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КОМПЛЕКТУЮЩИЕ ДЛЯ ПРИВодОВ

Техническое описание

на Блоки управления инвертором

ВСУ



Technical data

Contents of this chapter

This chapter contains the technical data for the control units.

Connector data

Terminal

Power supply (XPOW)	Connector pitch 5 mm, wire size 2.5 mm ² 24 V (±10%) DC, 2 A External power input. Two supplies can be connected for redundancy.
Relay outputs RO1...RO3 (XRO1...XRO3)	Connector pitch 5 mm, wire size 2.5 mm ² 250 V AC / 30 V DC, 2 A Protected by varistors
+24 V output (XD24:2 and XD24:4)	Connector pitch 5 mm, wire size 2.5 mm ² Total load capacity of these outputs is 4.8 W (200 mA / 24 V) minus the power taken by DIO1 and DIO2.
Digital inputs DI1...DI6 (XDI:1...XDI:6)	Connector pitch 5 mm, wire size 2.5 mm ² 24 V logic levels: "0" < 5 V, "1" > 15 V R_{in} : 2.0 kohm Input type: NPN/PNP (DI1...DI5), NPN (DI6) Hardware filtering: 0.04 ms, digital filtering up to 8 ms DI6 (XDI:6) can alternatively be used as an input for a PTC thermistor. "0" > 4 kohm, "1" < 1.5 kohm I_{max} : 15 mA (DI1...DI5), 5 mA (DI6)

**Start interlock input DII1
(XDI:7)**

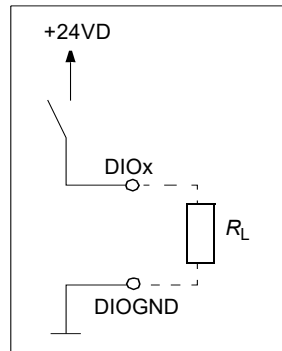
Connector pitch 5 mm, wire size 2.5 mm²
24 V logic levels: "0" < 5 V, "1" > 15 V
 R_{in} : 2.0 kohm
Input type: NPN/PNP
Hardware filtering: 0.04 ms, digital filtering up to 8 ms

Digital inputs/outputs DIO1 and DIO2

(XDIO:1...XDIO:4)

Input/output mode selection by parameters. DIO1 can be configured as a frequency input (0...16 kHz with hardware filtering of 4 microseconds) for 24 V level square wave signal (sinusoidal or other wave form cannot be used). DIO2 can be configured as a 24 V level square wave frequency output. See the firmware manual.

Connector pitch 5 mm, wire size 2.5 mm²
As inputs:
24 V logic levels: "0" < 5 V, "1" > 15 V
 R_{in} : 2.0 kohm
Filtering: 1 ms
As outputs:
Total output current from +24 VD is limited to 200 mA



Reference voltage for analog inputs +VREF and -VREF

(XAI:1 and XAI:2)

Analog inputs AI1 and AI2 (XAI:4 ... XAI:7).

Current/voltage input mode selection by switches

Connector pitch 5 mm, wire size 2.5 mm²
10 V \pm 1% and -10 V \pm 1%, R_{load} 1 ... 10 kohm
Maximum output current: 10 mA

Connector pitch 5 mm, wire size 2.5 mm²
Current input: -20...20 mA, R_{in} : 100 ohm Voltage input: -10...10 V, R_{in} > 200 kohm
Differential inputs, common mode range \pm 30 V
Sampling interval per channel: 0.25 ms
Hardware filtering: 0.25 ms, adjustable digital filtering up to 8 ms Resolution: 11 bit + sign bit

Analog outputs AO1 and AO2 (XAO)

Inaccuracy: 1% of full scale range
Inaccuracy with Pt100 sensors: 10 °C (18 °F)
Connector pitch 5 mm, wire size 2.5 mm²
0...20 mA, R_{load} < 500 ohm

Drive-to-drive link (XD2D)

Frequency range: 0 ... 500 Hz
Resolution: 11 bit + sign bit
Inaccuracy: 2% of full scale range

RS-485 connection (X485)

