

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

Module Type	Channel	Electronic Module	Personality Module
Loop Interface (AI: 4 - 20mA remote powered) User defined Digital Input³	4	1C31174G24	1C31177G03
Loop Interface (AI: 4 - 20mA local powered)	4	1C31174G04	1C31177G02
Loop Interface (AI: 4 - 20mA local powered) User defined Digital Input³	4	1C31174G24	1C31177G02
Pulse Accumulator (24/48V 5/12V med speed ext PS)	2	1C31147G01	1C31150G03
Pulse Accumulator (24/48V 5/12V med speed neg com)	2	1C31147G01	1C31150G01
Pulse Accumulator (24/48V 5/12V med speed pos com)	2	1C31147G01	1C31150G02
Pulse Accumulator (5V high speed ext PS)	2	1C31147G02	1C31150G03
Pulse Accumulator (5V high speed neg com)	2	1C31147G02	1C31150G01
Pulse Accumulator (5V high speed pos com)	2	1C31147G02	1C31150G02
Relay Output Module G2R	16	1C31219G01	1C31223G01 or (Base Unit)
Relay Output Module KUEP	12	1C31219G01	1C31222G01 or (Base Unit)
RTD Interface	4	1C31161G01	1C31164G01
RTD Interface (CE Mark certified)	4	1C31161G02	1C31164G02
Seq. of Events (125VDC differential)	16	1C31157G02	1C31110G02
Seq. of Events (125VDC single ended)	16	1C31157G02	1C31110G01
Seq. of Events (24/48VDC differential)	16	1C31157G01	1C31110G02
Seq. of Events (24/48VDC single ended)	16	1C31157G01	1C31110G01
Seq. of Events contact input w/48V auxiliary	16	1C31157G03	1C31110G03
Compact Seq. of Events (125VDC differential)	16	1C31233G03	5X00034G01 or Cavity Insert ²
Compact Seq. of Events (24/48VDC differential)	16	1C31233G02	5X00034G01 or Cavity Insert ²
Compact Seq. of Events (24VDC or 48VDC single ended)	16	1C31233G01	Cavity Insert ²

Section 17. Pulse Accumulator Module

17-1. Description

The Pulse Accumulator Module accumulates pulses for two input channels and provides the information to the Controller. There are three possible configurations:

- Counting pulses over a defined period of time allows the module to measure the speed of the input pulses (frequency).
- Counting pulses until instructed to stop counting either by the Ovation Controller or by an external field control input.
- Measuring the time duration of a pulse.

The Pulse Accumulator Module is applicable for CE Mark Certified Systems.

17-2. Module Groups

17-2.1. Electronics Modules

There are two groups of Electronics modules for the Pulse Accumulator Module:

- 1C31147G01 provides for pulse accumulation at one of three possible pulse input levels:
 - 24/48 V (CT+ and CT- inputs). May be referenced to either negative or positive field signal power supply common. Applicable for CE Mark.
 - 12 V medium speed (MC+ and HM- inputs). Not applicable for CE Mark.
 - 5 V medium speed (HC+ and HM-). Not applicable for CE Mark.
- 1C31147G02 provides for pulse accumulation at 5 V high speed (HC+ and HM-). Not applicable for CE Mark certified systems.

17-2.2. Personality Modules

There are three groups of Personality modules for the Pulse Accumulator Module:

- 1C31150G01 accepts 24/48 V count and control inputs from dry contacts or from open-collector transistor drivers. The input signals are low-true and are referenced to the branch internal auxiliary power supply return (common negative).
- 1C31150G02 accepts 24/48 V count and control inputs from dry contacts. The input signals are high-true and are referenced to the branch internal auxiliary power supply positive rail (common positive).
- 1C31150G03 provides dedicated 24/48 V count and control field input power for just this Pulse Accumulator Electronics module. The field input power is obtained from an external DC power supply that is connected to two base unit terminal block terminals (DSA and DSB).

