> PRIVA BLUE ID S-LINE AO2M/AO4M

Analogue output module with manual override

An Priva Blue ID S-Line AO2m Analogue output module with manual override or Priva Blue ID S-Line AO4m Analogue output module with manual override provides the system with analogue outputs with override switches.

Characteristics

- 2 or 4 analogue voltage outputs
- high resolution
- outputs electrically isolated from system neutral
- each wire has its own terminal block
- field power (FP) and field ground (FG) loop through
- hot swappable
- 24 V system power supply monitoring
- measurement of output voltage
- protection against overload and short-circuits
- LED for status of module
- LEDs for indication of output voltage
- LEDs for indication of manual override
- three override buttons per output to manually intervene and set the output voltage
- text card for identification of outputs

Manual override

The module has override buttons for manual intervention and corresponding LEDs per output. If necessary, they can be used to control the connected device manually. The corresponding LED indicates this.

Short circuit proof and self-restoring

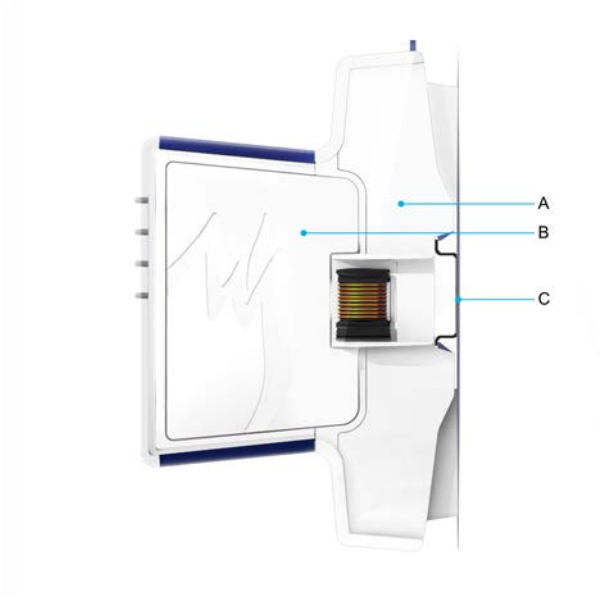
The module's analog outputs are self-restoring after a brief short-circuit or overload.

After a brief short-circuit or overload, the output is switched on automatically after half a second. After a longer short-circuit or overload, you must remove the cause of the problem and restart the output manually by accepting the associated alarm.

Modular solution

An optimal fit is always possible because the module is available with a choice of 2 or 4 outputs.

Modular design



Module (A) and base (B) form a unique combination. As a result of this, a module cannot be incorrectly positioned in a base.

You simply click the base onto the DIN rail (C). The wiring easily connects to the base via spring terminals. The base remains in place when replacing the module, removing the need to rewire.

Hot swappable

Removing a module from the base and replacing it can easily be done without tools. This can be done live (hot swappable). When doing so, the status selected with the manual override buttons is retained.

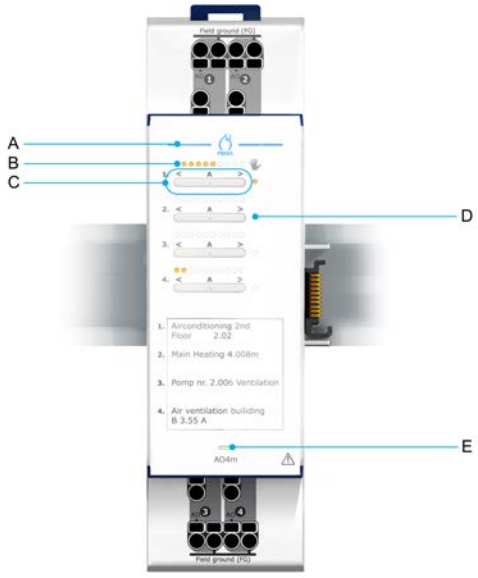
Wiring

You do not need to disconnect wiring when exchanging modules. This is because the wiring is connected to the module's base.

Quick and faultless wiring

Each output has three terminals. In addition to the terminal for the device each output has an FG terminal and an FP terminal that can be used to wire an actuator directly to the module. This avoids the need for additional terminals to loop the wiring through.

