EMC Professional NET(19")

Time Server with integrated DCF77 Time Receiver for Industrial Applications

GUDE

Manual

Content

Security declaration

The device must be installed only by qualified personnel according to the following installation and operating instructions.

The manufacturer does not accept responsibility in case of improper use of the device and particularly any use of equipment that may cause personal injury or material damage.

The device contains no user-maintenable parts. All maintenance has to be performed by factorytrained service personnel.

Check if the power cord, the plug and the socket are in proper condition.

The device can be connected only to 230V AC (50 or 60 Hz) sockets.

Always connect the device to properly grounded power sockets.

The device is intended for indoor use only. Do NOT install them in an area where excessive moisture or heat is present.

Because of safety and approval issues it is not allowed to modify the device without our permission.

Please note the safety advises and manuals of connected devices, too.

The device is NOT a toy. It has to be used or stored out or range of children.

Packaging material is NOT a toy. Plastics has to be stored out of range of children. Please recycle the packaging materials.

In case of further questions, about installation, operation or usage of the device, which are not clear after reading the manual, please do not hesitate to ask our support team.

1 Description

EMC Professional NET (**EMC Prof NET (19")**) provides access to one of the most exact working atomic clocks in the world. It is run by the Physikalisch-Technische Bundesanstalt (PTB) in Braunschweig/Germany. Time and date are broadcasted by the DCF77 long-wave sender in Frankfurt/Mainflingen in Germany on a frequency of 77,5 kHz. The broadcasted time and date information are CET/CEST. The range of DCF77 is about 2000km.

EMC Prof NET (19") receives the DCF77 signal, using an active antenna. The received time and date information can be published in a network using NTP or via serial interface to a single PC.

EMC Prof NET (19") acts as stand-alone SNTP-Server. All PCs in the network can synchronise with **EMC Prof NET (19")**.

EMC Prof NET (19") was designed for a safe implementation in a environment, which is polluted by electro-magnetic interferences. To secure a proper receive, **EMC Prof NET (19")** is equipped with a precise electronic.

In case of longer receiving problems, **EMC Prof NET (19")** automatically switches to its internal battery buffered real time clock and provides further on the exact time and date. When the quality of the received signal has gone good enough again, **EMC Prof NET (19")** switches back to radio time.

Features of **EMC Prof NET (19")**:
- Digital filter and intelligent failure correction
- Signal monitor with LED line
- Battery buffered real time clock
- Stand-alone Time server (SNTP)
- Network configuration via DHCP
- Configuration over Ethernet (HTTP)
- Programmable Relais switch (without potential)
- Syslog
- SNMP (v1, v2c)

2 Hardware

2.1 Content of delivery

The delivery includes:

- **EMC Prof NET (19")**
- Power adaptor (**EMC Prof NET**) /
  Power cable IEC (**EMC Prof NET 19"**)
- Serial Interface Cable (Sub-D)
- Network cable
- CD-ROM incl. software and manual
- Active antenna (only in **EMC Prof NET (19")**-Set)

Figure 1 Front EMC Prof NET
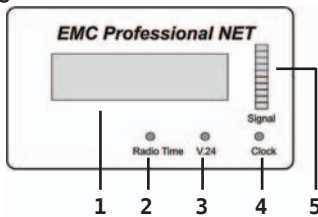
Figure 2 Rear EMC Prof NET
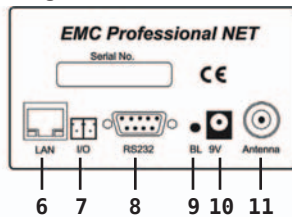
Figure 3 Front EMC Prof NET 19"
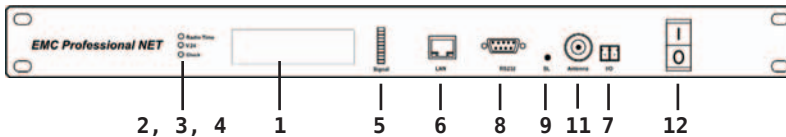
Figure 4 Rear EMC Prof NET 19"

1 Display	**7** Relay contact (without potential)
2 Radio Time LED	**8** Serial interface (RS232)
3 RS232 LED	**9** Bootloader button
4 Clock rate LED	**10** Power inlet
5 Signalmonitor	**11** Connector for Active antenna (BNC)
6 Ethernet connector (RJ45)	**12** Power switch (only EMC Prof NET 19")

2.2 Installation

1. Connect the active antenna and the power adaptor/power cable with the connectors at the device. If you are using **EMC Prof NET 19"**, activate the device. **EMC Prof NET (19")** is now booting and shortly after ready for usage.

