

Error messages

In case of error, the instruction WRREC returns the following error messages via the STATUS block parameter:

Table 10- 9 Error messages

Error code	Meaning
80B1 _H	Invalid length; the length information in data record 196 is not correct.
80B5 _H	Configuration control parameters not assigned.
80E2 _H	Data record was transferred in the wrong OB context. The data record must be transferred in the startup program.
80B8 _H	Parameter error A parameter error is caused by: <ul style="list-style-type: none"> • Incorrect block ID in the header (not equal to 196) • Invalid version identifier in the header • A reserved bit was set • A station master slot was assigned an invalid slot in the station option • Multiple slots in the station master are assigned to the same slot in the station option • For shared device on submodule level: Violation of defined restrictions

Selection of the station option in the user program

In order for the CPU to know which station option you want to operate, you must set up a selection option between the various control data records in the user program. You can implement the selection, for example, via an Int tag which references an array element.

Note that the tag for selecting the control data record must be located in the retentive memory area. If the tag is not retentive it will be initialized during the startup of the CPU and thus be unavailable for selection of the station option.

Special aspects relating to the transfer of the control data record to the CPU

- If you have enabled configuration control, the CPU is not ready for operation without a control data record. The CPU returns from startup to STOP if a valid control data record is not transferred in the startup OB. The central I/O is not initialized in this case. The cause for the STOP mode is entered in the diagnostics buffer.

Note

If an incorrect control data record is transferred to the CPU in the startup OB, the startup of the CPU may be prevented.

In this case, perform a reset to factory settings of the CPU and then transfer a correct control data record.

- The CPU processes the WRREC instruction for transfer of the control data record asynchronously. For this reason, you must call WRREC in the startup OB repeatedly in a loop until the output parameters "BUSY" or "DONE" indicate that the data record has been transferred.
 - Tip: To program the loop, use the SCL programming language with the REPEAT ... UNTIL instruction.

```
REPEAT
  "WRREC_DB"(REQ := "start_config_control",
             ID := "Local~Configuration",
             INDEX := 196,
             LEN := "conf_LEN",
             DONE => "conf_DONE",
             BUSY => "conf_BUSY",
             RECORD := "ConfDB".ConfigControl["ConfDB".Option],
             //Selection of control data record
             ERROR => "conf_ERROR",
             STATUS => "conf_STATUS");
UNTIL NOT "conf_BUSY"
END_REPEAT;
```

- In the graphical programming languages, you implement the loop using instructions for program control.

Example in FBD: Use the LABEL (jump label) and JMP (jump at RLO=1) instructions to program a loop.

