Product Data Sheet: FlatMesh 3G Gateway

The FlatMesh 3G Gateway is a fully integrated unit which provides all the functionality required to operate a FlatMesh wireless sensor network in a remote location.

No fixed IP address is required for the cellular service; the Gateway simply initiates the connection with the FlatMesh Web Monitor software over the Internet.

Key Features

- Integrated Five Band UMTS/HSPA+ and Quad Band GSM/GPRS/EDGE Modem

- Integrated solar charging circuit connected to internal lithium-ion chargeable battery pack (no external battery pack)

- Fully operational, including FlatMesh and cellular radios, for three weeks (typical) on internal battery

- On-board industrial-grade flash memory card for data buffering and backup

- Incorporates bracket for mounting to pole or wall

- Waterproof connection to solar panel or other DC power supply

- All components waterproof to IP67

- Firmware is remotely upgradeable over the air reducing costly site visits

- Extended temperature range battery option available for extreme conditions

- Micro-USB connector for maintenance and local data access

Physical Specifications

Parameter	Value
Dimensions excluding antennas	218 x 68 x 126 mm
Dimensions including antennas	390 x 68 x 126 mm
Total Mass	1.1 kg (approx.)
Housing Material	Die cast aluminium body ASA polymer lid rated to UL94HB Die cast aluminium lid optional
International Protection Marking	IP67
Mounting Options	Combination wall / pole mount bracket included Low profile pole clamp available as an option

FlatMesh Radio Specifications

Parameter	Value
Communication Type	Proprietary FlatMesh v3 Mesh Networking Protocols IEEE 802.15.4 compliant
Frequency Band	2400 – 2485 MHz ISM Band
Maximum Transmit Power (EN 300 328 v1.8.1)	6.2dBm
Maximum Antenna Gain	4dBi
Range	Up to 300m depending on the environment Consult with Senceive for your application
Maximum Network Size	Typically, up to 100 nodes Consult with Senceive to determine the optimal system configuration
RF Module	Senceive FM3Gateway

Cellular Radio Specifications (Standard)

Parameter	Value
Frequency Bands for GSM/GPRS/EDGE	850 / 900 / 1800 / 1900 MHz
Frequency Bands for UMTS/HSPA+	800 / 850 / 900 / 1900 / 2100 MHz
Output Power	Class 4 (+33dBm) for EGSM850 / EGSM900 Class 1 (+30dBm) for GSM1800 / GSM1900 Class E2 (+27dBm) for GSM 850/900 8-PSK Class E2 (+26dBm) for GSM 1800/1900 8-PSK Class 3 (+24dBm) for UMTS 800/850/900/1900/2100, WCDMA FDD BdI, BdII, BdVIII, BdV, BdVI
Maximum Antenna Gain	+3.5dBi
Supported SIM Cards	3V and 1.8V
RF Module	Gemalto PH8-P

Cellular Radio Specifications (-NA Version)

Parameter	Value
Frequency Bands for GSM/GPRS/EDGE	850 / 900 / 1800 / 1900 MHz
Frequency Bands for UMTS/HSPA+	800 / 850 / 1700 (AWS) / 1900 / 2100 MHz
Output Power	Class 4 (+33dBm) for EGSM850 / EGSM900 Class 1 (+30dBm) for GSM1800 / GSM1900 Class E2 (+27dBm) for GSM 850/900 8-PSK Class E2 (+26dBm) for GSM 1800/1900 8-PSK Class 3 (+24dBm) for UMTS 800/850/AWS/1900/2100, WCDMA FDD BdI, BdII, BdIV, BdV, BdVI
Maximum Antenna Gain	+3.94dBi (850MHz) +1.81dBi (1900MHz)
Supported SIM Cards	3V and 1.8V
RF Module	Gemalto PH8 FCC Identifier QIPPH8

Internal Battery (Standard)

Parameter	Value
Battery Type	Lithium Ion, rechargeable
Nominal Voltage	3.6V
Nominal Capacity	8800mAh
Typical Runtime without charge	21 days
Operating Temperature Range	-20°C to +60°C
Charging Temperature Range	0°C to +40°C

Internal Battery (-T Version)

Parameter	Value
Battery Type	Lithium Ion, rechargeable
Nominal Voltage	3.6V
Nominal Capacity	8000mAh
Typical Runtime without charge	19 days
Operating Temperature Range	-30°C to +75°C
Charging Temperature Range	-30°C to +60°C

Power Input

Parameter	Value
Recommended Solar Panel Type	12V 20W
Target Voltage for MPPT	15.0V
Maximum Input Voltage	32.0V

Mains Power Adaptor (FP-AC20-x)

Parameter	Value
Dimensions	99 x 42 x 31 mm
Operating Temperature Range	-20°C to +60°C
Input Voltage Range	90-264 VAC
Input Frequency	47-63 Hz
Input Power	0.5-23W

Certifications

- Tested to conformity with all the essential requirements of R&TTE Directive 1999/5/EC and RoHS Directive 2011/65/EU

- Network Rail Acceptance PA05/04146

- London Underground Approved

Ordering Information and Accessories

Model	Description
FM3G-HSPA	**FlatMesh 3 HSPA+/3G Gateway**
FM3G-HSPA-NA	**FlatMesh 3 HSPA+/3G Gateway for North America**
FM3G-HSPA-T	**FlatMesh 3 HSPA+/3G Gateway with Extended Temperature Battery**
FM3G-HSPA-NA-T	**FlatMesh 3 HSPA+/3G Gateway for North America with Extended Temperature Battery**
FM3G-HSPA-A	**FlatMesh 3 HSPA+/3G Gateway with Aluminium Front Panel**
FP-SP20	**20W Solar Panel** Pre-fitted with 2 metres of cable, includes pole mount kit
FP-SP30	**30W Solar Panel** Pre-fitted with 2 metres of cable, includes pole mount kit
FP-AC20-UK	**20W Power Adaptor with UK Power Plug**
FP-AC20-EU	**20W Power Adaptor with European Power Plug**
FP-AC20-US	**20W Power Adaptor with USA / Canada Power Plug**
FP-AC20-309Y44	**20W Power Adaptor with IEC60309 Yellow Power Plug, IP44 rated**
FP-SPC	**Gateway Power Connector** To suit cable outside diameter 5.5mm to 8.0mm
FF-GW-PC	**Pole Clamp for 3G Gateway** Bolts directly into gateway enclosure for clamping to a pole
FF-GW-WB	**Wall Bracket for 3G Gateway** Can be screwed directly to a flat surface or attached with straps to a pole or other structure
FC-GA	**Gateway Perspex Cover** Clear plastic cover to protect gateway enclosure and antennas from frontal impact, includes masonry anchors
FA-3G-OMNI	**Waterproof Omnidirectional antenna for GSM / 3G** For use when the gateway location has poor cellular reception Includes 3m cable and pole mount bracket