User Manual

GPS User Module
OWL LTE M12 (Industrial Cellular Router)

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Contents

1 User Module Description

The user module GPS (Global Positioning System) allows your device to provide location and time information in all weather, anywhere on or near the earth, where there is an unobstructed line of sight to four or more GPS satellites.

This module is not contained in the standard router firmware. Uploading of this user module is described in the User Manual "Configuration".

2 Web interface

The left part of the web interface contains the menu with pages for monitoring (*Status*), *Configuration* and *Customization* of the router. *Customization* block contains only the *return* item, which switches the GPS web interface to the interface of the router.

2.1   Location

If the device has an unobstructed line of sight to four or more GPS satellites, detailed information about the accurate location of the device (router) is available.

Item	Description
Current time(UTC)	Current time in hhmmss format (it's patterned on Coordinated Universal Time)
Latitude	Geographic coordinate that specifies the north-south position (in degrees)
Longitude	Geographic coordinate that specifies the east-west position (in degrees)
Altitude	Specifies the height above sea level of a location (in meters)
Satellites in view	Number of satellites that are directly visible for the router
Fix status	0 = No GPS data 1 = GPS data from satellite 6 = GPS data from Dead Reckoning (only OWL LTE M12)
Speed over ground	Current speed of the router relative to Earth's surface (in knots)
Course over ground	The actual course the router is moving along at the moment relative to Earth's surface (in degrees)
Date	Current date in ddmmyy format

Table 1: Location Status

There is a clickable item called Show on map at the bottom part of the window that displays an exact location of the Hirschmann router on the map server of Google company (Google Maps) in a new tab.
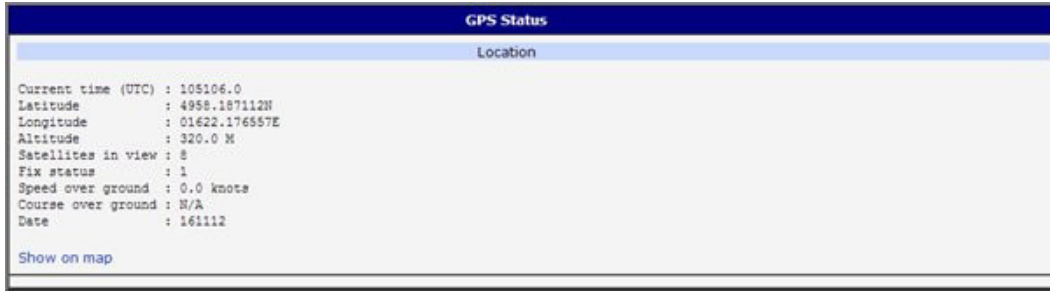
Figure 1: GPS Status – Location

2.2 System Log

In case of any problems it is possible to view the system log by pressing the System Log menu item. There are displayed detailed reports from individual applications running in the router. Using the Save button it is possible to save the system log to the computer.
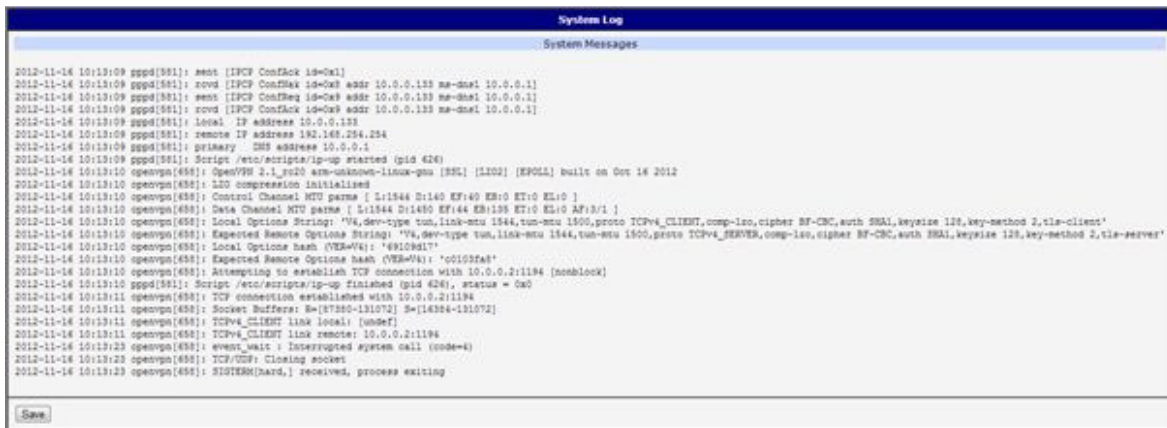

Figure 2: System Log

The System Log default size is 1000 lines. After completion of the 1000 lines it will be created a new file for storing system log. After completion of the 1000 lines in the second file, the first file will be deleted and then will be created a new one.

