Table 3-1. Ovation Module Choices (Cont'd)

Module Type	Channel	Electronic Module	Personality Module
Compact Seq. of Events contact input w/48V auxiliary	16	1C31233G04	Cavity Insert [2]
Serial Link Controller RS232	1	1C31166G01	1C31169G01
Serial Link Controller RS485 4 wire	1	1C31166G01	1C31169G02
Servo Driver with Readback (1 KHz LVT Output, 19VPP)	6	1C31199G02	1C31201G02
Servo Driver with Readback (3 KHz LVT Output, 19VPP)	6	1C31199G03	1C31201G02
Servo Driver with Readback (16V DC LVDT Output)	6	1C31199G01	1C31201G01
Speed Detector Interface	8	1C31189G01	1C31192G01
Valve Positioner (17 Volt LVDT: 24.8 mA)	8	1C31194G01 or 1C31194G02	1C31197G01
Valve Positioner (23.75 Volt LVDT: 16.8 mA)	8	1C31194G01 or 1C31194G02	1C31197G02
Valve Positioner (23.75Volt LVDT: 8.3 mA)	8	1C31194G01 or 1C31194G02	1C31197G03
Valve Positioner (23.75Volt LVDT: 36 mA)	8	1C31194G01 or 1C31194G02	1C31197G04

[1] A ninth channel is provided when using the Analog Input module with temperature sensor. This ninth point is needed for the **CJ Compensation field** of the Point Builder Instrumentation Tab when defining the eight other thermocouple points for the AI module (refer to Section 4 for additional information).

[2] Cavity insert (1C31238H01) that fits into the Personality module position providing a wiring schematic label for the module. Typically, there is no actual Personality module required for this module type.

[3]Raise and Lower Runback inputs can be disabled and used as user-defined input points. Configuration instructions are included in Kit 1C31174G20.

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Any base unit containing a 125VDC Compact Sequence of Events Electronics module (1C31233G03) with Fused Digital Input Personality module (5X00034G01) and interfaces to hazardous voltage (>60 VDC) must include a hazardous voltage warning label (1B30025H01) on **ALL** base units on the branch.

This label must be placed in a visible location on the base unit, preferably above the spare fuse location. The project drawings must indicate this.

21-2. Module Groups

21-2.1. Electronics Modules

There are four Electronics module groups for the Compact Sequence of Events Module:

- 1C31233G01 provides for 24/48 VDC single-ended inputs.
- 1C31233G02 provides for 24/48 VDC differential inputs and supports the 16 point individually fused option.
- 1C31233G03 provides for 125 VDC differential inputs and supports the 16 point individually fused option.
- 1C31233G04 (Contact Input) provides for 48 VDC on-card auxiliary power.

21-2.2. Personality Module

There is one Personality module group for the Compact Sequence of Events Module:

- 5X00034G01 provides for 16 point individual fusing with a common supply.

  This is an optional Personality module that is available for use with the differential input Electronics modules (1C31233G02, 1C31233G03) for applications requiring individual point fusing with a common supply.

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21-2.3. Foam Insert

There is no Personality module required for use with the Compact Digital Input subsystem (except for the 16 point individually fused option 5X00034G01). A foam insert is available that fits into the Personality module cavity in the Base Unit and provides wiring information.

- 1C31238H01

Table 21-1. Compact Sequence of Events Subsystem

Range	Channels	Electronic Module	Personality Module or Cavity Insert [1]
24/48 VDC (Single-ended) Digital input	16	1C31233G01	1C31238H01[1]
24/48 VDC (Differential) Individually fused with common power supply	16 16	1C31233G02 1C31233G02	1C31238H01[1] (Cavity Insert) 5X00034G01 (Fused Pmod)
125 VDC (Differential) Individually fused with common power supply	16 16	1C31233G03 1C31233G03	1C31238H01[1] (Cavity Insert) 5X00034G01 (Fused Pmod)
48 VDC On-Card wetting supply	16	1C31233G04	1C31238H01[1]

[1] This is an insert that fits into the Personality module position and provides a wiring schematic label for the module.

