

Introduction

Default PDO mappings for ADVANCED Motion Controls' EtherCAT drives are intended to meet the requirements for most applications. In some cases the mapped objects may need to be modified. This document shows what is required to change the PDO mapping assignments.

Default PDO Mapping

The default RPDO and TPDO mappings are listed in the Tables 1 and 2. There are 16 locations for each PDO. Only 5 are used in the default configuration. Mappings can be added or removed to better fit the application requirements as long as the total size of the mapped object data does not exceed 16 words (256 bits) for the RPDO and 16 words (256) for the TPDO.

Table 1 - Default Pre-Mapped RPDOs

<i>RPDO</i>				
<i>Offset</i>	<i>Name</i>	<i>Index Sub-Index</i>	<i>Size (Word)</i>	<i>Type</i>
1	ControlWord	6040.00	1	UINT
2	Target Position	607A.00	2	DINT
3	Target Velocity	60FF.00	2	DINT
4	Target Current	6071.00	1	INT
5	User Bits	2001.03	1	UINT
6	-	-	-	-
7	-	-	-	-
8	-	-	-	-
9	-	-	-	-
10	-	-	-	-
11	-	-	-	-
12	-	-	-	-
13	-	-	-	-
14	-	-	-	-
15	-	-	-	-
16	-	-	-	-

Table 2 - Default Pre-Mapped TPDOs

<i>TPDO</i>				
<i>Offset</i>	<i>Name</i>	<i>Index Sub-Index</i>	<i>Size (Word)</i>	<i>Type</i>
1	StatusWord	6041.00	1	UINT
2	Actual Position	6064.00	2	DINT
3	Actual Velocity	606C.00	2	DINT
4	Actual Current	6077.00	1	INT
5	Digital Inputs	2023.01	1	UINT
6	-	-	-	-
7	-	-	-	-
8	-	-	-	-
9	-	-	-	-
10	-	-	-	-
11	-	-	-	-
12	-	-	-	-
13	-	-	-	-
14	-	-	-	-
15	-	-	-	-
16	-	-	-	-

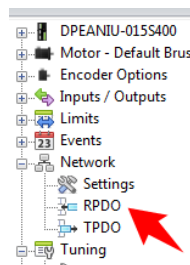
Modifying PDO Assignments

This is a three-step procedure that requires changes to the project file and XML files:

- 1) Modify and download the new project file settings using DriveWare.
- 2) Modify the EtherCAT device description files.
- 3) Write the device description data to the drive using the EtherCAT host.

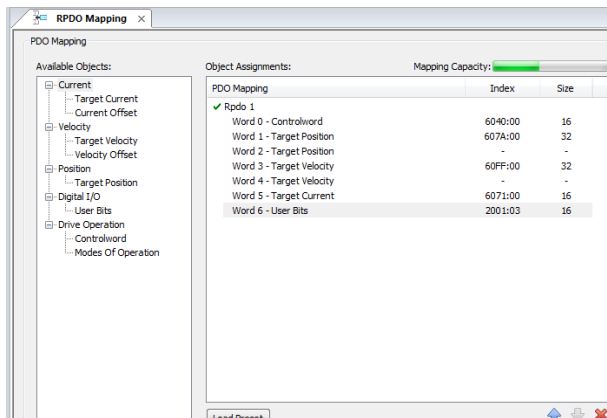
Step 1: Modify and Download the New Project File Settings Using DriveWare

From the DriveWare Setup Panel, navigate to the RPDO or TPDO window under *Network*.



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Available objects will be listed for mapping assignment. Drag the desired objects from the left panel to the object assignments panel on the right. You can remove assigned objects by highlighting and clicking on the red X, or pressing the delete key on your keyboard. The order of the mapping assignments may be adjusted by highlighting an object and then clicking on the up or down arrow button. Once all changes are made and applied, store the project to the drive.



Alternatively, the project file mappings can be modified outside of DriveWare through an EtherCAT host by writing to the PDO mapping objects 1600h and 1A00h.

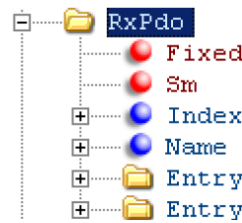
Step 2: Modify the EtherCAT Device Description File

Note: For this step, an XML file editor is recommended (but not required). XML Notepad is a free download from Microsoft.

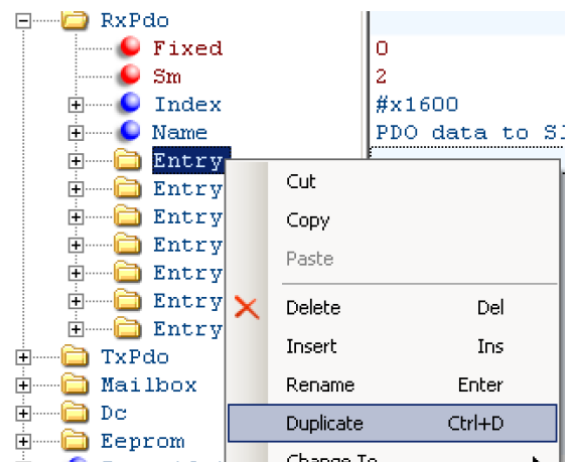
Locate the primary device description file. It should have the following format: "AMC_DPE_XXX_x.xml".