Connector pitch 5 mm, wire size 2.5 mm²
Physical layer: RS-485

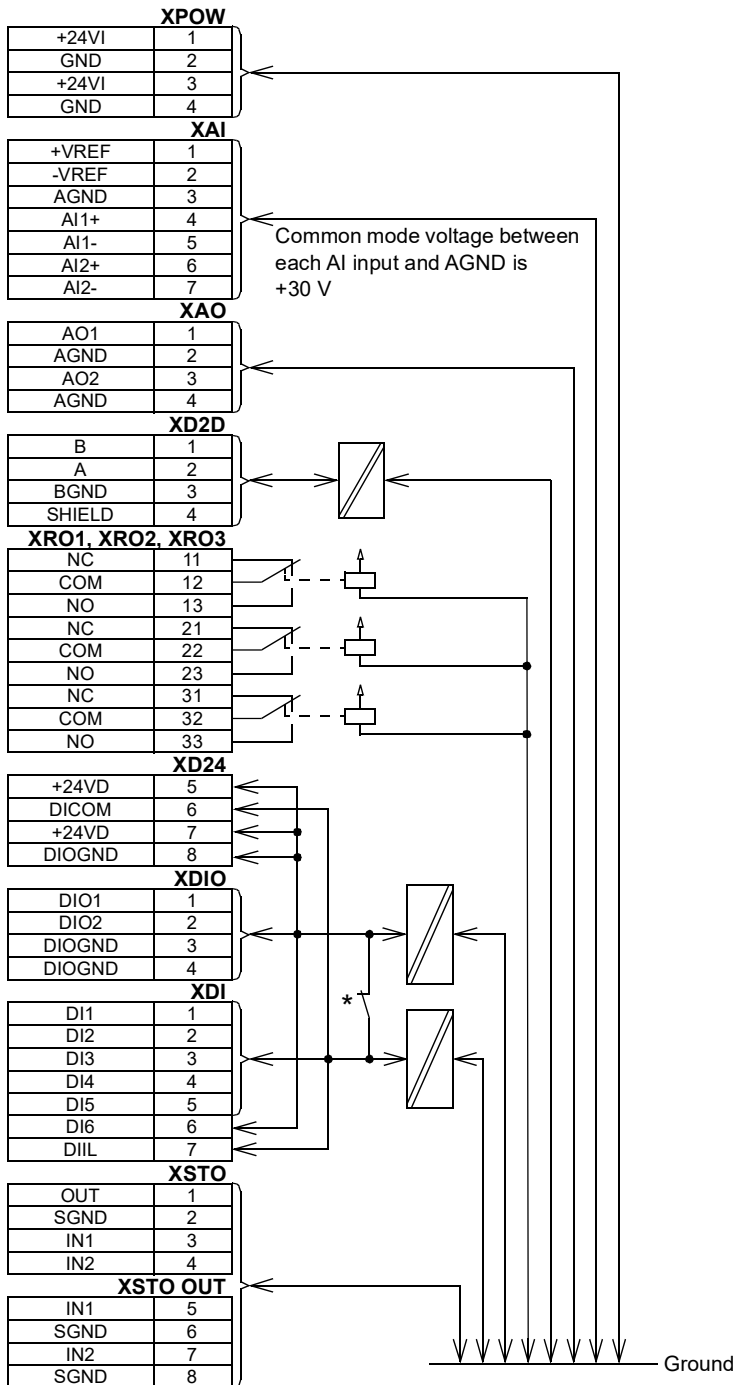
Safe torque off connection (XSTO)

Termination by switch
Connector pitch 5 mm, wire size 2.5 mm²
Physical layer: RS-485
Connector pitch 5 mm, wire size 2.5 mm²
Input voltage range: -3...30 V DC
Logic levels: "0" < 5 V, "1" > 17 V
For the unit to start, both connections must be "1"
Current consumption: 66 mA (continuous) per STO channel per inverter module
EMC (immunity) according to IEC 61326-3-1

Safe torque off output (XSTO OUT)	Connector pitch 5 mm, wire size 2.5 mm ² To STO connector of inverter module Connector: RJ-45
Control panel connection (X13)	Cable length < 3 m (10 ft) Connector: RJ-45
Ethernet connection (XETH)	This connection is not supported by the firmware. Memory card type: SDHC
SDHC memory card slot (SD CARD)	Maximum memory size: 8 GB

The terminals on the board fulfill the Protective Extra Low Voltage (PELV) requirements. The PELV requirements of a relay output are not fulfilled if a voltage higher than 48 V is connected to the relay output.

Ground isolation diagram



*Ground selector (DICOM=DIOGND) settings

<p>DICOM=DIOGND: ON All digital inputs share a common ground (DICOM connected to DIOGND). This is the default setting.</p>
<p>DICOM=DIOGND: OFF Ground of digital inputs DI1...DI5 and DIIL (DICOM) is isolated from DIO signal ground (DIOGND). Isolation voltage 50 V.</p>

Other information

Battery	
Real-time clock battery	BR2032
Protection classes	
Degree of protection (IEC/EN 60529)	IP10
Enclosure type (UL 508C)	UL Open Type
Overvoltage category (IEC 60664-1)	II
Protective class (IEC/EN 61800-5-1)	I
Protective class (IEC 62109-1)	II
Ambient conditions	
Air temperature in operation	0...70 °C (32...158 °F)
Materials	
Housing	Hot-dip zinc coated steel, cover painted
Label	Polycarbonate
Package	Cardboard
Applicable standards	
EN 61800-5-1:2007 EN	<i>Adjustable speed electrical power drive systems. Part 5-1: Safety requirements – electrical, thermal and energy</i>
61800-3:2004 IEC/EN	<i>Adjustable speed electrical power drive systems. Part 3: EMC requirements and specific test methods</i>
62109-1:2010	<i>Safety of power converters for use in photovoltaic power systems Part 1: General requirements</i>
UL508C:2002	<i>UL Standard for Safety, Power Conversion Equipment, third edition</i>
Note: For other standards, see the applicable hardware and functional safety manuals.	
Markings	
cULus	The control unit is cULus Listed.

Cybersecurity disclaimer

This product is designed to be connected to and to communicate information and data via a network interface. It is Customer's sole responsibility to provide and continuously ensure a secure connection between the product and Customer network or any other network (as the case may be). Customer shall establish and maintain any appropriate measures (such as but not limited to the installation of firewalls, application of authentication measures, encryption of data, installation of anti-virus programs, etc) to protect the product, the network, its system and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information. ABB and its affiliates are not liable for damages and/or losses related to such security breaches, any unauthorized access, interference, intrusion, leakage and/or theft of data or information.

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