

# SOLAR<sup>®</sup> L I G H T

## QUICK START GUIDE

MICROTOPS II<sup>®</sup> SUNPHOTOMETER & OZONOMETER



*Microtops II<sup>®</sup> Side View*



*Microtops II<sup>®</sup> Side View*



*Microtops II<sup>®</sup> & Carrying Case*



*Microtops II<sup>®</sup> & Garmin GPS*



*Microtops II<sup>®</sup> Front View*

# SOLAR<sup>®</sup> LIGHT

## QUICK START GUIDE

### MICROTOPS II<sup>®</sup> SUNPHOTOMETER & OZONOMETER

#### POWER UP

To turn **ON** MICROTOPS II<sup>®</sup> press the **ON/OFF** switch for about ½ second. It will not react to a brief touch. For about 1 second the display shows “Hardware Test” message and the version number of the firmware loaded into the instrument. For the next 2 seconds the “Initialization - keep covered” message is displayed. Keep the top window cover closed until the display shows **RDY (ready mode)**. To turn the instrument **OFF** press the **ON/OFF** button again. It will turn **OFF** only when in the ready mode. Otherwise the **ON/OFF** button is not active. To return to ready mode from any other mode press the **Scan/Escape** button until the **RDY** message appears on the LCD. All buttons are inactive during the measurement scan. The meter will automatically shut off after 10 minutes of inactivity.

#### MENU STRUCTURE

All settings for MICROTOPS II<sup>®</sup> are accessible through a tree-organized menu. At the top of the menu structure is the **ready mode**, where the instrument is prepared to take measurements and displays the following information:



If the name of the selected location is 6 characters long or less it will be displayed in its entirety. Otherwise, only the first 5 characters are displayed followed by two dots indicating continuation. The named locations can be set from a PC via the serial port. If a manually entered (unnamed) location is used then the location name displays “Manual”.

The ID code is a user-adjustable number that is stored with each scan. This number can be incremented/decremented with the **▲** or **▼** keys when in **ready mode**. Its purpose is to store auxiliary user defined information such as sky conditions during measurement or operator’s code etc.

The menu can be accessed by pressing the **Menu/Enter** key while in the ready mode. The simplified structure of the entire menu is shown in Figure 1. Within the same level move with **▲** or **▼** keys. Enter a lower level by pressing **►** or **Enter**, and quit to an upper menu by pressing **Escape** or **◀** (**Escape** only if editing numbers).

When editing various settings the general rule is that **▲** or **▼** increment/decrement a selected (usually underlined) item while the **►** and **◀** keys change the selection.

#### BEFORE MAKING FIRST MEASUREMENT

To measure the ozone column, several MICROTOPS II<sup>®</sup> settings must be properly initialized. These include:

- 1 Universal date and time (UT). By choosing UT for the timing of MICROTOPS II<sup>®</sup> this setting is location-independent. The desired accuracy is  $\pm 20$  seconds.
- 2 Geographic coordinates of the measurement site. Accuracy to a 5 minute angle is adequate for both latitude and longitude. The geographical coordinates can be picked off a map (scale 1:5,000,000 or larger), determined using a GPS receiver or obtained from a local meteorological office. The instrument’s location is initially set for Philadelphia, PA.
- 3 Altitude of the measurement site. The effect of the altitude setting is minor and an accuracy of several hundred meters is sufficient.
- 4 Atmospheric pressure at the measurement site. If the MICROTOPS II<sup>®</sup> is not equipped with the optional barometric pressure sensor then the average station pressure can be used. If the pressure sensor is built-in then the station pressure should be set to 0. Otherwise the user preset station pressure has precedence over the measured pressure.

Other settings should remain at their factory preset state. Changing these settings should only be attempted by experienced users having a full understanding of the inner workings of the device. In case a change is inadvertently made, the factory settings can be restored using the “*Restoring Factory Calibrations*” function in the menu. All settings are retained in the meter’s nonvolatile memory and are effective until the next change is made.

### FIRST MEASUREMENT

Once the initial set up is completed the MICROTOPS II<sup>®</sup> is ready to take measurements. The following steps outline the procedure:

- 1 Make sure that the top window cover of the MICROTOPS II<sup>®</sup> is closed and then turn the instrument **ON**. When the display shows **RDY (ready mode)** you may open the top window cover.
- 2 Point the instrument's window towards the sun and adjust its position so that the image of the sun appears in the "Sun target" window. Center the image of the sun on the bull's-eye. Best results will be obtained during clear conditions with the sun high in the sky. Haze and thin clouds will increase the measurement's variability, but the ozone readings are still valid.
- 3 While keeping the sun's image centered, press the **Scan/Escape** button to initiate the scan. The meter will beep and the LCD will show:

SCAN 234  
POINT AT THE SUN

The number in the top line is the count of the current scan including all the scans stored in meter's memory.

- 4 Aim the meter towards the sun until the instrument beeps twice and the display shows the **RDY** message. At that time the measurement is complete. To view the measurement results press the ► button. The ► and ◀ keys will scroll through the parameters for an individual record (one scan or measurement). The ▲ and ▼ buttons change the selected record. Each record is identified by its date and time in the top LCD line. To go back to the **ready mode** press the **Scan/Escape** button.

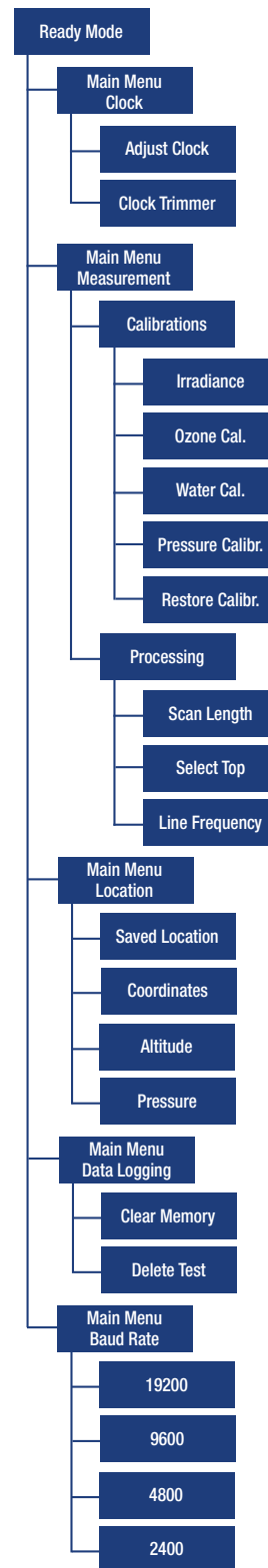


Figure 1 Simplified MICROTOPS II<sup>®</sup> Menu