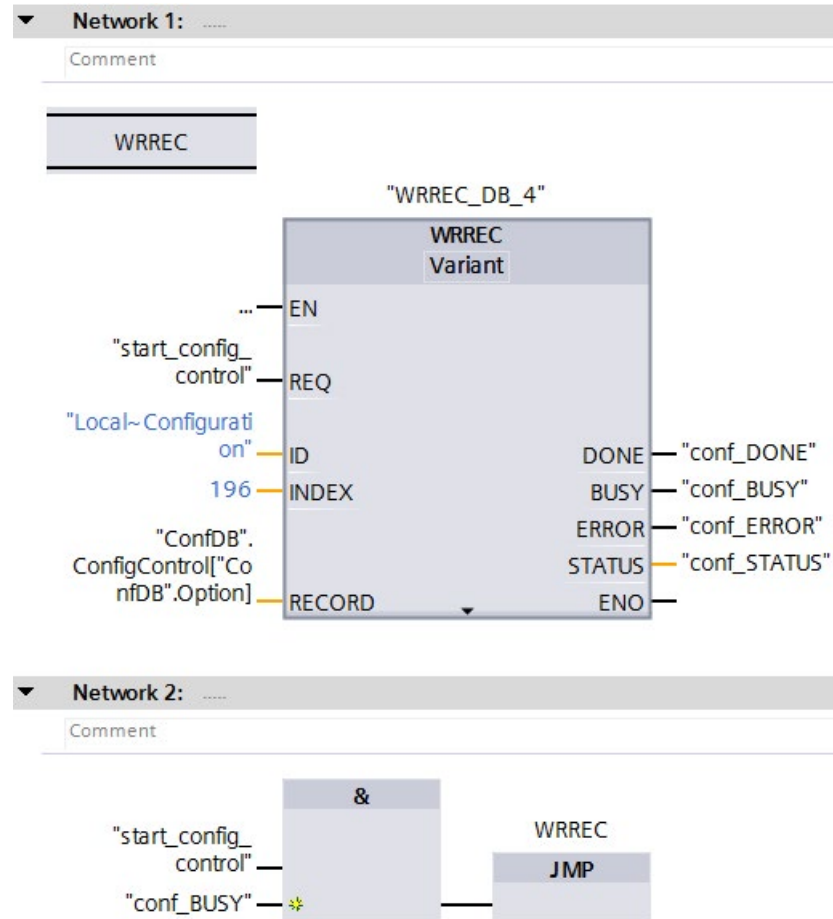


Figure 10-5 WRREC

- The control data record is stored retentively in the CPU. Note:
 - The retentivity of the control data record is independent of the retentivity settings in the STEP 7 memory area. This means that the memory area in which the control data record is configured does not have to be configured as retentive for this purpose.
 - If you write a control data record with modified configuration, the original data record 196 is deleted and the new data record 196 is saved retentively. The CPU will then restart with the modified configuration.

Special aspects relating to the transfer of the control data record to the interface module

- If you have enabled configuration control, the ET 200SP station is not ready for operation without a control data record. As long as no valid control data record has been transferred, the I/O modules are considered as failed by the CPU and exhibit substitute value behavior. The interface module continues to exchange data.
- The control data record is stored retentively in the interface module. Note:
 - If there have been no changes to the configuration, you do not need to rewrite the control data record 196 during restart.
 - If you write a control data record with modified configuration to the interface module, it will result in a station failure in the distributed I/O system. The original data record 196 is deleted and the new data record 196 is saved retentively. The station will then restart with the modified configuration.

10.4 Behavior during operation

Effect of discrepancy between station master and station option

For the online display and for the display in the diagnostics buffer (module OK or module faulty), the station master is always used and not the differing station option.

Example: A module supplies diagnostic information. This module is configured in slot 4 in the station master, but is inserted in slot 3 in the station option (missing module; see example in the next section). The online view (station master) shows a faulty module in slot 4. In the real configuration, the module in slot 3 indicates an error via an LED display.

Response when modules are missing

If modules are entered as not present in the control data record, the automation system behaves as follows:

- Modules designated as not present in the control data record do not supply diagnostics and their status is always OK. The value status is OK.
- Direct write access to the outputs that are not present or write access to the process image of the outputs that are not present: Remains without effect; no access error is signaled.
- Direct read access to the inputs that are not present or read access to the process image of the inputs that are not present: Value "0" is supplied; no access error is signaled.
- Write data record to module that is not present: Remains without effect; no error is signaled.
- Read data record from module that is not present: An error is signaled because a valid data record cannot be returned.

10.5 Examples of configuration control

A station master consisting of an interface module, three I/O modules and the server module is configured in STEP 7 in the following section.

Four station options are derived from the station master with the configuration control:

- Station option 1 with module that is not present
- Station option 2 with modified order of modules
- Station option 3 with empty slot
- Station option 4: Opening a new potential group

Station option 1 with module that is not present

The module that is located in slot 3 in the station master is not present in the station option 1. Slot 3 must be designated in the control data record accordingly with 0 (= not present). The server module is located in slot 3 in the station option.

