

Altivar Process DeviceNet Setup

This document is a step by step guide to configure RSNetworx (for DeviceNet) and RS5000 Rockwell PLC programming software for DeviceNet communication with the Altivar Process drive.

While the Altivar Process supports Instances 20/70, 21/71 and 100/101, this document is based solely on instance 100/101.

Supporting Documents

| | |
|---------------------|--|
| EAV64318.03 | Altivar Process Programming Manual [PDF] |
| EAV64330.00 | Altivar Process DeviceNet Manual [PDF] |
| EAV64332_V1.2 | ATV6xx Communication Parameters [XLS] |
| Application Note 36 | SoMove TCP/IP setup |
| Application Note 37 | SoMove Modbus serial setup |
| Application Note 38 | PC IP address configuration |

Supporting Software

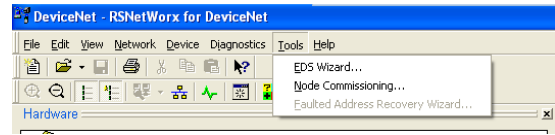
| | |
|-----------------|--|
| SoMove | V2.2 |
| ATV6xx DTM | V1.1.28.1 |
| ATV6xx EDS file | SE_DN_ATV600_0105E (For VW3A3609 V1.5) |

| | |
|---------|------------|
| Version | 1.0 |
| Author | Shane Mear |
| Date | 15.07.2015 |

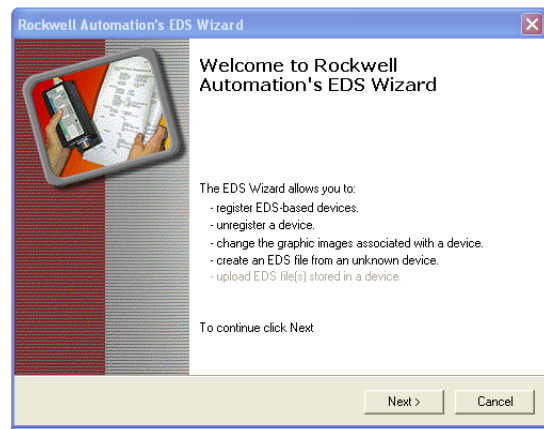
RSNetWorx Configuration

Registering the EDS file

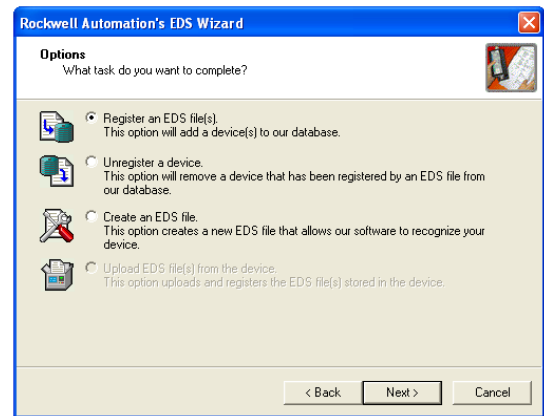
From RSNetworx for DeviceNet select *Tools*
From the top menu then select *EDS Wizard*



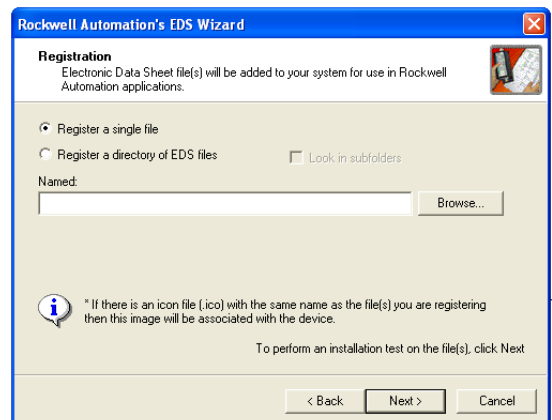
A Popup window will appear, select *Next >*