Clear indication and operation



Legend

A	Priva Blue ID Lifeline
B	LEDs for indication of output voltage
C	< : manually decrease output voltage
	A: automatic control of output voltage
	>: manually increase output voltage
D	LED for status of control: • LED on: manual control of output voltage • LED off: automatic control of output voltage
E	LED for status of module

Priva Blue ID Lifeline

The modules are equipped with blue LEDs. Together, these LEDs form the Priva Blue ID Lifeline. If the blue line is continuously on, the modules and bases are in the correct place according to the configuration in TC Engineer.

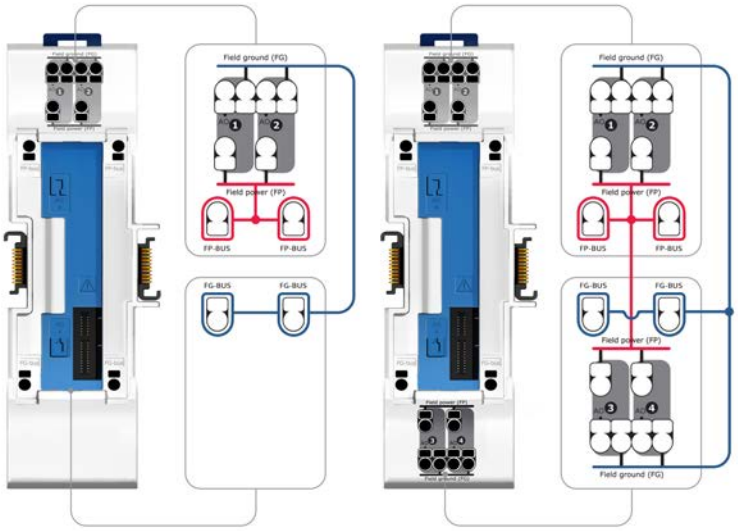
LEDs for output voltage

For each output, LEDs indicate the voltage level of the output. When the output is overloaded, all LEDs blink.

LED for status of module

The LED shows the status of the module. The LED is on continuously when the module is working correctly. If not, and in special circumstances, the LED flashes.

Connections



Legend

AO	analogue output
Field power (FP)	power supply for actuators
Field ground (FG)	neutral for output and power supply

AOm module specifications

General		
Module article description	Priva Blue ID S-Line AO2m Analogue output module with manual override	Priva Blue ID S-Line AO4m Analogue output module with manual override
Module article number	5072002 (V05:01 and higher)	5072004 (V05:01 and higher)
Base article description	Priva Blue ID S-Line AO2 Analogue output base	Priva Blue ID S-Line AO4 Analogue outout base
Base article number	5072101 (V02:00 and higher)	5072103 (V02:00 and higher)
Number of analogue outputs	2	4
Dimensions (XYZ)[1]	161.5 x 46 x 102.4 mm (6.36 x 1.81 x 4.03 inches)	
Weight	module: 220 grams base: 130 grams	module: 220 grams base: 130 grams
Maximum power consumption	3.5 W	4.8 W
Typical power dissipation[2]	2.5 W	2.9 W
MTBF[3]	module: 730,000 hours base: 8,760,000 hours	module: 730,000 hours base: 8,760,000 hours
Construction	removable module on a base	
Mounting of base	clicks onto DIN rail	
Housing material	mixture of polycarbonate and ABS	
Button material	TPE (synthetic rubber)	
Connector type for power supply and I/O	terminal block	
Permitted core cross section area	solid: 0.2 ... 4 mm² flexible: ... 2.5 mm² flexible with ferrule connector: 0.25 ... 1.5 mm²	
Identification of connections	labelling with an explanatory abbreviation	

[1] Excluding 1.1 mm room between the modules
[2] Dissipation under the following conditions:
- I/O load of 50%
- Energy saving mode on (LEDs off)
[3] The MTBF is calculated according to the *Telcordia SR-332 standard Issue 2* under the following conditions:
- ambient temperature: 35 ... 50 °C
- supply voltage: 24 VDC
- time in operation per day: 24 hours
- reliability level: 60 %

