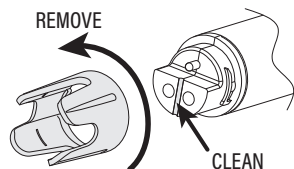


CLEANING & MAINTENANCE

Through use, debris and dirt can accumulate on the electrodes. To maintain accuracy and reliability the meter requires cleaning. Quickly rinse the meter after use to prevent build up of excess. Monthly, a more thorough cleaning is recommended.

To do so follow these easy care steps:

1. Let the meter sit in water for salt build-up to dissolve.
2. Rotate the crown-shaped cap counter-clockwise to remove and clean.



3. Rinse the electrodes under a stream of running tap water.
4. Use a soft material (soft bristle brush) and an abrasive cream cleaner (home use) to thoroughly clean electrodes surface.
5. Rinse thoroughly and shake excess water off. Replace the cap.

STORAGE

The meter should be stored dry and clean in its protective packaging.

CERTIFICATION

Milwaukee Instruments conform to the CE European Directives.



RoHS
compliant



Disposal of Electrical & Electronic Equipment. Do not treat this product as household waste. Hand it over to the appropriate collection point for the recycling of electrical and electronic equipment.

Disposal of waste batteries. This product contains batteries. Do not dispose of them with other household waste. Hand them over to the appropriate collection point for recycling.

Please note: proper product and battery disposal prevents potential negative consequences for human health and the environment. For detailed information, contact your local household waste disposal service or go to www.milwaukeeinstruments.com (USA & CAN) or www.milwaukeeinstruments.eu.

RECOMMENDATION

Before using this product, make sure it is entirely suitable for your specific application and for the environment in which it is used. Any modification introduced by the user to the supplied equipment may compromise the meter's performance.

For your and the meter's safety do not use or store the meter in hazardous environment. To avoid damage or burn, do not perform any measurement in microwave ovens.

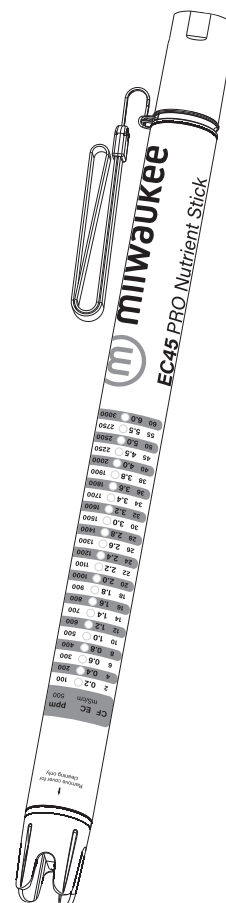
WARRANTY

This instrument is warranted against defects in materials and manufacturing for a period of 2 years from the date of purchase.

This warranty is limited to repair or free of charge replacement if the instrument cannot be repaired. Damage due to accidents, misuse, tampering, or lack of prescribed maintenance is not covered by warranty. If service is required, contact your local Milwaukee Instruments Technical Service. If the repair is not covered by the warranty, you will be notified of the charges incurred.

When shipping any instrument, make sure it is properly packaged for complete protection.

EC45 PRO EC / TDS / CF Nutrient Stick Meter



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milwaukeeinstruments.eu
milwaukeeinstruments.com (USA & CAN)



PRELIMINARY EXAMINATION

Thank you for choosing Milwaukee Instruments!
Remove the meter from the packaging and examine it carefully.
For further assistance, please contact your closest Milwaukee office.
The **EC45** is delivered in a plastic tube and is supplied complete with:

- 3 x 1.5V AA batteries
- Instrument quality certificate
- Instruction manual

Note: Keep all packing material until you have verified that the instrument works correctly. Defective or damaged items must be returned in their original packaging.

GENERAL DESCRIPTION

The **EC45** Nutrient stick meter is designed to accurately measure the electrical conductivity (EC) in mS/cm, total dissolved solids (TDS) conversion in parts per million (ppm), and conductivity factor (CF) of the nutrients in water.

The meter features an extended range of up to 6.0 mS/cm (EC), 3000 ppm (500 ppm scale), 4200 ppm (700 ppm scale), 60 CF and as such is suitable for crops that have higher than normal EC readings during their growing cycle.

The conversion from conductivity factor (CF) to electrical conductivity (EC) is 10 CF = 1 mS/cm.

As part of an effective nutrient management strategy, the meter can be used for regular checks to help protect against excessive nutrient build up (or detect deficient nutrient levels) and ensure correct nutrient concentration.

The IP67 waterproof rated and floating casing houses the EC graphite electrodes and temperature sensor, and is suitable for stirring and testing simultaneously.