Table 17-1. Pulse Accumulator Subsystem¹

COUNT Input Level	Control (ENABLE and SNAPSHOT) Input Level	Channels	Electronic Module	Personality Module
24/48 V Medium Speed	24/48 V Medium Speed			
	Local field pwr. common neg.	2	1C31147G01	1C31150G01
	Local field pwr. common pos.	2	1C31147G01	1C31150G02
	Ext. field pwr. common pos. or neg.	2	1C31147G01	1C31150G03
5/12 V Medium Speed	24/48 V Medium Speed			
	Local field pwr. common neg.	2	1C31147G01	1C31150G01
	Local field pwr. common pos.	2	1C31147G01	1C31150G02
	Ext. field pwr. common pos. or neg.	2	1C31147G01	1C31150G03
5 V High Speed	24/48 V Medium Speed			
	Local field pwr. common neg.	2	1C31147G02	1C31150G01
	Local field pwr. common pos.	2	1C31147G02	1C31150G02
	Ext. field pwr. common pos. or neg.	2	1C31147G02	1C31150G03

¹ To use this module, the algorithm RPACNT or RPAWIDTH must reside in the Ovation Controller. Refer to [“Ovation Algorithm Reference Manual” \(R3-1100\)](#) for detailed information about the RPACNT and RPAWIDTH algorithms.

Table 17-2. Pulse Accumulator Specifications

Description	Value
Module power from logic supply	Main: 1.6 W typical: 2.0 W maximum Aux: When used, both count inputs = 50% duty cycle 0.17 W (24V) typical 0.35 W (48V) typical
¹ All field inputs must be in a shielded cable. ² Open loop/blown fuse detection for 24/48V power.	

Table 17-3. Field Input Pulse Accumulator Specifications

Count Inputs	On Time msec. min.	Off Time msec. min.	Count Rate max.	Description
Count Outputs				
(MC+/HM-) 12V (HC+/HM-) 5V	0.03	0.03	20 kHz	medium speed without de-bounce circuit enabled (1C31147G01)
(MC+/HM-) 12V (HC+/HM-) 5V	2.5	2.5	200 Hz	medium speed with de-bounce circuit enabled (1C31147G01)
(HC+/HM-) 5V	0.007	0.007	70 kHz	high speed without de-bounce circuit enabled (1C31147G02)
(HC+/HM-) 5V	2.5	2.5	200 Hz	high speed with de-bounce circuit enabled (1C31147G02)
(CT+/CT-) 24V/ 48V	1	1	500 Hz	without de-bounce circuit enabled (1C31147G01)
(CT+/CT-) 24V/ 48V	2.5	2.5	200 Hz	with de-bounce circuit enabled (1C31147G01)
Control Inputs				
24V/48V	1	1	500 Hz	without de-bounce circuit enabled
24V/48V	2.5	2.5	200 Hz	with de-bounce circuit enabled