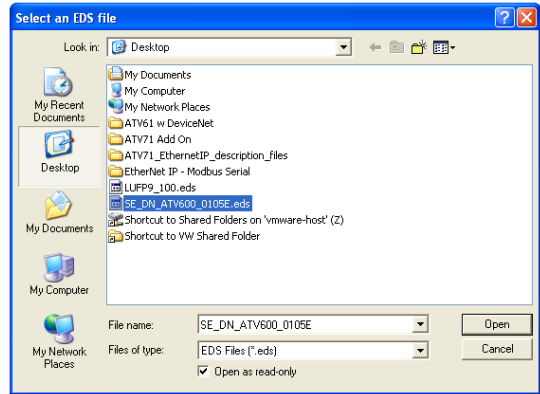
From the available options select *Register an EDS file(s)* then select *Next >*



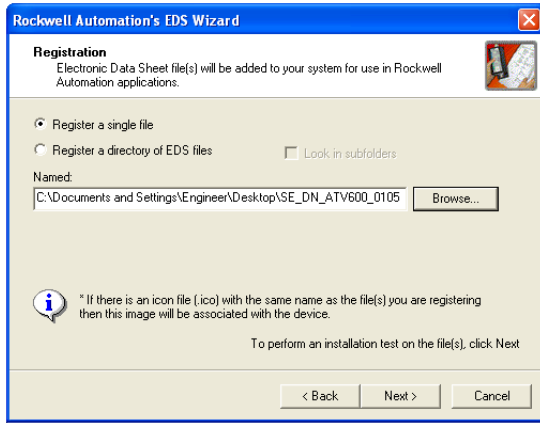
Select *Register a single file* then *Browse...* for the correct EDS file.



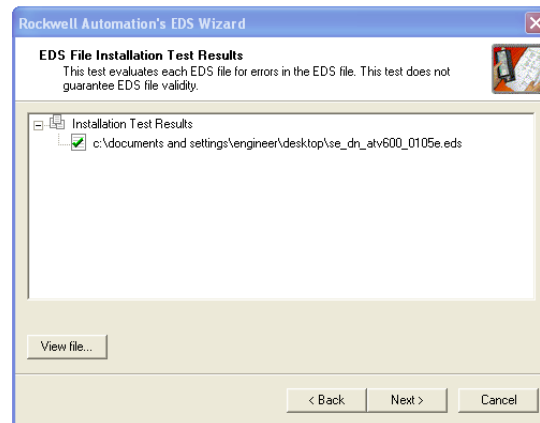
Once the correct .eds file has been located, highlight and select *Open*