FEATURES

- Auto-on when placed in nutrient water / Auto-off set to 30 seconds
- Rugged and doubles as a stirring stick
- Readings displayed by 24 brightly lit LED lights
- No user calibration needed
- Conductivity scales and operational instructions printed on the meter body
- Low-battery warning
- Easy to clean (detachable crown-shaped cap)

SPECIFICATIONS

EC	Range	0.2 to 6.0 mS/cm
	Resolution	0.1 mS/cm (0.2 to 4.0 mS/cm) 0.25 mS/cm (4.0 to 6.0 mS/cm)
TDS	Range	500 ppm scale: 100 to 3000 ppm 700 ppm scale: 140 to 4200 ppm
	Resolution	500 ppm scale: 50 ppm (100 to 2000 ppm) 125 ppm (2000 to 3000 ppm) 700 ppm scale: 70 ppm (140 to 2800 ppm) 175 ppm (2800 to 4200 ppm)
CF	Range	2 to 60 CF
	Resolution	1 CF (2 to 40 CF) 2.25 CF (40 to 60 CF)
Accuracy	± 4% of reading ± 1 resolution point	
Calibration	Factory calibrated (no user calibration)	
Probe	Graphite electrode in ABS + PC body	
Temp. compensation	Automatic from 5.0 to 50.0 °C (41.0 to 122.0 °F)	
Battery type	3 x 1.5V AA alkaline	
Battery life	About 3 years (10 measurements per day)	
Measurement display	24 blue LEDs	
Environment	0 to 50 °C (32.0 to 122.0 °F); max. RH 95%	
Dimensions	444 mm (17.48") length, Ø 30 mm (1.18")	
Weight with batteries	265 g. (9.3 oz.)	
Casing protection	IP67, floating	

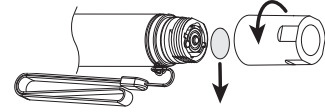
OPERATIONAL GUIDE

When immersed, the meter starts measuring automatically and displays current electrical conductivity level.

Auto shut-off time is set at 30 seconds after the measurement has stabilized.

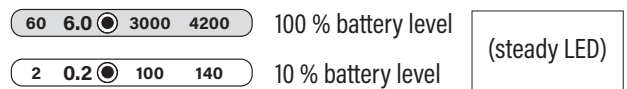
Remove Battery Film

1. Rotate the battery cap counter clockwise to remove the protective film.



2. Tightly screw the battery cap back on. LED lights on the side turn on along the conductivity scale (and back), and display battery level status:

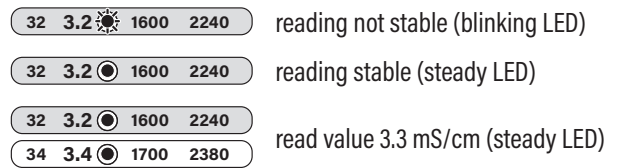
- If the top LED is on, the batteries are fully charged.
- If the bottom LED is on, the batteries are low and need to be replaced.



Measurement

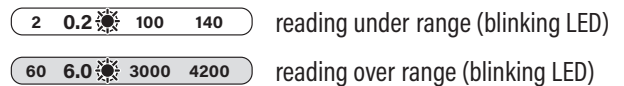
Place the head of the probe in nutrient solution and stir.

LED lights on the side indicate measurement status as per examples given here:



Note: A change in conductivity level resets the auto-off timer.

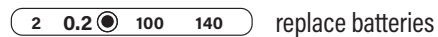
To take another reading, simply remove the meter from water then place it back in the water. With meter removed from water, measurement is kept displayed on the conductivity scale for reading.



BATTERY REPLACEMENT

After approximately 3 years of use batteries require replacement.

When the meter is placed in nutrient water LED lights light up along the conductivity scale (and back), and display low-battery warning.

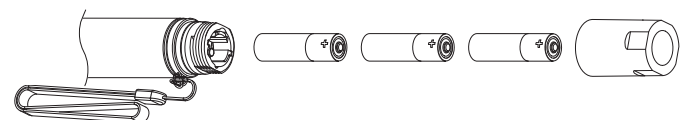


Users should replace the batteries before they run out as the accuracy of readings may decrease as the batteries run out.

Note: Do not mix different brands of batteries or old batteries with new ones.

To replace the batteries:

1. Rotate the battery cap counter-clockwise to remove it.
2. Take out the old batteries.
3. Insert the new batteries (1.5V AA) with negative (-) end first.



4. Tightly screw the battery cap back on.
5. Battery level is displayed.