MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

YOKOGAWA

SDV144-S53 S4

SIXTEEN-CHANNEL DIGITAL INPUT MODULE

Used with the applicable ProSafe-RS FIO configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Yokogawa GS 32Q06K40-31E, ninth edition, 2019; SDV144 S4 input table and installation notes.

General Specifications

Digital I/O Modules (for FIO)

ProSafe-RS

GS 32Q06K40-31E

■ GENERAL

This GS provides the hardware specifications of the digital I/O modules that can be installed in the Safety Node Unit and Safety Control Units.

■ STANDARD SPECIFICATIONS

● Input Module

Input modules accept contact signals from the field. SDV144 can be made dual-redundant.

Item	Specifications
Model	SDV144
Number of inputs	16-channel, module isolation (*3)
Input signal	No-voltage contact ON: 1 kΩ maximum OFF: 100 kΩ minimum
Input current	6 mA ± 20 % (External power supply, 24 V DC at 0 Ω input)
Contact rating	24 V DC +20 % / -10 % (*4), 10 mA or greater
External power supply	24 V DC +20 % / -10 % (*3) (*4) Current capacity: 200 mA
Instantaneous maximum permissible input voltage	30.0 V DC
Input response time	40 ms maximum
Withstand voltage (*1) (*2)	2 kV AC between input signal and system for 1 minute, 16-input line collectively connected (*5)
Current consumption	290 mA maximum (5 V DC) 140 mA maximum (24 V DC)
Weight	Approx. 0.36 kg (For pressure clamp terminal block or MIL cable) Approx. 0.41 kg (With signal cable interface adapter)
External connection	Pressure clamp terminal MIL cable Dedicated signal cable (AKB331)

*1: These voltages show the case using the field power supply floating. When the field power supply is grounded, the system (functional) ground is connected to the field ground, which is not isolated. For the higher noise immunity, floating the field power supply is recommended.
*2: When the withstanding voltage of the field power supply between the secondary side and the ground is lower than the value shown in the table above, these voltages are adopted as the withstanding voltage of the field power supply.
*3: Number of input channels which a user can use and external power supply are restricted in case of SDV144-S□C. Refer to “ProSafe-RS Outline of I/O Modules (for FIO)” (GS 32P06K60-01EN).
*4: The contact rating and the external power supply of SDV144 style code S1, S2 and S3 are 24 V DC ± 5 %.
*5: When connecting SDV144 and SED4D terminal board using the dedicated signal cable, the withstand voltage is 500 V AC (between input signal lines and system). If MIL connector cables are used, the withstand voltage depends on their cable’s electrical specifications.

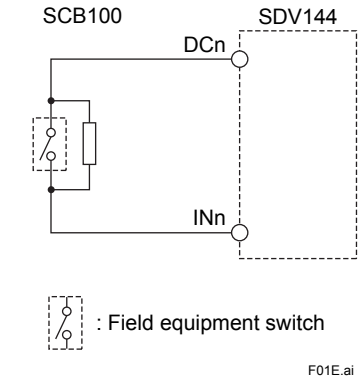
Yokogawa Electric Corporation
2-9-32, Nakacho, Musashino-shi, Tokyo, 180-8750 Japan
GS 32Q06K40-31E
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9th Edition Aug. 16, 2019 (YK)

If SDV144 field wiring diagnostic functions are used, the following diagnostic elements should be installed for individual channels in the vicinity of the field equipment:

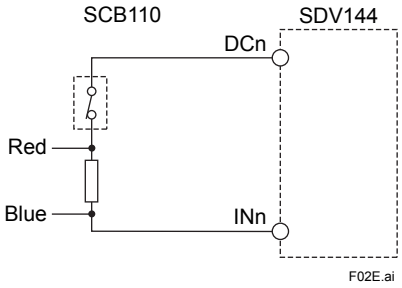
- SCB100 (for defective open circuit detection while accepting off signals) (*1)
- SCB110 (for defective short-circuit detection while accepting on signals) (*2)

*1: Input signals are normally off while in normal operation.
*2: Input signals are normally on while in normal operation.

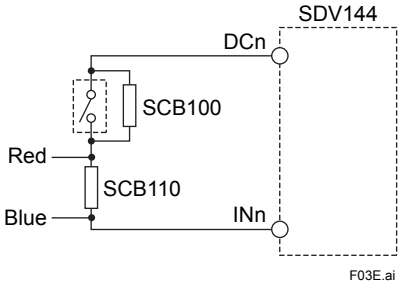
When the input signals are normally off while in normal operation, connect the SCB100 in parallel with the contact output of the field equipment as given below.



When the input signals are normally on while in normal operation, connect the SCB110 in series with the contact output of the field equipment (take care about the polarity taking note of the polarity).



When checking for both defective short and open circuits, connect the SCB100 and SCB110 in parallel and series with the contact outputs of the field equipment respectively, as given below.



