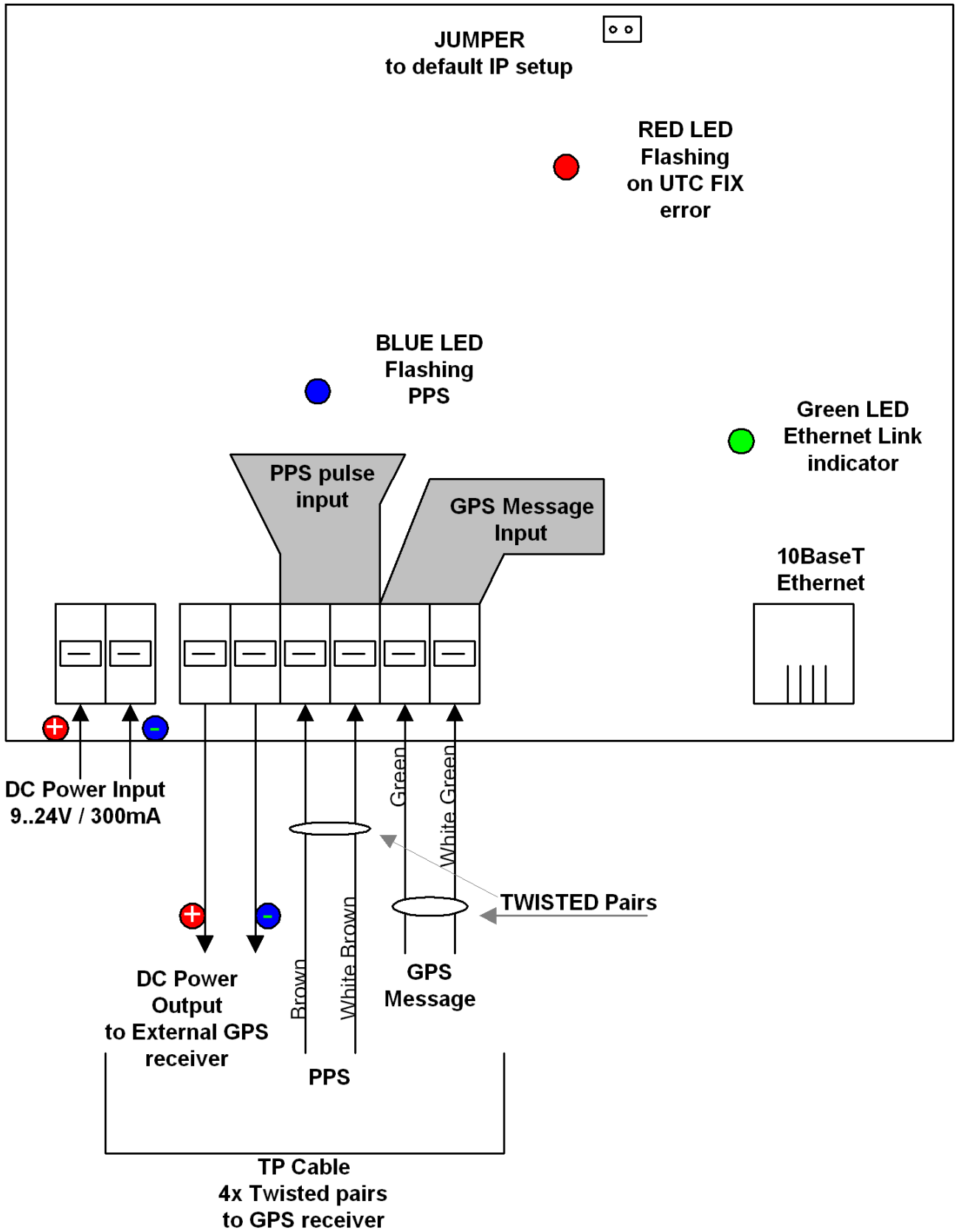

GPS NTP Time Server for Intranet Networks DIN RAIL Version



Description:

- GPS NTP time server is very simple low cost solution for Ethernet / Intranet time synchronization.
- Each computer or devices with Ethernet connectivity to **GPS NTP3 Time Server**, can adjust own local time to worldwide atomic clock standard via the GPS Global positioning system. GPS time is linked to USA NIST atomic cesium standard.
- In time server is built in NTP Ver.3 protocol (Network Time Protocol). It is platform independent of any kind operation system.
- NTP3 Broadcasting supported
- SNMP traps output for UTC LOST FIX monitoring.
- Time Server has built in HTTP Web implementation, to visit actual status of GPS receiver, local time, and server setup.
- Delivery included External GPS Receiver with active antenna built in waterproof case. Connection to server through standard TP twisted pair cable up to 100m.
- Real Time Clock is implemented with Lithium backup battery CR2430 also. Built-in RTC safely keeping the time/date when the GPS signal is lost.
- Time server is without AC/DC adaptor 12V/300mA shipped.

