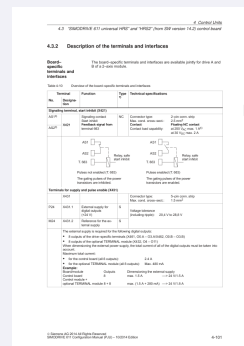


FIELD INSTALLATION QUICK GUIDE

Installation Instructions

6SN1118-1NJ01-0AA2

Resolver positioning control module



PRODUCT	6SN1118-1NJ01-0AA2
FAMILY	SIMODRIVE 611 universal HRS2
FUNCTION	Resolver positioning control module
SOURCE	SIMODRIVE 611 Configuration Manual, 10/2014: HRS2 control interfaces

01 OFFICIAL MOUNTING AND WIRING

- Isolate the drive power and prevent machine movement before exchanging the insert.
- Fit the verified single-axis control insert to the documented power module.
- Observe the retaining-screw maximum torque of 0.8 Nm and connector coding.
- Connect the resolver and commissioning interfaces according to the official assignments; restore and test the documented parameters.

AMIKON PRODUCT SUPPORT

+86-18020776786

INFO@AMIKON.CN

AMIKONG.COM

4.3 "SIMODRIVE 611 universal HRS" and "HRS2" (from SW version 14.2) control board

**Control board for
1 axis**

The following 1-axis control boards are available:

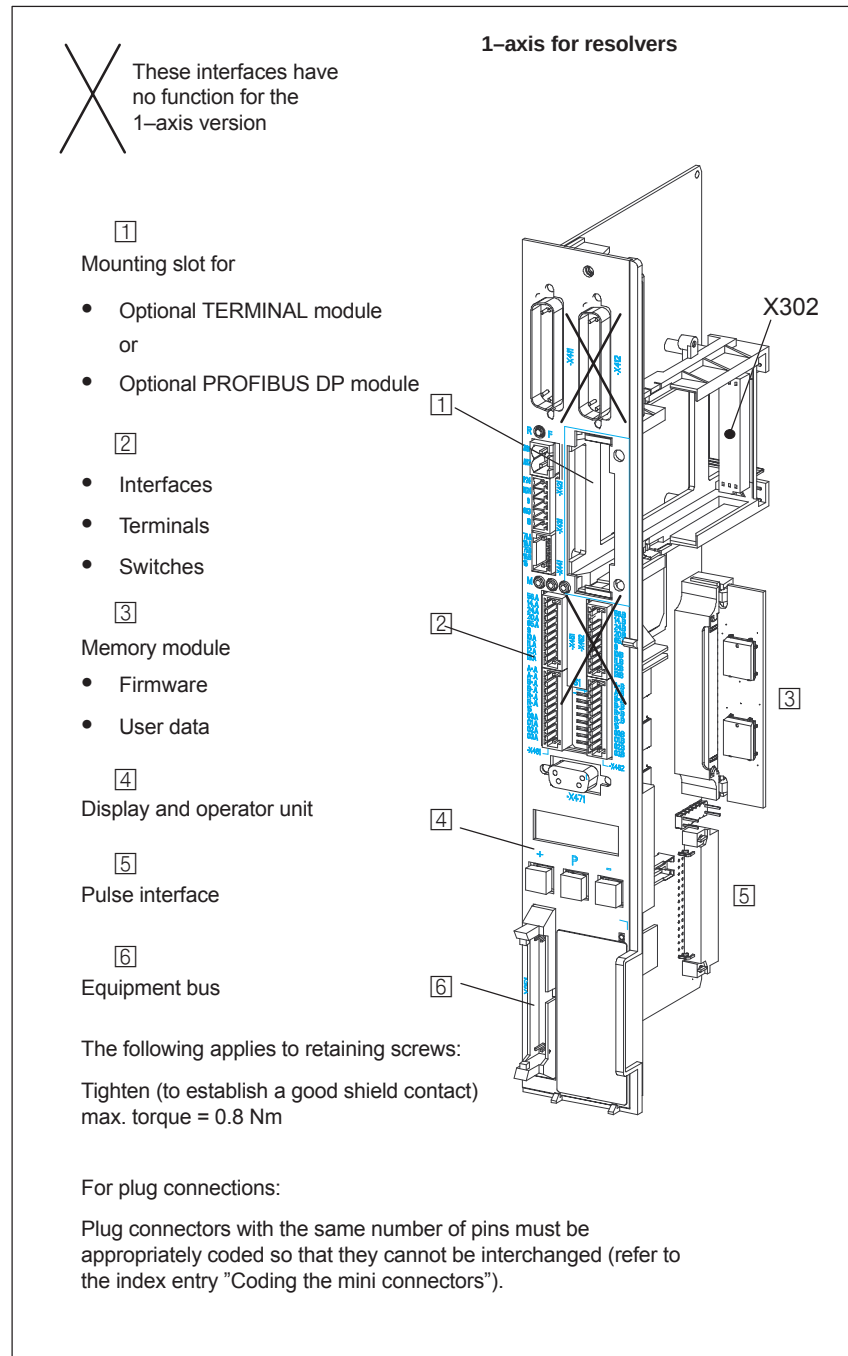


Fig. 4-5 Control board for 1 axis (SIMODRIVE 611 universal HRS / HRS2)

4.3 "SIMODRIVE 611 universal HRS" and "HRS2" (from SW version 14.2) control board

4.3.2 Description of the terminals and interfaces

Board-specific terminals and interfaces

The board-specific terminals and interfaces are available jointly for drive A and B of a 2-axis module.

Table 4-10 Overview of the board-specific terminals and interfaces

Terminal		Function	Type 1)	Technical specifications										
No.	Designa- tion													
Signaling terminal, start inhibit (X421)														
AS1 ³⁾	X421	Signaling contact	NC	Connector type:	2-pin conn. strip									
AS2 ³⁾		Start inhibit Feedback signal from terminal 663		Max. cond. cross-sect.:	2.5 mm ²									
				Contact:	Floating NC contact at 250 V _{AC} max. 1 A ⁴⁾									
				Contact load capability:	at 30 V _{DC} max. 2 A									
Pulses not enabled (T. 663) The gating pulses of the power transistors are inhibited. Pulses enabled (T. 663) The gating pulses of the power transistors are enabled.														
Terminals for supply and pulse enable (X431)														
	X431			Connector type:	5-pin conn. strip									
				Max. cond. cross-sect.:	1.5 mm ²									
P24	X431.1	External supply for digital outputs (+24 V)	S	Voltage tolerance (including ripple):	20,4 V to 28,8 V									
M24	X431.2	Reference for the ex- ternal supply	S											
The external supply is required for the following digital outputs: 8 outputs of the drive-specific terminals (X461, O0.A – O3.A/X462, O0.B – O3.B) 8 outputs of the optional TERMINAL module (X432, O4 – O11) When dimensioning the external power supply, the total current of all of the digital outputs must be taken into account. Maximum total current: - for the control board (all 8 outputs): 2.4 A - for the optional TERMINAL module (all 8 outputs): Max. 480 mA Example: <table><tr><td>Board/module</td><td>Outputs</td><td>Dimensioning the external supply</td></tr><tr><td>Control board</td><td>8</td><td>max. 1.5 A → 24 V/1.5 A</td></tr><tr><td>Control module + optional TERMINAL module 8 + 8</td><td></td><td>max. (1.5 A + 280 mA) → 24 V/1.8 A</td></tr></table>						Board/module	Outputs	Dimensioning the external supply	Control board	8	max. 1.5 A → 24 V/1.5 A	Control module + optional TERMINAL module 8 + 8		max. (1.5 A + 280 mA) → 24 V/1.8 A
Board/module	Outputs	Dimensioning the external supply												
Control board	8	max. 1.5 A → 24 V/1.5 A												
Control module + optional TERMINAL module 8 + 8		max. (1.5 A + 280 mA) → 24 V/1.8 A												

4.3 "SIMODRIVE 611 universal HRS" and "HRS2" (from SW version 14.2) control board