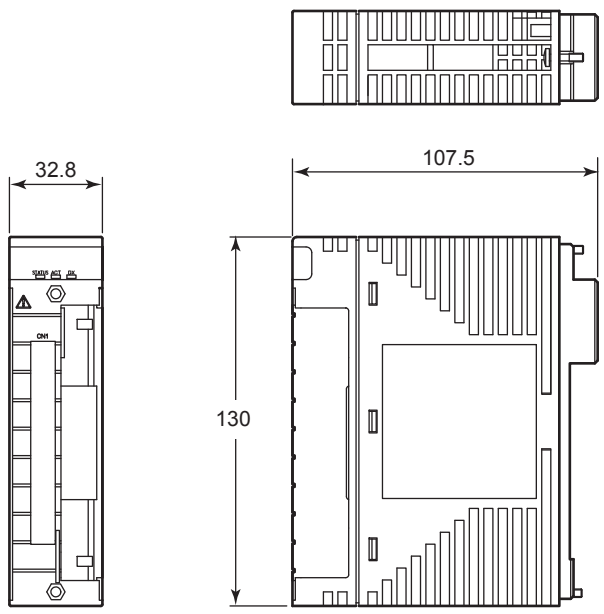
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■ EXTERNAL DIMENSIONS

● SDV144 Digital Input Module

For pressure clamp and MIL cable

Unit: mm



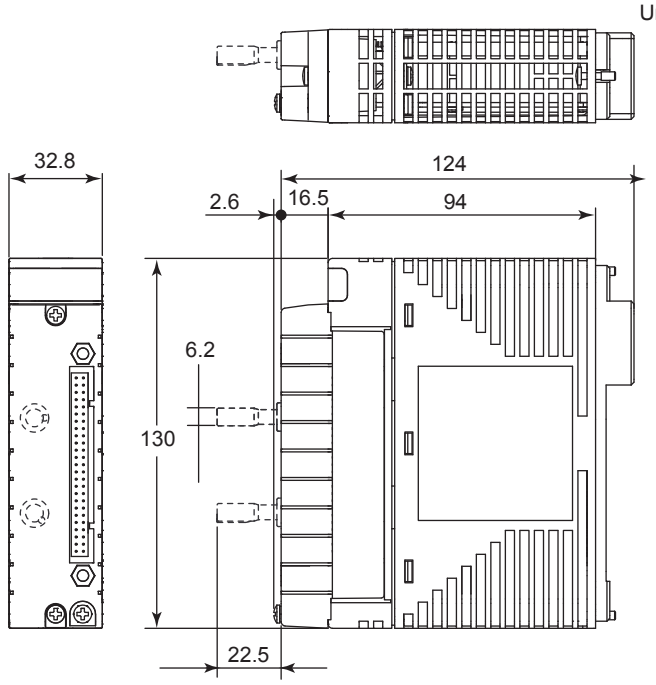
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Nominal Tolerances:

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.

With signal cable interface adapter

Unit: mm



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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.

Note: Dash line expresses prevention pin of false insertion. This pin is added if option code /PRP is specified

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■ MODEL AND SUFFIX CODES

Digital Input Module

		Description
Model	SDV144	Digital Input Module (16-channel, 24 V DC, module isolation)
Suffix Codes	-S	Standard type
	5	For pressure clamp terminal block or MIL cable with no explosion protection
	6	With signal cable interface adapter and no explosion protection (*1)
	E	For pressure clamp terminal block or MIL cable with explosion protection
	F	With signal cable interface adapter and explosion protection (*1)
	3	With ISA Standard G3 and temperature (-20 to 70 °C)
	C	With ISA Standard G3 and high-density installation (-20 to 70 ºC)
Option Codes	/B4S00	With pressure clamp terminal block for digital input (without surge absorber) [Model: STB4S-00]
	/B4S10	With pressure clamp terminal block for digital input (with surge absorber) [Model: STB4S-10]
	/B4D00	With dual-redundant pressure clamp terminal block for digital input (without surge absorber) (*2) [Model: STB4D-00]
	/B4D10	With dual-redundant pressure clamp terminal block for digital input (with surge absorber) (*2) [Model: STB4D-10]
	/PRP	With prevention pin of false insertion (*3)
	/CCC01	With connector cover for MIL cable (for flat ribbon cable) [Model: SCCC01]
	/CCC02	With connector cover for MIL cable (for discrete wire) [Model: SCCC02]

*1: When SDV144-S6☐ or -SF☐ is selected, you cannot choose the option code for a pressure clamp terminal block and MIL cable connector.
*2: When this module is used in dual-redundant configuration, order an additional module with the same specification but without option codes.
*3: When SDV144-S6☐ or -SF☐ is selected, you can choose the option code for prevention pin of false insertion.
A mechanism to prevent wrong type I/O module insertion is supported with signal cable. The signal cable used with this I/O module must have option code /SDV144.

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		Description
Model	SDV53A	Digital Output Module (8-channel, 48 V DC, module isolation)
Suffix Codes	-S	Standard type
	6	With signal cable interface adapter and no explosion protection
	F	With signal cable interface adapter and explosion protection
	3	With ISA Standard G3 and temperature (-20 to 70 °C)
Option Codes	/PRP	With prevention pin of false insertion (*1)

*1: The signal cable used with this I/O module must have option code /SDV53A or /DV53A.

Wiring Diagnosis Elements

		Description
Model	SCB100	Wiring Check Adapter for Digital Input (for defective open circuit detection while accepting off signals with ISA Standard G3) (*1)
Suffix Codes	-S	Standard type
	0	Always 0

*1: Eight wires/set

		Description
Model	SCB110	Wiring Check Adapter for Digital Input (for defective short-circuited detection while accepting on signals with ISA Standard G3) (*1)
Suffix Codes	-S	Standard type
	0	Always 0

*1: Eight wires/set

■ STANDARD ACCESSORIES

The fuse for SDV144 style code S1, S2 and S3 are replaceable.
SDV144 style code S4 contains the fuse but it is not replaceable.

Accessory	Part number	Quantity	Remark
Fuse	A1327EF	1	Mounted

■ CONFORMITY STANDARDS

Refer to “ProSafe-RS Standards Compliant Models” (GS 32P01B60-01EN).

■ ORDERING INFORMATION

Specify the model and suffix codes when ordering.
For selecting the right products for explosion protection, please refer to TI 32S01J30-01E without fail.

■ TRADEMARKS

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