

# S7-Project Transfer via Memory Card

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The MMC (Memory Card<sup>1</sup>), as well as the VSD<sup>2</sup>, serves as external transfer and storage medium. There may be stored several projects and sub-directories on a MMC / VSD storage module. Please regard that your current project is stored in the root directory and has one of the following file names:

- **S7PROG.WLD**
- **AUTOLOAD.WLD**

With 'File → Memory Card File → New' in the Siemens SIMATIC Manager and TIA Portal a new wld-file may be created. After the creation copy the blocks from the project blocks folder and the System data into the wld file.

**Notice:** Instead of a MMC, a MSC (Memory Set Card) or VSC (VIPA Set Card, SLIO system only) can be used and is mandatory for large programs. These cards contain a configuration file activating additional RAM on the VIPA-CPU.

**This file should not be deleted or modified, or the card formatted respectively!!**

## Transfer MMC → CPU

The transfer of the application program from the MMC into the CPU takes place depending on the file name after an overall reset or Power ON.

- *S7PROG.WLD* is read from the MMC after overall reset<sup>3</sup>.
- *AUTOLOAD.WLD* is read after Power ON from the MMC.

The blinking of the MC LED of the CPU marks the active transfer. Please regard that your user memory serves for enough space, otherwise your user program is not completely loaded and the SF LED gets on.

## Transfer CPU → MMC

When the MMC has been installed, the write command stores the content of the battery buffered RAM as *S7PROG.WLD* on the MMC.

The write command is controlled by means of the block area of the Siemens SIMATIC Manager 'PLC → Copy RAM to ROM'. During the write process the MC LED of the CPU is blinking. When the LED expire the write process is finished.

If this project is to be loaded automatically from the MMC with Power ON, you have to rename this on the MMC to *AUTOLOAD.WLD*.

## Transfer control

After a memory card access an ID is written into the diagnostic buffer of the CPU. To monitor the diagnosis entries, you select 'PLC → Module Information' in the Siemens SIMATIC Manager. Via the register "Diagnostic Buffer" you will reach the diagnostic window.

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<sup>1</sup> MMC = Multi Media Card, VIPA Art. No. 953-0KX10, FAT formatted, 1GB max, Industrial Standard

<sup>2</sup> VSD = VIPA SD-card, used in combination with VIPA SLIO system only, VIPA Art. No. 955-0000000

<sup>3</sup> An overall reset is as well executed when the buffer battery of the RAM is empty (after approx. 30 days)

The following events can be found on the diagnostic file in combination with a memory card:

| Event-ID | Meaning  |
|----------|--|
| 0xE100   | Memory card access error   |
| 0xE101   | Memory card error file system  |
| 0xE102   | Memory card error FAT  |
| 0xE104   | Memory card error at saving  |
| 0xE200   | Memory card writing finished (Copy RAM to ROM)   |
| 0xE210   | Memory card reading finished (reload after overall reset)                                  |
| 0xE21E   | Memory card reading: Error at reload (after overall reset), file „Protect.wld“ too big     |
| 0xE21F   | Memory card reading: Error at reload (after overall reset), file read error, out of memory |
| 0xE400   | Memory card with option memory extension was plugged                                       |
| 0xE401   | Memory card with option memory extension was removed                                       |
| 0xE402   | Required feature set has not been activated via VSC  |
| 0xE8FF   | MMC-Cmd: Error while reading CMD file (memory card error)                                  |

## Other project transfer methods<sup>4</sup>

### MMC-Cmd – Auto commands

Beside of the above mentioned methods regarding how to create a project file and how to transfer this file between CPU and memory card, it is also possible to work with **MMC-Cmd – Auto commands**. A command file at a memory card may be started automatically when the MMC is stuck and the CPU is in STOP. As soon as the MMC is stuck the command file is once executed at CPU STOP up to the next Power ON. The command file is a text file which consists of a command sequence to be stored as *vipa\_cmd.mmc* in the root directory of the memory card. Further details regarding the Cmd-commands and design of the code can be found in the associated VIPA CPU user guide.

### Program controlled transfer

Further, the PLC program itself can include tasks and functions whose start a project transfer from the CPU to the memory card. **FB 240 – RAM\_to\_s7prog.wld**, in combination with *REQ = TRUE*, creates a copy of the project, currently loaded in the RAM of the CPU, on a stuck memory card as S7PROG.WLD file. This file is available then for being reloaded from the CPU after the next overall reset. Internally, the FB 240 calls the SFB 239 including all required parameters. Hereby the values for *BUSY* and *RET\_VAL* will be handover from the SFB 239 to the FB 240.

#### Parameters

| Name    | Declaration | Datatypes | Memory area   | Description                  |
|---------|-------------|-----------|---------------|------------------------------|
| REQ     | IN          | BOOL      | E, A, M, D, L | Starts function with REQ = 1 |
| BUSY    | OUT         | BOOL      | E, A, M, D, L | Return value from SFB 239    |
| RET_VAL | OUT         | WORD      | E, A, M, D, L | Return value from SFB 239    |

The SFB 239 – FUNC is performing intrasystem functions. These functions are always requested together with an instance DB call. **IMPORTANT: After processing this function, the CPU is always set to STOP automatically!**

<sup>4</sup> Applicable only for VIPA CPU's 300S (with firmware version 3.0.8 and higher), MICRO and SLIO