

ABB Oy Drives		RETA-01 Quick Start-up Guide		00546664.pdf	
Department ENO000	Date 16.11.2006	Author Jere Syväne	Approved Mika J Kärnä	Revision 1.2	Page 1/9

1 Quick start-up guide for RETA-01 Ethernet Adapter module

1.1 Overview

This chapter describes the start-up procedure of the RETA-01 Ethernet Adapter module. Follow the safety instructions given in RETA-01 manual and the Hardware Manual of the drive.

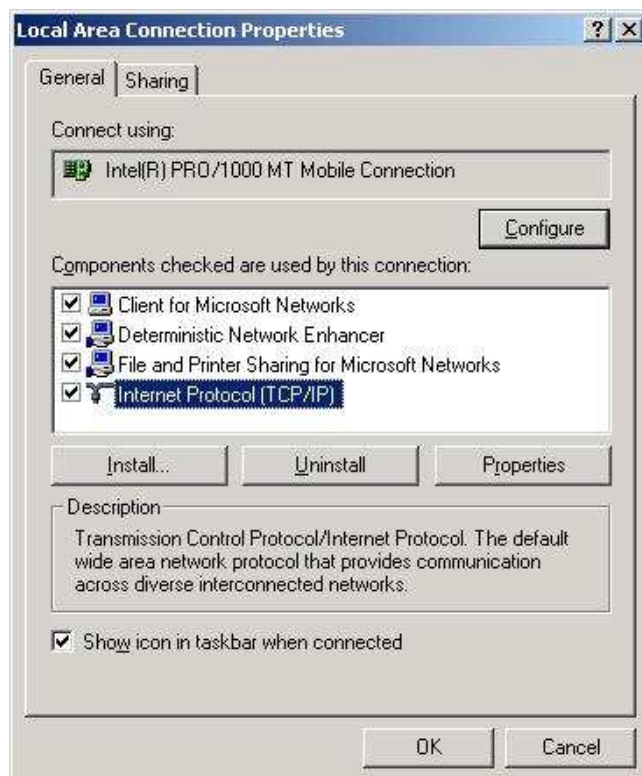
1.2 Preliminary preparation

- Before installation, write down the MAC ID of the module (Printed on a sticker on the back of the module)
- Make sure you have the two screws for fastening the module

1.3 Configuring PC for point-to-point connection

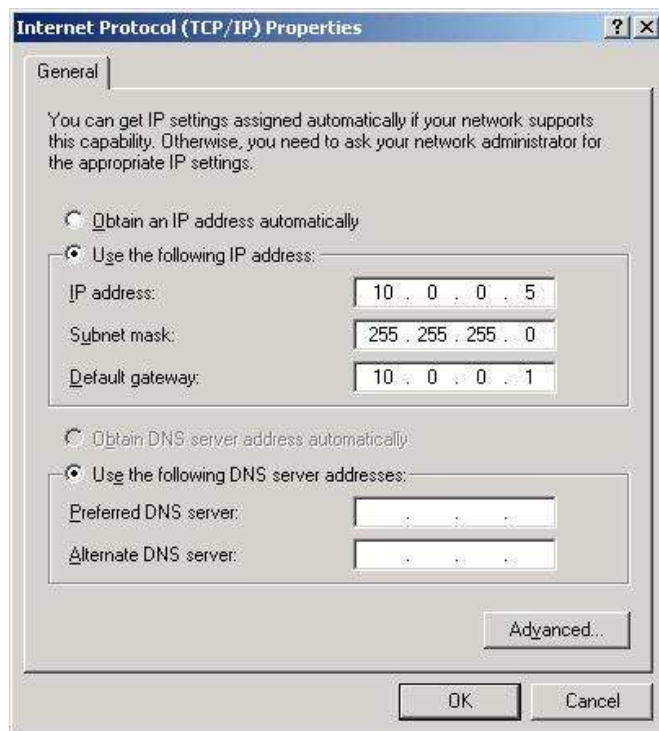
In this case point-to-point connection means that PC is directly connected to an IP-device such as RETA-01.

- Connect RETA-01 and the Ethernet card of the PC with a crossed Ethernet cable.
- Switch on the drive's power and wait that the PC recognizes the network connection.
- Select the 'Local Area Connection' menu corresponding the network card of the PC and bush the 'Properties' button.



