

Modular Telematics Gateway

A Communications and Processing Module



Hardware Overview

The Modular Telematics Gateway is a mobile communications and processing device designed and manufactured by Phoenix International, also known as John Deere Electronic Solutions. It integrates GPS, GPRS/HSPA wireless, and on-board machine communications via CAN, Ethernet, and RS-232. The Modular Telematics Gateway is ideally suited for advanced telematics applications such as machine health monitoring, advanced logistics, and machine control remote diagnostics. It is environmentally sealed and rigorously tested to ensure performance in the most demanding environmental conditions.

The Modular Telematics Gateway can be combined with external peripheral modules to provide satellite capabilities. It offers SIM



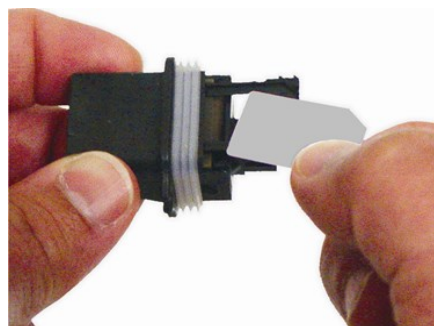
Modular Telematics Gateway



options including soldered, plug-in card, or a combination of soldered and plug-in card. SIM cards are accessible via a patented, sealed socket assembly that is accessible from the outside of the enclosure.



SIM Card Assembly



SIM Card Insertion

RUGGED ELECTRONICS FOR DEMANDING INDUSTRIES

Specifications

Processor / OS

- 400 MHz ARM11™ CPU
 - ▶ Freescale™ i.MX31
- Windows® Embedded CE 6.0
- Real-time clock

Memory

- 256 MB DDR SDRAM
- 512 MB NAND Flash
- 2 MB NOR Flash

Machine Interface

- Designed for 12V or 24V systems
 - ▶ 9V to 32V operating voltage
- Dedicated CAN coprocessor
 - ▶ Supports up to four J1939 connections
 - ▶ 500 kb/s (4)
- IEEE 802.3 Ethernet interface
 - ▶ Full 10/100 BASE-T support
- Three RS-232 serial ports
 - ▶ Debug (1), TX/RX (1), TX/RX with flow control (1)
- 1 PPS external device synchronization

Communication

- ▶ u-blox® LISA U200 3.75G cell modem
- ▶ GPRS 850/900/1800/1900 MHz
- ▶ HSPA 800/850/900/1700/1900/2100 MHz
- Internal soldered SIM IC (VQFN8)
- External accessible SIM plug (optional)
 - ▶ Accepts 15 x 25mm SIM card (ID-000)

I/O

- 4 switched-to-ground, battery, or 3.3V analog inputs
- 2 switch to battery wake inputs
- 2 switch to battery outputs

GPS Chipset

- Single-frequency, 50 channel receiver
 - ▶ u-blox® NEO 5

Electrical Safeguards

- Transient protection per JDQ53.3 (ISO 7637-2)
- ESD Protection
 - ▶ 8 kV contact, 25 kV air discharge
- Short to battery/ground protection on all primary connector pins
- Reverse battery, load dump, jump start protection

Mechanical

- Metallic IP67 enclosure
- Device-side connectors
 - ▶ Header: Molex CMC 48-way
 - ▶ Ethernet: M12 high speed
 - ▶ Cell antenna: 50 ohm female TNC
 - ▶ GPS antenna: 50 ohm female RP-TNC
- Dimensions (mm): 214 x 205 x 53.5
- Weight: 2.5 lbs

Environmental

- -40°C to +75°C operating
- Shock: 85G
- Humidity: 168 hr +40°C @ 95% RH
- Life Test: 387 Temp Cycles
- Life Test: 144 hr 10.59 G_{rms} Random Vibration
- Dust, immersion, high-pressure spray tested

Regulatory

- US / Canada
 - ▶ FCC (complete device tested to Part 15b)
 - ▶ Industry Canada
 - ▶ PTCRB, AT&T certification
- Europe
 - ▶ CE, E mark
- Extensive list of additional country approvals

John Deere Electronic Solutions

1441 44th Street N
Fargo, ND 58102
Phone: +1 (701) 451-3600
www.JohnDeere.com/JDES