

# Cover more space

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[metergroup.com/environment/products/ec-5-soil-moisture-sensor](https://metergroup.com/environment/products/ec-5-soil-moisture-sensor)



## Large network soil moisture sensing

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## ECH<sub>2</sub>O EC-5

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### Low cost individual sensors for large sensor networks

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The EC-5 delivers research-grade accuracy at a price that makes large sensor networks economically practical. You can adequately characterize your site with sensors at multiple depths and locations, even if you're on a tight budget.

### Engineered for accuracy

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The EC-5 determines volumetric water content (VWC) by measuring the dielectric constant of the media using capacitance/frequency domain technology. Its 70 MHz frequency minimizes salinity and textural effects, making this sensor accurate in almost any soil or soilless media. Factory calibrations are included for mineral soils, potting soils, rockwool, and perlite.

### Easy installation

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Just 5 cm long with a ~0.2 L measurement volume, this handy little sensor is easy to install in the field and can also be used in nursery pots. The EC-5's compact design makes it easy to push directly into undisturbed soil to ensure good accuracy.

## Easy integration

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The EC-5's analog signal means no-hassle integration with systems manufactured by other companies.

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## Features

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- Measures volumetric water content
- Affordable: ideal for large sensor networks
- Simple sensor with excellent accuracy
- Small volume of influence (eg., field spatial variability, lab column studies, or greenhouse research)
- 70 MHz frequency minimizes salinity and textural effects
- Factory calibrations included for mineral soils, potting soils, [rockwool](#), and perlite
- Small size means easy installation
- Plug and play capability
- Easy integration with other systems
- Use with [ZL6](#) data logger to collect data remotely

## Specifications

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### MEASUREMENT SPECIFICATIONS

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Volumetric water content (VWC)	<b>Range:</b> 0%–100% <b>Resolution:</b> 0.001 m <sup>3</sup> /m <sup>3</sup> VWC in mineral soils, 0.25% in growing media <b>Accuracy:</b> Generic calibration: ±0.03 m <sup>3</sup> /m <sup>3</sup> typical in mineral soils that have solution EC <8 dS/m Medium specific calibration: ±0.02 m <sup>3</sup> /m <sup>3</sup> in any porous medium (± 2%)
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Measurement volume	See <a href="#">comparison article</a>
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### COMMUNICATION SPECIFICATIONS

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Output	10%–50% of excitation voltage (250–1,250 mV at 2,500 mV excitation)
Data logger compatibility	METER data loggers (ZL6, EM50/60 series, Em5b) or any data acquisition systems capable of switched 2.5–3.6 VDC excitation and single-ended voltage measurement at greater than or equal to 12-bit resolution.  <b>NOTE: These calibration constants only apply to 2,500-mV excitation; use of these numbers with any other excitation voltage results in erroneous readings!</b>
PHYSICAL SPECIFICATIONS	
Dimensions	Length: 8.9 cm (3.50 in) Width: 1.8 cm (0.71 in) Height: 0.7 cm (0.28 in)
Prong length	5 cm (1.97 in)
Operating temperature range	Minimum: –40 °C Typical: NA Maximum: +60 °C  <b>NOTE: Sensors may be used at higher temperatures under certain conditions; contact Customer Support for assistance.</b>
Cable length	5 m (standard) 40 m (maximum custom cable length)  <b>NOTE: Contact Customer Support if a nonstandard cable length is needed.</b>
Connector types	3.5-mm stereo plug connector or stripped and tinned wires
ELECTRICAL AND TIMING CHARACTERISTICS	
Supply voltage (VIN to GND)	Minimum: 2.5 VDC at 10 mA Typical: NA Maximum: 3.6 VDC at 10 mA
Measurement duration	Maximum 10 ms

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COMPLIANCE      Manufactured under ISO 9001:2015  
EM ISO/IEC 17050:2010 (CE Mark)  
2014/30/EU  
2011/65/EU  
EN61326-1:2013  
EN50581:2012

California requires the following notice:

WARNING: This product may contain chemicals including ethylene glycol, lead, nickel, styrene and cadmium, which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

## Support

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Have a question or problem? Our support team can help.

We manufacture, test, calibrate, and repair every instrument in-house. Our scientists and technicians use the instruments every day in our product testing lab. No matter what your question is, we have someone who can help you answer it.

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