SINAMICS G120 Family
New functions in firmware V4.6 and STARTER V4.3 SP2

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Advanced Technology Functions

Standard Technology Functions

Energy Efficiency Functions

Communication Functions

Safety Integrated Functions

Basic Drive Functions

Control

Availability

Setpoint Channel

Commands

Limiter & Timer

Monitoring

Protection

SINAMICS G120 Family
New functions in firmware V4.6 and STARTER V4.3 SP2

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- **Introduction / Highlights**

- New functions of FW V4.6

- New functions of STARTER V4.3 SP2

In firmware version V4.6 the SINAMICS G120 was extended by an integrated motor data library as well as efficient diagnostic-, upgrade- and downgrade functions.

Description

- Upgrade and downgrade of firmware versions using the memory card

- The 1LE motors are now stored with their complete motor data as library in the FW and can be selected directly via code / order numbers.

Customer benefits

- The desired FW version can be ordered on a memory card.
  This guarantees a standardization of FW versions in the machine or whole plant system.

- There is only one common memory card for all G120C/G120-2-CUs containing all the FW versions for all CU variants.

- Input of motor data no longer required during commissioning.

- Just selecting the code or order number is sufficient. This avoids mistakes and shortens the commissioning time.

G120

Industry Sector

SINAMICS G120 Family
New functions in firmware V4.6 and STARTER V4.3 SP2

SIEMENS

- Introduction / Highlights

- **New functions of FW V4.6**

- New functions of STARTER V4.3 SP2

New in FW V4.6 and STARTER V4.3 SP2
FW upgrade/downgrade using memory card

Description

- As of FW V4.6, the **G120 devices** are also able to use the memory card to selectively upgrade and downgrade the FW version of the G120C/CU2xx-2 to a particular version.

- The deviating FW version on the memory card is detected automatically and the upgrade/downgrade process started.

- Upgrade **from** FW **Version V4.5** to V4.6, V4.7, V4.x, …

- Downgrade from V4.x, V4.7, V4.6 to **Version V4.5**.

- Downgrading to older versions and Upgrading from older versions (e.g. V4.4, V4.3, etc.) is NOT possible

- Introduction of FW update cards for the G120 family (multi-cards) from FW version V4.5

Customer benefits

- Guarantees standardization of FW versions in the machine/system

- There is now only one common memory card for all G120C/G120-2-CUs that stores all the FW versions for all CU variants.
  The correct FW is loaded automatically.

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New in FW V4.6 and STARTER V4.3 SP2 SSP provided on the memory cards

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Description

- To provide a STARTER/SCOUT (from V4.3 SP1) with the required SSP SINAMICS Vx.y for post installation despite the lack of an Internet access, the corresponding SSP is stored on the memory card.

- From STARTER V4.3 SP2, the user is also informed that SSPs are missing when searching for "Accessible nodes", with information where these are to be found of the memory card.

- As of STARTER V4.3 SP1, devices in the G120 family already support upward compatibility to newer FW versions in the devices.

  Drive in the STARTER project has FW version < FW version in the drive (starting CUs with V4.4 in STARTER project)

  - It is possible to go online
  - Download is possible
  - In the STARTER, only the functions of the older FW version can be parameterized

Customer benefits

- The SSP SINAMICS V4.6 can also be used with a STARTER/SCOUT V4.3 SP1.

- The SSP SINAMICS to match the FW version is therefore always available even without Internet access
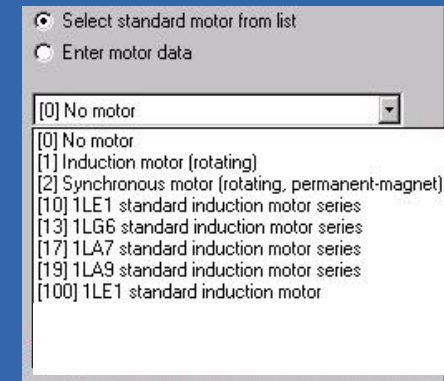

