

SDI-12 Specification

MK3 Data decoder with recorder support for SDI-12



SDI-12 Specification

The new SDI-12 TECH+ sensor decoder from Crysberg improves monitoring with reliable communication for various sensors. It works with the SDI-12 protocol, connecting easily over long distances. Available in three versions, it caters different needs: from single moisture sensors to full weather stations and large soil probes. The new SDI-12 TECH+ sensor decoder works with different SDI-12 sensors, giving you insight in soil moisture weather data and other measurements to optimize water usage.

	SDI-12
Two Wire	
Nominal voltage	40V peak from 2-wire
Minimum voltage	20V peak from 2-wire
Standby current	0.1 mA @ nominal voltage (40V)
Max voltage	44V
Active current, Supply Load	$(1.5 + x/3 \text{ mA})$ @ nominal voltage (40V) x: load current on SDI Supply in mA
Active current, External Power	0.5 mA @ nominal voltage (40V)
Max current	90 mA @ nominal voltage (40V)



Formfactor			
Size (W x D x H)	45.5 x 36.5 x 65.5		
Weight (g)	153		
Plastic cup	Poly Propylene		
Color	Pantone 2172C		
Wires	5		
Wire size	27 cm, 1.5mm² solid copper		
Wire Config	Position	Net	Color
	1	SDI Ground	Black
	2	SDI Data	White
	3	SDI Supply	Red
	4		
	5	TW-B	Blue
	6	TW-A	Blue

SDI-12	Values are only valid for supply voltage above 5.3 V
Two Wire	
TX output voltage range	0V to 5 V
VIT-	1.5 V



VIT+	3.5 V
RX input voltage range	-0.3 V to 5.3 V

	SDI-12
Protection/Isolation	
Basic Insulation	Between TW and SDI-12 wires
Isolation working voltage	230 V
Isolation Hipot test	1500 V (1 min)
ESD	Sensor: ± 8 -kV IEC 61000-4-2 Contact discharge
Surge	Sensor: 4-kV IEC 61000-4-5
Heavy duty surge protection	No. Depending on SDI-12 wiring it may be recommended to use a lightingdecoder across the device to avoid insulation breakdown during a lighting surge.

Electrical Output Supply	
Voltage Output	12.25 V at load > 0.5 mA else up to 14 V
Current	Max 200 mA
Output Accuracy	+/- 2.5% at load > 0.5 mA
Shutdown	Yes

**Electrical Input Supply**

There is support for powering the SDI-12 side externally to reduce TW load or to meet 0.5 A	12.25 V at load > 0.5 mA else up to 14 V
Absolute Voltage Input Range	2.1-24 V. With lower than 5.3 V the design is not guaranteed to meet SDI-12 specification.

Environment

Operation	0 to 50°C / 32 to 122°F
Storage	20 to 70°C / -4 to 158°F
Humidity	100%

Communication

SDI-12 Protocol	SDI-12 v1.3 compliant and partial v1.4 with the exception of "high volume binary" commands.
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