

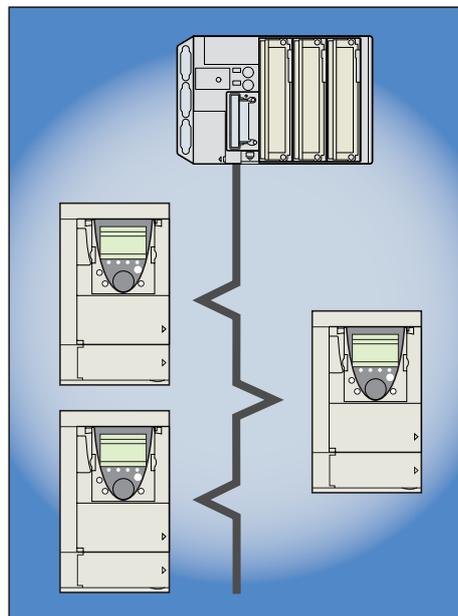
# Altivar 61 / 71

User's manual

Retain for future use

EtherNet/IP card

VW3 A3 316





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# 1. Important Information

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## NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

## DANGER

DANGER indicates an imminently hazardous situation, which, if not avoided, **will result** in death, serious injury, or equipment damage.

## WARNING

Warning indicates a potentially hazardous situation, which, if not avoided, **can result** in death, serious injury, or equipment damage.

## CAUTION

CAUTION indicates a potentially hazardous situation, which, if not avoided, **can result** in injury or equipment damage.

## PLEASE NOTE

Electrical equipment should be serviced only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material. This document is not intended as an instruction manual for untrained persons.  
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## 2. Before you begin

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Read and understand these instructions before performing any procedure with this drive.

### DANGER

#### HAZARDOUS VOLTAGE

- Read and understand this bulletin in its entirety before installing or operating Altivar 71 drive. This equipment must only be installed, adjusted, repaired, and maintained by qualified personnel.
- The user is responsible for compliance with all international and national electrical standards in force concerning protective grounding of all equipment.
- Many parts of this variable speed drive, including the printed circuit boards, operate at the line voltage. **DO NOT TOUCH.** Use only electrically insulated tools.
- **DO NOT** touch unshielded components or terminal strip screw connections with voltage present.
- **DO NOT** short across terminals PA and PC or across the DC bus capacitors.
- Install and close all the covers before applying power or starting and stopping the drive.
- Before servicing the variable speed drive
  - Disconnect all power.
  - Place a "DO NOT TURN ON" label on the variable speed drive disconnect.
  - Lock the disconnect in the open position.
- Disconnect all power including external control power that may be present before servicing the drive. **WAIT 15 MINUTES** to allow the DC bus capacitors to discharge. Then follow the DC bus voltage measurement procedure given in the Installation Manual to verify that the DC voltage is less than 45 VDC. The drive LEDs are not accurate indicators of the absence of DC bus voltage.

**Failure to follow these instructions will result in death or serious injury.**

### WARNING

#### DAMAGED EQUIPMENT

Do not install or operate any drive or drive accessory that appears damaged. The relays, inputs, or outputs of a damaged drive may not operate in a normal manner, leading to unintended equipment operation.

**Failure to follow this instruction can result in death, serious injury, or equipment damage.**

### WARNING

#### LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop and overtravel stop.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of unanticipated transmission delays or failures of the link.\*
- Each implementation of an Altivar 71 Modbus TCP/IP EtherNet/IP card must be individually and thoroughly tested for proper operation before being placed into service.

**Failure to follow this instruction can result in death, serious injury, or equipment damage.**

\* For additional information, refer to NEMA ICS 1.1 (latest edition), "Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control" and to NEMA ICS 7.1 (latest edition), "Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems".

## 3. Documentation structure

---

The following Altivar 71 technical documents are available on the Web site [www.telemecanique.com](http://www.telemecanique.com) and on the CDROM delivered with each drive.

### ■ Installation Manual

This manual describes:

- How to assemble the drive.
- How to connect the drive.

### ■ Programming Manual

This manual describes:

- The functions.
- The parameters.
- How to use the drive display terminal (integrated display terminal and graphic display terminal).

### ■ Communication Parameters Manual

This manual describes:

- The drive parameters with specific information (addresses, formats, etc.) for use via a bus or communication network.
- The operating modes specific to communication (state chart).
- The interaction between communication and local control.

### ■ Modbus, CANopen, Ethernet, Profibus, INTERBUS, Uni-Telway, DeviceNet, Modbus Plus, Fipio, etc., manuals.

These manuals describe:

- Connection to the bus or network.
- Configuration of the communication-specific parameters via the integrated display terminal or the graphic display terminal.
- Diagnostics.
- Software setup.
- The communication services specific to the protocol.

### ■ Altivar 58/58F Migration Manual

This manual describes the differences between the Altivar 71 and the Altivar 58/58F.

It explains how to replace an Altivar 58 or 58F, including how to replace drives communicating on a bus or network.

## 4. Introduction

---

### 4. 1. Presentation

The EtherNet/IP card (catalog number VW3 A3 316) is used to connect an Altivar 71 or an Altivar 61 drive to an Ethernet network using the EtherNet/IP protocol.

**IMPORTANT** : This communication option card is fully supported with the version V1.5 IE 13 and above of the Altivar 61 firmware. This communication option card is only supported with the version V1.6 IE 19 and above of the Altivar 71 firmware. Specific versions of the Altivar 71 firmware are not supported.

The VW3 A3 316 card is equipped with two shielded RJ45 EtherNet/IP connectors.

The accessories for connection to the EtherNet/IP network must be ordered separately.

The data exchanges permit full drive functionality:

- Configuration
- Adjustment
- Control
- Monitoring
- Diagnostics

The standard Web server (English only) provides access to the following pages:

- Altivar Viewer
  - Data Viewer
  - EtherNet/IP
  - Security
- Etc.

The graphic display terminal or the integrated display terminal can be used to access numerous functions for communication diagnostics.

### 4. 2. Notation

#### Drive terminal displays

The graphic display terminal menus are shown in square brackets.

Example: [1.9 COMMUNICATION].

The integrated 7-segment display terminal menus are shown in round brackets.

Example: (C □ Π -).

The parameter names displayed on the graphic display terminal are shown in square brackets.

Example: [Fallback speed].

The parameter codes displayed on the integrated 7-segment display terminal are shown in round brackets.

Example: (L F F).

#### Formats

Hexadecimal values are written as follows: 16#

Binary values are written as follows: 2#

PowerSuite: Commissioning Software

## 5. Hardware setup

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### 5. 1. Receipt

- Check that the card catalog number marked on the label is the same as that on the delivery note corresponding to the purchase order.
- Remove the option card from its packaging and check that it has not been damaged in transit.

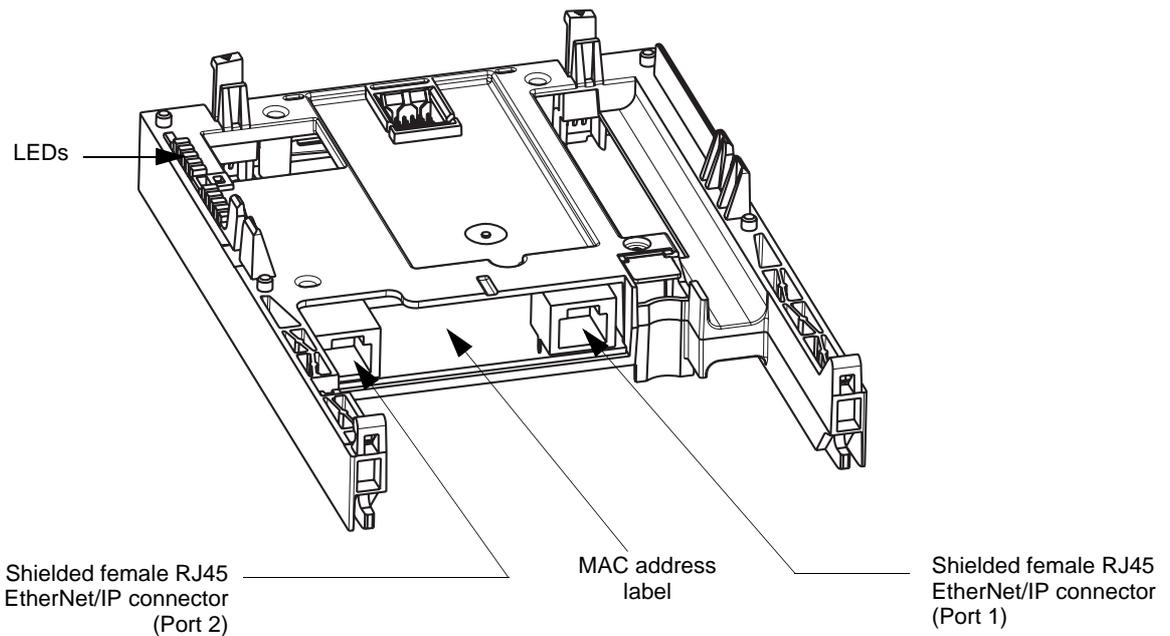
## **⚠ CAUTION**

### **STATIC SENSITIVE COMPONENTS**

The EtherNet/IP card can be damaged by static electricity. Observe electrostatic precautions when handling and installing the card.

**Failure to follow this instruction can result in equipment damage.**

### 5. 2. Hardware description



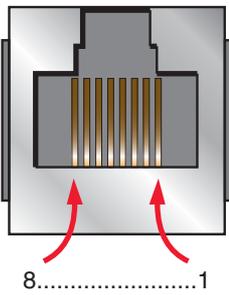
### 5. 3. Installing the card in the drive

See the Installation Manual.

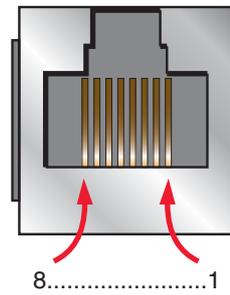
## 6. Connecting to the EtherNet/IP network

### 6. 1. Card RJ45 connector pinout

The EtherNet/IP card is equipped with two shielded RJ45 connectors. The shielding is connected to the drive ground. Use an STP (shielded twisted pair) EtherNet/IP cable.



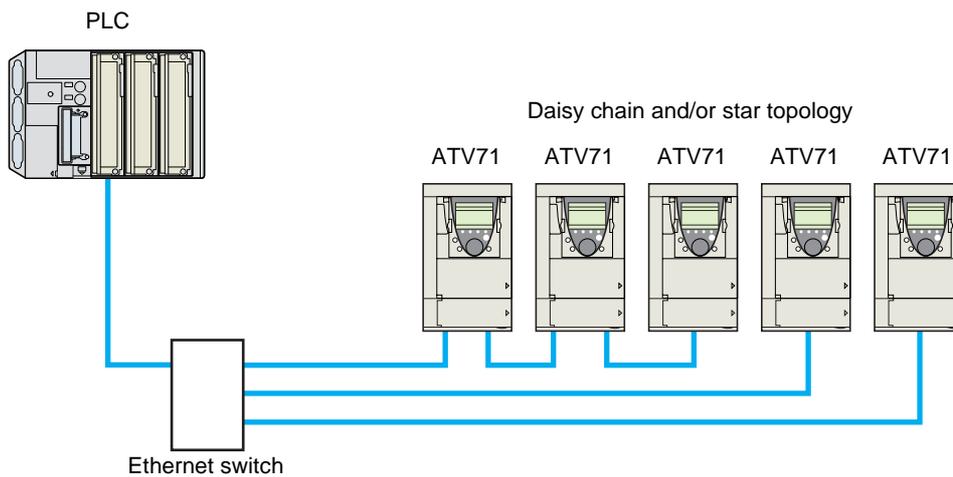
| Pin | Signal |
|-----|--------|
| 1   | TD+    |
| 2   | TD-    |
| 3   | RD+    |
| 4   |        |
| 5   |        |
| 6   | RD-    |
| 7   |        |
| 8   |        |



The transmission speed is detected automatically by the card (10 Mbps or 100 Mbps).

The card can operate in half duplex or full duplex mode, whether connected to a hub or a switch and regardless of the transmission speed (10 Mbps or 100 Mbps).

### 6. 2. Example of connection to an EtherNet/IP network



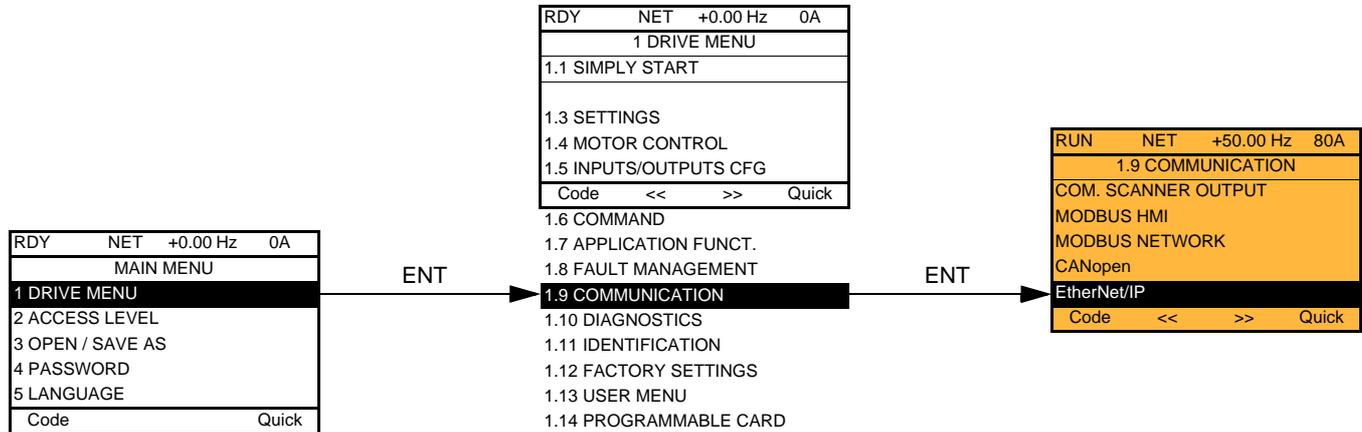
# 7. Using the HMI with the EtherNet/IP card

## 7. 1. Access to EtherNet/IP menu via graphic display terminal

The [EtherNet/IP] submenu is used to configure and display the EtherNet/IP card parameters and can be accessed via the [1.9 - COMMUNICATION] menu.

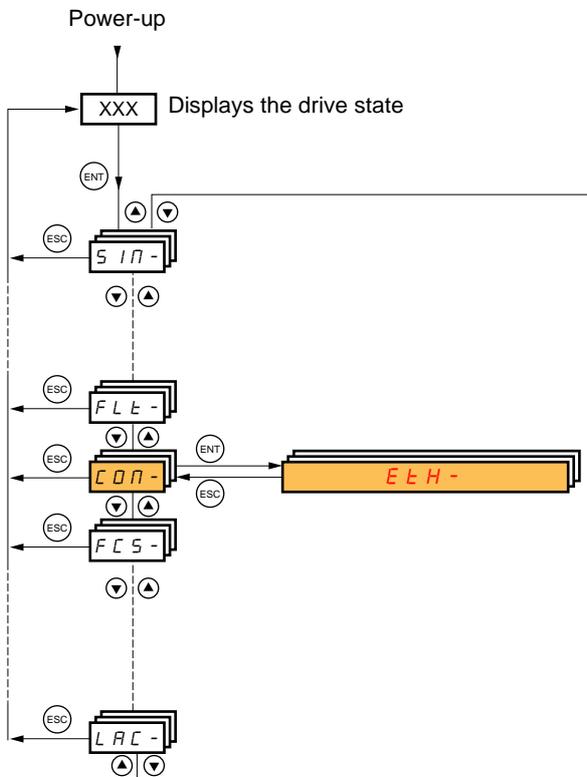
This menu is only accessible in standard, advanced and expert mode: In the [2 ACCESS LEVEL] (L A C -) menu, set the level to [expert] (E P r).

Can be accessed by the other level.



## 7. 2. Access to EtherNet/IP menu via the integrated display terminal

The (E L H -) submenu is used to configure and display the EtherNet/IP card parameters. It can be accessed via the (C O N -) menu.



## 7. Using the HMI with the EtherNet/IP card

### 7.3. Ethernet/IP configuration with the HMI

Detail of the Ethernet/IP configuration menu: (All these settings can also be performed from the webserver or PowerSuite). In the table, parameters which are not followed by their parameter code (between parenthesis) are not displayed on the 7 segment display of the drive. [\[1.9 - COMMUNICATION\] \(C 0 0 -\)](#) → menu [\[ETHIP\] \(E E h\)](#)

| Parameter   | Possible value   | Terminal display   |
|---|--|--|
| <a href="#">[DEVICE NAME]</a><br>The device name is required if the card uses DHCP to obtain its IP Address.  | 16 chars.  | [ABC... ]  |
| <a href="#">[Rate Setting] (r d 5)</a><br>This field is used to set the transmission speed and the transmission mode of the card.   | 0 : Autodetect (default)<br>1 : 10 Mbps Full<br>2 : 10 Mbps Half<br>3 : 100 Mbps Full<br>4 : 100 Mbps Half (do not use)  | [Auto] (A U E 0)<br>[10 Mbps full] ( 1 0 F )<br>[10 Mbps half] ( 1 0 H )<br>[100 Mbps full] ( 1 0 0 F )<br>[100 Mbps half] ( 1 0 0 H ) |
| <a href="#">[Actual Rate] (R r d)</a><br>This field displays the baud rate and the transmission mode currently used by the communication card. (Display only)   | 0 : Autodetect<br>1 : 10 Mbps Full<br>2 : 10 Mbps Half<br>3 : 100 Mbps Full<br>4 : 100 Mbps Half   | [Auto] (A U E 0)<br>[10 Mbps full] ( 1 0 F )<br>[10 Mbps half] ( 1 0 H )<br>[100 Mbps full] ( 1 0 0 F )<br>[100 Mbps half] ( 1 0 0 H ) |
| <a href="#">[IP mode] ( I P 0 )</a><br>Use this parameter to select the IP address assignment method.   | 0 : Manu<br>1 : BOOTP<br>2 : DHCP  | [fixed] ( 0 0 0 0 )<br>[BOOTP] ( b 0 0 0 )<br>[DHCP] ( d H C P )   |
| <a href="#">[IP card] ( I P C - )</a><br>( I P C 1 ) ( I P C 2 )<br>( I P C 3 ) ( I P C 4 )<br>IP address of the card   | These fields are <u>editable</u> when IP mode is set to Fixed address  | [139.160.069.241]<br>( 1 3 9 ) ( 1 6 0 ) ( 0 6 9 ) ( 2 4 1 )   |
| <a href="#">[IP Mask] ( I P 0 - )</a><br>( I P 0 1 ) ( I P 0 2 )<br>( I P 0 3 ) ( I P 0 4 )<br>Subnet mask  | These fields are <u>editable</u> when IP mode is set to Fixed address  | [255.255.254.0]<br>( 2 5 5 ) ( 2 5 5 ) ( 2 5 4 ) ( 0 )   |
| <a href="#">[IP Gate] ( I P G - )</a><br>( I P G 1 ) ( I P G 2 )<br>( I P G 3 ) ( I P G 4 )<br>Default gateway IP address   | These fields are <u>editable</u> when IP mode is set to Fixed address  | [0.0.0.0]<br>( 0 ) ( 0 ) ( 0 ) ( 0 )   |
| <ul style="list-style-type: none"> <li>• If the address has been given by a BOOTP or a DHCP server, these fields are read only.</li> <li>• After dynamic addressing by a BOOTP or DHCP server, the new address value is displayed.</li> </ul> |  |  |
| <a href="#">[Services] (E E)</a><br>Enables web server and e-mail server *  | 0 : Web Server and Email functions are disabled.<br>1: Web Server activated.<br>2: Email function activated<br>3: Web server and Email functions are activated | 0<br>1<br>2<br>3   |
| <a href="#">[MAC @]</a><br>MAC address display  | [00-80-F4-XX-XX-XX]  | [00-80-F4-XX-XX-XX]  |

\*: This functionality can only be configured from the WEB server or from PowerSuite commissioning software.

## 7. Using the HMI with the EtherNet/IP card

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### 7. 4. Detail of the configured parameters

#### ■ IP address

##### Assigning IP addresses

The drive needs 3 IP addresses:

- The drive IP address.
- The subnet mask.
- The gateway IP address.

They can be provided by:

- A BOOTP server (correspondence between the MAC address and the IP addresses).
- Or a DHCP server (correspondence between Device Name [\[DEVICE NAME\]](#) and the IP addresses).

The address is assigned according to the IPmode parameter:

| IP Mode value                          | Comments  |
|--|---|
| IP mode = 0                            | The card uses the address defined in IPC1, IPC2, IPC3, IPC4 |
| IP mode = 1                            | The card receives its address from a BOOTP server           |
| IP mode = 2                            | The card receives its address from a DHCP server            |
| And Device name contains a valid name. |   |

**IMPORTANT:** The IP mode parameter may be modified according to the **configuration control attribute** of the **TCP/IP interface object** (CIP standard). See page [50](#).

### 7. 5. Assemblies and scanner configuration

The assemblies are chosen at the master controller level (see for example chapter 16 Integration in RSlogix).

For the 4 ODVA set of assemblies (20,21,22,23,70,71,72,73) there are no more configuration to do at the communication scanner level.

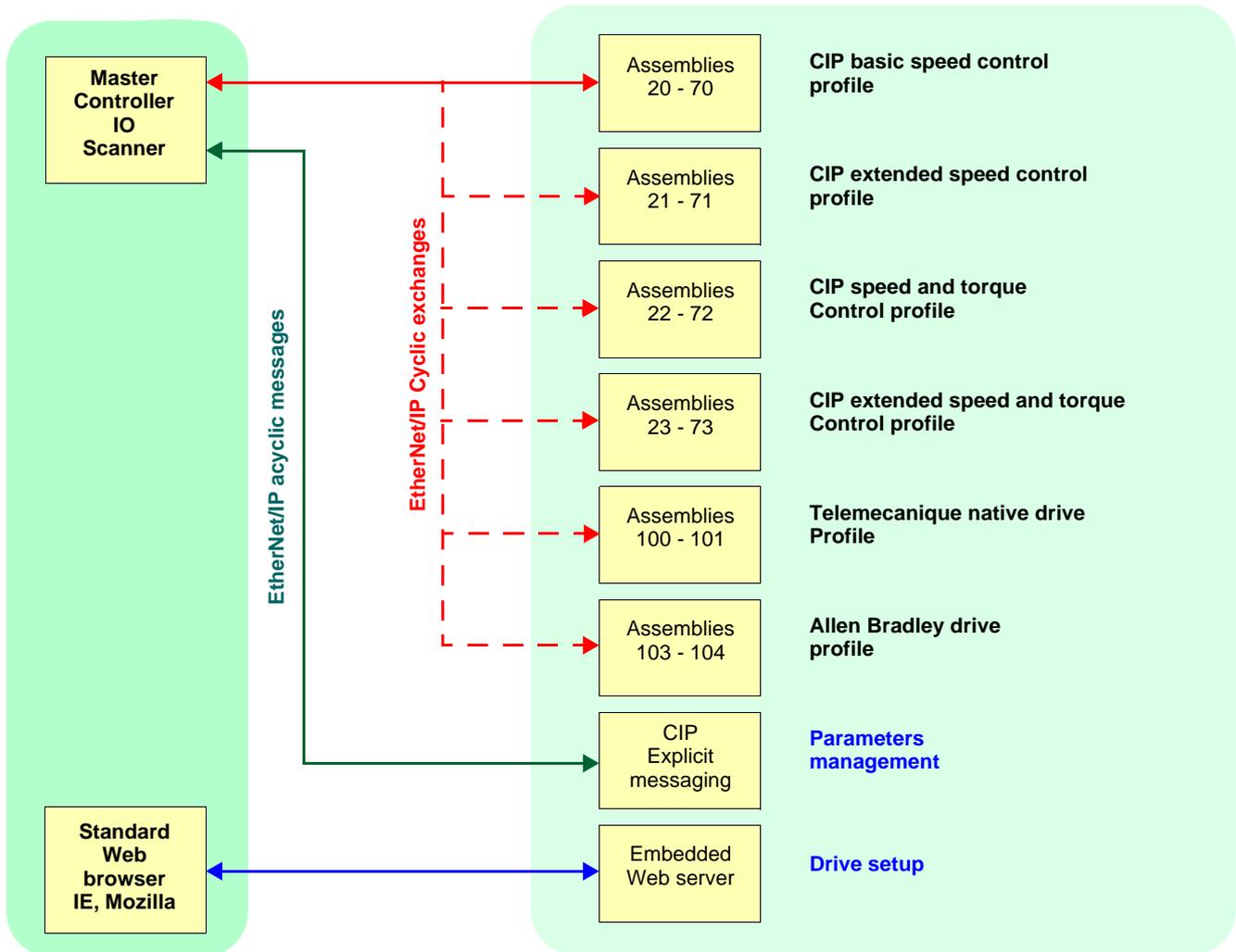
For the Telemecanique assembly (100,101) and Allen Bradley® assembly (103,104) you must:

- configure at the drive level the size of the assembly,
- define the mapping of the additional parameters.

# 8. Configuration of the assemblies

## 8. 1. Configuration of the assemblies: overview

VW3 A3 316 EtherNet/IP communication card  
Features overview



# 8. Configuration of the assemblies

## 8.2. Configuration of the assembly (100,101) Telemecanique native profile

The size of the assembly is fixed and is equal to 8.

The mapping of the other parameters is made with the communication scanner :

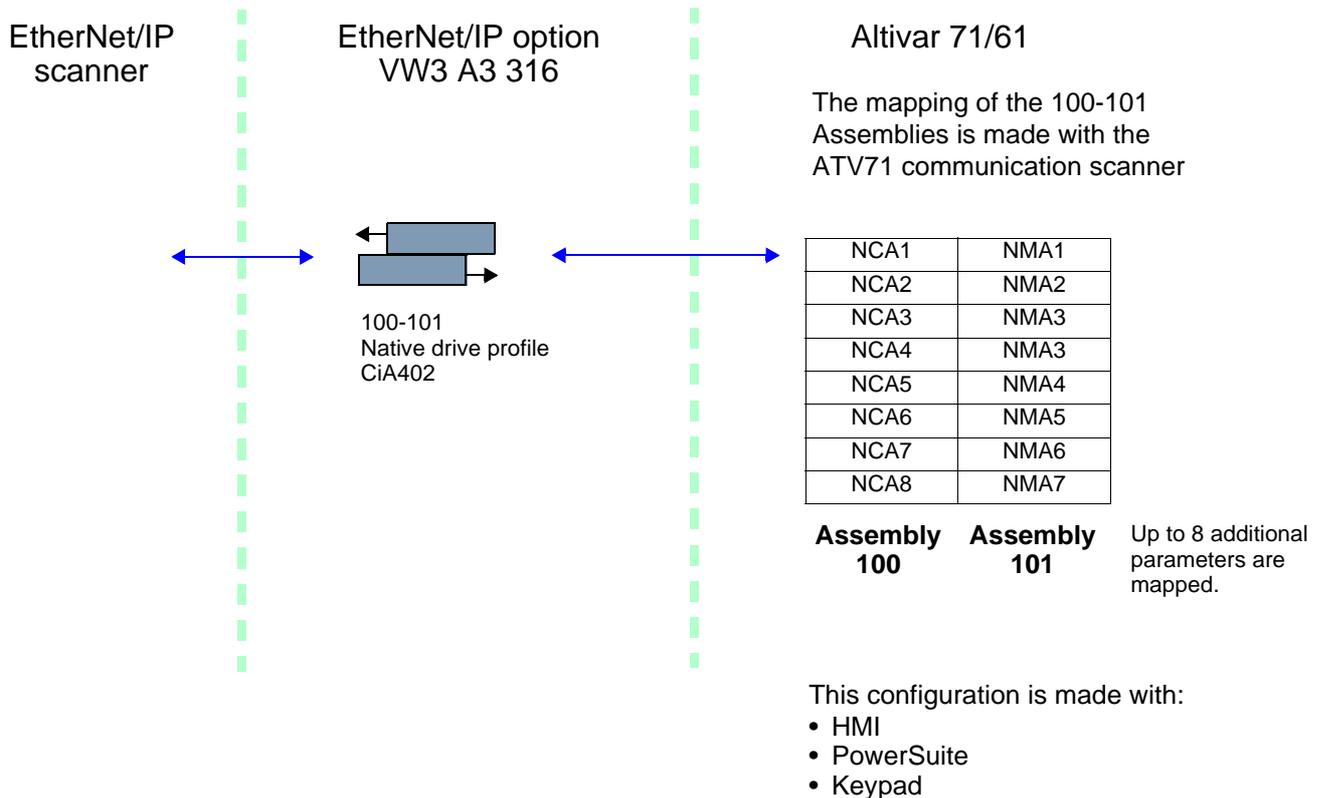
The configuration of the addresses defined with NCAx and NMAx can be made with the graphic keypad:

For assembly 100 : [1.9- COMMUNICATION] ( **C D N -** ) menu, [COM.SCANNER OUTPUT] ( **D E S -** ) submenu.

