Exercise - Configure an Altivar Drive

Overview

The DTM is now installed in **Unity Pro**.

This means that the specific parameters of the device now need now need to be configured through Unity Pro.

The configuration of this drive will take less than 30 minutes, which is much shorter than the usual time to configure a drive.

Learning Outcomes

By the completion of this exercise the student will:

➢ Configure an Altivar drive

➢ Test the functioning of an Altivar drive

Equipment Required

To complete this exercise on a PLC the student will need

➢ One M580 PLC (any CPU)

➢ A compatible rack and power supply

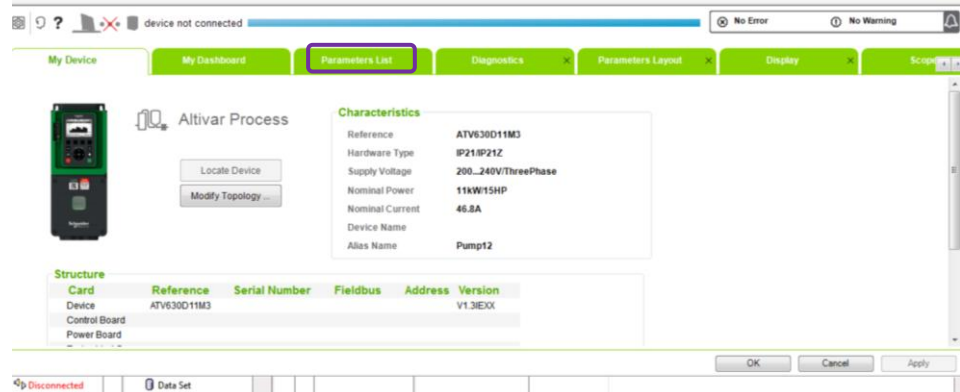➢ An Altivar drive

➢ An Ethernet cable

Select the drive

i. Double click the device in the DTM browser.

ii. Select the drive required using the various filters. (This can be changed later at any time).

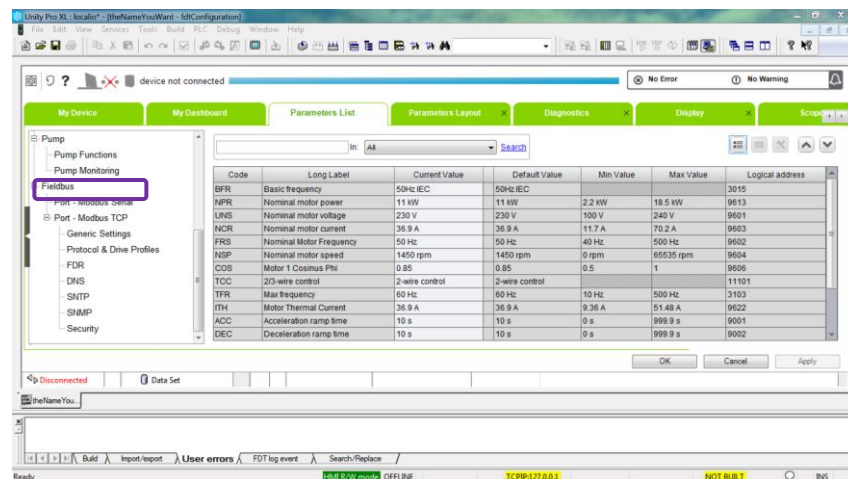iii. For this exercise use an **ATV630D11M3**.

iv. Click **OK**.
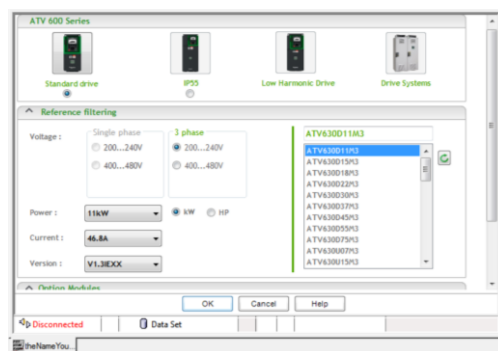
Exercise - Configure an Altivar Drive (cont.)

