

# B&M R NTS100

NTP server for GPS synchronization

User and service manual



version 1.3

## Content

1. Introduction.....	3	6. Settings.....	4
2. Safety instructions.....	3	7. Connection.....	4
3. Packaging content.....	3	8. Recommendation for antenna selection.....	5
4. Description.....	4	9. Technical features.....	5
5. Function.....	4		

## 1. Introduction

One module NTP server unit for usage with power quality analysers PLA44 and PLA34 or other instruments with need of time synchronization in the Ethernet networks without access to Internet.

## 2. Safety instructions

Instrument comply the standard EN 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use.

- Installation of the instrument can be done by qualified and authorised person only.
- Instrument should not be installed in the environment with increased humidity and close to explosive gases.
- Use the instrument in accordance instructions written in the user manual.
- Installation and connection changes can be done without supply voltage only.
- Do not apply supply, measuring voltage and current higher than allowed.

## 3. Packaging content

- NTP server NTS100
- User manual
- Instrument is delivered without an antenna

## 4. Description

NTS100 is very simple NTP (Network Time Protocol) server with RJ45 interface for time synchronization of connected Ethernet instruments. Unit is equipped by SMC connector for external antenna for GNSS signal (Global Navigation Satellite System).

## 5. Function

NTS100 searches signal from available satellites and number of available satellites shows on display. Based on data from satellites NTS100 corrects time information with an accuracy in milliseconds.

Once the time is synchronised the information about it is show in the menu GPS informations → GPS fix

NTS100 answer requests from instruments connected on Ethernet and returns precise time in UTC (Coordinated Universal Time) format . Communication is in NTP UDP protocol on standard port 123.

Obtained UTC time has to be corrected in the instruments that using the synchronisation according to local time shift from UTC or according to summer/winter time.

## 6. Settings

The main screen of NTS100 shows actual date and UTC time.

NTP Server BMR			
13:51:28 16. 08. 2016			
Main menu BMR		GPS Informations BMR	
GPS Informations ▷		Satellites 10	
Settings ▷		GPS fix <input checked="" type="checkbox"/>	
About device ▷			
		Settings BMR	Device BMR
		Device ▷	Language EN
		Ethernet ▷	Screen saver <input checked="" type="checkbox"/>
			Password set
			Time zone +60min
			Reset
		About device BMR	Ethernet BMR
		www.bmr.cz	IP 192.168.2.4
		Firmware: 01.00.00	Mask 255.255.255.0
			Gate 192.168.2.1

Pressing button SET the configuration menu is shown. Important setting for connection of NTS100 server into Ethernet is in the menu Settings/Ethernet.

Parameter	Factory setting
IP address	192.168.1.201
Masc	255.255.255.0
Gateway	192.168.1.1

### Important

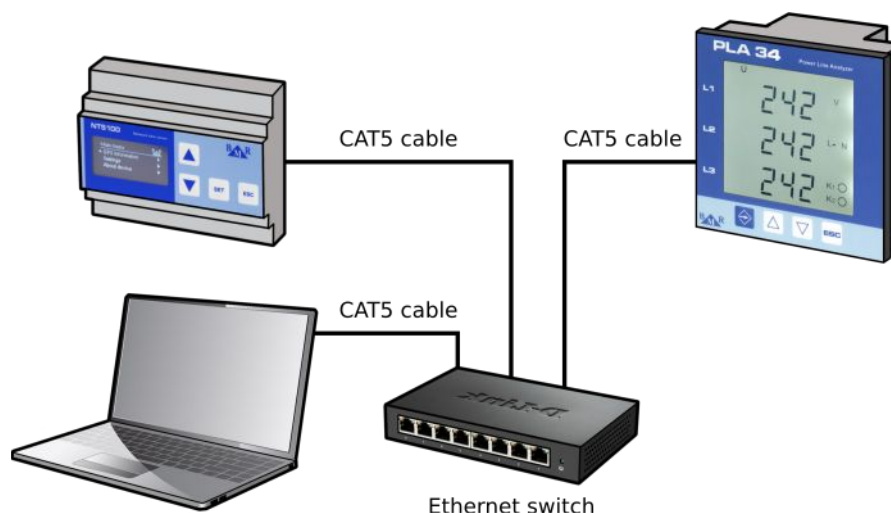
*If the network configuration is not known, the Ethernet cable should not be plugged into the device.*

## 7. Connection

NTS100 is very easy to install and use. Apply supply voltage 230 VAC and connect the NTS100 to the Ethernet. Instrument is delivered without the GPS antenna which has to be selected by type and designed according to particular installation.

NTS100 is standard TCP/IP device that should be connected in the Ethernet as other instruments that will use the NTP services of NTS100.

Instrument is equipped by Ethernet interface 10/100Mbit/s with RJ45 connector. For connection use the cable CAT5 type.



## 8. Recommendation for antenna selection

NTS100 is delivered without an antenna. Type of used antenna depends on the local situation at the place of installation and quality of GPS signal.

There is a simple rule for selection of an appropriate antenna.

$(\text{Gain of antenna} - \text{Losses of connection cable}) > \text{sensitivity of NTS100 input}$

For investigating of GPS signal quality the mobile phone with GPS can be used. Software GPS Test or GPS Status provides informations needed for antenna selection.

Recommended cable is H1000 PE from company Belden Wire & Cable B.V.

## 9. Technical features

Parameter	Value
Supply voltage	230 V AC (+10% / -15%), 50/60Hz
System frequency	50 / 60 Hz
Power consumption	1.2 VA
GPS input sensitivity	-148dBm Acquisition , -165dBm Tracking
Antenna connector type	SMC (female)
Type of antenna	Active (2.8 – 4.3V) supplied from NTS100 via antenna cable
Supported GPS system	GPS range L1-1575.42MHz, GLONASS, QZSS
Ethernet	RJ45 (10/100 Mbit)
Service USB interface	Type B
Temperature limit	-30°C ... +70°C
Dimensions	105 x 90 x 60 mm, 6 standard DIN rail modules
Mounting	DIN rail 35 mm
Weight	350 g
Protection degree	IP20
Related standards	EN 61000-4-30 class S, EN 61000-4-7, EN 61000-4-15, EN 61557-12