GPS DIN Wiring:



Mounted LEDs:

- Green LED near the ethernet RJ45 connector indicates ethernet connection.
- RED LED if flashing, inform about UTC FIX Error. Server is not synchronized to GPS system.
- Blue LED must flashing in 1sec interval, it is copy of the PPS pulse signal from external receiver

Recommendation to power source:

It is possible to use non stabilized DC power source, in range 9..24V. Current consumption of system is decreased by increasing the voltage using the Step-Down converters.

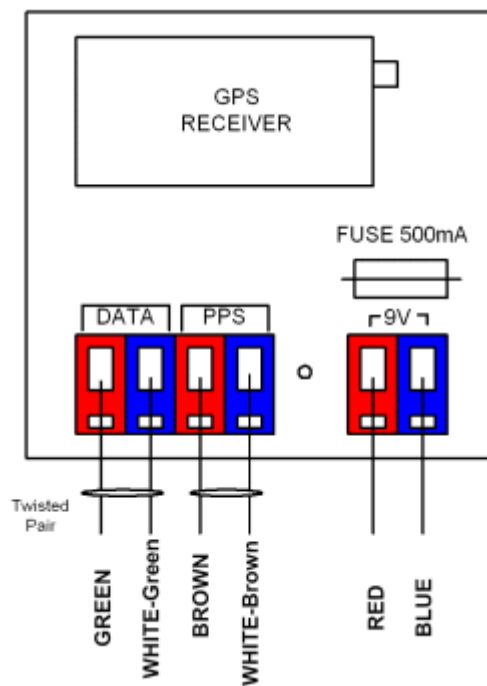
GPS External Receiver with GPS antenna

GPS external receiver is mounted with GPS antenna in wall mounting waterproof case.

Connection to GPS Server is made with standard TP networking cable max 100m length. In TP networking cable are 4 twisted pairs.

Red with White-Red pair can be used for positive power line.

Blue and White-blue for negative power.



Installation steps:

- Short the jumper on PCB. It will cause default Ethernet Setup to below table values:

<i>IP address:</i>	192.168.0.16
<i>Subnet Mask:</i>	255.255.255.0
<i>Default Gateway:</i>	Not implemented = 0.0.0.0
<i>Authentication name:</i>	Gps
<i>Password:</i>	123456

- Connect Time Server to DC power source, with standard AC/DC adapter. Required is 9..24V DC voltage with max current consumption 300mA.
Note: Time server is protected for cross voltage, **but not for high voltage.**
- Connect Server to nearest Ethernet Switch or Hub with Ethernet cable.
To simple PC Ethernet card crossed cable is needed.
Be sure that your card/switch supports 10Mbit bit rate.
- Change your Desktop PC Ethernet IP address similarly to
IP:= 192.168.0.1
mask: 255.255.255.0
Without Gateway and **Proxy server**
- Run command <ping 192.168.0.16>
Time Server must respond with ethernet appropriate time delay in [ms].
- Run HTML browser such Netscape, IE, FireFox
In address line write: <http://192.168.0.16> , Server must reply the main screen:

The screenshot shows a Mozilla Firefox browser window titled "Time Server - Mozilla Firefox". The address bar contains "http://192.168.0.16". The page content includes a "HOME" button, navigation links (Help, Home, System Status, Network Setup, Password Setup), and server status information:

**GPS NTP3 TIME Server
DIN Rail Version**

UTC Server Time	▶ Tue Feb 14 23:55:07 2006
UTC FIX Status	▶ NO
Visible Satellites	▶ 0
GPS Receiver Status	▶ O.K.
<hr/>	
Last Sync	Thu Jan 01 00:00:00 1970
Server Name:	gpsntp
Server Location:	location

GPSPDIN Ver: 1.01
Release: feb.2006

The status bar at the bottom of the browser window shows "Done".

Note:

- be sure that your current proxy setup is correct or disabled,
- inspect your firewall setup also.

First time we strongly suggested to setup new password with link to **Password Setup**:

Before new password window setup, old password will be requested;
in the default setup is 123456. Password setup window will be displayed:

NTP SERVER Password setup

New password: new password to IP setup page and password setup page enter max 16 chars

Password verify: same value as new password for verifying the validity

Community name Value of the SNMP community name. default: 'public' will be used on SNMP send traps.

