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IRIDIUM SATELLITE MODULE

The Iridium Satellite Module from Kintech Engineering is a satellite transceiver ideal for sending and receiving data from equipment everywhere on the planet.

The module is fully compatible with the Orbit 360 data logger. Furthermore, it functionally supports all of Iridium's data services and easily integrates into a wide variety of applications through a RS232 serial interface and AT command set.

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DESCRIPTION

The Iridium Satellite Module from Kintech Engineering includes the Iridium Core 9523N modem module and is designed by Kintech Engineering to meet the regulatory requirements for approval for FCC, Canada, and CE assuming an antenna with a gain of -3 dBi and adequate shielding.

The module is provided as a “black box,” with an interface that combines RS232 signal lines and power supply via a DB9 connector. It also includes a SIM card holder externally accessible.

The Iridium Satellite Module is configured using AT commands. (A full listing of the supported AT commands can be found in the AT command reference document for the Iridium Core 9523).

KEY FEATURES

- Pole-to-pole global coverage.
- DB9 female pin connector for power supply and user interface.
- RS232 interface with hardware flow control.
- SMA RF antenna connector.
- Integrated SIM card reader.
- Enhanced AT command support.
- LED indicators for power supply and transmissions.

SPECIFICATIONS

Mechanical

Length	108 mm
Width	66 mm
Depth	28.44 mm
Weight	115g

Electrical

Power supply	6V to 30V
Average power during call (typical)	2.3W
Average power during call (maximum)	3.1W

Environmental

Operating temperature range:	-30°C to +70°C
Operating humidity range:	25 to 75% RH
Storage temperature range:	-40°C to +85°C
Storage humidity range:	5% to 93% RH

RF Interface

Frequency range:	1616 MHz to 1626.5 MHz
Duplexing method:	TDD (Time Domain Duplex)
Oscillator stability:	± 1.5 ppm
Input/output impedance:	50 ohms
Multiplexing method:	TDMA/FDMA

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LED INDICATORS

The Iridium Satellite Module from Kintech Engineering features two LED indicators, located on both sides of the SIM card slot.

- Power supply (green LED). LED indicator is permanently on when the module has power supply.
- Transmission (red LED). LED indicator blinks during call.

SIM CARD SLOT

The SIM card should be inserted in the “Sim Card” slot. The card should be inserted softly with metal contacts facing upwards and the trimmed corner first until a “click” sound is produced (then the card moves slightly backwards). There is just one way to insert the SIM card do not force it or damages can be produced.

ANTENNA

The Kintech Iridium Satellite Module features a SMA RF antenna connector and should be connected to a certified Iridium-band antenna.

The technical specifications of the antenna should be the following:

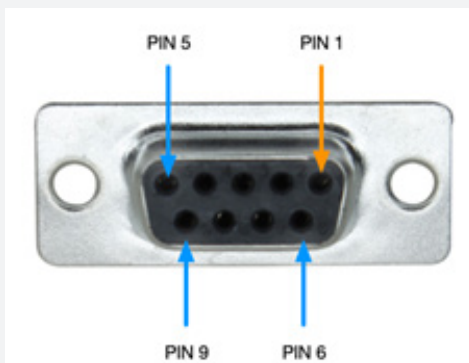
- Impedance: 50 ohm.
- Gain (maximum): 3 dBi.
- Polarization: RHCP.
- VSWR (maximum operational): 1.5 : 1.

Kintech Engineering can provide a certified Iridium antenna as well as the antenna cable upon request.

CONNECTOR PINOUT AND DIAGRAM

All electrical connections are made via a DB9 female connector located on the side of the module housing. The table below contains the pin assignment for the module.

Mechanical



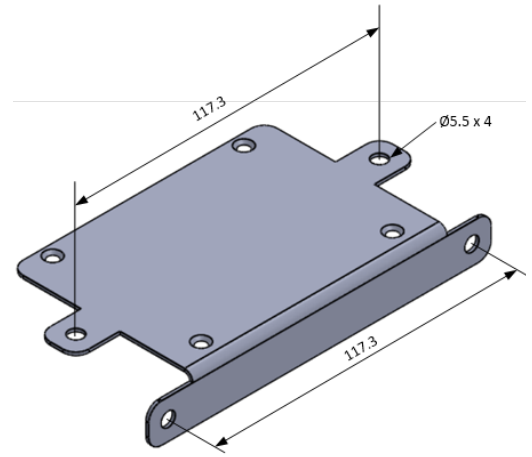
PIN	FUNCTION
1	Not connected
2	Iridium RS232 TX (output from the module)
3	Iridium RS232 RX (input to the module)
4	Not connected
5	Ground
6	Not connected
7	Iridium RS232 RTS (input to the module)
8	Iridium RS232 CTS (output from the module)
9	Vcc (Power supply)

Multiplexing method: TDMA/FDMA

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MECHANICAL MOUNTING (OPTIONAL)

Kintech can provide a panel mechanical mounting consisting of a folded steel plate. The module can be mounted both horizontally and vertically. The image here to the right shows the dimensions of the plate (in mm.):



USAGE WITH KINTECH DATA LOGGERS

The Kintech Iridium Satellite Module is compatible with all Kintech data loggers. Kintech provides the required cable to connect to the data logger.

The connection to the Orbit 360 is made through the external COM port located on the logger terminals. The table below contains the wiring diagram between the module and the Orbit 360:

Kintech Engineering cable colors		Section	Terminal	Type
Green	Vcc (Power supply)	Ext. COM	46	+
White	Ground	Ext. COM	45	-
Brown	Iridium RS232 TX	Ext. COM	44	Signal
Yellow	Iridium RS232 RX	Ext. COM	43	Signal

The connection to the EOL Zenith is made through the EXT. COM Molex connector located on the front panel of the logger which.

HOW TO CONFIGURE IN ATLAS

In Communication section of the Site Settings, type the Iridium telephone number associated to the SIM Card. This SIM Card is the one inserted in the modem connected to the data logger.

Communication settings

Connection type

- Internet
- Iridium
- BGAN
- CSD

Select this option to make the logger use its external Iridium modem (satellite modem) to receive incoming calls from a central satellite modem.

For future scheduled connections, I want Atlas call the following Iridium satellite number:

Iridium telephone number (logger SIM)

SATELLITE MINUTES

Kintech Engineering offers several satellite minute packages. Depending on data logger settings, sensor configuration and download frequency various satellite minute packages are offered.

A local Iridium modem at the office (installed on the roof) is required in order to communicate with your met masts through Iridium.

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For more information please contact support@kintech-engineering.com or visit our website www.kintech-engineering.com