

NAM / HCU network interface protocol

Description: NAM / HCU network interface protocol
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1 VERSION HISTORY

Version	Date	Changes
1.0	23.06.2006	<ul style="list-style-type: none">• Stable version• Supporting NAM2, NAM19, HCU5 as well as MAMs with a network module
1.1	31.03.2011	<ul style="list-style-type: none">• Company address

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2 INFORMATION

2.1 About this document

This manual description the UDP network interface of our NAM, HCU products. This document relates to functionality of the current software Version. (have a look to point 1. version history)

All rights at this instruction manual are entitled to *eubus*.

This instruction manual is designed for users of the NAM (Network Attenuator Module) 2, NAM19, NAM4, HCU5 and MAM with integrated networkmodule.

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3 IN GENERAL

The network communication runs over UDP on port 3000. The communication proceeds unlocked, i.e. the udp packets can be viewed with a network sniffer (e.g. Wireshark). With these commands everybody is able to programme an interface to our NAM / MAM devices. This may be necessary in case attenuation values should be altered faster than 8 ms, the NAM modules should be integrated into a running system, etc.

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4 DEFINITIONS

4.1 PID

The PID (Process Identification) is a double-digit number (01 – 99) which has to be set up distinctively for each test. This means the users have to make sure that no PID appears twice. Further, the PID 00 may not be allocated.

4.2 MSTR

mstr is the abbreviation for master. In a test session one channel must be declared as master. No other channel may be declared as master. All others must be defined as slaves. The master channel takes over the clocking of its so-called slaves (see slve). In a NAM19 several channels can be defined as master as long as the tests do not process the same PID!!

4.3 SLVE

slve ist the abbreviation for slaves. In a test session one channel must be declared as master, all others as slaves. The master provides his slaves via UDP broadcast with the current cycle.

4.4 Steptime

The steptime is the time interval in milliseconds in which the master generates its broadcast cycle.

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5 FUNCTIONAL PRINCIPLE

One channel can deposit 750 values between 0 and 127 in its memory. If in a test a channel should take over the master function, a steptime must be defined and steptime is the time interval between the cycles. A steptime under 8ms cannot be processed in time. In this case another device must take over the cycles.

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6 THE UDP COMMANDS

Crucial are always the first four characters of the UDP packets:

6.1 dbst

"dbst" - dbst <value> <channel>

Places a certain channel on a specific value.

6.2 DBRQ

"DBRQ" - DBRQ

Displays the values of all channels in the file /var/level.num on the NAM module.

6.3 scan

"scan" - scan

On the command <scan> the NAM gives details on its type (NAM 19, NAM2).

6.4 load

"load" - load <channel> <pid> <steptime> <counter> <values>

With load 750 values (every 3 digits and all interconnected) can be transmitted to the device. The separate values are to be seen as cycles which are clocked by the so-called master. This means that the master sends one cycle (0 – 750) over the UDP port 3000 and the channels switch to the value of the cycle. As the UDP packet would become to large, it is divided into 3 separate packets (each 250 values) and allocated the counter (0 –2). With this command the channel is also provide with a PID. If the channel is already occupied by another PID, a UDP broadcast packet with “fini PID” is sent which releases the PID on all channels. If something does not run properly during the LOAD process, a UDP packet ERR is sent. Otherwise each one of the three load packets is answered with OK.

6.5 mstr

"mstr" - mstr <channel>

If the NAM module should generate the cycles, one <channel> per session must be declared as master. If the declaration of a master is successful a MSTROK is sent.

6.6 slve

"slve" - slve <channel>

The remaining channels of the session must then declared as slaves in order for them to hear the cycles. If the declaration of a slave is successful a MSTROK is sent.

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6.7 TAKT

"TAKT" - TAKT <pid> <step>

A UDP broadcast packet switches all channels which are defined as slave and belong to the PID <pid> to the value number <

6.8 strt

"strt" - strt <pid> <start> <stop> <repeat>

With the start packet the master of the session with the PID <pid> is initiated to release cycles ("TAKT"). <start> is the cycle with which one begins, in most cases 0, and <stop> the cycle with which one should terminate. <repeat> indicates the number of repeats. Was the command placed successfully the device answers with MSTROK.

special case 1: <repeat> = 0 -> the test runs eternally, i. e. until a stop packet arrives

special case 2: <stop> = 0 -> all 750 cycles will be processed

6.9 stop

"stop" - stop <pid>

Stops the master of the session with the PID <pid>. A MSTROK is sent if the command has been placed successfully.

6.10 rsmu

"rsmu" - rsmu <pid>

Permits the master with the PID <pid> to run further after a pause. A MSTROK is sent if the command has been placed successfully.

6.11 fini

"fini" - fini <pid>

Releases the channels which are allocated to the session with the PID <pid>..

6.12 time

"time" - time <pid> <startin_minuten> <duration_in_minutes>

Time activates a timer which starts a session in <start_in_minutes> minutes. The duration in minutes is defined in <duration_in_minutes>. If the timer is placed successfully, the device answers with a "TOK". If the command was not successful a "tnok" is sent.

6.13 locl

"locl" - locl <channel>

Places a channel on the software side on local and releases its PID.

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6.14 stat

"stat" - sends the status of the separate channels back, i.e. which PID they are using and if they are placed on remote or local (via software).

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