

NTP Clock

Master Clock Module

User manual edition: [1.0]_b

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DOCUMENT UPDATES

Version	Changes	Page(s)
[1.0]_b	Changes in the application program: - Internal optimisation.	-

1 INTRODUCTION

A variety of Zennio devices incorporate a NTP Clock module, specifically ALLinBOX and KIPI families. This module allows the device to be configured as the installation's master clock, sending date and time information synchronised with the data obtained from an NTP server.

The following sections describe the necessary parameters to configure the servers and the adjustments that can be made to the obtained date and time. In addition, different date and time sending options can be set.

2 GENERAL CONFIGURATION

It would be possible to configure a list of up to two NTP servers with which to synchronize date and time information. For this purpose, the device will send requests to the first server in the list. In case of any error detection, the second one configured will be used. If any of them is a valid server, no date nor hour would be obtained and therefor no object would be sent to the bus.

The local time of the device will be ruled by the configured time zone, being able to select a custom time zone with an offset in minutes respect to the UTC time of the server.

Moreover, given that certain countries contemplate the summertime change as an energy saving method, this possibility can be activated and configured.

ETS PARAMETERISATION

After enabling **Synchronize Clock Master via NTP** from the "General" tab of the product to configure, a new tab named "NTP" is added to the left tree, which includes two subtabs: "General Configuration" and "Sendings".

Also, in the "General" tab of the device, the configuration parameters of the DNS servers are shown. It will be necessary to have valid values for the correct operation of the NTP clock, especially if the NTP server is configured as a domain in text format, since the DNS servers will be consulted for the IP address of this NTP server.

- **DNS Servers Configuration:** numeric text fields to enter the IP address of two DNS servers:

➤ **IP Address of DNS Server 1 and 2** [[198.162.1.1](#), [198.162.1.2](#)].

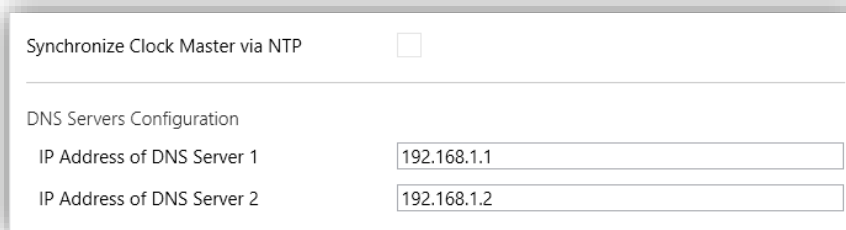


Figure 1. NTP General Configuration.

Note: Most routers have DNS server functionality, so the router's IP (also known as the gateway) can be configured as server. Another option would be an external DNS server, for example "8.8.8.8", provided by Google.

The "General Configuration" subtab provides the parameters for the configuration of the NTP servers and time settings.

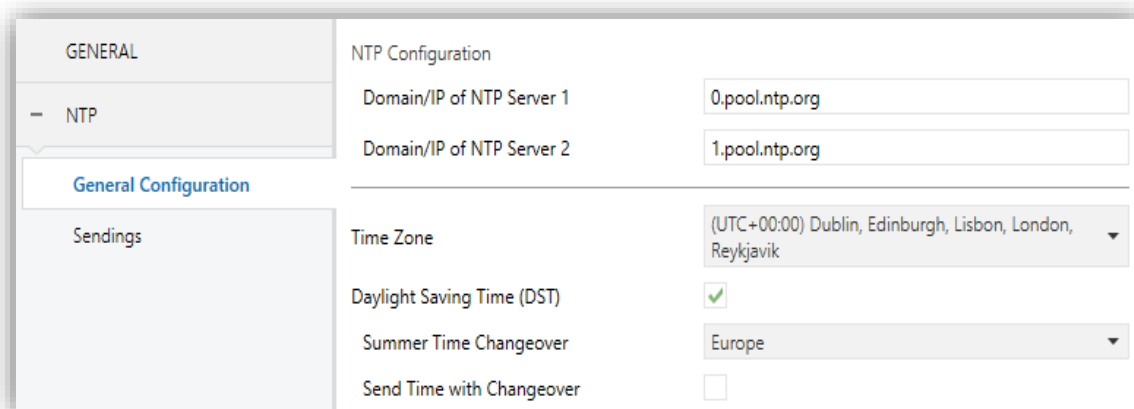


Figure 2. NTP General Configuration.