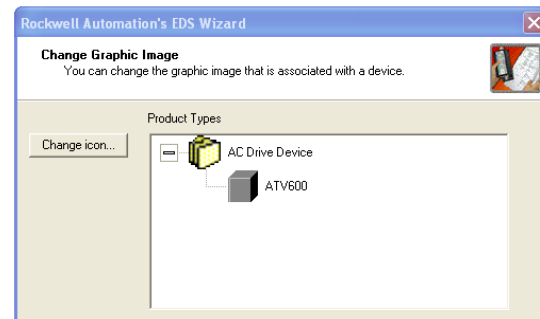
Select *Next >*



Select *Next >*

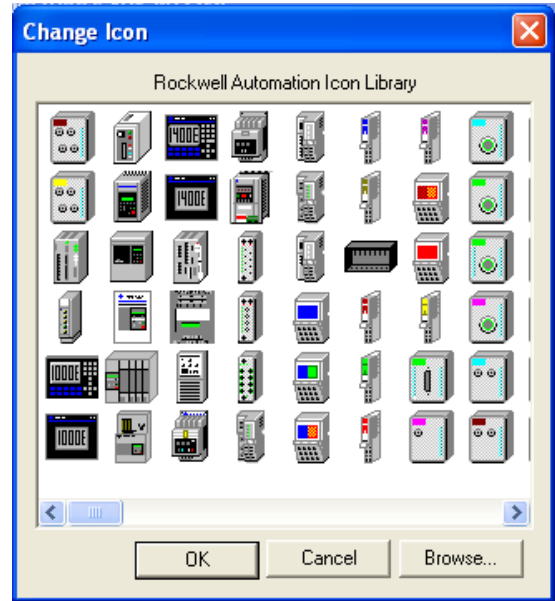


Select *Change icon...*

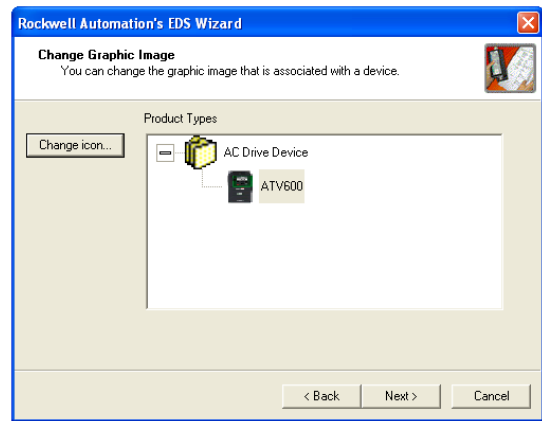


Browse... for the correct image

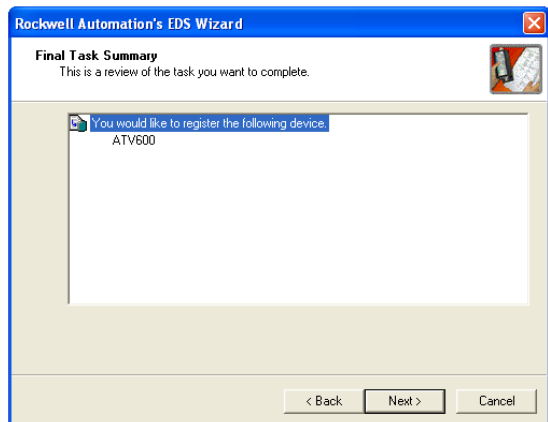
(Should be part of the same package with the EDS file)



