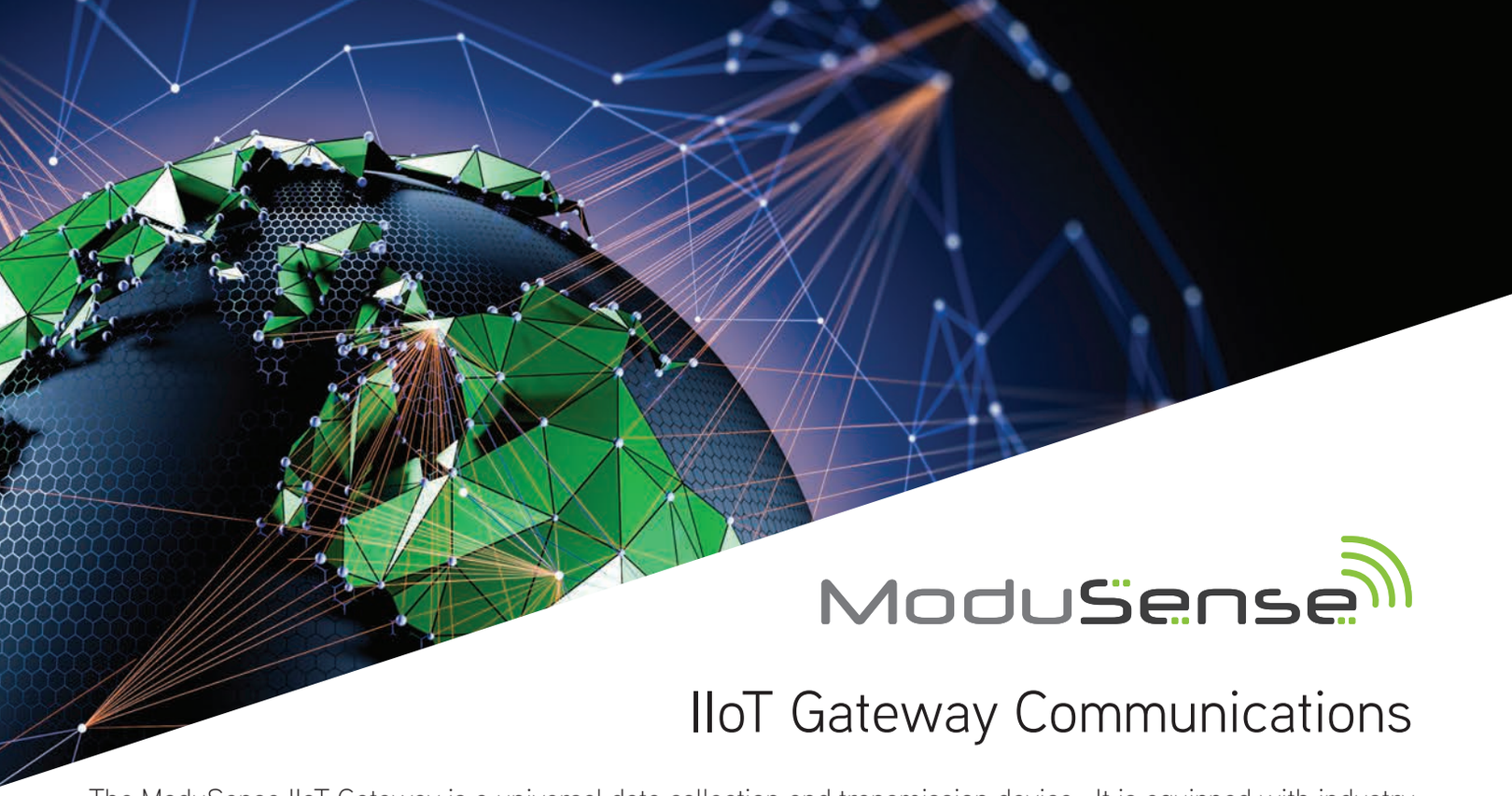


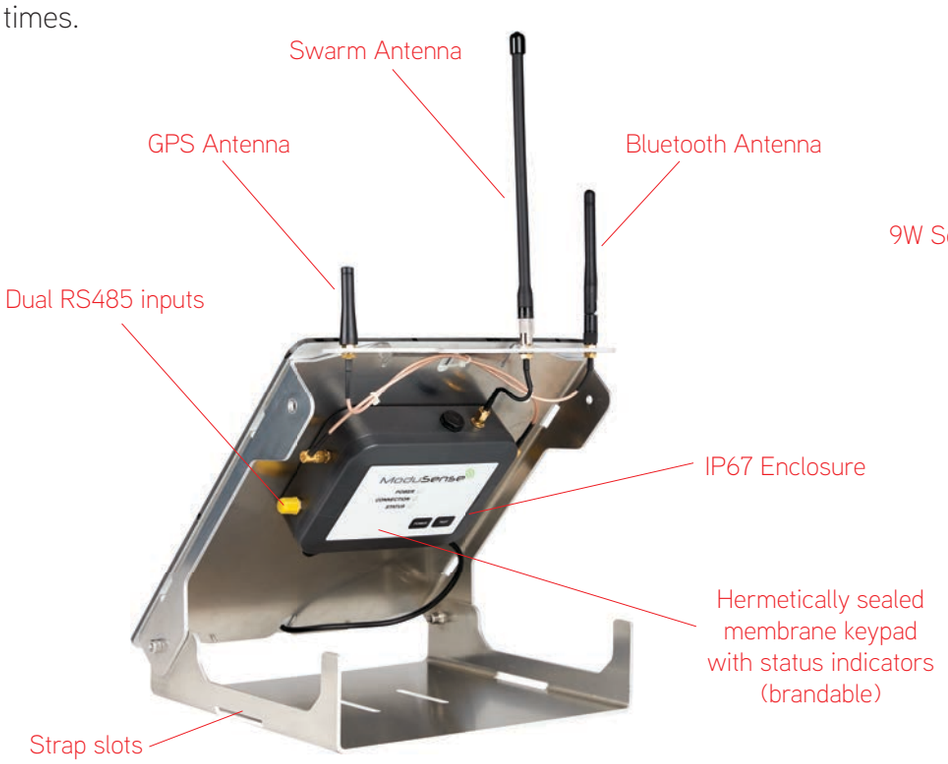
ModuSense

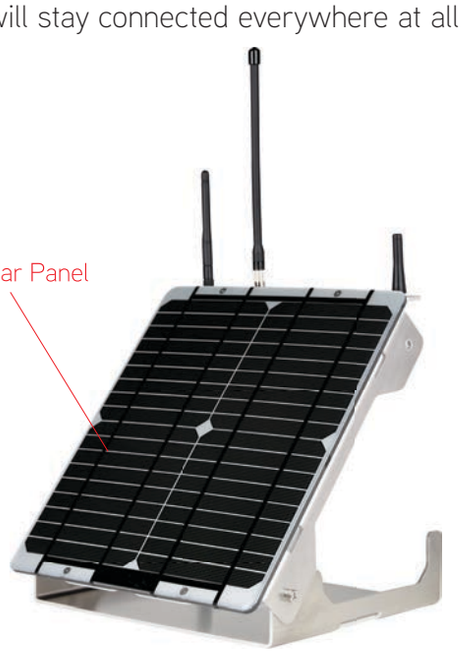
IIoT Gateway Communications

The ModuSense IIoT Gateway is a universal data collection and transmission device. It is equipped with industry leading satellite and cellular technologies providing global connectivity and reliability without compromising battery life. The built-in Blluetooth host enables automatic aggregation of data from dozens of nearby sensors.

When using the embedded Swarm Satellite modem, the Gateway can be used almost anywhere on earth. To make things easy, the Cellular and Swarm Satellite fees are included in the annual Data Platform subscription cost. Options ranging from simple OEM Data Broker message routing through to full dashboard and analytics. Using the IIoT Gateway coudn't be easier, simply deploy the unit and data will flow.

Swarm provides affordable satellite connectivity for IoT applications, particularly in remote regions that lack reliable access to the Internet. The geographic range of satellite is much greater than traditional terrestrial networks. Satellite is also a highly reliable method of data transfer since - unlike terrestrial networks - it cannot be knocked out by weather events or man-made accidents. For IoT devices operating in rural or remote areas, Swarm cuts satellite data costs by up to 20x, while ensuring that devices will stay connected everywhere at all times.





SWARM
Certified Product