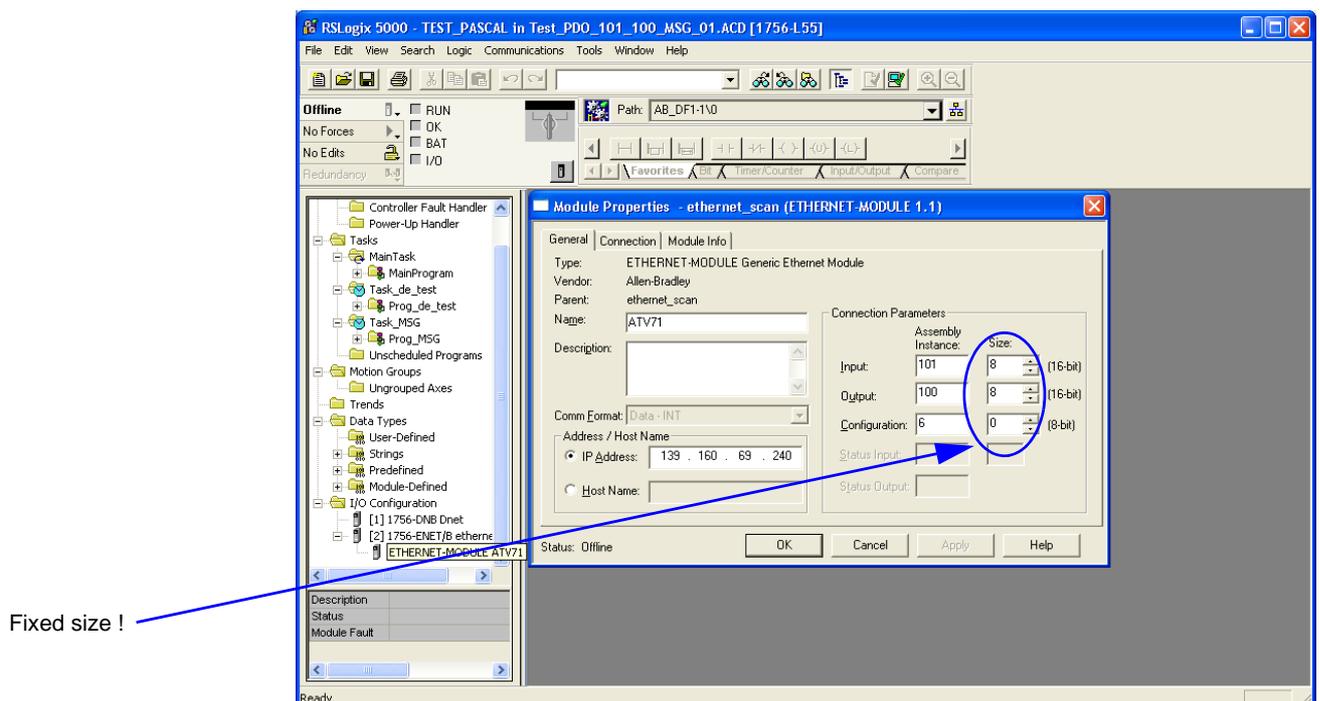
For assembly 101 : [1.9- COMMUNICATION] ( **C D N -** ) menu, [COM.SCANNER INPUT] ( **I E S -** ) submenu.

See menu [1.2 MONITORING] > COMMUNICATION MAP to monitor the communication scanner.

See also "Configuring the communication scanner" page 16.



Here is an example of the configuration of the assemblies 100, 101 from RSLogix software:



# 8. Configuration of the assemblies

## 8.3. Configuration of the assembly (103,104) Allen Bradley® profile

The size of the assembly is selectable from 2 to 10 words.

The 2 first words of the input assembly are fixed: Control word, Speed setpoint.

The 4 first words of the output assembly are fixed two pad words: Status word, Actual Speed.

**IMPORTANT:** NCA1 and NCA2 are already configured (default settings of the drive). It is important when configuring this assembly set to handly remove the default assignment of NCA1 and NCA2: By setting NCA1 and NCA2 to a null address or by configuring this two address to other required parameters of the drive.

This will avoid a conflict between NCA1 and the control word of the profile (located in the first word of the assembly 103).

The configuration of the addresses defined with NCAx and NMAx can be made with the graphic keypad:

For assembly 103 : [1.9- COMMUNICATION] ( *C D N -* ) menu, [COM.SCANNER OUTPUT] ( *D E S -* ) submenu.

For assembly 104 : [1.9- COMMUNICATION] ( *C D N -* ) menu, [COM.SCANNER INPUT] ( *I C S -* ) submenu.

See menu [1.2 MONITORING] > COMMUNICATION MAP to monitor the communication scanner.

See also "Configuring the communication scanner" page 16

The mapping of the other parameters is made with the EtherNet/IP scanner:

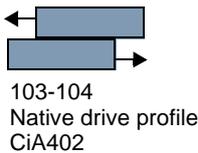
EtherNet/IP scanner

EtherNet/IP option VW3 A3 316

Altivar 71/61

The mapping of the 103-104 Assemblies is made with the option card EtherNet/IP scanner

|              |              |
|--------------|--------------|
|              | PAD WORD     |
|              | PAD WORD     |
| Control Word | Status Word  |
| Set point    | Actual speed |
| NCA1         | NMA1         |
| NCA2         | NMA2         |
| NCA3         | NMA3         |
| NCA4         | NMA3         |
| NCA5         | NMA4         |
| NCA6         | NMA5         |
| NCA7         | NMA6         |
| NCA8         | NMA7         |



This configuration is made with:

- Webservice
- PowerSuite

Assembly 103    Assembly 104

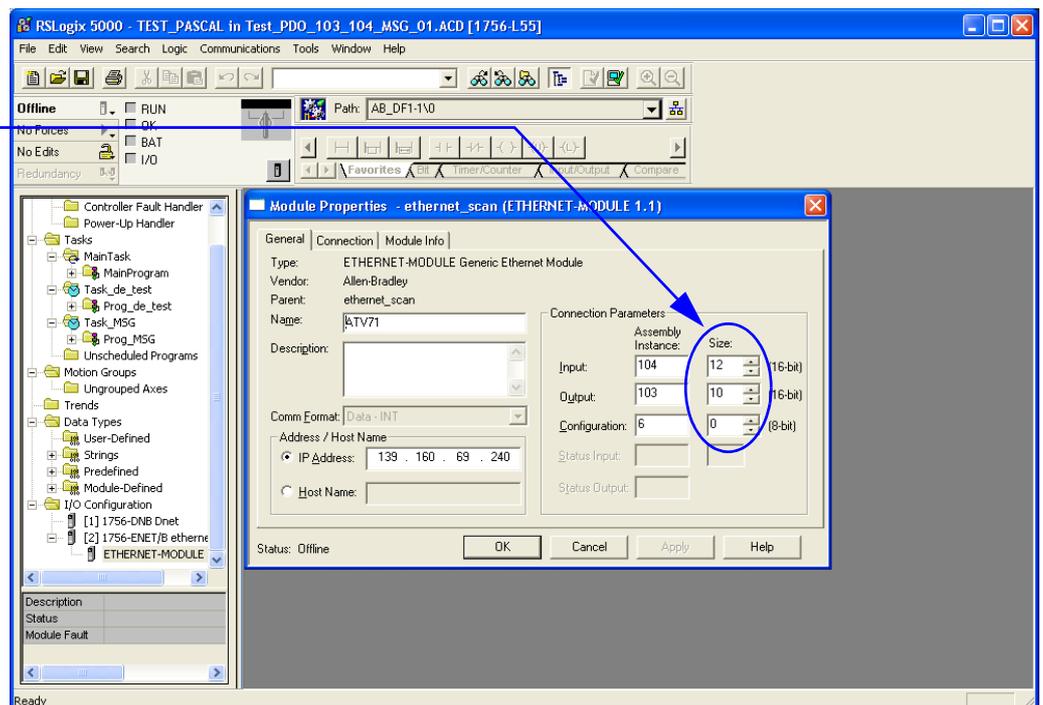
Up to 8 additional parameters are mapped.

Here is an example of the configuration of the assemblies 103, 104 from RSLogix software

The sizes indicated must be adjusted according to the settings defined with the EtherNet/IP scanner setup (webservice or Power suite).

**Note:**

- The size of the assembly cannot be modified dynamically; such change requires a power ON.
- Given that assemblies 103 and 104 uses NCAx and NMAx, the configuration edited with the webservice or Power suite software are also applied to the communication scanner of the drive (like assemblies 100 and 101).



## 8. Configuration of the assemblies

### 8. 4. Configuring the communication scanner

You need to read this chapter only if you use the assemblies 100 or 101 that use the drive communication scanner.

The variables exchanged by the output assembly 100 and input assembly 101 are selected by configuring the communication scanner.

The 8 output variables are assigned by means of the 8 parameters [Scan. Out● address] (n L R ●). They are configured using the graphic display terminal via the [1.9 - COMMUNICATION] (C D P -) menu, [COM. SCANNER OUTPUT] (D C S -) submenu.

The 8 input variables of the assembly 101 are assigned by means of the 8 parameters [Scan. In● address] (n P R ●). They are configured using the graphic display terminal via the [1.9 - COMMUNICATION] (C D P -) menu, [COM. SCANNER INPUT] (I C S -) submenu.

Enter the logic address of the parameter (see the Communication parameters manual).

If a parameter [Scan. Out● address] (n L R ●) or [Scan. In● address] (n P R ●) is equal to zero, the corresponding period variable is not used by the drive.

These 8 assignment parameters are described in the tables below:

| Parameter name                 | Output assembly 100 | Default assignment |
|--------------------------------|---------------------|--------------------|
| [Scan. Out1 address] (n L R 1) |                     | NCA1 = 8501        |
| [Scan. Out2 address] (n L R 2) |                     | NCA2 = 8602        |
| [Scan. Out3 address] (n L R 3) |                     | NCA3 = not used    |
| [Scan. Out4 address] (n L R 4) |                     | NCA4 = not used    |
| [Scan. Out5 address] (n L R 5) |                     | NCA5 = not used    |
| [Scan. Out6 address] (n L R 6) |                     | NCA6 = not used    |
| [Scan. Out7 address] (n L R 7) |                     | NCA7 = not used    |
| [Scan. Out8 address] (n L R 8) |                     | NCA8 = not used    |

| Parameter name                | Input assembly 101 | Default assignment |
|-------------------------------|--------------------|--------------------|
| [Scan. In1 address] (n P R 1) |                    | NMA1=3201          |
| [Scan. In2 address] (n P R 2) |                    | NMA2=8604          |
| [Scan. In3 address] (n P R 3) |                    | NMA3=not used      |
| [Scan. In4 address] (n P R 4) |                    | NMA4=not used      |
| [Scan. In4 address] (n P R 5) |                    | NMA5=not used      |
| [Scan. In4 address] (n P R 6) |                    | NMA6=not used      |
| [Scan. In4 address] (n P R 7) |                    | NMA7=not used      |
| [Scan. In4 address] (n P R 8) |                    | NMA8=not used      |

Example of configuration via the graphic display terminal:

| RDY                | NET | +0.00Hz | 0A                                  |
|--------------------|-----|---------|-------------------------------------|
| COM. SCANNER INPUT |     |         | <input type="checkbox"/>            |
| Scan. In1 address  | :   |         | 3204                                |
| Scan. In2 address  | :   |         | 3206                                |
| Scan. In3 address  | :   |         | 0                                   |
| Scan. In4 address  | :   |         | 0                                   |
| Scan. In5 address  | :   |         | 0                                   |
| Code               |     | Quick   | <input checked="" type="checkbox"/> |
| Scan. In6 address  | :   |         | 0                                   |
| Scan. In7 address  | :   |         | 0                                   |
| Scan. In8 address  | :   |         | 0                                   |

| RDY                 | NET | +0.00Hz | 0A                                  |
|---------------------|-----|---------|-------------------------------------|
| COM. SCANNER OUTPUT |     |         | <input type="checkbox"/>            |
| Scan. Out1 address  | :   |         | 9001                                |
| Scan. Out2 address  | :   |         | 9002                                |
| Scan. Out3 address  | :   |         | 0                                   |
| Scan. Out4 address  | :   |         | 0                                   |
| Scan. Out5 address  | :   |         | 0                                   |
| Code                |     | Quick   | <input checked="" type="checkbox"/> |
| Scan. Out6 address  | :   |         | 0                                   |
| Scan. Out7 address  | :   |         | 0                                   |
| Scan. Out8 address  | :   |         | 0                                   |

**Note:**

All modifications to parameters [Scan. Out● address] (n L R ●) or [Scan. In● address] (n P R ●) must be made with the motor stopped. The master PLC program should be updated to take account of this modification.

## 8. Configuration of the assemblies

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### 8. 5. Configuring the control

#### ■ Principle

By the configuration of the control, it is possible to decide from what channel the drive receives its commands and setpoint, either permanently or depending on a switching command.

Numerous configurations are possible. For more information, refer to the Programming manual and Communication parameters manual. The following configurations are some of the possibilities available.

#### □ Control with communication scanner

If the default assemblies (100, 101) are selected, all possibilities of Altivar 71 drive are available.

It is possible to use all profiles and modes of the drive:

- I/O profile,
- Drivecom profiles with separate or non separate mode.

By the configuration of the communication scanner, it is possible to assign any relevant parameter of the drive to the 4 input and 4 output variables of the assemblies.

See the input / output interface with the PLC can be fully customised depending on the application.

The use of the communication scanner is also the best way to interface with a "Controller Inside" card.

#### □ Control according to ODVA AC drive profile

The ODVA AC drive profile is activated when one of the following assemblies is selected:

- 20: Basic speed control output
- 21: Extended speed control output
- 22: Speed and torque control output
- 23: Extended speed and torque control output
- 70: Basic speed control input
- 71: Extended speed control input
- 72: Speed and torque control input
- 73: Extended speed and torque control input

The advantage of using the ODVA drive profile standard is the interchangeability with other brands.

The drive must be configured in the Drivecom profile with separate mode.

The EtherNet/IP card translates the commands, behaviour and monitoring information from of ODVA profile (on the network) to the Drivecom profile (in the drive).

#### □ Control according to Allen-Bradley® drive profile

The Allen-Bradley® Drive profile is activated when one of the following assemblies is selected:

- 103: Allen-Bradley® drive output
- 104: Allen-Bradley® drive input

If you need to replace Allen-Bradley® drives, in an existing application, this profile is a good way to minimise the modifications.

The drive must be configured in the Drivecom profile with separate mode.

The EtherNet/IP card translates the commands, behaviour and monitoring information from of Allen-Bradley® drive profile (on the network) to the Drivecom profile (in the drive).

## 8. Configuration of the assemblies

### ■ Available configurations

#### □ If you use the communication scanner:

- 100: Communication scanner output
- 101: Communication scanner input there is no limitation in the configuration of the control.

The examples below are only possible if you use the communication scanner.

#### □ If you use the ODVA AC drive profile or Allen-Bradley® Drive profile, that is, the assemblies:

- 20: Basic speed control output
- 21: Extended speed control output
- 22: Speed and torque control output
- 23: Extended speed and torque control output
- 70: Basic speed control input
- 71: Extended speed control input
- 72: Speed and torque control input
- 73: Extended speed and torque control input
- 103: Allen-Bradley® drive output
- 104: Allen-Bradley® drive input

| Parameter                 | Permitted value           | Comment   |
|---------------------------|---------------------------|---|
| Profile                   | Drivecom profile separate | The run commands are in Drivecom profile, the command and the reference can come from different channels. |
| Setpoint 1 configuration  | Network card              | Setpoint 1 comes from EtherNet/IP.  |
| Setpoint 1B configuration | Terminals                 | Setpoint 2 comes from terminals (AI1 or AI2).   |
| Setpoint 2 configuration  | Terminals                 | Setpoint 2 comes from terminals (AI1 or AI2).   |
| Command 1 configuration   | Network card              | Command 1 comes from EtherNet/IP.   |
| Command 2 configuration   | Terminals                 | Command 2 comes from terminals.   |
| Setpoint switching        | Network card bit 12       | Bit 12 of the control word switches the setpoint (1 <-> 1B or 1 <-> 2).                                   |
| Command switching         | Network card bit 13       | Bit 13 of the control word switches the command.  |

Configuration via the graphic display terminal or the integrated display terminal:

**Case 1:** Setpoint 1B is connected to the functions (Summing, PID, etc) which remain active even after switching.

| Menu  | Parameter                  | Permitted value                          |
|---|----------------------------|--|
| [1.6 - COMMAND] (C E L -)                                 | [Profile] (C H C F)        | [Separate] (S E P)                       |
|   | [Ref.1 channel] (F r 1)    | [Com. card] (n E E)                      |
|   | [Ref.1B channel] (F r 1b)  | [Ref. AI1] (A I 1) or [Ref. AI2] (A I 2) |
|   | [Cmd channel 1] (C d 1)    | [Com. card] (n E E)                      |
|   | [Cmd channel 2] (C d 2)    | [Terminals] (E E r)                      |
|   | [Cmd switching] (C C 5)    | [C312] (C 3 1 2)                         |
| [1.7 APPLICATION FUNCT.] (F U n -)<br>[REFERENCE SWITCH.] | [Ref 1B switching] (r C b) | [C313] (C 3 1 3)                         |

**Case 2:** Setpoint 2 is directly connected to the drive reference limit. If switching is performed, the functions that affect the reference (summing, PID, etc.) are inhibited.

| Menu   | Parameter                  | Permitted value                          |
|--|----------------------------|--|
| [1.6 - COMMAND] (C E L -)<br>[1.7 APPLICATION FUNCT.] (F U n -)<br>[REFERENCE SWITCH.] | [Profile] (C H C F)        | [Separate] (S E P)                       |
|  | [Ref.1 channel] (F r 1)    | [Com. card] (n E E)                      |
|  | [Ref.2 channel] (F r 2)    | [Ref. AI1] (A I 1) or [Ref. AI2] (A I 2) |
|  | [Cmd channel 1] (C d 1)    | [Com. card] (n E E)                      |
|  | [Cmd channel 2] (C d 2)    | [Terminals] (E E r)                      |
|  | [Cmd switching] (C C 5)    | [C312] (C 3 1 2)                         |
|  | [Ref. 2 switching] (r F C) | [C313] (C 3 1 3)                         |

**Note:** It is not possible to configure the display terminal as a channel.

To switch to the display terminal, use the function force local and assign the parameter [Forced local Ref.] to [HMI] (L C C).

## 8. Configuration of the assemblies

### ■ Control via EtherNet/IP in I/O profile

**Note:** This configuration can only be used if the communication scanner assemblies (100 and 101) are selected.

The command and the setpoint come from EtherNet/IP.  
Control is in I/O profile.

Configure the following parameters:

| Parameter                | Value        | Comment  |
|--------------------------|--------------|--|
| Profile                  | I/O profile  | The run command is simply obtained by bit 0 of the command word. |
| Setpoint 1 configuration | Network card | The setpoint comes from EtherNet/IP.                             |
| Command 1 configuration  | Network card | The command comes from EtherNet/IP.                              |

Configuration via the graphic display terminal or the integrated display terminal:

| Menu                      | Parameter               | Value                   |
|---------------------------|-------------------------|-------------------------|
| [1.6 - COMMAND] (C E L -) | [Profile] (C H C F)     | [I/O profile] ( I 0)    |
|                           | [Ref.1 channel] (F r 1) | [Com. card] (n E E)     |
|                           | [Cmd channel 1] (C d 1) | [Com. opt card] (n E E) |

### ■ Control via EtherNet/IP or via the terminals in I/O profile

**Note:** This configuration can only be used if the communication scanner assemblies (100 and 101) are selected.

The command and the setpoint both come from EtherNet/IP or the terminals. Input LI5 at the terminals is used to switch between EtherNet/IP and the terminals.  
Control is in I/O profile.

Configure the following parameters:

| Parameter                 | Value                           | Comment  |
|---------------------------|---------------------------------|--|
| Profile                   | I/O profile                     | The run command is simply obtained by bit 0 of the control word. |
| Setpoint 1 configuration  | Network card                    | Setpoint 1 comes from EtherNet/IP.                               |
| Setpoint 1B configuration | Analog input 1 on the terminals | Setpoint 1B comes from input AI1 on the terminals.               |
| Setpoint switching        | Input LI5                       | Input LI5 switches the setpoint (1 ↔ 1B).                        |
| Command 1 configuration   | Network card                    | Command 1 comes from EtherNet/IP.                                |
| Command 2 configuration   | Terminals                       | Command 2 comes from the terminals.                              |
| Command switching         | Input LI5                       | Input LI5 switches the command.                                  |

**Note:** Setpoint 1B is connected to the functions (Summing, PID, etc) which remain active even after switching.

Configuration via the graphic display terminal or the integrated display terminal:

| Menu  | Parameter                  | Value                |
|---|----------------------------|----------------------|
| [1.6 - COMMAND] (C E L -)                                 | [Profile] (C H C F)        | [I/O profile] ( I 0) |
|   | [Ref.1 chan] (F r 1)       | [Com. card] (n E E)  |
|   | [Cmd channel 1] (C d 1)    | [Com. card] (n E E)  |
|   | [Cmd channel 2] (C d 2)    | [Terminals] (E E r)  |
|   | [Cmd switching] (C C S)    | [LI5] (L I 5)        |
| [1.7 APPLICATION FUNCT.] (F U n -)<br>[REFERENCE SWITCH.] | [Ref.1B chan] (F r 1 b)    | [AI1 ref.] (R I I)   |
|   | [Ref 1B switching] (r C b) | [LI5] (L I 5)        |

## 8. Configuration of the assemblies

### ■ Control via EtherNet/IP in Drivecom profile

**Note:** This configuration can only be used if the communication scanner assemblies (100 and 101) are selected.

The command and the setpoint come from EtherNet/IP.

Configure the following parameters:

| Parameter                | Value                     | Comment  |
|--------------------------|---------------------------|--|
| Profile                  | Separate Drivecom profile | The run commands are in Drivecom profile, the command and the setpoint can come from different channels. |
| Setpoint 1 configuration | Network card              | The setpoint comes from EtherNet/IP.   |
| Command 1 configuration  | Network card              | Command 1 comes from EtherNet/IP.  |

Configuration via the graphic display terminal or the integrated display terminal:

| Menu                    | Parameter               | Value               |
|-------------------------|-------------------------|---------------------|
| [1.6 - COMMAND] (E L -) | [Profile] (H C F)       | [Separate] (S E P)  |
|                         | [Ref.1 chan] (F r 1)    | [Com. card] (n E E) |
|                         | [Cmd channel 1] (C d 1) | [Com. card] (n E E) |

### ■ Control via EtherNet/IP or the terminals in Drivecom profile

**Note:** This configuration can only be used if the communication scanner assemblies (100 and 101) are selected.

The command and the setpoint both come from EtherNet/IP or the terminals. Input LI5 at the terminals is used to switch between EtherNet/IP and the terminals.

Configure the following parameters:

| Parameter                | Value                           | Comment  |
|--------------------------|---------------------------------|--|
| Profile                  | Separate Drivecom profile       | The run commands are in Drivecom profile, the command and the setpoint can come from different channels. |
| Setpoint 1 configuration | Network card                    | Setpoint 1 comes from EtherNet/IP.   |
| Setpoint 2 configuration | Analog input 1 on the terminals | Setpoint 2 comes from input AI1 on the terminals.  |
| Setpoint switching       | Input LI5                       | Input LI5 switches the setpoint (1 ↔ 2) and the command.   |
| Command 1 configuration  | Network card                    | Command 1 comes from EtherNet/IP.  |
| Command 2 configuration  | Terminals                       | Command 2 comes from the terminals.  |
| Command switching        | Input LI5                       | Input LI5 switches the command.  |

**Note:** Setpoint 2 is directly connected to the drive reference limit. If switching is performed, the functions that affect the reference (summing, PID, etc) are inhibited.

Configuration via the graphic display terminal or the integrated display terminal:

| Menu                    | Parameter                  | Value               |
|-------------------------|----------------------------|---------------------|
| [1.6 - COMMAND] (E L -) | [Profile] (H C F)          | [Separate] (S E P)  |
|                         | [Ref.1 chan] (F r 1)       | [Com. card] (n E E) |
|                         | [Ref.2 chan] (F r 2)       | [AI1 ref.] (A I 1)  |
|                         | [Ref. 2 switching] (r F C) | [LI5] (L I 5)       |
|                         | [Cmd channel 1] (C d 1)    | [Com. card] (n E E) |
|                         | [Cmd channel 2] (C d 2)    | [Terminals] (E E r) |
|                         | [Cmd switching] (C C S)    | [LI5] (L I 5)       |

## 8. Configuration of the assemblies

### ■ Control in Drivecom profile via EtherNet/IP and setpoint switching at the terminals

**Note:** This configuration can only be used if the communication scanner assemblies (100 and 101) are selected.

The command comes from EtherNet/IP.

The setpoint comes either from EtherNet/IP or from the terminals. Input LI5 at the terminals is used to switch the setpoint between EtherNet/IP and the terminals.

Control is in Drivecom profile.

