

SIGNUX HEC20

Soil probes — RS485 · 4-20 mA · Voltage



SX-HEC20



DESCRIPTION

Direct-insertion probe that measures volumetric moisture, electrical conductivity and soil temperature. Plastic body sealed in epoxy resin with stainless steel rods, made to stay buried.

The sensor can be calibrated for different soil types, whether in research, irrigation, greenhouses, smart agriculture, among other fields.

FEATURES

- Three parameters at a single point: Moisture, conductivity, and temperature measured in the same soil volume—without the need for three separate installations or boreholes.
- Waterproof, IP68: Sealed in epoxy resin with stainless steel rods. Bury it and forget it: it needs no manhole or watertight box.
- Low sensitivity to salinity: The moisture reading holds up in saline soils, where ordinary capacitive probes drift.
- Multiple integration options: RS485 with Modbus RTU, or analogue output as 0-2 V voltage or 4-20 mA current. No intermediate platform.
- Protected against installation mistakes: Reverse-polarity protection and built-in TVS/ESD suppressors, which is what fails in the field.
- Calibratable for your soil: Supports soil-specific calibration when the texture strays from the factory default.

AT A GLANCE

Measures	Moisture · Conductivity · Temperature
Output	RS485 · 4-20 mA · Voltage
Protection	IP68
Operating	-40 to +85 °C

GENERAL

Measured quantities	Moisture · Conductivity · Temperature
Family	Direct-insertion probe
Output	RS485 · 4-20 mA · Voltage
Rods	3 pcs

TEMPERATURE

Range	-40 to +80 °C
Resolution	0,1 °C
Accuracy	±0,5 °C

SOIL MOISTURE

Measuring principle	FDR	Frequency-domain reflectometry
Range L	0-50 / 0-100 %	Depending on the ordered configuration
Resolution	0,03 %	In the 0-50 % section
Range H	0-100 %	Depending on the ordered configuration
Resolution	±2 %	In the 0-100 % section
Accuracy	1 %	In the 0-50 % section
	±3 %	In the 50-100 % section

ELECTRICAL CONDUCTIVITY EC

Measuring principle	AC excitation	
Range	0-5000 / 0-10000 / 0-20000 µS/cm	Depending on the ordered configuration
Resolution	10 µS/cm	Up to 10,000 µS/cm
	50 µS/cm	From 10,000 to 20,000 µS/cm
Accuracy	±3 %	Up to 10,000 µS/cm
	±5 %	From 10,000 to 20,000 µS/cm
Temperature compensation	0-50 °C	

OUTPUT AND POWER

Output interface	RS485 Modbus RTU / 0-2 V / 4-20 mA	Depending on the ordered configuration
Power supply	3,9-30 VDC	RS485 or voltage output
Power supply	12-30 VDC	Required with 4-20 mA output
Consumption	6 mA	At 12 V DC, RS485 or voltage output
Consumption	10 mA	At 12 V DC, 4-20 mA output
Protocol	Modbus RTU	Functions 3, 4, 6 and 16
Factory defaults	9600 8N1, address 1	Recoverable via the SET wire if lost

CONSTRUCTION

Protection rating	IP68	
Operating temperature	-40 to +85 °C	
Rods	Stainless steel	
Sealing	Epoxy resin	
Installation	Surface or buried	
Cable length	2 m	Other lengths on request
Dimensions	88 × 26 × 71 mm	18 mm tall body and 53 mm rods, per the dimensioned drawing

PART NUMBERS

PART NUMBER	CABLE LENGTH	CONNECTOR / OUTPUT
SX-HEC20-2M-PT	2 m	Pigtail
SX-HEC20-2M-M10	2 m	M10 connector
SX-HEC20-4M-PT	4 m	Pigtail
SX-HEC20-4M-M10	4 m	M10 connector