

Siemens Teleperm N-AT/N-PCI I/O Driver STN

DRIVER TYPES

	COMM	RES
DOS		4.19-2
WIN 3.11		5.31-3
NT/W2000 with Black Box		6.00-2
NT		6.10-4
WIN 2000		6.10-4

SUPPORTED HARDWARE

Dos, Win 3.11 and Black Box driver:

Siemens Teleperm AS220, AS220E, AS220EHF, EAK, AS230/235, AS231/36, AG150U, AG155U and AS215 Systems on the Siemens CS275 bus. (Only tested on AS220 version C, AS230 and AS235).

NT and Win 2000 driver:

Siemens Teleperm AS220 - AKS, BKS and MKS telegrams.
Siemens Teleperm AS230/235 - all telegram types except TRANS.

The Siemens N-AT or N-PCI communication card is used. The new version of the N-AT card has a Siemens order number of 6DS1222-8BA. The Siemens N-AT card 6DS1222-8AB and the N-AT card 6DS1222-8AA are older cards that will work with parts of the protocol; the limitation is in the card. The N-PCI card has a Siemens order number of 6DS1224-8AA and is only supported by the NT and Win 2000 driver.

To be able to communicate on the CS-275 bus, the controlling system needs a communication card as well as a CS-275 communication cable. Please contact Siemens for a further information on this.

PROTOCOL

Direct Link	
Multi-drop	
Communication Network	X

The protocol management is handled by the Siemens N-AT/N-PCI card.

For the Dos, Win 3.11 and Black Box driver the interface against the N-AT card is based upon the Siemens KSN-AT software. The N-AT card is installed in the PC using interrupt 10. The communication with the card is made through configurable I/O addresses (default 0x300).

For the NT and Win 2000 driver the interface against the N-AT/N-PCI card is based on the TmOpen DLL from ASSE (Automation Systeme Eckstein). The I/O address of a N-AT card has to be 0x300 for the TmOpen DLL to work properly.

SUPPORTED MESSAGES/DATA AREAS

Receive AKS (input) in DI mode

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Receive BKS (input) in DI mode
Receive MKS (input) in DI mode
Receive/Send Y-Functions (input/output)
Receive Status Words as events through BST messages(input)
Receive system text as TEXT (input)
Send of system message acknowledge as TRANS (Transparent Mode)(output) Only Dos, Win3.11 and black box version.

DATA TYPES

Supported Y-Function Parameters:

EAV, ETV, PGT, AA, AB, PT, EA, EB, PA, PB, ID, I, EBV, PAD, EAD, AAD, EDV, VB

Parameters of double float precision are represented in single float precision in FIX. Siemens floating point numbers are converted to IEEE floating point numbers.

The System Text message is also received with time stamp; it will be viewed together with the text in a FIX TEXT block.

Common areas GA and GB can only be read, not written.

REQUIRED VENDOR SOFTWARE

For Dos, Win 3.11 and Black Box version of the driver:

- Siemens Koppelsoftware KSN-AT version 3.0 .

For the NT and Win 2000 version of the driver:

- TmOpen DLL 8-byte alignment version 2.1.3.4 with device driver for the N-AT/N-PCI card from ASSE (Automation Systeme Software Eckstein). (www.asseckstein.com)

COMMUNICATIONS PERFORMANCE

The communication speed on the CS275 bus is 340 Kbaud on the local bus and 250 Kbaud on remote bus. The communication performance by the driver is very depending on the type of messages sent. AKS, BKS, MKS, BST and TEXT messages are messages sent by the Siemens AS when an event occurs or cyclic and the driver is logged into the corresponding function block. Y-functions are "polled" through sending request messages and waiting for responses. Thus the Y-function messages are loading the driver more than the other messages, since it is a two way communication. Normally about 6 Y-function poll records and 6 other records could be accessed during one second, i.e. $6 \times 20 = 120$ Y-function parameters and e.g. 2 AKS messages i.e. $2 \times 28 = 56$ and 2 BKS messages i.e. $2 \times 128 = 256$ and 1 BST i.e. the status word of one function block and 1 TEXT i.e. one AS system message.

AKS and BKS are sent cyclic according to a time set up in the AS.

GENERAL LIMITATIONS

Only one N-AT/N-PCI card can be put into a PC.

The N-AT board is not available for the Microchannel bus.

DOS VERSION LIMITATIONS

Exception-based processing is not supported in V4.19-2 for DOS.

The driver uses up lots of conventional memory (between 0-640 KBytes), especially when using Y-function parameters. At practice no more than 500 Y-function parameters should be accessed in one SCADA node. Even 500 can be a problem to define, if the system is short of memory. A hint is to put data into AKS and BKS messages instead. AKS and BKS has no practical limitation in the driver.

WINDOWS VERSION LIMITATIONS

There is no limitation of the number of Y-function parameters in the Windows version of the driver, except the PC memory. We recommend a maximum of 4500 Y-function parameters in one SCADA.

Exception-based processing is supported in V4.24 for Windows.

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COMMENTS

During startup the driver will initialize all Y-function parameters, which is a time consuming procedure. Normally about 3 Y-function parameters can be initialized in a second, so if 300 Y-function parameters are defined it will take at least 100 seconds to start up the driver. AKS, BKS, MKS, BST and TEXT are logged on at startup. As soon as they are logged in and the Y-function initializations is done the data can be received from the AS.

If using status word support the message is received in a BST, but the data is saved in a Y-function VB parameter. For every status word that should be defined a Y-function VB parameter must be defined.

The NT and Win 2000 driver can be set up to save the Y function initialization to a file so it won't need to do the time consuming initialization at next startup. Be careful to use this function if you do changes in the Teleperm system that might change the Y Addresses.

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