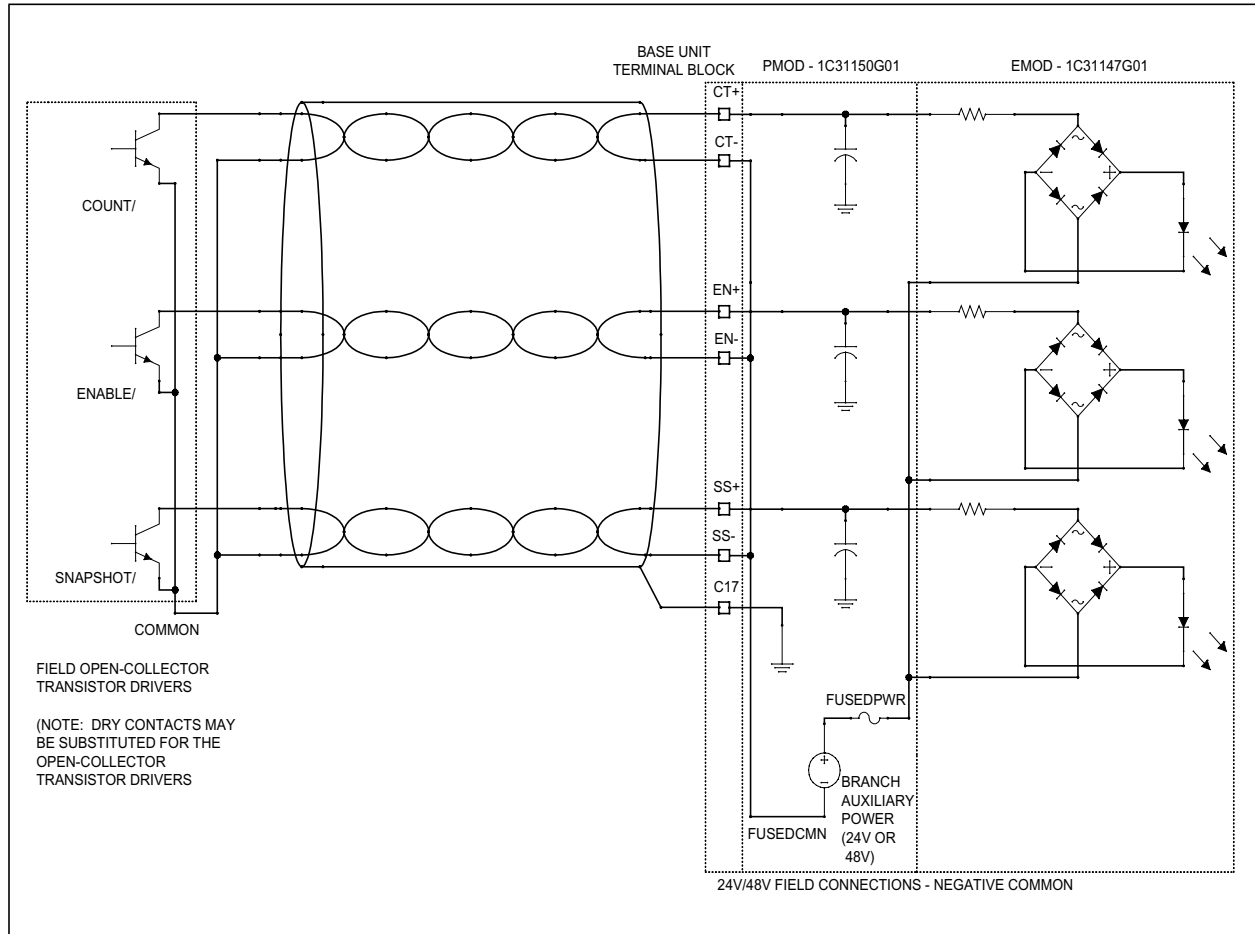


Figure 17-3. 24V/48V Field Connections - Common Negative (Non-CE Mark)

