

Turf-Tec Macroscope Portable Monocular Microscopes 20x 40x and 100x Magnification Power Scopes with Pen Light

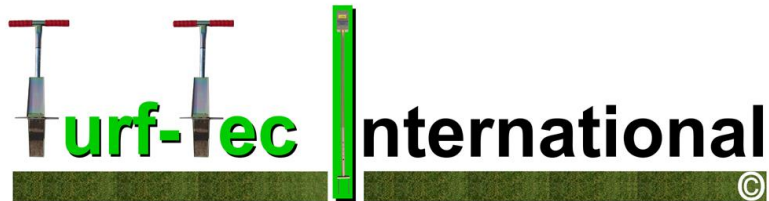
Instructions



Turf-Tec Macroscope portable monocular microscopes are designed to fill the need for superior image quality in simple, cost effective configurations for application in the field as well as research, production, quality control or wherever superior image quality is essential. Turf-Tec Macroscope portable microscopes represent a significant departure from current day trends towards more sophistication and more elaborate features. Instead, they offer a simple, basic design and an ease of use not found in today's laboratory microscopes but without compromising optical or mechanical quality.

Turf-Tec Macroscopes are available in three magnification powers, Macroscope 20X, Macroscope 40X and the Macroscope 100X power units. All three units produce images superior to most laboratory instruments in resolution, contrast, brightness, and field of view but at only a fraction of the cost. All units incorporate a calibrated measuring reticle providing precise measurements of objects being viewed.

Unit bodies are constructed of solid aluminum, with aluminum and stainless steel parts and glass optics that are of the highest quality for long life. Each unit also comes with a pen light.



The Macroscope 20X offers a 5/16 (0.8 mm) field of view

Turf-Tec Macroscope 20X is a fixed magnification monocular unit that provides 20X magnification and is ideal for insect identification in turfgrass environments.

The Macroscope 40X offers a 3/16 inch (0.4 mm) field of view

The Turf-Tec Macroscope 40X is a fixed magnification monocular unit that is equivalent in performance to instruments costing thousands of dollars but is much quicker and easier to use. The 40X Macroscope is ideal for disease diagnosis on turfgrass plants.

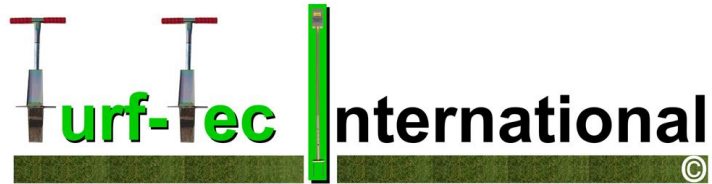
The Macroscope 100X offers a 1/16 inch (0.15 mm) field of view

The Turf-Tec Macroscope 100X is a fixed magnification monocular unit that is equivalent in performance to much more expensive instruments but is much quicker and easier to use. The 100X Macroscope is ideal for disease diagnosis on turfgrass plants.

Images produced by all three units are positional correct, making it easier to locate the precise area of interest. This is especially helpful under difficult circumstances or for the inexperienced user. The Macroscope is a simple mechanical design for portability. All three units can be used not only in the field but also for in-place observation of specific portions of large or immovable objects such as golf greens, sports fields, bridge girders, an aircraft wing or windshield, cement structure, etc., without the need for destructive sampling for laboratory analysis.

Applications for the units are diversified and numerous. Archeology, botany, entomology, forensics, geology, horticulture, numismatics and philately, quality control and textiles are just a few of the disciplines that can benefit from the use of the Turf-Tec Macroscope portable microscopes.

The Turf-Tec Macroscope has been shown to be highly effective in diagnosing Asian Soybean Rust (*Phakopsora pachyrhizi*). Asian Soybean Rust is a fungal disease that can quickly defoliate soybean plants and reduce pod set, pod fill, seed quality and yield. The Macroscope is also an excellent way to diagnose Citrus Greening, also called Huanglongbing or Yellow Dragon Disease, one of the more serious diseases of citrus. This bacterial disease is thought to have originated in China and is spread by Asian Citrus Psyllid *Diaphorina Citri* and the Asian Citrus Psyllid. The Macroscope 40X is also useful in identifying Cryptic or Silverleaf Whitefly, (*Bemisia Tabaci*) Species Q vs B.






