Yokogawa AAI835-H03 S1

Complete Product Information

Isolated Analog Input and Output Module

This isolated four-input/four-output module selects HART communication plus the G3 and extended-temperature execution. Output-loop loading must be evaluated under the actual remote-node ambient condition.

4 isolated current inputs → **FIO mixed-I/O conversion** → **4 isolated current outputs**

01 Product summary and native information

Engineering field	Value, condition or decision
Manufacturer part number	AAI835-H03 S1
Manufacturer	Yokogawa
Product Category	DCS Systems
Spare Part Number	AAI835-H03 S1
Shipping	Swift global dispatch
Condition	New, original product
Shipping size (est.)	3.2cm x 10.7cm x 13cm
Country of Origin	Japan

01 Product summary and native information — continued

Engineering field	Value, condition or decision
Weight	0.3 kg
Tariff Code	8537101190

02 Selected features

Execution choice

H03 carries the documented G3 and −20 to +70°C option.

Hot-node constraint

At 60–70°C in an eligible remote node, output load must remain within 200–750 Ω.

Signal separation

The combined input/output architecture retains isolated channels rather than the non-isolated AAI841 topology.

03 Technical parameters

Parameter	Verified value / condition
Analog inputs	4 channels
Input signal	4–20 mA DC
Input current limit	25 mA
Input accuracy	±16 µA
Data update	10 ms
Powered input resistance	290 Ω at 20 mA; 450 Ω at 4 mA
Unpowered input resistance	≥500 kΩ
Transmitter voltage at 20 mA	≥15.0 V

03 Technical parameters — continued

Parameter	Verified value / condition
Transmitter voltage at zero current	≤29.3 V
5 V supply consumption	360 mA maximum
24 V supply consumption	450 mA maximum
Temperature drift	±16 µA / 10°C
Field/system withstand	500 V AC, 1 minute
Channel/channel withstand	500 V AC, 1 minute; complete MIL cable assembly subject to cable rating
Analog outputs	4 channels
Output signal	4–20 mA DC
Output accuracy	±48 µA
Output load	0–750 Ω; 200–750 Ω at 60–70°C in a qualified remote node
Open-output threshold	<0.65 mA
Temperature option	−20 to +70°C; compatible host/node required
Atmosphere option	ISA Standard G3

Parameter applicability

Legacy AAI835-H00/H03 electrical and suffix specifications apply to the offered AAI835-H03 S1. S1 is retained as the offered style marking; it does not establish compatibility with later H50/H53 styles.

04 Overview

The environmental suffix and output-load window must be considered together when an isolated four-loop interface operates in a qualified remote node.

Selection and adjacent-model differences

AAI835-H03 S1 is selected where a four-input/four-output isolated arrangement also needs the H03 environmental execution. Replacing it with H00 loses the selected environmental option; replacing it with AAI841 changes isolation and doubles the input/output allocation. The H03 environmental execution applies to an isolated four-input/four-output architecture. Its qualified hot-installation load requirement concerns the output bank and does not change the input transmitter-compliance calculation.

Operating relationship

The high-temperature remote-node load restriction is a functional circuit requirement, not a packing or storage condition. The sum of receiver and cable resistance must remain in the applicable window, including a minimum resistance that can be overlooked in a short bench test. For eligible remote installations at 60–70°C, each output needs 200–750 Ω. A 100 Ω bench receiver can therefore demonstrate current delivery without reproducing the documented hot-service load condition.

Interface and installation implications

The input half and output half impose different commissioning tasks. Incoming transmitter current must be mapped to the intended measurement, while outgoing current must be verified at the receiver; environmental identity and HART communication are additional checks rather than substitutes for either electrical test. Input drift is ±16 µA per 10°C and output drift is ±48 µA per 10°C. These are different influences on the two directions; retain the measured ambient and direction of test when investigating a temperature-dependent process-loop discrepancy.

Controller platform reference

CENTUM FIO analog I/O. Match node, termination and loop design.

