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The following instructions describe how a MASTERDRIVES drive with speed control can be coupled to a SIMATIC S7 CPU.
Only the ON/OFF command, the fault acknowledge and the speed setpoint are operated as control commands. Status word 1 (ZSW1) and the main actual value are read back as actual values.

1. First, commissioning must be performed via terminals or DriveMonitor; the Profibus communication must be set up afterwards, i.e. when the drive can already rotate without problems.
2. Insert a MASTERDRIVES from the STEP7 hardware catalog into the Profibus. The Masterdrives converters (CBPx) are included as standard components in the STEP7 hardware catalog. SIEM8045 is the corresponding gsd file. The CBPx does not require any settings. All connections between the bus and the converter are set up via parameters in the converter.
3. Select the telegram type "Standard telegram 1" or "PPO3".
Please note the I/O start addresses specified for this drive via the hardware configuration (the further description is based on I/O address 256).
4. Save and compile the created hardware configuration and load it on the CPU.

5. Open OB1:
Enter the following S7 commands to read in the check-back messages from the drive into the CPU and to specify the control commands on the drive:

```
L PEW 256            // Read in the first I/O input word (ZSW1)
T MW 20              // Put as ZSW1 status word on marker
L PEW 258            // Read in second I/O input word (HIW)
T MW 22              // Put as HIW main actual value on marker
L MW 10              // Set up STW1 control word as marker word
T PAW 256            // Output to first I/O output word
L MW12               // Set up HSW main control word as marker word
T PAW 258            // Output to second I/O output word
```

6. You can now control the drive via the MW10 and MW12 marker words.

First, set Bit10 of the control word to "1" (guide required).

```
SET
S M 10.2
```

To switch on the drive:
```
U E x.y              // Input for ON/OFF
S M 11.0             // Set ON bit in control word
```
To switch off the drive:
```
UN E x.y
R M 11.0             // Reset ON bit in control word
```

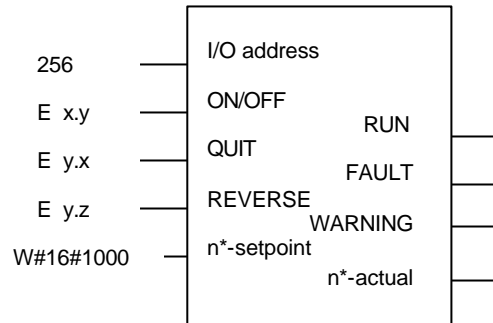## To acknowledge the error message:
```
U E y.z              // Input for fault acknowledgement
U M 21.3             // Fault pending
= M 11.7             // Set acknowledge bit in control word
```

To specify the setpoint value:
```
L W#16#1000     // 25% speed (4000 == 100%)
T MW 12
```

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8. The below-mentioned function may be used as an alternative for STEP7 commands in OB1.

The call-up for a drive is therefore specified as follows:

This FC15 function included in the attached FAQMD_DP.zip file is available for download. It is not protected and can be modified if required. Additional support is not possible for this purpose. To use the Reversing input, the corresponding bits must be specified in STW1. Refer to chapter 10.2. The speed setpoint or the actual value is indicated / displayed as an amount.

9. Further notes

- To use more functions on the drive, the function can be extended depending on the significance of the STW1 and the ZSW1 status word.

- Drive ES SIMATIC should be used for more complex tasks, such as the reading and writing of drive parameters. This product can be ordered via MLFB 6SW1700-5JC00-3AA0.
This software package includes fully programmed and tested function blocks for the supply and return of all process data, for the read out of the fault and diagnostic memories of the drives as well as for the download of complete or partial parameter sets consisting of one or several data blocks in the working memory or load memory.

10. Specification of Masterdrives parameters

10.1 The DP address specified via the hardware is entered into P918. To do this, P060 must be 4.

10.2 Cabling of the PZD

- Controlling from the S7
P554 = 3100   ON/OFF
P566 = 3107   Acknowledge
P571 = 3111   Release of positive direction of rotation, only with FC15; otherwise "1"
P572 = 3112   Release of negative direction of rotation, only with FC15; otherwise "1"
P443 = 3002   Main setpoint

- Actual values of Masterdrives towards S7
P734.01 = 32   Status word ZSW 1
P734.02 = 148 / 151   Actual value (depending on the MC/VC variant and control type)

11. The following pages of function diagrams in the compendium are particularly important:

120 / 125   Send and receive data on the Profibus board
180   Control word
200   Status word
310   Main setpoint