Icon should change to image of ATV Process
select *Next >*

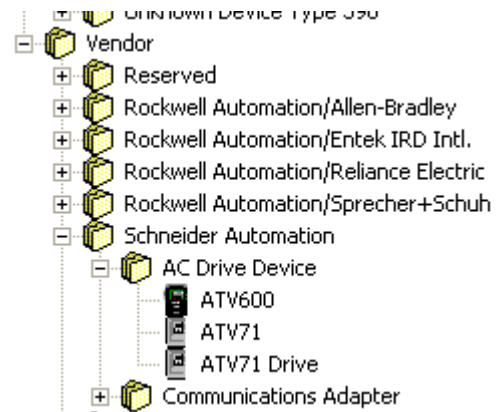


Select *Next >*

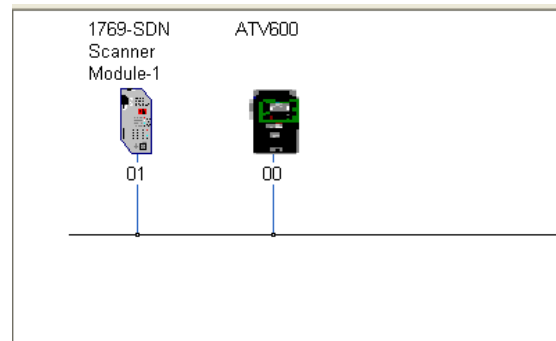


Adding ATV600 to the Network

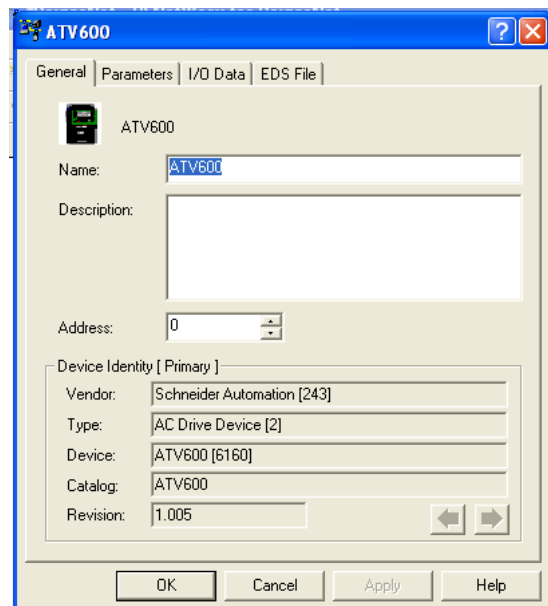
Expand the *Schneider Automation* folder in the *Hardware tree* to locate the newly added ATV600 device.



Double click on the ATV600 from the *Hardware tree* to add a device to the network

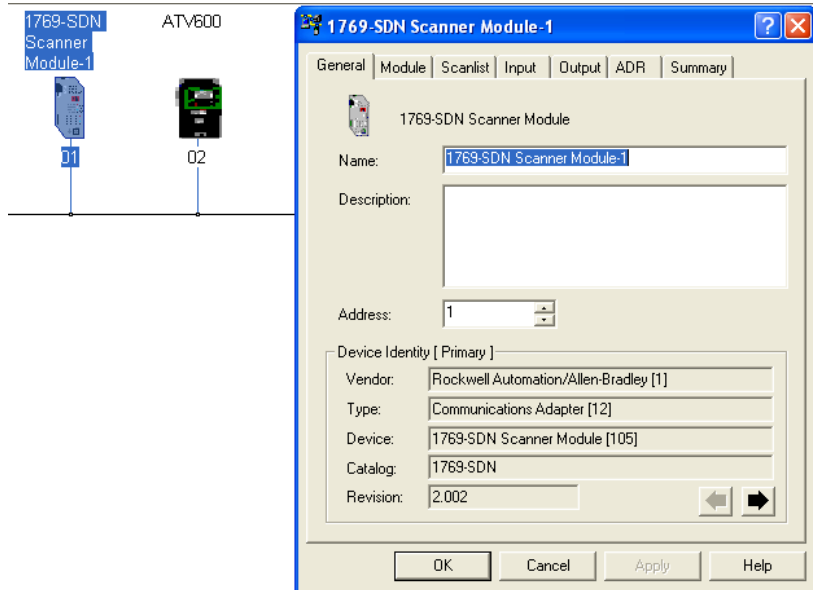


Double click on the device that has been added to the network, then correct the *address* as required.

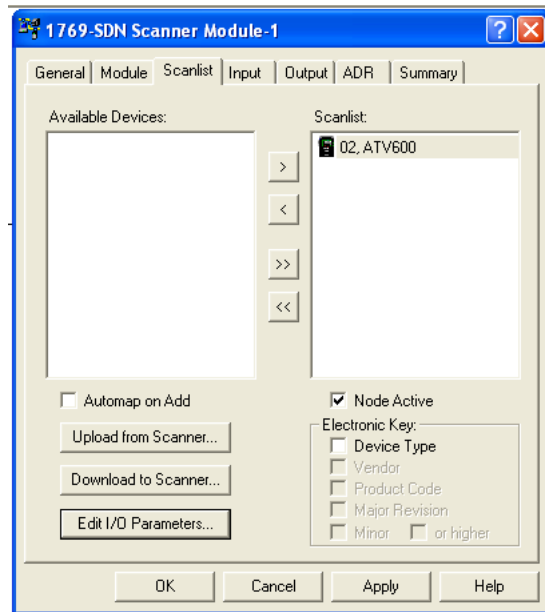


Configure the Scanner

Double click on the *DeviceNet module* to add the ATV600 scanner inputs and outputs