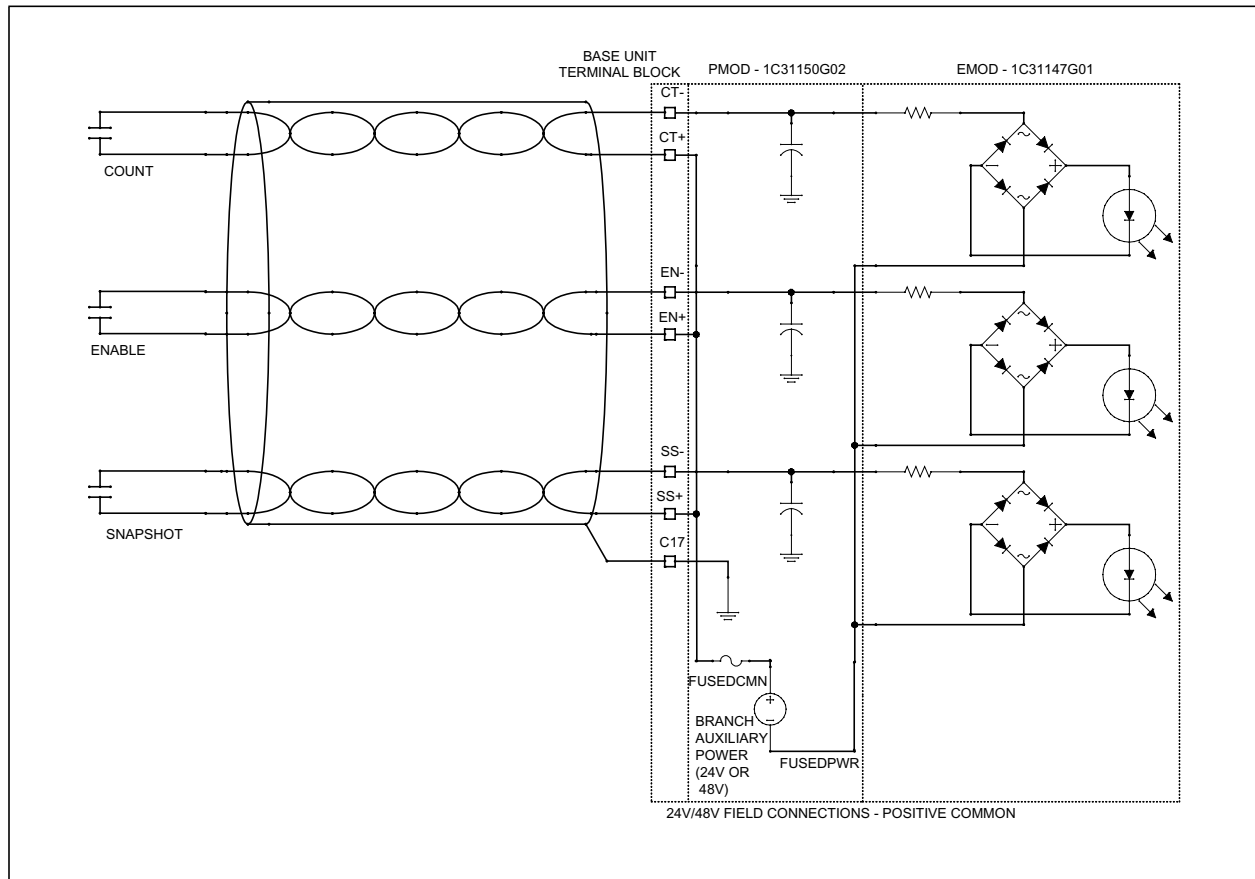
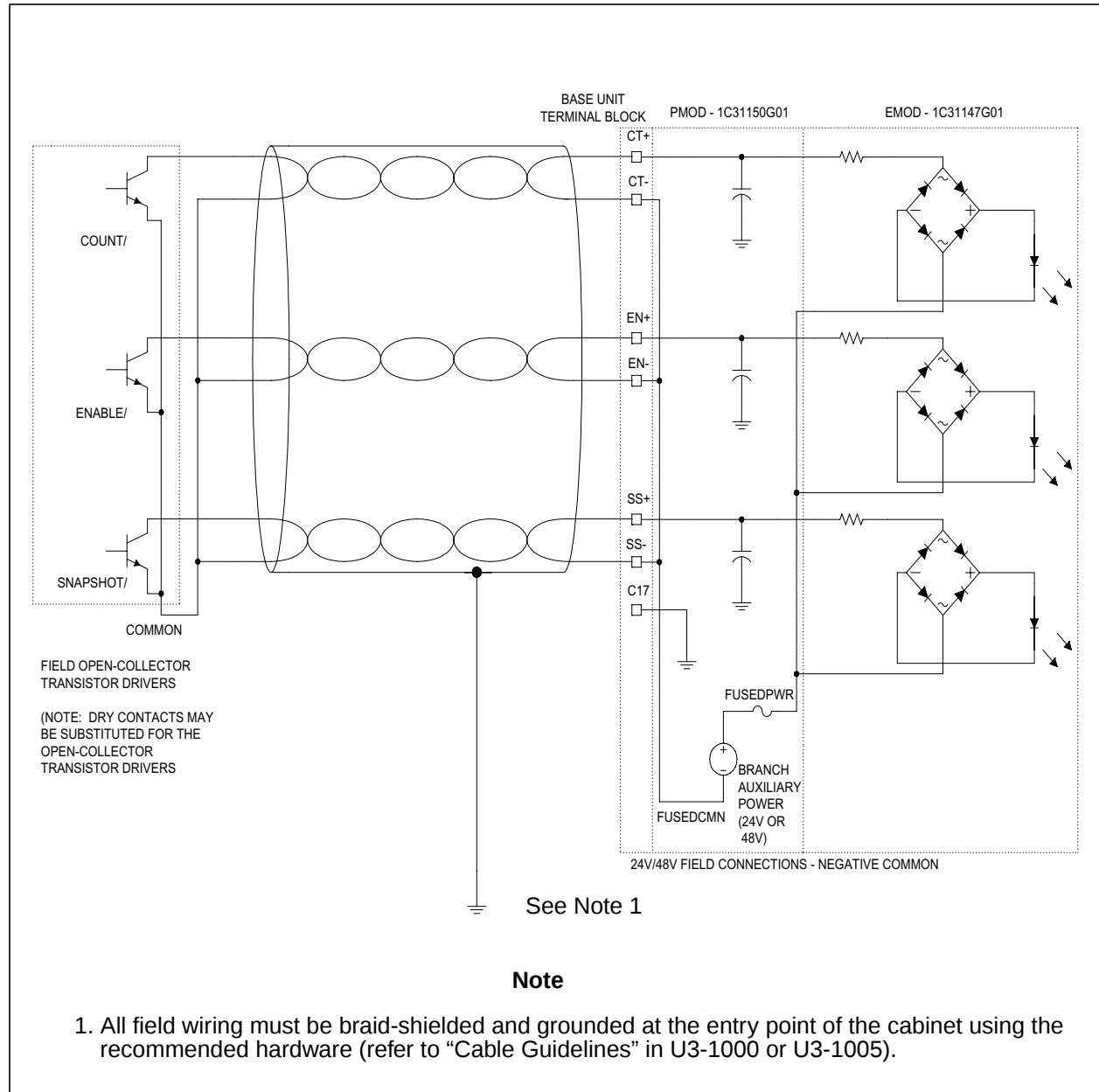


