



SINAMICS drives

SINAMICS DCM Control Module

Operating Instructions

Edition

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6.16.5 Voltage measurement equipment

Connection type: Faston mounting tabs, 4.8 mm

Table 6- 30 Voltage measurement connections

Connection	Function	Technical data, comments
XU1 XV1 XW1	Measurement of the line voltage Phases U-V-W (1000 V)	Rated line voltage (armature) >575 V to 1000 V (p51821 = 1,000)
XC1 XD1	Measurement of the armature voltage (1000 V)	Rated line voltage (armature) >575 V to 1000 V (p51821 = 1,000)
XU2 XV2 XW2	Measurement of the line voltage Phases U-V-W (575 V)	Rated line voltage (armature) >250 V to 575 V (p51821 = 575)
XC2 XD2	Measurement of the armature voltage (575 V)	Rated line voltage (armature) >250 V to 575 V (p51821 = 575)
XU3 XV3 XW3	Measurement of the line voltage Phases U-V-W (250 V)	Rated line voltage (armature) >125 V to 250 V (p51821 = 250)
XC3 XD3	Measurement of the armature voltage (250 V)	Rated line voltage (armature) >125 V to 250 V (p51821 = 250)
XU4 XV4 XW4	Measurement of the line voltage Phases U-V-W (125 V)	Rated line voltage (armature) >50 V to 125 V (p51821 = 125)
XC4 XD4	Measurement of the armature voltage (125 V)	Rated line voltage (armature) >50 V to 125 V (p51821 = 125)
XU5 XV5 XW5	Measurement of the line voltage Phases U-V-W (50 V)	Rated line voltage (armature) >5.6 V to 50 V (p51821 = 50)
XC5 XD5	Measurement of the armature voltage (50 V)	Rated line voltage (armature) >5.6 V to 50 V (p51821 = 50)
XU6 XV6 XW6	Measurement of the line voltage Phases U-V-W (5.6 V)	Rated line voltage (armature) ≤5.6 V (p51821 = 6)
XC6 XD6	Measurement of the armature voltage (5.6 V)	Rated line voltage (armature) ≤5.6 V (p51821 = 6)
"Voltage measurement" module		

6.16.6 Fuse monitoring equipment

Connection type: Faston mounting tabs, 4.8 mm

Table 6- 31 Connections for fuse monitoring equipment

Connection	Function	Technical data, comments
XS1_1 XS2_1	Fuse 1 (1000 V)	Measurement cables for the fuses to be monitored at a rated line voltage >575 V to 1,000 V*) Resistance between two associated connections: 388.4 kΩ **)
XS3_1 XS4_1	Fuse 2 (1000 V)	
XS5_1 XS6_1	Fuse 3 (1000 V)	
XS7_1 XS8_1	Fuse 4 (1000 V)	
XS9_1 XS10_1	Fuse 5 (1000 V)	
XS11_1 XS12_1	Fuse 6 (1000 V)	
XS1_2 XS2_2	Fuse 1 (575 V)	Measurement cables for the fuses to be monitored at a rated line voltage >250 V to 600 V*) Resistance between two associated connections: 196.4 kΩ **)
XS3_2 XS4_2	Fuse 2 (575 V)	
XS5_2 XS6_2	Fuse 3 (575 V)	
XS7_2 XS8_2	Fuse 4 (575 V)	
XS9_2 XS10_2	Fuse 5 (575 V)	
XS11_2 XS12_2	Fuse 6 (575 V)	
XS1_3 XS2_3	Fuse 1 (250 V)	Measurement cables for the fuses to be monitored at a rated line voltage >125 V to 250 V*) Resistance between two associated connections: 100.4 kΩ **)
XS3_3 XS4_3	Fuse 2 (250 V)	
XS5_3 XS6_3	Fuse 3 (250 V)	
XS7_3 XS8_3	Fuse 4 (250 V)	
XS9_3 XS10_3	Fuse 5 (250 V)	
XS11_3 XS12_3	Fuse 6 (250 V)	
XS1_4 XS2_4	Fuse 1 (125 V)	Measurement cables for the fuses to be monitored at a rated line voltage >50 V to 125 V*) Resistance between two associated connections: 52.4 kΩ **)
XS3_4 XS4_4	Fuse 2 (125 V)	
XS5_4 XS6_4	Fuse 3 (125 V)	