Create the DFB controlling the drive

i. Double click the drive in the DTM window.

ii. In the newly opened window click the Parameter List tab

iii. Scroll down the list on the left;

iv. Expand Port **– Modbus TCP**

v. Click Protocol and Drive Profiles:

vi. Select the I/O Profile drop down list and click Altivar DFB.

vii. This will automatically create a DDT controlling the drive upon the next Building of the project.

Exercise - Configure an Altivar Drive (cont.)

viii.   Click **OK** to validate the changes.
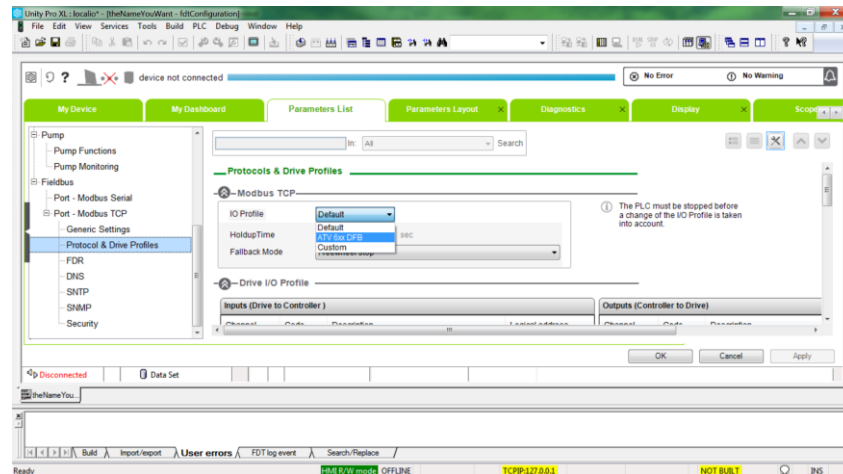
ix.   Build the project to instantiate the DDT.

x.   A DDT called `Pump12` has now been added to the variable list:
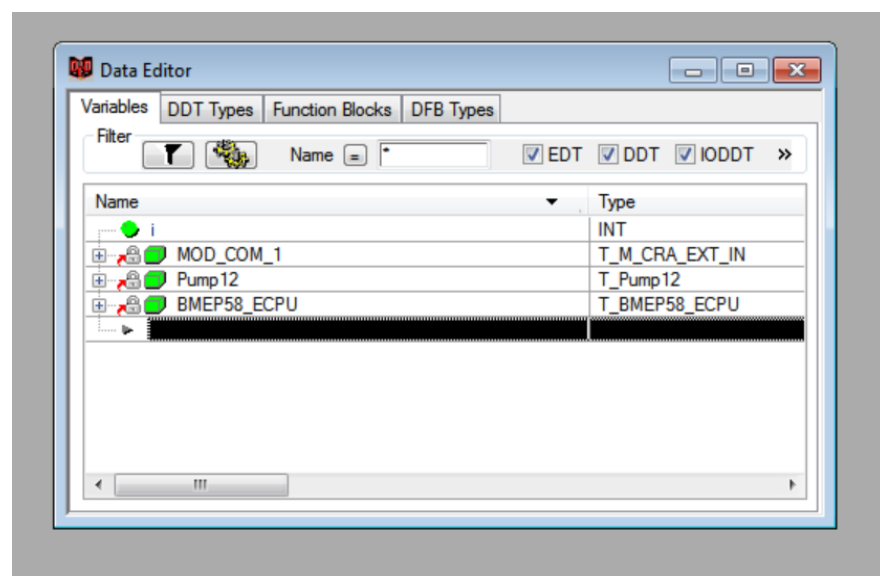
Exercise - Configure an Altivar Drive (cont.)

Transfer the project to the drive and the PLC

i. Plug the Ethernet cable into the Drive and in a port of the M580 that allows connections to DIO drops.

