

Clock Synchronization with SNTP

This application note applies to Vamp 50, Vamp 200 and Vamp 300 series

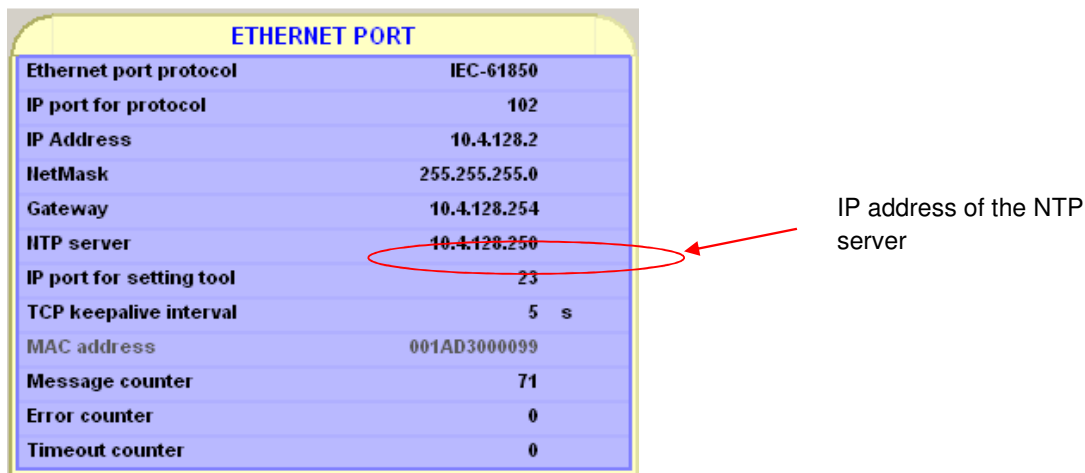
Overview

The VAMP relays which have an Ethernet interface can be synchronized with a NTP server. The relay makes the synchronization automatically using SNTP protocol. The internal clock of the relay is synchronized to the UTC time of the NTP server. UTC time is used e.g. in the time stamps of the IEC 61850 protocol. It is possible to set the relay to show the local time using “Time zone” and “NTP daylight saving parameters”.

The following views were generated from sw. version 10.55.

Starting SNTP synchronization

The VAMP relays starts synchronizing its clock to the clock of the NTP server after the IP-address of the NTP are correctly set to the “ETHERNET PORT” settings.



ETHERNET PORT	
Ethernet port protocol	IEC-61850
IP port for protocol	102
IP Address	10.4.128.2
NetMask	255.255.255.0
Gateway	10.4.128.254
NTP server	10.4.128.250
IP port for setting tool	23
TCP keepalive interval	5 s
MAC address	001AD3000099
Message counter	71
Error counter	0
Timeout counter	0

Figure 1. An example of the NTP server IP address setting.

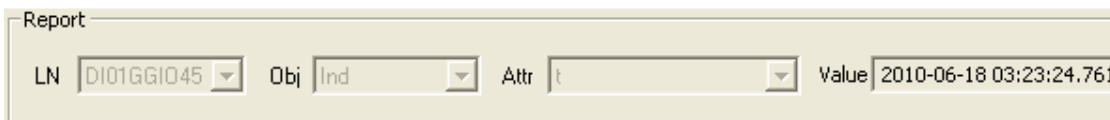
Time zone setting

Example 1. Time zone for NTP = 0.00

When the “Time zone for NTP” is 0.00 then the UTC time is used also in the local displays and in the events shown via the VAMPSET event buffer.



Time zone = 0.00



Time stamp in IEC 61850 event.

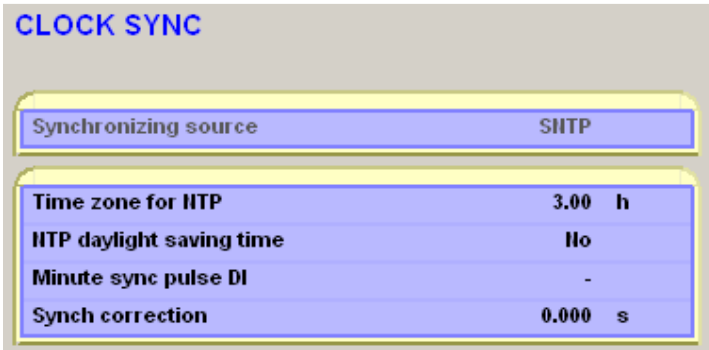


Time stamp in VAMPSET event buffer.

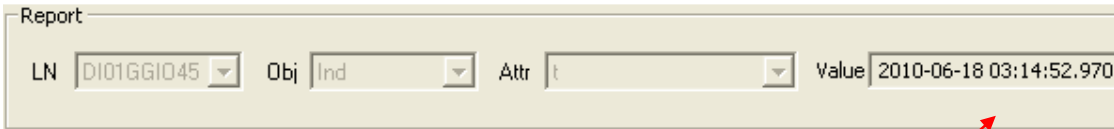
Figure 2. Example of event time stamps when “Time zone” setting is equal to 0.00.

Example 2. Time zone for NTP = 3.00

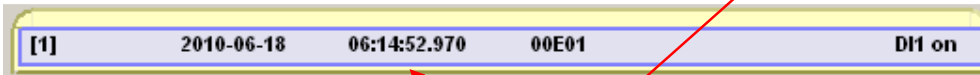
When the “Time zone for NTP” is 3.00 then the UTC time is used for IEC 61850 event, but the local displays and in the events shown via the VAMPSET event buffer are 3 hours “ahead”.



Time zone = 3.00



Time stamp in IEC 61850 event.



Time stamp in VAMPSET event buffer.

3 hour time difference because of the Time zone setting.

Figure 3. Example of event time stamps when "Time zone" setting is equal to 3.00.

NOTICE

The event time stamps shown on the local display are also local time = UTC time +/- Time Zone

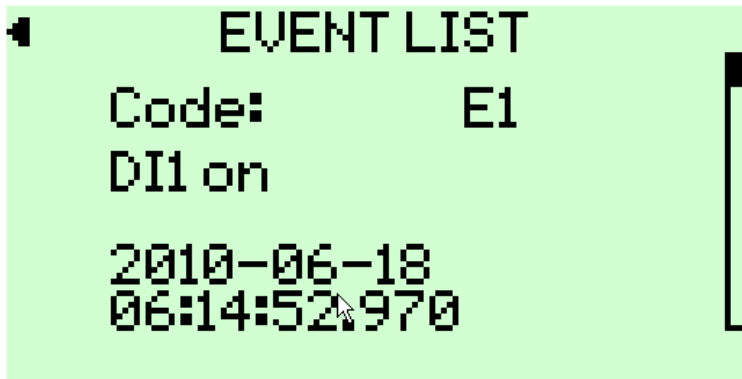


Figure 4. Local display event listing.

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