2. Connect **EMC Prof NET (19")** with your network or via serial interface with your pc.

2.3 Display

After power on the LC display shows the configuration and the version of the firmware.

> EMC ProNET V1.6
> Config: Gude

After a few seconds **EMC Prof NET (19")** shows its IP address followed by the up-to-date time and date.

> EMC ProNET V1.6
> D192.168.0.2

First **EMC Prof NET (19")** is in quarz mode. Beside the time "Quarz" is shown in the display. Even in quarz mode **EMC Prof NET (19")** is completely ready for use.

> 15:39:53 Quarz
> We 04.Jun 2008

It looks for a proper radio signal. Approximatly after two minutes **EMC Prof NET (19")** has received enough information to switch into the radio mode. Then it shows "F=..." in the display, which means the number of faulty received bytes within in the last ten minutes.

```
15:39:53 ok F=00
We 04.Jun 2008
```

When you receive a good signal quality, the LED line will swing fully once a second and the clock LED will blink every second. The radio time LED will shine green constantly.

2.4 Alignment of the active antenna

Local issues may have influences on the received quality of the signal. Barriers like reinforced concrete buildings or mountains may weaken the signal, the electromagnetic fields of screens or motors may disturb the signal, too.

EMC Prof NET (19") was developed in aspect to be used in an electro-magnetic disturbed environment. With its active antenna and optimized electronic, **EMC Prof NET (19")** offers a good receiving even in such ambience.

Since the time signal moves circular from the sender in frankfurt/ Mainflingen, you will get the best receive if you place the antenna tangential to these circles.

Figure 5 Alignment of the active antenna

To obtain a good receiving, please attend to the following hints:

- Do not place the antenna near by or directly on metallic, or conductive objects.

- Place the antenna near by a window. If neccessary it is possible to mount the antenna outsides, in this case make sure, that there is an adequate lightning proctection.

- Do not place the antenna parallel to telephon/network or power cables.

- Change the direction and the position of the antenna until you get a good receive quality (See figure 5).

- Interferences may be exactly at 77,5 kHz or broadband interferences, which meet 77,5 kHz. Devices like monitors or devices using a power adaptor are known jamming sources. Do not place the antenna near by those objects.

- Athmospheric interferences occur like shortwave radio in batches, up to a few seconds. To secure the received quality, we recommend to change the location of the antenna.
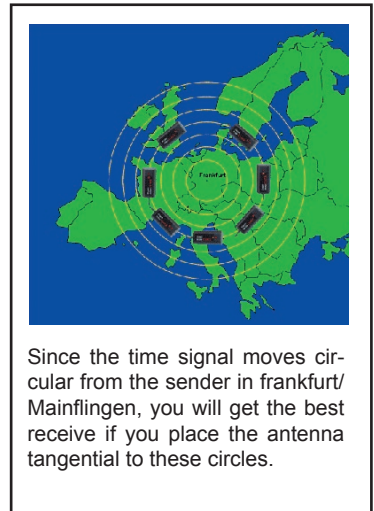
When you receive a good signal quality, the LED line will swing fully once a second and the clock LED will blink every second. The radio time LED will shine green constantly.

3 Network operation

3.1 EMC Prof NET (19") as SNTP-Server

Due to its integrated ethernet interface **EMC Prof NET (19")** can be connected to a network and is able to act as a stand alone time server. The SNTP protocol allows client in the network to synchronize the time with **EMC Prof NET (19")**.

3.2 Time synchronization as SNTP-Server

The following chapters show how to synchronize your PC clock with **EMC Prof NET (19")** while using a MS Windows OS.

3.2.1 Windows XP/Vista

If you are using Windows XP or Vista, you do not need additional software to synchronize your PC with **EMC Prof NET (19")**
First, open the date and time information by double clicking on the clock in the task bar. Now choose the tab *Internet time* and enter the IP address of **EMC Prof NET (19")** into the field *Server* (see figure 6).

By clicking at *Update* you can check the synchronization.

Close the configuration by clicking at *OK*. Windows will automatically synchronize the time from now on.
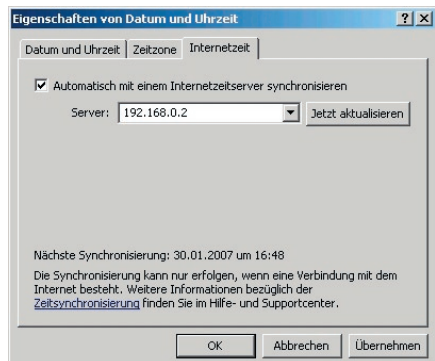
Figure 6 Internet time at Windows XP

3.2.2 Windows 9x/NT/2000

While using Windows 9x/NT/2000 the easiest way to synchro-
nize the internal PC clock with the **EMC Prof NET (19")** is the
tool *Dimension 4 (D4)*.