G120

Industry Sector
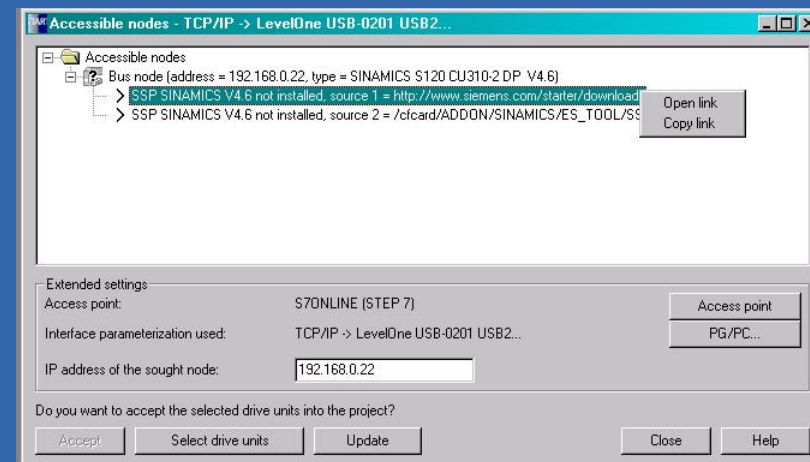
New in FW V4.6 and STARTER V4.3 SP2 Support for new HW (2)

SIEMENS

Description

- Extension of the motor spectrum
    - The 1LE motors are now also stored with their motor data in the FW and can be selected directly via code numbers.

Customer benefits

- Input of motor data no longer required during commissioning.

⦿ Select standard motor from list
◯ Enter motor data

[0] No motor ▾

[0] No motor
[1] Induction motor (rotating)
[2] Synchronous motor (rotating, permanent-magnet)
[10] 1LE1 standard induction motor series
[13] 1LG6 standard induction motor series
[17] 1LA7 standard induction motor series
[19] 1LA9 standard induction motor series
[100] 1LE1 standard induction motor

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New in FW V4.6 and STARTER V4.3 SP2
Multi-trace with storage on the CF card

SIEMENS

Description

- It is possible to configure the trace so that the last 5 traces are written into a FiFo buffer to the memory card when the trigger condition (e.g. "fault") occurs.

- STARTER support for configuration and evaluation will not be included until STARTER V4.3 SP3 (M/2013)

Customer benefits

- Sporadic faults can be located better even without permanent connection of the STARTER

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New in FW V4.6 and STARTER V4.3 SP2
Skip frequencies for analog inputs (G120)

SIEMENS

Description

- The analog inputs are assigned a skip frequency that enables signal fluctuations around the zero point to be skipped.

- The parameter specifies the skip frequency and acts independently of the sign.

- The skip frequency is implemented only for current and voltage measurement.

Customer benefits

- This is important to prevent undesired changes in direction for setpoints near the zero setting of the analog signal.

G120

Industry Sector

New in FW V4.6 and STARTER V4.3 SP2
Improved selection of the 87 Hz characteristic (G120)

SIEMENS

Description

- Selection of the 87 Hz characteristic is now possible WITHOUT manual conversion of motor values.

- This is done by implementing a new parameter in the FW to make the star/delta connection type known to the FW.

- **Select the 87Hz characteristic is possible only in the "delta" connection type.**

- All type plate data of the motor are thereby converted in the FW and in the STARTER to correct values for operation up to 87 Hz.