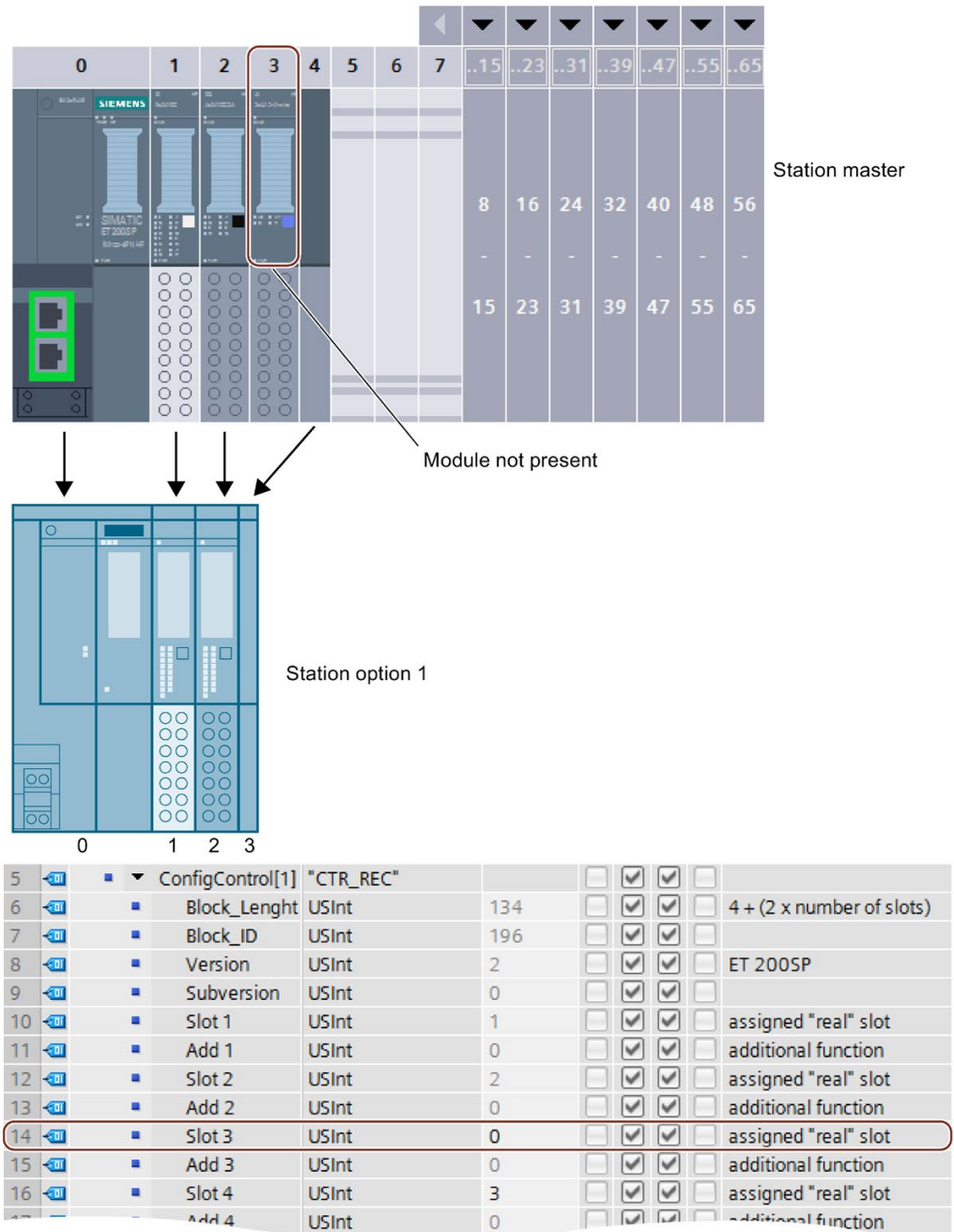


Figure 10-6 Example: Hardware configuration of station option 1 with the associated control data record in STEP 7

Station option 2 with modified order of modules

The order of the modules at slots 2 and 3 is interchanged.

