

ABB AO820-3BSE008546R1

4-channel bipolar analog output module

Overview

ABB AO820 3BSE008546R1 is a four-channel bipolar analog output module for the S800 I/O system. Each channel is configured for current or voltage output and has galvanic isolation.

Configurable analog commands

Select bipolar or unipolar current and voltage ranges for the field interface.

Channel isolation

Individual channels are isolated from each other and from circuit common.

Diagnostic feedback

Review output readback, open-circuit and process-voltage supervision.

Predetermined fault response

Set OSP to the intended output state for error conditions.

PARAMETER	SPECIFICATION
Origin / HS code	Sweden / 8537101190
Shipping origin	Xiamen, Fujian, China
Inventory / dispatch	1 / 3 days; fast shipment
Dimensions / module weight	45 x 102 x 119 mm / 0.18 kg

Technical parameters

Published AO820 values; article 3BSE008546R1

PARAMETER	SPECIFICATION
Current ranges	-20 to +20; 0 to 20; 4 to 20 mA
Voltage ranges	-10 to +10; 0 to 10; 2 to 10 V
Resolution	12 bits including sign
Under / over range	+/-15%
Current-output load	Maximum 550 ohms
Voltage-output load	Minimum 5 kilohms
Voltage error	Maximum 0.1%
Current error	Typical 0.1% at 250 ohms; maximum 0.15%
Temperature drift	Maximum 90 ppm/degree C
Rise time	Less than 0.7 ms
Update cycle	Maximum 1.5 ms
Current limiting	Short-circuit-proof, current-limited output
Maximum field cable	600 m

PARAMETER	SPECIFICATION
Rated insulation	50 V
Dielectric test	500 V AC
Power dissipation	Typical 6 W
+5 V ModuleBus consumption	Maximum 100 mA
+24 V ModuleBus consumption	Maximum 260 mA
Operating temperature	0 to +55 degrees C
Approval temperature range	+5 to +55 degrees C
Vertical compact-MTU ambient	Maximum 40 degrees C
Storage temperature	-40 to +70 degrees C
Relative humidity	5 to 95%; non-condensing
Ingress protection	IP20
Pollution degree	Degree 2
Corrosion protection	ISA-S71.04 G3

Application and installation

Common Applications and Product Precautions

S800 analog output integration

Use isolated analog output channels in an S800 I/O station for process-control commands.

Current command loops

Connect current-input field devices using a selected current range and a load within 550 ohms.

Voltage command signals

Connect voltage-input field devices to the voltage terminals; the load must be at least 5 kilohms.

Diagnostic loop checkout

Review readback, open-circuit and process-voltage supervision together with the configured OSP response.

Product Precautions

01 / Identity and pairing

Match ABB AO820-3BSE008546R1 to a listed MTU and the installed S800 I/O configuration.

02 / Current versus voltage terminals

Use the terminal set that corresponds to the software channel mode.

03 / Selected range

Check the bipolar or unipolar range and the receiving device before applying a command.

04 / Load envelope

Keep current-output load at or below 550 ohms and voltage-output load at or above 5 kilohms.

05 / Ambient conditions

Apply the 40-degree-C maximum for vertical mounting in a compact MTU.

06 / Loop diagnostics

Interpret open-circuit supervision with its greater-than-1-mA current threshold.

07 / Fault output

Confirm each channel's predetermined OSP state before release.

08 / Process-voltage supervision

Review the ModuleBus channel-error indication if the supervised process voltage disappears.

Technical notes / terminal selection

ABB lists TU810V1, TU812V1, TU814V1, TU830V1 and TU833 for AO820. Verify the S800 ModuleBus installation, current or voltage terminal set, channel load and predetermined OSP state.

Engineering FAQ

Eight exact-model answers supported by ABB AO820 data

Can ABB AO820-3BSE008546R1 change from current to voltage output without checking its wiring?

No. Channel mode is configured in software, but current and voltage outputs use separate terminal sets. Match the field wiring to the selected output mode.

Why might ABB AO820-3BSE008546R1 not indicate an open current loop near zero output?

ABB specifies open-circuit channel supervision for current greater than 1 mA. Use that threshold when interpreting the diagnostic state during loop checks.

What must be configured for the fault output of ABB AO820-3BSE008546R1?

OSP sets the output to a predetermined state when an error is detected. Confirm the configured OSP value for each channel before releasing the process loop.

Does a vertical compact-MTU installation change the ambient limit for ABB AO820-3BSE008546R1?

Yes. The general maximum ambient is 55 degrees C, but vertical mounting in a compact MTU is limited to 40 degrees C. The published operating range is 0 to 55 degrees C; approvals cover 5 to 55 degrees C.

What load check is required when connecting a field device to ABB AO820-3BSE008546R1?

For current output, the load must not exceed 550 ohms. For voltage output, it must be at least 5 kilohms. Apply the limit for the configured mode.

How does ABB AO820-3BSE008546R1 report loss of the supervised process voltage?

The process-voltage supervision input produces channel-error signals when the voltage disappears. These errors can be read through ModuleBus.

Which terminal-unit choices are listed for ABB AO820-3BSE008546R1?

ABB lists TU810V1, TU812V1, TU814V1, TU830V1 and TU833. The published mechanical keying code is BC; select the MTU and wiring arrangement for the installation.

Can ABB AO820-3BSE008546R1 be selected where HART or redundant analog outputs are required?

No. ABB marks both HART and redundancy as unsupported for this module. Check the system requirement before selecting it for those duties.

Related products and contact

Eight verified Apter Power product pages / separate from technical evidence

BRAND + MODEL	RELATION	PRODUCT LINK
ABB TU833 3BSE038726R1	Listed AO820 MTU	Explore ABB TU833 3BSE038726R1 page
ABB TU810V1 3BSE013230R1	Listed AO820 MTU	Explore ABB TU810V1 3BSE013230R1 page
ABB TU830V1	Listed AO820 MTU	Explore ABB TU830V1 page
ABB AO895 3BSC690087R1	S800 output family	Explore ABB AO895 3BSC690087R1 page
ABB AO810 3BSE008522R1	S800 output family	Explore ABB AO810 3BSE008522R1 page
ABB AO810V2 3BSE038415R1	S800 output family	Explore ABB AO810V2 3BSE038415R1 page
ABB AO801 3BSE020514R1	S800 output family	Explore ABB AO801 3BSE020514R1 page
ABB TU835V1 3BSE013236R1	S800 MTU family	Explore ABB TU835V1 3BSE013236R1 page

The three Listed AO820 MTU rows are pairing references. The other five rows are related S800 family products, not declared substitutes or AO820-compatible MTUs.

APTER POWER CONTACT

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Technical source: ABB Compact Product Suite hardware selector - AO820; article 3BSE008546R1; General info, Detailed data, Diagnostics, Environment and certification, Compatibility, Dimensions. Commercial fields supplied by Apter Power.