6.16 Connector assignment (terminals, Faston mounting tabs, ribbon cables)

Connection	Function	Technical data, comments
XS7_4 XS8_4	Fuse 4 (125 V)	
XS9_4 XS10_4	Fuse 5 (125 V)	
XS11_4 XS12_4	Fuse 6 (125 V)	
XS1_5 XS2_5	Fuse 1 (50 V)	Measurement cables for the fuses to be monitored at a rated line voltage = 10 V to 50 V*) Resistance between two associated connections: 18.8 kΩ **)
XS3_5 XS4_5	Fuse 2 (50 V)	
XS5_5 XS6_5	Fuse 3 (50 V)	
XS7_5 XS8_5	Fuse 4 (50 V)	
XS9_5 XS10_5	Fuse 5 (50 V)	
XS11_5 XS12_5	Fuse 6 (50 V)	
*) The fuse monitoring equipment is generally connected to the armature current circuit, although it can also be used for the field circuit, fan circuit, or the primary circuit of a heavy-current transformer. The connections used for fuse monitoring depend on the voltage prevailing at a blown fuse. **) This resistor is in parallel with the fuse. A bridge rectifier is connected in series to this resistor; this means that the specified value cannot be correctly measured using a commercially available ohmmeter.		
"Fuse monitoring" module		

Switching fuse monitoring on/off via p51831 (0=OFF, 1=ON)

6.16.7 Firing pulse transformers

Table 6- 32 Terminal type, firing pulse module

XIMP_1 to XIMP_26, X11 to X26	
Type	Wago 256 spring-loaded terminal
Connection capacity	0.08 - 2.5 mm ² , AWG 18-12
Stripped length	5 - 6 mm
X12_1, X14_1, X15_1, X16_1, X25_1	
Type	Faston mounting tabs, 6.3 mm

The P24 on the "Power interface for the Control Module" is protected by F400 fuses (1 A, time-lag).

Table 6- 33 Firing pulse module connections

Terminal, connection	Function	Technical data, comments
XIMP_1 control for firing pulse transformers for the thyristors		
IMP11 P24	For thyristor V11	If the firing pulse transformer module is divided up (see Chapter "Removal/Installation and division of modules"), the controls for the firing pulse transformers must be routed via these terminal connections. This involves making the following connections: XIMP_1 - IMP11 → XIMP11 - IMP11 (for thyristor V11) XIMP_1 - P24 → XIMP11 - P24 (for thyristor V11) XIMP_1 - IMP12 → XIMP12 - IMP12 (for thyristor V12) XIMP_1 - P24 → XIMP12 - P24 (for thyristor V12) etc.
IMP12 P24	For thyristor V12	
IMP13 P24	For thyristor V13	
IMP14 P24	For thyristor V14	
IMP15 P24	For thyristor V15	
IMP16 P24	For thyristor V16	
XIMP_2		
Same as XIMP_1		
The terminals on terminal strip XIMP_2 are parallel to the terminals on terminal strip XIMP_1 with the same name.		
XIMP_3		
Same as XIMP_1		
The terminals on terminal strip XIMP_3 are parallel to the terminals on terminal strip XIMP_1 with the same name.		
XIMP_4 control for firing pulse transformers for the thyristors		
IMP21 P24	For thyristor V21	If the firing pulse transformer module is divided up (please refer to the section titled "Removal/Installation and division of modules"), the controls for the firing pulse transformers must be routed via these terminal connections. This involves making the following connections: XIMP_4 - IMP21 → XIMP21 - IMP21 (for thyristor V21) XIMP_4 - P24 → XIMP21 - P24 (for thyristor V11) XIMP_4 - IMP22 → XIMP22 - IMP22 (for thyristor V22) XIMP_4 - P24 → XIMP22 - P24 (for thyristor V12) etc.
IMP22 P24	For thyristor V22	
IMP23 P24	For thyristor V23	
IMP24 P24	For thyristor V24	
IMP25 P24	For thyristor V25	
IMP26 P24	For thyristor V26	
XIMP_5		
Same as XIMP_4		
The terminals on terminal strip XIMP_5 are parallel to the terminals on terminal strip XIMP_4 with the same name.		
XIMP_6		
Same as XIMP_4		
The terminals on terminal strip XIMP_6 are parallel to the terminals on terminal strip XIMP_4 with the same name.		
XIMP11 control for firing pulse transformers for the thyristors		
IMP11 P24	For thyristor V11	Only to be connected if the firing pulse transformer module is divided up (see terminal strip XIMP_1)
X11		
G, K	Firing cable, thyristor V11	Firing pulse (see below) gate (G) to auxiliary cathode (K)