All Configurations are CE Mark certified.

When the 125VAC/VDC Compact Digital Input Emod (1C31233G03) is used in applications without the Fused Pmod (5X00034G01), additional external fusing or other current limiting devices are recommended on the hazardous inputs to provide additional protection to the external wiring and power source.

21-3. External Power Supplies

When using the 1C31233G01 single-ended module, or 1C31233G02/G03 with Personality module 5X00034G01, the required voltage source may be obtained from the internal auxiliary power supply (Controller backplane) or it may be obtained from an external power supply.

21-5. Contact Input Field Interface

The Contact Input configuration (1C31233G04) provides 16 contact input current detecting channels with common returns. The field side circuitry and terminal connections for three of these channels are shown in Figure 21-4.

A +48V on-board power supply provides current limited contact wetting voltage if the contact is open. If the contact closes, current is drawn from the +10V supply which turns on the associated opto-isolator; thereby, relaying a closed contact state to the I/O bus. The opto-isolators and the isolation provided by the 10V and 48 Volt power supply provide high dielectric isolation between the field side and the logic or I/O bus side.

There are two methods of wiring field devices to the termination block as shown in Figure 21-4. Each field contact may have a separate input and return line as shown for channel 1. Alternatively, field contacts wired to the same module may share a return line as shown for channels 2 and 3. For either wiring method, **do not** tie the contact return line to earth ground or a ground fault condition will occur, as well as a degradation of the common mode surge protection.

Ground fault detection circuitry on the Sequence of Events module with Contact Inputs activates when the input or return line for any channel finds a low impedance (<5 K ohms) path to earth ground. A single wire with a ground fault will not cause an error in the point data, but multiple ground faults, if they include input and return lines, could cause faulty data (that is, channels appearing as if their contacts are closed when they are really open).

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21-7. Diagnostic LEDs

Table 21-8. Compact Sequence of Events Digital Input Diagnostic LEDs

LED	Description
P (Green)	Power OK LED. Lit when the +5V power is OK
C (Green)	Communications OK LED. Lit when the Controller is communicating with the module.
E (Red)	For Single-ended Digital Input: Lit when fuse blows or there is a loss of the auxiliary power supply (Only when Bit 6 of Configuration register is set. Then Bit 7 of the Status register is set) For Differential Digital Input: Not lit since the configuration bit is not set, and the blown fuse signal from the field card is ignored.
I (Red)	Internal Fault LED. Lit whenever the Force Error bit (Bit 1) of the Configuration Register (see Table 21-6) is set, or when a timeout of the watchdog timer occurs when the Controller stops communicating with the module. Also lit when Controller stops communicating with the module.
CH1 through CH16 (Green)	Lit when the input voltage of the LED's corresponding channel is greater than the channel's minimum "On Input Voltage."

21-8. Compact Sequence of Events Contact Input Module

Electronics Module (1C31233G04)

Table 21-9. Compact Sequence of Events Contact Input Module Specifications

Description	Value
Number of channels	16
On board auxiliary power supply	42 V minimum 55 V maximum
Signal rejection Always rejects contact change of state Always accepts contact change of state	 < 3.87 mSec > 4.13 mSec
Propagation delay of contact change of state [1]	3.75 mSec minimum; 4.4 mSec maximum