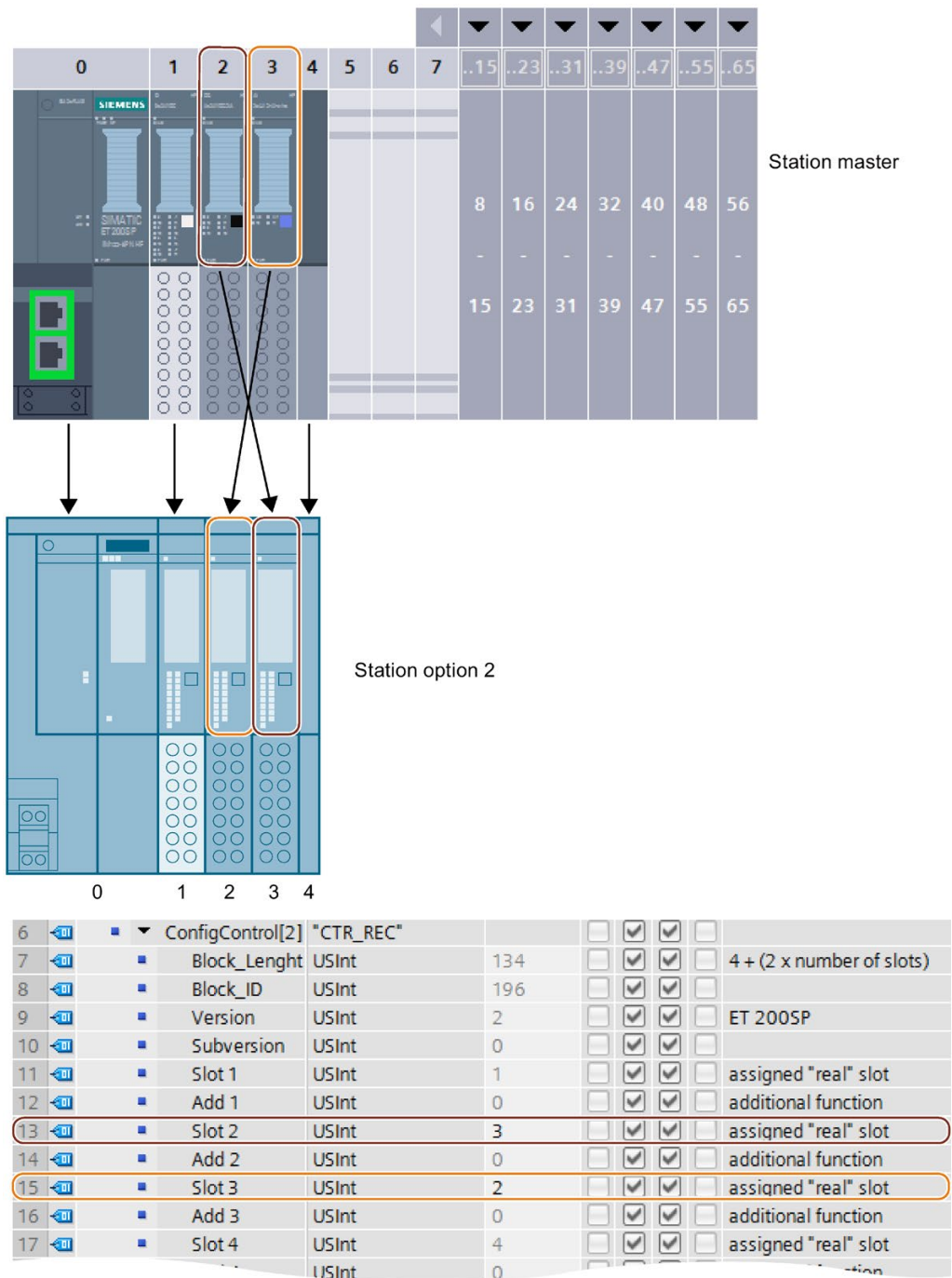


Figure 10-7 Example: Hardware configuration of station option 2 with the associated control data record in STEP 7

Station option 3 with empty slot

The module that is located in slot 3 in the station master occupies an empty slot with BU cover in the station option. Enter the value 130 in slot 3 in the control data record.

