

# HOPF 7515

## HOPF 7515 communication protocol

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### Supported device types and versions

HOPF 7515 communication protocol communicates with the Mains Voltage Analysis Board 7515 card, which is an optional part of the GPS system HOPF System 7001. The 7515 card includes the system for measuring and monitoring of the network frequency (between 45 and 65 Hz). The communication is only one-way. Data are sent via serial line. These data are sent:

- GPS system time
- network time
- the difference between system and network time
- network frequency
- system time and GPS date (once per minute)

### Communication line configuration

- Communication line category: [Serial](#), [SerialOverUDP Device Redundant](#), [RFC2217 Client](#).
- The parameters of the SerialOverUDP Device Redundant line are described [here](#).
- **Note:** You can configure the IP address and port of the [backup device](#) and use a redundant connection of two HOPF servers.
- The parameters of the serial line:
  - Baud rate: 9600 Baud
  - Parity: None (none, otherwise according to the setting of the card 7515)
  - Number of data bits: 8
  - Handshaking: none
- The defined parameters are standard. They may be changed by DIP switches on a 7515 card.
- The 7515 card directly supports the output to a serial port, it is possible to use an RS422 interface together with the RS244/RS232 converter.

### Communication station configuration

- Communication protocol: HOPF 7515 Mains Voltage Analysis Board (the protocol is described in the HOPF Large Scale Display 4985 documentation).
- The station address must be 0.

### Station protocol parameters

Non

### I/O tag configuration

I/O tag types: **Ai**, **Ci**, **TiA**, **TiR**, **TxtI**.

You can configure the following I/O tags:

Table 1

| Address | Type | Meaning                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0       | all  | <p>The system time that is sent in the hh:mm:ss format . Depending on the I/O tag type, it contains:</p> <ul style="list-style-type: none"><li>• Ai, Ci - system time which is converted into seconds (hh*3600 + mm*60 + ss)</li><li>• TiA - system time which also contains a current day, month, and year</li><li>• TiR - system time as an interval</li><li>• TxtI - system time as a received text</li></ul> |

|   |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | all            | Network time that is sent in the hh:mm:ss format. This time is calculated from the network frequency (if the frequency is optimal, i.e. 50Hz or 60 Hz, network time is equal to the system one).<br>There are the same rules for both the system time and network time.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2 | TiR,<br>TxTI   | Difference between the system time and network one.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 3 | Ai,Ci,<br>TxTI | Network frequency in Hz. Depending on the I/O tag type, it contains: <ul style="list-style-type: none"> <li>• Ai - frequency as a decimal number (e.g. 49.998)</li> <li>• Ci - frequency which is multiplied by 1000 as an integral number (e.g. 49998)</li> <li>• TxTI - frequency in the format <i>xx,xxx Hz</i> (e.g. <i>49,998 Hz</i>)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 7 | TiA,<br>TxTI   | System time and date that is sent once a minute. Depending on the I/O tag type, it contains: <ul style="list-style-type: none"> <li>• TiA - time and date</li> <li>• TxTI - a received text in the format SWhmmssDDMMRRXxyy: <ul style="list-style-type: none"> <li>◦ S - status</li> <li>◦ W - the day of a week</li> <li>◦ hh - hour</li> <li>◦ mm - minute</li> <li>◦ ss - second</li> <li>◦ DD - the day of a month</li> <li>◦ MM - month</li> <li>◦ RR - year</li> <li>◦ Xyy - hours (Xx) and minutes (yy) of the time difference ( max. +/-12:59 ) between the sending time and UTC. Bit 4 (in tens of hours (X)) indicates a sign. If it is set, a local time runs ahead of UTC by the defined time difference, e.g. <i>813</i> 0 -&gt; local time at 1:30 a.m. runs ahead of UTC, <i>0300</i> -&gt; local time is 3 hours behind UTC.</li> </ul> </li> </ul> <p>Meaning of the bit status S:</p> <ul style="list-style-type: none"> <li>◦ bit 1: if 1, announcement hour (the change of winter/summer time will come next)</li> <li>◦ bit 2: if 1, summer time</li> <li>◦ bit 3: if 1, announcement second</li> <li>◦ bit 4: if 1, the time is obtained from GPS; if 0, the time is obtained from an internal source</li> </ul> |

## Literature

- Documentation - [www.hopf.com](http://www.hopf.com)

## Changes and modifications

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## Document revisions

- Ver. 1.0 - October 21, 2004 - Creating of document



### Related pages:

[Communication protocols](#)