- Select the 'Internet Protocol (TCP/IP)' from the selection list and click 'Properties' button.

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- Select 'Use the following IP address:' bullet and configure the IP address you want to use. For instance:
 - IP address: 10.0.0.5
 - Subnet Mask: 255.255.255.0
 - Gateway address 10.0.0.1
- RETA-01 module and the PC should be in the same subnet. For instance RETA-01 could have the following address:
 - IP address: 10.0.0.7
 - Subnet Mask: 255.255.255.0
 - Gateway address 10.0.0.1

1.4 Mechanical installation

- Insert the RETA-01 into its specified slot in the drive (SLOT2 for ACS550, SLOT1 for ACS800).
- Fasten the two screws.

1.5 Electrical installation

- Connect the Ethernet cable (RJ-45 connector) to the RETA-01 module. Standard CAT 5 UTP or STP cables can be used. Avoid parallel runs with power (e.g. motor) cables.

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1.6 Drive configuration

- Power up the drive. The “MODULE STATUS” LED should be green. If the network cable is connected to an active network, the green “LINK/ACTIVITY” LED should also be lit or blinking.
- The detailed procedure of activating the drive for communication with the module is dependent on the drive type. Normally, a parameter must be adjusted to activate the communication. Refer to the Firmware Manual of the drive for information on the communication settings. With an ACS550 drive, set parameter 98.02 COMM PROT SEL to EXT FBA. With an ACS800, set parameter 98.02 COMM. MODULE LINK to FIELDBUS and parameter 98.07 COMM PROFILE to ABB DRIVES or GENERIC according to the selected communication protocol and profile.
- If the configuration is correct, parameter group 51 (in ACS800 and ACX550) should appear in the parameter list of the drive and show the status of the RETA-01 configuration parameters.

1.7 Network configuration

To enable communication through the Ethernet network, the module needs a valid IP address. There are numerous ways of setting the module IP address; see RETA-01 manual’s chapter “Network configuration” for more information.

- One way of setting the IP address is to use the control panel of the drive. Set IP address to RETA-01 configuration parameters 4 - 7, subnet mask to parameters 8 - 11 and gateway address to parameters 12 - 15 if necessary. Set RETA-01 configuration parameter 27 to REFRESH to enable the network settings.
- Another way to set the IP address is to use the ARP (Address Resolution Protocol) command from a PC. New IP address will be stored in the RETA-01 configuration parameters. Connect PC to RETA-01 with crossed Ethernet cable and set the network settings. An example of how to change the IP address from the DOS Prompt window is shown below. In the example, the IP address is 10.0.0.6, and the MAC ID is 00-30-11-FF-00-53. MAC ID is individual for each module and is printed on a sticker on the back of the module.

```
arp -s <10.0.0.6> <00-30-11-FF-00-53>
```

```
ping <10.0.0.6>
```

```
arp -d <10.0.0.6>
```

If the connection is established, the module answers:

```
Reply from 10.0.0.6: bytes=32 time=1ms TTL=28
```

```
...
```

If the connection is not established the DOS prompts:

```
Request timed out.
```

```
Request timed out.
```

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...

In case this happens, try to set the IP address again and make sure that you typed everything correctly.

1.8 Communication

The module is now ready to operate with Modbus/TCP protocol or EtherNet/IP protocol. The protocol and communication profile used in the application can be selected with a RETA-01 configuration parameter, “PROTOCOL”:

- 0 = Modbus/TCP
- 1 = EtherNet/IP AC/DC communication profile
- 2 = EtherNet/IP ABB Drives communication profile

NOTE: With ACS550 the profile selection is automatic. With ACS800 the profile must be selected with parameter 98.07 as follows:

- Modbus/TCP: 98.07 = ABB DRIVES
- Ethernet/IP AC/DC communication profile: 98.07 = GENERIC
- Ethernet/IP ABB Drives communication profile: 98.07 = ABB DRIVES

1.9 Modbus TCP master configuration

Modbus TCP is based on data registers, which hold IO and parameter values. See RETA-01 chapter “Communication” for register mapping and supported function codes.