MAKE A BACKUP COPY OF THIS FILE BEFORE CONTINUING.

This file contains PDO mapping information in the "Modules" section. Mapped objects can be removed by deleting the entry for that object. Content can be added by entering in the new index, sub-index, bit length in bytes, name, and data type. Use the existing mapping information as a guide for formatting the new data correctly. The following shows the typical representation in XML Notepad.



Below each PDO heading are individual PDO entries. To add a new entry, highlight an entry then right-click and select **Duplicate**. A new Entry folder is visible below the highlighted Entry.



This Entry may now be modified with new information. Each entry contains the following:

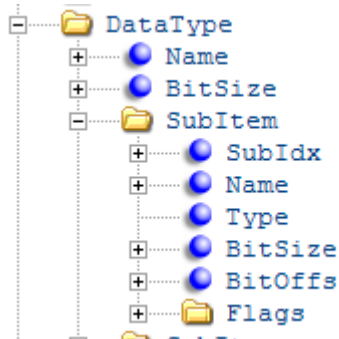
- CANopen object index
- Sub-index
- Bitlength
- Name
- Data Type

Note: Consult the Object Dictionary in *ADVANCED Motion Controls' EtherCAT Communication Manual* for further information on a particular object.

The secondary XML files are in the folder labeled "AMC DP_DZ". There are 4 different files to support a 1 to 4 axis configuration. If using a DPE drive, select the 1-axis file. Otherwise select the XML file associated with the number of axes used on your Node/Sub-node mounting card or assembly. The data type descriptions are listed near the beginning of the file. The data types that need to be modified are DT1600 for RPDO changes or DT1A00 for TPDO changes. Edit the listings to reflect the PDO mappings in the

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project and main XML file. The following shows the typical representation in XML Notepad.

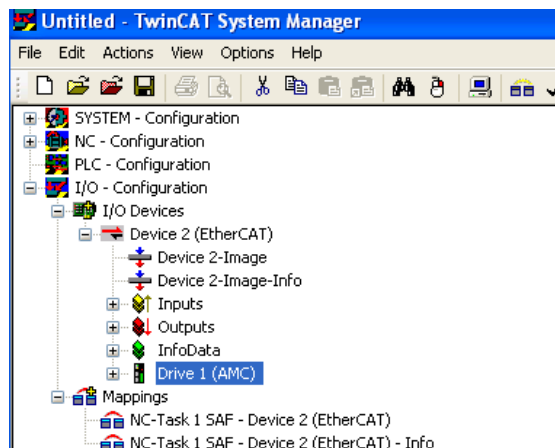


Step 3: Write the Device Description Data to the Drive Using the EtherCAT Host

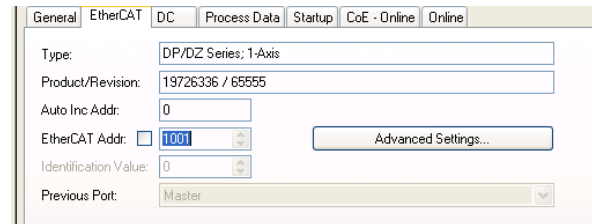
Note: TwinCAT must be restarted to rebuild the device description cache after the XML file has been modified. Close and restart TwinCAT if necessary before proceeding.

The modified XML file will need to get written to the drive. This is accomplished using the EtherCAT host software. Below is an example of how to write the file to the drive using TwinCAT. Methods and requirements will vary depending on the host software.

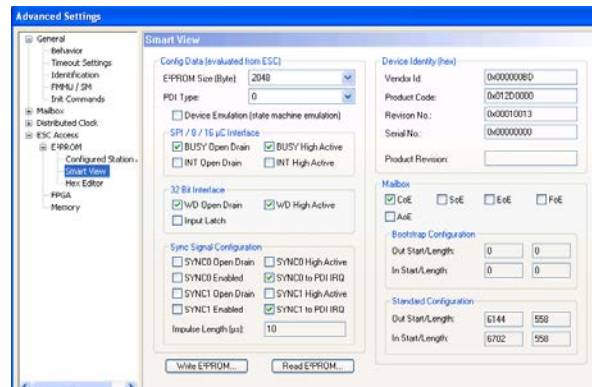
1 - Navigate to Drive 1 (AMC):



2 - Select the EtherCAT tab on the right, and click on the *Advanced Settings* button:

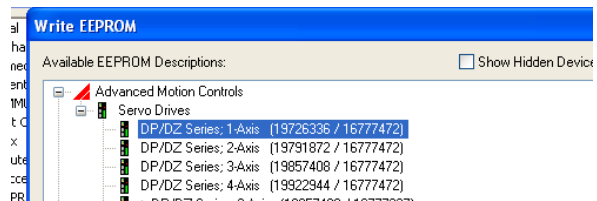


3 - Navigate to ESC Access -> E^2 PROM -> Smart View, and select the Write E^2 PROM button:



4 - Select the file associated with the configuration you have, and press OK. This action will store settings to the drive.

Note: If there are any syntax errors in the XML file, the Write EEPROM window may be blank. Check XML syntax and restart TwinCAT in this case.



5 - Power cycle the drive to activate the new settings.