

01

Select hardware and environment

APTER POWER / MODEL-SPECIFIC FIELD GUIDE

ABB AO820-3BSE008546R1

4-channel bipolar analog output module. This guide organizes the published AO820 limits into planning and verification checks; use the installed system drawings for terminal assignments and work authorization.

A / Pairing decision

CHECK	PUBLISHED BASIS
Listed compact MTUs	TU810V1, TU812V1, TU814V1
Listed extended MTUs	TU830V1, TU833
Mechanical key	BC
Channel isolation	Each channel isolated from other channels and circuit common

B / Installation envelope

PARAMETER	SPECIFICATION
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
Equipment class	Class I; earth protected
Dimensions W x D x H	45 x 102 x 119 mm; depth 111 mm including connector

Acceptance: selected hardware belongs to the published MTU set, and the installation meets the temperature limit for its actual orientation. A general ambient rating does not override the vertical compact-MTU restriction.

Commercial record: origin Sweden | HS 8537101190 | Ships from Xiamen, Fujian, China | Stock 1 | Dispatch 3 days / fast shipment.

A / Channel mode and terminal set

SOFTWARE MODE	SELECTABLE RANGE
Current / bipolar	-20 to +20 mA
Current / unipolar	0 to 20 mA
Current / live zero	4 to 20 mA
Voltage / bipolar	-10 to +10 V
Voltage / unipolar	0 to 10 V
Voltage / live zero	2 to 10 V

Software setting -> matching terminals -> field device

Changing a software range does not change the field wiring. AO820 has separate current and voltage terminal sets. Check both the configured mode and the actual terminal set for each of the four channels.

B / Electrical acceptance envelope

INTERFACE	CHECK AGAINST THIS LIMIT
Current loop	Load at or below 550 ohms
Voltage interface	Load at or above 5 kilohms
Field cable	Maximum 600 m
ModuleBus +5 V	Budget up to 100 mA
ModuleBus +24 V	Budget up to 260 mA
Heat load	Typical module dissipation 6 W

Acceptance: mode, terminal selection and receiving-device range agree; the corresponding load limit is met. The stated maximum cable length is not permission to ignore the load constraint.

A / Separate the reported conditions

INDICATION	MODEL-SPECIFIC INTERPRETATION
Output readback	Output data is read back to supervise converter communication.
Open circuit	Continuous diagnostics; the published current threshold is greater than 1 mA.
Process voltage lost	The supervision input generates channel-error signals readable via ModuleBus.
Output power low	Reported as a module error.
Available status	Module Error, Module Warning and Channel Error.
Front indications	F: Fault; R: Run; W: Warning; O: OSP.

B / Predetermined output state

Check OSP as a configuration item

OSP places the output in a predetermined state after error detection. Confirm the channel setting against the intended process response before accepting the loop. A working output in normal service does not establish that its OSP setting is correct.

C / Useful fault separation

OBSERVATION	VERIFICATION FOCUS
Unexpected current-loop indication	Compare the command with the greater-than-1-mA diagnostic threshold.
Channel error after voltage loss	Review the process-voltage supervision input and ModuleBus error state.
OSP indication	Compare the observed fault output with the predetermined configuration.

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.

A / Performance criteria

MEASURED PROPERTY	PUBLISHED REFERENCE
Voltage accuracy basis	Maximum 0.1% error
Current accuracy basis	Typical 0.1% at 250 ohms; maximum 0.15%
Dynamic response basis	Rise time <0.7 ms; update cycle <=1.5 ms

B / Selection constraints before release

AO820 does not support HART, redundancy, high-integrity operation or intrinsic safety. These are selection constraints, not options enabled by a loop test. Match the system requirement before accepting this module.

Related catalogue / follow the exact model links

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

APTER POWER CONTACT

WHATSAPP / PHONE

+86 180 3023 5313

EMAIL sales13@apterpower.com

WEBSITE www.apterpower.com



ABB AO820
3BSE008546R1