1.10 Ethernet/IP master configuration (Valid only with Allen-Bradley Controllogix 5000)

- Add RETA-01 adapter to device configuration (Figure 1)

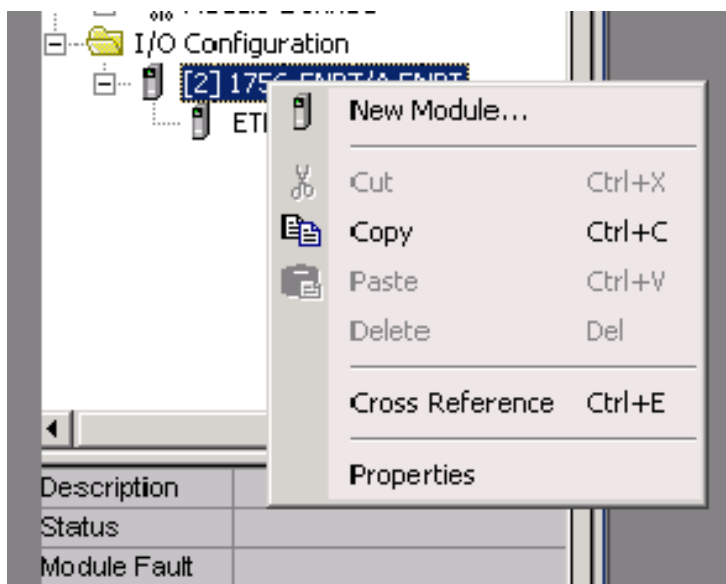


Figure 1 Add new “Generic Ethernet Module” to device configuration.

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- Set “comm Format” to “Data-INT”
- Set IP address according to your network (e.g. 10.0.0.6)
- Set Input and Output assemblies and their sizes
- Disable the “Configuration” assembly instance (1) by setting its size to ‘0’.
- Use class instance editor to edit the attributes of Ethernet/IP objects if necessary (Figure 2).

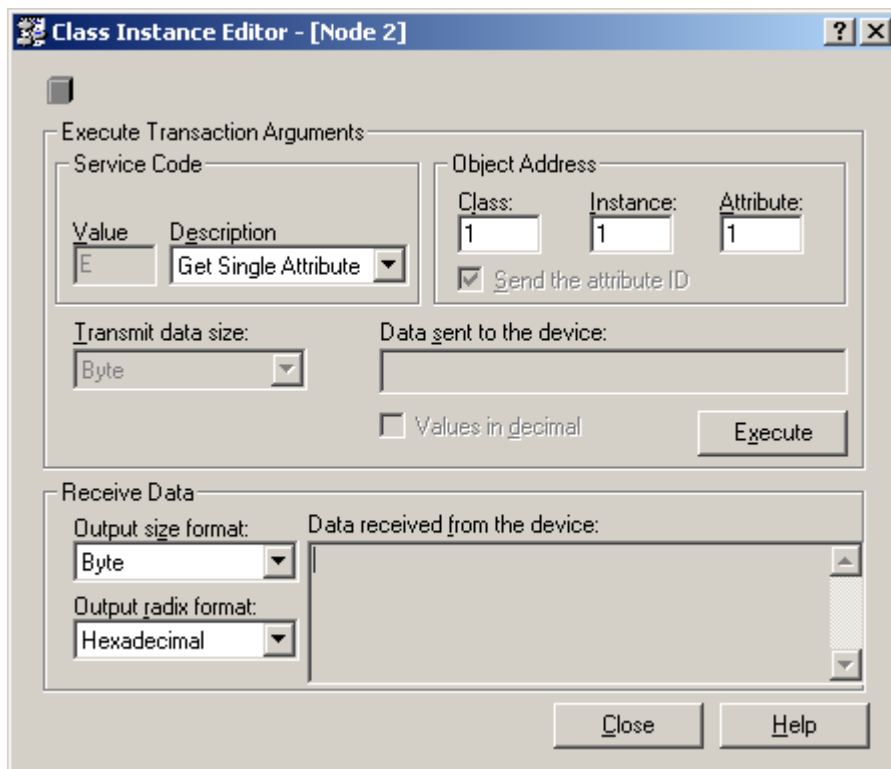


Figure 2 Class Instance Editor can be used to access Ethernet/IP object attributes explicitly.