Figure 17-4. 24V/48V Field Connections - Common Positive (Non-CE Mark)

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**Figure 17-9. 24V/48V Field Connections - Common Negative
(CE Mark)**

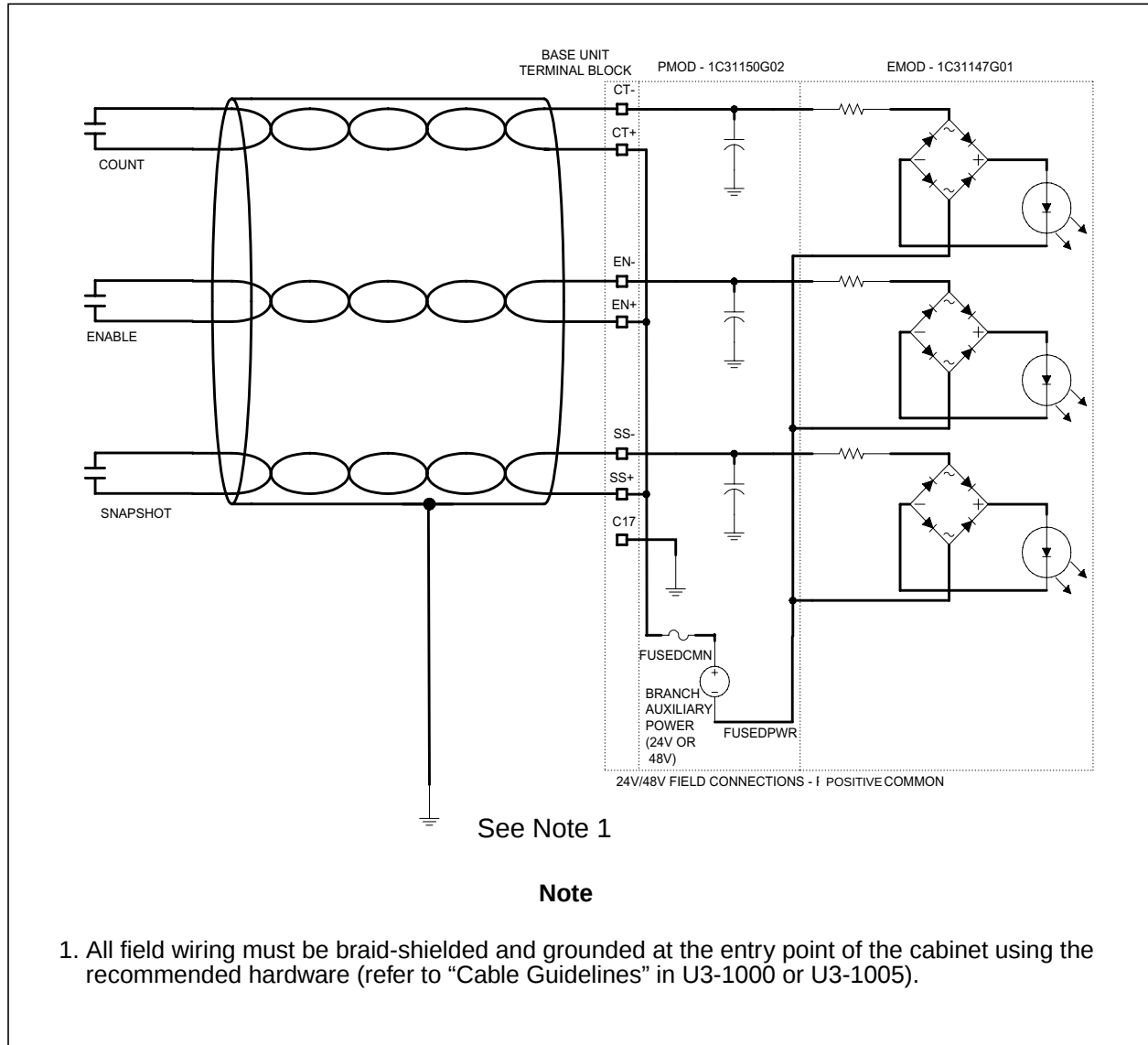


Figure 17-10. 24V/48V Field Connections - Common Positive (CE Mark)