Configure the following parameters:

| Parameter                 | Value                           | Comment  |
|---------------------------|---------------------------------|--|
| Profile                   | Separate Drivecom profile       | The run commands are in Drivecom profile, the command and the setpoint can come from different channels. |
| Setpoint 1 configuration  | Network card                    | Setpoint 1 comes from EtherNet/IP.   |
| Setpoint 1B configuration | Analog input 1 on the terminals | Setpoint 1B comes from input AI1 on the terminals.   |
| Setpoint switching        | Input LI5                       | Input LI5 switches the setpoint (1 ↔ 1B).  |
| Command 1 configuration   | Network card                    | Command 1 comes from EtherNet/IP.  |
| Command switching         | Channel 1                       | Channel 1 is the command channel.  |

**Note:** Setpoint 1B is connected to the functions (summing, PID, etc) that remain active, even after switching.

Configuration via the graphic display terminal or the integrated display terminal:

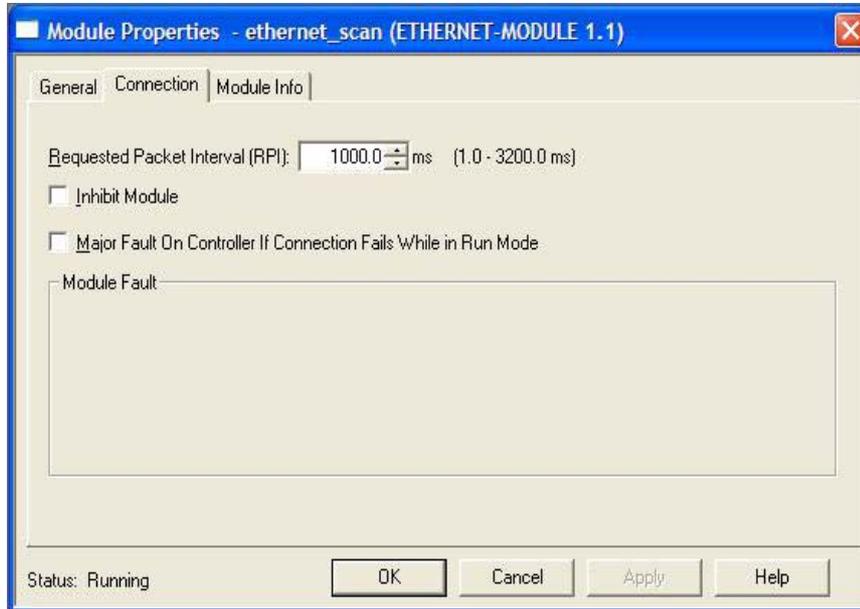
| Menu  | Parameter                | Value              |
|---|--------------------------|--------------------|
| [1.6 - COMMAND] (CLL -)                                 | [Profile] (CHF)          | [Separate] (SEP)   |
|   | [Ref.1 chan] (Fr1)       | [Com. card] (nEk)  |
|   | [Cmd channel 1] (Cd1)    | [Com. card] (nEk)  |
|   | [Cmd switching] (CS)     | [ch1 active] (Cd1) |
| [1.7 APPLICATION FUNCT.] (FUN -)<br>[REFERENCE SWITCH.] | [Ref.1B chan] (Fr1b)     | [AI1 ref.] (R11)   |
|   | [Ref 1B switching] (rCb) | [LI5] (LI5)        |

# 9. Fault management

## 9. 1. Fault management

An EtherNet/IP time out is triggered if the card does not receive any cyclic messages (regardless within a predefined time period). This period is managed by the EtherNet/IP controller (not by the drive) and is configured in its module properties box. The duration of the time out is defined by the RPI (Request packet intervals).

If the card is controlled by explicit messages(without periodic exchanges) There is no control of the communication time-out.



The **response** of the drive in case of such event can be configured.

Configuration can be performed using the graphic display terminal or integrated display terminal using the [Network fault mgt] (E L L) parameter in the [1.8 FAULT MANAGEMENT] (F L E -) menu, [COM. FAULT MANAGEMENT] (E L L -) submenu.

|  |     |         |                                     |
|--|-----|---------|-------------------------------------|
| RDY  | NET | +0.00Hz | 0A                                  |
| COM. FAULT MANAGEMENT <input type="checkbox"/> |     |         |                                     |
| Network fault mgt                              | :   |         | Freewheel                           |
| CANopen fault mgt                              | :   |         | Freewheel                           |
| Modbus fault mgt                               | :   |         | Freewheel                           |
|  | :   |         |                                     |
|  | :   |         |                                     |
|  | :   |         |                                     |
| Code   |     | Quick   | <input checked="" type="checkbox"/> |

The values of the [Network fault mgt] (E L L) parameter, trigger a [COM. network] (E n F) drive fault, are:

| Value                  | Meaning                          |
|------------------------|----------------------------------|
| [Freewheel] (Y E S)    | Freewheel stop (factory setting) |
| [Ramp stop] (r P P)    | Stop on ramp                     |
| [Fast stop] (F S E)    | Fast stop                        |
| [DC injection] (d E I) | DC injection stop                |

The values of the [Network fault mgt] (E L L) parameter, which do not trigger a drive fault, are:

| Value                  | Meaning   |
|------------------------|---|
| [Ignore] (n D)         | Fault ignored   |
| [Per STT] (S E E)      | Stop according to configuration of [Type of stop] (S E E)   |
| [Fallback spd] (L F F) | Switch to fallback speed, maintained as long as the fault is present and the run command is not disabled.                     |
| [Spd maint.] (r L S)   | The drive maintains the speed at the time the fault occurred, as the fault persists and the run command has not been removed. |

The fallback speed can be configured via the [Fallback spd] (L F F) parameter in the [1.8 FAULT MANAGEMENT] (F L E -) menu.

# 9. Fault management

## 9. 2. Status of the LEDs

The VW3 A3 316 Ethernet/IP card features 5 LEDs, which are visible through the Altivar 61/71 cover.

- 1.1
- 1.2
- 1.3
- 1.4
- 1.5
  
- 2.1 Port 1 activity
- 2.2 Port 2 activity
- 2.3 Link status
- 2.4 NS "Network status"
- 2.5 MS "Module status"

The 2 first LEDs are respectively dedicated to each Ethernet port.  
The third LED is relative to the IP level.  
The 2 last LEDs are specific to EtherNet/IP and CIP communication protocol.

| LED         | Color/ state           | Description   |
|-------------|------------------------|---|
| 2.1         | Off                    | No link   |
|             | Flashing Green/yellow  | Power up testing.   |
|             | Green ON               | Link at 100 Mbps.   |
|             | Yellow ON              | Link at 10 Mbps.  |
|             | Green BLINK            | Activity at 100 Mbps.   |
|             | Yellow BLINK           | Activity at 10 Mbps.  |
| 2.2         | Off                    | No link   |
|             | Flashing Green/yellow  | Power up testing.   |
|             | Green ON               | Link at 100 Mbps.   |
|             | Yellow ON              | Link at 10 Mbps.  |
|             | Green BLINK            | Activity at 100 Mbps.   |
|             | Yellow BLINK           | Activity at 10 Mbps.  |
| 2.3         | Off                    | Physical connections unplugged - No IP address obtained   |
|             | Flashing Green/red     | Power up testing.   |
|             | Green ON               | At least one port is connected and an IP address has been obtained.   |
|             | Green flashing 3 times | All ports are unplugged, but the card has an IP address.  |
|             | Green flashing 4 times | Error: Duplicated IP address (1)  |
|             | Green flashing 5 times | The card is performing a BOOTP or DHCP sequence   |
| 2.4<br>"NS" | Off                    | The device does not have an IP address or powered off.  |
|             | Flashing Green/red     | Power up testing.   |
|             | Green ON               | The device has at least one established connection (even to the Message Router).  |
|             | Green flashing         | The device has not established connections, but has obtained an IP address.   |
|             | Red flashing           | One or more of the connections in which this device is the target has timed out. This shall be left only if all time out connections are reestablished or if the device is reset. |
|             | Red ON                 | The device has detected that its IP address is already in use (1).  |
| 2.5<br>"MS" | Off                    | No power is supplied to the device  |
|             | Flashing Green/red     | Power Up testing.   |
|             | Green ON               | The device is operating correctly.  |
|             | Green flashing         | The device has not been configured.   |
|             | Red flashing           | The device has detected a recoverable minor fault.  |
|             | Red ON                 | The device has detected a non-recoverable major fault (1).  |

(1) In case of duplicate IP Address, the led 2.3 is green flashing 4 times, led 2.4 and 2.5 are solid red.

# 10. Configuration of monitored parameters

It is possible to select up to 4 parameters to display their values in the [1.2 - MONITORING] menu on the graphic display terminal.

The selection is made via the [6 - MONITORING CONFIG.] menu, [6.3 - COM. MAP CONFIG.] submenu.

Each parameter in the range [Address 1 select.] ... [Address 4 select.] is used to select the parameter logic address. Select an address of zero to disable the function.

In the example given here, the monitored words are:

- Parameter 1 = Motor current (LCR): logic address 3204; signed decimal format.
- Parameter 2 = Motor torque (OTR): logic address 3205; signed decimal format.
- Parameter 3 = Last fault occurred (LFT): logic address 7121; hexadecimal format.
- Disabled parameter: address 0; default format: hexadecimal format.

|                      |     |              |                                     |
|----------------------|-----|--------------|-------------------------------------|
| RDY                  | NET | +0.00Hz      | 0A                                  |
| 6.3 COM. MAP CONFIG. |     |              | <input type="checkbox"/>            |
| Word 1 add. select.  | :   |              | 3204                                |
| Format word 1        | :   |              | Signed                              |
| Word 2 add. select.  | :   |              | 3205                                |
| Format word 2        | :   |              | Signed                              |
| Word 3 add. select.  | :   |              | 7121                                |
| <b>Code</b>          |     | <b>Quick</b> | <input checked="" type="checkbox"/> |
| Format word 33       | :   |              | Hex                                 |
| Word 4 add. select.  | :   |              | 0                                   |
| Format word 4        | :   |              | Hex                                 |

One of the three display formats below can be assigned to each monitored word:

| Format           | Range              | Terminal display |
|------------------|--------------------|------------------|
| Hexadecimal      | 0000 ... FFFF      | [Hex]            |
| Signed decimal   | -32,767 ... 32,767 | [Signed]         |
| Unsigned decimal | 0 ... 65,535       | [Unsigned]       |

# 11. Webserver

This chapter describes the function of the integrated webserver of the EtherNet/IP card.

## 11. 1. Opening the Altivar home page

From your web browser, default http password and login are : USER, USER for monitor and setup security level and ADMIN, ADMIN for administrator level.



From the altivar home page, you can access to 4 main menus:

- Drive,
- Network setup,
- Network diagnostic,
- Email

## 11. 2. Web pages structure

Each web page uses the same structure. Each main menu, "Drive", "Network setup" and "Network Diagnostics" contains each own sub menu. This last one is displayed on the left side of web page.



The  toggle button shows or hides the left sided menu.

# 11. Webserver

## 11.3. Drive

The screenshot shows the main menu of the Altivar 71-61 webserver. The 'Drive' menu item is highlighted with a blue circle. A callout box on the right shows the expanded menu options: Drive, Drive monitor, Drive parameters, and Drive recorder.

### ■ Drive monitor

The screenshot shows the 'Drive monitor' page. It displays the following information:

- Device Reference:** ATV71H075M3
- Device Name:** Not defined
- Altivar State:** RDY

|                    |     |       |
|--------------------|-----|-------|
| FRH Freq. Ref.     | Hz  | 0.0   |
| RFR Output Freq.   | Hz  | 0.0   |
| OTR Output Torque  | %   | 0.0   |
| ULN Mains Voltage  | V   | 218.7 |
| UOP Motor voltage  | V   | 0.0   |
| LCR Motor Current  | A   | 0.0   |
| THD Drive Thermal  | %   | 44.0  |
| THR1 Motor Thermal | %   | 0.0   |
| OPR Output Power   | %   | 0.0   |
| APH Power Used     | kWh | 0.0   |
| RTH Run Time       | h   | 0.0   |

Motor Speed (RPM) gauge showing values: -360, 0, 360, -720, 720, -1080, 1080, -1440, 1440, -1800, 1800.

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# 11. Webserver

## ■ Drive parameters

The screenshot shows the AltiVar 71-61 webserver interface. The top navigation bar includes the Schneider Electric logo, the Telemecanique logo, and the product name 'AltiVar® 71-61'. Below the navigation bar, there are tabs for 'Drive', 'Network setup', 'Network diagnostic', and 'Email'. The 'Drive' tab is active, and the 'Drive parameters' page is displayed. The page features a left-hand navigation menu with categories such as 'Control parameters', 'Setpoint parameters', 'Status parameters', 'Actual values parameters', 'Reference parameters', 'Measurement parameters', 'I/O parameters', 'Fault parameters', 'Log parameters', 'Identification parameters', 'Communication parameters', 'Controller Inside parameters', 'DS402 configuration parameters', 'SIMPLY START', 'SETTINGS', 'MOTOR CONTROL', 'INPUTS / OUTPUTS CFG', and various configuration options (AI1-AI4, RP, ENCODER, R1-R4, LO1-LO2). The main content area displays a table of parameters with columns for 'Parameter', 'Address', 'UnitId', 'Description', 'Value', and 'Unit'. The table lists parameters such as 'Date', 'Time', 'Mains voltage', 'Energy consumption', 'Drive thermal state', 'Motor thermal state', 'Resistor thermal state', 'Total motor operating time', 'Internal motor operating time', 'Total drive operating time', 'IGBT alarm time', and 'Current bobbin time'. The status bar at the bottom indicates 'Started, number of requests = 8' and shows response times of 125ms, 93ms, and 125ms. The copyright notice '© 2007 Schneider Electric. All Rights Reserved.' is visible at the bottom of the page.

| Parameter                     | Address | UnitId | Description                   | Value | Unit |
|-------------------------------|---------|--------|-------------------------------|-------|------|
| Date                          | 7391    | 0      | Date                          | 0     |      |
| Time                          | 7392    | 0      | Time                          | 0     |      |
| Mains voltage                 | 3207    | 0      | Mains voltage                 | 218.8 | V    |
| Energy consumption            | 3230    | 0      | Energy consumption            | 0     | Wh   |
| Drive thermal state           | 3209    | 0      | Drive thermal state           | 44    | %    |
| Motor thermal state           | 9630    | 0      | Motor thermal state           | 0     | %    |
| Resistor thermal state        | 14114   | 0      | Resistor thermal state        | 0     | %    |
| Total motor operating time    | 3231    | 0      | Total motor operating time    | 0     | s    |
| Internal motor operating time | 3232    | 0      | Internal motor operating time | 0     | s    |
| Total drive operating time    | 3233    | 0      | Total drive operating time    | 6     | s    |
| IGBT alarm time               | 3235    | 0      | IGBT alarm time               | 0     | s    |
| Current bobbin time           | 12209   | 0      | Current bobbin time           | 0     | min  |

The left column is used to select a mod/imd group (or list) of parameters. The right columns displays the parameters, its Modbus address and its current value.

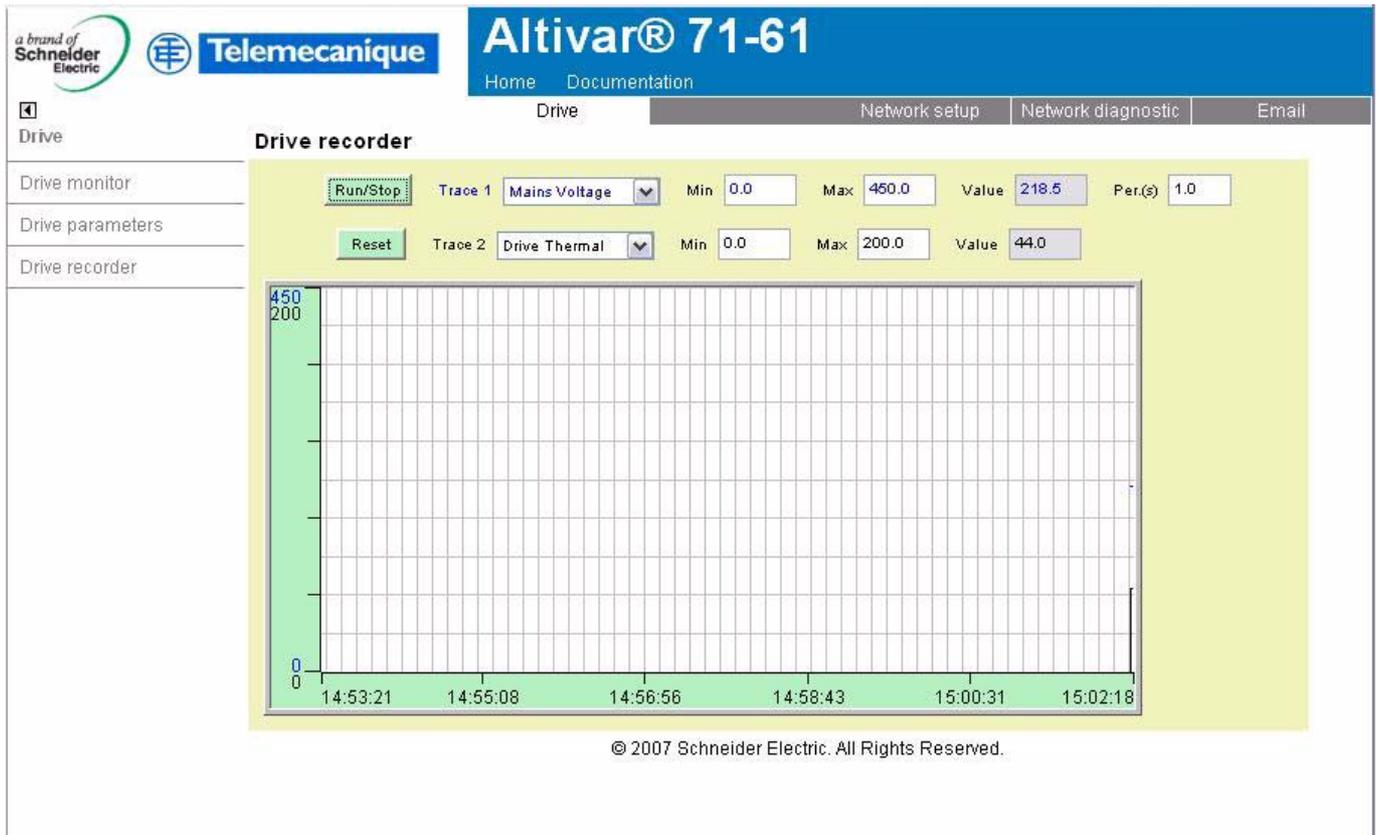
## ■ SAVING PARAMETERS

When parameters of the drive are modified from the webserver, they are not saved into drive memory (to avoid numerous write access to the flash memory).

However, it is possible to perform the backup of the parameters from the webserver: This operation can be done by writing 2 to CMI parameter. This operation saves ALL the parameters of the drive to flash memory.

# 11. Webserver

## ■ Drive recorder



The trend viewer shows traces of two preselected parameters

RUN/STOP: Starts or stoppes the trends recording.

Reset : Erases the recorded trend.

Min/Max : defines the lowest and highest values that are displayed on the trend window.

Per(s) : Periodicity : Minimal value.

# 11. Webserver

## 11. 4. Network setup

The screenshot shows the webserver interface for an Altivar® 71-61 drive. The top navigation bar includes 'Home', 'Documentation', 'Network setup', 'Network diagnostic', and 'Email'. The 'Network setup' menu is expanded, showing options: 'Network setup', 'EtherNet/IP setup', 'EtherNet/IP scanner', 'Monitor security', 'Setup security', and 'Administrator security'. A blue circle highlights the 'Network setup' option, and a blue arrow points from it to a separate box on the right. This box, titled 'Network setup', contains a list of the same options: 'EtherNet/IP setup', 'EtherNet/IP scanner', 'Monitor security', 'Setup security', and 'Administrator security'. In the background, a photo of the drive is visible, along with the text 'Web site version : 1.0.0.1' and '© 2007 Schneider Electric. All Rights Reserved.'

### ■ Monitor security

The screenshot shows the 'Monitor security' page of the webserver. The left sidebar menu has 'Monitor security' selected. The main content area features a form with two sections. The first section is for changing the password, with fields for 'Username:', 'New password:', and 'Confirm password:', followed by a 'Change Password' button. The second section is for changing the username, with fields for 'Username:', 'New username:', and 'Confirm username:', followed by a 'Change Username' button. The footer contains the text '© 2007 Schneider Electric. All Rights Reserved.'

The Monitor security password is the basic level access to the drive through the webserver: it allows the access to the different web pages but don't authorize write access.  
New level username and password can be redefined here.

# 11. Webserver

## ■ Setup security

The screenshot shows the web interface for the Altivar 71-61 drive. The page title is "Altivar® 71-61". The navigation menu includes "Home", "Documentation", "Drive", "Network setup", "Network diagnostic", and "Email". The "Network setup" menu is expanded, showing "EtherNet/IP setup", "EtherNet/IP scanner", "Monitor security", "Setup security" (which is selected), and "Administrator security". The "Setup security" section contains three password input fields: "Data Editor Write password:", "New write password:", and "Confirm write password:". A "Change Write Password" button is located below these fields. The footer of the page reads "© 2007 Schneider Electric. All Rights Reserved."

- HTTP : data write.
- Data write level password.

## ■ Administrator security

The screenshot shows the web interface for the Altivar 71-61 drive, specifically the "Administrator security" page. The page title is "Altivar® 71-61". The navigation menu includes "Home", "Documentation", "Drive", "Network setup", "Network diagnostic", and "Email". The "Network setup" menu is expanded, showing "EtherNet/IP setup", "EtherNet/IP scanner", "Monitor security", "Setup security", and "Administrator security" (which is selected). The "Administrator security" section contains two forms. The first form has "Login:" set to "Administrator", a "Password:" field, a "New password:" field, and a "Confirm password:" field, with a "Change adm password" button below. The second form has "Login:" set to "Administrator" and a "Password:" field, with a "Reset all user right" button below. The footer of the page reads "© 2007 Schneider Electric. All Rights Reserved."

# 11. Webserver

## ■ EtherNet/IP setup

**Altivar® 71-61**  
Home Documentation

Drive Network setup Network diagnostic Email

**EtherNet/IP setup**

Network setting

Rate & duplex mode  IP mode

IP address

Subnet mask

Gateway address

Device Name

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## ■ EtherNet/IP scanner setup

**Altivar® 71-61**  
Home Documentation

Drive Network setup Network diagnostic Email

**EtherNet/IP scanner setup**

**Assembly 103 parameters**

| Parameter                                | Config. | Description    |
|--|---------|----------------|
| <input checked="" type="checkbox"/> CW   | -       | Control word   |
| VP                                       | -       | Velocity point |
| <input checked="" type="checkbox"/> NCA1 | CMD     | Control word   |
| NCA2                                     | LFRD    | Speed setpoint |
| <input checked="" type="checkbox"/> NCA3 | -0-     | Not Assigned   |
| NCA4                                     | ACC     | Acceleration   |
| <input checked="" type="checkbox"/> NCA5 | -0-     | Not Assigned   |
| NCA6                                     | -0-     | Not Assigned   |
| <input checked="" type="checkbox"/> NCA7 | -0-     | Not Assigned   |
| NCA8                                     | -0-     | Not Assigned   |

**Assembly 104 parameters**

| Parameter                                | Config. | Description       |
|--|---------|-------------------|
| <input checked="" type="checkbox"/> SW   | -       | Status word       |
| VF                                       | -       | Velocity feedback |
| <input checked="" type="checkbox"/> NMA1 | ETA     | Status word       |
| NMA2                                     | RFRD    | Output velocity   |
| <input checked="" type="checkbox"/> NMA3 | -0-     | Not Assigned      |
| NMA4                                     | -0-     | Not Assigned      |
| <input checked="" type="checkbox"/> NMA5 | -0-     | Not Assigned      |
| NMA6                                     | -0-     | Not Assigned      |
| <input checked="" type="checkbox"/> NMA7 | -0-     | Not Assigned      |
| NMA8                                     | -0-     | Not Assigned      |

Setpoint unit

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# 11. Webserver

## ■ Email management

The screenshot shows the web interface for the Altivar 71-61 drive. The top navigation bar includes 'Home' and 'Documentation'. Below it are tabs for 'Drive', 'Network setup', 'Network diagnostic', and 'Email'. The main content area is titled 'Email management' and is divided into two sections: 'Configuration' and 'Monitoring'.  
**Configuration:** A section with a yellow background. It contains a heading 'Send an email message when:' followed by four checkboxes: 'A fault occurs', 'A warning is reported', 'A Controller Inside event occurs', and 'A communication fault occurs'. To the right, there are three input fields: 'Email IP server @' (value: 'Not defined'), 'Email dest. @', and 'Email from @'.  
**Monitoring:** A section with a green background. It contains several input fields: 'Ethernet IP @' (value: '10.0.0.1'), 'Device name', 'Email status' (value: 'Idle'), and 'Last email Error' (value: '0'). To the right, there are two counters: 'Send counter' (value: '0') and 'Error counter' (value: '0'), along with a 'Reset Counter' button. A 'PassWord' button is located at the bottom center of the configuration area. The footer contains the copyright notice: '© 2007 Schneider Electric. All Rights Reserved.'

Configuration of the email generator on the left side:

- email IP server Address
- email sender address, recipient address from 0.

## 11. 5. Diagnostics

The screenshot shows the web interface for the Altivar 71-61 drive, specifically the 'Network diagnostic' page. The top navigation bar includes 'Home' and 'Documentation'. Below it are tabs for 'Drive', 'Network setup', 'Network diagnostic', and 'Email'. The main content area features a central image of the Altivar 71-61 drive unit. Below the image, it says 'Web site version: 1.0.0.1' and '© 2007 Schneider Electric. All Rights Reserved.'. On the left side, there is a sidebar menu with three items: 'Network diagnostics', 'Ethernet statistics', and 'Message statistics'. A blue circle highlights the 'Network diagnostics' item in the sidebar. On the right side, there is a larger box containing the same three items: 'Network diagnostics', 'Ethernet statistics', and 'Message statistics'. A blue arrow points from the 'Network diagnostics' item in the sidebar to the larger box on the right.

# 11. Webserver

## ■ Ethernet statistics

The screenshot shows the 'Ethernet statistics' page for an Altivar 71-61 drive. The page includes a navigation menu with 'Drive', 'Network setup', 'Network diagnostic', and 'Email'. The main content area is divided into several sections:

- Device Information:**
  - Device Type: ALTIVAR 71
  - Device reference: ATV71H075M3
  - Software revision: 1.0ie01
  - MAC Address: 00-80-f4-7d-00-03
  - Data rate: 100 Mbit/s
  - Duplex mode: Full Duplex
  - IP address: 10.0.0.1
  - Subnet mask: 255.255.255.0
  - Gateway address: 0.0.0.0
  - IP mode: Manual
  - Device name: Not defined
- Transmit Statistics:**
  - Transmit counter: 57818
  - Transmit errors: 0
  - Deferred Emissions: 0
  - Late collisions: 0
  - Buffer Errors: 0
- Receive Statistics:**
  - Receive counter: 67668
  - Receive errors: 0
  - CRC errors: 0
  - Frame errors: 0
  - Buffer Errors: 0
- Other errors:**
  - Collisions: 0
  - Multi Collisions: 0
  - Over Run: 0

A 'Reset counters' button is located at the bottom right of the statistics section. The footer contains the text: © 2007 Schneider Electric. All Rights Reserved.

## ■ Message statistics

The screenshot shows the 'Message statistics' page for an Altivar 71-61 drive. The page includes a navigation menu with 'Drive', 'Network setup', 'Network diagnostic', and 'Email'. The main content area is divided into several sections:

- TCP/UDP:**
  - Open sockets: 5
  - CIP open connections: 0
  - Modbus open connections: 1
- CIP:**
  - Assemblies:**

|        | Instance | Size |
|--------|----------|------|
| Input  | 0        | 0    |
| Output | 0        | 0    |
  - I/O messaging:**
    - Transmit counter: 0
    - Receive counter: 0
    - Error counter: 0
  - Explicit messaging:**
    - UCMM request: 0
    - UCMM error: 0
    - Class3 request: 0
    - Class3 error: 0
- Modbus TCP:**
  - Transmit counter: 2582
  - Receive counter: 2593
  - Error counter: 0

A 'Reset counters' button is located at the bottom right of the Modbus TCP section. The footer contains the text: © 2007 Schneider Electric. All Rights Reserved.

