

## SD\_AC\_DRIVEx2 Sample Programs - READ ME

**NOTE:** The SD\_AC\_DRIVEx2 sample programs are written to be fully applicable for both the AMCI SD17060x2 and SD31045x2 drives. If you want to use these sample programs for the SD31045x2 drive, replace the existing drive (SD17060x2) in the sample program with the SD31045x2 drive and assign to the drive the same generic name: SD\_AC\_DRIVEx2.

The **SD\_AC\_DRIVEx2\_Sample\_Program** shows the basic steps needed to get you started controlling the AMCI SD\_AC\_DRIVEx2. 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 **SD\_AC\_DRIVEx2\_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 **SD\_AC\_DRIVEx2 Library** folder with common **Functions**, **Data Blocks**, and **SD\_AC\_DRIVEx2 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 SD\_AC\_DRIVEx2 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 SD\_AC\_DRIVEx2 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.

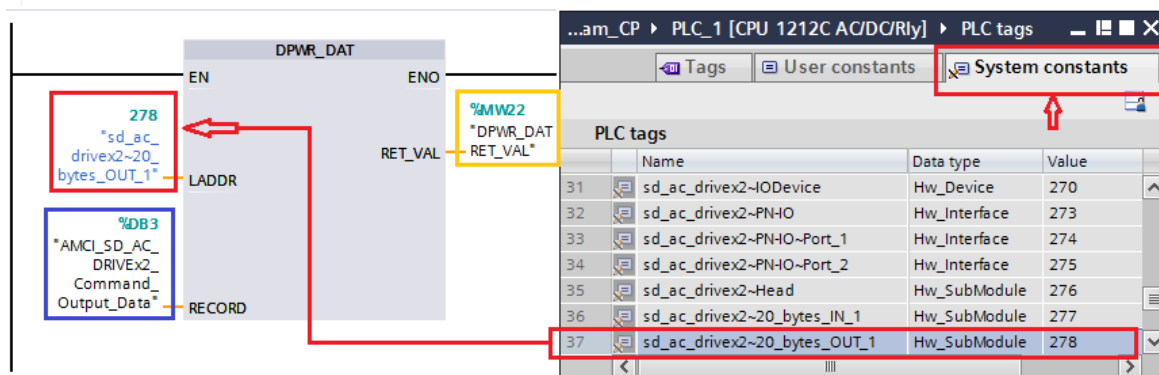
▼ To read a consistent data from the SD\_AC\_DRIVEx2 driver, a DPRD\_DAT instruction is used. Data will be stored in Data Block "AMCI\_SD\_AC\_DRIVEx2\_Input\_Data". It is this stored data that your ladder logic program should use when referencing the SD\_AC\_DRIVEx2 input data.

Name	Data type	Value
sd_ac_drivex2~IODevice	Hw_Device	270
sd_ac_drivex2~PN-IO	Hw_Interface	273
sd_ac_drivex2~PN-IO~Port_1	Hw_Interface	274
sd_ac_drivex2~PN-IO~Port_2	Hw_Interface	275
sd_ac_drivex2~Head	Hw_SubModule	276
sd_ac_drivex2~20_bytes_IN_1	Hw_SubModule	277
sd_ac_drivex2~20_bytes_OUT_1	Hw_SubModule	278