2.3 Global

After clicking the Global item in the configuration part of the menu, you can find a form that allows you to activate the GPS service by checking Enable GPS service item. In the next part of this form is an availability to choose the port that will be used for sending data from the GPS. You can select from the following options: expansion port 1, expansion port 2 and USB port (expansion port 1 and expansion port 2 are optional ports of the router). Data are stored in raw NMEA format.
The configuration form also allows router to forward raw NMEA output to a remote socket. In this case it is necessary to check the box in front of the "configuration line" and define the following information:

Item	Description
IP Address	IP address to which the raw NMEA output will be forwarded
Protocol	The protocol by which raw NMEA output will be sent
Port	Port on which the communication will be underway
Period	Forwarding period

Table 2: Forwarding data to remote socket

At the bottom of the form, it can be enabled the automatic reset of GPS. It is performed every time when location data are not available within set number of minutes.

Figure 3: Global Configuration

2.4 GPSD

GPSD is a monitor daemon that collects information from the GPS module, making all data on the location/course/velocity of the sensors available to be queried on the TCP port. It uses standard textual NMEA 0183 protocol.
This service can be started by selecting the GPSD item in the configuration part of the menu. If the enable selection box is checked, the router automatically sends messages to supervisory system.

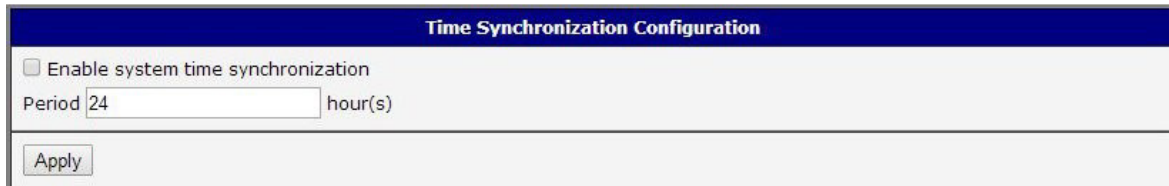| Item	Description
Inner port	Inner communication port for special services of the router. Default is set to 12358, should not be chanced unless other services are started.
Listen port	Set TCP/IP port on which to listen for GPSD client (default is 2947).

Table 3: GPSD configuration

Figure 4: Global GPSD Configuration

GPSD parses the following NMEA sentences: RMC, GGA, GLL, GSA, GSV, VTG, ZDA, GBS, HDT, DBT, GST.

2.5 Time Synchronization

Form for synchronization of the system time can be invoked by pressing Time Synchronization item in the configuration part of the web interface menu. Enable system time synchronization check box is used to activate automatic time synchronization. Number of hours after which the synchronization is performed must be defined in the box below.

Figure 5: Time synchronization

3 Recommended Literature

User Manual "Configuration"

A. Abbreviations

Abbreviation	Description
ACA	AutoConfiguration Adapter
ACL	Access Control List
BOOTP	Bootstrap Protocol
CLI	Command Line Interface
DHCP	Dynamic Host Configuration Protocol
F/O	Optical Fiber
FDB	Forwarding Database
GPS	Global Positioning System
GPSd	Global Positioning System Deamon
GSM	Global System for Mobile Communications
GUI	Graphical User Interface
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
ICMP	Internet Control Message Protocol
IEEE	Institute of Electrical and Electronics Engineers
IGMP	Internet Group Management Protocol
IP	Internet Protocol
LLDP	Link Layer Discovery Protocol
LTE	Long-Term-Evolution
MAC	Media Access Control
MIB	Management Information Base
MRP	Media Redundancy Protocol
MSTP	Multiple Spanning Tree Protocol
NMEA	National Marine Electronics Association
NMS	Network Management System
NTP	Network Time Protocol
PTP	Precision Time Protocol
QoS	Quality of Service
RFC	Request For Comment
RM	Redundancy Manager
RSTP	Rapid Spanning Tree Protocol
SCP	Secure Copy
SFP	Small Form-factor Pluggable
SFTP	SSH File Transfer Protocol
SNMP	Simple Network Management Protocol
SNTP	Simple Network Time Protocol
TCP	Transmission Control Protocol
TFTP	Trivial File Transfer Protocol
TP	Twisted Pair
UDP	User Datagram Protocol
URL	Uniform Resource Locator
UTC	Universal Time Coordinated
UTC	Universal Time Coordinated
VLAN	Virtual Local Area Network

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Your assessment of this manual:

	Very Good	Good	Satisfactory	Mediocre	Poor
Precise description	O	O	O	O	O
Readability	O	O	O	O	O
Understandability	O	O	O	O	O
Examples	O	O	O	O	O
Structure	O	O	O	O	O
Comprehensive	O	O	O	O	O
Graphics	O	O	O	O	O
Drawings	O	O	O	O	O
Tables	O	O	O	O	O

Did you discover any errors in this manual? If so, on what page?

Suggestions for improvement and additional information:

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Dear User,

Please fill out and return this page

▶ as a fax to the number +49 (0)7127/14-1600 or

▶ per mail to

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D. Further Support

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