**NOTE:** As a Schneider product, The EtherNet/IP option card uses internally MODBUS TCP for the web-server. (The MODBUS TCP port is not accessible).

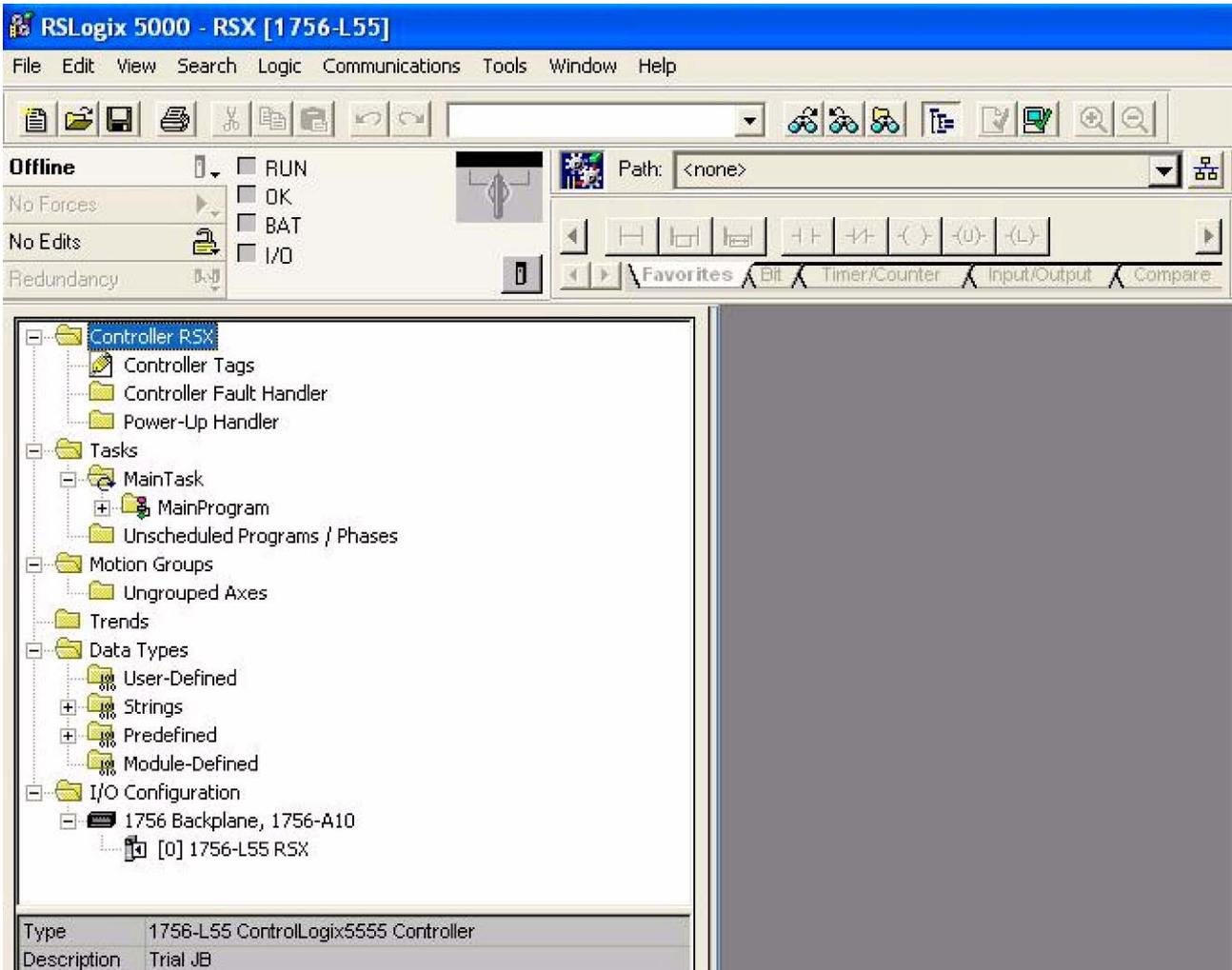
# 12. Integration in RSLogix

## 12.1. Principle

RSX drive equipped with an EtherNet/IP card shall be configured as a "Generic Ethernet Module" in the same way as the EtherNet/IP adapter of PowerFlex 70 drives.

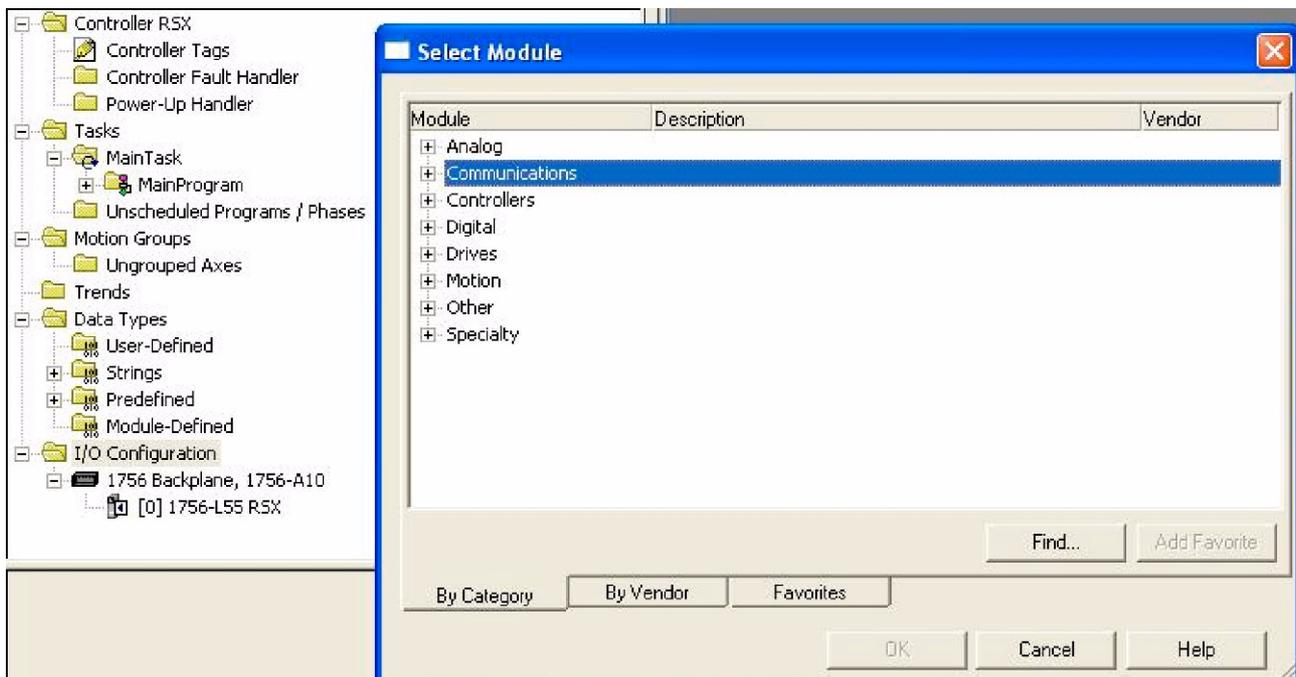
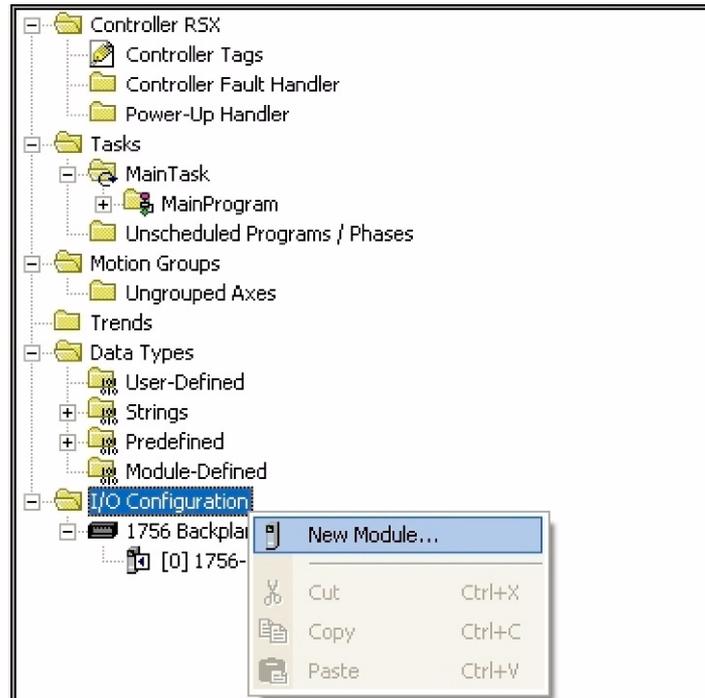
## 12.2. Procedure

### ■ Create a new project

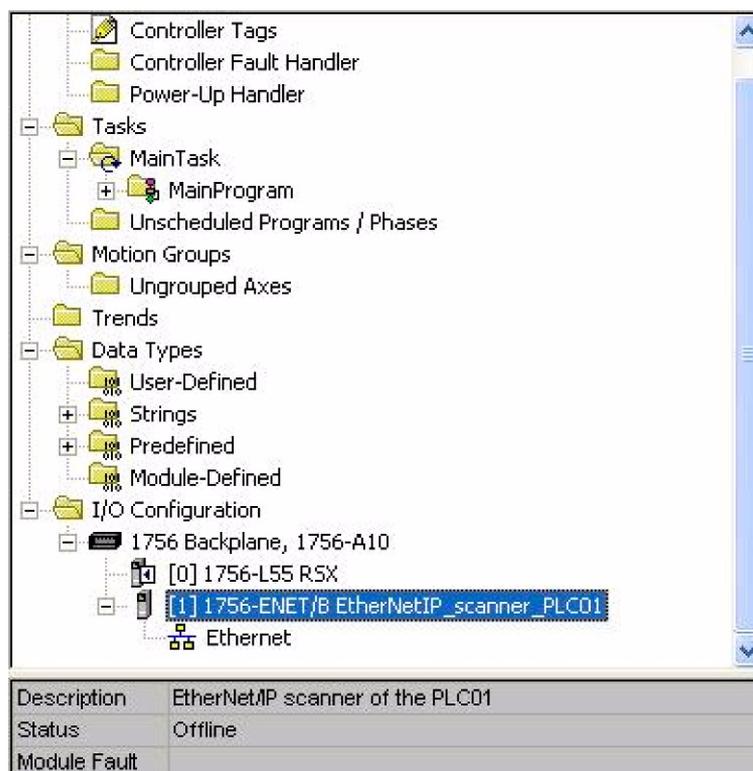
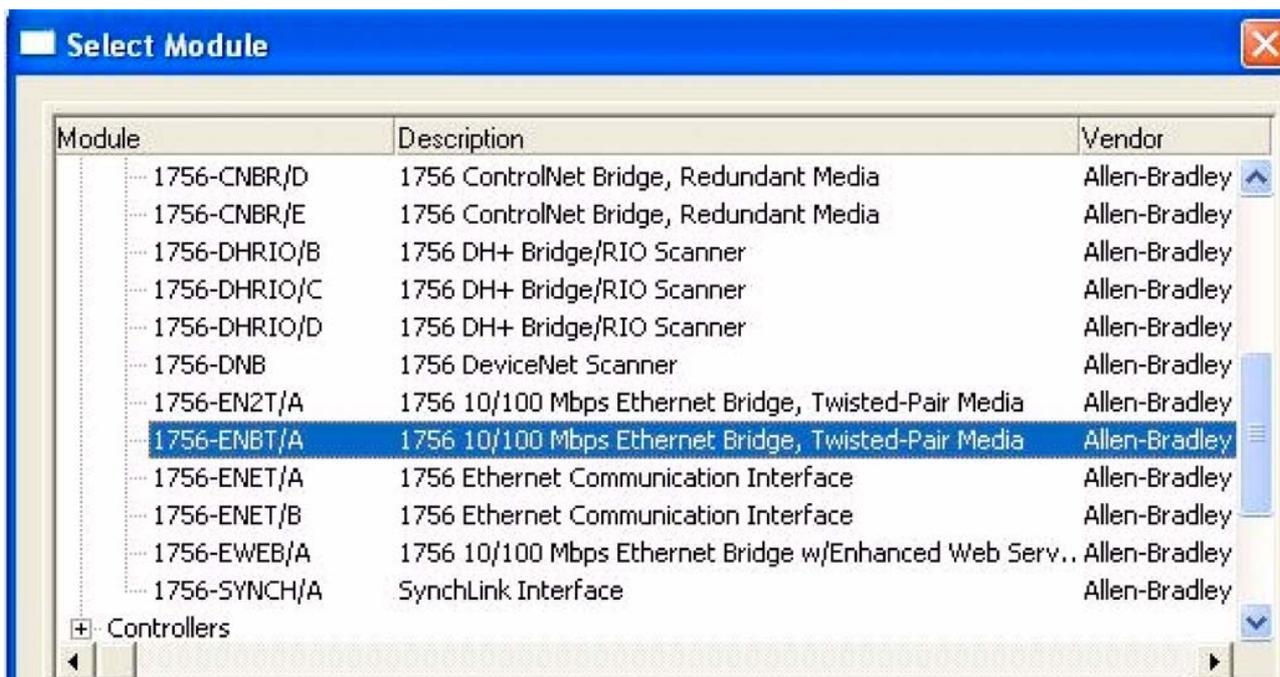


## 12. Integration in RSLogix

### ■ Add a EtherNet/IP scanner to the I/O configuration

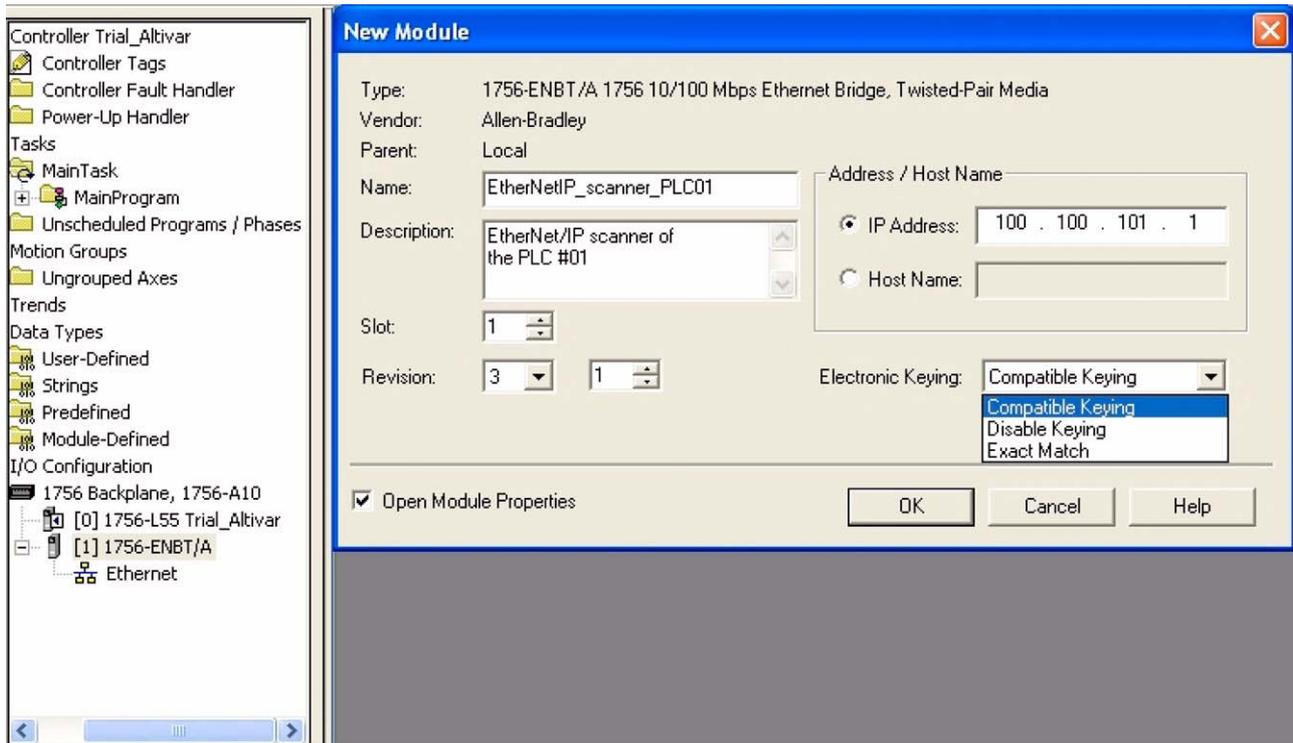


## 12. Integration in RSLogix

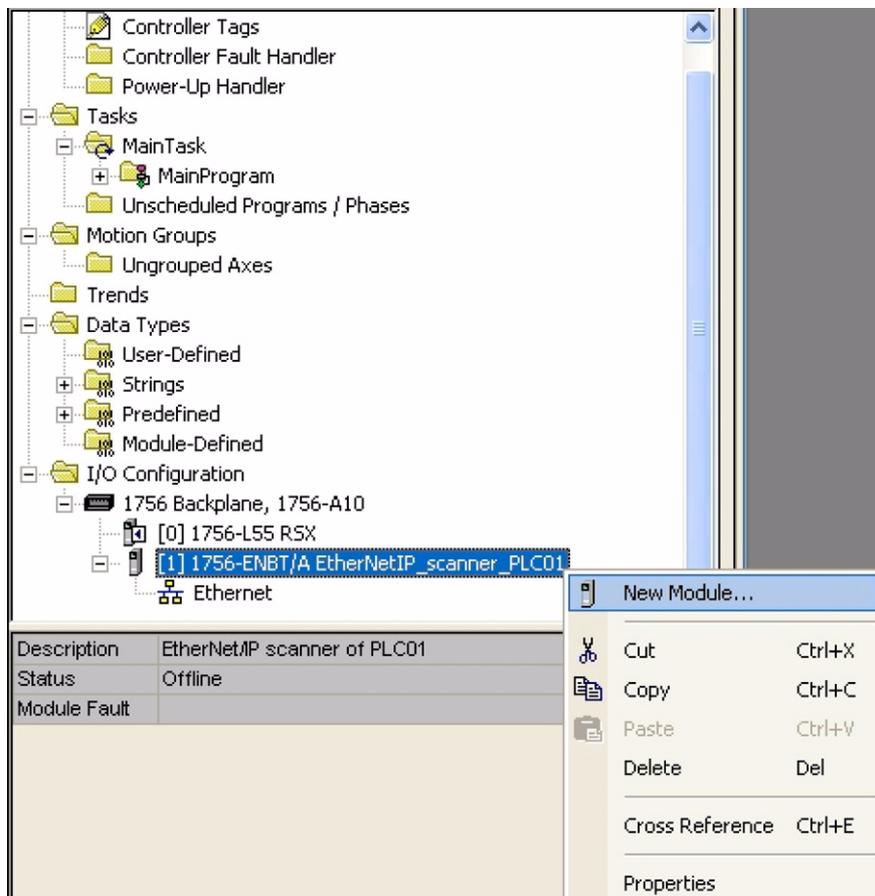


## 12. Integration in RSLogix

### ■ Configure the EtherNet/IP scanner



### ■ Add a EtherNet/IP ATV71/61 drive to the I/O configuration



## 12. Integration in RSLogix

The screenshot shows the RSLogix software interface. On the left, a project tree is visible with the following structure:

- Ungrouped Axes
- Trends
- Data Types
  - User-Defined
  - Strings
  - Predefined
  - Module-Defined
- I/O Configuration
  - 1756 Backplane, 1756-A10
    - [0] 1756-L55 RSX
    - [1] 1756-ENBT/A EtherNetIP\_scanner\_PLCO1
      - Ethernet

Below the tree, a table displays the selected module's details:

|              |                             |
|--------------|-----------------------------|
| Description  | EtherNetIP scanner of PLC01 |
| Status       | Offline                     |
| Module Fault |                             |

On the right, the 'Select Module' dialog box is open. It features a table with the following columns: Module, Description, and Vendor. The 'Communications' category is expanded, showing sub-categories: Drives and HMI.

The screenshot shows the RSLogix software interface. On the left, a project tree is visible with the following structure:

- Controller Tags
- Controller Fault Handler
- Power-Up Handler
- Tasks
  - MainTask
    - MainProgram
    - Unscheduled Programs / Phases
  - Motion Groups
  - Ungrouped Axes
  - Trends
  - Data Types
    - User-Defined
    - Strings
    - Predefined
    - Module-Defined
  - I/O Configuration
    - 1756 Backplane, 1756-A10
      - [0] 1756-L55 RSX
      - [1] 1756-ENBT/A EtherNetIP\_scanner\_PLCO1
        - Ethernet

Below the tree, a table displays the selected module's details:

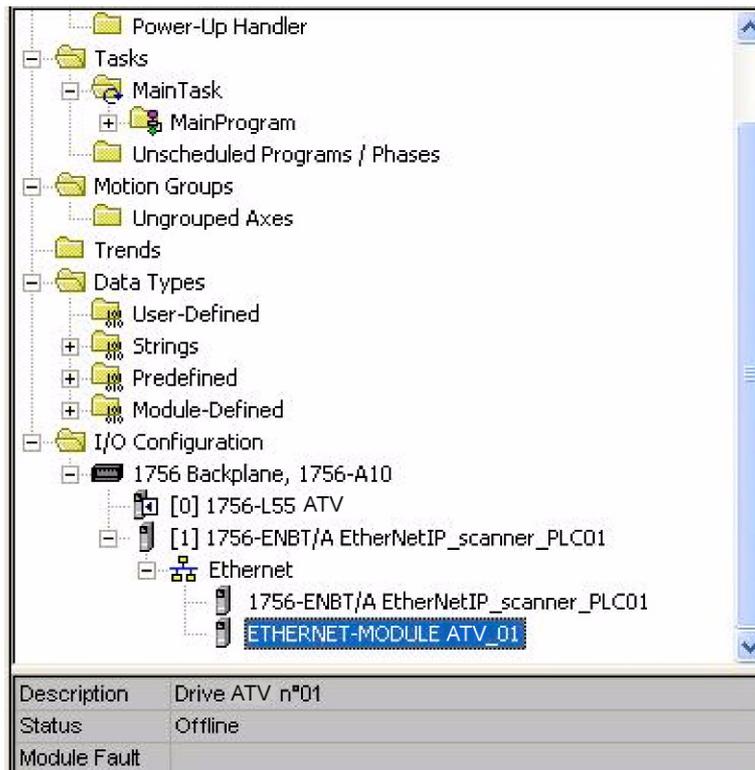
|              |                             |
|--------------|-----------------------------|
| Description  | EtherNetIP scanner of PLC01 |
| Status       | Offline                     |
| Module Fault |                             |

On the right, the 'Select Module' dialog box is open. It features a table with the following columns: Module, Description, and Vendor. The 'ETHERNET-MODULE' is selected. The table lists various Ethernet modules and their descriptions.

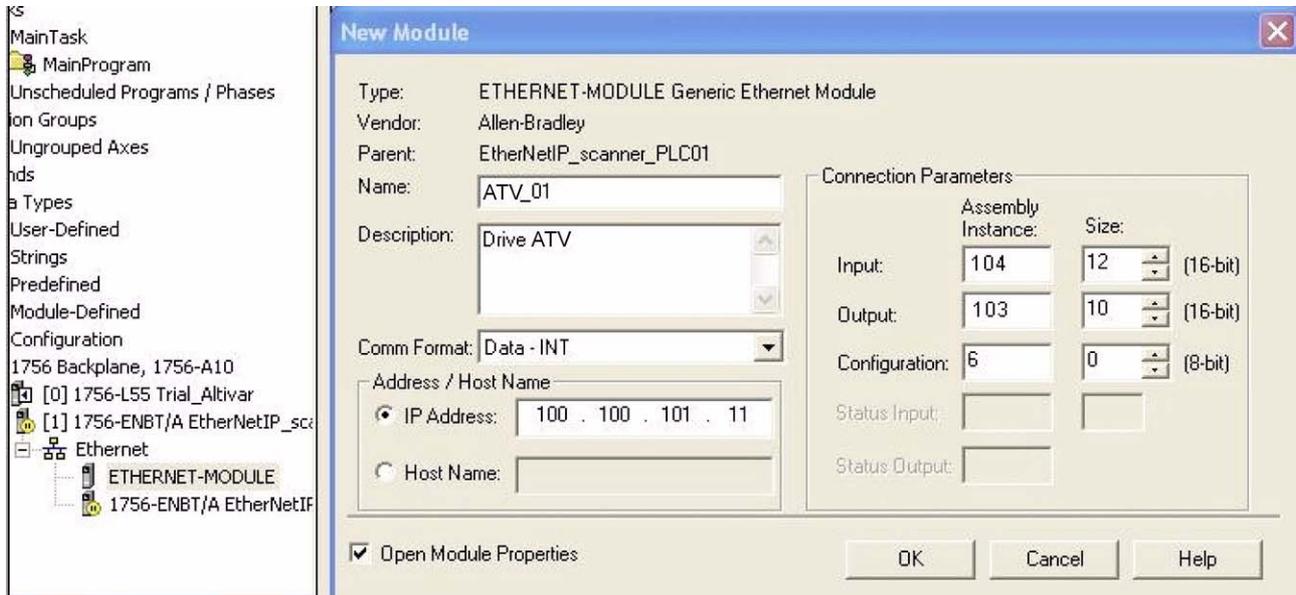
| Module                | Description  | Vendor        |
|-----------------------|--|---------------|
| 1769-L32E Etherne..   | 10/100 Mbps Ethernet Port on CompactLogix5332E         | Allen-Bradley |
| 1769-L35E Etherne..   | 10/100 Mbps Ethernet Port on CompactLogix5335E         | Allen-Bradley |
| 1788-EN2DN/A          | 1788 Ethernet to DeviceNet Linking Device              | Allen-Bradley |
| 1788-ENBT/A           | 1788 10/100 Mbps Ethernet Bridge, Twisted-Pair Media   | Allen-Bradley |
| 1788-EWEB/A           | 1788 10/100 Mbps Ethernet Bridge w/Enhanced Web Serv.. | Allen-Bradley |
| 1794-AENT/A           | 1794 10/100 Mbps Ethernet Adapter, Twisted-Pair Media  | Allen-Bradley |
| Drivelogix5730 Eth... | 10/100 Mbps Ethernet Port on DriveLogix5730            | Allen-Bradley |
| ETHERNET-BRIDGE       | Generic EtherNet/IP CIP Bridge                         | Allen-Bradley |
| ETHERNET-MODULE       | Generic Ethernet Module                                | Allen-Bradley |
| EtherNet/IP           | SoftLogix5800 EtherNet/IP                              | Allen-Bradley |
| PH-P55CENA/A          | Ethernet Adapter, Twisted-Pair Media                   | Parker Hannif |

At the bottom of the dialog, there are buttons for 'Find...', 'Add Favorite', 'By Category', 'By Vendor', 'Favorites', 'OK', 'Cancel', and 'Help'.

## 12. Integration in RSLogix



### ■ Configure the ATV71 EtherNet/IP card



Above the Allen-Bradley drive profile is selected.

## 12. Integration in RSLogix

Below the CIP extended speed control profile is selected.

