Yokogawa AAI841-H03 S1

Complete Product Information

Non-Isolated Analog Input and Output Module

The H03 version combines eight current inputs and eight current outputs with HART communication and the G3/extended-temperature option. Its output-load limits include a specific hot remote-node condition.

8 non-isolated current inputs → **FIO shared-reference I/O** → **8 current-output receivers**

01 Product summary and native information

Engineering field	Value, condition or decision
Manufacturer part number	AAI841-H03 S1
Manufacturer	Yokogawa
Product Category	DCS Systems
Spare Part Number	AAI841-H03 S1
Shipping	Swift global dispatch
Condition	New, original product
Shipping size (est.)	3.2cm x 10.7cm x 13cm
Country of Origin	Japan
Weight	0.3 kg
Tariff Code	8537101190

02 Selected features

Environmental execution

H03 selects G3 plus the documented −20 to +70°C option.

Output condition

A qualified remote node at 60–70°C requires 200–750 Ω output load.

Reference architecture

Eight inputs and eight outputs remain non-isolated, unlike AAI835.

03 Technical parameters

Parameter	Verified value / condition
Analog inputs	8 channels
Input signal	4–20 mA DC
Input current limit	25 mA
Input accuracy	±16 µA
Data update	10 ms
Powered input resistance	400 Ω at 20 mA; 1000 Ω at 4 mA
Unpowered input resistance	≥500 kΩ
Transmitter voltage at 20 mA	≥14.8 V
Transmitter voltage at zero current	≤26.4 V
5 V supply consumption	310 mA maximum
24 V supply consumption	500 mA maximum
Temperature drift	±0.1% / 10°C

03 Technical parameters — continued

Parameter	Verified value / condition
Channel isolation	Non-isolated
Input step response	100 ms
Analog outputs	8 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
Output step response	40 ms
Temperature option	−20 to +70°C; compatible host/node required
Atmosphere option	ISA Standard G3

Parameter applicability

Legacy AAI841-H00/H03 electrical and suffix specifications apply to the offered AAI841-H03 S1. S1 is retained as the offered style marking; it does not establish compatibility with later H50/H53 styles.

04 Overview

An eight-loop module can meet an environmental option while still requiring non-isolated field-reference and temperature-dependent output-load checks.

Selection and adjacent-model differences

AAI841-H03 S1 combines the eight-plus-eight topology with the H03 environmental execution. An H00 replacement changes that selected option; an AAI835 changes both isolation and channel allocation. Those are separate engineering decisions even when all connected signals are nominally current loops. The H03 execution adds G3 and qualified -20 to +70°C environmental scope to the non-isolated eight-input/eight-output module. It does not turn the common-reference channels into the isolated AAI835 topology.

Operating relationship

The output load must be assessed at the node's operating condition. A receiver that works in a cool cabinet or short bench circuit may fail the documented hot remote-node load requirement; cable and receiver resistance must be evaluated together. The 200–750 Ω output-load condition applies to the qualified remote arrangement at 60–70°C. Check each receiver branch, including any temporary test resistor, rather than accepting one representative loop for the whole output bank.

Interface and installation implications

Measurement supply, output compliance and digital instrument communication use different acceptance evidence. The input setting pins establish the transmitter arrangement, the loaded output test proves the receiver path, and remote HART requires the supporting EB401 revision in addition to an H-marked card. The specified temperature influence is ±0.1% per 10°C. Assess this temperature influence separately from the different ±16 µA input and ±48 µA output reference accuracies.

Controller platform reference

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

05 Applications / Compatibility

Eight-loop HART-capable combined I/O operates within the compatible legacy FIO node and H03 environmental configuration.

Integration boundary

Retain the required environmental suffix while qualifying non-isolated circuit references and remote-node load conditions. Use the selected ATA4S/ATA4D or ATK4A termination with the recorded shared commons and all sixteen direction-labeled circuits. H03 ambient qualification, node rail capacity and remote HART revision are independent fit conditions.

Application decisions

H03 combined-I/O replacement

Preserve the selected G3/temperature execution when restoring an existing eight-loop installation.

Hot remote-node command circuits

Engineer the complete output resistance window rather than relying on a maximum-load check alone.

High-density current-loop groups

Coordinate eight measurements and eight receiver commands with the project's actual loop allocation.

Digital maintenance alongside control

Verify HART instrument access without treating it as evidence of correct command delivery.

06 Product Precautions

Accept environmental execution, analog measurement and loaded output operation as distinct checks.

Installation and diagnostic actions

Retain the full suffix

Compare H03 S1 before accepting a unit that only matches the AAI841 base number.

Document ambient and node type

Determine whether the high-temperature remote-node load restriction applies.

Check low as well as high load

A short test loop may violate the relevant minimum resistance even when the maximum is satisfied.

Inspect field reference wiring

G3 execution does not add channel isolation.

Separate settling tests

Do not use the faster output response to judge input acquisition immediately after a step.