Analogue outputs	
Output voltage control range	0 ... 10 V
Maximum load current supplied per output (source)	15 mA
Maximum current load drawn per output (sink)	10 mA
Load resistance	> 667 Ω
Resolution	600 µV (> 13 bits over 10 V)
Accuracy	± (10 mV + 0.5 % of the control signal)
Accuracy of feedback	± 150 mV
Adjustment time	200 ms (to 70 % of the set value)
Input leakage current with high impedance output[1]	maximum 5 µA
Protection	output is short-circuit proof (self-restoring after a brief short circuit/overload) output is protected against incorrect connection of ± 30 VDC and 30 VAC
Number of switch-on attempts in the event of short circuit or overload[2]	5
Functional isolation of outputs and FP in relation to system neutral	240 VDC 240 VAC
Output voltage (FP-FG)	same as FP bus voltage (voltage between FP bus and FG bus)
FG isolated from system neutral	yes
Maximum load current FP connections	750 mA
FP protection	protected against short circuits and overload with internal common fuse for all outputs
Input voltage between FP bus and FG bus	0 ... 30 VAC 0 ... 30 VDC
Field power supply	double insulation between input and output
Maximum current FP bus	FP bus in - FP bus out: 10 A FG bus in - FG bus out: 10 A
Indication	• Priva Blue ID Lifeline • orange LEDs for indication of output voltage • orange LED for status of control (automatic or manual) • green LED for status of module
Operation	buttons to set the voltage level of the output manually

[1] The output is high impedance ex-factory; the module has not yet been configured then. In addition, unused outputs and the outputs where the overload protection has been activated are high impedance.

[2] After a short-circuit or overload the output is switched back on after 0.5 s. The output switches back off immediately if the overload is still present. The output performs a maximum of 5 switch-on attempts with a time interval of 0.5 seconds. After 5 attempts, the output is switched off and manual intervention is required.

General specifications of controllers, modules and bases

Housing	
IP code	IP30 (IEC 60529)
Flammability class	V-0 (UL 94)
Recycle code	7
Colour	release surfaces of module and DIN rail release: blue (RAL5013) other parts: white (RAL9003)
Device type	open device, for use in a pollution degree 2 environment

Installation and connection	
Installation	in control panel: • accessible to authorized personnel only • can be clicked onto the DIN rail that is positioned horizontally or vertically on the mounting plate Note: The controller, SC module and SN module may only be mounted horizontally. in panel door integration in control panel: • accessible to authorized personnel only • can be clicked onto the DIN rail that is positioned horizontally on the mounting plate
DIN-rail type	35 x 7.5 mm (height x depth), in accordance with IEC 60715
Maximum width of I/O modules, bus extension modules and controller	20 m

Environment	
Permitted temperature inside control cabinet during normal operation with horizontally mounted modules only (without airflow)	0 ... 50 °C
Permitted temperature inside control cabinet during normal operation with vertically mounted modules only (without airflow)	0 ... 35 °C
Permitted temperature during transport and storage	-20 ... 70 °C
Permitted relative ambient humidity	10 % ... 95 % (non-condensing)
Shock and vibration resistance	IEC 61131-2
Installation category	II

Legislation and standards		
Canada / USA		• UL 508:2005 (industrial control equipment) • UL 916:2007 (energy management equipment) • UL 61010-1:2004 (measurement and control equipment) • CSA C22.2 No 14-10: 2011 (industrial control equipment) • CSA C22.2 No 205-12: 2012 (signal equipment) • CSA C22.2 No 61010-1-04 (measurement and control equipment)
	EMC	• complies with 47 CFR Part 15 Subpart B, Class B (FCC Rules) Operation is subject to the following two conditions: 1. This system may not cause harmful interference. 2. This system must accept any interference received, including interference that may cause undesired operation. • ISM-system, complies with Canadian ICES-001
Europe		• Low voltage directive 2006/95/CE: • EN 61010-1:2010 (measurement and control equipment) • EMC directive 2004/108/EC: • EN 61326-1:2006 (measurement and control equipment) • EN 61000-6-2:2005 (generic immunity standard) • EN 61000-6-3:2007 (generic emission standard) • RoHS directive 2011/65/EU
		complies with the WEEE directive 2002/96/EC
International		• The Priva Blue ID S10 Controller is BTL registered at BACnet International. • The Priva Blue ID S10 Controller is BACnet certified in accordance with ISO 16484-5/6. • Priva is a member of the BACnet Interest Group Europe.

Europe Office:
Priva
Zijlweg 3
P.O. Box 18
2678 ZG
De Lier
The Netherlands
www.priva.com
sales.building@priva.nl

UK Office:
Priva UK Ltd.
34 Clarendon Road

Watford WD17 1JJ
United Kingdom
www.priva.co.uk
sales@priva.co.uk

Canada Office:
Priva North America Inc.
3468 South Service Road
Vineland Station

Ontario LOR 2E0
Canada
www.priva.ca
contact.priva@priva.ca

Your Priva partner:

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