**New Module**

Type: ETHERNET-MODULE Generic Ethernet Module  
Vendor: Allen-Bradley  
Parent: EtherNetIP\_scanner\_PLC01  
Name: ATV\_01  
Description: Drive ATV  
Comm Format: Data - INT  
Address / Host Name  
 IP Address: 100 . 100 . 101 . 11  
 Host Name:  
 Open Module Properties

**Connection Parameters**

|                | Assembly Instance: | Size: |          |
|----------------|--------------------|-------|----------|
| Input:         | 71                 | 4     | (16-bit) |
| Output:        | 21                 | 2     | (16-bit) |
| Configuration: | 6                  | 0     | (8-bit)  |
| Status Input:  |                    |       |          |
| Status Output: |                    |       |          |

OK Cancel Help

Below the CIP extended speed and torque control profile is selected.

**Module Properties: EtherNetIP\_scanner\_PLC01 (ETHERNET-MODULE 1.1)**

General | Connection | Module Info

Type: ETHERNET-MODULE Generic Ethernet Module  
Vendor: Allen-Bradley  
Parent: EtherNetIP\_scanner\_PLC01  
Name: ATV\_01  
Description: Drive ATV  
Comm Format: Data - INT  
Address / Host Name  
 IP Address: 100 . 100 . 101 . 11  
 Host Name:

**Connection Parameters**

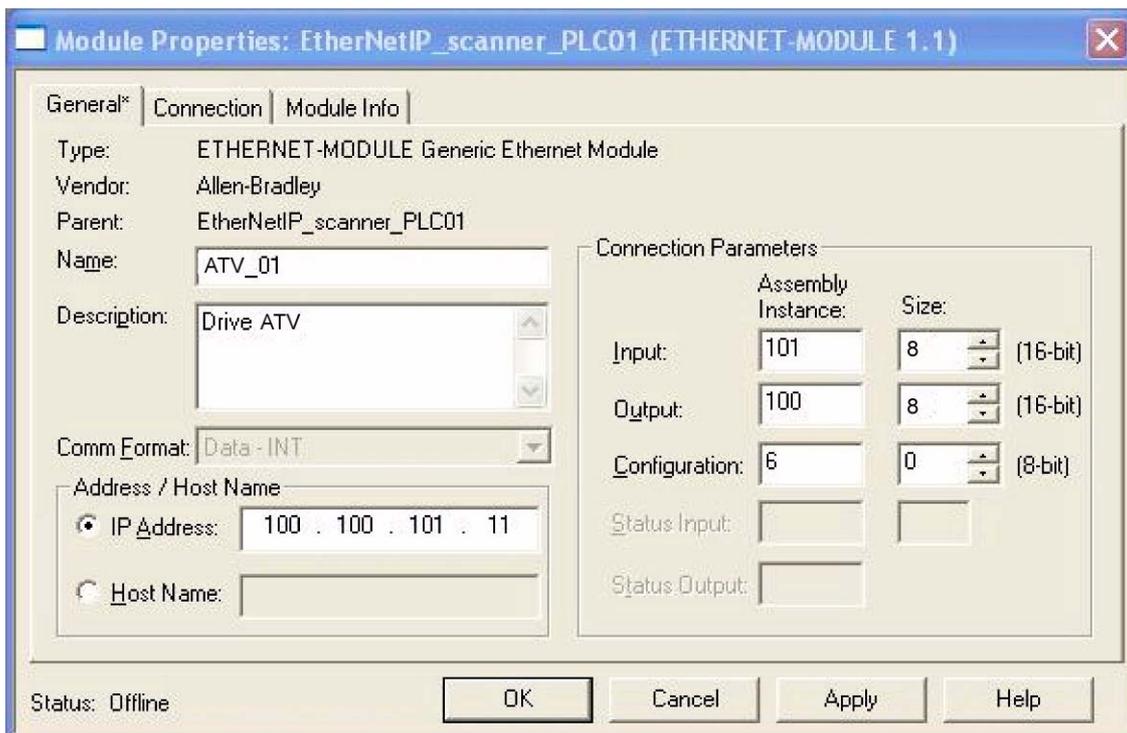
|                | Assembly Instance: | Size: |          |
|----------------|--------------------|-------|----------|
| Input:         | 73                 | 5     | (16-bit) |
| Output:        | 23                 | 3     | (16-bit) |
| Configuration: | 6                  | 0     | (8-bit)  |
| Status Input:  |                    |       |          |
| Status Output: |                    |       |          |

Status: Offline

OK Cancel Apply Help

## 12. Integration in RSLogix

Below native RSX profile is selected.



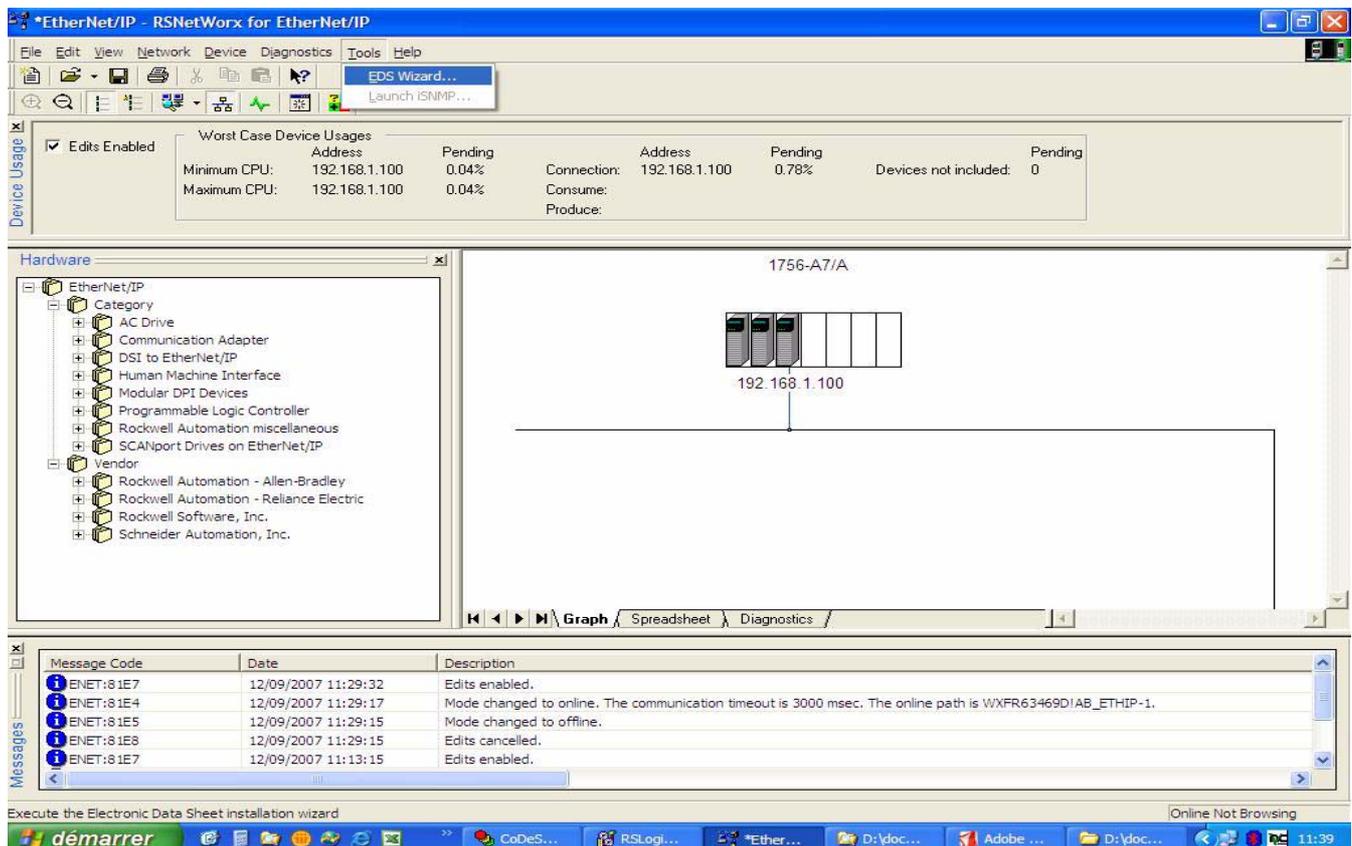
### 12.3. Registering the EDS file in RSLogix

An EDS file is provided with the drive. (This file is available on the CD or on [www.telemecanique.com](http://www.telemecanique.com)).

It exists 1 EDS file for the ATV71 and 1 EDS file for the ATV61.

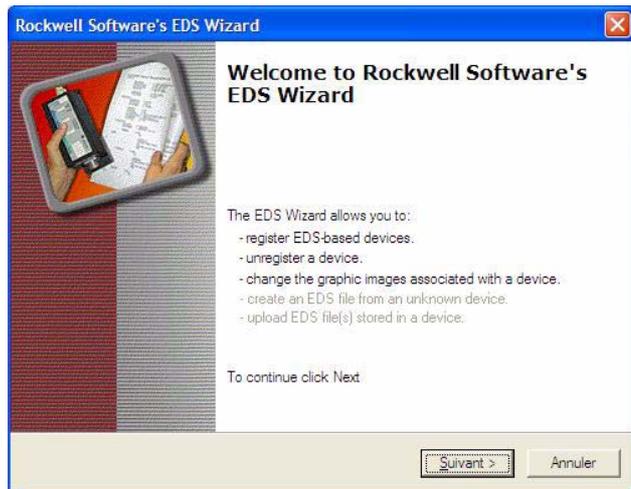
The following lines describe how to import these files in your project:

In RSnetWorx , start the EDS wizards



## 12. Integration in RSLogix

Follow the instructions:

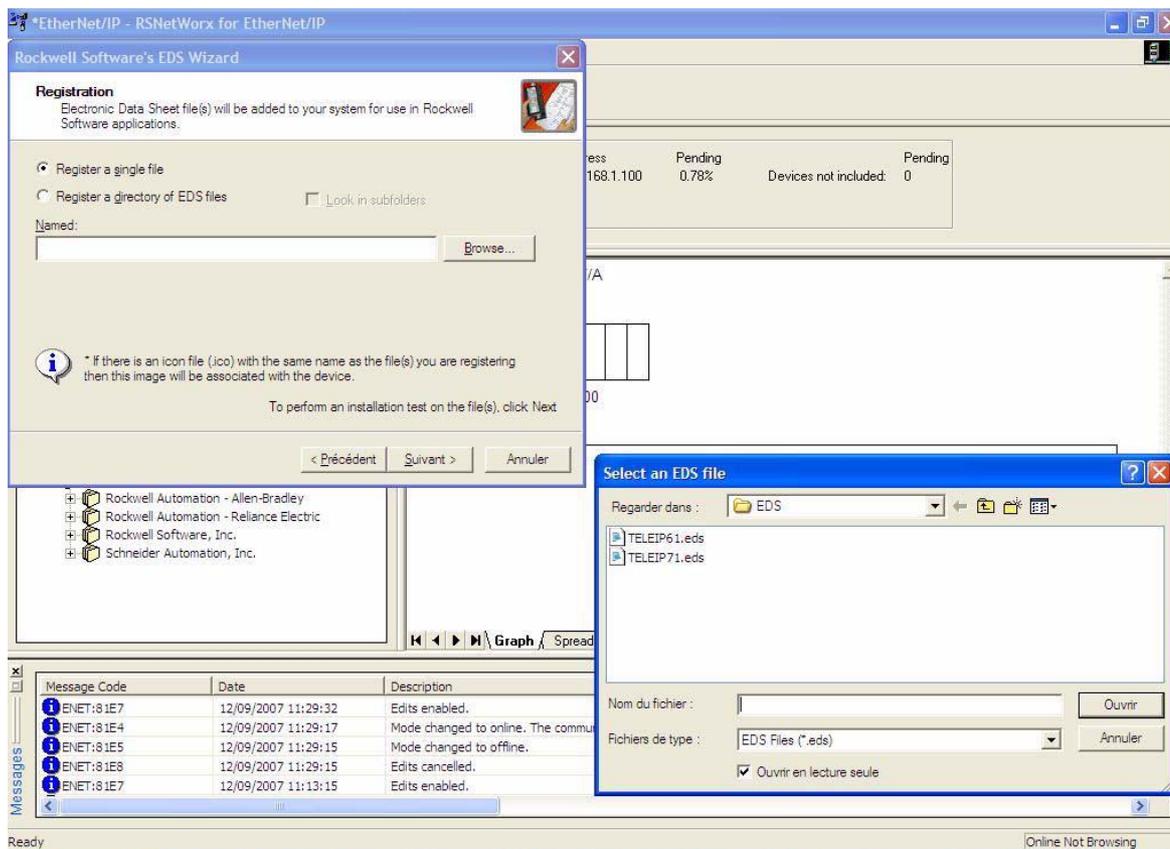


Choose "Register" to import a new EDS file.  
If you want to update an EDS file you need to "unregister" this device first.



## 12. Integration in RSLogix

Select the required file:



Then finish, the dialog box displays the result of the import operation.



# 13. CIP objects

## 13. 1. Supported object classes

Three categories of object classes can be defined:

- 1: CIP device on EtherNet/IP.
- 2: AC/DC drive.
- 3: VSD specific.

These objects are detailed here:

| Object class   | Class ID | Cat. | Number of instances | Effect on behavior Interface                            |
|--|----------|------|---------------------|---|
| <a href="#">Identity object (13. 2.) page 44</a>           | 16#01    | 1    | 1                   | Supports the reset service                              |
| <a href="#">Message router object (13. 3.) page 45</a>     | 16#02    | 1    | 1                   | Explicit message connection                             |
| <a href="#">Ethernet Link object (13. 4.) page 47</a>      | 16#F6    | 1    | 1                   | Counter and status information                          |
| <a href="#">TCP/IP Interface object (13. 5.) page 50</a>   | 16#F5    | 1    | 1                   | TCP/IP configuration                                    |
| <a href="#">Connection object manager (13. 6.) page 52</a> | 16#05    | 1    | 1                   |   |
| <a href="#">Motor data object (13. 7.) page 53</a>         | 16#28    | 2    | 1                   | Defines data for the motor connected to the device      |
| <a href="#">Control supervisor object (13. 8.) page 54</a> | 16#29    | 2    | 1                   | Manages drive functions, operational states and control |
| <a href="#">AC/DC Drive Object (13. 9.) page 56</a>        | 16#2A    | 2    | 1                   | Provides drive configuration                            |
| <a href="#">Assembly object (13. 10.) page 57</a>          | 16#04    | 2    | 12                  | Defines I/O data format                                 |
| <a href="#">Application objects (13. 11.) page 58</a>      |          | 3    | 1                   | Vendor specific - drive's parameters                    |

## 13. 2. Identity object

The Identity object provides identification and status information about the drive.

### Class code

| Hexadecimal | Decimal |
|-------------|---------|
| 16#01       | 1       |

### Class attributes

| Attribute ID | Access | Name          | Need | Data type | Value | Details            |
|--------------|--------|---------------|------|-----------|-------|--------------------|
| 1            | Get    | Revision      | Opt. | UINT      | 1     | —                  |
| 2            | Get    | Max Instances | Opt. | UINT      | 1     | 1 defined instance |

## 13. CIP objects

### Instance attributes

| Attribute ID | Access  | Name                   | Need | Data type                     | Value  | Details   |
|--------------|---------|------------------------|------|-------------------------------|--------|---|
| 1            | Get     | Vendor ID              | Req. | UINT                          | 243    | Schneider Automation, Inc [243]   |
| 2            | Get     | Device type            | Req. | UINT                          | 16#02  | AC/DC drive profile   |
| 3            | Get     | Product code           | Req. | UINT                          | 5 or 7 | 5: ATV71<br>7: ATV61  |
| 4            | Get     | Revision               | Req. | Struct of:<br>USINT<br>USINT  | —      | Product revision of the drive (1)   |
| 5            | Get     | Status                 | Req. | WORD                          | —      | See definition in the table below   |
| 6            | Get     | Serial number          | Req. | UDINT                         | —      | Serial number of the drive  |
| 7            | Get     | Product name           | Req. | Struct of:<br>USINT<br>STRING | —      | 11 (product name length)<br>"ATV71 Drive"   |
| 8            | Get     | State                  | Opt. | USINT                         | —      | 0: Non existent<br>1: Device self-testing<br>2: Standby<br>3: Operational<br>4: Major recoverable fault<br>5: Major unrecoverable fault |
| 10           | Get/Set | Heartbeat interval (2) | Opt. | USINT                         | 0–255  | Interval in seconds between two heartbeat messages.<br>0: No message.   |

(1) Mapped in a word: MSB minor revision (second USINT), LSB major revision (first USINT).  
Example: 517 = 16#0205 means revision V5.2.

(2) The heartbeat message broadcasts the current state of the device.

### 13. 3. Message router object

The Message router object is the element through which all the "Explicit messages" objects pass in order to be directed towards the objects they are truly destined to.

#### Class code

| Hexadecimal | Decimal |
|-------------|---------|
| 16#02       | 2       |

#### Class attributes

| Attribute ID | Access | Name          | Need | Data type | Value | Details            |
|--------------|--------|---------------|------|-----------|-------|--------------------|
| 1            | Get    | Revision      | Opt. | UINT      | 1     | -                  |
| 2            | Get    | Max instances | Opt. | UNT       | 1     | 1 Defined instance |

## 13. CIP objects

---

### Instance attributes

| Attribute ID | Access | Name                           | Need | Data type                      | Value         | Details   |
|--------------|--------|--------------------------------|------|--------------------------------|---------------|---|
| 1            | Get    | Object list:<br>Number classes | Opt. | Struct of:<br>UINT<br>UINT [ ] | 20<br>(codes) | List of supported objects; the first UINT is the number of supported classes; the remaining UINTs are the codes of these classes. |
| 2            | Get    | Number available               | Opt. | UINT                           | 1             | Maximum number of simultaneous connections  |
| 3            | Get    | Number active                  | Opt. | UINT                           | 1             | Number of active connections  |
| 4            | Get    | Active connections             | Opt. | UINT [ ]                       | 1             | List of active connections (referred to with their respective Connection instance ID)   |

### Class service

| Service code | Service name         | Need | Description       |
|--------------|----------------------|------|-------------------|
| 16#0E        | Get_Attribute_Single | Req. | Read an attribute |

### Instance service

| Service code | Service name         | Need | Description       |
|--------------|----------------------|------|-------------------|
| 16#0E        | Get_Attribute_Single | Req. | Read an attribute |

# 13. CIP objects

## 13. 4. Ethernet Link object

This object provides the mechanism to configure a device's TCP/IP network interface.

### ■ Class code

| Hexadecimal | decimal |
|-------------|---------|
| 16#F5       | 245     |

### ■ Class attributes

Class attributes for this object are optional.

### ■ Instance attributes

| Attribute ID   | Access     | Name                            | need | Data type  | Value     | Details   |  |
|--|------------|---------------------------------|------|--|-----------|---|--|
| 1  | Get        | <b>Status</b>                   | Req. | DWORD  | Bit level | 0   | The interface configuration attribute has not been configured. |
|  |            |                                 |      |  |           | 1   | The interface configuration contains a valid configuration.    |
|  |            |                                 |      |  |           | 2-15  | Reserved for future use.                                       |
| 2  | Get        | <b>Configuration capability</b> | Req. | DWORD  | Bit level | 0   | BOOTP Client.  |
|  |            |                                 |      |  |           | 1   | DNS Client.  |
|  |            |                                 |      |  |           | 2   | DHCP Client.   |
|  |            |                                 |      |  |           | 3   | DHCP-DNS capable.  |
|  |            |                                 |      |  |           | 4   | Interface configuration settable.                              |
|  |            |                                 |      |  |           | All other bits are reserved and shall be set to 0.  |  |
| 3  | Get<br>Set | <b>Configuration control</b>    | Req. | DWORD  | Bit level | 0   | The interface configuration is valid.                          |
|  |            |                                 |      |  |           | 1   | The interface configuration must be obtained with BOOTP.       |
|  |            |                                 |      |  |           | 2   | The interface configuration must be obtained with DHCP..       |
|  |            |                                 |      |  |           | 3   | Reserved.  |
|  |            |                                 |      |  |           | 4   | DNS Enable.  |
| All other bits are reserved and shall be set to 0.   |            |                                 |      |  |           |   |  |
| <b>NOTE : This attribute interacts with the Altivar 71 parameter [IPmode]. (see chapter 8.).</b> |            |                                 |      |  |           |   |  |
| 4  | Get        | <b>Physical link</b>            | Req. | STRUCT {<br>UINT <b>path size</b><br>Padded EPATH <b>path</b><br>} |           | <b>Path size:</b> number of 16 bit words in the element Path<br><b>Path:</b> Logical segments identifying the physical link object. The path is restricted to one logical class segment and one logical instance segment. The maximum size is 12 bytes. |  |

## 13. CIP objects

| Attribute ID | Access     | Name                           | need | Data type  | Value | Details   |
|--------------|------------|--------------------------------|------|--|-------|---|
| 5            | Get<br>Set | <b>Interface configuration</b> | Req. | STRUCT {<br><br>UDINT <b>IP Address</b><br><br>UDINT <b>Network Mask</b><br><br>UDINT <b>Gateway address</b><br><br>UDINT <b>Primary Name</b> server<br><br>UDINT <b>Secondary name</b> server<br><br>STRING <b>Default Domain name</b><br><br>} |       | <p><b>IP Address:</b> Value of 0 indicates no IP address has been configured. Otherwise, the IP address shall be set to a valid Class A, B, or C address and shall not be set to the loopback address (127.0.0.1).</p> <p><b>Network Mask:</b> Value of 0 indicates no network mask address has been configured.</p> <p><b>Gateway Address:</b> Value of 0 indicates no IP address has been configured. Otherwise, the IP address shall be set to a valid Class A, B, or C address and shall not be set to the loopback address (127.0.0.1).</p> <p><b>Primary name:</b> Value of 0 indicates no name server address has been configured. Otherwise, the name server address shall be set to a valid Class A, B, or C address.</p> <p><b>Secondary Name:</b> Value of 0 indicates no secondary name server address has been configured. Otherwise, the name server address shall be set to a valid Class A, B, or C address.</p> <p><b>Default domain name:</b> ASCII characters. Maximum length is 48 characters. Shall be padded to an even number of characters (pad not included in length). A length of 0 shall indicate no Domain Name is configured.</p> |
| 6            | Get<br>Set | <b>Host Name</b>               | Req. | STRING   |       | ASCII characters. Maximum length is 64 characters. Shall be padded to an even number of characters (pad not included in length). A length of 0 shall indicate no Host Name is configured.   |

### ■ Class service

| Service Code | Service Name         | Need     | Description  |
|--------------|----------------------|----------|--|
| 16#01        | Get_Attribute_All    | Optional | Returns a predefined listing of this objects attributes. |
| 16#0E        | Get_Attribute_Single | Optional | Returns the contents of the specified attribute.         |

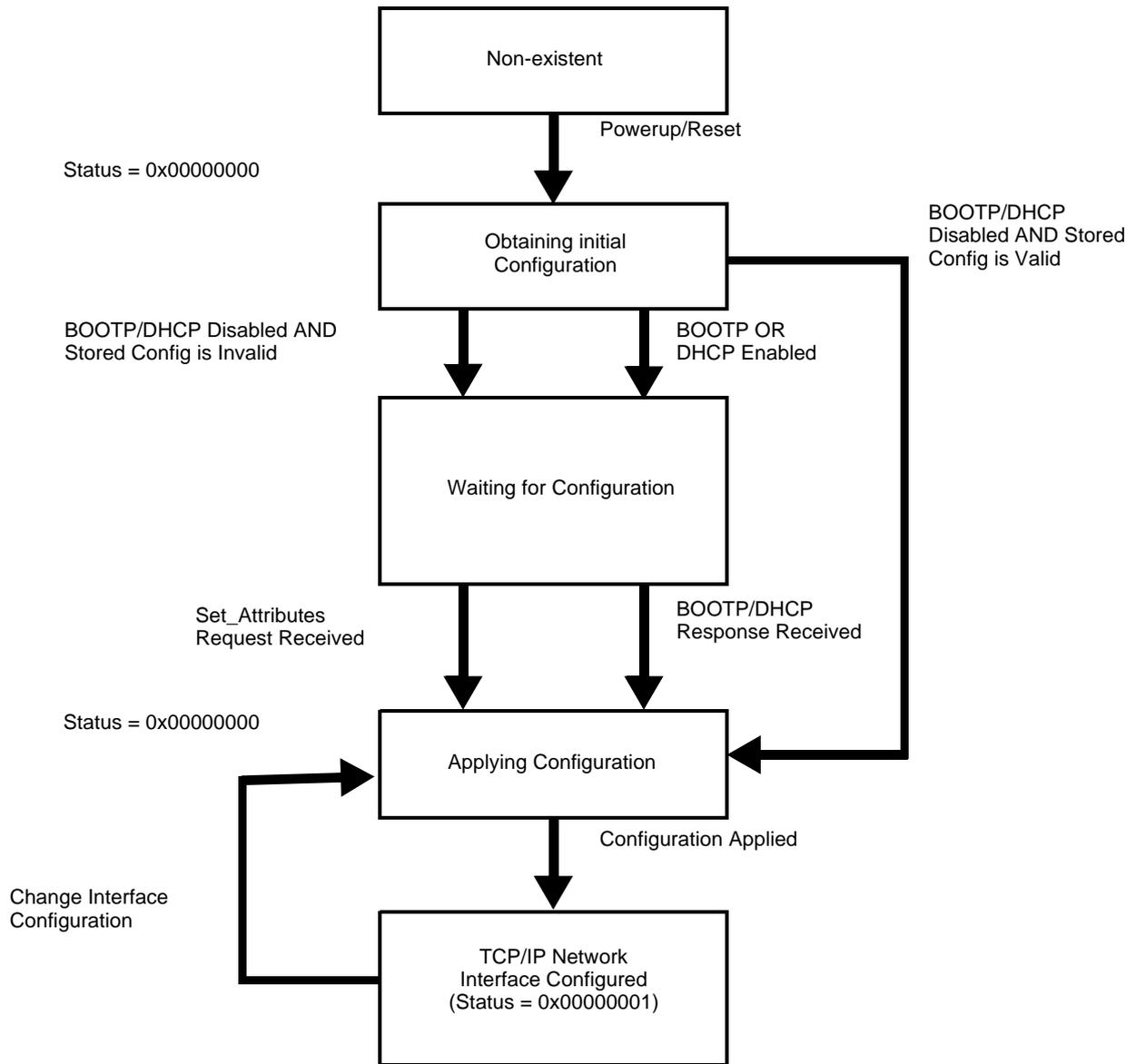
### ■ Instance service

| Service Code | Service Name         | Need     | Description  |
|--------------|----------------------|----------|--|
| 16#01        | Get_Attribute_All    | Optional | Returns a predefined listing of this objects attributes. |
| 16#0E        | Get_Attribute_Single | Required | Returns the contents of the specified attribute.         |
| 16#02        | Set_Attribute_All    | optional | Modifies all settable attributes.                        |
| 16#10        | Set_Attribute_Single | Required | Modifies a single attribute.                             |

# 13. CIP objects

## ■ Behaviour

The following state machine is used to configure the TCP/IP network interface.



## 13. CIP objects

### 13. 5. TCP/IP Interface object

This object maintains link specific counters and status information for an Ethernet 802.3 communications interface.