**Turf-Tec Macroscopic Portable Monocular Microscopes
20x 40x and 100x Magnification Power Scopes with Pen Light**

Instructions



Assembly Instructions

<p>**Important** Remove the Macroscopic from its protective box and lay it on its side</p>	<p>**Important** Turn focusing knob clockwise, so eyepiece is raised up and does not come in contact with desk when placed upright</p>	<p>Remove the Macroscopic light pen from its protective box</p>
<p>Install 2 AAA batteries in the pen light and secure cap</p>	<p>Assemble pen light as shown and test unit by turning on</p>	<p>Assemble pen light to Macroscopic as shown so pen points down and power button is facing up</p>
<p>Tighten nut with wrench provided to secure pen light to Macroscopic</p>	<p>Remove protective dust cap from top of unit</p>	<p>Insert the lens into the top of the Macroscopic</p>

		
Loosen the depth gauge and adjust downward to prevent lens from touching work surface or object you are viewing	Hand tighten the depth gauge	Macroscope can now be stood up on its base and is ready for use

Focusing Instructions

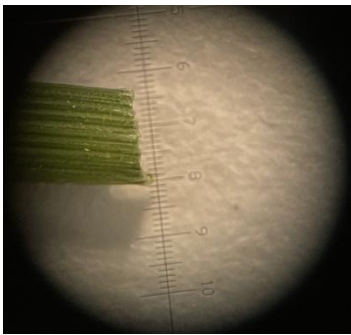
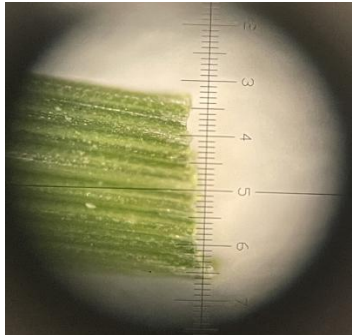
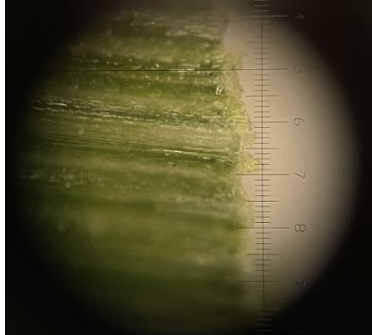
The assembled Macroscope has two knurled focus adjustment knobs as well as a scale focusing knob on the eyepiece.

	
Adjust the eyepiece focus knob (Top of Macroscope) by holding the eyepiece and then turning the focus knob until the inch / mm reticle is as sharp as possible disregarding the image of the object	After the reticle is sharp adjust the closeup focus knobs (middle of Macroscope) until the image of the object is sharp

Measuring Size of Objects

The Macroscopes come with a precise measuring reticle that also allows you to determine the size of an object under the Macroscope with the measuring reticle.


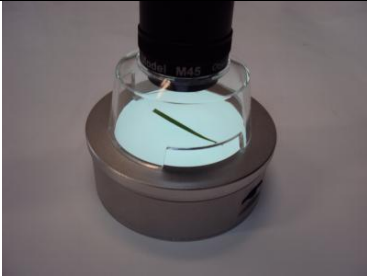
Please use the following information to measure the size of an object:

		
20x Scale 0 to 2 = 1 mm	40x Scale 0 to 4 = 1 mm	100x Scale 0 to 10 = 1 mm

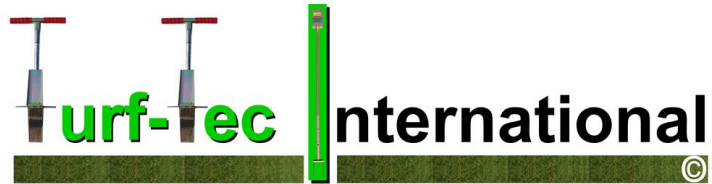
Macroscope Portable Monocular Microscopes Specifications