To synchronize the PC with **EMC Prof NET (19")**, click on the
button *Add*. Then enter the IP address of **EMC Prof NET (19")**
at *Server* and a description at *Location*. Now choose the proto-
col „SNTP". Confirm the settings by clicking at *OK* (see figure
7).
With standard settings, *D4* will update your PC clock once an
hour.
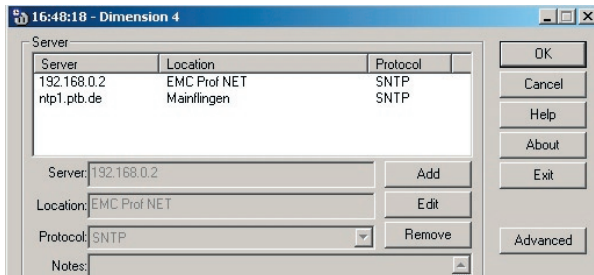
Figure 7 Interface *D4*

3.2.3 Linux

Under Linux, there are several ways to synchronize the PC clock with a network time server. This chapter shows how you can synchronize your PC clock with *ntpdate* and *cron*.

Please check, if *ntpdate* is installed already. Therefor, please use the command „*which ntpdate*". If *ntpdate* is installed, *which* will display the location on your PC (Figure 8)

```
linux:/ # which ntpdate
/usr/sbin/ntpdate
linux:/ #
```

Figure 8 *ntpdate* was found

If *which* does not display a location, please install *ntpdate* (included in *NTP*). You can find the script *make_all.sh* for installation at the CD-ROM at „EMC_Professional_NET\tools\linux\ get_ntp". More information about the installation you can find in chapter 4.2.

With „*ntpdate IP address of* **EMC Prof NET (19")**" you can synchronize your PC clock. If you only want to request the time of **EMC Prof NET (19")**, you have to use the paramter „*-q*" after the command.

```
linux:/ # ntpdate 192.168.0.2
 9 Mar 10:26:44 ntpdate[4012]: step time server
 192.168.0.2 offset -0.02398 sec
linux:/ # ntpdate -q 192.168.0.2
 9 Mar 10:26:50 ntpdate[4013]: adjust timer server
 192.168.0.2 offset -0.00145 sec
linux:/ #
```

Figure 9 *ntpdate*

For a regularly synchronization, you have to create a *cronjob*. A *cronjob* is command, done by *cron*. We recommend to start *ntpdate* with the parameter „*-s*". With „*-s*" the command line output of *ntpdate* will be written into the systemlog. To create a *cronjob*, you have to start *crontab -e*. In figure 10 you can see a *cronjob*, that is repeated each full hour.

```
#min hour day month dayofweek command
#--------------------------------------------------
   0    *    *    *         * ntpdate -s 192.168.0.2
```

Figure 10 *crontab*

4 Operation via serial interface

EMC Prof NET (19") offers a serial interface, additionally to the network ethernet interface. On the CD-ROM, you can find the tool *w32EMC* for Windows OS. For Linux you need the free toolset *NTP*.

4.1 Operation under Windows

4.1.1 Installation of the Software

Put the CD-ROM „Drivers & Tools" into your CD-ROM drive.

Open „*setup_w32EMC.exe"* and follow the advices of the installation program. The neccessary files will be copied to your hard disk.
Start *w32EMC.exe*. You only have to enter the used COM port. If everything is alright, your system will be synchronized regularly.

4.1.2 Settings

The menue *settings* allows to change the configuration of *w32EMC*:

- **COM-Port**
  Here you can enter the COM-Port where **EMC Prof NET (19")** is connected to.

- **Colors**
  Here you can change the color settings of *w32EMC*.

- **Max. offset**
  Here you can activate the maximum allowed offset. If it is active, the software calculates the difference between last DCF time and PC clock. In case it is more than 90 minutest, the software will not synchronize

Figure 11 *w32EMC*

the PC. This feature is recommended in locations of bad receive, since the DCF signal may have errors and will look totally correct, although it is wrong.

