Yokogawa AAP135-S50

8-Channel Isolated Pulse Input Module

Yokogawa AAP135-S50 collects pulse signals from field devices and makes them available to a CENTUM FIO control system. Its eight channels are isolated from the system and from one another, supporting pulse-count duties with contact, voltage-pulse or current-pulse sources. The module can provide transmitter power and can be used in a dual-redundant configuration. AAP135-S50 selection depends on the actual pulse waveform and frequency: the maximum electronic-pulse rate must not be applied indiscriminately to dry-contact inputs.



Technical Specifications

Product Identity	
Manufacturer	Yokogawa
Complete model	AAP135-S50
Dimensions (W × H × D)	32.8 × 130 × 107.5 mm; module only
Functional Configuration	
Function	Pulse input
Channels	8; isolated between channels and from the system
Supported signals	Contact ON/OFF, voltage pulse and current pulse
Dry contact at B/C	Single: 0–800 Hz; dual redundant: 0–600 Hz
Performance & Power	
Electronic-pulse range	0–10 kHz; subject to specified signal conditions
Minimum pulse width	40 µs; dry-contact conditions differ
Data update period	2 ms
Transmitter supply	Selectable 12 V or 24 V DC
Maximum current consumption	300 mA at 5 V DC; 400 mA at 24 V DC
Environment	
Protection option	Standard version without explosion protection

Selected original manufacturer pages follow on pages 3–5.

Compatibility & Selection Guide

System compatibility. AAP135-S50 belongs to CENTUM FIO. The Release 6 environment includes AFV30/AFV40 stations with VP6F1700 and VP6E5100 engineering. Match the source type, frequency, pulse width, filter and transmitter supply to the configured channel. The S50 suffix selects the standard, non-explosion-protected basic version; choose the correct single or dual terminal option separately.

Wiring & Installation Reference

Signal and connection checks

Electronic pulses. Up to 10 kHz · Minimum pulse width 40 µs; signal conditions apply

Dry contact B/C. 800 Hz single / 600 Hz dual · Minimum pulse width 625 / 833 µs

Transmitter supply. 12 V / 24 V DC · Current limits 40 / 30 mA

Module fit and configuration

Confirm the system position.. Match the field control unit, node type, complete module code and existing configuration before replacement.

Match termination and dimensions.. Use the specified terminal/cable interface and check the module envelope against the installed assembly.

Verify the configured function.. Match pulse source, frequency, transmitter supply and redundancy mode; dry-contact limits are lower than the 10 kHz electronic-pulse limit.

Installation precautions. Do not apply the 10 kHz rating to dry-contact wiring without checking its separate limits. Match the transmitter supply and input conditioning to the actual source; cable capacitance can further reduce usable contact-input frequency.

View connection specifications (PDF) · PDF page 3 | View mounting dimensions (PDF) · PDF page 4

Manufacturer sources: Analog I/O Modules (for FIO).

● Pulse Input Module (Isolated Channels)

This module receives contact ON/OFF, voltage pulse, and current pulse signals. It is isolated between the field and the system as well as in between each channel, and can be used in dual-redundant configuration.

Items	Specifications
Model	**AAP135**
Number of input channels	8, isolated channels
Input signal (*3)	2-wire type: Contact ON/OFF, voltage pulse, current pulse (possible to supply transmitter power supply) 3-wire type: Power-supply-type voltage pulse
Input frequency	0 to 10 kHz (*4)
Withstanding voltage	Between input and system: 500 V AC, for 1 minute Between channels: 500 V AC, for 1 minute (*1)
Minimum input pulse width	40 µs (*4)
Input signal level	Contact input Open/close levels of relay contact and transistor contact Open: 100 kΩ or larger, Close: 200 Ω or less Contact capacity When supplying 12 V DC: 15 V DC 15 mA or higher When supplying 24 V DC: 30 V DC 30 mA or higher Voltage/current pulse input (Current input is converted to voltage.) VH (high level): 3 to 24 V DC VL (low level): -1 to 8 V DC VH-VL (swing value): 3 V or higher Signal source resistance: 1 kΩ or less
Shunt resistance	Can be selected from none/200/500/1000 Ω. (Open when power is OFF and for the standby side in a dual-redundant configuration)
Pull-up resistance	68 kΩ (12 V DC or 24 V DC)
Filter	Filter for eliminating chattering can be set. (*2)
Data update period	2 ms
Transmitter power supply	Can select 24 V DC/12 V DC. Limiter value 12 V DC ±10 %: 40 mA, 24 V DC ±10 %: 30 mA
Maximum current consumption	300 mA (5 V DC), 400 mA (24 V DC)
Weight	Approx. 0.30 kg
External connection	Pressure clamp terminal, KS cable, MIL connector cable