Table 4-10 Overview of the board-specific terminals and interfaces, continued

Terminal		Function	Type 1)	Technical specifications
No.	Designation			
9	X431.3	Enable voltage (+24 V)	S	Reference: Terminal 19 Maximum current(for the total group): Max. 500 mA Note: The enable voltage (terminal 9) can be used to supply the enable signals (e.g. pulse enable) as 24 V auxiliary voltage.
663	X431.4	Pulse enable (+24 V)	I	Voltage tolerance(including ripple): 21 V to 30 V Typ. current consumption: 50 mA at 24 V Note: The pulse enable acts simultaneously on drive A and drive B. When this pulse enable is withdrawn, the drives "coast down" unbraked.
19	X431.5	Reference (Reference for all digital inputs)	S	Note: If the enable signals are to be controlled from an external voltage source, the reference potential (ground) of the external source must be connected to this terminal.
Serial interface (X471)				
–	X471	Serial interface for "SimoCom U"	IO	Type: 9-pin D-sub socket connector Cable diagram and pin assignment for RS232 or RS485, refer to: Reference: /FB611U/ Description of Functions, SIMODRIVE 611 universal
Equipment bus (X34)				
–	X351	Equipment bus	IO	Ribbon cable: 34-pin Voltages: various Signals: various
Test sockets (X34)				
DAC1	X34	Test socket 1 ²⁾	M	Test socket: Ø 2 mm
DAC2		Test socket 2 ²⁾	M	Resolution: 8 bits
M		Reference	M	Rated operating voltage: 0 V to 5 V Maximum current: Max. 3 mA

1) I: Input; IO: Input/output; M: Measuring signal; NC: NC contact; S: Supply

2) Can be freely parameterized

3) When connecting contacts AS1/AS2 in series, a contact voltage drop up to max. 0.2 V must be taken into account for the lifetime of the contacts (100000 switching operations). For a 24 V switching voltage, due to the non-linear contact characteristics, from experience, five contacts can be simply connected in series without encountering any problems.

4) In accordance with EN 60204-1 (machine safety) control-power transformers should be provided when AC control voltages are used.

4.3 "SIMODRIVE 611 universal HRS" and "HRS2" (from SW version 14.2) control board

Drive-specific terminals

The drive-specific terminals are available for both drive A and drive B.

Table 4-11 Overview of the drive-specific terminals

Terminal				Function	Type 1)	Technical specifications
Drive A		Drive B				
No.	Designa- tion	No.	Designa- tion			
Encoder connection (X411, X412) ⁵⁾						
–	X411	–	–	Motor encoder connection Drive A	I	See Chapter 3 Type: 25–pin D–sub plug connector Note: Encoder limit frequencies:
–	–	–	X412	Motor encoder connection Drive B or connection, direct measuring system (as of SW 3.3)	I	- Encoder with sin/cos 1 V_{pp}: 350 kHz - Resolver HRS: 12 bits 423 Hz 14 bits 106 Hz Resolver HRS2: 12 bits 957 Hz 14 bits 479 Hz - Enc. with TTL signal: 420 kHz For the encoder connection, refer to Tables 4-12 and 4-13
Analog outputs (X441)						
75.A	X441.1	–	–	Analog output 1 ²⁾	AO	Connector type: 5–pin conn. strip
16.A	X441.2	–	–	Analog output 2 ²⁾	AO	Wiring: Connect the cable with the braided shield at both ends
–	–	75.B	X441.3	Analog output 1 ²⁾	AO	Max. cond. cross–section for finely– stranded or solid cond.: 0.5 mm ²
–	–	16.B	X441.4	Analog output 2 ²⁾	AO	Rated operating voltage: –10 V to +10 V
15	X441.5	15	X441.5	Reference	–	Maximum current: 3 mA Resolution: 8 bits Update: In the speed–contr. clock cycle short–circuit proof
Terminals for analog inputs and digital inputs/outputs (X451, X452)						
	X451		X452	Connector type: 10–pin conn. strip Max. cond. cross–section for finely–stranded or solid cond.: 0.5 mm ²		
56.A	X451.1	56.B	X452.1	Analog input 1	AI	Differential input
14.A	X451.2	14.B	X452.2	Reference		Rated operating voltage:–12.5 V to +12.5 V
24.A	X451.3	24.B	X452.3	Analog input 2		Input resistance: 100 kΩ
20.A	X451.4	20.B	X452.4	Reference		Resolution: 14 bits (sign + 13 bits)
65.A	X451.5	65.B	X452.5	Controller enable Drive–specific	I	Wiring: Connect the cable to the braided shield at both ends
						Typ. current consumption: 6 mA at 24 V Signal level (incl. ripple) High signal level: 15 V to 30 V Low signal level: –3 V to 5 V Galvanic isolation: Ref. is T. 19/ T. M24

