Siretta
inspired wireless technology

ZEUS-N-UMTS
UMTS Modem with ARM Cortex M4 32bit Processor,
10/100 Base-T Ethernet and RS232 Serial Port Interface

Key Features

- 10/100 Base-T Ethernet port
- RS232 serial port interface
- 3G/UMTS global coverage
- ARM Cortex M4 32bit processor
- Wide supply voltage 5 - 42V
- DIN rail mountable
- 36-way connector for all interfaces
- 2000mAh battery option
- 10 GPIO lines
- CAN, 1-Wire and I2C interfaces

General Description

The ZEUS range of 3G / UMTS modems are amongst the most advanced and capable modems available today. The range is available as two main versions - with or without GPS. Further options include a 2000mAh battery and an upgrade of flash memory to a total of 128Mbit. The ZEUS range can be used as a simple modem or with application software within the UMTS module. But its real strength, for the user, is as a comprehensive computing platform using its ARM Cortex M4 32bit processor connected to the UMTS engine - all in one package. The ZEUS design has been extensively tested and represents amazing value as a UMTS connected powerful 32bit computing engine.

The ZEUS modems have an ARM Cortex M4 32bit processor as standard, independent of the wireless module, for customers to develop their software on. The ZEUS has an 10/100 Base-T Ethernet port, an RS232 serial port and 10 GPIO lines as standard. The ZEUS is housed in a tough plastic enclosure that is either screw or DIN rail mountable.

The ZEUS-N-UMTS is the 3G / UMTS version without GPS capability.

The ARM Cortex M4 32bit processor manages the Telit module and is available for the user to program custom applications. The features of the standard ZEUS are as below:

- 10/100 Base-T Ethernet Port
- RS232 serial port interface
- Debug serial port interface
- Onboard 600mA solid state relay
- 5 x GPI
- 4 x GPO
- 2 x ADC
- 2 x DAC
- CAN interface
- 1-wire interface
- I2C interface
- Boot load line
- Ignition line
- Accelerometer

All connections to all interfaces of the modem can be made through the 36 way connector with the exception of the antenna(s) and Ethernet. The ZEUS also has a separate RS232 socket, and an RJ12 power socket. The status of the ZEUS is shown by three easily viewable LEDs all of which are ultimately programmable to the user's needs. The ZEUS range also has an internal battery option of a 2000mAh Li-ion battery – this can be specified at the time of ordering or can be retro-fitted (see ZEUS-NB-UMTS).

The ZEUS Ethernet modem can be used as a webserver or an Ethernet gateway over GPRS or UMTS networks.

Ethernet Interface
The software settings of the modem can be controlled through the ZEUS Ethernet connection and with a web interface running on the ZEUS. This will typically be used to setup the modem for use and to allow traffic to pass through the ZEUS.

Gateway Interface
The ZEUS can be used as an EPOS modem where it will use its Ethernet port to generate an internet connection over the GPRS / UMTS network and send data to a remote server. Embedded systems will use the RS232 interface to connect a device to a remote server. The ZEUS is likely to be used with embedded systems where the end product has limited intelligence and cannot manage or maintain the commands to connect the modem to a server / control head office etc.
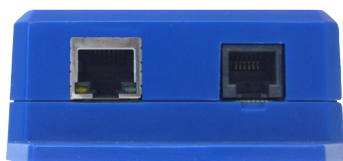
Embedded Webserver
The ZEUS can be a webserver using simple html webpages to configure the unit and to serve webpages to embedded devices, i.e. internet / web page enable a piece of equipment.

Additionally the ZEUS has an integral accelerometer and features an ignition line, modem control and reset lines on the RJ12 connector making it very suitable for a vehicle tracking and control unit, with a small amount of microcontroller software design. The 600mA solid state relay is also a standard feature of the ZEUS range and is accessible via the 36 way connector.
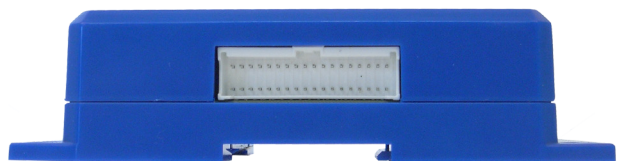
The ZEUS series is packaged in a tough blue ABS plastic box that is DIN rail or screw mountable and has dimensions of 134 x 74 x 33mm. In all the ZEUS is designed to be your M2M modem and main computing engine in one package using a well understood and very capable microcontroller range that is easy to program with.

The ZEUS modem range has been designed for long life and is available in UMTS and GPRS form with LTE coming very shortly - all with the same design and features making it easy for the user to design once, and use the many versions with very little effort.

The ZEUS range has a number of accessories available:- JTAG programming cable, OEM power cable, 0.5M and 1M 36way cable and connector with unterminated ends, 12V wallblock power supply with RJ12 connector.