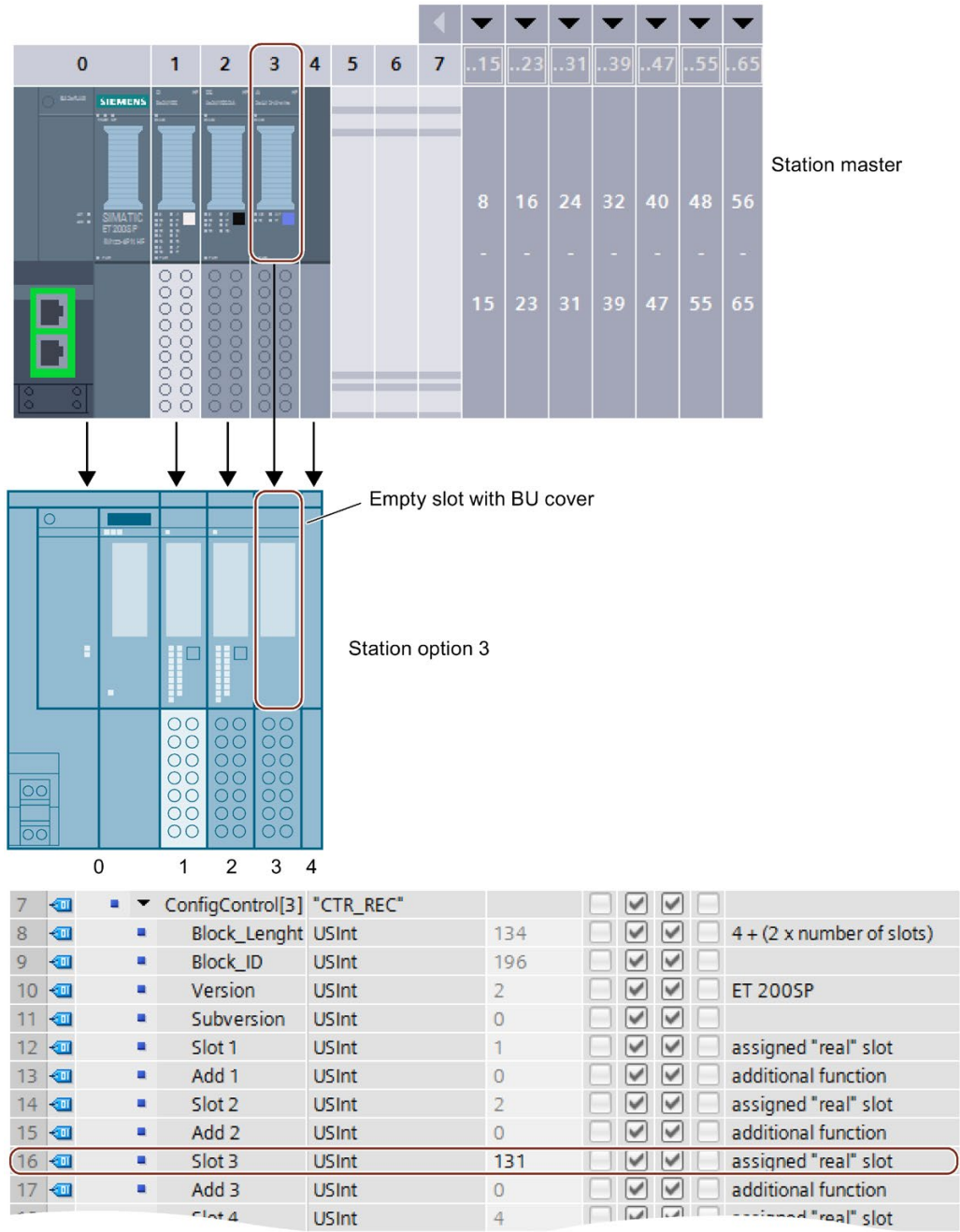


Figure 10-8 Example: Hardware configuration of station option 3 with the associated control data record in STEP 7

Station option 4: Opening a new potential group

A new potential group is opened at slot 3 of station option 4. Compared to the station master, a dark-colored BaseUnit is replaced by a light-colored BaseUnit. Enter the value 1 as additional function.