- **Language**
  Here you can change the language of *w32EMC*. Possible languages are English and German

- **Sync frequency**
  Here you can choose in which intervall *w32EMC* shell synchronize your PC clock. Usually one hour is enough, shorter intervalls may cause a too high CPU load.

- **Time shift**
  Here you can enter a time shift. We recommend to deactivate this feature, since Windows has its own time shift management.

- **Save**
  Here you can save the changed settings. They will become active on next start of *w32EMC*.

4.1.3 Interface

At the *w32EMC* window (figure 11) you can see the following values:

DCF77-State

System time
The time and date of your PC.

Last received
The last correct received DCF time and date.

Operation mode
It is indicated here if **EMC Prof NET (19")** is in radio or in quarz mode:

„Radio mode" means, **EMC Prof NET (19")** receives a proper DCF77 signal and synchronizes with.

„Quarz mode" means, **EMC Prof NET (19")** works with its integrated real time clock, since there is no proper receive of DCF-77 time signals. If this happens often, please check the alignment of the active antenna (see 2.4).

Incorrect bits
Here, the counter of the incorrect received bits is displayed. **EMC Prof NET (19")** switches automatically to Quarz mode, if the number rises to high. When the received signal has gone better and the number of faulty bits decreased, **EMC Prof NET (19")** switches back to Radio mode. The number of faulty bits is displayed in the LCD display also: „F=...".

Announcements
Announcements, broadcasted via DCF will be displayed here.

V.24

V.24 State

The state of the data transfer of the serial interface is shown here:

> *„active"/„active in ... seconds"*: DCF time signals are received at serial interface of the PC. The system time is compared with DCF time.

> *„No receive!"*: There is no receive of signals at the choosen serial interface. Please check if you choose the correct COM-port and if the cable is connected correctly to your PC.

> *„No COM-port selected"*: There is no COM-port selected to receive the signals of **EMC Prof NET (19")**.

Interface

The selected COM-port is displayed here.

Log

The recently received time telegram is displayed here as an ASCII string.

4.1.4 Logmode

The software *w32EMC* allows you to protocol all actions and additional error messages in a log file. This is important for administration or bugfixing.

You can start the logmode at the start of the software. Sie können den Logbetrieb beim Programmstart aktivieren. Therefore you have to use the command line parameter „*-l*". While starting the program with the command line, simply enter the parameter behind the start command (*„c:\programme\EMCprof>w32EMC –l")*. Another solution is to create a shortcut.

All information in logmode will be written to the file *logfile.emc*, which is located in the program folder of *w32EMC*.

4.2 Operation under Linux (NTP)

EMC Prof NET (19") can be used with *NTP* under Linux. „NTP" means Network Time Protocol. It is designed for the synchronization of clients over TCP/IP. For the usage under Linux the V.24 output protocol has to be changed to XNTP (see chapter 5.3).

4.2.1 NTP installation

For easy installation of *NTP* you can find the shell script *make_all.sh* on the CD-ROM at „tools\linux\get_ntp". This script downloads *NTP* from the internet and compiles it.

Copy the folder „get_ntp" to your hard disk. Now start *make_all.sh* with the command *„-/make_all.sh"*. After the successful application, *NTP* is compiled and ready for use.
End the installation with *„make install"*.

4.2.2 NTP configuration

NTP interacts with **EMC Prof NET (19")** via the symbolic link: */dev/refclock-0*. If **EMC Prof NET (19")** is connected with *COM1* for example, */dev/refclock-0* has to link to */dev/ttyS0* (for COM2: */dev/ttyS1*).
If your Linux is based on Kernel 2.4 or older, you can create the link with *„ln -s /dev/ttyS0 /dev/refclock-0"*.
Since Kernel 2.6 *udev* administrates the In-/output device files. To create a link to *refclock-0* automatically by *udev*, there has to be a „rule" for this link.
Change to the folder *rules.d* in the udev folder (e.g. */etc/udev/rules.d*) and open the file *50-udev.rules*. Add the following line to the file. where the serial ports are defined:

KERNEL=="ttyS0", NAME="%k", SYMLINK="refclock-%n", GROUP="uucp"

```
# serial devices
KERNEl=="ttyS0",                NAME="%k",
SYMLINK="refclock-%n", GROUP="uucp"
KERNEL=="tty[A-Z]*",            NAME="%k", GROUP="uucp"
KERNEL=="pppox*",               NAME="%k", GROUP="uucp"
```

Figure 12 *50-udev.rules* file

Please restart udev after this process.