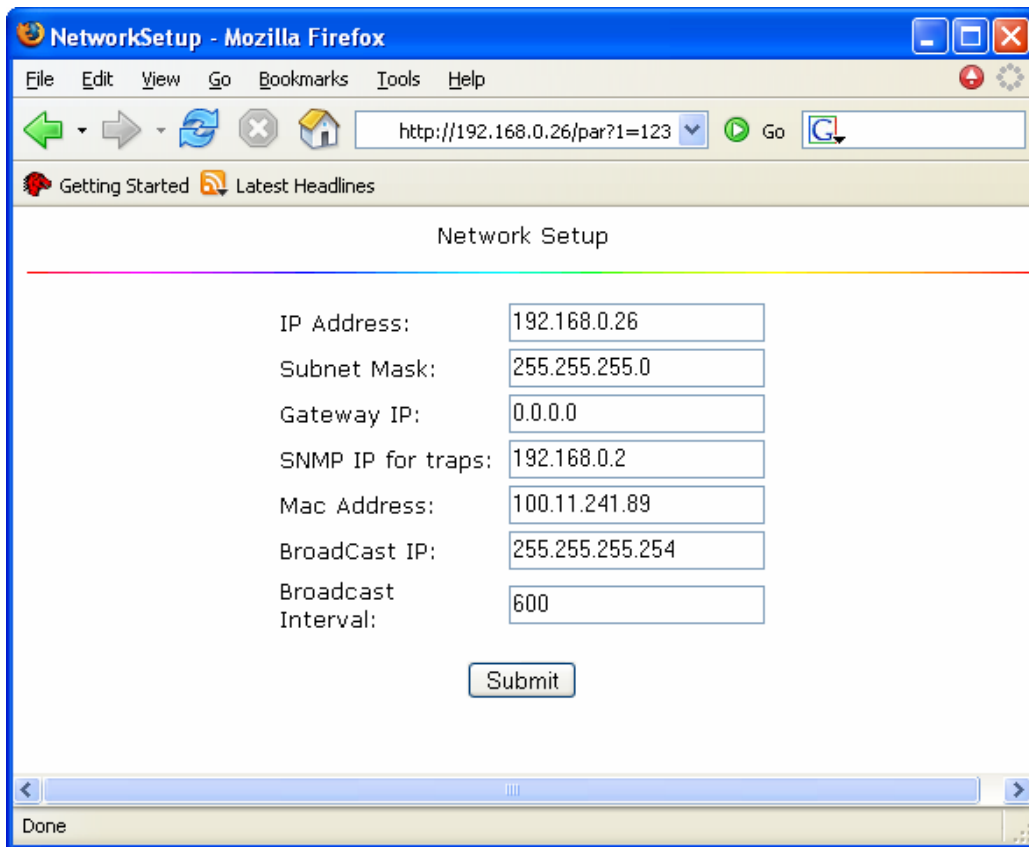
Device Name: Name of this Time Server, will be send in OID binding SNMP trap.

Device Location: Value describes the location of Time Server. will be send in OID binding SNMP trap.

Done

Community name, Device name and Location are used in SNMP trap messages.
Submit values with Submit button.

From main window Click to link *Network Setup*:

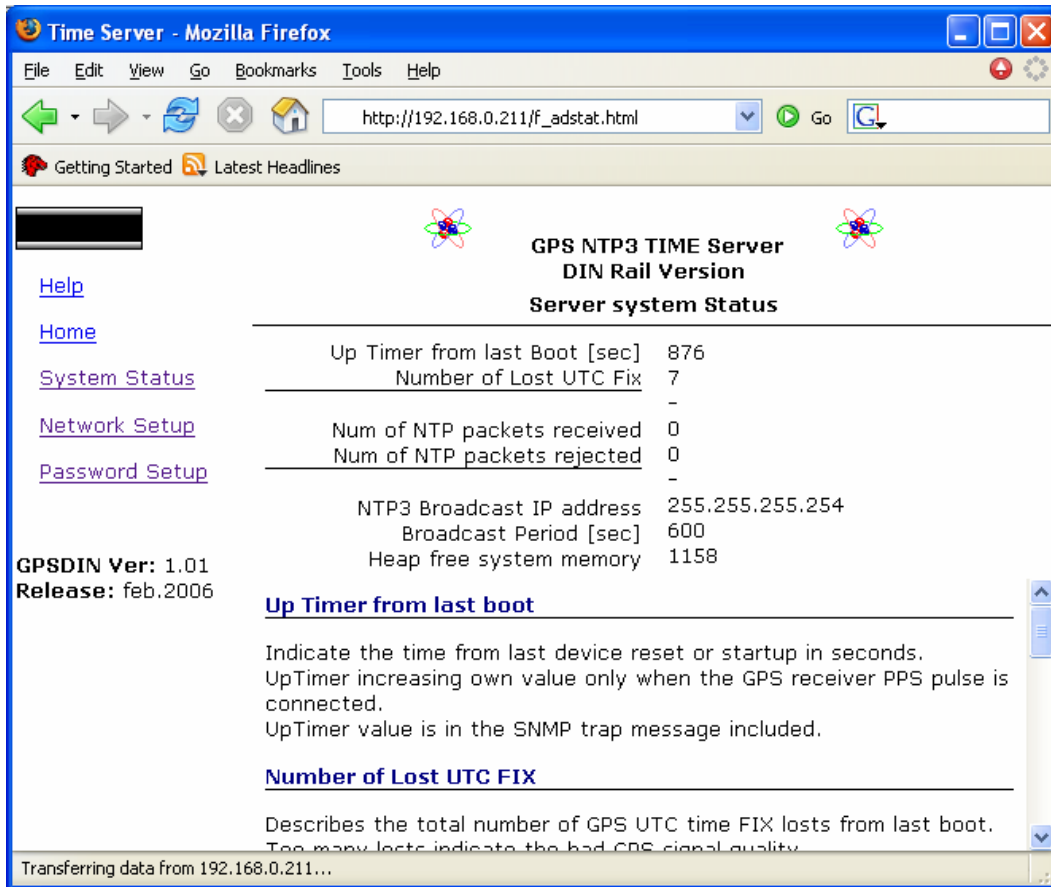


on setup window user can check actual network values, and change any value.

- **Broadcasting Interval:**
Time period in seconds, when Server sends the NTP3 broadcast message to broadcast IP address.
- **SNMP Trap IP: IP** address of computer to which will be sending SNMP traps. Server produce SNMP trap each time the UTC Fix is lost.

System status window

Click to System Status link from main window:



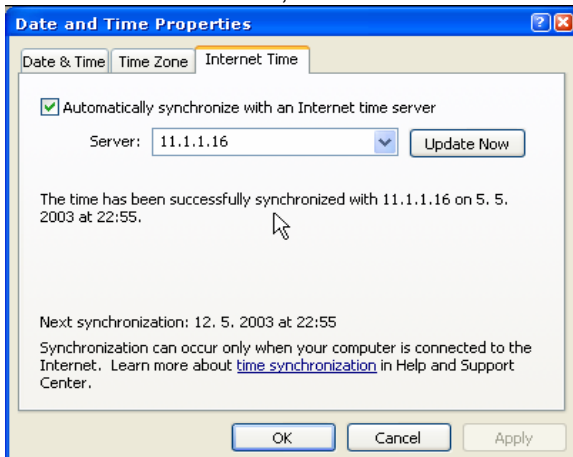
Anytime it is possible refresh this web page to obtain new values pressing Browser RELOAD button.

NTP protocol:

Time server has built in NTP Ver 3 protocol. All platforms such as UNIX, WINDOWS NT,XP,2000 supports NTP protocol.

In windows XP/2000 user can try to setup local time in Time/Date window.

On **Internet Time Card**, enter IP address to time server:



SNMP TRAP description

GPS Time server produce SNMP trap message on every UTC FIX lost.

Status Byte:

Bit	Description
0	1 = PPS pulse from GPS receiver missing , GPS receiver is not connected
1	0 = GPS data message present 1 = GPS Data missing , Fatal error, GPS receiver is not connected or Zodiac Data Message cable error

Max period of SNMP trap is 1sec in according to every 1second GPS sends Data message about UTC FIX status and number of satellites measurements.

Community default name is 'public', and can be modified by user from time server web page.

OID description;

Time server sends trap type 6, and 4 OIDs binding in message.

OID (object identifier)	Description
1.3.6.1.4.1.1316.55.3.1	Server Location <string> User can modify Server location string from web implementation <i>Default value: gpsloc</i>
1.3.6.1.4.1.1316.55.3.2	Server Name <string> <i>Default value: gps</i>
1.3.6.1.4.1.1316.55.3.3	Visible satellites <integer> Total number of measurements satellites
1.3.6.1.4.1.1316.55.3.4	Status Byte <integer> describes above