ZEUS Ethernet and Power Connector
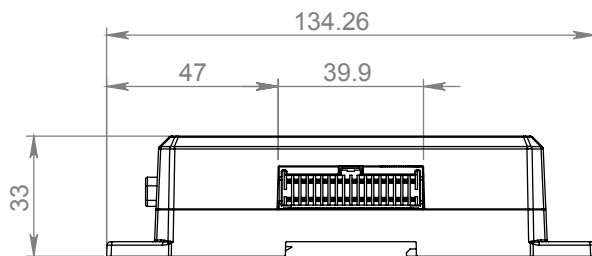
ZEUS 36-Way Connector

ZEUS RS232 Connector

ZEUS LEDs, GSM Antenna Connector and SIM Card Slot

ZEUS-N-UMTS

UMTS Modem with ARM Cortex M4 32bit Processor,
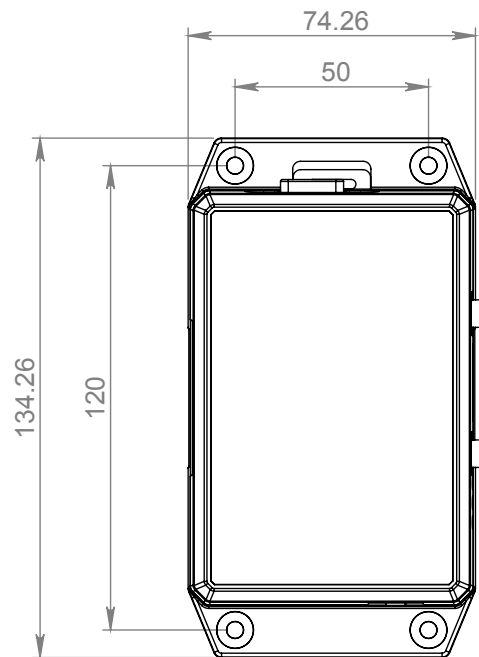10/100 Base-T Ethernet and RS232 Serial Port Interface

Electrical Specifications

Temperature Range:	-30 to +80°C
Operating Frequencies:	Quad Band GSM - 850, 900, 1800, 1900MHz UMTS / 3G - 850, 900, 1700, 1900, 2100MHz
HSPA+:	Upload 5.76Mbps Download 21.0Mbps
Power Supply:	5 - 42V
Battery (Optional):	2000mAh Li-ion
GPIO Input Voltage:	35V
GPIO Output Voltage:	0 - 42V
Relay:	600mA

Mechanical Specifications

Dimensions:	134 x 74 x 33mm
Weight:	143g
Antenna Connectors:	x 1 SMA Female (GSM)
Mounting Method:	DIN Rail or Screw Mount

74.26

50

134.26

120

134.26

47   39.9

33

ZEUS-N-UMTS
UMTS Modem with ARM Cortex M4 32bit Processor,
10/100 Base-T Ethernet and RS232 Serial Port Interface

STM32F4 Microcontroller

The ZEUS is driven by the ARM Cortex M4 32bit processor, which has 192KB of RAM and 16Mbit of flash memory for customer use, which is expandable to 128Mbit. The ARM Cortex M4 32bit processor is a popular and well known microcontroller with a considerable amount of code already written for it. The ARM Cortex M4 32bit processor 'Discovery Board' is also a popular development platform and has considerable documentation to help with code development.

The ZEUS itself can emulate the 'Discovery Board' and therefore be used in this mode for easy code development by the customer, similar to a standalone Discovery Board. The ARM Cortex M4 32bit processor is a very low power micro and within the ZEUS consumes around 50mA when fully loaded and running. Conversely it can be put into deep sleep thereby taking a few microamps. The processor itself is capable of considerable multithreading with a number of layers of software. Many of the ZEUS peripheral interfaces are native to the ARM Cortex M4 32bit processor. As a result they can be easily configured as required and will be a known quantity to anyone familiar with the STM32 processor family.

ZEUS-N-UMTS System Diagram

Microprocessor Subsection

Power Supply Subsection

X

10 Base-T Ethernet Port

RS232 Serial Port Interface

Visual Indicators

5 - 42V PSU

Battery (2000mAh)

Power Input

36-way Connector Interfaces

Communication Subsection

GSM

RS232 Serial Port

Debug Serial Port

Relay (600mA)

9 x GPIO (5 x I, 4 x O)

2 x ADC

2 x DAC

1 x CAN

1 x 1-Wire

1 x I2C

Power Input

Ignition Line

ARM Cortex M4 32bit Processor (STM32F417VGT6)

RS232

USB

GPIO

Telit GSM Module HE910-D

SIM

Accelerometer

128Mbit