SMDYYx2 Sample Programs - READ ME

NOTE: The SMDYYx2 sample programs are written to work with all of AMCI's SMD integrated drives – SMD17x2, SMD23x2, SMD24x2, and SMD34x2. If you want to use these sample programs for any other drive besides the SMD23x2, replace the existing SMD23x2 with the one of your choice and assign to the chosen drive the generic name: SMDYYx2.

The *SMDYYx2_Sample_Program* shows the basic steps needed to get you started controlling all of AMCI's integrated stepper motor drivers. This program will preset the position, make relative and absolute moves, make JOG CW and CCW moves, make repetitive CW and CCW moves, or clear errors.

The SMDYYx2_Sample_Program_Assembled_Move shows how to program assembled moves and to perform blend and dwell moves.

These sample programs also show how to read and write data to the drive using DPRD_DAT and DPWR_DAT instructions in order to preserve the consistency of the transferred data.

There is also a **SMDYYx2 Library** folder with common *Functions*, *Data Blocks*, and *SMDYYx2 Tags*, some of which are used in the sample programs. This library can be imported, and modified if needed, for use in any other project.

The following information will help you correctly set parameters by finding needed values that are assigned by your system and, therefore, are unique to your program.

1. A **DPRD_DAT** instruction is used to read data from the SMDYYx2 driver and ensures consistent data that does not change in the middle of the program scan. This instruction has 3 parameters that need to be assigned:

    a) The **LADDR** parameter selects the PROFINET I/O module from which data will be read. As shown in the following figure, to find an available address, open either the *Default tag table* or *Show all tags* and select the *System constants* tab.
    b) The **RECORD** parameter defines the target *Data Block* (*DB*), which will contain the SMDYYx2 Input Data that is read by this instruction.
   c) The **RET_VAL** parameter will contain an error code if an error occurs while the instruction being executed.

DPRD_DAT instruction

2. A **DPWR_DAT** instruction is used to write data to the SMDYYxx2 and ensures that all twenty bytes of data reach the driver at one time. This instruction has 3 parameters that need to be assigned:

   a) The **LADDR** parameter selects the PROFINET I/O module to which data will be written. As shown in the following figure, to find an available address, open either the *Default tag table* or *Show all tags* and select the *System constants* tab.
   b) The **RECORD** parameter defines the target *Data Block* (*DB*), which will contain the SMDYYx2 Output Data to be written to the SMDYYx2 driver by this instruction.
   c) The **RET_VAL** parameter will contain an error code if an error occurs while the instruction being executed.

DPWR_DAT instruction
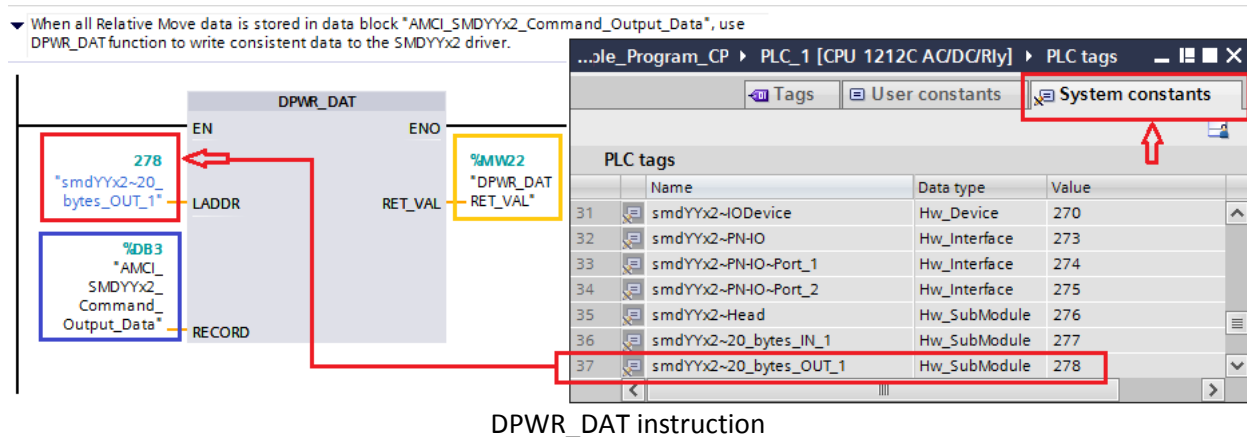
3. The *"Optimized block access"* attribute must be unchecked for the DPRD_DAT and DPWR_DAT instructions to work correctly with the *Data Blocks (DB)* used to read data from and write data to the SMDYYx2 driver. To verify, right click on the selected *Data Block (DB)* and, from the pop-up menu, choose *Properties ...* As shown in the following image, in the *Properties* window under the *General* tab select *Attributes,* and verify that the *"Optimized block access"* is unchecked.
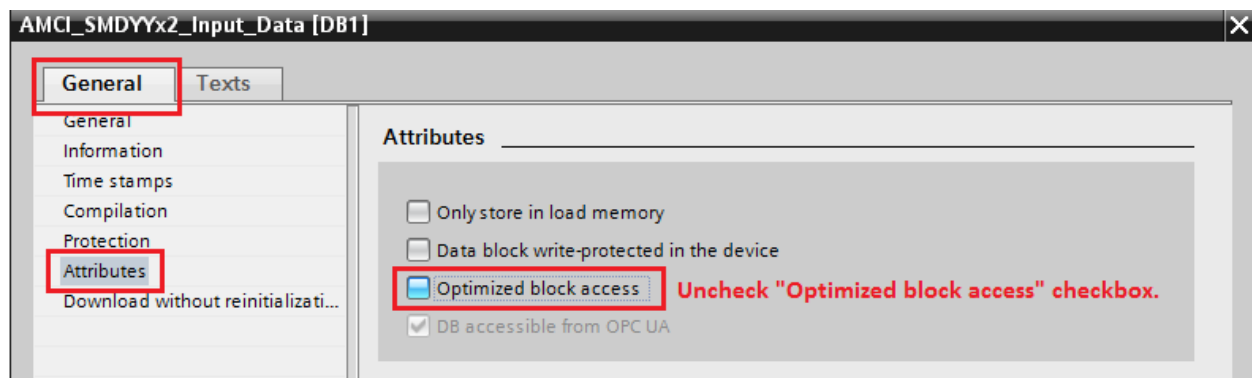
Data Block - *Attributes* properties

4. Input and Output Module addresses are assigned by the system when the SMDYYx2 driver is added to the network. If you would prefer to access the SMDyyx2's information directly, to learn the location of these registers, select the SMDYYx2 driver from the **Network view** and then select the **Device view** tab. In this example, Status Word 0, as an input word, would be located in **IW68**, Status Word 1 in **IW70**… and the Command Word 0, as an output word, would be located in **QW64**, Command Word 1 in **QW66**…

Input and Output Module Addresses