Customer benefits

- Easy and intuitive selection of the 87 Hz characteristic

- Clear transparency between the 87 Hz characteristic and the required connection type "delta"
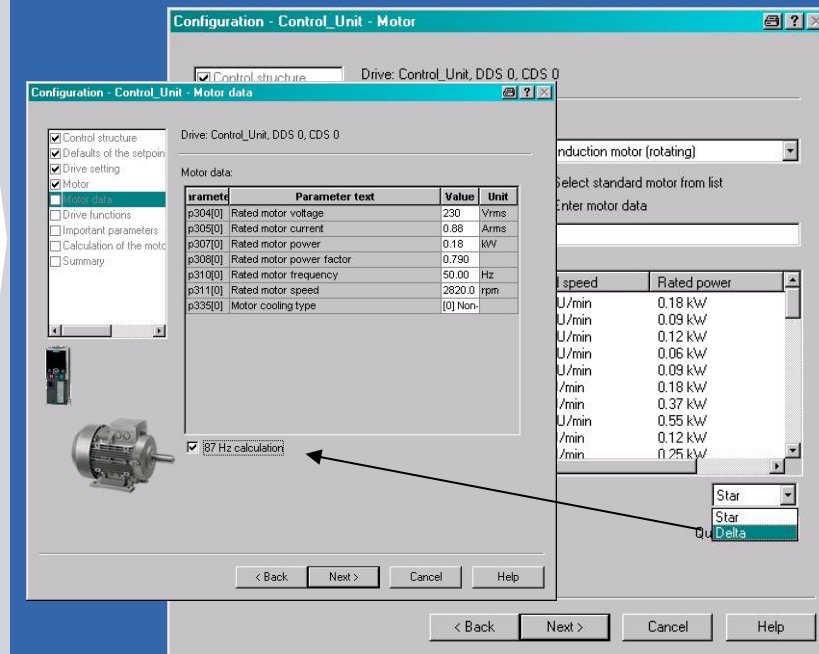
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Industry Sector

New in FW V4.6 and STARTER V4.3 SP2 Adaption to new UL standard UL508C

SIEMENS

Description

- Changes to the motor thermal protection feature according to the revised requirement of UL508C.

  - For motor temperature monitoring **without temperature sensor**, when switching off, the model temperature is saved in a non-volatile fashion. When switching on, the same value (reduced by P614) is taken into account in the model calculation.

  - As a consequence, the UL508C specification is fulfilled.

- The parameter P610 was extended by the additional parameter value „12". This is the new factory setting.

- The reaction behavior of the SINAMICS is basically the same as for previous FW-versions, but now observing as well the better motor thermal model calculation.

Customer benefits

- New standard UL508C is fully complied.

- Background:
  On 9th November 2010 Underwriters Laboratories Inc.(UL) revised the standard for "safety of power conversion equipment".

  These changes in the standard become effective from the 9th of May 2013.

  The changes relate to the performance of the software motor protection offered by the inverter, in that when the inverter is power-cycled it must now retain the motor temperature data for use when power is reapplied.

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Industry Sector

New in FW V4.6 and STARTER V4.3 SP2 Communication

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Description

- CAN extensions for new CAN open objects
  - CAN Velocity
  - ProfilTorque
  - SDO channel for each axis for multiple axes (S120)
  - Suppresses ErrorPassiv warning
- BACnet extensions for further BACnet objects
  - Multi-state value objects for alarms **only on G120P**
  - Commandable AO objects
  - Objects for configuration of the PID controller
  - Unicode characters (UTF8) for clear text messages
- Ethernet/IP for G120
  (connecting to Rockwell controllers)
  - Available for ALL G120C/CU2xx-2 PROFINET CUs
- Diagnostic alarms for PROFIBUS DP
  (system incorporation SIMATIC S7)

Customer benefits

- The additional CAN Open objects allow additional standard-compliant commands from CAN open controllers

- The additional BACnet objects allow additional standard-compliant commands from BACnet controllers

- Ethernet/IP is the Ethernet-based system bus from Rockwell.

- Ethernet/IP is an important door opener for drive providers on the American market.

- It rounds off the integrated system diagnostics also for drives with DP connection.