1.11 Examples

1.11.1 Extended Speed Control (AC/DC communication profile) on ACS800 Standard application

- Add generic Ethernet module to device configuration
- Set “comm Format” to “Data-INT”
- Set IP address to ‘10.0.0.6’
- Set input assembly instance to ‘71’ and size to ‘2’
- Set output assembly instance to ‘21’ and size to ‘2’
- Set configuration instance to ‘1’ and size to ‘0’

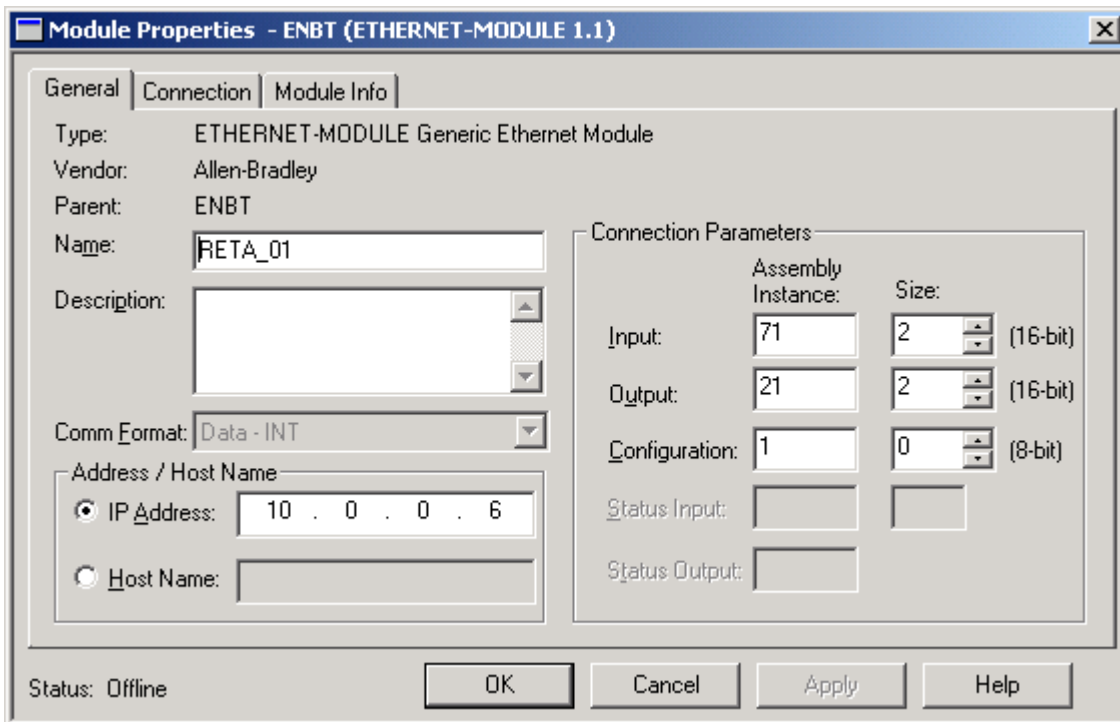


Figure 3 ODVA AC/DC Extended Speed Control assembly configuration.

Table 1 Drive configuration for Extended Speed Control.

Drive parameter	Example setting for ACS800
10.01 EXT1 STRT/STP/DIR	COMM.CW
10.03 REF DIRECTION	REQUEST
11.03 EXT1 REF1 SELECT	COMM.REF
16.04 FAULT RESET SEL	COMM.CW
98.02 COMM. MODULE LINK	FIELDBUS
98.07 COMM PROFILE	GENERIC
51.01 MODULE TYPE	ETHERNET
51.02 COMM RATE	0 (Auto-negotiation)
51.03 DHCP	1 (Enabled)
51.04 - 51.07 IP ADDRESS	10.0.0.6
51.08 - 51.11 SUBNET MASK	255.255.255.0
51.12 - 51.15 GW ADDRESS	0.0.0.0
51.16 PROTOCOL	1 (AC/DC profile)

1.11.2 Example: User Specific Control (ABB Drives communication profile) on ACS550

- Add generic Ethernet module to device configuration
- Set “comm Format” to “Data-INT”
- Set IP address to ‘10.0.0.6’

- Set input instance to '103' and size to '3'
- Set output instance to '102' and size to '2'
- Set configuration instance to '1' and size to '0'

