



**FREEWAVE**

**ModuSense**

## Water Level Monitoring Solution

The ModuSense water level monitoring solution is used to accurately measure the depth of water in any tank, river, dam, bore hole or pumping station. The depth being measured is based on placement of the sensor, for a tank this is typically in the bottom of the tank, for rivers the sensor is often mounted on a pole at a known reference height.

If you have irrigation systems that take water from a natural resource such as on-farm stream or river, the water level monitoring solution will give you the data you need to remain compliant with water use regulations.

Measurements are taken every fifteen minutes and logged using on-board memory in the gateway. Every hour these measurements are transmitted back to the cloud platform for processing, resulting in near-realtime alerts and trend reporting to help you identify changes in the environment being monitored.

Quick and easy to deploy, the solution does not require calibration and includes an on-board battery backup for uninterrupted operation regardless of the weather conditions.



**SWARM**  
Certified Product

# Water Level Monitoring Solution

MODELS		CM.S2.1.x.x + SD.HPT604.xx
Model Reference	IIoT Gateway Satellite (Swarm)	
Satellite Communications	SWARM TILE01 137-138MHz Downlink / 148-150MHz Uplink	
Processors & Memory	Arm® Cortex®-M4 NOR Memory IC 32Mb, SPI - Quad I/O	
Onboard Sensors	GPS, Power	
<i>GPS Module</i>	Sierra Wireless XM1210, TCXO. GPS+Glonass, GPS+BeiDou, GPS+Galileo. Signal used for both position information and accurate time sync for data records.	
<i>Charge Circuit &amp; Battery</i>	Tracking onboard battery voltage, along with the status output of onboard solar charging circuit in order to give a clear indication of how well the internal battery is charging.	
RS485 Water Level Sensor	IP68 Stainless Steel 316SS body and 316L hydrostatic pressure diaphragm Resolution: 1mm of H2O depth, Accuracy: 0.5%, Full Scale Drift: 0.002%/°C (>100kPa) Operating Range: 0~500m H2O (50 Bar), -30°C~+85°C, Certified: CE,RoHS	
Bluetooth Host	U-BLOX NINA B3, v5.0 (Bluetooth low energy) nRF52840	
Power Supply	Built-in 6000mAh Li-polymer Battery Charging Voltage: 4.2V, Rated Voltage: 3.7V, UVLO at 3.4V	
Solar Panel	Epoxy encapsulated Monocrystalline, 9W Nominal output	
DC Input & Charging	18~30VDC, 2A Max Current, MPPT Charger (19.4Vmp), Optional 12v DC Battery Input	
CONNECTORS		
Antenna - Satellite	Female SMA, Swarm Antenna	
Antenna - GPS	Female SMA, GPS/GNSS Whip Antenna	
Antenna - Bluetooth	Female SMA, Bluetooth Whip Antenna	
RS485 Sensor Input	2 x IP68 Circular Connector Sockets, 4-Position (vcc, gnd, data+, data-)	
DC Input	IP68 Circular Connector Socket, paired with solar panel cable	
PHYSICAL DESCRIPTION		
Assembly Flat (L x W x H)	330x260x70mm (without antenna), 545x260x70mm (with antenna)	
Assembly at 45° (L x W x H)	330x250x255mm (without antenna), 465x250x255mm (with antenna)	
Water Level Sensor	100mm long. 28mm dia. PE cable length to suit (at time of order only, do not cut)	
Weight (full assembly + sensor)	3.6kg excluding packaging	
ENVIRONMENTAL		
Operating / Storage Temperature	-20°C to 60°C / -40°C to 85°C	