Description	20x Macroscope	40x Macroscope	100x Macroscope
Total magnification	20x power	40x power	100x power
Marking on bottom of unit	SP A2 0.05 160/-	4/ 0.1 160/0.17	10 0.25
Working Distance	0.677 inch / 17.2 mm	0.70 inch / 18 mm	0.27 inch / 6.93 mm
Field of View	5/16 inch / 0.8 mm	3/16 inch / 0.4 mm	1/16 inch / 0.15 mm
Weight	1 lb. 7 oz / 650 gram	1 lb. 7 oz / 650 gram	1 lb. 7 oz / 650 gram
Maximum dimensions	5.6 x 2.5 x 8.26 inch - 143 x 63 x 210 mm	5.6 x 2.5 x 8.26 inch - 143 x 63 x 210 mm	5.6 x 2.5 x 8.26 inch - 143 x 63 x 210 mm
Construction	Solid Aluminum body with aluminum and stainless steel parts and glass optics	Solid Aluminum body with aluminum and stainless steel parts and glass optics	Solid Aluminum body with aluminum and stainless steel parts and glass optics
Illumination	Pen light and holder 5.5 x 0.7 x 3.0 inch - 14 x 1.7 x 7.6 cm	Pen light and holder 5.5 x 0.7 x 3.0 inch - 14 x 1.7 x 7.6 cm	Pen light and holder 5.5 x 0.7 x 3.0 inch - 14 x 1.7 x 7.6 cm
Useful for the following purposes	Insect identification	Insect and disease identification	Disease identification and nematode damage identification

Accessories Available

<p><u>MACRCCA-2-L</u> - USB Digital Microscope and stand - 20x & 300x - 5 Mega Pixel Attachment</p>	<p><u>MACRLT-L</u> - Macroscope Light Table</p>
	

MACR20-2-L - Macroscope 20X Power
MACR40-2-L - Macroscope 40X Power
MACR100-2-L - Macroscope 100X Power



Care and Cleaning of Macroscope

- Never disassemble lens because they are factory calibrated and sealed
- Keep the Macroscope clean and dust free
- Use compressed air to dust the unit
- The Macroscope should be kept in its case when not in use and stored in a cool, dry area

LIMITED WARRANTY OF TURF-TEC INTERNATIONAL PRODUCTS

Turfgrass Products Corporation - dba - Turf-Tec International ("Seller") warrants to the final purchaser, that all Turf-Tec International tools will be free from defects in material or workmanship for a period of one year from date of purchase. SELLER'S SOLE OBLIGATION AND YOUR EXCLUSIVE REMEDY under this Limited Warranty and, to the extent permitted by law, any warranty or condition implied by law, shall be the repair or replacement of parts, without charge, which are defective in material or workmanship and which have not been misused, carelessly handled, or improperly repaired by persons other than Turf-Tec International. To make a claim under this Limited Warranty, you must return the complete tool, transportation prepaid, to Turf-Tec International after contacting Turf-Tec International and receiving a return authorization number. Please include a dated proof of purchase with your tool.

ANY IMPLIED WARRANTIES SHALL BE LIMITED IN DURATION TO ONE YEAR FROM DATE OF PURCHASE. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING BUT NOT LIMITED TO LIABILITY FOR LOSS OF PROFITS) ARISING FROM THE SALE OR USE OF THIS PRODUCT.

Hold Harmless Agreement

The seller shall protect, defend, indemnify and hold the purchaser and their respective assigns and their attorneys, accountants, employees, officers and directors harmless from and against all losses, costs, liabilities, claims, damages and expenses of every kind and character, as incurred, resulting from or relating to or arising out of the inaccuracy of results, injury of user, injury of sports participant, turfgrass loss, warranty, covenant or any agreement made by the seller in this agreement.