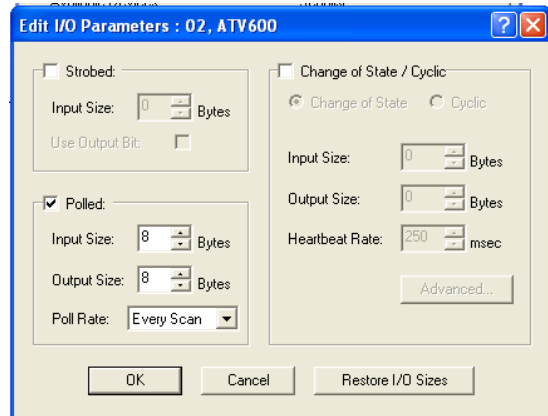
From the *Scanlist tab* add the ATV600 to the scanlist



Select *edit I/O Parameters...* and adjust the *Polled Input Size* and *Output Size* to 8 Bytes. Select *OK*

Note:

8 Bytes is only for Assembly 100/101 which can utilise 4 words both in and out



Select the *Input* tab and map the ATV600 input data to the DeviceNet input table.

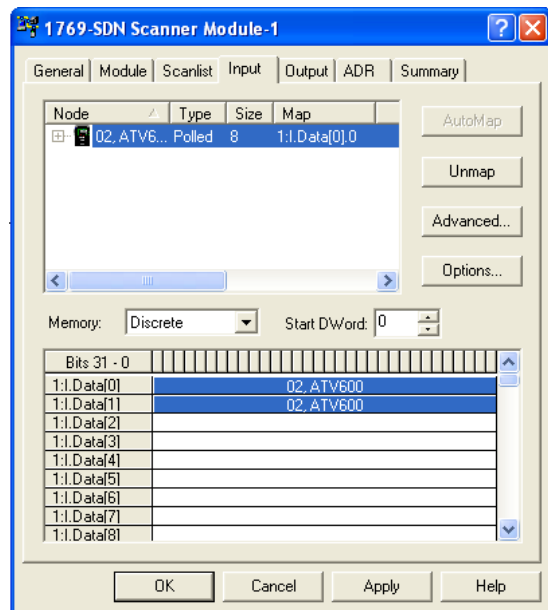
Note:

Altivar Process data lengths are 16 bit long, the DeviceNet module data lengths are double integer or 32 bit long, therefore each DeviceNet register holds two Altivar Process data words.

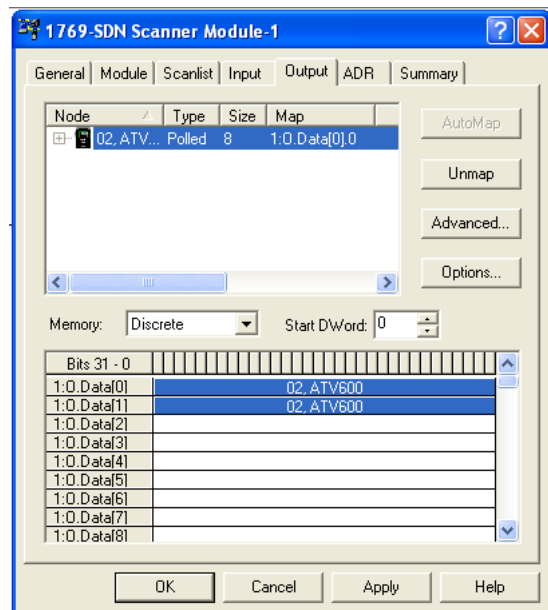
Example 1:I.Data[0] bits 0 to 15 is the first word of the DeviceNet scanner table in the ATV600

1:I.Data[0] bits 16 to 31 is the second word of the DeviceNet scanner table in the ATV600.

