Data storage options for the CU2xy-2

SINAMICS G120 with CU2xy-2

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Service & Support

Answers for industry.

SIEMENS

Question

How much memory does the CU2xy-2 have – and what type of memory?

How are parameters copied between the internal and external memories?

In which situations/states of the control unit – and under what conditions – is parameter copying started by the runtime?

What functions are available to users to copy parameters between the memories?

Answer

The Control Units of the SINAMICS G120 CU2xy-2 series have an internal volatile memory (RAM) and an internal, non-volatile memory (ROM). As an option, it is possible to expand the Control Unit with an external non-volatile memory (MMC/ SD card). To copy parameters between the internal memory and the external memory of the Control Unit, functions are used that are either manually started or automatically started by the firmware.

These functions are explained in the following.

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1 Function overview

The functions are explained using the following diagrams.

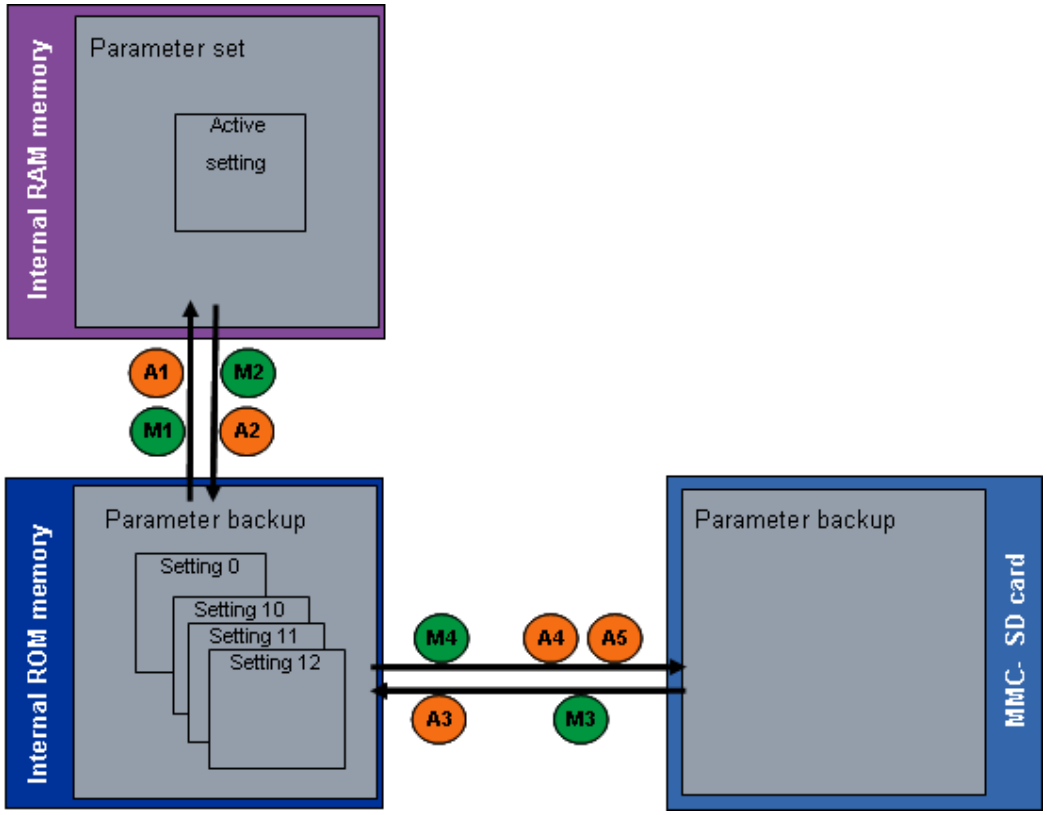

Fig. 1-1 Overview, memory and parameter management, CU2xy-2 FW >= V4.3

2 Copying between the internal memories of the CU (RAM <-> ROM)

The internal RAM memory of the Control Unit contains the active setting of the parameters and defines the behavior of the drive in operation. The internal ROM memory has up to 4 different settings (settings 0/10/11/12).

2.1 Copying the parameter set from ROM > RAM

A1 **A parameter set is automatically copied from ROM to RAM**

The inverter always loads the 0 setting of the internal ROM into the internal RAM as active setting after the Control Unit has been switched on.

If, when switching-on the CU, an MMC / SD card is inserted, then initially (A3) is checked and executed.

M1 **A parameter set is manually copied from ROM to RAM**

With P0970= 10/11/12, you copy the selected 10/11/12 setting from the internal ROM into the internal RAM. The inverter overwrites the active setting in the RAM by the selected setting from the ROM.

