1.3 ”SIMODRIVE 611 universal” control board

Description

The ”SIMODRIVE 611 universal” control board is used in the SIMODRIVE 611 system, and it can be expanded using the optional TERMINALS or PROFIBUS–DP module.

Features

The control board has the following features:

- Variants

Table 1-2 Control board, option modules, data medium

Cons. No.	Description		Order No. (MLFB)
	Hardware	Firmware	
Control unit			
1	2–axis[1] for encoders with sin/cos 1 Vpp or TTL signals[9]	n–set	6SN1118–0NH00–0AA□[2)6)]
			6SN1118–0NH01–0AA□[5)7)]
2		Positioning	6SN1118–1NH00–0AA□[2)6)]
			6SN1118–1NH01–0AA□[5)7)]
3	2–axis[1] for resolvers	n–set	6SN1118–0NK00–0AA□[2)6)]
4			6SN1118–0NK01–0AA□[5)8)10)]
5		Positioning	6SN1118–1NK00–0AA□[2)6)]
6			6SN1118–1NK01–0AA□[5)8)10)]
7	1–axis for resolvers	n–set	6SN1118–0NJ00–0AA□[2)6)]
8			6SN1118–0NJ01–0AA□[5)8)10)]
9		Positioning	6SN1118–1NJ00–0AA□[2)6)]
10			6SN1118–1NJ01–0AA□[5)8)10)]
Option module (can be alternatively used in the control board)			
1	TERMINALS	–	6SN1114–0NA00–0AA0
2	PROFIBUS–DP1[3)]	–	6SN1114–0NB00–0AA0
3	PROFIBUS–DP2[4)]	–	6SN1114–0NB00–0AA2
4	PROFIBUS–DP3[4)]	–	6SN1114–0NB01–0AA1
Data carrier			
1	CD	SimoCom U, drive firmware, Toolbox, GSD file, readme file, etc.	6SN1153–□NX20–□AG0[2)] □ = 0 —> CD with the most current SW version The CD also contains previous SW versions

1) For 2–axis control boards, 1–axis operation is also possible
2) □: Space retainer for the hardware and software version
3) Can no longer be used from SW 4.1
4) Prerequisites: Control board SW 3.1 and higher
5) 1: ”SIMODRIVE 611 universal HRS” control board from SW 8.3
6) ”SIMODRIVE 611 universal” control board
7) 0: ”SIMODRIVE 611 universal HR” control board from SW 5.1
8) 0: ”SIMODRIVE 611 universal HR” control board from SW 6.2
9) With control board, Order No. 6SN1118–□NH01–0AA□ from SW 8.1
10) 2: ”SIMODRIVE 611 universal HRS2” control board from SW 14.2

© Siemens AG 2014 All Rights Reserved



Reader’s note

Please observe the information in the ”readme.txt” file on the CD for ”SIMODRIVE 611 universal”.

- Settings

  All drive–related settings of the control board can be made as follows:

  – using the parameterizing and start–up tool SimoCom U 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 firmware and the user data are saved on a memory module which can be replaced.

- Terminals and operator control elements

  – 2 analog inputs, 2 analog outputs per drive

  – 4 digital inputs, 4 digital outputs per drive

  – 2 test sockets

  – POWER–ON RESET pushbutton with LED

  – Display and operator unit

- Safe start inhibit

  The start inhibit is addressed via terminal 663 and is signaled back using a relay with positively–driven signaling contacts (AS1/AS2). Using the start inhibit, the energy feed from the drive to the motor is interrupted.
  When the ”safe start inhibit” function is correctly used, the signaling contacts AS1/AS2 must be included in the line contactor circuit or the EMERGENCY OFF circuit.

Caution

When using the ”safe start inhibit” function, it must be ensured that the velocity goes to zero.

The control board supports the ”Safe standstill” function.