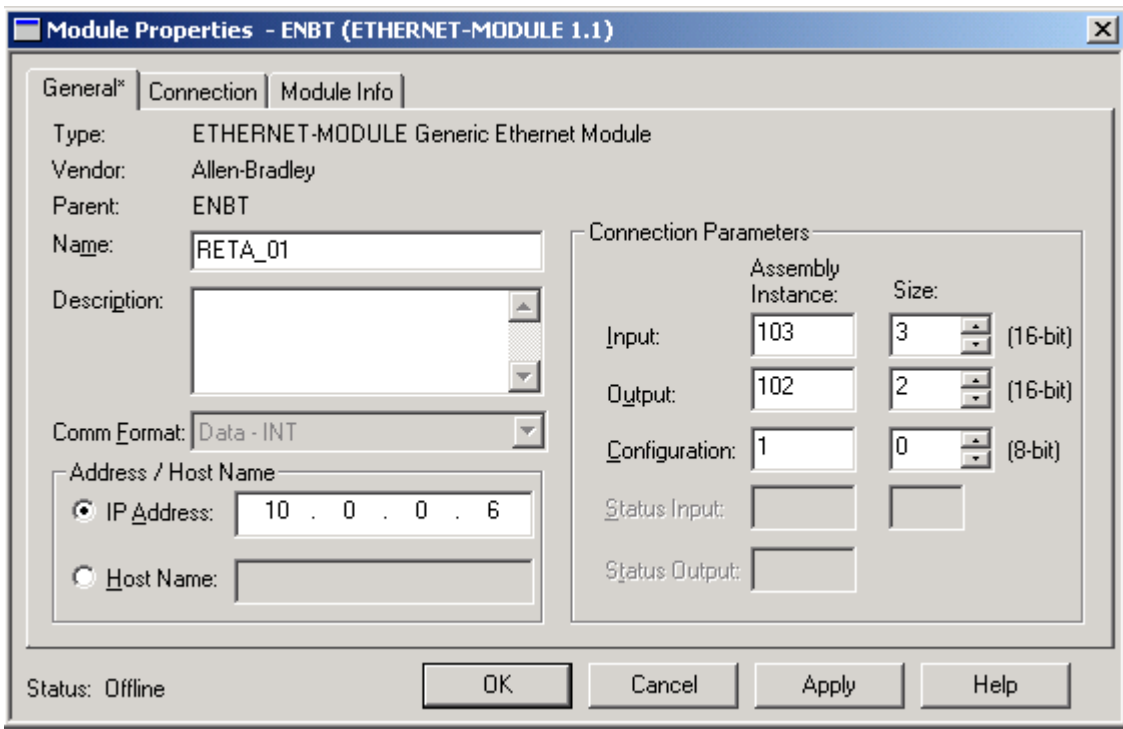


Figure 4 ABB Drives User Specific Control assembly configuration.

Table 2 Drive configuration for User Specific Control.

Drive parameter	Example setting for ACS550
10.01 EXT1 COMMANDS	COMM
10.03 DIRECTION	REQUEST
11.03 REF1 SELECT	COMM
16.04 FAULT RESET SEL	COMM
98.02 COMM PROT SEL	EXT FBA
51.01 MODULE TYPE	ETHERNET
51.02 COMM RATE	0 (Auto-negotiation)
51.03 DHCP	1 (Enabled)
51.04 - 51.07 IP ADDRESS	10.0.0.6
51.08 - 51.11 SUBNET MASK	255.255.255.0
51.12 - 51.15 GW ADDRESS	0.0.0.0
51.16 PROTOCOL	2 (ABB Drives profile)
51.19 OUTPUT 1	1 (Command word)
51.20 OUTPUT 2	2 (Reference 1)
51.23 INPUT 1	4 (Status word)
51.24 INPUT 2	5 (Actual value 1)
51.25 INPUT 3	104 (Par. 1.04 CURRENT)

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1.11.3 Example: Extended Speed Control plus Drive Parameters assembly (AC/DC drive profile) on ACS800

Note: RETA-01 SW version 2.06 onwards

- Add generic Ethernet module to device configuration
- Set “comm Format” to “Data-INT”
- Set IP address to ‘10.0.0.6’
- Set input instance to ‘171’ and size to ‘5’
- Set output instance to ‘121’ and size to ‘3’
- Set configuration instance to ‘1’ and size to ‘0’

