MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6SN1114-0NB01-0AA0

PROFIBUS-DP3 OPTION MODULE

Used with the applicable SIMODRIVE 611 Universal E configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens official technical documentation for 6SN1114-0NB01-0AA0

Edition of the documentation?

There is a fixed relationship between the edition of the documentation and the software release of the control board.

Software release of the board?

The first edition 01.99 describes the functionality of SW 2.1.

Edition 04.99 describes the functionality of SW 2.x.

What is new?

What are the essential new functions that have been added for SW 2.x in comparison to SW 2.1?

- Rotary axis with modulo correction
- Motor changeover for induction motors
- Optional TERMINAL modules can now be used independent of the operating mode.
- Communications via the RS485 interface (HW dependent)
- SimoCom U Comparing parameter sets
- Example: Drive operated via PROFIBUS
  Reading/writing parameters via PROFIBUS

Edition 10.99 describes the functionality of SW 2.x and SW 3.x.

What are the essential new functions that have been added for SW 3.x in comparison to SW 2.x?

- Jerk limitation
- External block change
- Input signal ”Suppress fault 608” (speed controller output limited)
- Optional PROFIBUS–DP module:
  PROFIBUS–DP2, Order No. (MLFB): 6SN1114–0NB00–0AA1
  PROFIBUS–DP3, Order No. (MLFB): 6SN1114–0NB01–0AA0
- PROFIBUS
  Process data configuring
  Motion Control with PROFIBUS–DP (clock synchronous operation)
  New control signals: NSOLL_B, DIG_OUT, Gx_STW
  New status signals: NIST_B, DIG_IN, XistP, IqGl, Gx_ZSW, Gx_XIST1, Gx_XIST2
  Override evaluation can be set (P0883)
  S7 blocks to read/write parameters
- Fixed speed setpoints for closed–loop speed controlled operation
- i^2t power module limitation
- SimoCom U Online operation via PROFIBUS possible
  Online operation via MPI interface possible
  PROFIBUS diagnostics screen
  Help topics for each parameter of the expert list
- Faults and warnings:
  The stop response (STOP I to STOP VII) is specified for each one

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- List of motors 1FE1 motors (PE spindle) new in the list
  1FT6xxx–xWxxx–xxxx motors new in the list
  (water–cooled synchronous motors)
- ”SIMODRIVE 611 universal E” control board
- First common software release for the ”SIMODRIVE 611 universal” and ”SIMODRIVE 611 universal E”

Edition 05.00 describes the functionality of SW 2.x and SW 3.x.

What are the essential new functions that have been added for SW 3.3 in comparison to SW 3.1/3.2?

- ”External position reference value” operating mode
- Axis couplings
- Angular incremental encoder interface as input
- Direct measuring system (DM, encoder 2)
- Process data
  – Encoder interface (encoder 1, 2 and 3) is written into bitwise
  – Standard telegrams 4 and 103 have been supplemented
- The encoder interface is independent of clock–synchronous operation
- Traversing to fixed stop
- In order to execute traversing blocks, it is no longer necessary to supply the input signals ”Operating condition/reject traversing task” and ”Operating condition/intermediate stop”.
- SimoCom U ”Boot board” function
  ”User parameter list” function
- Permanent–magnet synchronous motors with field weakening (1FE1 motors, PE spindle)
  – List of 1FE1 motors, expanded
  – Reluctance torque constant introduced
- Bandstop filter with bilinear transformation or Z transformation

Edition 08.01 describes the functionality of SW 2.x, SW 3.x and SW 4.x.

What are the essential new functions that have been added for SW 4.x in comparison to SW 2.x/3.x?

- ”External position reference value” is now available in the ”Positioning” mode
- Teach–in and incremental jogging
- Slave–to–slave communications, PROFIBUS–DP
- Dynamic Servo Control (DSC)

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1.4 ”SIMODRIVE 611 universal E” control board

Description

The ”SIMODRIVE 611 universal E” control board is used with SINUMERIK 802D with the ”motion control with PROFIBUS–DP” function.
Using this function, it is possible to implement a clock–synchronous drive coupling between a DP master (e.g. SINUMERIK 802D) and the DP slave ”SIMODRIVE 611 universal E”.