Manipulating this data within the PLC is explained further



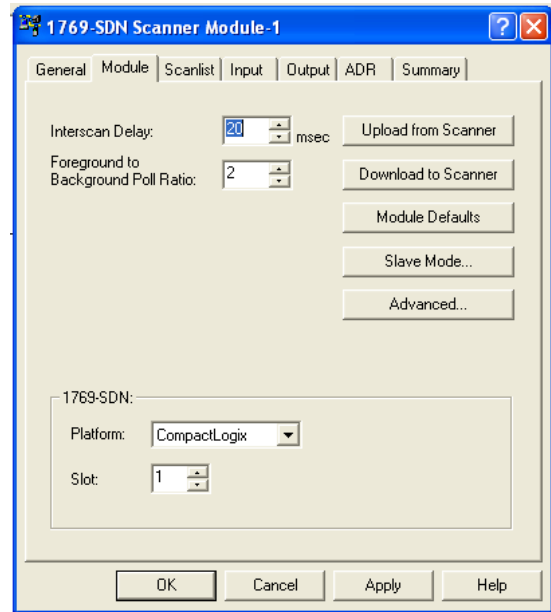
Select the *Output* tab and map the ATV600 output data to the DeviceNet input table.



Application Note 39

Select the *Module* tab and select *Download to Scanner*

Select *OK*

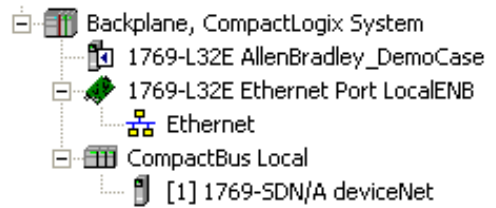


Save the DeviceNet configuration as this will be utilised within the PLC programming.

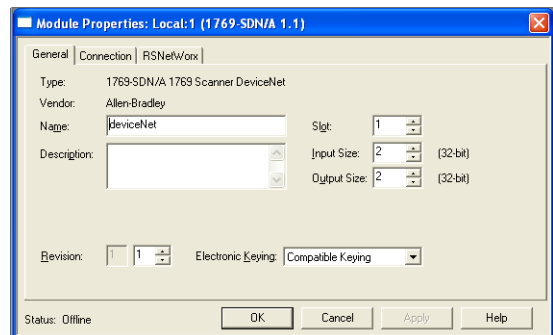
RSLogix 5000 Configuration

Basics

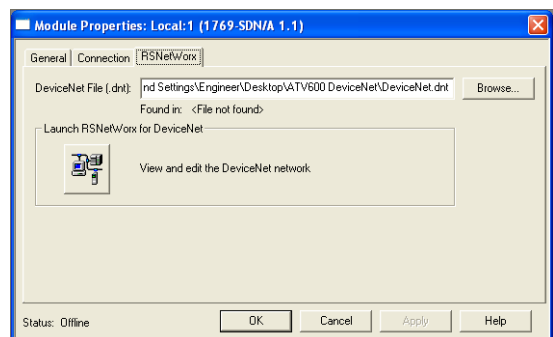
Add the DeviceNet scanner to the PLC configuration



Double click on the newly created DeviceNet module from the project tree, and enter the correct Input and Output sizes. Remembering that this is double integer (32 bit), Schneider VSD's use single integers (16 bit), therefore 2 32 bit words on the scanner input is the same as 4 16 bit words from the VSD (this is the size of the DeviceNet scanner table within the VSD)



Select the RSNetWorx tab and Browse for the RSNetWorx configuration saved in the previous section.



Once the Scanner has been successfully added, the scanner table is populated inside the Controller Tags. Double click on Controller Tags in the project tree.