Restore remote digital access

Verify the required EB401 revision and actual HART communication after analog checks. A cabinet test must reproduce the service receiver load as well as the ambient condition. Preserve input and output settling evidence separately because the documented 100 ms and 40 ms responses describe different paths.

07 Lifecycle Status

Engineering field	Value, condition or decision
Manufacturer phase	No definite phase is established for the complete AAI841-H03 S1 identity.
Environmental continuity	A replacement must retain the required H03 execution and compatible node environment.
Migration constraints	Channel count, non-isolated references and receiver-load conditions remain part of a replacement assessment.
Supply meaning	Apter Power availability is quoted separately from manufacturer lifecycle and future production.

08 Available Unit Details

Engineering field	Value, condition or decision
Selected combination	AAI841-H03 S1 includes the HART and G3/temperature order selections.
Separate terminal items	The model string does not include an adapter, pressure-clamp terminal or connector-cover option.
Output installation items	Receiver hardware and field cable are external to the offered module; their resistance remains an installation property.

09 Alternative Names

Variant	Complete-model spelling
1	Yokogawa AAI841-H03 S1
2	Yokogawa AAI841 H03 S1

10 Engineering FAQ

Full-model technical question	Engineering answer
Why is a maximum-load check alone incomplete for AAI841-H03 S1?	At the documented hot remote-node condition the output also has a minimum load. Evaluate the complete receiver-plus-wire resistance against both limits at the relevant ambient.
Does the G3 selection of AAI841-H03 S1 establish hazardous-area explosion protection?	G3 describes the selected environmental atmosphere capability; it is not an explosion-protection approval. Keep the H03 order-field meanings separate and verify the complete approved field-loop architecture for a classified installation. Passing analog tests or retaining the G3 option cannot establish an otherwise unspecified protection method.
Does AAI841-H03 S1 provide channel isolation because it has a G3 option?	No. G3 and temperature execution concern environmental selection; this module’s current input/output architecture remains non-isolated. Verify field references accordingly.
How much load margin remains if an output of AAI841-H03 S1 has a 680-ohm receiver and 60-ohm wiring?	The nominal series load is 740 Ω, leaving only 10 Ω below the 750 Ω upper limit. At a qualified 60–70°C remote node it also lies above the 200 Ω minimum, but resistor tolerance, terminals and wiring-temperature changes can consume the small upper margin. Check worst-case installed resistance rather than accepting the nominal sum alone.

10 Engineering FAQ — continued

Full-model technical question	Engineering answer
Why can changing the input power-mode setting affect only some AAI841-H03 S1 loops?	The two-wire/four-wire choice is per input channel. Compare each transmitter's supply arrangement with its setting rather than assigning one assumption to all eight measurements.
What distinguishes input delay from output failure on AAI841-H03 S1?	Test incoming current and outgoing receiver current separately. Allow the input path its documented settling interval before concluding that a closed-loop discrepancy originates in the output hardware.
Can AAI841-H03 S1 replace an isolated four-loop module without a circuit review?	No. It changes both circuit isolation and channel allocation. Review terminal mapping, field references and project assignments before moving from AAI835 to this eight-loop arrangement.
Can a one-point input adjustment on AAI841-H03 S1 correct both I/O banks over temperature?	A correction to one input point does not prove the output transfer function or remove temperature-dependent error. Retain separate input and output acceptance measurements under the required operating conditions, and include the published temperature-drift condition in the error budget. The H03 ambient option identifies the permitted execution, not automatic cancellation of those errors.

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. Retain the required environmental suffix while qualifying non-isolated circuit references and remote-node load conditions. 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 AAI841-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 AAI841-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
Thermal compliance	The hot remote-node output requirement introduces a minimum resistance as well as the ordinary maximum.
Reference design	The environmental suffix does not change the non-isolated input/output architecture.
Acceptance order	Verify the transmitter power setting and input settling before combining the measurement with a separately proven command output.

16 Before You Order

Information to provide	Selection and acceptance context
H03 shared-reference topology	For AAI841-H03 S1, provide the G3/ambient requirement and the eight-input/eight-output common wiring; H03 does not add channel isolation.
Hot-load evidence for eight outputs	If the qualified remote node operates at 60–70°C, supply each receiver branch resistance and its worst-case tolerance.
Node rail and interface fit	Record the complete node load, selected ATA4S/ATA4D or ATK4A adapter and the installed remote HART path.
Dual-direction service proof	Supply separate input and output acceptance records at the relevant ambient rather than a single adjusted input point.

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 CP401-10 S1	CENTUM system reference: retain its own host and configuration boundary.
Yokogawa EC401-10 S2	Node communication reference: qualify the host and interface revision.
Yokogawa ATA4D-00 S2	Termination portfolio: compare the exact adapter and channel mapping.
Yokogawa KS1*B	CENTUM system reference: retain its own host and configuration boundary.

Engineering contact

Discuss the complete unit and installed application with Apter Power.
sales13@apterpower.com | +86 18030235313