*1: When the ML connector cable is used, the withstanding voltage depends on the electrical specifications of the cable.
*2: When the pulse input signal is a dry contact (e. g. mechanical relay) up to 10 Hz, chattering can be eliminated.
*3: Connection methods with field devices vary by the input signals. Refer to “Installation Guidance” (TI 33J01J10-01EN) for details.
*4: In case no-voltage contact signals are received in between the terminals B and C, the input frequency and the minimum input pulse width are as shown below:

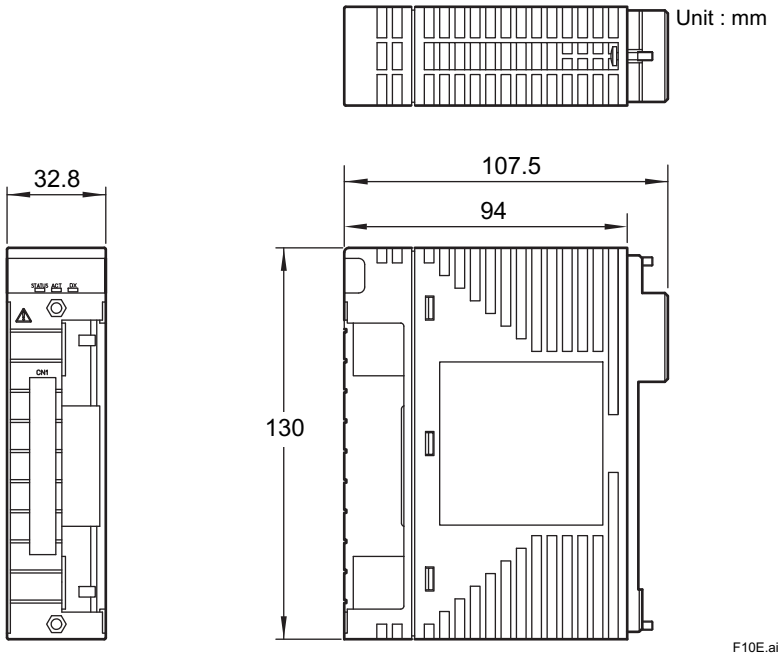
Configuration	Input frequency	Minimum input pulse width (contact off time)
Single	0 - 800 Hz	625 us
Duplexed	0 - 600 Hz	833 us

The input frequency and the minimum input pulse width may vary by the influence of capacitance of the field devices and wires.
Single configuration: 0 - 800 Hz, 625 us @ 1000 pF; 0 - 350 Hz, 1.43 ms @ 10000 pF; 0 - 180 Hz, 2.78 ms @ 30000 pF
Duplexed configuration: 0 - 600 Hz, 833 us @ 1000 pF; 0 - 340 Hz, 1.47 ms @ 10000 pF; 0 - 180 Hz, 2.78 ms @ 30000 pF