05 Applications / Compatibility

A compatible CENTUM FIO node uses the H03 module to acquire and command four isolated current loops.

Integration boundary

Confirm G3/temperature execution, node qualification and output compliance as separate parts of the finished installation. The /B3A00 ATB3A-00 and /K4A00 ATK4A-00 terminations must retain the four-plus-four allocation. HART in a remote node also depends on the documented EB401 Rev 2-or-later path.

Application decisions

Temperature-qualified isolated loops

Retain H03 where the installation requires the extended environmental execution and individual channel separation.

Remote output-load engineering

Account for both the lower and upper resistance limits at the documented hot-node condition.

Mixed field instruments and receivers

Keep the transmitter input and command output roles explicit in each loop’s terminal allocation.

HART-enabled combined I/O

Verify the supporting digital path without assuming it validates output delivery or process response.

06 Product Precautions

Prepare a load-and-environment acceptance record before energizing this H03 combined module.

Installation and diagnostic actions

Record node ambient

Determine whether the remote-node 60–70°C output restriction applies.

Measure the receiver circuit

Include wiring resistance rather than testing only the receiving device nameplate value.

Retain H03 identity

An H00 card with equal channel count does not establish the required environmental option.

Check independent loop directions

Avoid placing a source-mode calibrator across an active output.

Inspect isolation accessories

Verify terminal and cable ratings as part of the complete isolated assembly.

Test a representative command

Compare requested current, measured receiver current and receiver response at an approved operating point. Before a hot-condition output test, establish the actual receiver resistance and the qualified node arrangement. Do not add a test shunt that moves the effective load below the applicable 200 Ω minimum.

07 Lifecycle Status

Engineering field	Value, condition or decision
Lifecycle boundary	The complete AAI835-H03 S1 manufacturer phase is unconfirmed.
Environmental spare strategy	Preserve H03 and the required node qualification when selecting a replacement.

07 Lifecycle Status — continued

Engineering field	Value, condition or decision
Electrical continuity	Retain isolated four-input/four-output allocation and the applicable hot-node load window.
Availability scope	Apter Power quotation availability is separate from manufacturer phase and future support commitments.

08 Available Unit Details

Engineering field	Value, condition or decision
Selected unit	AAI835-H03 S1 with the G3/temperature and HART suffixes retained.
Connection accessories	No /B3A00, /K4A00 or isolated terminal-block option is part of the supplied identity.
Loop equipment	External output receivers and their loop resistance are installation items, not included module hardware.

09 Alternative Names

Variant	Complete-model spelling
1	Yokogawa AAI835-H03 S1
2	Yokogawa AAI835 H03 S1

10 Engineering FAQ

Full-model technical question	Engineering answer
Why can a short-loop bench test misrepresent AAI835-H03 S1 at a hot remote node?	A near-zero-ohm test connection can miss the documented minimum output load at 60–70°C. Compare the installed receiver-plus-wire resistance with the applicable range before accepting the circuit.
Can cable resistance be counted toward the load on AAI835-H03 S1?	It forms part of the series output load, so include it in the complete circuit assessment. Check both resistance limits at the actual temperature condition rather than using the receiver value alone.
What should be checked before substituting H00 for AAI835-H03 S1?	Establish whether G3 and extended-temperature execution are required. If they are, an H00 unit is not established as equivalent merely by matching current range and channel count.

