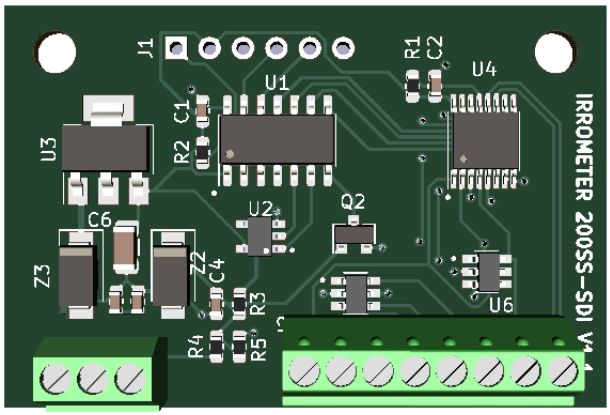
200SS-SDI WATERMARK Sensor Adapter

Serial Data Interface at 1200 baud (SDI-12) is a standard communication protocol for integrating digital sensors with compatible data devices. The 200SS-SDI adapter has a built-in SDI-12 interface, designed to communicate with up to three 200SS-WATERMARK soil water potential sensors and one (optional) 200TS soil temperature sensor.

A single or multiple 200SS-SDI adapter board with unique addresses may share a common 3-wire SDI-12 bus (power, ground, and serial data line) which enables a two-way communication between the adapter board and data logger. Measurements are prompted by a set of protocol commands outlined in Table 1. More in-depth documentation covering the SDI-12 protocol is available at www.sdi-12.org.



The 200SS-SDI adapter allows two different measurement options to be monitored, the raw electrical resistance and the soil water potential measurements provided by the internal calibration. For an increase in accuracy of the WATERMARK's soil water potential measurements, the soil temperature sensor compensates for temperature variations within the soil profile. If the soil temperature sensor is not utilized, a default temperature of 75°F/24°C is applied. Further information regarding the WATERMARK's calibration is outlined in the Watermark Integration Guide found at irrometer.com/200ss.html.

Specifications

Dimensions: 45.7mm x 30.5mm
Terminal Block: 2.54 mm pitch
SDI-12 Bus Input:

- +12 – Power in
- GND – Ground Line
- I/O – Serial Data Line

Sensor Options:

- 1 200TS Soil Temperature Sensor
- 3 200SS-WATERMARK

Power:

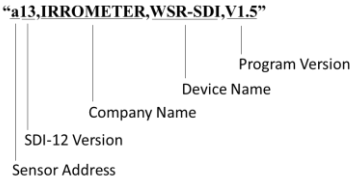
Input: min: 4.5VDC max: 40VDC
Power Up Time: 100ms applying +12VDC
Power Down: remains awake for 100ms after end of last command
Sleep Current Draw: 15 µA
Idle Current Draw: 500 µA
Measurement: 1.05 mA
Transmit: 1.25 mA

Table 1. SDI Supported Commands

A list of supported commands, descriptions and responses are outlined in the table below. SDI commands consist of 3 components: the first character for the sensors address, followed by the command prompt, and the termination "!" command. Not all SDI-12 commands are supported.

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200SS SENSOR ADAPTER - SDI

Description	Command	Response
Returns the 200SS-SDI board address. Factory-set default address is "0".	?!	**"0"**
Changes the default address from "0 to a". Valid alphanumerical addresses 0-9, A-Z, and a-z	0Aa!	**"a"**
The acknowledge active command ensures the 200SS-SDI board is responding to the reading device.	a!	**"a"**
Send Identification	aI!	
200SS WATERMARK soil water potential measurements The measurement command "M" or "M2" signals the 200SS-SDI board to take a measurement. It returns the time and number of parameters expected. The send data command (D) must be issued to retrieve the data string.	aM! aM2!	**"a0034"** a – address 003 - time in seconds 4 – number of measurements **"255+255+255+255"** open/short = 255 1. Temperature - "M" – Deg F - "M2" – Deg C 2. Soil Water Potential_1 (cb) 3. Soil Water Potential_2 (cb) 4. Soil Water Potential_3 (cb)
200SS WATERMARK electrical resistance measurements The measurement command "M1" or "M3" signals the 200SS-SDI board to take a measurement. It returns the time and number of parameters expected. The send data command (D) must be issued to retrieve the data string.	aM1! aM3!	**"a0034"** a – address 003 - time in seconds 4 – number of measurements **"255+255+255+255"** open/short = 255 1. Temperature - "M1" – Deg F - "M3" – Deg C 2. Resistance_1 (ohms) 3. Resistance_2 (ohms) 4. Resistance_3 (ohms)
The send data command is used to get groups of data and is issued after the measurement commands (M, M1, M2, or M3).	aD0!	**"a+255+255+255+255"** open/short = 255

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