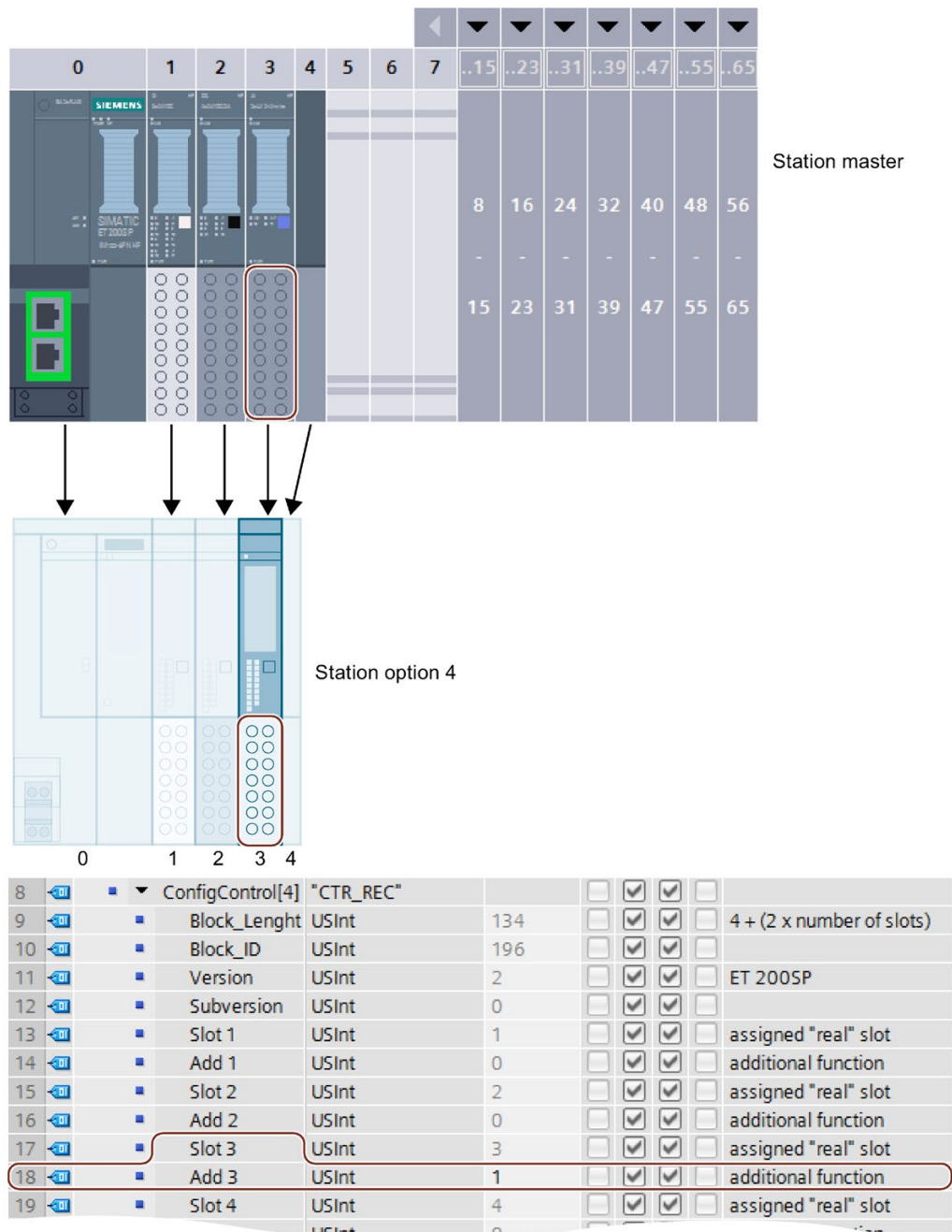


Figure 10-9 Example: Hardware configuration of station option 4 with the associated control data record in STEP 7

Commissioning

11.1 Overview

Introduction

This section includes information on the following topics:

- Commissioning the ET 200SP distributed I/O system on the PROFINET IO
- Commissioning the ET 200SP distributed I/O system on the PROFIBUS DP
- Startup of the ET 200SP distributed I/O system with empty slots
- Removing/inserting the SIMATIC memory card
- Operating modes of the CPU
- CPU memory reset
- Reassigning parameters during operation
- Identification and maintenance data

Commissioning requirements

Note

Performing tests

You must ensure the safety of your plant. You therefore need to run a complete functional test and make the necessary safety checks before the final commissioning of a plant.

Also allow for any possible foreseeable errors in the tests. This avoids endangering persons or equipment during operation.

PRONETA

With SIEMENS PRONETA (PROFINET network analysis), you analyze the system network during commissioning. PRONETA features two core functions:

- The topology overview independently scans PROFINET and all connected components.
- The IO check is a fast test of the wiring and the module configuration of a system.

You can find SIEMENS PRONETA on the Internet

(<http://support.automation.siemens.com/WW/view/en/67460624>).