2.2 Copying a parameter set from RAM > ROM

A2 **A parameter set is automatically copied from RAM to ROM**

If you change parameter values at an operator panel (BOP-2 or IOP), then the inverter automatically backs up the active setting from the RAM in the 0 setting of the ROM.

M2 **A parameter set is manually copied from RAM to ROM**

With P0971= 0/10/11/12, you copy the active setting from the internal RAM into the selected 0/10/11/12 setting in the ROM.

If an MMC / SD card is inserted, then (A4) is subsequently executed.

3 Copying between the internal and external memories of the CU (ROM <-> MMC / SD card)

The drive can save and manage up to 100 different settings (settings, 0 to 99) on the MMC / SD card. The internal ROM memory is limited to 4 settings.

3.1 Copying a parameter set from the MMC / SD card > ROM

A3 A parameter set is automatically copied from the MMC / SD card to ROM

The inverter automatically copies the 0 setting from the card to the 0 setting in the internal ROM under the following conditions:

- The Control Unit power supply is switched-on
- The memory card has the 0 setting
- The 0 setting on the memory card and in the internal ROM are different

M3 A parameter set is manually copied from the MMC / SD card to ROM

By setting parameter p0804=1, you copy the selected setting corresponding to p0802=0...99 from the memory card in a setting corresponding to p0803=0/10/11/12 in the internal ROM.

3.2 Copying a parameter set from ROM > MMC / SD card

A4 A parameter set is automatically copied from ROM to MMC / SD card

The inverter automatically copies the 0/10/11/12 setting from the internal ROM to the 0/10/11/12 setting of the memory card if the command for RAM-ROM copying is set corresponding to P0971=1/10/11/12.

If the memory card already includes a 0 setting, then this is overwritten.

A5 A parameter set is automatically copied from ROM to MMC / SD card

The inverter automatically copies the 0 setting from the internal ROM to the 0 setting of the card under the following conditions:

- The Control Unit power supply is switched on
- The memory card is inserted
- There is no “0” setting on the memory card

If the 0 setting is available on the card, then A3 is executed as a result of the higher priority.

M4 **A parameter set is manually copied from ROM to MMC / SD card**

By setting parameter p0804=2, you copy the selected setting corresponding to p0803=0/10/11/12 from the internal ROM to a setting corresponding to p0802=0...99 on the MMC / SD card.

4 Examples for parameter upload / download with MMC full CU230P-2

4.1 Upload / download with IOP:

Upload **CU230P-2 -> MMC:**

- Withdraw the MMC
- Carry out a factory reset*
- Make the appropriate parameter changes
- Insert the MMC
- P802 = 0…99
- P803 = 0
- P804 = 2 (Dev_mem -> Mem_crd)
- Withdraw the MMC

Download **MMC -> CU230P-2:**

- Withdraw the MMC
- Carry out a factory reset*
- Insert the MMC
- P802 = 0…99
- P803 = 10, 11 or 12
- P804 = 1 (Mem_crd -> dev_mem)
- Withdraw the MMC
- P10 = 30 (parameter reset)
- P970 = 10, 11 or 12 (= P803)
- P971 = 1 (save Note drv_obj)

Note* A factory reset is executed as follows using the IOP menu: “Menu -> Parameters -> Drive factory reset -> Yes“.

4.2 Upload / download with STARTER

Upload **CU230P-2 -> MMC:**

- Withdraw the MMC card
- Carry out a factory reset**
- Make the appropriate parameter changes
- P971 = 1 (save drv_obj)
- Insert the MMC
- P802 = 0…99
- P803 = 0
- P804 = 2 (dev_mem -> mem_crd)
- Withdraw the MMC card

Download **MMC -> CU230P-2:**

Version I

- Withdraw the MMC card
- Carry out a factory reset**
- Insert the MMC card
- P802 = 0…99
- P803 = 0
- P804 = 1 (mem_crd -> dev_mem)
- Withdraw the MMC card
- Switch-off the Control Unit (bring into a no-voltage condition) and switch-on again

Version II

- Withdraw the MMC card
- Carry out a factory reset**
- Insert the MMC card
- P802 = 0…99
- P803 = 10, 11 or 12
- P804 = 1 (memory card or device memory)
- Withdraw the MMC card
- P10 = 30 (parameter reset)
- P970 = 10, 11 or 12 (= P803)
- P971 = 1 (save drive object)

Note** In STARTER, a factory reset is carried-out as follows: Using the “Restore factory settings“ button 

Explanations

Save drv_obj	save drive object
Mem_crd -> dev_mem	Transfer the data from the memory card into the device memory
Dev_mem -> Mem_crd	Transfer the data from the device memory to the memory card

(Device memory -> memory card)