✎ **Note:**

If you are un sure of which port is required, refer to M580 embedded Ethernet Prots in first chapter

ii. Build transfer and run the project to the PLC as usual.

iii. We also need to transfer the project to the drive;

iv. Right click the M580 in the DTM window, and select connect to the M580 via the FDT/DTM technology.

v. Then right click the drive and select **store data to device**.
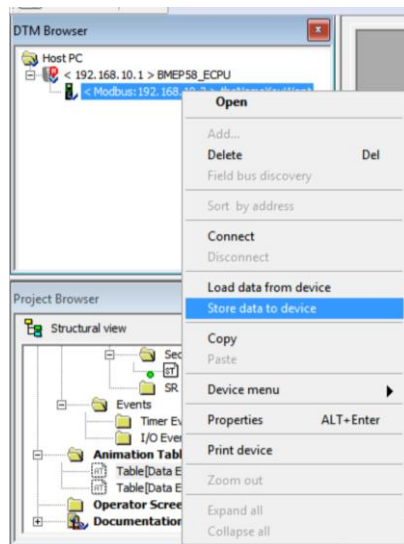
vi. Read the following warning message and press the key combination asked in the message.
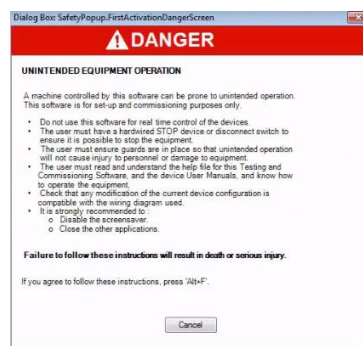
Exercise - Configure an Altivar Drive (cont.)

Test the communication using the Device DDT (Hardware is required for this section)

i. From the animation table make sure that the **SCANNER_OK** has a value of 1. This means that the M58 is properly connected to a device.

Name	Value	Type	Comment
Modification	Force		
⊟ ● BMEP58_ECPU		T_BMEP58_E...	
● ETH_STATUS	195	WORD	Ethernet status
↳ PORT1_LINK	1	BOOL	Link up/down for Et...
↳ PORT2_LINK	1	BOOL	Link up/down for Et...
↳ PORT3_LINK	0	BOOL	Link up/down for Et...
↳ ETH_BKP_PORT_LI...	0	BOOL	Link up/down for Et...
↳ HSBY_LINK	0	BOOL	Link up/down for HS...
↳ REDUNDANCY_ST...	0	BOOL	Redundancy status ...
↳ SCANNER_OK	1	BOOL	Scanner OK and sc...
↳ GLOBAL_STATUS	1	BOOL	0: one or more servi...
● SERVICE_STATUS	65437	WORD	One bit for each use...
↳ RSTP_SERVICE	1	BOOL	0: service not operat...
↳ PORT502_SERVICE	1	BOOL	0: service not operat...
↳ SNMP_SERVICE	1	BOOL	0: service not operat...
↳ MAIN_IP_ADDRES...	1	BOOL	Main IP Address St...
↳ ETH_BKP_FAILURE	0	BOOL	Ethernet backplane ...
↳ ETH_BKP_ERROR	0	BOOL	Ethernet backplane ...
↳ EIP_SCANNER	1	BOOL	0: service not operat...
↳ MODBUS_SCANNER	1	BOOL	0: service not operat...
↳ NTP_SERVER	1	BOOL	0: service not operat...
↳ SNTP_CLIENT	1	BOOL	0: service not operat...
↳ WEB_SERVER	1	BOOL	0: service not operat...
↳ FIRMWARE_UPGR...	1	BOOL	0: service not operat...
↳ FTP	1	BOOL	0: service not operat...
↳ FDR_SERVER	1	BOOL	0: service not operat...
↳ EIP_ADAPTER	1	BOOL	EIP Adapter (Server...
● SERVICE_STATUS2	3	WORD	One bit for each use...
↳ A_B_IP_ADDRESS...	1	BOOL	0 in case of duplicat...
↳ LLDP_SERVICE	1	BOOL	LLDP service status
● ETH_PORT_1_2_S...	177	BYTE	Ethernet port 1 and ...
● ETH_PORT3_BKP_...	51	BYTE	Ethernet port 3 and ...
● IN_PACKETS	57093	UINT	Number of packets r...
● IN_ERRORS	0	UINT	Number of Inbound ...
● OUT_PACKETS	38526	UINT	Number of packets ...
● OUT_ERRORS	0	UINT	Number of Outboun...
● CONF_SIG	0	UDINT	Signature of all files ...
⊞ ▮ CRA_CNX_HEALTH		ARRAY[1..16]...	CRA Objects Conne...
⊞ ▮ DEVICE_CNX_HEA...		ARRAY[0..7] ...	DIO Connection he...
⊞ ▮ DIO_CTRL		T_DIO_CTRL	CTRL Bits for DIO O...

