

Comparison of ECH₂O Sensors

All ECH₂O sensors share the following specifications:

- Cable Length: 3m (custom lengths and ends available)
- Operating Environment: -40 to 60°C, 0 - 100% RH
- Measurement Time: 10ms
- Resolution: 0.002m³/m³ typical with Em50 and Em5b loggers; other loggers may vary.

Type	EC-5	EC-10	EC-20	EA-10	EC-TM	ECHO-TE
Length	5cm	10cm	20cm	10cm	5cm	5cm
Measures	Volumetric water content	Volumetric water content	Volumetric water content	Volumetric water content	Volumetric water content and temperature	Volumetric water content, temperature and electrical conductivity
Accuracy	±3% typical on all soils, up to 8dS/m. ±1-2% with soil-specific calibration.	±4% typical on low EC and medium-textured mineral soils. ±1-2% w/ soil-specific calibration.	±4% typical on low EC and medium-textured mineral soils. ±1-2% w/ soil-specific calibration.	±4% typical on low EC and medium-textured mineral soils. ±1-2% w/ soil-specific calibration.	MINERAL SOIL: ±3% up to 8dS/m, ±1-2% w/ soil-specific calibration. ROCKWOOL: ±3%, 0.5-8dS/m. POTTINGSOIL:±3%, 3-14dS/m.	MINERAL SOIL: ±3% up to 8dS/m, ±1-2% w/ soil-specific calibration. ROCKWOOL: ±3%, 0.5-8dS/m. POTTINGSOIL:±3%, 3-14dS/m.
Range	0-100% VWC	0-40% VWC	0-40% VWC	0-100% VWC	0-100% VWC	0-100% VWC
Electrical Inrterface	3.5mm plug, 3-wire	3.5mm plug, 3-wire	3.5mm plug, 3-wire	2-wire analog, 4-20mA	3.5mm plug, 3-wire	3.5mm plug, 3-wire
Supply Voltage	2.5-5V DC @ 10mA	2.5-5V DC @ 10mA	2.5-5V DC @ 10mA	line-powered 7-32 VDC, overvoltage & reverse-polarity protected.	3-16 VDC, 0.3mA quiescent, 10mA for 9ms measurement.	3-16 VDC, 0.3mA quiescent, 10mA for 9ms measurement.
Frequency	70MHz	5MHz	5MHz	5MHz	70MHz	70MHz
Output	Voltage, correlated linearly (soil) or polynomially (growing media) with VWC	Voltage, correlated linearly w/soil VWC	Voltage, correlated linearly w/soil VWC	Voltage, correlated linearly w/soil VWC	Serial 3V TTL, 8bit, 1-stop bit, no parity.	Serial 3V TTL, 8bit, 1-stop bit, no parity.

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