Application Note 39

Local:1:O.Data[0] represents output words 1 and 2
 Local:1:O.Data[1] represents output words 3 and 4

Local:1:I.Data[0] represents input words 1 and 2
 Local:1:I.Data[1] represents input words 3 and 4

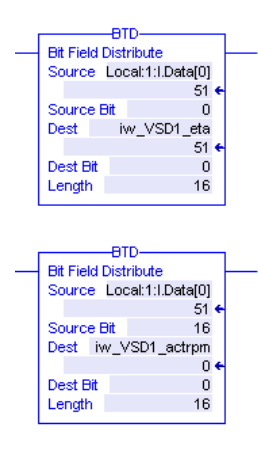
| | | | |
|------------------------------|---------------------------|-------|------------------|
| - Local I 0 | (...) | (...) | AB:1769_SDN_128y |
| + Local I 0 Command Register | (...) | (...) | AB:1769_SDN_Cmd |
| - Local I 0 Data | (...) | (...) | Decimal DINT[2] |
| + Local I 0 Data[0] | 49152000 | 0 | Decimal DINT |
| + Local I 0 Data[1] | | 0 | Decimal DINT |
| - Local I 1 | (...) | (...) | AB:1769_SDN_144B |
| + Local I 1 Fault | 2#0000_0000_0000_0000_... | | Binary DINT |
| + Local I 1 Status | (...) | (...) | AB:1769_SDN_Stat |
| + Local I 1 Status Register | (...) | (...) | AB:1769_SDN_Stat |
| - Local I 1 Data | (...) | (...) | Decimal DINT[2] |
| + Local I 1 Data[0] | | 563 | Decimal DINT |
| + Local I 1 Data[1] | | 0 | Decimal DINT |

To extrapolate the individual 16 bit words from the 32 bits of the Scanner, utilise the Bit Filed Distribute function

In this example, two internal memory words (16 bits long) have been created (iw_VSD1_eta and iw_VSD1_actrpm).

We say that we want to take the first 16 bits from Local:1:O.Data[0] and write to iw_VSD1_eta and take the 16 bits starting from bit 16 of Local:1:O.Data[0] and write to iw_VSD1_actrpm.

The same principle can be applied to the output scanner however the source shall be the 16 bit internal words and the destination is the scanner table.



Altivar Process Configuration

Basic Setup

Please refer to Application Note 36 (SoMove TCP/IP setup), application Note 37 (SoMove Modbus serial setup) and application Note 38 (PC IP address configuration) for detailed instructions to communicate with a VSD using SoMove.

DeviceNet Setup

Once communication with the Altivar Process has been established, select the Parameters List tab.

From the menus tree on the left side, select Slot A – DeviceNet.

Here the assembly instance, DeviceNet address and scanner table can be altered to suit.

| Code | Long Label | Current Value | Default Value | Min Value | Max Value | Logical address |
|------|--|---------------|---------------|-----------|-----------|-----------------|
| ADRC | Drive address | 2 | 63 | 0 | 63 | 6601 |
| BDR | Comm. option baud rate | Automatic | Automatic | | | 6603 |
| BDRU | Data rate used | Automatic | Automatic | | | 6660 |
| CIOA | Configured Assembly | 100/101 | 21/71 | | | 6667 |
| OCA1 | Scan output 1 address | 8501 | 8501 | 0 | 65535 | 15421 |
| OCA2 | Scan output 2 address | 8602 | 8602 | 0 | 65535 | 15422 |
| OCA3 | Scan output 3 address | 0 | 0 | 0 | 65535 | 15423 |
| OCA4 | Scan output 4 address | 0 | 0 | 0 | 65535 | 15424 |
| OMA1 | Scan input 1 address | 3201 | 3201 | 0 | 65535 | 15401 |
| OMA2 | Scan input 2 address | 8604 | 8604 | 0 | 65535 | 15402 |
| OMA3 | Scan input 3 address | 0 | 0 | 0 | 65535 | 15403 |
| OMA4 | Scan input 4 address | 0 | 0 | 0 | 65535 | 15404 |
| CNF | Fieldbus module Communication interruption | 0 | 0 | 0 | 65535 | 7132 |
| ILF1 | Internal communication interruption 1 | 0 | 0 | 0 | 65535 | 7134 |

Any changes to address or assembly instance must be followed by a power cycle on the Altivar Process for the changes to take effect.