ref: 2021090601

IIoT Gateway Specifications

MODELS	CM-L2-1.x.x	CM-S2-1.x.x
Model Reference	IIoT Gateway LTE (CAT-M)	IIoT Gateway Satellite (Swarm)
Cellular Communications	Global LTE-M (CAT-M1/NB1) U-BLOX SARA-R410M-02B Bands: 1*, 2, 3, 4, 5, 8, 12, 13, 18, 19, 20, 25, 26*, 28 (* roaming bands)	n/a
Satellite Communications	n/a	SWARM TILE01 137-138MHz Downlink / 148-150MHz Uplink
Processors & Memory	Arm® Cortex®-M4 NOR Memory IC 32Mb, SPI - Quad I/O	Arm® Cortex®-M4 NOR Memory IC 32Mb, SPI - Quad I/O
Onboard Sensors	GPS, Power	
GPS Module	Sierra Wireless XM1210, TCXO. GPS+Glonass, GPS+BeiDou, GPS+Galileo. Signal used for both position information and accurate time sync for data records.	
Charge Circuit & Battery	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.	
External RS485 Sensor Inputs	Fault-protected Half duplex RS422, RS485 Transceiver 12VDC Supply, 2kV Isolation, 470µF Max Capacitive Load Dual Channel. Max Current (per port): 80mA	
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 Monocrystaline, 9W Nominal output	
DC Input & Charging	18~30VDC, 2A Max Current, MPPT Charger (19.4Vmp), Optional 12v DC Battery Input	
CONNECTORS		
Antenna - Cellular	Female SMA, Multiband Whip Antenna	n/a
Antenna - Satellite	n/a	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)	
Weight (full assembly + antenna)	2.0kg excluding packaging	
ENVIRONMENTAL		
Operating / Storage Temperature	-20˚C to 60˚C / -40˚C to 85˚C	

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