This means that the communication between the Altivar drive and the PLC is good.

Exercise - Configure an Altivar Drive (cont.)

**Control and diagnose the drive from the DTM window (Hardware is required for this section)**

    i.   Double click the drive in the DTM window.

   ii.   Enable the command from the DTM window by clicking **enable**:

  iii.   Set a speed by moving the scale button, and run the drive by clicking run.

  iv.   The drive should now start and the value of the speed displayed in the DTM window should change.

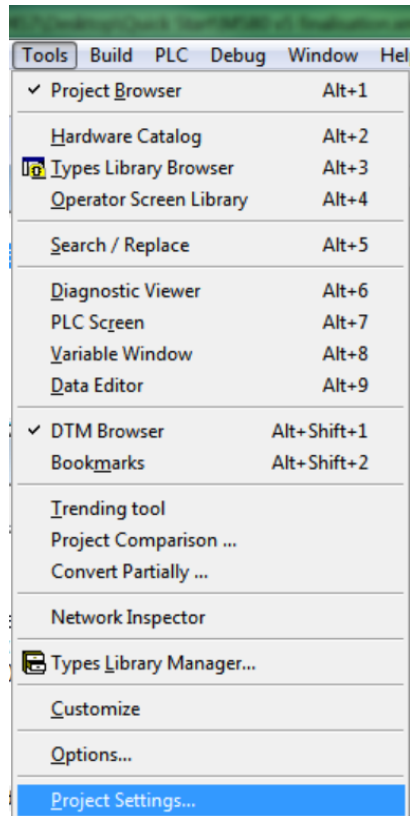   v.   Go to the diagnostic tab to ensure all parameters are **OK**.
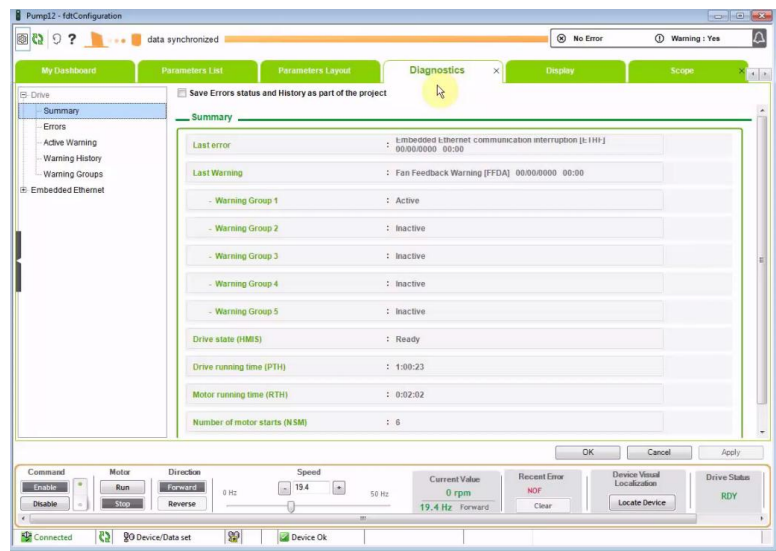
  vi.   Go back to the my device tab to disable the command from the DTM window

Exercise - Configure an Altivar Drive (cont.)