You have to enter the following lines into the file *ntp.conf* in order
to receive the time and date information of **EMC Prof NET (19")**
regularly:

```
server 127.127.8.0 prefer mode 12
logfile /var/log/ntp
logconfig =all
driftfile /var/log/ntp.drift
```

This means, the time and date information of the device *re-
fclock-0* will be picked up by driver 12 of group 8. For testing
purposes you can enter 127.127.1.0. This makes *NTP* taking
the time and date information of the PC clock.

4.2.3 Starting NTP

To get detailed information about the quality of receive, please
use the programm *ntpq*. Start *ntpq* with the command „*ntpq -c
clocklist*" auf.

```
status=0000 clk_okay,
last_clk_okay,
device="HOPF 6021",
timecode="\x02\x0c\x09150700070703\x0a\x0d\x03",
poll=2, noreply=0, badformat=0, baddata=0,
fudgetime1=0.000, fudgetime2=0.000, stratum=1,
refid=DCF, flags=0,
refclock_time="c2b40b14.00000000  Mon, Jul  7 2003 15:
07:00.000 UTC",
refclock_status="TIME CODE",
refclock_format="hopf Funkuhr 6021",
refclock_states="*NOMINAL: 00:30:41 (94.46%); NO RE-
SPONSE: 00:01:48 (5.54%);
running time: 00:32:29"
```

Figure 13 ntpq -c clocklist

If you start *ntpq* without further options, localhost will be the *NTP*
server. You can control *ntpq* with the command line.

With „*peers*" a table of the active referencee clocks can be displayed. An asterisk at the beginning of a line (*) shows the up-to-date time referencee.

```
   remote   refid   st t when poll reach delay offset  jitter
==============================================================
*GENERIC(0).DCF. 0 l    5   64     1  0.000  2.846   0.008
```

Figure 14 *peers*

4.2.4 Setup of a NTP daemon

Like all UNIX system services (daemons) *ntpd* should be started by a rc-script. If you are using *NTP* of the *RPM* of *SuSE Linux*, you will find such a rc-script in */etc/init.d/xntpd*. With „*# /etc/init.d/xntpd start*" and „*# /etc/init.d/ntpd stop*" you can start and quit the NTP daemon. An example of this script, you can find on the CD-ROM.

To start the rc-script automatically at each start of the system, you have to make sure, that a link to */etc/init.d/xntpd* is created in the corresponding runlevels. Users of SuSE Linux can use the runlevel editor in ‚yast'.

If the synchronization was done correct, the following message will be written to the NTP logfile:

```
ntpd[1103]: PARSE receiver #0: packet format „hopf Funk-
uhr 6021"
ntpd[1103]: PARSE receiver #0: STATE CHANGE:  -> TIME
CODE
ntpd[1103]: PARSE receiver #0: SYNCHRONIZED
ntpd[1103]: clock GENERIC(0) event ‚clk_okay' (0x00)
..................................
ntpd[1103]: time reset -0.745079 s
```

Figure 15 NTP logfile

4.3. V.24 protocols

EMC Prof NET (19") has been designed for a lot of time apllications. Because different time formats and protocls are neccessary for the most applications, it is possible to change the protocol, which is given out by the serial interface (see 5.3).

4.3.1 Gude standard time protocol

Gude standard time protocol was developed by Gude Analog- und Digitalsysteme GmbH based on CET/CEST especially for Gude PC time receivers. More information can be found at **http://www.gude.info/wiki**.

CET/CEST is the relevant time zone for central europe (Germany, Switzerland, Austria for example). The difference between CET (Central European Time) and World Time UTC is +1, between CEST (Central European Summer time) and UTC is +2 hours.

4.3.2 Gude UTC time protocol

While using this v24. format, the time will be exported as UTC time. This protocol is coded like the Gude standard time protocol. More information can be found at **http://www.gude.info/wiki**.

4.3.3 XNTP time protocol

The XNTP time protocol was developed for XNTP applications. More information can be found at **http://www.gude.info/wiki**.

5 Configuration

5.1 Automatic configuration by DHCP

After power-on **EMC Prof NET (19")** looks for a DHCP server and requests an available IP address (for deactivation of that feature see 5.2).

Please check the IP address allocated to **EMC Prof NET (19")** in the DHCP server settings to make sure that the same address is used at every reboot.

5.2 Network configuration by *GBL_Conf.exe*

For changing the network properties manually, the program *GBL_Conf.exe* is required. This tool is available for free on our website **www.gude.info**.

Furthermore *GBL_Conf.exe* enables you to install firmware up-dates and to reset **EMC Prof NET (19")** to its factory settings (*see 5.2)*.

