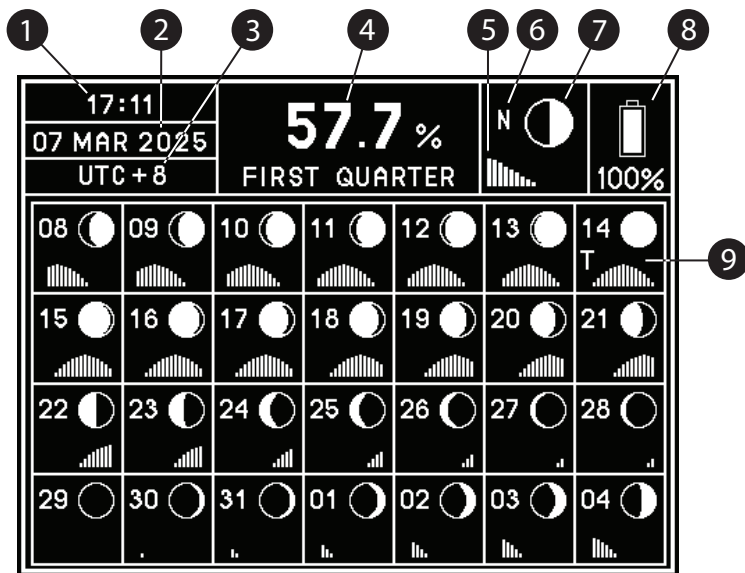
FUNCTIONAL DESCRIPTION

The **Steamrock MT-11 Moon Tracker** is based on an extremely accurate real-time clock. It provides a very clear and simple visual depiction of the moon phases, moonlight availability at night, estimated times of that availability, and lunar eclipse information. This data is shown on a high-contrast, sunlight readable e-paper display.

This device requires the use of a dedicated smartphone app for setting up and controlling it, utilizing NFC technology. However, after setup, it acts as a standalone unit that does not require software updates, an internet connection, or an external power supply. It operates on three AA batteries, displaying the remaining charge using both a battery icon and a percentage.

MT-11 calculates the moon status data without retrieving it from an external source. These calculations are complex and inevitably involve a slight amount of rounding. However, the results are quite accurate, typically within a minute. This device would be useful for nighttime navigation, navigation planning, fishing, and roughly estimating tides.

DISPLAY



- 1 Local Time
- 2 Local Date
- 3 Time Zone
- 4 Moon Status

Shows the current percentage of the moon illuminated, regardless of whether it is visible in the sky, and the current moon phase.

5 Illumination Bars

Suggest the moon's relative height above the horizon overnight. Taller bars indicate the moon is higher in the sky and generally mean better illumination of objects. The width of the cell represents the general period of darkness, whereas the middle of the cell is midnight.

For example, the illumination bars shown in this image represent that the moon's position is at its highest above the horizon on this day just after sunset, and the moonset is about midnight.

6 Hemisphere Symbol

Shows a chosen hemisphere: N for North, S for South. If a total or partial eclipse occurs on that day, the hemisphere symbol will be replaced by T or P, respectively.

7 Moon Shape

Depicts the current shape of the moon in the chosen hemisphere, not adjusting for changes associated with latitude.

8 Battery State

9 28-day Moon Calendar

Displays the average shape of the moon for each of the following 28 days and indicates if a lunar eclipse occurs on that day (T for total, P for partial). In every date cell, illumination bars provide an assessment of moonrise, moonset, and nighttime illumination as described in Illumination Bars section.

The calendar updates every midnight at local time.

NFC

This device requires the use of a dedicated smartphone app for setting up and controlling it, utilizing NFC (Near Field Communication) technology that is present in most modern smartphones. The free Steamrock **MT-11 Moon Tracker** app can be installed on both iOS and Android devices.

The available settings are:

- Time and date (UTC)
- Time zone
- Hemisphere
- Eclipses to display

Using the app, you can also perform factory reset.

Please refer to the corresponding sections for more details.

Once the desired settings are selected in the app, touch the **SET** button at the bottom of the app screen and bring your smartphone's NFC antenna area to the center of MT-11 display within 25 mm (\approx 1 inch). Successful data transfer will be confirmed by a single beep and display update.