Features

The control board has the following features:

- Control board (refer to Chapter 1.4.1)
  - Order No. (MLFB):
    before SW 5.1: 6SN1118–0NH10–0AA□
    (”SIMODRIVE 611 universal E” control board)
    □: Space retainer for hardware function
    from SW 5.1: 6SN1118–0NH11–0AA0
    (”SIMODRIVE 611 universal E HR” control board)
    from SW 9.1: 6SN1118–0NH11–0AA1
    (”SIMODRIVE 611 universal E HRS” control board)
  - 2–axis for encoders with sin/cos 1Vpp
  - with memory module for n–set
- Optional PROFIBUS–DP3 module (refer to Chapters 1.3.3 and 1.4.1)
  - Order No. (MLFB): 6SN1114–0NB01–0AA0
- The parameters can be set as follows:
  - using the ”SimoCom U” parameterizing and start–up tool on an external PG/PC (refer to Chapter 3.3)
  - using the display and operator unit on the front panel (refer to Chapter 3.2)
  - using PROFIBUS–DP (parameter area, PKW area, refer to Chapter 5.6.7)
- Software and data

  The software and the user data are saved on an interchangeable memory module.
- Terminals and operator control elements
  - 2 analog inputs and 2 analog outputs per drive
  - 2 digital inputs and 2 digital outputs per drive
  - 2 test sockets
  - POWER–ON RESET button with integrated LED
  - Display and operator unit
- Safe start inhibit

  Detailed information about this function is provided in

  Reference: /PJU/, SIMODRIVE 611, Configuration Manual, Drive Converters
- Serial interface (RS232, refer to Chapter 3.3.3)

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1.4.1 Diagram of the board and optional module

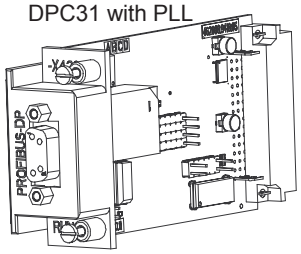
Control board with optional PROFIBUS–DP module

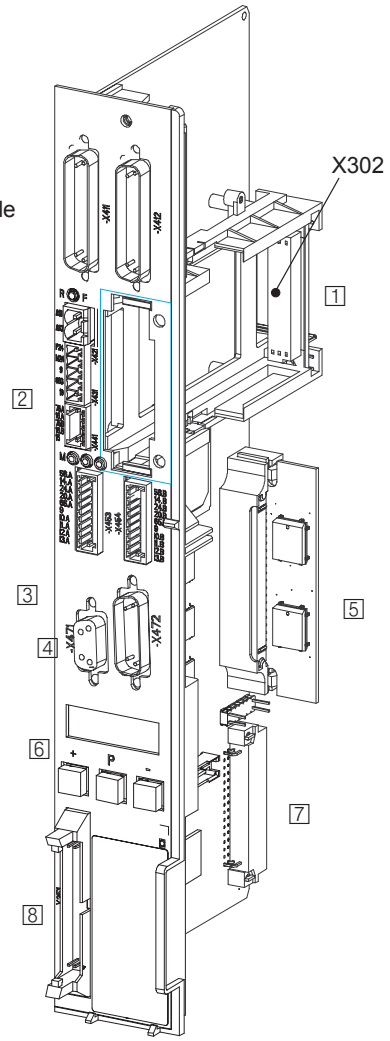
”SIMODRIVE 611 universal E” control board

2 axis for encoders with sin/cos 1Vpp

Optional PROFIBUS–DP3 module

with PROFIBUS–ASIC DPC31 with PLL





1 Mounting slot for the optional PROFIBUS–DP3 module

2
- Interfaces
- Terminals
- Test sockets

3 Serial interface (RS232)

4 Encoder interface for TTL encoders

5 Memory module
- Firmware
- User data

6 Display and operator unit

7 Pulse interface

8 Equipment bus

The following applies to retaining screws:

Tighten (due to the shield contact)

Max. torque = 0.8 Nm

For plug connections:

Plug connectors with the same number of pins must be appropriately coded so that they cannot be interchanged (refer under the index entry ”Coding the mini connectors”).

Fig. 1-9 ”SIMODRIVE 611 universal E” control board with optional PROFIBUS–DP3 module

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