Connect the Device DDT to the DFB

i.   Import the `Pump12FDB.xbd` section And the `Pump12OS.xcr` Operator screen located here into the project.
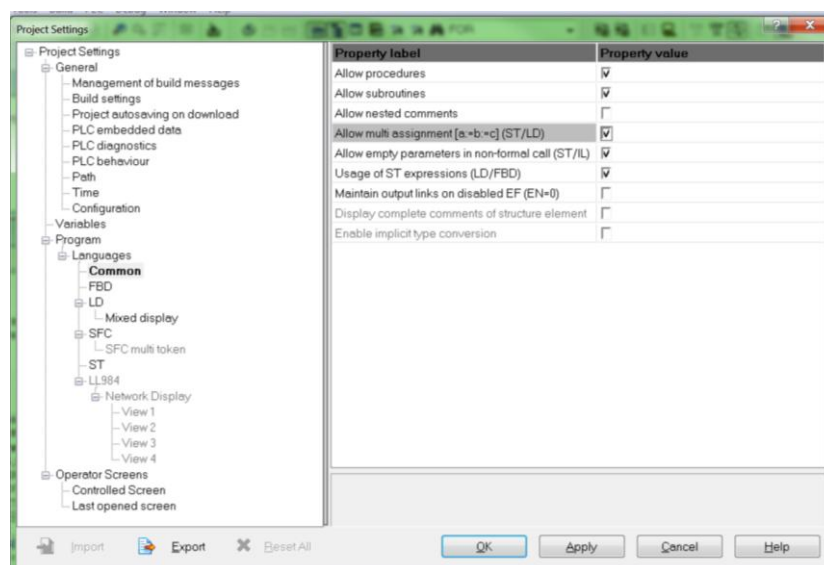
ii.   Build the project.

🖎 **Note:**
If the following error is seen: "E1203 usage of multi assignment statements is disabled" refer to Tools Project Settings
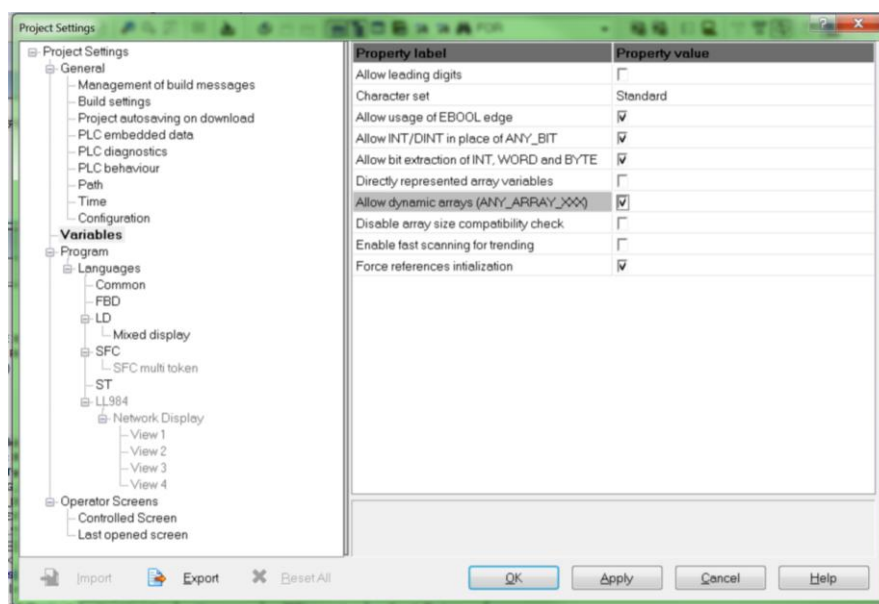

Exercise - Configure an Altivar Drive (cont.)

iii. In `/Program/Languages/Common` and tick the `Allow` multi assignment box.

