

9601 - SBD

Developers Module



The 9601 SBD Transceiver combines the global coverage of the Iridium satellite constellation with the low latency of the Iridium Short Burst Data Service (SBD) in a small, low-cost transceiver design.

The 9601 is a lower cost, Iridium Satellite LLC manufactured product designed as an OEM module for integration into applications that only use the Iridium Short Burst Data Service. Short Burst Data applications are supported through an RS232 interface.

Iridium Satellite System

Iridium is the only provider of truly global satellite voice and data solutions with complete coverage of the earth. Iridium delivers essential communications services to and from remote areas where no other form of communication is available.

The Iridium system is the largest fully meshed satellite network constellation in the world and consists of 66 low-earth orbiting (LEO), cross-linked satellites and has multiple in-orbit spares.

Global Short Burst Data Service

The Iridium Short Burst Data service allows you to simply and conveniently gain access to data packet data services anywhere on earth

Short Burst Data Features

- Mobile originated messages:
 - up to 340 bytes
- Mobile terminated messages:
 - up to 270 bytes
- Low, uniform global latency:
 - less than 1 minute

Transceiver Features

- Single header connector:
 - power,
 - on/off control
 - RS232 9-wire interface
 - network availability
- SMA Antenna Connector to connect to small omni directional L-band antennas
- Enhanced AT Command Set
- Compact Installation
- 5.0V DC power input
- Cable assembly required
- Fully Certified
- Single board transceiver
- Small form factor
- No SIM card
- Designed to be incorporated into an OEM solution
- Maximum mobile originated message size 340 bytes
- Maximum mobile terminated message size 270 bytes
- Automatic notification to the transceiver that a mobile terminated message is queued at the gateway
- Uses small omni-directional antenna
- Global operating capability
- RoHS compliant



Developers

The 9601 SBD transceiver module is purely designed for use by system integrators and developers looking to integrate Iridium transceivers as part of an overall solution.

The transceiver module comes as a raw product and does not include any power supplies, cables, mounting brackets, user instructions or the like.

Due to the nature of this terminal, warranty of the product is limited only to core operational failure therefore damage to the power supply or serial port is not covered under warranty.



Developed Alternative



Beam supplies a fully certified and complete 9601 terminal ready for use in specific SBD applications, RST425 SBD Modem. The RST425 is a commercially available terminal that supplies the interface for a simple 9 – 32V DC power connection, Serial Data Port and robust mounting bracket as a complete ready to use terminal for any data application.

Electrical Interfaces

The subsections to follow contain information for the electrical interfaces of the 9601 SBD Transceiver.

- 1) **Multi-Interface Connector** – The multi-interface connector includes five interfaces:
 - a. DC power supply input
 - b. Power on/off control
 - c. RS-232 Serial Data
 - d. Network available output
 - e. DC power output

The overall dimensions of the 9601 and its weight are summarized in the table below

9601 Mechanical Dimensions

Parameter	Value
Length	106mm
Width	56.2mm
Depth	13mm
Weight (approx)	117g

Note that these dimensions are for the enclosure and do not take into account the connectors or mounting hardware. Additionally developers should plan for additional space for the reciprocal connectors for the antenna and user connector.

Environmental Tests

Test Name	Test Reference	Test Description
Thermal Shock	EN60068-2-14:2000	Change of Temperature, -35°C to +70°C, 5 cycles of 1 hour each
Humidity	IEC60068-2-2:1996	Damp heat steady state 40C 93% RH for 4 days
Shock	EN60068-2-27:1993 (NF c20-727)	
Shock	J1455 Society of Automotive Engineers	
Vibration	EN 60068-2-36:1996	Sinusoidal Vibration 0.96 m2/s3 from 5Hz to 20Hz
Vibration	IEC 60068-2-36:1996	Sinusoidal Vibration 21Hz to 500Hz -3dB per octave
Vibration	J1455 Society of Automotive Engineers	

Multi Interface Connector Pin Allocation

Pin No.	Signal Name	Signal direction (WRT 9601)	Signal function	Signal level
1	EXT_PWR	Input	Supply	+5 V +/- 0.5 V
2	EXT_PWR	Input	Supply	+5 V +/- 0.5 V
3	EXT_PWR	Input	Supply	+5 V +/- 0.5 V
4	EXT_GND		Supply return	0 V
5	EXT_GND		Supply return	0 V
6	EXT_GND		Supply return	0 V
7	ON/OFF	Input	On/Off control input	On: 2.0V to Vsupply Off: 0V to 0.5V I = 120 µA max
8	Reserved			
9	Reserved			
10	SIG_GND		Signal ground	0V
11	DF_S_TX	Input	Data port, serial data into 9601	RS-232
12	DF_S_RX	Output	Data port, serial data from 9601	RS-232
13	SIG_GND		Signal ground	0V
14	DF_DCD	Output	Data port, Data Carrier Detect	RS-232
15	DF_DSR	Output	Data port, Data Set Ready	RS-232
16	DF_CTS	Output	Data port, Clear-to-Send	RS-232
17	DF_RI	Output	Data port, Ring Indicator	RS-232
18	DF_RTS	Input	Data port, Request-to-Send	RS-232
19	DF_DTR	Input	Data port, Data Terminal Ready	RS-232
20	SIG_GND		Signal ground	0V
21	Reserved			
22	Reserved			
23	SIG_GND		Signal ground	0V
24	NETWORK AVAILABLE	Output	Set to logic 1 when network is visible	2.9 V CMOS
25	Spare			
26	+2V9	Output	Supply output	+2.9 V ± 0.15 V, 50mA maximum