DPRD\_DAT instruction

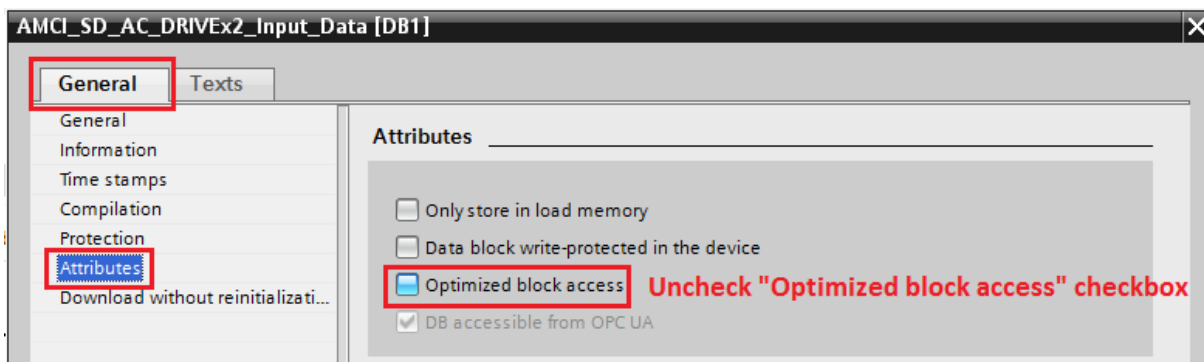
2. A **DPWR\_DAT** instruction is used to write data to the SD\_AC\_DRIVEx2 and ensures that all twenty bytes of data reach the driver at one time. This instruction has 3 parameters that need to be assigned:
  - a) The **LADDR** parameter selects the PROFINET I/O module to which data will be written. 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 SD\_AC\_DRIVEx2 Output Data to be written to the SD\_AC\_DRIVEx2 driver by this instruction.
  - c) The **RET\_VAL** parameter will contain an error code if an error occurs while the instruction being executed.

▼ When all Relative Move data is stored in data block "AMCI\_SD\_AC\_DRIVEx2\_Command\_Output\_Data", use DPWR\_DAT function to write consistent data to the SD\_AC\_DRIVEx2 driver.



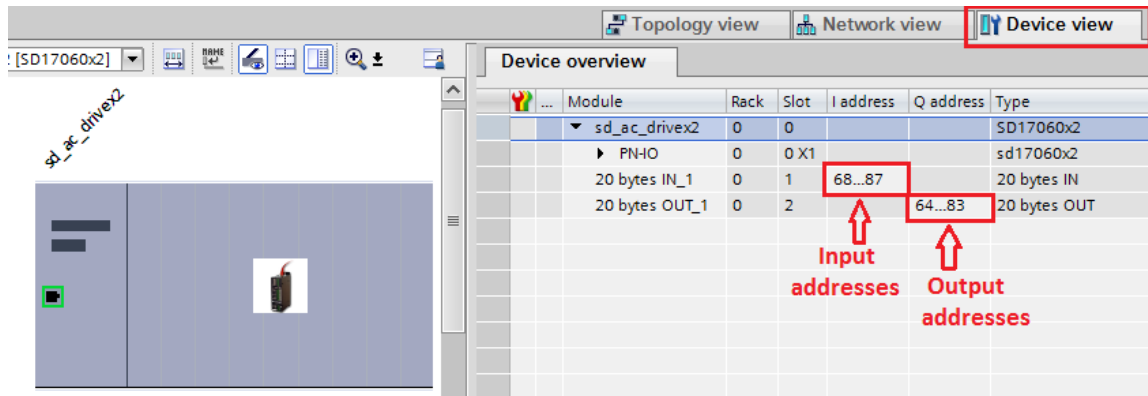
DPWR\_DAT instruction

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 SD\_AC\_DRIVEx2 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 SD\_AC\_DRIVEx2 driver is added to the network. If you would prefer to access the SD\_AC\_DRIVEx2's information directly, to learn the location of these registers, select the SD\_AC\_DRIVEx2 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 'Device view' tab selected in a software interface. On the left, there is a graphical representation of a rack with a label 'sd\_ac\_drive2' pointing to a specific module. The main part of the interface is a table titled 'Device overview'.

Module	Rack	Slot	I address	Q address	Type
sd_ac_drive2	0	0			SD17060x2
PN-IO	0	0 X1			sd17060x2
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 text 'Input addresses' to the '68...87' address range, and from 'Output addresses' to the '64...83' address range.

Input and Output Module Addresses