Detailed information about the ”Safe Standstill” function is provided in

Reference: /PJU/, SIMODRIVE 611, Configuration Manual, Drive Converters

© Siemens AG 2014 All Rights Reserved

- Serial interface (RS232/RS485)
- Optional modules
  - Optional TERMINAL module,
    8 digital inputs and 8 digital outputs for drive A
  - Optional PROFIBUS–DP module
- Expanded functions SW 5.1 and higher

  The following expanded functionality is provided with the ”SIMODRIVE 611 universal control board for sin/cos 1Vpp encoders:

  - Higher internal resolution, interpolation factor 2048 (previously 128)
  - Pulse multiplication is possible (doubling) at the angular incremental encoder interface for absolute value encoders
  - Pulse multiplication (doubling) and division (1:2, 1:4, 1:8) are possible at the angular incremental encoder interface, also for incremental encoders
  - From SW 8.1
    It is possible to connect standard square–wave encoders (TTL) with differential signals according to RS422 and 5 V power supply voltage as pulse encoder for induction motors at the SIMODRIVE 611 universal HR” control board (Order No. 6SN1118–□NH01–0AA□).
- Expanded functions from SW 9.1

  ”SIMODRIVE 611 universal HR” or ”SIMODRIVE 611 universal” control boards can be replaced by the ”SIMODRIVE 611 universal HRS” control board (higher computational performance” and this replacement is compatible.

  The ”SIMODRIVE 611 universal HRS” control board is, at all interfaces, electrically compatible to its predecessor and as far as all of the functions are concerned.

  The mechanical dimensions, mounting/installation dimensions and connection interfaces of the ”SIMODRIVE 611 universal HRS” control board are compatible to the previous types and are compatible from an installation perspective to the the SIMODRIVE 611 digital power modules.
  Exception: Connectors X461/X462.

  - 10–pin for ”SIMODRIVE 611 universal”.
  - 11–pin for ”SIMODRIVE 611 universal HR” and ”SIMODRIVE 611 universal HRS” as terminal 15 has been added.
    When the board has to be replaced, please refer to the attached installation instructions regarding the wiring changes that have to be made.
- Expanded functions from SW 14.2

  The “SIMODRIVE 611 universal HRS2“ control board is, at all interfaces, electrically compatible to its predecessor and as far as all of the functions are concerned.

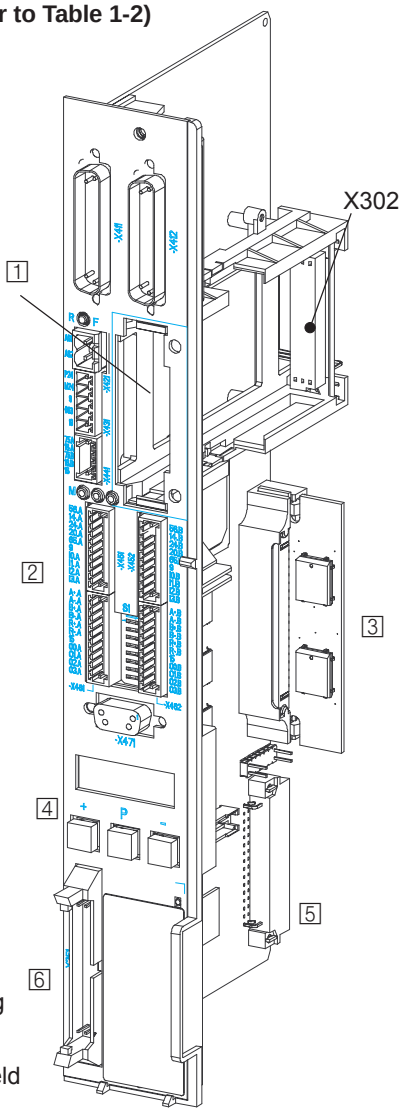
© Siemens AG 2014 All Rights Reserved

1.3.1 Control board for 2 or 1 axis

Control board for 2 axes

The following 2–axis control boards are available:

2–axis for encoders with sin/cos 1Vpp or 2–axis for resolvers (refer to Table 1-2)



1
Mounting slot for
- Optional TERMINAL module

or
- Optional PROFIBUS–DP module

2
- Interfaces
- Terminals
- Switches

3
Memory module
- Firmware
- User data

4
Display and operator unit

5
Pulse interface

6
Equipment bus

The following applies to retaining screws:

Tighten (to establish a good 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. 1-3 Control boards for 2 axes

© Siemens AG 2014 All Rights Reserved