

PWS_CMD: Redundant Power Supply Control


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Description of the Function

The PWS_CMD function block is used to control [redundant power supplies](#) in a Modicon M580 PAC main rack with an Ethernet backplane (local or remote rack, other connected Modicon M580 PAC).

PWS_CMD function block provides the following command:

- Swap master and slave power supplies.
- Clear some diagnostic counters.
- Start a power supply auto-diagnostic.

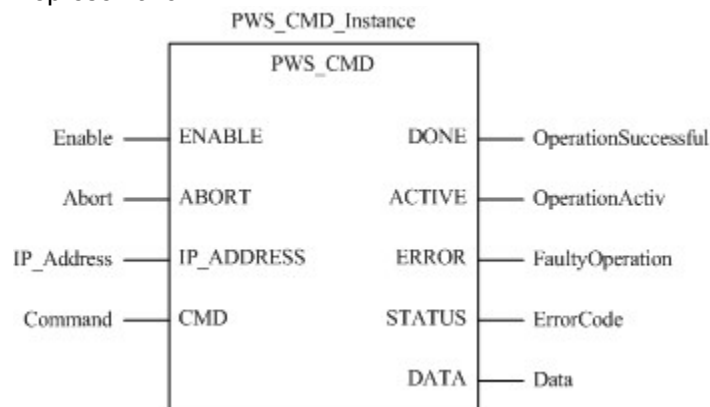
The power supply command is built with the [PWS_CMD DDT](#) DDT type.

The additional parameters [EN](#) and [ENO](#) may also be configured.

NOTE: Redundant power supplies function is available on CPUs with OS firmware V2.12 or later, and BMECRA31210 communication adapters with firmware V2.16 or later.

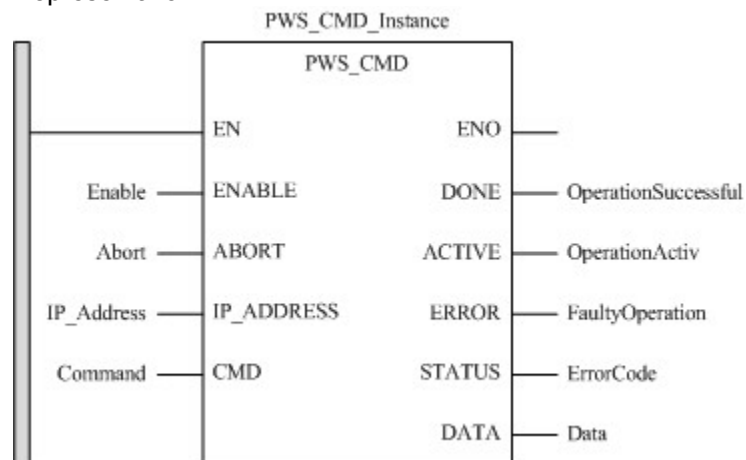
BD Representation

Representation:



.D Representation

Representation:



L Representation

Representation:

```
CAL PWS_CMD_Instance (ENABLE:=Enable, ABORT:=Abort, IP_ADDRESS:=IP_Address,
```

```
CMD:=Command, DONE=>OperationSuccessful, ACTIVE=>OperationActiv,
ERROR=>FaultyOperation, STATUS=>ErrorCode, DATA=>Data)
```

ST Representation

Representation:

```
PWS_CMD_Instance (ENABLE:=Enable, ABORT:=Abort, IP_ADDRESS:=IP_Address,
CMD:=Command, DONE=>OperationSuccessful, ACTIVE=>OperationActiv,
ERROR=>FaultyOperation, STATUS=>ErrorCode, DATA=>Data);
```

Description of Parameters

The following table describes the input parameters:

Parameter	Type	Comment
Enable	BOOL	Set to 1 to send a command to a power supply.
Abort	BOOL	Set to 1 to abort the current operation.
IP_Address	STRING	The <code>IP_Address</code> parameter value depends on the location of the redundant power supplies to control: In the local rack of the CPU: Leave the parameter empty or use a variable with an empty string, or enter the CPU IP address. In a distant rack: Enter the IP address of the communication adapter of the rack that contains the power supply module to control. Example of IP address: <i>192.168.10.5</i> or <i>192.168.010.005</i>
Command	PWS_CMD_DDT	Command data for the power supply to control.

The following table describes the output parameters:

Parameter	Type	Comment
OperationSuccessful	BOOL	Operation completed indication. Set to 1 when the execution of the operation is completed successfully.
OperationActiv	BOOL	Operation in progress indication. Set to 1 when the execution of the operation is in progress.
FaultyOperation	BOOL	Set to 1 if an error is detected by the function block.
ErrorCode	WORD	Code providing the detected error identification .
Data	ANY	Data needs to be declared (as a simple <code>UINT</code> for example), but it remains empty.

Description of PWS_CMD_DDT Type

Detailed description of PWS_CMD_DDT structure:

Field	Size	Value
Code	1 BYTE	Command code: 1: Swap power supply role.

		NOTE: Both power supplies need to be set as target (<code>PwsTarget = 3</code>) to apply the swap command. 2: Reserved. 3: Clear power supply diagnostic counters. The following counters are cleared: • <code>NbPowerOn</code> • <code>NbUnderVoltageLow</code> • <code>NbUnderVoltageHigh</code> NOTE: This command applies to the power supply selected in the target (<code>PwsTarget</code>). 4: Start power supply auto-diagnostic. This command triggers a sequence during which the slave power supply checks its capability to deliver the required current to the rack: • During this sequence: The slave power supply temporarily delivers the power on the rack and <code>PwsDiag</code> bit is set to 1. If a failure is detected on the output voltage: <code>PwsDefect</code> and <code>PwsDefectVoltage</code> bits are set to 1 and maintained until the slave power supply is power-cycled or replaced. • After this sequence: The master power supply plays its role again and provides full power to the rack. NOTE: Both power supplies need to be set as target (<code>PwsTarget = 3</code>) to apply the auto-diagnostic command. NOTE: Use this command punctually to apply the auto-diagnostic once. If a frequent status is needed, use this command once every minute for example. Do not send this command permanently because it may maintain the power supplies in a swap sequence.
<code>PwsTarget</code>	1 BYTE	Targeted power supply on the rack: 1: Power supply on the left side of the rack (CPS1). 2: Power supply on the right side of the rack (CPS2). 3: Both power supplies.