Activate bootloader mode of **EMC Prof NET (19")** and run *GBL_Conf.exe* (*see 5.1*). The program will look automatically for connected devices and will display their network configuration.

If the displayed IP address accords with the factory settings (192.168.0.2), there is either no DHCP server available in the network or no free IP address could be allocated.

Enter a free IP address and the according netmask in the entry mask, then save these changes by clicking on *Program Device →SaveConfig*.

Restart **EMC Prof NET (19")** by switching it off and on again, so that the changes will take effect. Now click on *Search* in order to have the new network configu-ration displayed.
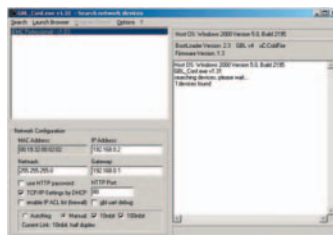
Figure 16 Gbl_Conf.exe

5.3 Configuration by Webinterface

Go to the website of **EMC Prof NET (19")**. Enter the IP address of **EMC Prof NET (19")** into the address line of your internet browser:

*http://"IP address of **EMC Prof NET (19")**"/*

and press LOGIN.

Figure 17 Login

Now, an overview about the status of **EMC Prof NET (19")** is displayed.

Figure 18 Status

To enter the configuration menu, click on „Configuration" on the upper left side of the screen.

Configuration - Clock

LCD Display

Here you can choose, which time format shell be displayed at the LC-Display of **EMC Prof NET (19")**. You can switch between CET/CEST and UTC.

V.24 output protocol

Here you can choose the format which shell be used by the RS232 interface. (see 4.3).

Language

Here you can change the language, displayed in the LC-Display. You can choose between German, English, Dutch und Danish.

Figure 19 Configuration - Clock

Time switch clock settings

Here you activate and configure the programmable relais outlet. You can enter date and time for activation/deactivation of the relais outlet. Confirm your settings by clicking at "*Set*".
The settings are active, if the time switch clock is active. Activate it and confirm by "*Apply*".

Syslog debug output

Here you can activate the debug output via syslog.

Allow DCF77 time jump

Here you can activate time jumps. If active the time of the clock can switch more than ten seconds in radio mode and more than one hour when the mode changes from quarz to radio.

Configuration - IP Address

Hostname

Enter the host name of **EMC Prof NET (19")**. **EMC Prof NET (19")** uses this name to connect with DHCP server.

Special signs may destabilize your network.

IP Address

Here you can change the IP address of **EMC Prof NET (19")**.

Netmask

Here you can change the netmask of **EMC Prof NET (19")**.

Gateway

Here you can change the standard gateway of **EMC Prof NET (19")**.

Figure 20 Configuration - IP - Address

Use DHCP

Here you can set, if **EMC Prof NET (19")** shall get its TCP/IP settings directly from your DHCP server. If DHCP is activated, **EMC Prof NET (19")** proves if a DHCP server is active inside of your LAN. Then **EMC Prof NET (19")** requests TCP/IP settings from this server. If there is no DHCP server inside of your network, we recommend to deactivate this function.

Configuration - IP ACL

Reply ICMP-Ping requests
Here you can set, if **EMC Prof NET (19")** shell react on pings.

Enable IP Filter
Here you can activate the IP Access Control List (IP ACL) of **EMC Prof NET (19")**.

If IP ACL is active, DHCP and SNMP only work, if all necessary servers and clients are registered in this List.

Figure 21 Configuration - IP ACL

Configuration - HTTP

HTTP Port
Here you can enter the HTTP port number, if necessary. Possible numbers are 1 ... 65534 (standard: 80). To get access to **EMC Prof NET (19")**, you have to enter the port number behind the IP address of **EMC Prof NET (19")**:
http://192.168.0.2:1720

Figure 22 Configuration - HTTP

Require HTTP Password
Password protected access can be activated here. In this case, a user and an admin password have to be defined. Passwords have a maximum lengths of 15 characters.

Administrators are authorized to switch all ports and to modify the settings of **EMC Prof NET (19")** and of all ports. The username of the admin is *"admin"*.

All changes need a restart of the firmware to get valid.

Configuration - SNMP

Enable SNMP-get
Here you can activate SNMP-get protocol of **EMC Prof NET (19")**.

SNMP public community
Here you can enter the SNMP public community.

Enable SNMP-set
Here you can activate SNMP-set protocol of **EMC Prof NET (19")**.

Figure 23 Configuration - SNMP

SNMP private community
Here you can enter the SNMP private community.

