

SD4840x2 Sample Programs - READ ME

The **SD4840x2_Sample_Program** shows the basic steps needed to get you started controlling the AMCI SD4840x2. 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 **SD4840x2_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 **SD4840x2 Library** folder with common **Functions**, **Data Blocks**, and **SD4840x2 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 SD4840x2 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 SD4840x2 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.

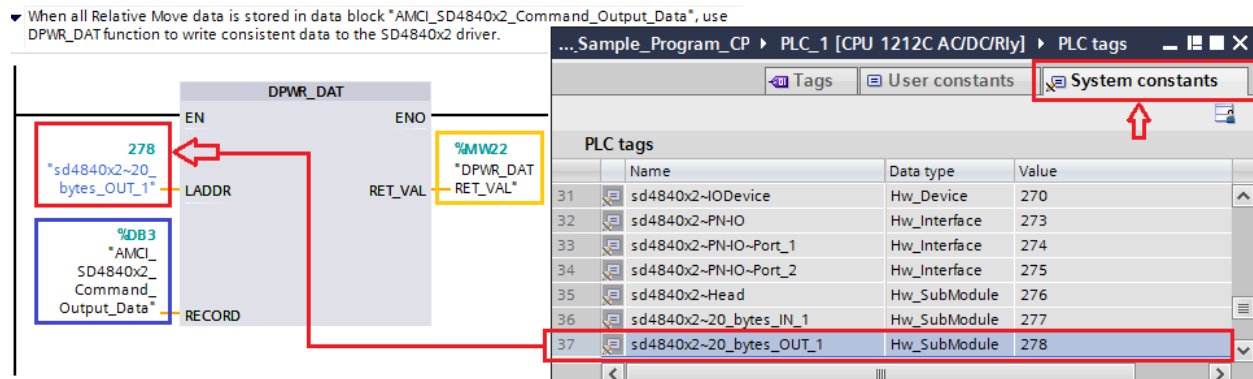
▼ To read a consistent data from the SD4840x2 driver, a DPRD_DAT instruction is used. Data will be stored in Data Block *AMCI_SD4840x2_Input_Data. It is this stored data that your ladder logic program should use when referencing the SD4840x2 input data.

The screenshot shows the 'DPRD_DAT' instruction in a ladder logic program. The instruction has three parameters: LADDR, RET_VAL, and RECORD. The LADDR parameter is set to 277, which is highlighted in a red box. The RET_VAL parameter is set to *AMCI_SD4840x2_Input_Data, which is highlighted in a yellow box. The RECORD parameter is set to *AMCI_SD4840x2_Input_Data, which is highlighted in a blue box. The PLC tags table on the right shows the address 277 assigned to the tag 'sd4840x2~20_bytes_IN_1'.

Name	Data type	Value
sd4840x2~IODevice	Hw_Device	270
sd4840x2~PNIO	Hw_Interface	273
sd4840x2~PNIO~Port_1	Hw_Interface	274
sd4840x2~PNIO~Port_2	Hw_Interface	275
sd4840x2~Head	Hw_SubModule	276
sd4840x2~20_bytes_IN_1	Hw_SubModule	277
sd4840x2~20_bytes_OUT_1	Hw_SubModule	278

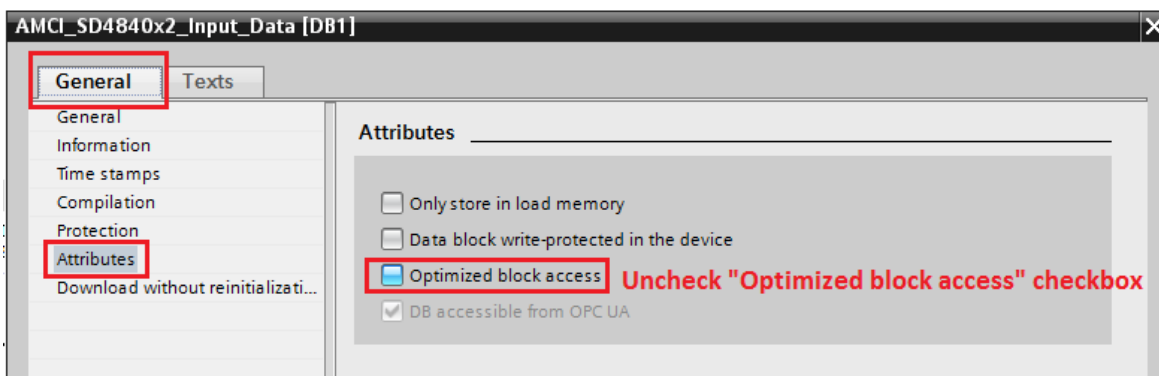
DPRD_DAT instruction

2. A **DPWR_DAT** instruction is used to write data to the SD4840x2 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 SD4840x2 Output Data to be written to the SD4840x2 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 SD4840x2 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 SD4840x2 driver is added to the network. If you would prefer to access the SD4840x2's information directly, to learn the location of these registers, select the SD4840x2 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**...

The screenshot shows the SD4840x2 driver configuration interface. The 'Device view' tab is selected and highlighted with a red box. The 'Device overview' table displays the following data:

Module	Rack	Slot	I address	Q address	Type
sd4840x2	0	0			SD4840x2
PN-IO	0	0 X1			sd4840x2
20 bytes IN_1	0	1	68...87		20 bytes IN
20 bytes OUT_1	0	2		64...83	20 bytes OUT

Red arrows point from the 'Input addresses' label to the '68...87' address range, and from the 'Output addresses' label to the '64...83' address range. Both address ranges are also highlighted with red boxes.

Input and Output Module Addresses