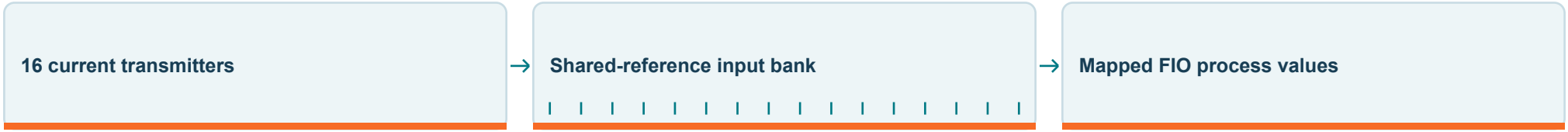
Yokogawa AAI141-H03 S1

Complete Product Information

Non-Isolated Analog Input Module

This sixteen-input current module combines the legacy HART interface with the G3 and extended-temperature option. Its inputs remain non-isolated despite the environmental upgrade.



01 Product summary and native information

Engineering field	Value, condition or decision
Manufacturer part number	AAI141-H03 S1
Manufacturer	Yokogawa
Product Category	DCS Systems
Spare Part Number	AAI141-H03 S1
Shipping	Swift global dispatch
Condition	New, original product
Shipping size (est.)	3.3cm x 10.7cm x 13cm
Country of Origin	Japan

01 Product summary and native information — continued

Engineering field	Value, condition or decision
Weight	0.28 kg
Tariff Code	8537101190

02 Selected features

Selected suffix

HART communication plus the G3/temperature option, not the H00 basic type.

Electrical grouping

Sixteen input circuits use the documented non-isolated architecture.

Host qualification

The extended ambient selection must be supported by the installed FIO node.

03 Technical parameters

Parameter	Verified value / condition
Analog inputs	16 channels
Input signal	4–20 mA DC
Input current limit	27 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

03 Technical parameters — continued

Parameter	Verified value / condition
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	450 mA maximum
Temperature drift	±16 µA / 10°C
Channel isolation	Non-isolated
Input step response	100 ms
Temperature option	−20 to +70°C; compatible host/node required
Atmosphere option	ISA Standard G3

Parameter applicability

Legacy AAI141-H00/H03 electrical and suffix specifications apply to the offered AAI141-H03 S1. S1 is retained as the offered style marking; it does not establish compatibility with later H50/H53 styles.

04 Overview

The H03 choice changes environmental execution while retaining the field-reference constraints of sixteen non-isolated current inputs.

Selection and adjacent-model differences

AAI141-H03 S1 is suited to a dense current-input group whose environmental requirement calls for H03. H00 offers the same nominal signal range but does not carry that selected option, so environmental interchangeability needs its own acceptance decision. Sixteen non-isolated inputs combine with the H03 G3 and qualified -20 to +70°C selection. The common-reference arrangement remains unchanged by the wider environmental suffix.

Operating relationship

Temperature exposure does not change the module into an isolated input bank. A replacement plan must retain the existing field-reference arrangement and check whether an external isolation interface is required for particular instruments or hazardous-area circuits. At 20 mA the powered input burden is 400 Ω, compared with 1000 Ω at 4 mA. The specified input current limit is 27 mA; it is an allowable-input boundary rather than an instruction to use overrange current as a normal calibration point.

Interface and installation implications

The sixteen channels can have different transmitter power arrangements. Documenting those choices before terminal removal prevents an internally powered two-wire configuration from being applied to an already powered four-wire device, especially when several similar loops are marshalled together. The rail requirements are 310 mA maximum at 5 V and 450 mA maximum at 24 V. Reserve those demands in the qualified node before adding transmitter circuits or neighboring modules; channel count alone is not a power-budget calculation.

Controller platform reference

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

05 Applications / Compatibility

AAI141-H03 S1 supplies a high-density legacy FIO current-input bank in a host qualified for the selected environmental option.

Integration boundary

Maintain the channel power-mode and field-reference plan while qualifying G3/temperature execution separately. The H03 module must be combined with a node and termination suitable for the same service environment. Preserve the ATA4S/ATA4D or ATK4A channel route and verify remote EB401 revision separately if HART is used.

Application decisions

G3 option replacement

Retain H03 where the installed cabinet design calls for that atmospheric execution.

Temperature-qualified remote input groups

Assess module and node ambient capability together rather than extending the module option to every remote enclosure.

Sixteen-loop current monitoring

Map each transmitter to its actual configured channel and process engineering range.

Mixed transmitter power modes

Use per-channel settings to distinguish loop-powered devices from independently supplied sources.

06 Product Precautions

Verify the environmental identity before accepting electrical test results as full replacement approval.

Installation and diagnostic actions

Compare H03 with the ordered label

A physically fitting H00 card does not demonstrate the selected environmental execution.

Check local cabinet conditions

Verify the host/node and installed termination are suitable for the required ambient.

Audit common references

Environmental options do not provide isolation between field input channels.

Record mode settings before removal

Keep a channel-by-channel two-wire/four-wire record for the sixteen positions.

Assess the loaded transmitter voltage

Include wiring loss at the most demanding loop-current condition.