SETTING TIME AND DATE

UTC is automatically obtained from your smartphone and set on MT-11 during the transfer of new settings, as detailed in NFC section of this manual.

SETTING TIME ZONE

Select the preferred time zone in the app and transfer the new settings to MT-11 as described in NFC section of this manual.

SETTING HEMISPHERE

Select the preferred hemisphere in the app and transfer the new settings to MT-11 as described in NFC section of this manual.

ECLIPSE DISPLAY OPTIONS

You can choose which lunar eclipses will be displayed: all, none, or only eclipses with the magnitude above a certain threshold. Select the preferred option in the app and transfer the new settings to MT-11 as described in NFC section of this manual.

FACTORY RESET

You can perform a factory reset using either the pushbutton located at the back of the device or the app.

To reset the device using the pushbutton: Press and hold the pushbutton. You will hear a short beep. Continue holding the pushbutton for approximately 5 seconds until you hear a single long beep. Release the pushbutton.

The screen will be updated, showing the QR code on a white background.

To reset the device using the app: Select **Factory Reset**, and touch the **OK** button. Then bring your smartphone's NFC antenna area to the center of MT-11 display within 25 mm (\approx 1 inch). A single beep and display update will indicate that the device has been successfully reset. This procedure will set the default settings for the app as well.

BATTERIES

Use high-quality batteries only. **Panasonic** EVOLTA AA alkaline batteries are recommended for this device.

NiMH rechargeable batteries can be used, but the battery charge state (displayed on the screen) will not be correct, and the operating time will be shorter.

Zinc-carbon batteries are not recommended for this device.

Lithium primary batteries were not tested with this device.

Replace all batteries at the same time. Do not mix old and new batteries, and do not mix different types of batteries or batteries produced by different manufacturers.

When installing the batteries, be sure to observe the polarity marked in the battery holders. **In this device, all positive terminals are up.**

When new batteries are inserted, it may be necessary to briefly press the pushbutton to restart the device.

When the battery charge falls below operating limits, you will see the warning message "REPLACE BATTERIES" on a blank screen. The device will also produce a beep to the tone of the Morse code letter "B" (—···) once.

When you see the "REPLACE BATTERIES" warning, replace or remove the old batteries as soon as possible. **Leakage of the discharged batteries can cause permanent damage to the device.**

No matter if the batteries are low or removed, the device will keep previous settings in its internal memory.

The device will keep time for a while if batteries are removed and they were not completely discharged.

Before leaving the device unattended for a prolonged period of time, check the battery charge. If the battery charge is low, you may want to replace or remove the batteries to keep them from falling below operating limits while unattended and prevent battery leakage.

CAUTION

This device is designed for indoor use only. Although the face of the device is generally splash-proof, it should not be exposed to rain or liquids from other sources, such as cleaning.

Do not clean this device with chemicals, expose it to direct sunlight, or operate it below 0 °C (32 °F) or above 50 °C (122 °F).

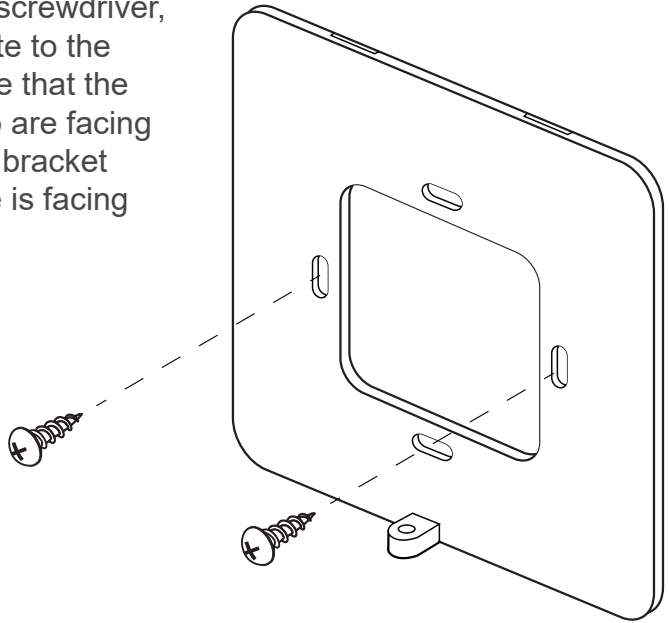
Do not remove the batteries while the display is updating. This can cause display damage.