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New in FW V4.6 and STARTER V4.3 SP2
Documentation of the changes for each version

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Description

- Changes to the FW functionality have now also been incorporated in the manuals for the G120 devices.
  - HW changes/extensions
  - Changes/extensions to FW functions
  - Changes/extensions to the documentation itself

Customer benefits

- Improved traceability of function expansions and functional changes

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SINAMICS G120 Family
New functions in firmware V4.6 and STARTER V4.3 SP2
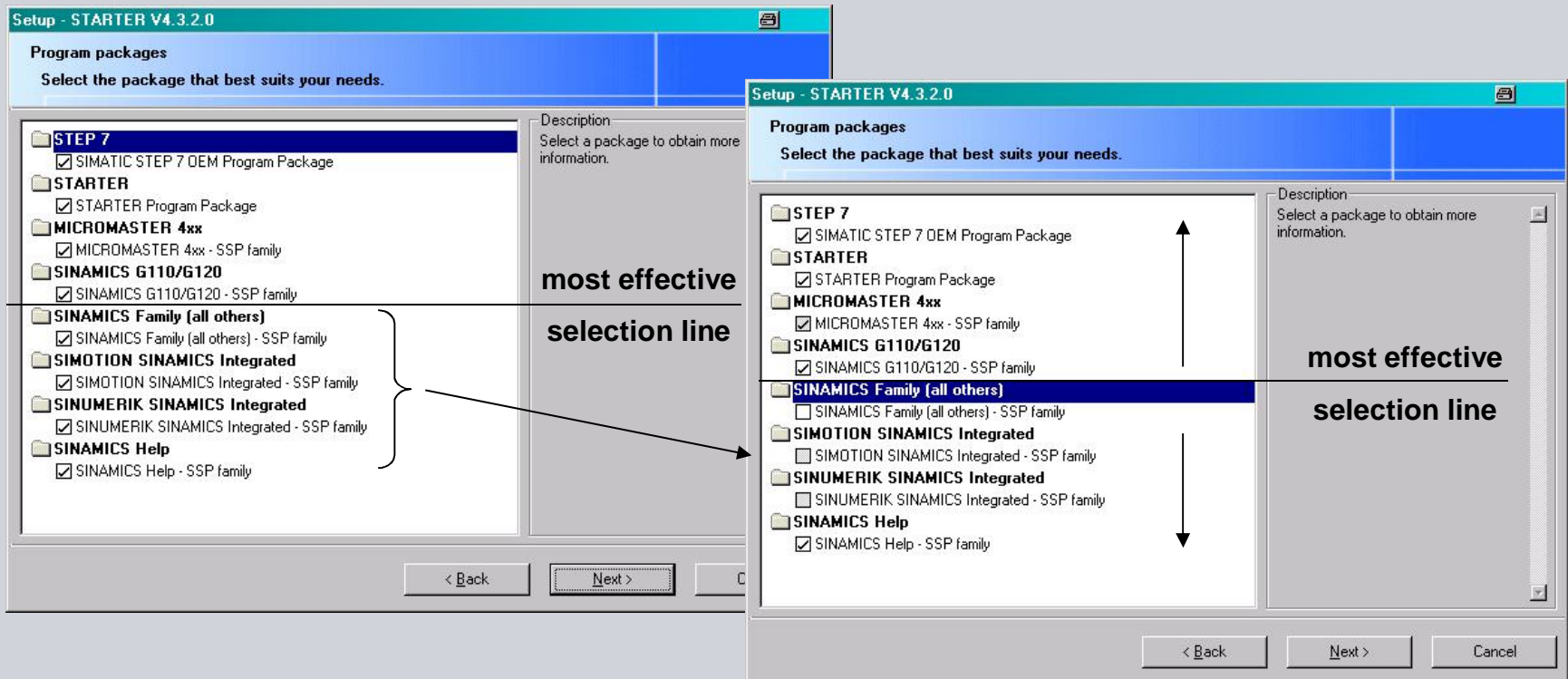
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- Introduction / Highlights