✎ **Note:**
If you have "E1208 usage of dynamic arrays is disabled", in the project settings click variables and tick "allow dynamic arrays".
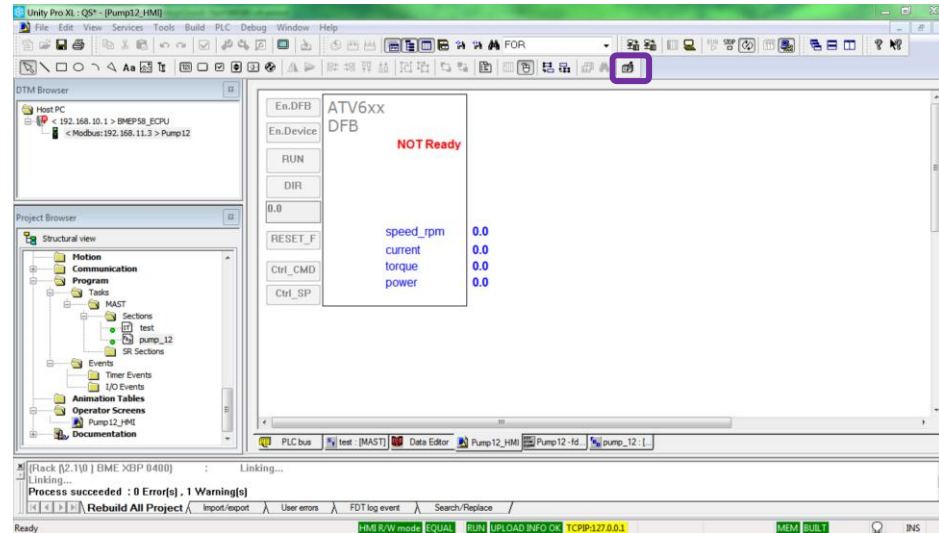

iv. Build the project again.

Exercise - Configure an Altivar Drive (cont.)

Test the drive from an operator screen [Optional] (Hardware is required for this section)

i. **Build and transfer** the project to the PLC and the drive then **Run** it.

ii. Open the operator screen and enable write variable modification.

iii. Note: If the text Ext.controlled is displayed it probably means that did not disabled the control form the DTM window (redo the steps at the end of 5 "Control and diagnostic" the drive from the DTM window).

iv.
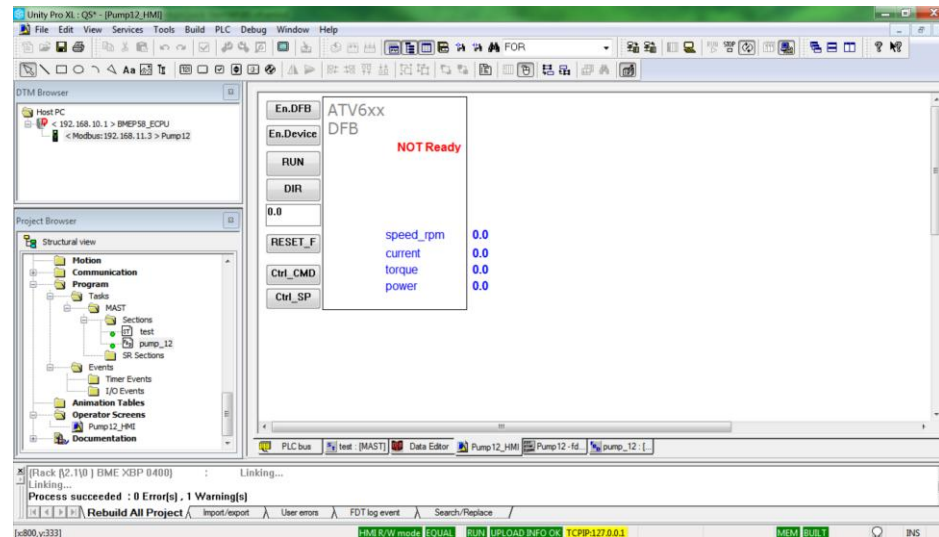
v.
The device should start running and the speed should be actuated in the operator screen.

vi. NOTE: The values aren't actuated in the DTM window.

vii. **Stop** the drive when finished.

viii. The exercise is now over click the link to go back to the <u>Chapter 2 Organisation Chart</u> or to the <u>Table of Contents</u>.