DC Power Input Specifications

Parameter	Value
Main Input Voltage Range	+4.5 VDC to +5.5 VDC
Main Input Voltage Nominal	5.0VDC
Main Input Voltage – Ripple	40 mV pp
Consumption at +5.0 VDC	
Input Standby Current (average)	66mA
Peak Transient Current – Transmit	1.5 A
Current Average* – when SBD message transfer in process	<= 350 mA
Average Power consumption – when SBD message transfer in process	<= 1.75 W

* Note: The average power consumption depends on the view of the satellite constellation from the antenna.

Antenna Characteristics

Parameter	Value
Impedance	50 Ohms nominal
Gain	3dBi
Polarization	RHCP
VSWR (maximum operational)	1.5 : 1

Radio Characteristics

Parameter	Value
Average Power during a transmit slot (max)	1.6 W
Receiver sensitivity	-118dBm
Max Cable loss permitted (Note 2)	2dB
Link Margin – Downlink (Note 3)	13dB
Link Margin – Uplink (Note 3)	7dB

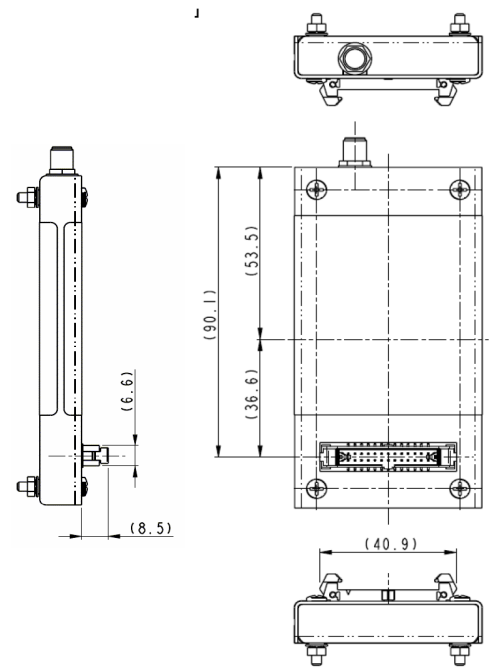


Figure 2 (Part 1 of 3): Dimensions of the 9601 SBD Transceiver. [Note that the screws and nuts are shown for illustrative purposes only.] (Not to scale, dimensions in millimeters)

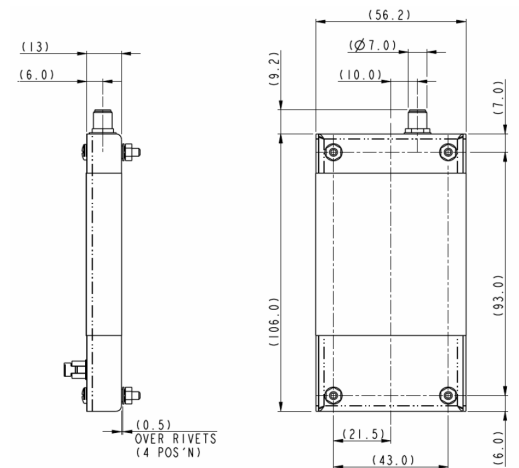


Figure 2 (Part 2 of 3): Dimensions of the 9601 SBD Transceiver. [Note that the screws and nuts are shown for illustrative purposes only.] (Not to scale, dimensions in millimeters)

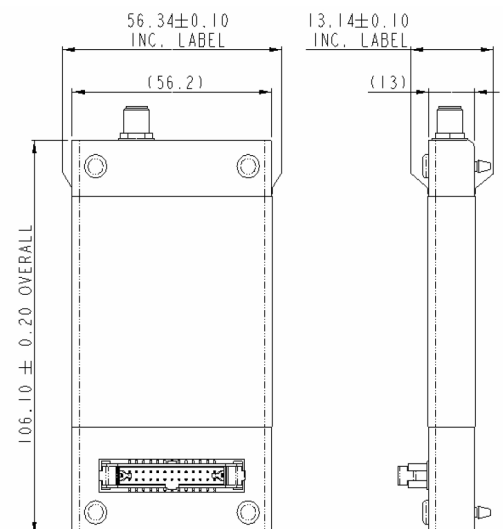


Figure 2 (Part 3 of 3): Dimensions of the 9601 SBD Transceiver. [Note: Plastic transportation pegs are shown in this diagram, they should be replaced with developer provided mounting during integration into a final product.] (Not to scale, dimensions in millimeters)