10 Engineering FAQ — continued

Full-model technical question	Engineering answer
Does AAI835-H03 S1 make a nonqualified node suitable for extended ambient operation?	No. The node, power arrangement, termination and enclosure retain separate environmental conditions. Verify the complete supported installation before applying the module option.
How can an incorrect input/output terminal assignment on AAI835-H03 S1 be detected?	Trace one measurement circuit and one command circuit independently, then compare their project assignments. A plausible measurement does not validate the output terminal map.
Why can a commanded output on AAI835-H03 S1 coexist with an open-loop fault?	The command is a requested value, whereas the output status reports the physical current path. Inspect the receiver connection and continuity before adjusting controller scaling.
Does the channel isolation of AAI835-H03 S1 remove barrier-selection work?	No. The legacy specification calls for an isolation-barrier arrangement for intrinsically safe duties and excludes a direct Zener-barrier connection. Review the entire approved field loop.
What evidence should accompany a successful AAI835-H03 S1 commissioning test?	Keep the H03 label, node qualification, ambient condition, measured load and input/output test results together. HART access and the external receiver response should be recorded separately from numerical channel checks.

11 Downloads

Engineering field	Value, condition or decision
Technical reference	Original legacy electrical data and H00/H03 suffix selection for the applicable FIO module. PDF, 2 pages.
Engineering guide	Apter Power engineering guide for CENTUM FIO analog I/O. Confirm G3/temperature execution, node qualification and output compliance as separate parts of the finished installation. PDF, 3 pages.

12 What happens after you enquire

Engineering field	Value, condition or decision
1 Review your reference	Send the full marking, quantity and label photos. We review the item and any version details that need clarification.
2 Confirm the offer	Check the quoted reference, condition, included items and expected dispatch date before approving your order.
3 Arrange dispatch	Confirm delivery details and receive the tracking number when it becomes available.

13 Ordering checks

Engineering field	Value, condition or decision
Match the complete marking	Include AAI835-H03 S1 and every revision or approval marking visible on the item. Keep the exact reference on your enquiry and quotation.
Check the offered item before ordering	Request available label and interface photos. Have your maintenance team compare the offered AAI835-H03 S1 reference with the installed equipment and applicable Yokogawa documentation.

14 Sourcing and service information

Engineering field	Value, condition or decision
Title-area support	Sourcing Support; 12-Month Warranty
Dispatch Confirmation	Quantity and dispatch date confirmed in quotation.
Dedicated Manager	Personalized one-to-one VIP service
ISO 9001:2015 Certified	Trusted quality management
Warranty Policy	Review the applicable warranty coverage and claim process.
Return Notice	Obtain return approval before sending an item back.
Shipping Method	Worldwide shipping; freight and timing confirmed in quotation.
Parts Availability	Quantity, dispatch date and lead-time start confirmed in quotation.

15 Technical notes

Engineering field	Value, condition or decision
Load-window selection	Use the node’s actual operating condition to select the permitted output resistance range; a room-temperature continuity check cannot settle this.
Independent acceptance	Input scaling, output delivery and HART access each require their own observation.
Suffix substitution	The common signal range between H00 and H03 does not establish equal environmental execution.

16 Before You Order

Information to provide	Selection and acceptance context
Qualified hot-service installation	For AAI835-H03 S1, supply node/enclosure qualification and whether the remote output bank operates in the 60–70°C condition.
Each output receiver branch	Record individual receiver-plus-wire resistance; include any temporary test shunt when comparing with the qualified 200–750 Ω load window.
Temperature and direction of test	Provide ambient and separate input/output readings so the different temperature influences can be applied to the correct signal path.
Isolation and termination	Capture the H03 S1 label, ATB3A/ATK4A marking and the four-plus-four isolated reference arrangement.

Technical basis

Yokogawa Analog I/O Modules (for FIO), GS 33M50F30-40E, 5th Edition

Related product navigation

Compare the separate system, revision and interface requirements on each linked product page. These portfolio references do not establish interchangeability.

Yokogawa AFV30D-A41262	CENTUM system reference: retain its own host and configuration boundary.
Yokogawa ALF111-S50	CENTUM system reference: retain its own host and configuration boundary.
Yokogawa AAI841-H00 S2	Analog I/O portfolio: compare signal direction, isolation and style.
Yokogawa SB401-51 S1	Node communication reference: qualify the host and interface revision.

Engineering contact

Discuss the complete unit and installed application with Apter Power.
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