SENSOTERRA

Local Mode Decoding

Sensor Reading Uplink

An uplink payload consists of:
- Six soil moisture measurements as volumetric water content % (VWC%)
- A flag to indicate that was an overshot over saturation point. This will happen during the process of finding the right calibration, but can also help to see a mismatch with the soil type and the correct calibration.
- The current temperature (for Single Depth probes, the temperature sensor has some limitations and its readings should be used as just an indication. Please contact Sensoterra for more details).

An uplink will always be 9 bytes (72 bits) in size and send through fport 11, from Single and Multi Depth sensors. For Multi Depth sensors, the readings from time t-1 are send on fport 12.

Position	Size (bits)	Range	Resolution	Purpose
0	10	0 - 100	0.1	Soil moisture reading 1
10	10	0 - 100	0.1	Soil moisture reading 2
20	10	0 - 100	0.1	Soil moisture reading 3
30	10	0 - 100	0.1	Soil moisture reading 4
40	10	0 - 100	0.1	Soil moisture reading 5
50	10	0 - 100	0.1	Soil moisture reading 6
60	10	-30 - 70	0.1	Temperature
70	1	0 - 1	1	Saturation point overshot
71	1	0 - 1	1	Reserved for future use

Interpretation of readings

Measurement	Single Depth	Multi Depth
1	Current soil moisture	Soil moisture at 10 cm
2	Previously measured moisture	Soil moisture at 20 cm
3	Measurement -2	Soil moisture at 30 cm
4	Measurement -3	Soil moisture at 45 cm
5	Measurement -4	Soil moisture at 60 cm
6	Measurement -5	Soil moisture at 90 cm
Temperature	Inside casting	At 25 cm depth
Saturation point overshoot	For current measurement	For any depth

To decode

Measurement	Payload	Interpretation
Volumetric Water Content (%)	0 to 1000	Moisture times 10
	1001 - 1022	Reserved for future use
	1023	Bad reading
Calibration mismatch	0	No overshot detected
	1	Overshot detected
Temperature	0	Temperature 30°C or lower
	1 to 1020	Temperature with a 30°C offset, times 10
	1021	Temperature is above 72°C
	1022	Reserved for future use
	1023	Bad reading