Recheck HART remotely

Verify EB401 Rev 2 or later where the remote-node digital function is required. Assess a bank-wide shift against the shared field common before recalibrating individual transmitters. Record the actual ambient and controlled input current so temperature influence is distinguishable from wiring-induced error.

07 Lifecycle Status

Engineering field	Value, condition or decision
Phase statement	The manufacturer lifecycle phase of AAI141-H03 S1 is unconfirmed.
Environmental continuity	Keep the H03 requirement explicit when sourcing a spare; basic H00 is a different environmental selection.

07 Lifecycle Status — continued

Engineering field	Value, condition or decision
Upgrade boundary	Later suffix generations need their own host and revision assessment before replacing this legacy execution.
Supply interpretation	An Apter Power offer describes available supply, not a manufacturer lifecycle extension.

08 Available Unit Details

Engineering field	Value, condition or decision
Order execution	AAI141-H03 S1 retains HART, G3/temperature selection and the supplied S1 style.
I/O boundary	The hardware is a current-input unit; an output module and actuator connections are outside this identity.
Termination scope	The code does not select an ATA4S/ATA4D terminal block, ATK4A adapter or MIL cover option.

09 Alternative Names

Variant	Complete-model spelling
1	Yokogawa AAI141-H03 S1
2	Yokogawa AAI141 H03 S1

10 Engineering FAQ

Full-model technical question	Engineering answer
What evidence distinguishes AAI141-H03 S1 from a basic-type H00 spare?	The full H03 marking establishes the selected G3 and temperature option. Retain that identity evidence alongside the node environmental qualification rather than relying only on a current-injection test.
Does AAI141-H03 S1 isolate a noisy transmitter from the other input circuits?	Its architecture is non-isolated. Review the field reference and any required external isolation before connecting a circuit whose potential differs from the input-group design.
Why can a resistance measurement on an unpowered AAI141-H03 S1 mislead a live-loop assessment?	Power-off input resistance is at least 500 kΩ, whereas the energized input has a current-dependent burden of 400–1000 Ω at the stated endpoints. Those are different circuit states. Assess source compliance with the module powered in the intended channel configuration, rather than substituting an unpowered resistance reading into a live-loop calculation.

10 Engineering FAQ — continued

Full-model technical question	Engineering answer
How can sixteen channels on AAI141-H03 S1 be checked without masking a terminal swap?	Apply a traceable test current to one identified terminal pair at a time and compare the intended configured channel. A group-wide plausible display can conceal crossed loop identities.
Does the 27 mA allowance extend the measurement-accuracy range of AAI141-H03 S1?	It does not redefine the specified 4–20 mA signal band. Keep normal process scaling and overrange handling separate, and confirm the configured channel response before applying an overload test. An input-current allowance alone is not a guarantee of linear conversion or stated accuracy above the normal signal range.
Should AAI141-H03 S1 be accepted from an HART test alone?	No. Digital access does not verify analog scaling or power-mode selection. Check analog indication, transmitter supply arrangement and HART communication as separate parts of the same loop.
What matters when replacing AAI141-H03 S1 in a redundant node?	Retain the configured redundancy topology and the required environmental execution on the replacement path. Prove each path according to the approved plant procedure instead of assuming insertion establishes redundancy.
Why should AAI141-H03 S1 be checked at the midpoint as well as both process endpoints?	Correct zero and full-scale readings can conceal an incorrect channel assignment or an error between the endpoints. Apply a known midpoint current after the input has settled, compare both the current interpretation and the configured engineering value, and keep that result separate from a successful HART connection.

11 Downloads

Engineering field	Value, condition or decision
Technical reference	Original legacy suffix-selection page for the AAI141 H00/H03 family. PDF, 1 page.
Engineering guide	Apter Power engineering guide for CENTUM FIO analog I/O. Maintain the channel power-mode and field-reference plan while qualifying G3/temperature execution separately. 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 AAI141-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 AAI141-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
Ambient and drift	Assess allowed ambient and measurement drift separately; temperature qualification does not promise zero temperature-related measurement change.
Current-input selection	The legacy AAI141 input limit must not be replaced by the different AAI841 or newer-suffix table.
External interfaces	A barrier, terminal cable and node remain separately qualified elements of the finished loop.

16 Before You Order

Information to provide	Selection and acceptance context
Dense-bank environmental execution	For AAI141-H03 S1, confirm the H03 G3/temperature duty together with the shared-reference sixteen-input arrangement.
Service-current boundary	Record intended operating and fault currents; the 27 mA allowable input limit is distinct from the normal 4–20 mA span.
Loaded node conditions	Provide node ambient and available 5 V/24 V rail capacity with the other modules fitted, rather than a module-only bench condition.
Replacement connection evidence	Include the actual ATA4S/ATA4D or ATK4A marking, all channel tags and the remote HART revision when used.

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 AAI835-S00 S2	Analog I/O portfolio: compare signal direction, isolation and style.
Yokogawa ADV161-P50 S2	Discrete I/O portfolio: use its own signal and channel specification.
Yokogawa SDV161-P50 S2	Discrete I/O portfolio: use its own signal and channel specification.
Yokogawa ADV859-P00 S1	Discrete I/O portfolio: use its own signal and channel specification.

Engineering contact

Discuss the complete unit and installed application with Apter Power.
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