Table 4-11 Overview of the drive-specific terminals, continued

Terminal				Function	Type 1)	Technical specifications
Drive A		Drive B				
No.	Designa- tion	No.	Designa- tion			
9	X451.6	9	X452.6	Enable voltage (+24 V)	S	Reference: Terminal 19 Maximum current (for the total group): 500 mA Note: The enable voltage (terminal 9) can be used to supply the enable signals (e.g. con- troller enable).
I0.A	X451.7	I0.B	X452.7	Digital input 0 ²⁾ Fast input ³⁾ e.g. for equivalent zero mark, external block change	DI	Voltage: 24 V Typ. current consumption: 6 mA at 24 V Signal level (incl. ripple) High signal level: 15 V to 30 V Low signal level: -3 V to 5 V sampling time, fast input: 62.5 µs Galvanic isolation: Ref. is T. 19/T. M24 Note: An open-circuit input is interpreted as 0 signal.
I1.A	X451.8	I1.B	X452.8	Digital input 1 ²⁾ Fast input	DI	
I2.A	X451.9	I2.B	X452.9	Digital input 2 ²⁾	DI	
I3.A	X451.10	I3.B	X452.10	Digital input 3 ²⁾	DI	
Drive-specific terminals (X461, X462)						
	X461		X462	Connector type: 10-pin conn. strip Max. cond. cross-section for finely-stranded or solid cond.: 0.5 mm ²		
A+.A	X461.1	A+.B	X462.1	Signal A+	IO	Incremental Shaft Encoder Interface (AIE int.) Wiring: - Cable with braided shield, connected at both ends. - The reference ground of the connected node should be connected to terminal X441.5 or X461.7. - Condition to maintain the surge strength: Cable length < 30 m
A-.A	X461.2	A-.B	X462.2	Signal A-	IO	
B+.A	X461.3	B+.B	X462.3	Signal B+	IO	
B-.A	X461.4	B-.B	X462.4	Signal B-	IO	
R+.A	X461.5	R+.B	X462.5	Signal R+	IO	
R-.A	X461.6	R-.B	X462.6	Signal R-	IO	
15	X461.7	15	X462.7	Ground reference	—	
	Note: Devices (stations) can be connected which conform to the RS485/RS422 standard. The angular incremental encoder interface can either be parameterized as an input or output. - Input To enter incremental position reference values - Output To output incremental actual position values					
O0.A	X461.8	O0.B	X461.8	Digital output 0 ⁴⁾	DO	Rated current per output: 500 mA Maximum current per output: 600 mA Maximum total current: 2.4 A (valid for these eight outputs) Voltage drop, typical: 250 mV at 500 mA short-circuit proof Example: If all eight outputs are simultaneously con- trolled, then the following is valid: Σ Current = 240 mA → OK Σ Current = 2.8 A → not OK, as the total current is greater than 2.4 A.
O1.A	X461.9	O1.B	X461.9	Digital output 1 ⁴⁾	DO	
O2.A	X461.10	O2.B	X461.10	Digital output 2 ⁴⁾	DO	
O3.A	X461.11	O3.B	X461.11	Digital output 3 ⁴⁾	DO	
Note: - The power switched via these outputs is supplied via terminals P24/M24 (X431). This must be taken into account when dimensioning the external supply. - The digital outputs only "function" if there is an external supply (+24 V/0 V at terminals P24/M24).						