#### ■ Class code

| Hexadecimal | Decimal |
|-------------|---------|
| 16#F6       | 246     |

#### ■ Class attributes

| Attribute ID | Access | Name     | Need     | Data type | Value |
|--------------|--------|----------|----------|-----------|-------|
| 1            | Get    | Revision | Req.     | UINT      | 2     |
| 2 through 7  |        |          | optional |           |       |

#### ■ Instance attributes ../

| Attribute ID | Access                          | Name                      | Need  | Data type                       | Value                  | Details  |          |             |          |                  |            |                    |          |                                 |          |                      |
|--------------|---------------------------------|---------------------------|-------|---------------------------------|------------------------|--|----------|-------------|----------|------------------|------------|--------------------|----------|---------------------------------|----------|----------------------|
| 1            | Get                             | <b>Interface Speed</b>    | Req.  | UDINT                           | 0,10,100<br>1000, etc. | Speed in Mbps.   |          |             |          |                  |            |                    |          |                                 |          |                      |
| 2            | Get                             | <b>Interface flags</b>    | Req.  | DWORD                           | Bit level              | <table border="1"> <tr> <td><b>0</b></td> <td>Link status</td> </tr> <tr> <td><b>1</b></td> <td>Half/full duplex</td> </tr> <tr> <td><b>2-4</b></td> <td>Negotiation status</td> </tr> <tr> <td><b>5</b></td> <td>Manual setting / requires reset</td> </tr> <tr> <td><b>6</b></td> <td>Local Hardware fault</td> </tr> </table> <p>All other bits are reserved and shall be set to 0.</p> | <b>0</b> | Link status | <b>1</b> | Half/full duplex | <b>2-4</b> | Negotiation status | <b>5</b> | Manual setting / requires reset | <b>6</b> | Local Hardware fault |
| <b>0</b>     | Link status                     |                           |       |                                 |                        |  |          |             |          |                  |            |                    |          |                                 |          |                      |
| <b>1</b>     | Half/full duplex                |                           |       |                                 |                        |  |          |             |          |                  |            |                    |          |                                 |          |                      |
| <b>2-4</b>   | Negotiation status              |                           |       |                                 |                        |  |          |             |          |                  |            |                    |          |                                 |          |                      |
| <b>5</b>     | Manual setting / requires reset |                           |       |                                 |                        |  |          |             |          |                  |            |                    |          |                                 |          |                      |
| <b>6</b>     | Local Hardware fault            |                           |       |                                 |                        |  |          |             |          |                  |            |                    |          |                                 |          |                      |
| 3            | Get                             | <b>Physical Address</b>   | Req.  | ARRAY OF<br>6 USINTs            |                        | This array contains the MAC address of the card.Format: XX-XX-XX-XX-XX-XX  |          |             |          |                  |            |                    |          |                                 |          |                      |
| 4 ...        | Get                             | <b>Interface counters</b> | Cond. | <b>STRUCT {</b>                 |                        |  |          |             |          |                  |            |                    |          |                                 |          |                      |
|              |                                 |                           |       | <b>UDINT In Octets</b>          |                        | <i>Octets received on the interface</i>  |          |             |          |                  |            |                    |          |                                 |          |                      |
|              |                                 |                           |       | <b>UDINT In Ucast Packets</b>   |                        | <i>Unicast Packets received on the interface.</i>  |          |             |          |                  |            |                    |          |                                 |          |                      |
|              |                                 |                           |       | <b>UDINT In NUCast Packets</b>  |                        | <i>Non Unicast Packets received on the interface.</i>  |          |             |          |                  |            |                    |          |                                 |          |                      |
|              |                                 |                           |       | <b>UDINT In Discards</b>        |                        | <i>Inbound packets received on the interface but discarded.</i>  |          |             |          |                  |            |                    |          |                                 |          |                      |
|              |                                 |                           |       | <b>UDINT In Errors</b>          |                        | <i>Inbound packets that contain errors. (does not include in Discards)</i>   |          |             |          |                  |            |                    |          |                                 |          |                      |
|              |                                 |                           |       | <b>UDINT In Unknown Protos</b>  |                        | <i>Inbound packets with unknown protocol.</i>  |          |             |          |                  |            |                    |          |                                 |          |                      |
|              |                                 |                           |       | <b>UDINT Out Octets</b>         |                        | <i>Octets sent on the interface.</i>   |          |             |          |                  |            |                    |          |                                 |          |                      |
|              |                                 |                           |       | <b>UDINT Out Ucast packet</b>   |                        | <i>Unicast Packets sent on the interface.</i>  |          |             |          |                  |            |                    |          |                                 |          |                      |
|              |                                 |                           |       | <b>UDINT Out NUCast Packets</b> |                        | <i>Non Unicast Packets sent on the interface.</i>  |          |             |          |                  |            |                    |          |                                 |          |                      |
|              |                                 |                           |       | <b>UDINT Out discards</b>       |                        | <i>Outbound packets discarded</i>  |          |             |          |                  |            |                    |          |                                 |          |                      |
|              |                                 |                           |       | <b>UDINT</b>                    |                        | <i>Outbound packets that contain errors</i>  |          |             |          |                  |            |                    |          |                                 |          |                      |
|              |                                 |                           |       | <b>}</b>                        |                        |  |          |             |          |                  |            |                    |          |                                 |          |                      |

## 13. CIP objects

| Attribute ID | Access | Name                     | Need     | Data type                           | Value | Details   |
|--------------|--------|--------------------------|----------|-------------------------------------|-------|---|
| 5            | Get    | <b>Media Counters</b>    | Cond.    | <b>STRUCT {</b>                     |       |   |
|              |        |                          |          | <b>UDINT Alignment errors</b>       |       | Frames received that are not an integral number of octets in length                                   |
|              |        |                          |          | <b>UDINT FCS Errors</b>             |       | Frames received that do not pass the FCS check  |
|              |        |                          |          | <b>UDINT Single collisions</b>      |       | Successfully transmitted frames which experienced exactly one collision                               |
|              |        |                          |          | <b>UDINT Multiple Collisions</b>    |       | Successfully transmitted frames which experienced more than one collision                             |
|              |        |                          |          | <b>UDINT SQE Test Errors</b>        |       | Number of times SQE test error message is generated   |
|              |        |                          |          | <b>UDINT Deferred Transmissions</b> |       | Frames for which first transmission attempt is delayed because the medium is busy                     |
|              |        |                          |          | <b>UDINT Late Collisions</b>        |       | Number of times a collision is detected later than 512 bittimes into the transmission of a packet     |
|              |        |                          |          | <b>UDINT Excessive Collisions</b>   |       | Frames for which transmission fails due to excessive collision  |
|              |        |                          |          | <b>UDINT MAC Transmit errors</b>    |       | Frames for which transmission fails due to an internal MAC sublayer transmit error                    |
|              |        |                          |          | <b>UDINT Carrier sense Errors</b>   |       | Times that the carrier sense condition was lost or never asserted when attempting to transmit a frame |
|              |        |                          |          | <b>UDINT Frame too long</b>         |       | Frames received that exceed the maximum permitted frame size  |
|              |        |                          |          | <b>UDINT MAC Receive Errors</b>     |       | Frames for which reception on an interface fails due to an internal MAC sublayer receive error        |
|              |        | <b>}</b>                 |          |                                     |       |   |
| 6            | Set    | <b>Interface control</b> | Optional | <b>STRUCT {</b>                     |       |   |
|              |        |                          |          | <b>WORD Control Bits</b>            |       | Interface control bits  |
|              |        |                          |          | <b>UINT Force interface Speed</b>   |       | Speed at which the interface shall be forced to operate.  |
|              |        |                          |          | <b>}</b>                            |       |   |

## 13. CIP objects

### ■ Class service

| Service Code | Service Name         | Need     | Description  |
|--------------|----------------------|----------|--|
| 16#01        | Get_Attribute_All    | Optional | Returns a predefined listing of this objects attributes. |
| 16#0E        | Get_Attribute_Single | Optional | Returns the contents of the specified attribute.         |
| 16#10        | Get_and_clear        | Cond.    | Modifies a single attribute                              |

### ■ Instance service

| Service Code | Service Name         | Need     | Description  |
|--------------|----------------------|----------|--|
| 16#01        | Get_Attribute_All    | Optional | Returns a predefined listing of this objects attributes. |
| 16#0E        | Get_Attribute_Single | Required | Returns the contents of the specified attribute.         |
| 16#10        | Set_Attribute_Single | Required | Modifies a single attribute.                             |

## 13. 6. Connection object manager

### Class code

| Hexadecimal | Decimal |
|-------------|---------|
| 16#05       | 5       |

### Class attributes

| Attribute ID | Access | Name          | Need | Data type | Value | Details                 |
|--------------|--------|---------------|------|-----------|-------|-------------------------|
| 1            | Get    | Revision      | Opt. | UINT      | 1     | —                       |
| 2            | Get    | Max instances | Opt. | UINT      | 4     | 3 defined instances (1) |

(1) Only instances 1 (explicit message), 2 (polled I/O message), and 4 (change of state/cyclic message) are supported. Instance 3 (bit strobe) is not supported.

### Attributes of instance 1—Explicit message instance

| Attribute ID | Access  | Name                            | Need | Data type     | Value       | Details  |
|--------------|---------|---------------------------------|------|---------------|-------------|--|
| 1            | Get     | State                           | Req. | USINT         | —           | 0 : Non-existent<br>3 : Established<br>5 : Deferred Delete |
| 2            | Get     | Instance_type                   | Req. | USINT         | 0           | Explicit Message   |
| 3            | Get     | TransportClass_trigger          | Req. | BYTE          | 16#83       | Class 3 server   |
| 4            | Get     | Produced_connection_id          | Req. | UINT          | 10xxxxxx011 | xxxxxx = Node address                                      |
| 5            | Get     | Consumed_connection_id          | Req. | UINT          | 10xxxxxx100 | xxxxxx = Node address                                      |
| 6            | Get     | Initial_comm_characteristics    | Req. | BYTE          | 16#21       | Explicit messaging via Group 2                             |
| 7            | Get     | Produced_connection_size        | Req. | UINT          | 36          | Produced data maximum size (in bytes)                      |
| 8            | Get     | Consumed_connection_size        | Req. | UINT          | 36          | Consumed data maximum size (in bytes)                      |
| 9            | Get/Set | Expected_packet_rate            | Req. | UINT          | 2500        | 2.5 sec. (TimeOut)   |
| 12           | Get/Set | Watchdog_timeout_action         | Req. | USINT         | 1 or 3      | 1 : Auto-Delete<br>3 : Deferred Delete (Default)           |
| 13           | Get     | Produced connection path length | Req. | UINT          | 0           | Length of attribute 14 data                                |
| 14           | Get     | Produced connection path        | Req. | Array of UINT | Null        | Empty  |
| 15           | Get     | Consumed connection path length | Req. | UINT          | 0           | Length of attribute 16 data                                |
| 16           | Get     | Consumed connection path        | Req. | Array of UINT | Null        | Empty  |

Refer to EtherNet/IP specification for more information.

## 13. CIP objects

### 13. 7. Motor data object

The Motor data object acts as a motor parameter database.

#### Class code

| Hexadecimal | Decimal |
|-------------|---------|
| 16#28       | 40      |

#### Object 28hex (Motor Data)

| Path                  | CIP name     | CIP configuration parameter name |
|-----------------------|--------------|----------------------------------|
| 16#28/01/06 = 40/1/6  | RatedCurrent | Motor Rated Cur                  |
| 16#28/01/07 = 40/1/7  | RatedVoltage | Motor Rated Volt                 |
| 16#28/01/09 = 40/1/9  | RatedFreq    | Motor Rated Freq                 |
| 16#28/01/0F = 40/1/15 | BaseSpeed    | Motor Base Speed                 |

#### Telemecanique adaptation:

| Path                  | Code | Altivar name       | Logic address  |
|-----------------------|------|--------------------|----------------|
| 16#28/01/06 = 40/1/6  | NCR  | Rated mot. current | 16#2583 = 9603 |
| 16#28/01/07 = 40/1/7  | UNS  | Rated motor volt.  | 16#2581 = 9601 |
| 16#28/01/09 = 40/1/9  | FRS  | Rated motor freq.  | 16#2582 = 9602 |
| 16#28/01/0F = 40/1/15 | NSP  | Rated motor speed  | 16#2584 = 9604 |

#### Class attributes

| Attribute ID | Access | Name                                | Need | Data type | Value | Details |
|--------------|--------|-------------------------------------|------|-----------|-------|---------|
| 1            | Get    | Revision                            | Opt. | UINT      | 2     | —       |
| 2            | Get    | Max instance                        | Opt. | UINT      | 1     | —       |
| 6            | Get    | Max ID number of class attribute    | Opt. | UINT      | 7     | —       |
| 7            | Get    | Max ID number of instance attribute | Opt. | UINT      | 15    | —       |

#### Instance attributes

| Attribute ID | Access  | Name         | Need | Data type | Value                       | Details  |
|--------------|---------|--------------|------|-----------|-----------------------------|--|
| 3            | Get/Set | MotorType    | Req. | USINT     | 7                           | 6 = Wound rotor induction motor<br>7 = Squirrel cage induction motor |
| 6            | Get/Set | RatedCurrent | Req. | UINT      | Depends on the drive rating | [Rated mot. current] ( <i>n C r</i> )                                |
| 7            | Get/Set | RatedVoltage | Req. | UINT      | Depends on the drive rating | [Rated mot. volt.] ( <i>U n 5</i> )                                  |
| 9            | Get/Set | RatedFreq    | Opt. | UINT      | 50/60                       | [Rated motor freq.] ( <i>F r 5</i> )                                 |
| 15           | Get/Set | BaseSpeed    | Opt. | UINT      | Depends on the drive rating | [Nom motor speed] ( <i>n 5 P</i> )                                   |

#### Class service

| Service code | Service name         | Need | Description       |
|--------------|----------------------|------|-------------------|
| 16#0E        | Get_Attribute_Single | Req. | Read an attribute |

#### Instance service

| Service code | Service name         | Need | Description        |
|--------------|----------------------|------|--------------------|
| 16#0E        | Get_Attribute_Single | Req. | Read an attribute  |
| 16#10        | Set_Attribute_Single | Opt. | Write an attribute |

## 13. CIP objects

### 13. 8. Control supervisor object

The Control supervisor object models the functions for managing all devices within the hierarchy of motor control devices.

#### Object 29hex (Control Supervisor)

| Path                  | CIP name  | CIP configuration parameter name |
|-----------------------|-----------|----------------------------------|
| 16#29/01/0D = 41/1/13 | FaultCode | Fault Code                       |

#### Telemecanique adaptation:

| Path                  | Code | Altivar name      | Logic address  |
|-----------------------|------|-------------------|----------------|
| 16#29/01/0D = 41/1/13 | ERRD | CiA402 fault code | 16#219E = 8606 |

#### Class code

| Hexadecimal | Decimal |
|-------------|---------|
| 16#29       | 41      |

#### Class attributes

| Attribute ID | Access | Name                                | Need | Data type | Value | Details |
|--------------|--------|-------------------------------------|------|-----------|-------|---------|
| 1            | Get    | Revision                            | Opt. | UINT      | 2     | —       |
| 2            | Get    | Max instance                        | Opt. | UINT      | 1     | —       |
| 6            | Get    | Max ID number of class attribute    | Opt. | UINT      | 7     | —       |
| 7            | Get    | Max ID number of instance attribute | Opt. | UINT      | 17    | —       |

#### Instance attributes

| Attribute ID | Access  | Name        | Need | Data type | Details   |
|--------------|---------|-------------|------|-----------|---|
| 3            | Get/Set | Run Fwd     | Req. | BOOL      | On an edge (0 → 1)  |
| 4            | Get/Set | Run Rev     | Opt. | BOOL      | On an edge (0 → 1)  |
| 5            | Get/Set | NetCtrl     | Opt. | BOOL      | 0: Local Control (Channel 1)<br>1: Network Control (default)  |
| 6            | Get     | State       | Opt. | USINT     | 0 = Vendor Specific,<br>1 = Startup, 2 = Not_Ready, 3 = Ready,<br>4 = Enabled, 5 = Stopping,<br>6 = Fault_Stop, 7 = Faulted |
| 7            | Get     | Running Fwd | Req. | BOOL      |   |
| 8            | Get     | Running Rev | Opt. | BOOL      |   |
| 9            | Get     | Ready       | Opt. | BOOL      |   |
| 10           | Get     | Faulted     | Req. | BOOL      |   |
| 12           | Get/Set | FaultRst    | Req. | BOOL      | Fault reset (0 → 1)   |
| 13           | Get     | FaultCode   | Opt. | UINT      | Refer to the Communication parameters manual:<br>DSP402 fault code (Errd)   |
| 15           | Get     | CtrlFromNet | Opt. | BOOL      | 0 = Local Control; 1 = Network Control  |

# 13. CIP objects

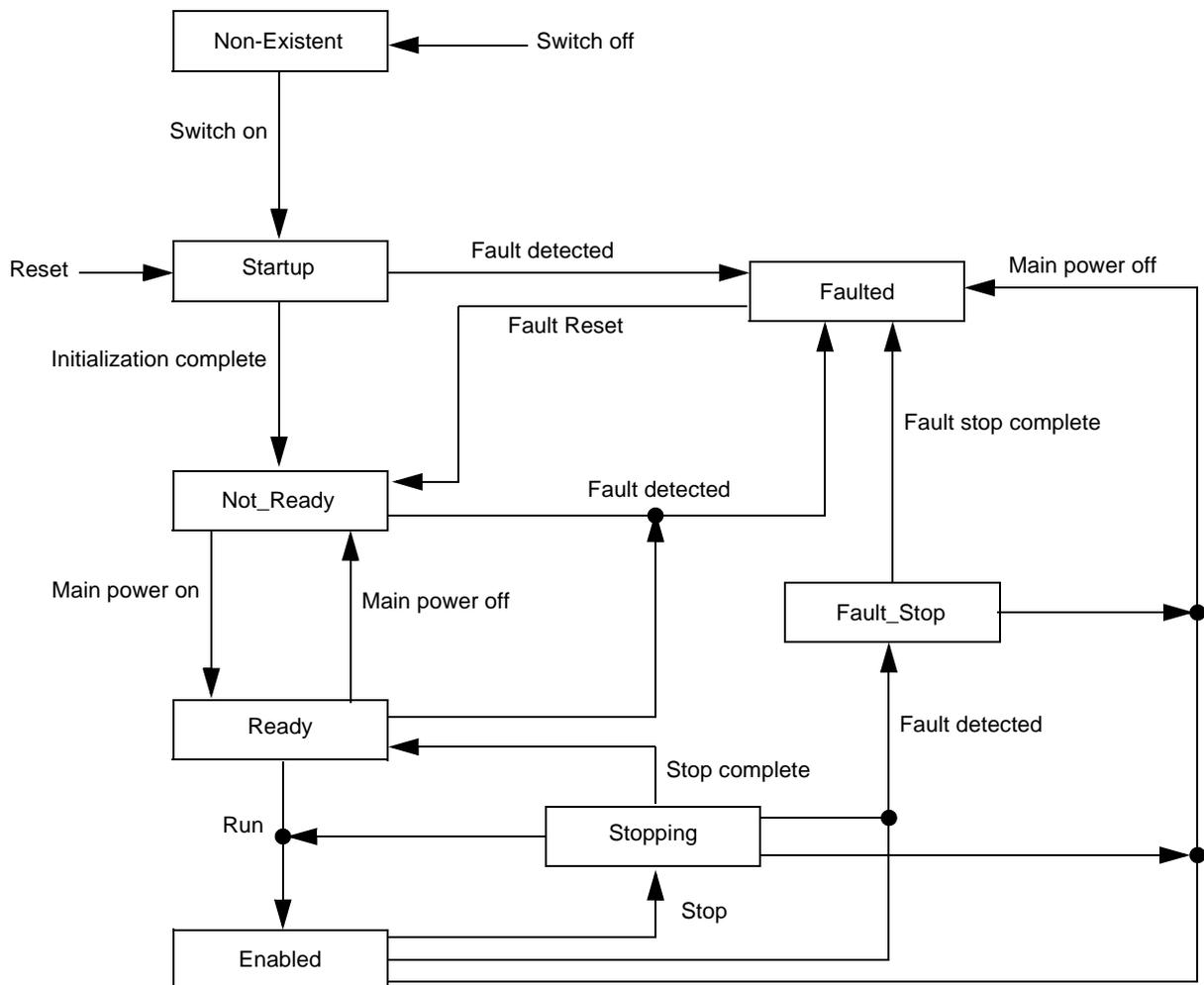
## Class service

| Service Code | Service name         | Need | Description       |
|--------------|----------------------|------|-------------------|
| 16#0E        | Get_Attribute_Single | Req. | Read an attribute |

## Instance service

| Service Code | Service name         | Need | Description        |
|--------------|----------------------|------|--------------------|
| 16#0E        | Get_Attribute_Single | Req. | Read an attribute  |
| 16#10        | Set_Attribute_Single | Req. | Write an attribute |
| 16#05        | Reset                | Req. | Drive reset        |

Control supervisor state transition diagram



## 13. CIP objects

### 13. 9. AC/DC Drive Object

The AC/DC Drive object models the functions (such as torque control and speed ramp) that are specific to drives.

#### Class code

| Hexadecimal | Decimal |
|-------------|---------|
| 16#2A       | 42      |

#### Class attributes

| Attribute ID | Access | Name                                | Need | Data Type | Value | Details |
|--------------|--------|-------------------------------------|------|-----------|-------|---------|
| 1            | Get    | Revision                            | Opt. | UINT      | 1     | —       |
| 2            | Get    | Max instance                        | Opt. | UINT      | 1     | —       |
| 6            | Get    | Max ID number of class attribute    | Opt. | UINT      | 7     | —       |
| 7            | Get    | Max ID number of instance attribute | Opt. | UINT      | 21    | —       |

#### Instance attributes

| Attribute ID | Access  | Name          | Need | Data type | Details   |
|--------------|---------|---------------|------|-----------|---|
| 3            | Get     | AtReference   | Opt. | BOOL      |   |
| 4            | Get/Set | NetRef (1)    | Req. | BOOL      | 0: Local speed setpoint (AI1 or AI2)<br>1: Speed setpoint via the network |
| 5            | Get/Set | NetProc       | Opt. | BOOL      | Not handled   |
| 6            | Get/Set | Drive mode    | Req. | USINT     | 1: Open loop<br>2: Closed loop (FVC)                                      |
| 7            | Get     | SpeedActual   | Req. | INT       | Output speed (rFrd)   |
| 8            | Get/Set | SpeedRef      | Req. | INT       | Speed setpoint (LFrd)   |
| 9            | Get     | CurrentActual | Opt. | INT       | Motor current (LCr)   |
| 10           | Get/Set | CurrentLimit  | Opt. | INT       | [Mot. therm. current] (ItH)   |
| 11           | Get     | TorqueActual  | Opt. | INT       | Output torque (Otrn)  |
| 12           | Get/Set | TorqueRef     | Opt. | INT       | Torque setpoint (LtCr)  |
| 18           | Get/Set | AccelTime     | Opt. | UINT      | Acceleration time (ACCd)  |
| 19           | Get/Set | DecelTime     | Opt. | UINT      | Deceleration time (dECd)  |
| 20           | Get/Set | LowSpdLimit   | Opt. | UINT      | Parameter [Low speed] (LSP) converted in RPM                              |
| 21           | Get/Set | HighSpdLimit  | Opt. | UINT      | Parameter [High speed] (HSP) converted in RPM                             |

#### Class service

| Service code | Service name         | Need | Description       |
|--------------|----------------------|------|-------------------|
| 16#0E        | Get_Attribute_Single | Req. | Read an attribute |

#### Instance service

| Service code | Service name         | Need | Description        |
|--------------|----------------------|------|--------------------|
| 16#0E        | Get_Attribute_Single | Req. | Read an attribute  |
| 16#10        | Set_Attribute_Single | Opt. | Write an attribute |

# 13. CIP objects

## 13. 10. Assembly object

The Assembly object binds together the attributes of multiple objects so that information to or from each object can be communicated over a single connection.

Assembly objects are static.

The assemblies in use can be modified through the parameter access of the network configuration tool (RSNetWorx).

The drive needs a power off to take into account a new assembly assignment.

### Class code

| Hexadecimal | Decimal |
|-------------|---------|
| 16#04       | 4       |

### Class attribute

| Attribute ID | Access | Name         | Need | Data type | Value | Details              |
|--------------|--------|--------------|------|-----------|-------|----------------------|
| 1            | Get    | Revision     | Opt. | UINT      | 2     | —                    |
| 2            | Get    | Max instance | Opt. | UINT      | 105   | 13 defined instances |

### Instances supported

| Instance | Name  | Data size |
|----------|---|-----------|
| 20       | ODVA Basic speed control output               | 4 bytes   |
| 21       | ODVA Extended speed control output            | 4 bytes   |
| 22       | ODVA Speed and torque control output          | 6 bytes   |
| 23       | ODVA Extended speed and torque control output | 6 bytes   |
| 100      | Native drive output                           | 16 bytes  |
| 103      | Allen-Bradley® drive output                   | 20 bytes  |
| 70       | ODVA Basic speed control input                | 4 bytes   |
| 71       | ODVA Extended speed control input             | 4 bytes   |
| 72       | ODVA Speed and torque control input           | 6 bytes   |
| 73       | ODVA Extended speed and torque control input  | 6 bytes   |
| 101      | Native drive input                            | 16 bytes  |
| 104      | Allen-Bradley® drive input                    | 20 bytes  |

The description of each instance is detailed in chapter [15. Device profiles](#)

### Instance attributes

| Attribute ID | Access      | Name | Need | Data type | Value | Details |
|--------------|-------------|------|------|-----------|-------|---------|
| 3            | Get/Set (1) | Data | Req. |           |       |         |

(1) Set access is restricted to output instances only (instances 20, 21, 22, 23, 100 and 103).

### Class service

| Service code | Service name         | Need | Description       |
|--------------|----------------------|------|-------------------|
| 16#0E        | Get_Attribute_Single | Req. | Read an attribute |

### Instance service

| Service code | Service name         | Need | Description        |
|--------------|----------------------|------|--------------------|
| 16#0E        | Get_Attribute_Single | Req. | Read an attribute  |
| 16#10        | Set_Attribute_Single | Opt. | Write an attribute |

# 13. CIP objects

## 13. 11. Application objects

### Class code

| Hexadecimal    | Decimal    |
|----------------|------------|
| 16#70 to 16#A8 | 112 to 424 |

### Altivar parameters path

The Altivar parameters are grouped in classes.  
Each application class has only 1 instance.  
Each instance groups 200 parameters.  
Each attribute in an instance relates to a parameter.

The first parameter registered in the first application class (class code: 16#70 = 112) has the logical address 3000.

Examples:

| Logical address | Path Hexadecimal | Path decimal  |
|-----------------|------------------|---------------|
| 3 000           | 16# 70 / 01 / 01 | 112 / 1 / 1   |
| 3 100           | 16# 70 / 01 / 65 | 112 / 1 / 101 |
| 3 200           | 16# 71 / 01 / 01 | 113 / 1 / 1   |
| 64 318          | 16# A2 / 1 / 77  | 418 / 1 / 119 |

Refer to the Communication parameters manual.

### Class attributes

| Attribute ID | Access | Name                                | Need | Data type | Value |
|--------------|--------|-------------------------------------|------|-----------|-------|
| 1            | Get    | Revision                            | Opt. | UINT      | 1     |
| 2            | Get    | Max instance                        | Opt. | UINT      | 1     |
| 6            | Get    | Max ID number of class attribute    | Opt. | UINT      | 7     |
| 7            | Get    | Max ID number of instance attribute | Opt. | UINT      | X     |

### Instance attributes

| Attribute ID | Access  | Name                         | Data type    | Value                       |
|--------------|---------|------------------------------|--------------|-----------------------------|
| 1            | Get/Set | First parameter of the class | UINT / USINT | Value returned by the drive |
| ...          | ...     | ...                          | ...          | ...                         |
| X            | Get/Set | Last parameter of the class  | UINT / USINT | Value returned by the drive |

Note: Depending on the parameter, write access may be prohibited. Refer to the Communication parameters manual for more information.