- New functions of FW V4.6

- **New functions of STARTER V4.3 SP2**

STARTER functions V4.3 SP2
Installation according to device families
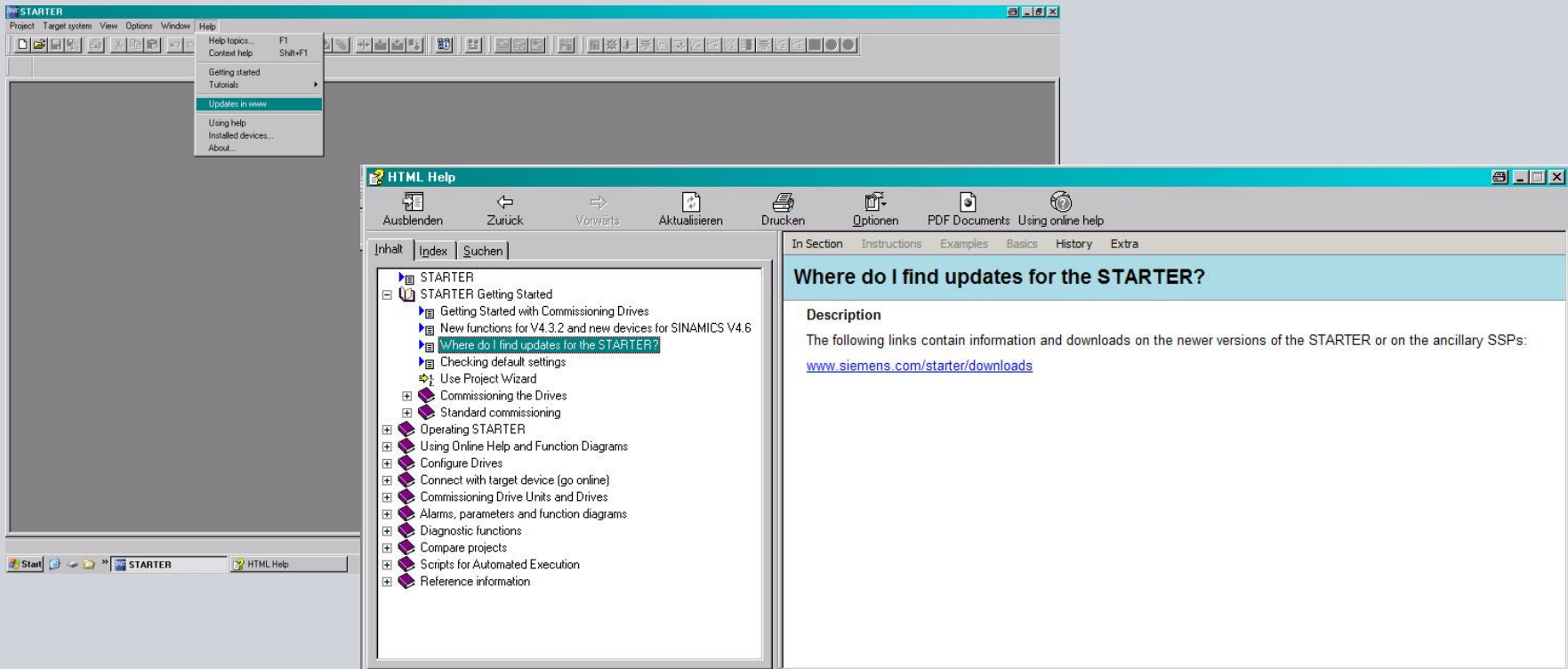
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- Granular setup of drive families

  - Distinct savings in installation time and volume for purely G120 customers

  - Omission of "integrated platforms" where not required

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STARTER functions V4.3.2
Obtain current STARTER updates

- Direct access to Internet to check for updates

  - Fixed URL "http://siemens.com/starter/downloads"

  - Direct call via help menu entry

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Industry Sector

SINAMICS G120 Family
Thank you for your attention!

SIEMENS

Siemens AG

I DT Motion Control

Frauenauracher Str. 80

D-91056 Erlangen