- **NTP Configuration:** text fields with a maximum length of 24 characters to enter the domain/IP of the two NTP servers.

➤ **Domain/IP of NTP Server 1 and 2** [[0.pool.ntp.org](#), [1.pool.ntp.org](#)].

Note: An IP can be configured in this field, so that the NTP request will be made directly to the server, without querying the DNS server.

- **Time Zone** [[\(UTC+0000\) Dublin, Edinburgh, Lisbon, London, Reykjavik / ... / Custom](#)]: parameter to select the time zone according to the geographical location of the device. If "Custom" is selected, a new parameter will be displayed:
 - **Offset** [-720...0...840] [x 1min]: time difference with respect to the UTC time of the server.
- **Daylight Saving Time (DST)** [[disabled](#) / [enabled](#)]: enables the functionality to activate the summer or winter season. If this parameter is enabled, the time will be automatically updated when the summer period starts and ends. In addition, the following parameters will be displayed:
 - **Summer Time Changeover** [[Europa](#) / [USA and Canada](#) / [Custom](#)]: parameter to select a time changeover rule. In addition to the main ones (European or American), a customised time changeover rule can be defined:

Daylight Saving Time (DST)	☒
Summer Time Changeover	Custom
Summer Time from	
Day	Last
	Sunday
Month	March
Local Hour	02:00
Winter Time from	
Day	Last
	Sunday
Month	October
Local Hour	02:00
Send Time with Changeover	☐

Figure 3. Custom summer time changeover

- **Send Time with Changeover** [[disabled](#) / [enabled](#)]: enables sending of date and time objects ("[NTP] Date", "[NTP] Time of Day", "[NTP] Date and Time") each time a change to summer or winter time occurs.

2.1 SENDINGS

Another tab will be available for configure the options for sending date and time information at certain events: after each restart of the device, once the connection to the network has been restored, after a period of time and/or when a predetermined time has been reached.

It is important to point out that these objects will only be sent if a connection with the configured NTP server has been achieved. Otherwise, the objects will not be sent and, if they are read, they will return the values to zero. On the other hand, if the connection with the NTP server is successfully established but then lost, the device will keep sending via internal account until a restart is performed.

ETS PARAMETERISATION

After enabling **Synchronize Clock Master via NTP** from the "General" tab of the product to configure, a new tab named "NTP" is added to the left tree, which includes two subtabs: "General Configuration" and "Sendings".

In the "Sendings" subtab, different types of sending can be enabled for the date and time objects "[NTP] Date", "[NTP] Time of Day" and "[NTP] Date and Time".

Send Date/Time after Initial Connection	☒
Delay	0 x1 s
Send Date/Time after a Net Reconnection	☒
Date and Time Periodical Sending	☒
Value	10 min
Fixed Time Sending	☒
Time	00:00:00 hh:mm:ss

Figure 4. NTP Sendings.

- **Send Date/Time after initial connection** [\[disabled / enabled\]](#): if enabled, date and time objects will be sent once the synchronization with NTP server is finished after a restart of the device.

Additionally, a **delay** [\[0...255\]](#) [\[x 1s\]](#) can be set for sending the objects after the connection is ended.

- **Send Date/Time after a net reconnection** [[disabled](#) / [enabled](#)]: if there has been a loss of connection to the NTP server, date and time objects can be sent after reconnection.
- **Date and Time Periodical Sending** [[disabled](#) / [enabled](#)]: enables the date and time objects to be sent periodically, and the time between sending must be configured (Value [[1...10...255](#)][s/[min](#)] / [[0...24](#)][h])).
- **Fixed Time Sending** [[disabled](#) / [enabled](#)]: if enabled, the date and time will be sent daily at a specific time [[00:00:00...23:59:59](#)][hh:mm:ss].

In addition to the parameterized sending, the arrival of the value '1' through the object "[NTP] Sending request" will trigger the sending of date and time.

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