### Class service

| Service code | Service name         | Need | Description       |
|--------------|----------------------|------|-------------------|
| 16#0E        | Get_Attribute_Single | Req. | Read an attribute |

### Instances service

| Service code | Service name         | Need | Description        |
|--------------|----------------------|------|--------------------|
| 16#0E        | Get_Attribute_Single | Req. | Read an attribute  |
| 116#0        | Set_Attribute_Single | Opt. | Write an attribute |

## 13. CIP objects

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### ■ Object 2Ahex (AC/DC Drive)

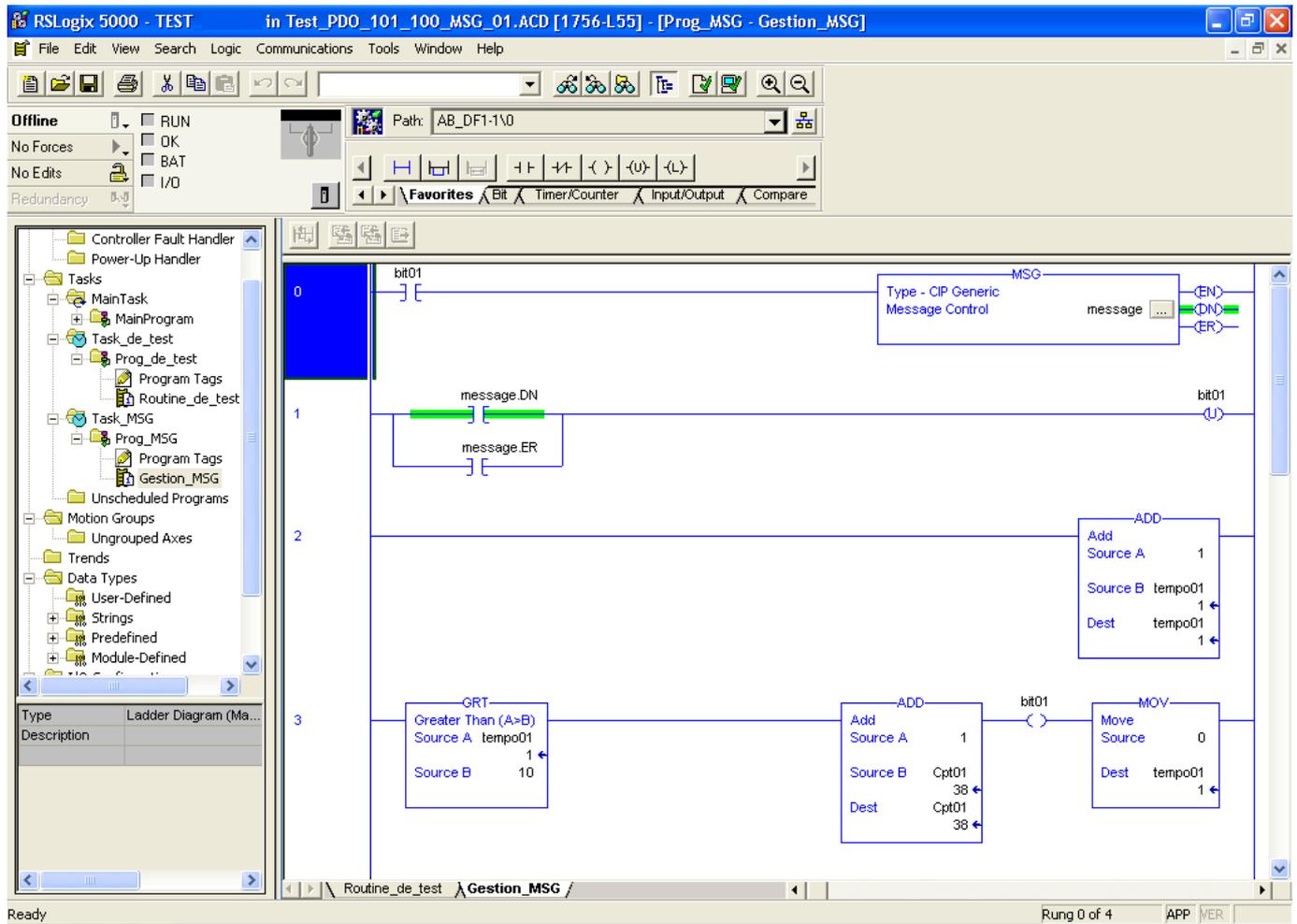
| Path                  | CIP name      | CIP configuration parameter name |
|-----------------------|---------------|----------------------------------|
| 16#2A/01/07 = 42/1/7  | SpeedActual   | Speed Actual                     |
| 16#2A/01/08 = 42/1/8  | SpeedRef      | Speed Reference                  |
| 16#2A/01/09 = 42/1/9  | CurrentActual | Current Actual                   |
| 16#2A/01/0A = 42/1/10 | CurrentLimit  | Current Limit                    |
| 16#2A/01/0B = 42/1/11 | TorqueActual  | Torque Actual                    |
| 16#2A/01/0C = 42/1/12 | TorqueRef     | Torque Reference                 |
| 16#2A/01/12 = 42/1/18 | AccelTime     | Accel Time                       |
| 16#2A/01/13 = 42/1/19 | DecelTime     | Decel Time                       |
| 16#2A/01/14 = 42/1/20 | LowSpdLimit   | Low Speed Limit                  |
| 16#2A/01/15 = 42/1/21 | HighSpdLimit  | High Speed Limit                 |

### Telemecanique adaptation:

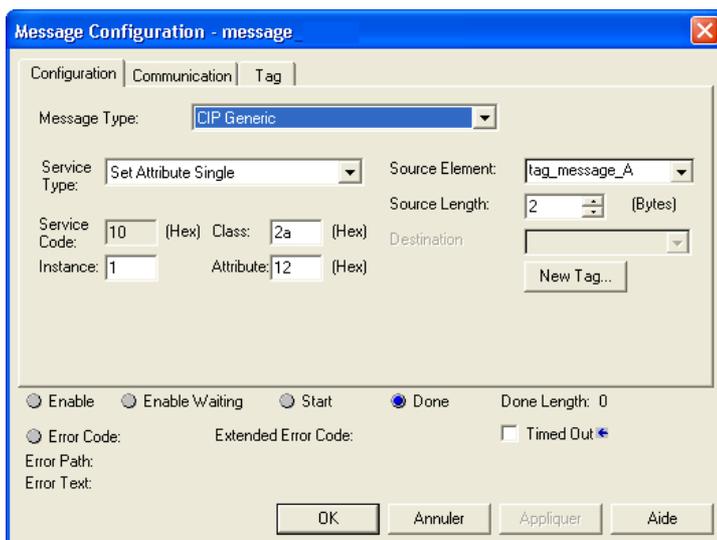
| Path                  | Code | Altivar name          | Logic address   | Unit Id |
|-----------------------|------|-----------------------|-----------------|---------|
| 16#2A/01/07 = 42/1/7  | RFRD | Output velocity       | 16#219C = 8604  |         |
| 16#2A/01/08 = 42/1/8  | LFRD | Speed setpoint        | 16#219A = 8602  |         |
| 16#2A/01/09 = 42/1/9  | LCR  | Motor current         | 16#0C84 = 3204  |         |
| 16#2A/01/0A = 42/1/10 | ITH  | Mot. therm. current   | 16#2596 = 9622  |         |
| 16#2A/01/0B = 42/1/11 | Otrn | Output torque (Nm)    | 16#2A0B = 10763 | 251     |
| 16#2A/01/0C = 42/1/12 | n.a. | Torque setpoint (Nm)  | 16#2A0C = 10764 | 251     |
| 16#2A/01/12 = 42/1/18 | ACCD | CIP acceleration time | 16#2A12 = 10770 | 251     |
| 16#2A/01/13 = 42/1/19 | DECD | CIP deceleration time | 16#2A13 = 10771 | 251     |
| 16#2A/01/14 = 42/1/20 | LSPD | CIP Low speed limit   | 16#2A14 = 10772 | 251     |
| 16#2A/01/15 = 42/1/21 | HSPD | CIP High speed limit  | 16#2A15 = 10773 | 251     |

# 14. Explicit Messaging

The following example shows an example of explicit messaging: The value of the ACC parameter ( Modbus @ = 9001 / CIP address 16#2A:1:16#12 ) is modified when the variable "bit01" is toggled ON.



The detailed configuration of the message Box:



# 15. Device profiles

EtherNet/IP card provides several profiles:

- CIP AC drive profile (0x02) (default setting),
- Allen Bradley drive profile,
- Telemecanique: CiA 402 and I/O.

The profile is chosen by the selection of the right input assembly and output assembly.

In this manual, the chapter "Integration in RSLogix 5000" shows how the user may select the assemblies.

## ■ List of assemblies

### Output assemblies

| Assembly name                                | Number | Size                          |
|--|--------|-------------------------------|
| CIP basic speed control output               | 20     | 2 words (4 bytes)             |
| CIP extended speed control output            | 21     | 2 words (4 bytes)             |
| CIP speed and torque control output          | 22     | 3 words (6 bytes)             |
| CIP extended speed and torque control output | 23     | 3 words (6 bytes)             |
| Native drive output                          | 100    | 2 to 10 words (4 to 20 bytes) |
| Allen-Bradley® drive output                  | 103    | 2 to 10 words (4 to 20 bytes) |

### Input assemblies

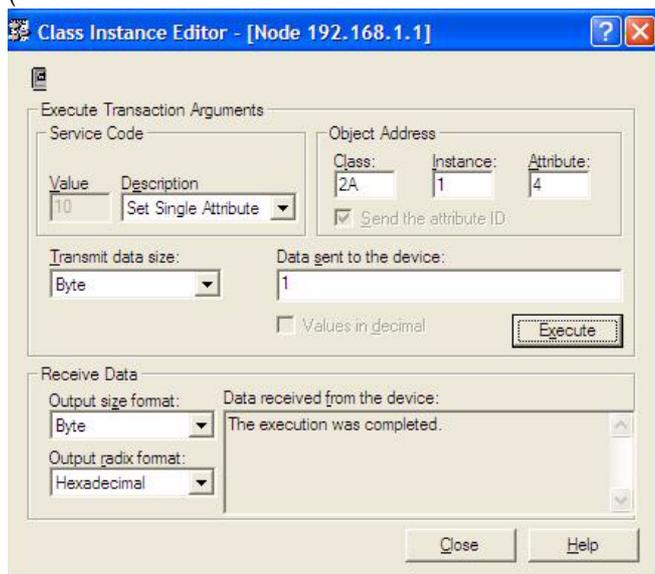
| Assembly name                               | Number | Size                          |
|---|--------|-------------------------------|
| CIP basic speed control input               | 70     | 2 words (4 bytes)             |
| CIP extended speed control input            | 71     | 2 words (4 bytes)             |
| CIP speed and torque control input          | 72     | 3 words (6 bytes)             |
| CIP extended speed and torque control input | 73     | 3 words (6 bytes)             |
| Native drive input                          | 101    | 2 to 10 words (4 to 20 bytes) |
| Allen-Bradley® drive input                  | 104    | 2 to 10 words (4 to 20 bytes) |

### IMPORTANT REMARK:

For the assemblies 20 and 22, the default settings defines that the speed setpoint is originated from the terminals. To fully control the drive from the network the following operation is required:

The object 2A/1/4 (netref) must be changed from 0 to 1 (byte). Such assignment can be done:

- By program, with an MSG() instruction block.
- With the Class instance editor:



## 15. Device profiles

### ■ Assembly 20: CIP basic speed control output

#### Assembly mapping

| Word number | Definition             |
|-------------|------------------------|
| 0           | CIP basic command word |
| 1           | Speed setpoint (rpm)   |

#### CIP basic command word

| Bit 7    | Bit 6    | Bit 5    | Bit 4    | Bit 3    | Bit 2  | Bit 1    | Bit 0                                  |
|----------|----------|----------|----------|----------|--|----------|--|
| Not used | Fault reset (1)<br>0 = No command<br>1 = Fault reset | Not used | Run Forward (2)<br>0 = Stop<br>1 = Run |

(1) Active on rising edge.

(2) Active on level.

| Bit 15   | Bit 14   | Bit 13   | Bit 12   | Bit 11   | Bit 10   | Bit 9    | Bit 8    |
|----------|----------|----------|----------|----------|----------|----------|----------|
| Not used |

### ■ Assembly 70: CIP basic speed control input

#### Assembly mapping

| Word number | Definition            |
|-------------|-----------------------|
| 0           | CIP basic status word |
| 1           | Actual speed (rpm)    |

#### CIP basic status word

| Bit 7    | Bit 6    | Bit 5    | Bit 4    | Bit 3    | Bit 2                                 | Bit 1    | Bit 0                                |
|----------|----------|----------|----------|----------|---------------------------------------|----------|--------------------------------------|
| Not used | Running<br>0 = Stopped<br>1 = Running | Not used | Faulted<br>0 = No fault<br>1 = Fault |

| Bit 15   | Bit 14   | Bit 13   | Bit 12   | Bit 11   | Bit 10   | Bit 9    | Bit 8    |
|----------|----------|----------|----------|----------|----------|----------|----------|
| Not used |

### ■ Assembly 21: CIP extended speed control output

#### Assembly mapping

| Word number | Definition                |
|-------------|---------------------------|
| 0           | CIP extended command word |
| 1           | Speed setpoint (rpm)      |

#### CIP extended command word

| Bit 7    | Bit 6  | Bit 5   | Bit 4    | Bit 3    | Bit 2  | Bit 1 Bit 0   |
|----------|--|---|----------|----------|--|---|
| Not used | Network setpoint<br>0 = Setpoint by terminals<br>1 = Setpoint by network | Network command<br>0 = Command by terminals<br>1 = Command by network | Not used | Not used | Fault reset (1)<br>0 = No command<br>1 = Fault reset | Run forward / reverse<br>00 = Quick stop<br>01 = Run forward<br>10 = Run reverse<br>11 = Freewheel stop |

| Bit 15   | Bit 14   | Bit 13   | Bit 12   | Bit 11   | Bit 10   | Bit 9    | Bit 8    |
|----------|----------|----------|----------|----------|----------|----------|----------|
| Not used |

(1) Active on rising edge.

## 15. Device profiles

### ■ Assembly 71: CIP extended speed control input

#### Assembly mapping

| Word number | Definition               |
|-------------|--------------------------|
| 0           | CIP extended status word |
| 1           | Actual speed (rpm)       |

#### CIP extended status word

| Bit 7  | Bit 6  | Bit 5   | Bit 4                               | Bit 3  | Bit 2   | Bit 1    | Bit 0 |
|--|--|---|-------------------------------------|--|---|----------|-------|
| At reference<br>0 = Reference<br>not reached<br>1 = Reference<br>reached | Setpoint from<br>network<br>0 = Setpoint<br>from terminals<br>1 = Setpoint<br>from network | Command from<br>network<br>0 = Command<br>from terminals<br>1 = Command<br>from network | Ready<br>0 = Not ready<br>1 = Ready | Running forward / reverse<br><br>00 = Stopped<br>01 = Running forward<br>10 = Running reverse<br>11 = Not used | Warning<br><br>0 = No warning<br>1 = Warning  | Not used |       |
| Bit 15   | Bit 14   | Bit 13  | Bit 12                              | Bit 11   | Bit 10  | Bit 9    | Bit 8 |
| Not used   | Not used   | Not used  | Not used                            | Not used   | Bit 8 to bit 10 are used for the drive state<br>000 = Not used<br>001 = Startup<br>010 = Not Ready<br>011 = Ready<br>100 = Enabled<br>101 = Stopping<br>110 = Fault Stop<br>111 = Faulted |          |       |

### ■ Assembly 22: CIP speed and torque control output

#### Assembly mapping

| Word number | Definition                 |
|-------------|----------------------------|
| 0           | CIP basic command word (1) |
| 1           | Speed setpoint (rpm)       |
| 2           | Torque setpoint (Nm)       |

(1) Refer to assembly 20.

### ■ Assembly 72: CIP speed and torque control input

#### Assembly mapping

| Word number | Definition                |
|-------------|---------------------------|
| 0           | CIP basic status word (1) |
| 1           | Actual speed (rpm)        |
| 2           | Actual torque (Nm)        |

(1) Refer to assembly 70.

### ■ Assembly 23: CIP extended speed and torque control output

#### Assembly mapping

| Word number | Definition                    |
|-------------|-------------------------------|
| 0           | CIP extended command word (1) |
| 1           | Speed setpoint (rpm)          |
| 2           | Torque setpoint (Nm)          |

(1) Refer to assembly 21.

## 15. Device profiles

---

### ■ Assembly 73: CIP extended speed and torque control input

#### Assembly mapping

| Word number | Definition                   |
|-------------|------------------------------|
| 0           | CIP extended status word (1) |
| 1           | Actual speed (rpm)           |
| 2           | Actual torque (Nm)           |

(1) Refer to assembly 71.

### ■ Assembly 100: Native drive output

#### Assembly mapping

| Word number | Definition           |
|-------------|----------------------|
| 0           | Control word         |
| 1           | Velocity setpoint    |
| 2           | Scanner write word 1 |
| 3           | Scanner write word 2 |
| 4           | Scanner write word 3 |
| 5           | Scanner write word 4 |
| 6           | Scanner write word 5 |
| 7           | Scanner write word 6 |

#### Altivar 71/61 assignment

| Word number | Code | Name   | Logic address   |
|-------------|------|--|-----------------|
| 0           | NC1  | Communication scanner, value of write word 1<br>(default value :CMD, Control word)       | 16#31D9 = 12761 |
| 1           | NC2  | Communication scanner, value of write word 2<br>(default value: LFRD, velocity setpoint) | 16#31DA = 12762 |
| 2           | NC3  | Communication scanner, value of write word 3   | 16#31DB = 12763 |
| 3           | NC4  | Communication scanner, value of write word 4   | 16#31DC = 12764 |
| 4           | NC5  | Communication scanner, value of write word 5   | 16#31DD = 12765 |
| 5           | NC6  | Communication scanner, value of write word 6   | 16#31DE = 12766 |
| 6           | NC7  | Communication scanner, value of write word 7   | 16#31DF = 12767 |
| 7           | NC8  | Communication scanner, value of write word 8   | 16#31E0 = 12768 |

**Note:** The default assignment of NC1 and NC2 must be changed to "Not assigned".

## 15. Device profiles

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### ■ Assembly 101: Native drive input

#### Assembly mapping

| Word number | Definition          |
|-------------|---------------------|
| 0           | Scanner read word 1 |
| 1           | Scanner read word 2 |
| 2           | Scanner read word 3 |
| 3           | Scanner read word 4 |
| 4           | Scanner read word 5 |
| 5           | Scanner read word 6 |
| 6           | Scanner read word 7 |
| 7           | Scanner read word 8 |

#### Altivar 71/61 assignment

| Word number | Code | Name  | Logic address   |
|-------------|------|---|-----------------|
| 0           | NM1  | Communication scanner, value of read word 1<br>(default value: Status word, ETA)            | 16#31C5 = 12741 |
| 1           | NM2  | Communication scanner, value of read word 2<br>(default value: Velocity actual value, RFRD) | 16#31C6 = 12742 |
| 2           | NM3  | Communication scanner, value of read word 3   | 16#31C7 = 12743 |
| 3           | NM4  | Communication scanner, value of read word 4   | 16#31C8 = 12744 |
| 4           | NM5  | Communication scanner, value of read word 5   | 16#31C9 = 12745 |
| 5           | NM6  | Communication scanner, value of read word 6   | 16#31CA = 12746 |
| 6           | NM7  | Communication scanner, value of read word 7   | 16#31CB = 12747 |
| 7           | NM8  | Communication scanner, value of read word 8   | 16#31CC = 12748 |

## 15. Device profiles

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### ■ Assembly 103: Allen-Bradley® drive output

#### Assembly mapping

| Word number | Definition                              |
|-------------|---|
| 0           | Allen-Bradley® drive logic command      |
| 1           | Standardized speed setpoint (reference) |
| 2           | Scanner write word 1                    |
| 3           | Scanner write word 2                    |
| 4           | Scanner write word 3                    |
| 5           | Scanner write word 4                    |
| 6           | Scanner write word 5                    |
| 7           | Scanner write word 6                    |
| 8           | Scanner write word 7                    |
| 9           | Scanner write word 8                    |

#### Altivar 71/61 assignment

| Word number | Code | Name   | Logic address   |
|-------------|------|--|-----------------|
| 0           | n.a. | Allen-Bradley® drive logic command           | n.a.            |
| 1           | LFR  | Frequency setpoint                           | 16#2136 = 8502  |
| 2           | NC1  | Communication scanner, value of write word 1 | 16#31D9 = 12761 |
| 3           | NC2  | Communication scanner, value of write word 2 | 16#31DA = 12762 |
| 4           | NC3  | Communication scanner, value of write word 3 | 16#31DB = 12763 |
| 5           | NC4  | Communication scanner, value of write word 4 | 16#31DC = 12764 |
| 6           | NC5  | Communication scanner, value of write word 5 | 16#31DD = 12765 |
| 7           | NC6  | Communication scanner, value of write word 6 | 16#31DE = 12766 |
| 8           | NC7  | Communication scanner, value of write word 7 | 16#31DF = 12767 |
| 9           | NC8  | Communication scanner, value of write word 8 | 16#31E0 = 12768 |

**Note:** The default assignment of NC1 and NC2 must be changed to another value or to not assigned..

# 15. Device profiles

## ■ Allen-Bradley® drive logic command

The logic command is a 16-bit word of control produced by the scanner and consumed by the EtherNet/IP card.

If enabled, the Logic command word is always word 0 in the output image.

| Bit 7   | Bit 6  | Bit 5 Bit 4   | Bit 3  | Bit 2                         | Bit 1                                   | Bit 0                                |
|---|--|---|--|-------------------------------|---|--------------------------------------|
| MOP Increment<br>0 = Not Increment<br>1 = Increment | Local control<br>0 = No local control<br>1 = Local control | Direction<br>00 = No command (4)<br>01 = Forward command<br>10 = Reverse command<br>11 = Hold direction control | Clear faults (3)<br>0 = Not clear faults<br>1 = Clear faults | Jog<br>0 = Not jog<br>1 = Jog | Start (2)<br>0 = Not start<br>1 = Start | Stop (1)<br>0 = Not stop<br>1 = Stop |

| Bit 15  | Bit 14  | Bit 13 | Bit 12 | Bit 11 Bit 10   | Bit 9 Bit 8   |
|---|---|--------|--------|---|---|
| MOP Decrement<br>0 = Not decrement<br>1 = Decrement | Reference select<br>000 = No command (7)<br>001 = Setpoint 1 channel (Fr1)<br>010 = Setpoint 2 channel (Fr2)<br>011 = Ref. 3 (Preset 3)<br>100 = Ref. 4 (Preset 4)<br>101 = Ref. 5 (Preset 5)<br>110 = Ref. 6 (Preset 6)<br>111 = Ref. 7 (Preset 7) |        |        | Decel rate<br>00 = No command (6)<br>01 = Decel rate 1 command<br>10 = Decel rate 2 command<br>11 = Hold decel rate | Accel rate<br>00 = No command (5)<br>01 = Accel rate 1 command<br>10 = Accel rate 2 command<br>11 = Hold accel rate |

- (1) Stop: Active at level.
- (2) Start: Active on rising edge. A Not stop condition (logic 0 = 0) must first be present before a Start condition (logic 1 = 1) will start the drive.
- (3) Clear faults: Active on rising edge. To perform this command, the value must switch from "0" to "1."
- (4) Direction \ No command: If a direction is selected acts like Hold direction control.
- (5) Accel rate \ No command: If a rate is selected acts like Hold accel rate.
- (6) Decel rate \ No command: If a rate is selected acts like Hold decel rate.
- (7) Reference select \ No command: If a rate is selected acts like Hold command.

## ■ Altivar 71/61 assignment

| Bit 7    | Bit 6    | Bit 5 Bit 4   | Bit 3  | Bit 2    | Bit 1                                   | Bit 0                                |
|----------|----------|---|--|----------|---|--------------------------------------|
| Not used | Not used | Direction<br>00 = No command (4)<br>01 = Forward command<br>10 = Reverse command<br>11 = Hold direction control | Clear faults (3)<br>0 = Not clear faults<br>1 = Clear faults | Not used | Start (2)<br>0 = Not start<br>1 = Start | Stop (1)<br>0 = Not stop<br>1 = Stop |

| Bit 15   | Bit 14   | Bit 13 | Bit 12 | Bit 11   | Bit 10   | Bit 9    | Bit 8    |
|----------|--|--------|--------|----------|----------|----------|----------|
| Not used | Setpoint select<br>000 = No command<br>001 = Terminals<br>010 = Control by network<br>011 = Preset 3<br>100 = Preset 4<br>101 = Preset 5<br>110 = Preset 6<br>111 = Preset 7 |        |        | Not used | Not used | Not used | Not used |

# 15. Device profiles

## ■ Standardised setpoint

The setpoint (16 bits only) is produced by the controller and consumed by the EtherNet/IP card.

If enabled, the setpoint is always word 1 in the output image.

The setpoint value is a standardised (e.g. scaled) value; it is not an engineering value.

## Telemecanique adaptation

[Frequency setpoint] ( $L F r$ ) shall be configured in high resolution: standardised value on 16 signed bits at maximum frequency. The value 32767 corresponds to the parameter [Max frequency] ( $\pm F r$ ). The default value of the parameter [Max frequency] ( $\pm F r$ ) is 60 Hz, and the resolution is then approximately 0.0018 Hz.

### Note:

The commanded maximum speed can never exceed the value of the parameter [High speed] (HSP).

The table below shows example setpoints and their results on an Altivar drive that has its parameter [Max frequency] ( $\pm F r$ ) set to 130 Hz and its parameter [High speed] (HSP) set to 60 Hz.

| Setpoint value | Scale   |         | Output speed | Feedback value |
|----------------|---------|---------|--------------|----------------|
|                | Percent | Value   |              |                |
| 32767 (1)      | 100%    | 130 Hz  | 60 Hz (2)    | 15123 (3)      |
| 16384          | 50%     | 65 Hz   | 60 Hz (2)    | 15123 (3)      |
| 8192           | 25%     | 32.5 Hz | 32.5 Hz      | 8192           |
| 0              | 0%      | 0 Hz    | 0 Hz         | 0              |

(1) A value of 32767 is equivalent to the parameter [Max frequency] ( $\pm F r$ ) frequency value. Values greater than 32767 reverse speed.

(2) The drive runs at 60 Hz instead of 130 Hz or 65 Hz because the parameter [High speed] (HSP) sets 60 Hz as the maximum speed.

(3) The feedback value is also scaled based on the value of the parameter [Max frequency] ( $\pm F r$ ), for example,  $60/130 = 0.46$  so  $32767 \times 0.46 = 15123$ .