6.16 Connector assignment (terminals, Faston mounting tabs, ribbon cables)

Terminal, connection	Function	Technical data, comments
XIMP12 control for firing pulse transformers for the thyristors		
IMP12 P24	For thyristor V12	Only to be connected if the firing pulse transformer module is divided up (see terminal strip XIMP_1)
X12		
G, K	Firing cable, thyristor V12	Firing pulse (see below) gate (G) to auxiliary cathode (K)
XIMP13 control for firing pulse transformers for the thyristors		
IMP13 P24	For thyristor V13	Only to be connected if the firing pulse transformer module is divided up (see terminal strip XIMP_1)
X13		
G, K	Firing cable, thyristor V13	Firing pulse (see below) gate (G) to auxiliary cathode (K)
XIMP14 control for firing pulse transformers for the thyristors		
IMP14 P24	For thyristor V14	Only to be connected if the firing pulse transformer module is divided up (see terminal strip XIMP_1)
X14		
G, K	Firing cable, thyristor V14	Firing pulse (see below) gate (G) to auxiliary cathode (K)
XIMP15 control for firing pulse transformers for the thyristors		
IMP15 P24	For thyristor V15	Only to be connected if the firing pulse transformer module is divided up (see terminal strip XIMP_1)
X15		
G, K	Firing cable, thyristor V15	Firing pulse (see below) gate (G) to auxiliary cathode (K)
XIMP16 control for firing pulse transformers for the thyristors		
IMP16 P24	For thyristor V16	Only to be connected if the firing pulse transformer module is divided up (see terminal strip XIMP_1)
X16		
G, K	Firing cable, thyristor V16	Firing pulse (see below) gate (G) to auxiliary cathode (K)
XIMP21 control for firing pulse transformers for the thyristors		
IMP21 P24	For thyristor V21	Only to be connected if the firing pulse transformer module is divided up (see terminal strip XIMP_4)
X21		
G, K	Firing cable, thyristor V21	Firing pulse (see below) gate (G) to auxiliary cathode (K)
XIMP22 control for firing pulse transformers for the thyristors		
IMP22 P24	For thyristor V22	Only to be connected if the firing pulse transformer module is divided up (see terminal strip XIMP_4)
X22		
G, K	Firing cable, thyristor V22	Firing pulse (see below) gate (G) to auxiliary cathode (K)
XIMP23 control for firing pulse transformers for the thyristors		
IMP23 P24	For thyristor V23	Only to be connected if the firing pulse transformer module is divided up (see terminal strip XIMP_4)
X23		
G, K	Firing cable, thyristor V23	Firing pulse (see below) gate (G) to auxiliary cathode (K)
XIMP24 control for firing pulse transformers for the thyristors		
IMP24 P24	For thyristor V24	Only to be connected if the firing pulse transformer module is divided up (see terminal strip XIMP_4)

6.16 Connector assignment (terminals, Faston mounting tabs, ribbon cables)

Terminal, connection	Function	Technical data, comments
X24		
G, K	Firing cable, thyristor V24	Firing pulse (see below) gate (G) to auxiliary cathode (K)
XIMP25 control for firing pulse transformers for the thyristors		
IMP25 P24	For thyristor V25	Only to be connected if the firing pulse transformer module is divided up (see terminal strip XIMP_4)
X25		
G, K	Firing cable, thyristor V25	Firing pulse (see below) gate (G) to auxiliary cathode (K)
XIMP26 control for firing pulse transformers for the thyristors		
IMP26 P24	For thyristor V26	Only to be connected if the firing pulse transformer module is divided up (see terminal strip XIMP_4)
X26		
G, K	Firing cable, thyristor V26	Firing pulse (see below) gate (G) to auxiliary cathode (K)
Outputs for voltage measurement		
X12_1	Armature line voltage W	When the firing cables are connected to the thyristors in the power unit, the line and armature voltages are automatically present at the firing pulse transformer module. These voltages can then be routed from here (connections X12_1, etc.) to the voltage measurement equipment (C98043-A7117), without having to route any additional cables to the power unit. See also Chapter "Connecting the external power unit".
X14_1	Armature line voltage U	
X15_1	Armature voltage 1C1	
X16_1	Armature line voltage V	
X25_1	Armature voltage 1D1	
"Firing pulse transformer module"		