Download SNMP-MIB
Here you can download the MIBs of **EMC Prof NET (19")**.

Use SNMP only if your network is fitted for.

More information about the SNMP functions of **EMC Prof NET (19")**, you can find in chapter 5.5, on *http://www.gude.info/wiki* or ask our support team.
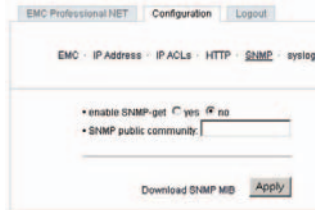
Configuration - Syslog

Use Syslog
Here you can activate Syslog of **EMC Prof NET (19")**.

Figure 24 Configuration - Syslog

Syslog Server IP
If syslog is active enter here the IP address of you Syslog server.

Syslog Port
If syslog is active enter here the port number, that your Syslog server uses to receive syslog information.

More information about Syslog you can find in chapter 5.6, on *http://www.gude.info/wiki* or ask our support team.

5.4 IP Access Control List

IP Access Control List (IP ACL) acts as an IP filter for your **EMC Prof NET (19")**.   Wether it is active hosts and subnets only can contact **EMC Prof NET (19")**, if their IP adresses are stated in this IP ACL, e.g.: *„http://192.168.0.1"* or *„http://192.168.0.1/24"*

If you locked yourself out by mistake, please activate the boot-loader mode of **EMC Prof NET (19")**, start *Gbl_Conf.exe* and deactivate IP ACL.

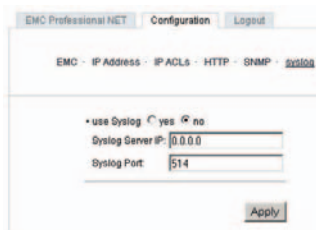You can find more information about configuration of IP ACL in chapter 5.3 or have a look at *http://www.gude.info/wiki*.

5.5 SNMP

To get detailed status information of **EMC Prof NET (19")** SNMP can be used. SNMP communicates via UDP (port 161) with **EMC Prof NET (19")**.

Supported SNMP commands:
- SNMPGET: request status information
- SNMPGETNEXT: request the next status information

You will need a Network Management System, e.g. HP-Open View, OpenNMS, Nagios etc., or the command line tools of NET-SNMP to request information of **EMC Prof NET (19")** via SNMP.

SNMP Communities

SNMP authentifies requests by communities. The public community has to be added to SNMP-read-requests. You can see the SNMP communites like passwords. SNMP v1 and v2c transmit the communities without encryption. Therefore it is simple to spy out these communities. We recommend to use a DMZ or IP ACL.

MIBs

All information, that can be requested or changed, the so called „Managed Objects", are described in „Management Information Bases" (MIBs).

At least, there are so called Object Identifiers (OID) subordinated to those three structures. An OID describes the location of an information inside a MIB.

You can find more information about configuration of SNMP in Chapter 5.3 or have a look at *http://www.gude.info/wiki*.

5.6 Syslog

Syslog messages are simple text messages transmitted to a syslog server using UDP.
Linux OS regularly have a syslog daemon installed, e.g. syslog-ng.
For Windows there are some freeware tools available.

On following events, **EMC Prof NET (19")** will send a syslog message:

      - Booting up
      - Activation/deactivation of syslog
      - Switching of the relais

You can find more information about configuration of Syslog in chapter 5.3 or have a look at *http://www.gude.info/wiki*.

5.7 Presentation of the recent configuration

After power-up of **EMC Prof NET (19")** you can see the IP address of the device in the display, when you press the Boot-loader button. Additional information is given by the sign in front of the IP address:

*   Static IP address, DHCP disabled

D   Dynamic IP address, provided by DHCP

F   DHCP is enabled, **EMC Prof NET (19")** did not receive a valid IP address. The shown IP address is default

6 Features

6.1 Bootloader mode

To activate the bootloader mode of **EMC Prof NET (19")** the Bootloader button must be pushed while restarting the device. In bootloader mode it is possible to disable the password protection, to update the firmware and to restore the default settings by running the program *GBL_Conf.exe*.

The bootloader mode of **EMC Prof NET (19")** is indicated by *"BOOT-LDR"* appended to the device name in the program window of *GBL_Conf.exe* and by the blinking of the V.24 led. The LC-display shows "Bootloader", too.

During bootloader mode an alteration of the relais is not possible.

6.2 Firmware update

In order to update the firmware the program *GBL_Conf.exe* and the latest firmware are needed.