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■ EXTERNAL DIMENSIONS

● AAI141, AAV141, AAV144, AAI841, AAB841, AAV544, AAI143, AAI543, AAI135, AAI835, AAP135, AAB141, AAB842

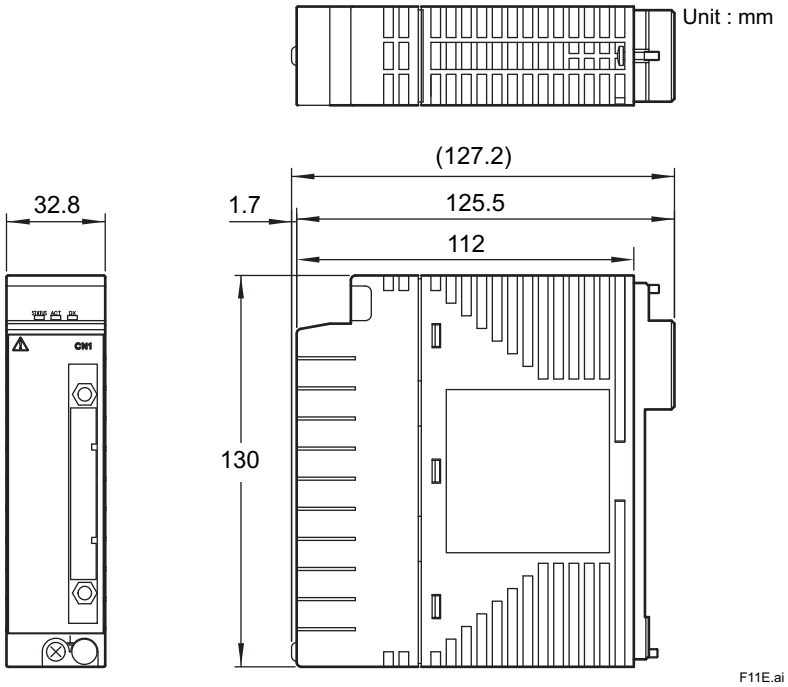


Nominal Tolerances :

When the reference dimension is over 0.5 mm and equal or less than 120 mm, its nominal tolerance is ± 0.8 mm, while its combination of nominal tolerance is ± 1.5 mm.

When the reference dimension is over 120 mm, its nominal tolerance is in accordance with JEM 1459.

● AAT145, AAP849



Nominal Tolerances :

When the reference dimension is over 0.5 mm and equal or less than 120 mm, its nominal tolerance is ± 0.8 mm, while its combination of nominal tolerance is ± 1.5 mm.

When the reference dimension is over 120 mm, its nominal tolerance is in accordance with JEM 1459.

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		Description
Model	AAP135	Pulse Input Module (8-channel, Pulse count, 0 to 10 kHz, Isolated channels)
Suffix Codes	-S	Standard type
	5	With no explosion protection
	E	With explosion protection
	0	Basic type
	3	With ISA Standard G3 option and temperature (-20 to 70 °C) option
Option Codes	/13A00	With KS Cable Interface Adapter [Model: ATI3A-00]
	/K4A00	With KS Cable Interface Adapter [Model: ATK4A-00]
	/13S00	With Pressure Clamp Terminal Block for Pulse [Model: ATI3S-00]
	/13S10	With Pressure Clamp Terminal Block for Pulse (surge absorber) [Model: ATI3S-10]
	/13D00	With Dual Pressure Clamp Terminal Block for Pulse [Model: ATI3D-00]
	/13D10	With Dual Pressure Clamp Terminal Block for Pulse (surge absorber) [Model: ATI3D-10]
	/CCC01	With Connector Cover for MIL Cable [Model: ACCC01]

		Description
Model	AAP149	Pulse Input Module PM1 compatible (16-channel, Pulse count, 0 to 6 kHz, Non-Isolated)
Suffix Codes	-S	Standard type
	0	Always 0
	0	Basic type
	1	With ISA Standard G3 option

		Description
Model	AAP849	Pulse Input Module/ Analog Output Module for compatible PAC (Pulse count Input, 4 to 20 mA output, 8-channel input / 8-channel output, Non-Isolated)
Suffix Codes	-S	Standard type
	0	Always 0
	0	Basic type
	1	With ISA Standard G3 option

■ APPLICABLE STANDARDS

Refer to the GS “Integrated Production Control System CENTUM VP System Overview” (GS 33J01A10-01EN).

■ ORDERING INFORMATION

Specify the model and suffix codes.
For selecting the right products for explosion protection, please refer to TI 33Q01J30-01E without fail.

■ TRADEMARKS

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