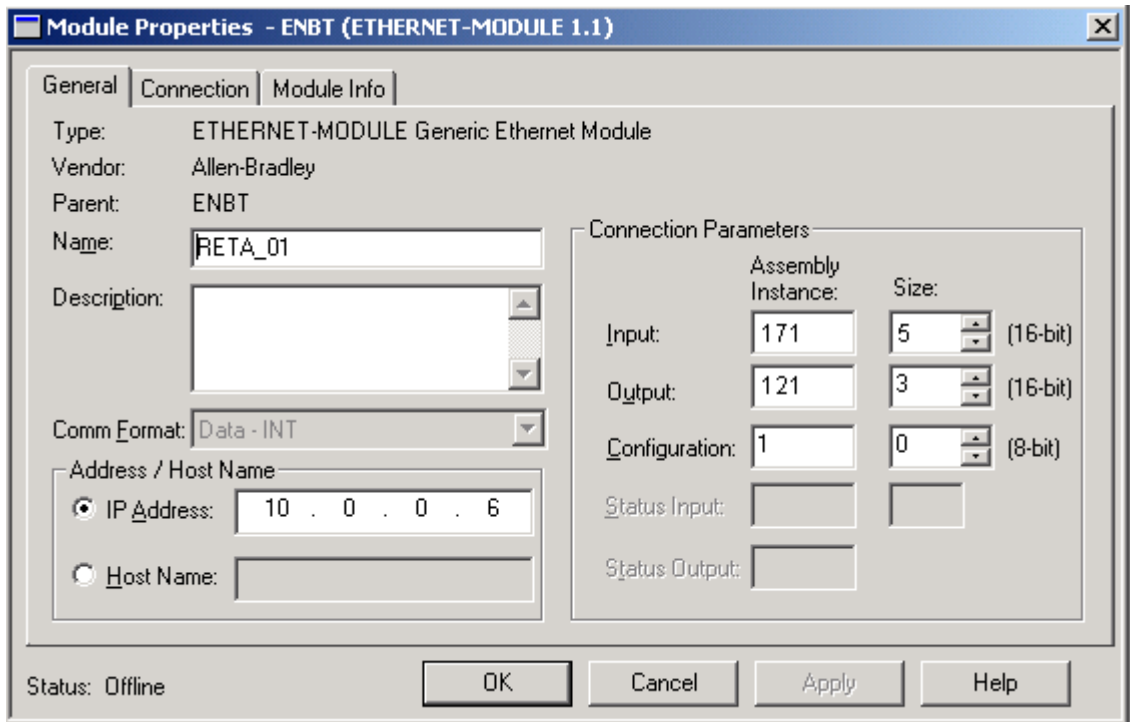


Figure 5 Extended Speed Control plus Drive Parameters assembly.

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Table 3 Drive configuration for Extended Speed Control plus Drive Parameters.

Drive parameter	Example setting for ACS800
10.01 EXT1 STRT/STP/DIR	COMM.CW
10.03 REF DIRECTION	REQUEST
11.03 EXT1 REF1 SELECT	COMM.REF
16.04 FAULT RESET SEL	COMM.CW
98.02 COMM. MODULE LINK	FIELDBUS
98.07 COMM PROFILE	GENERIC
51.01 MODULE TYPE	ETHERNET
51.02 COMM RATE	0 (Auto-negotiation)
51.03 DHCP	1 (Enabled)
51.04 - 51.07 IP ADDRESS	10.0.0.6
51.08 - 51.11 SUBNET MASK	255.255.255.0
51.12 - 51.15 GW ADDRESS	0.0.0.0
51.16 PROTOCOL	1 (AC/DC profile)
51.19 OUTPUT 1	2202 (ACCEL TIME 1)
51.20 OUTPUT 2	-
51.21 OUTPUT 3	-
51.22 OUTPUT 4	-
51.23 INPUT 1	104 (Par. 1.04 CURRENT)
51.24 INPUT 2	106 (Par. 1.06 POWER)
51.25 INPUT 3	118 (Par. 1.18 AI1 [V])
51.26 INPUT 4	-

Table 4 Mapping table for the inputs and outputs.

word	OUTPUTS	INPUTS
1	Extended Speed Control assembly COMMAND WORD	Extended Speed Control assembly STATUS WORD
2	Extended Speed Control assembly SPEED REFERENCE	Extended Speed Control assembly SPEED ACTUAL VALUE
3	ACCEL TIME 1	CURRENT
4		POWER
5		AI1 [V]