## ■ Assembly 104: Allen-Bradley® drive input

### Assembly mapping

| Word number | Definition                        |
|-------------|-----------------------------------|
| 0           | Allen-Bradley® drive logic status |
| 1           | Speed feedback (actual value)     |
| 2           | Scanner read word 1               |
| 3           | Scanner read word 2               |
| 4           | Scanner read word 3               |
| 5           | Scanner read word 4               |
| 6           | Scanner read word 5               |
| 7           | Scanner read word 6               |
| 8           | Scanner read word 7               |
| 9           | Scanner read word 8               |

| Word number | Code | Name  | Logic address   |
|-------------|------|---|-----------------|
| 0           | n.a. | Allen-Bradley® drive logic status           | n.a.            |
| 1           | RFR  | Output frequency                            | 16#0C82 = 3202  |
| 2           | NM1  | Communication scanner, value of read word 1 | 16#31C5 = 12741 |
| 3           | NM2  | Communication scanner, value of read word 2 | 16#31C6 = 12742 |
| 4           | NM3  | Communication scanner, value of read word 3 | 16#31C7 = 12743 |
| 5           | NM4  | Communication scanner, value of read word 4 | 16#31C8 = 12744 |
| 6           | NM5  | Communication scanner, value of read word 5 | 16#31C9 = 12745 |
| 7           | NM6  | Communication scanner, value of read word 6 | 16#31CA = 12746 |
| 8           | NM7  | Communication scanner, value of read word 7 | 16#31CB = 12747 |
| 9           | NM8  | Communication scanner, value of read word 8 | 16#31CC = 12748 |

**Note:** The default assignment of NM1 and NM2 must be changed to "Not assigned".

# 15. Device profiles

## ■ Allen-Bradley® drive logic status

The Logic Status is a 16-bit word of status produced by the EtherNet/IP card and consumed by the scanner. If enabled, the Logic status word is always word 2 in the input image.

| Bit 7                     | Bit 6                     | Bit 5                                    | Bit 4                                    | Bit 3                      | Bit 2                      | Bit 1                        | Bit 0                      |
|---------------------------|---------------------------|--|--|----------------------------|----------------------------|------------------------------|----------------------------|
| Fault                     | Alarm                     | Decelerating                             | Accelerating                             | Actual direction           | Command direction          | Active                       | Ready                      |
| 0 = No fault<br>1 = Fault | 0 = No alarm<br>1 = Alarm | 0 = Not decelerating<br>1 = Decelerating | 0 = Not accelerating<br>1 = Accelerating | 0 = Reverse<br>1 = Forward | 0 = Reverse<br>1 = Forward | 0 = Not active<br>1 = Active | 0 = Not ready<br>1 = Ready |

| Bit 15   | Bit 14 | Bit 13 | Bit 12 | Bit 11  | Bit 10 | Bit 9 | Bit 8                                    |
|--|--------|--------|--------|---|--------|-------|--|
| Reference  |        |        |        | Local control   |        |       | At speed                                 |
| 0000 = Ref A auto<br>0001 = Ref B auto<br>0010 = Preset 2 auto<br>0011 = Preset 3 auto<br>0100 = Preset 4 auto<br>0101 = Preset 5 auto<br>0110 = Preset 6 auto<br>0111 = Preset 7 auto<br>1000 = Term blk manual<br>1001 = DPI 1 manual<br>1010 = DPI 2 manual<br>1011 = DPI 3 manual<br>1100 = DPI 4 manual<br>1101 = DPI 5 manual<br>1110 = DPI 6 manual<br>1111 = Jog reference |        |        |        | 000 = Port 0 (TB)<br>001 = Port 1<br>010 = Port 2<br>011 = Port 3<br>100 = Port 4<br>101 = Port 5<br>110 = Port 6<br>111 = No local |        |       | 0 = Not at reference<br>1 = At reference |

## Telemecanique adaptation

| Bit 7                     | Bit 6                     | Bit 5                                    | Bit 4                                    | Bit 3                      | Bit 2                      | Bit 1                        | Bit 0                     |
|---------------------------|---------------------------|--|--|----------------------------|----------------------------|------------------------------|---------------------------|
| Fault                     | Alarm                     | Decelerating                             | Accelerating                             | Actual direction           | Command direction          | Running                      | Ready                     |
| 0 = No fault<br>1 = Fault | 0 = No alarm<br>1 = Alarm | 0 = Not decelerating<br>1 = Decelerating | 0 = Not accelerating<br>1 = Accelerating | 0 = Reverse<br>1 = Forward | 0 = Reverse<br>1 = Forward | 0 = Not active<br>1 = Active | 0 = Not ready<br>1 = Read |

| Bit 15  | Bit 14 | Bit 13 | Bit 12 | Bit 11  | Bit 10 | Bit 9 | Bit 8                                    |
|---|--------|--------|--------|---|--------|-------|--|
| Setpoint source   |        |        |        | Control source  |        |       | At speed                                 |
| 0000 = Terminals<br>0001 = not used<br>0010 = Preset 2<br>0011 = Preset 3<br>0100 = Preset 4<br>0101 = Preset 5<br>0110 = Preset 6<br>0111 = Preset 7<br>1000 = not used<br>1001 = Graphic display terminal<br>1010 = Modbus<br>1011 = CANopen<br>1100 = PowerSuite<br>1101 = EtherNet/IP card<br>1110 = Controller inside<br>1111 = not used |        |        |        | 000 = Terminals<br>001 = Graphic display terminal<br>010 = Modbus<br>011 = CANopen<br>100 = PowerSuite<br>101 = EtherNet/IP card<br>110 = Controller inside<br>111 = not used |        |       | 0 = Not at reference<br>1 = At reference |

**Note:** When the value of Setpoint source (bits 12, 13, 14 and 15) is Preset speed x, it means that the corresponding command is given by the assembly 103 via Setpoint select (bits 12,13 and 14) (not by the terminals).

# 16. Configuring an ATV71/61 in replacement of a Powerflex® drive

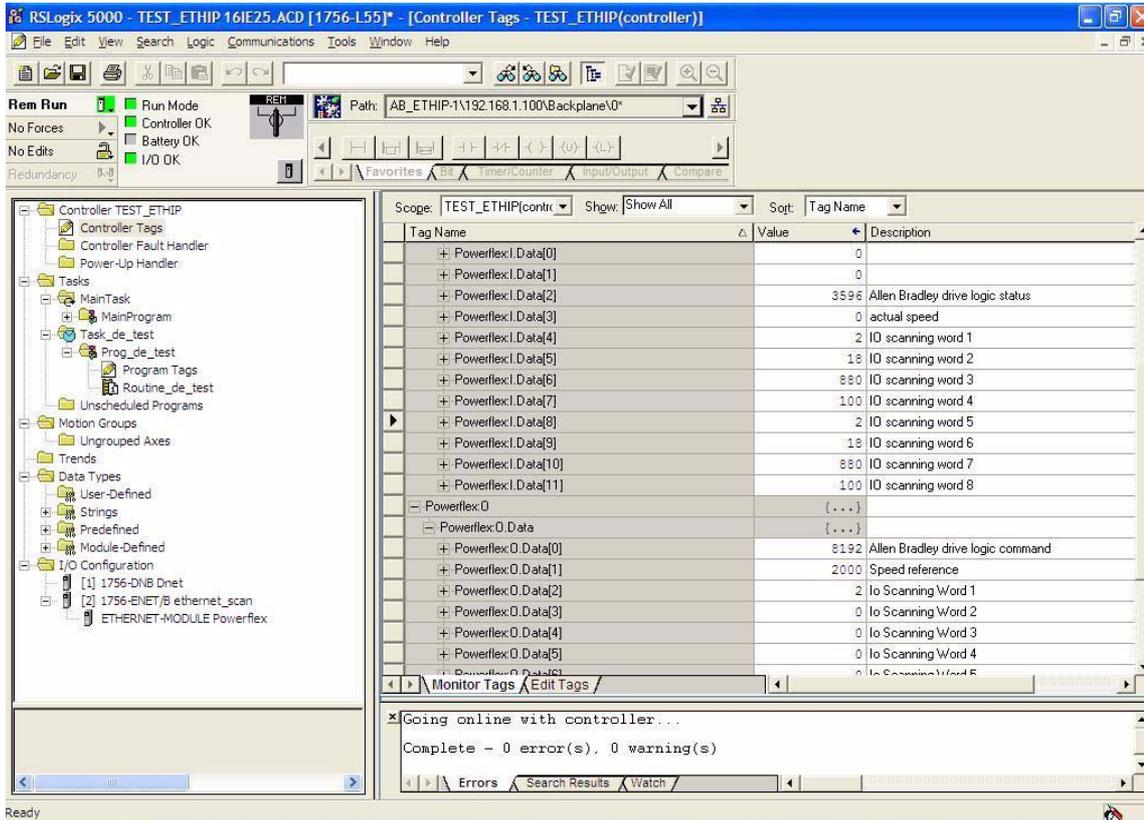
This chapter illustrates of to proceed to exchange Powerflex® drive an ATV71. This example has been realized by RSLogix® software. There are three way to configure the drive equipped with an EtherNet/IP card.

### IMPORTANT NOTE:

The ATV71/61 provides several assembly sets. Assembly 103 and 104 emulates the Powerflex drive assemblies. But for compatibility reasons these assemblies can also use number 1 and 2. This means that in the ATV71/61:

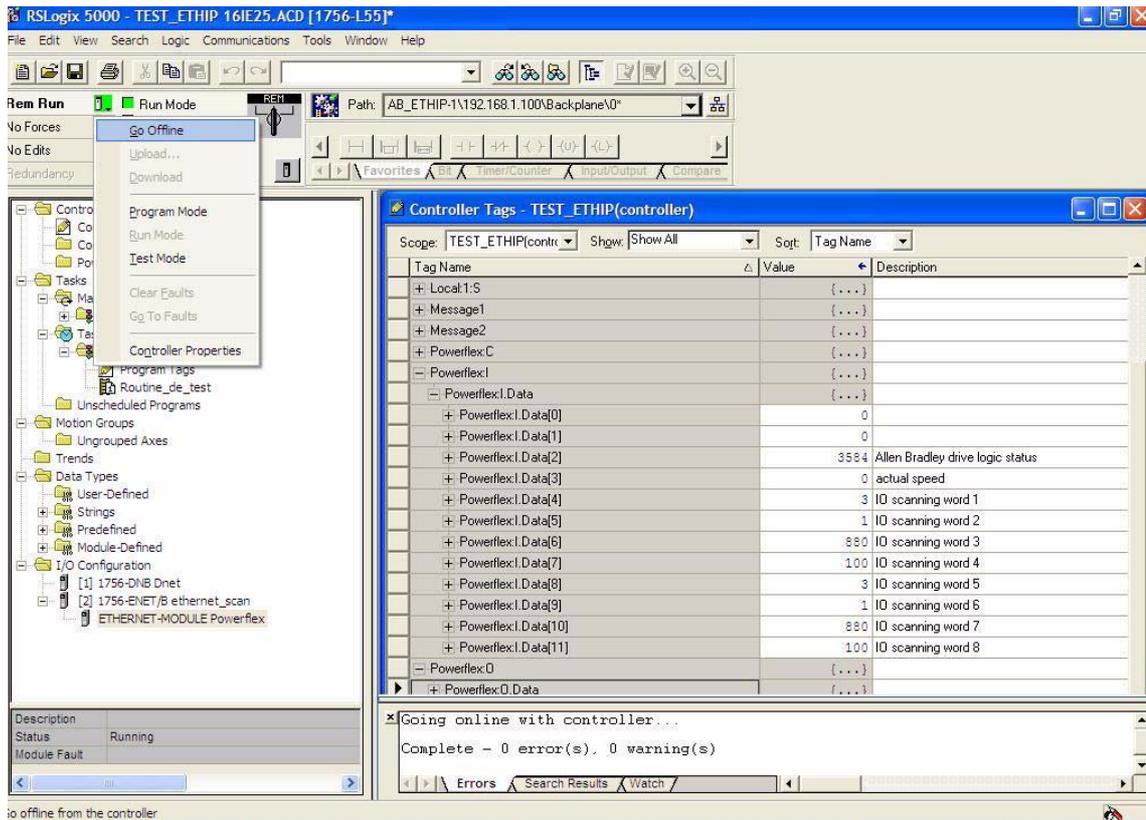
- output assembly 103 and 2 are identical,
- input assembly 104 and 1 are identical.

In the following example, we start with an application based on a network made of a single VSD (a Powerflex drive). The following pages describe how to replace it by an ATV71 .

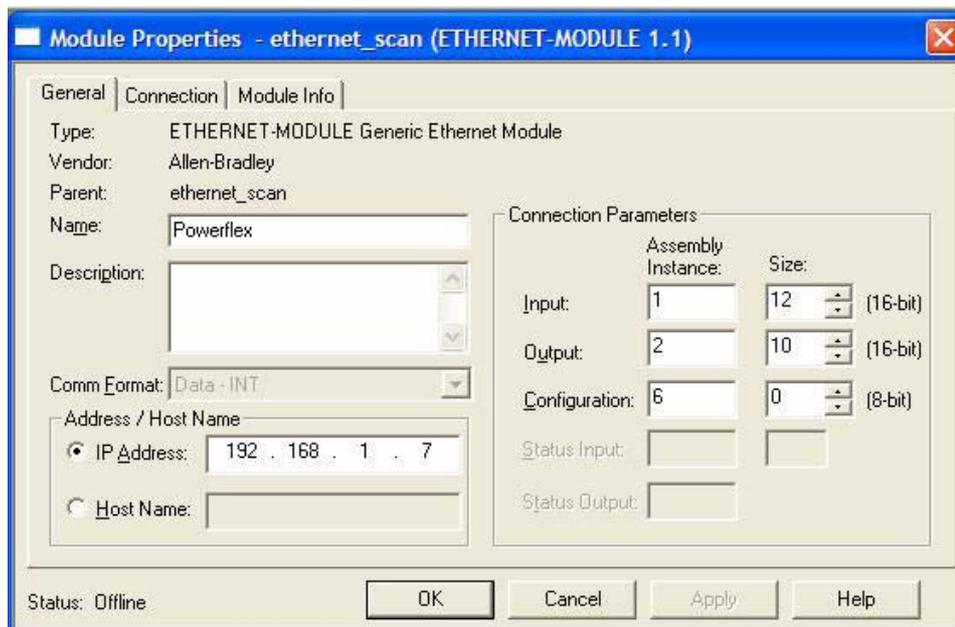


## 16. Configuring an ATV71/61 in replacement of a Powerflex® drive

Put the RSLogix environment Offline:

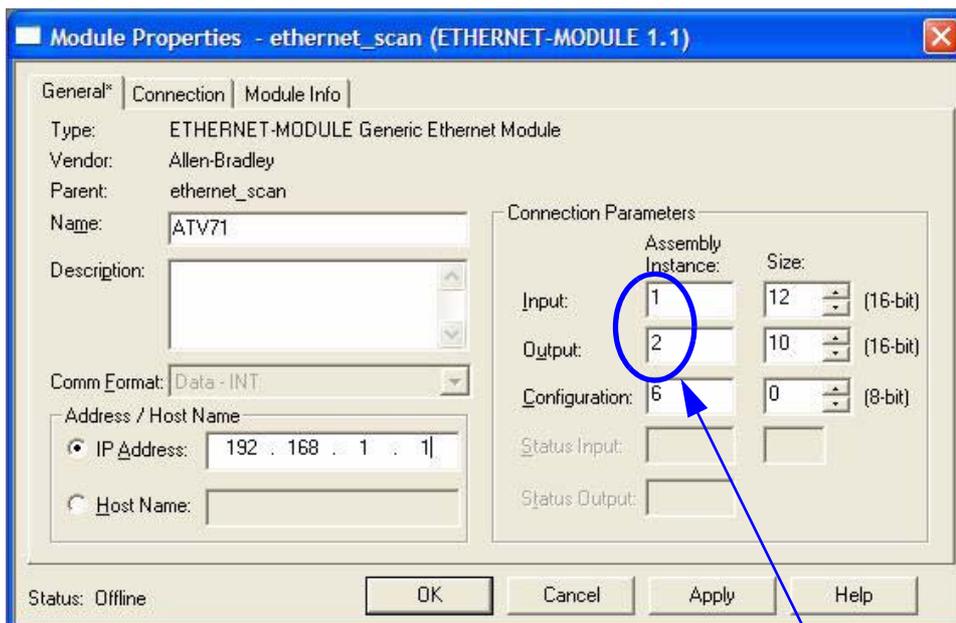


Then edit the module properties of the "ETHERNET MODULE Powerflex" by double-clicking in the navigation tree.



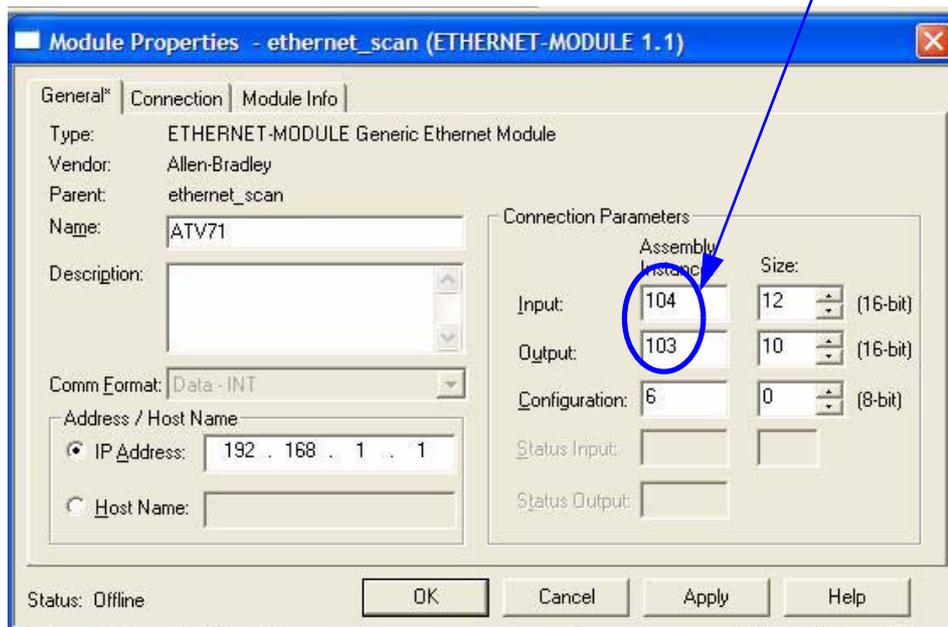
## 16. Configuring an ATV71/61 in replacement of a Powerflex® drive

Notice that only the Module Name is changed.



Here, we have used Assemblies 1 and 2 (As Powerflex VSD).

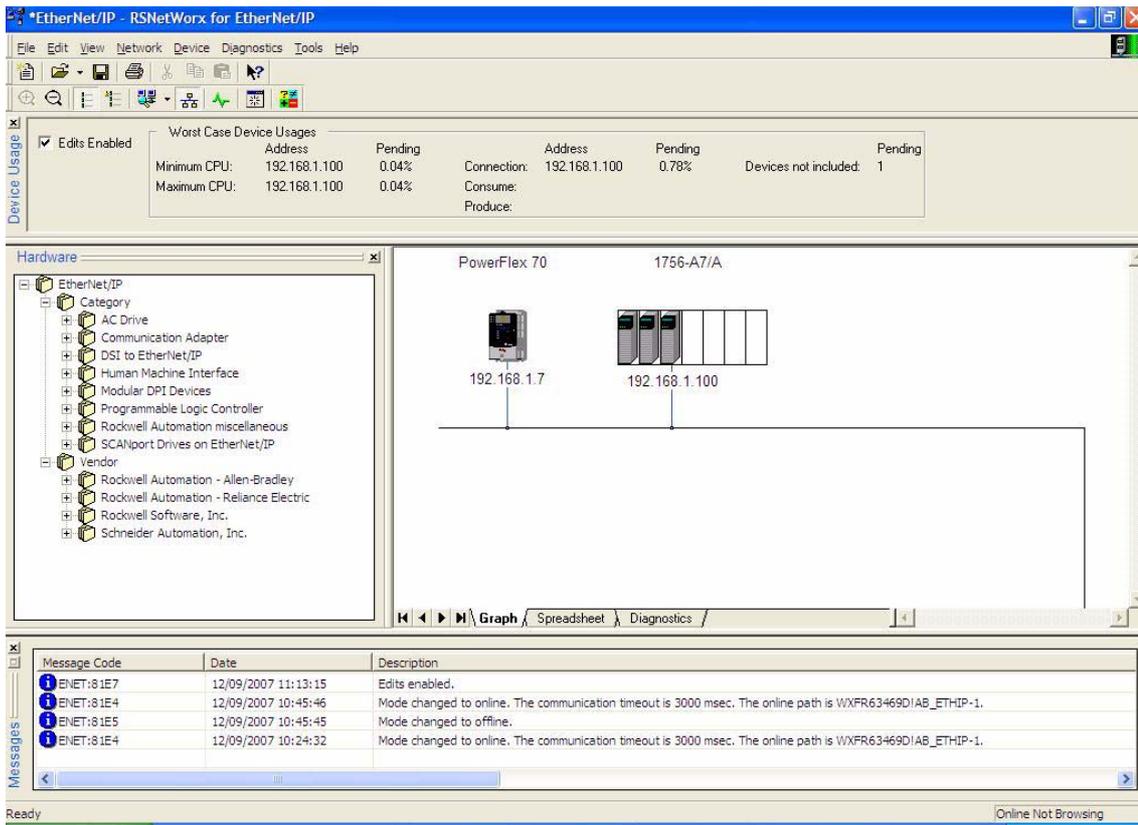
But Assemblies 103 and 104 could also be used, like in the dialog box below.



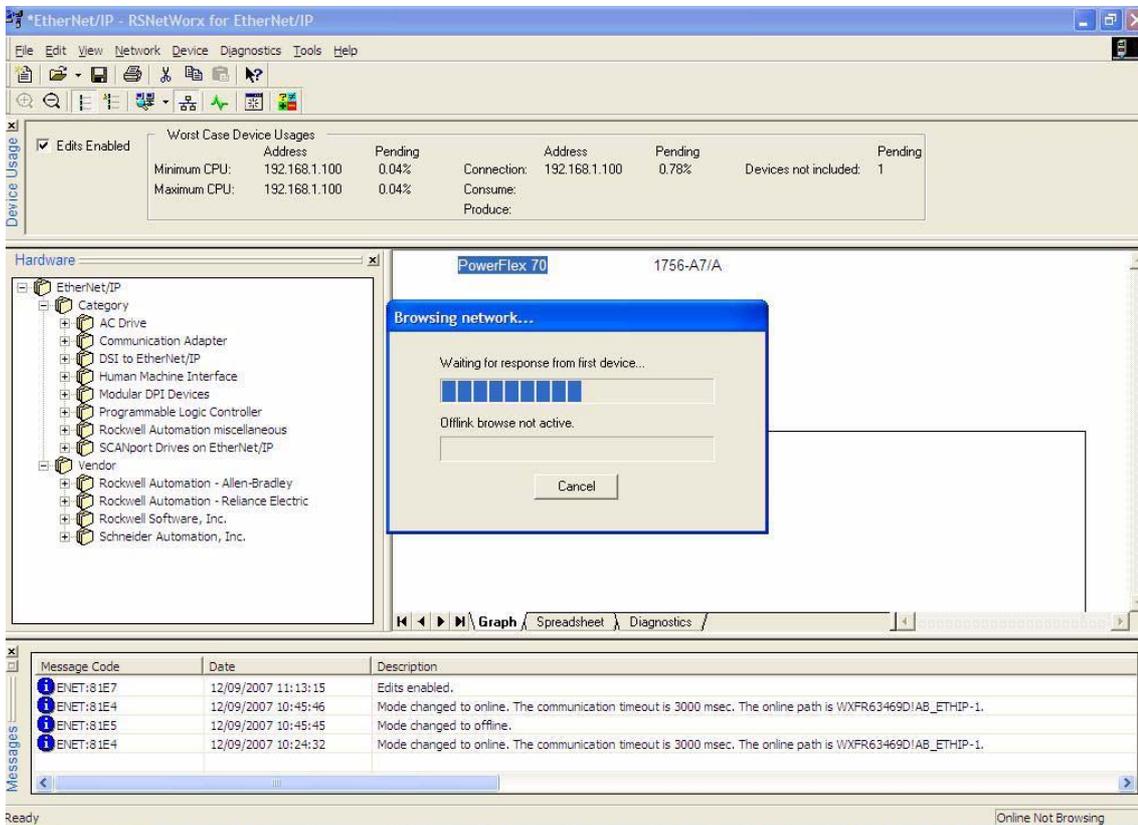
Confirm the modification by OK, save the project and download it to the PLC.

# 16. Configuring an ATV71/61 in replacement of a Powerflex® drive

Now, switch to RSNetworx, The old configuration is always displayed:

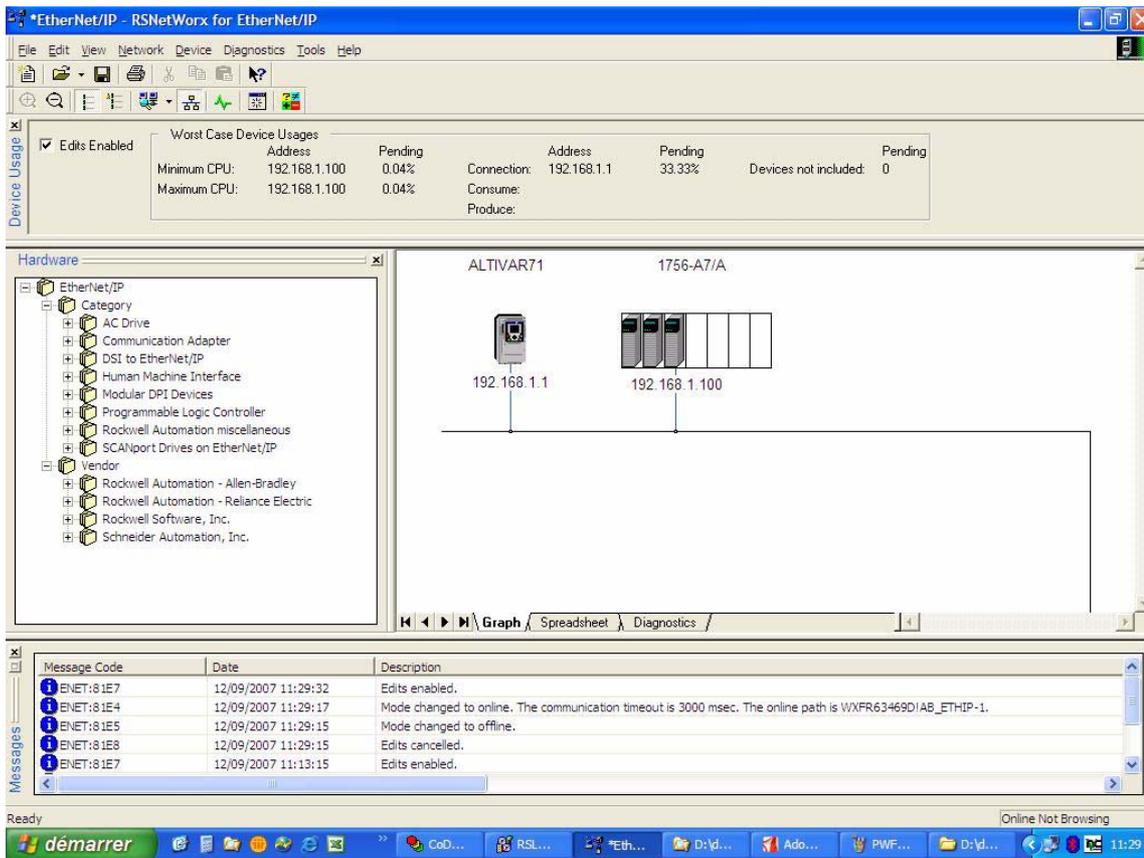


Browse the whole Network:



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Once the network has been scanned, you should obtain this:



This last screen shows the data screen of the ATV71.