Start **EMC Prof NET (19")** in boot mode (*see 4.1*) and run the program *GBL_Conf.exe*. On the left side of the program window all **EMC Prof NET (19")** that are in the network are listed. Select the one, that should be updated, click on *Program Device→Firmware Update* and determine the location of the new firmware.

Please note: The up-to-date firmware and *GBL_Conf.exe* can be found at www.gude.info, free to download.

6.3 Technical information

EMC Professional NET

Interfaces:	Ethernet, potential free relais outlet, 9 Pin D-SUB (RS232), BNC Connector for active antenna
Network:	10 MBit/s 10BaseT Ethernet
Protocols:	TCP/IP, NTP, HTTP, SNMP v1/v2c, Syslog
Power supply:	Power Adaptor (9V)
Operating temperature:	5°C - 55°C
Dimensions:	17 x 10,5 x 6,5 cm (L x B x H)
Weight:	0,73 kg

EMC Professional NET 19"

Interfaces:	Ethernet, potential free relais outlet, 9 Pin D-SUB (RS232), BNC Connector for active antenna
Network:	10 MBit 10baseT Ethernet
Protocols:	TCP/IP, NTP, HTTP, SNMP v1/v2c, Syslog
Power supply:	Cold devices inlet (IEC C13, 10 A, 230 V)
Operating temperature:	0°C - 50°C
Dimensions:	19" / 1 RU

Active antenna (BNC)

Operating temperature:	-15°C - 60°C
Dimensions:	Length: 21,5 cm, Diameter: 2 cm
Cable:	Length:5 m, RG174/U (Length can be up to 150m)

7 Support

The software *w32EMC* includes a help file. There you can find more information for installation and operation of **EMC Prof NET (19")**.

The up-to-date software and firmware you can download at *www.gude.info*.

In case of further questions about installation and operation of **EMC Prof NET (19")** please take a look at www.gude.info/ wiki and do not hesitate to contact our support team at *mail@gude.info*.

Declarations

Hereby, we confirm EMC Professional NET (19") follows the restrictions of RoHS.

	Konformitätserklärung / Declaration of Conformity	CE

Die Firma / The manufacturer

	Gude Analog- und Digitalsysteme GmbH		
Anschrift/Address:	Eintrachtstr. 113, 50668 Köln		
Telefon/Phone:	0221 – 912 90 97	Fax:	0221 – 912 90 98
Web:	www.gude.info	Mail:	info@gude.info

erklärt hiermit, dass die Produkte / hereby declares that the following products

Produktkennzeichnung / Product name

EMC Professional NET und/and EMC Professional NET 19''   DCF77 Industriefunkuhr für PCs / DCF77 time receiver for PCs

mit den Bestimmungen der nachstehenden EU-Richtlinien übereinstimmen /
are in accordance with the following european directives

Referenz-Nummer / Reference no.	Titel / Title
89/336/EWG / 89/336/EEC	Elektromagnetische Verträglichkeit / Electromagnetic Compatibility
73/23/EWG / 73/23/EEC	Niederspannungsrichtlinie / Low Voltage Electrical Equipment
93/68/EWG / 93/68/EEC	CE Kennzeichnung / CE marking

und dass die nachstehenden Europäischen Normen zur Anwendung gelangt sind. /
and comply with the following european standards.

Norm / Standard	Titel / Title
EN 61000-6-1:2001	Elektromagnetische Verträglichkeit Teil 6-1: Störfestigkeit - Wohnbereich, Geschäfts- und Gewerbebereich sowie Kleinbetriebe
EN 61000-6-1:2001	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
EN 61000-6-3:2001	Elektromagentische Verträglichkeit Teil 6-3: Störaussendung - Wohnbereich, Geschäfts- und Gewerbebereich sowie Kleinbetriebe
EN 61000-6-3:2001	Electromagnetic compatibility - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
EN 60950:2000	Sicherheit von Einrichtungen der Informationstechnik
EN 60950:2000	Safety for Industrial Control Equipment

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GUDE
ANALOG – und
DIGITALSYSTEME
GmbH
Eintrachtstr. 113, 50668 Köln
Tel.: 0221 / 912 90 97
Fax: 0221 / 912 90 98
www.gude.info - info@gude.info

Dr. Michael Gude, Geschäftsführer / CEO

Contact

GUDE Systems GmbH
Von-der-Wettern-Str. 23
51149 Koeln

Tel.: +49-221-912 90 97
Fax: +49-221-912 90 98

E-Mail: mail@gude.info
Web: www.gude.info