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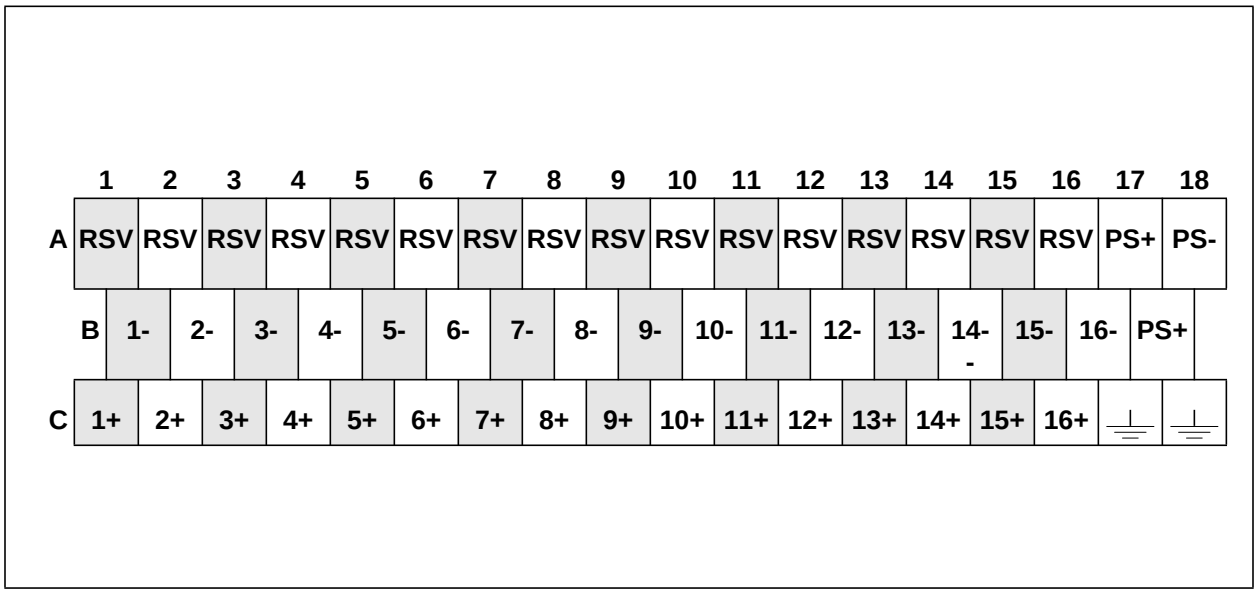


Figure 21-9. Terminal Block Connections for the Compact Sequence of Events Contact Input Modules (1C31233G04)

21-8.3. Compact Sequence of Events Contact Input Configuration and Status Register

Word address 13 (D in Hex) is used to write to the Module Configuration Register and to read the Module Status Register. The status register can be read by using the Point Information window at an Operator Station (see the Bit Pattern Field on the Hardware Tab).

Table 21-10. Compact Sequence of Events Contact Input Configuration/Status Register [1] (Address 13 or D in Hex)

Bit	Data Description - Configuration Register	Data Description - Status Register (Read)
0	Configure Module.	Module configured (1=configured; 0=unconfigured)
1	Force internal error.	Internal error (1=forced error; 0=no forced error)
2 - 5	Not used.	Not used.
6	Enable digital input blown fuse signal and module attention for blown fuse.	Status of enable digital input blown fuse signal and module attention for blown fuse.
7	Not used. Should be set to zero (0).	Blown fuse for digital input.
8	Contact input field card (enable contact input auxiliary voltage failure signal and module attention for auxiliary voltage failure and ground fault detection circuitry).	Status of contact input field card (enable contact input auxiliary voltage failure signal and module attention for auxiliary voltage failure and ground fault detection circuitry).
9	Not used. Should be set to zero (0).	Auxiliary voltage failure for contact input.
10	Enable module attention for a GND fault.	Status of Enable module attention for a GND fault.
11	Not used. Should be set to zero (0).	GND fault.
12	Disable chatter control.	Disable chatter control.
13	Reset chatter control counters on buffer unfreeze (instead of decrementing every 100 milliseconds).	Status of reset chatter control counters on buffer unfreeze (instead of decrementing every 100 milliseconds).
14	Not used. Should be set to zero (0).	Clock synchronized.
15	Not used. Should be set to zero (0).	Not used.

[1] Applicable for configuration of the Contact Input module (1C31233G04). See Section 21-6 for configuration of the Digital Input module.

Bit 0: Module will not operate until this bit is set with a write.

Bit 1: When this bit is set, the internal error LED is turned on, and only the status registers can be read.

Bit 6: This bit should be cleared to zero (0).

Bits 8: This bit should be set.

Bit 10: This bit should be set according to application need.

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