Electronic paper displays do not need power to retain their images. Therefore, this device will continue displaying the last image on the screen even in the unlikely event of a malfunction or loss of power.

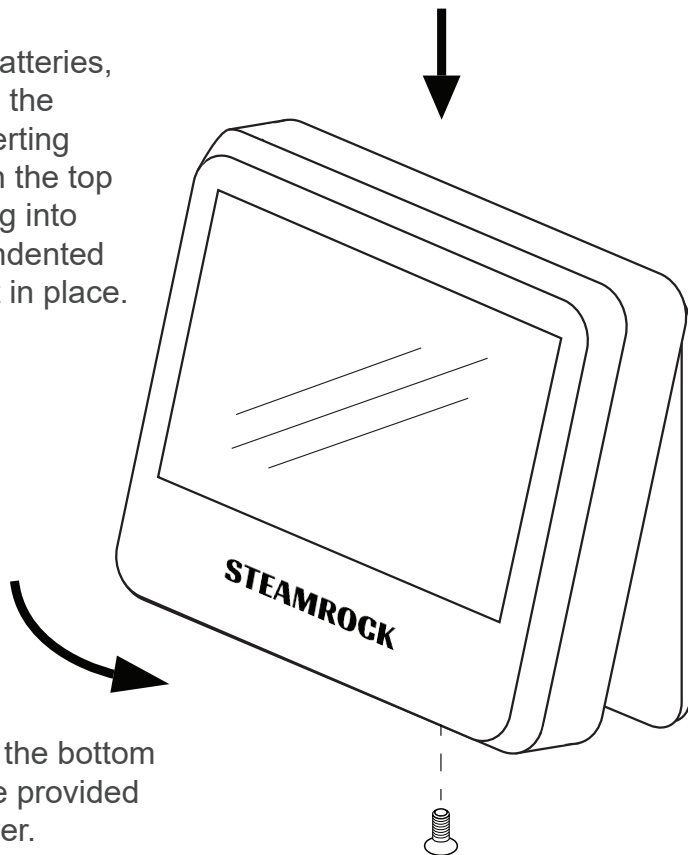
In no case should this device be used as the sole basis for weather prediction or navigation decisions. The user assumes sole responsibility, legal or otherwise, for these decisions.

MOUNTING INSTRUCTIONS

1. Remove the mounting plate from the back of the device using the provided Phillips mini screwdriver.
2. Using the two stainless steel screws provided and your own screwdriver, attach the mounting plate to the bulkhead or wall. Ensure that the indented slots at the top are facing the wall and the bottom bracket with a threaded bolthole is facing outwards.



3. After inserting the batteries, attach the device onto the mounting plate by inserting the small flat hooks on the top inner side of the casing into the mounting plate's indented slots. Carefully push it in place.



4. Screw in the bolt at the bottom of the casing using the provided Phillips mini screwdriver.

LIMITED WARRANTY

If, within one year from the date of original purchase, this device is found to be defective in material or workmanship, it will be replaced or repaired at the discretion of the manufacturer.

This warranty excludes:

- Water or chemical damage
- Battery leakage
- Use of wrong types of batteries
- Installing batteries in reverse polarity
- Physical damage
- Use of the device outside operating limits

Please refer to "Limited warranty" section at steamrock.com for full details.

SPECIFICATIONS

Dimensions:	105 x 105 x 25 mm (4.14" x 4.14" x 1")
Weight:	185 g (without batteries)
Power:	3 x AA (4.5 V)
Display:	4.2" b/w e-paper (85 x 64 mm)
Clock accuracy:	± 2ppm from 0°C to + 40°C
NFC range:	25 mm (1")

OPERATING LIMITS

Temperature:	0 ~ 50 °C (32 ~ 122 °F)
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1. Steamrock MT-11 Precision Moon Tracker	1
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4. Phillips mini screwdriver	1
5. Stainless steel screws	2