

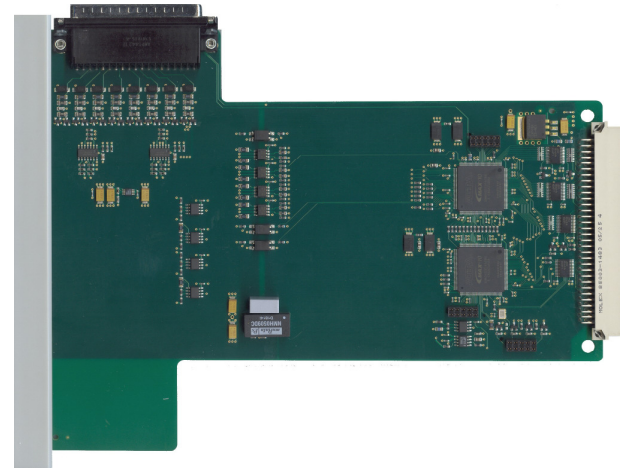


SIL-2 8-Channel Pulse Input Card

3142

PRODUCT HIGHLIGHTS

- SIL-2 Approved (-001, -003 Models)
- 8 High Speed Pulsed Input Channels
- Supports Pulse Counting, Frequency Measurement or Quadrature Counting
- Input Pulse Rates up to 30 KHz
- 3VDC or 24VDC Counter Inputs
- Single, Dual, or Triple Redundancy



3142 8-Channel Pulse Input Card

Product Overview

The 3142 8-Channel Pulse Input Card is IEC 61131-2 qualified and provides an interface to eight high-speed pulsed input signals. Each channel contains a 32-bit counter that may be configured in three different modes: Pulse Counting Mode, Frequency Mode, or Quadrature Mode. Quadrature Mode requires 2 input channels. Therefore, only 4 Quadrature channels are available.

Typical applications include machine cycle counting, flow monitoring, rotary speed monitoring, and stepper motor position and movement tracking. Pulse rates of up to 30 KHz may be applied to the card. Input should be driven by an active source (active pull up and active pull down) and should not be driven by a passive device, such as a relay contact.

In Pulse Counter mode, the channel counts pulses on the leading edge of the input signal. During each scan cycle, the channel counter is sampled, converted to a floating-point value and added to the channel's accumulated value. Counts as large as 4.294967E+09 can be accumulated before rollover. The accumulated floating-point value can be reset at any time.

For Quadrature Counter Mode, two adjacent input channels are required. The phase relationship of the two signals ("A" and "B") determines the count direction.

The counter increments if channel "A" leads "B", and it decrements if "A" lags "B". During each scan cycle, the channel counter is sampled, converted to a floating-point value and added to the accumulated value. Counts as large as $\pm 2.147483E+09$ can be accumulated before rollover. The accumulated floating-point value can be reset at any time.

RTP is the Best Technology for Your Investment,

Here's why:

This product is compatible with the 3000 TAS and N+ systems. It is a multi-processor architecture that delivers exceptional Performance and Comprehensive Diagnostics. The results speak for themselves: A reaction time of 7 msec, true 1 msec SOE (Analog and Digital), an MBTF of greater than 50,000 years an MTTFS of greater than 60,000 years, and a PFDavg of 5×10^{-5} .

Compare these numbers to any other system.

Built-in proof test diagnostics means it will never be necessary to shut down at the proof test interval. Unlimited online downloads of logic and configuration changes do not require a periodic shut down like other systems. **Compare this functionality to any other system.** NetSuite Software: One-time price includes unlimited use of Logic Development, Alarm Manager, Data Archive and Historian and HMI without hardware or software keys. **Compare this functionality and price to all other systems.**

Finally, a Safety Instrumented System (SIS) should always take the process it protects to a safe state when it is required to do so, and it should never interfere with the operation of the process at the time. **The 3000 TAS does this better than any other system.**

In Frequency Measurement mode, the channel's counter is used to calculate the frequency of the input signal. A 50.0 MHz internal reference clock and the number of pulses received during a specific interval are used to determine a floating-point frequency. Frequency inputs can measure from 0.5 Hz to 30 KHz.

Replacing a 3142 card can be done while the system is running. Simply disable the card from within NetArrays, remove the cable attached to the card, replace the card, attach the cable to the card, and enable the card within NetArrays. A front panel LED indicates if the card is online or offline.

Specifications

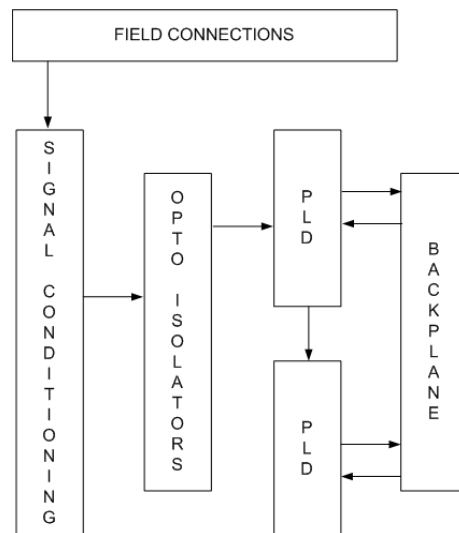
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|--|---|
| Safety Integrity Level | -000, -002: Non-Interfering -001, -003: SIL-2 |
| Pulse Counter/Frequency Mode Input Channels | 8 input channels |
| Quadrature Mode Channels | 4 input channels |
| Isolation | 500 V AC/DC Field to RTP bus. |
| Counter Input Voltage | -000, -001: 0 to 10 VDC (nominal 3 VDC) -002, -003: 0 to 30 VDC (nominal 24 VDC) |
| Counter Threshold rising (max) | -000, -001: 1.8 VDC -002, -003: 10.2 VDC |
| Counter Threshold falling (min) | -000, -001: 1.3 VDC -002, -003: 5.8 VDC |
| Counter Maximum Input Frequency | 30 KHz |
| Counter Minimum Input Pulse Width | 8333 nsec |
| Minimum Input Frequency for frequency mode | 0.5 Hz |
| Maximum permanent allowed overload (no damage) | -000, -001: 11.0 VDC -002, -003: 33.0 VDC |
| Backplane Power | 5VDC @ 350 mA 24VDC @ 100 mA |

Environmental Specification

| | |
|-----------------------------|----------------------------|
| Operating Temperature Range | -20 °C to +60 °C |
| Storage Temperature Range | -25 °C to +85 °C |
| Relative Humidity Range | 10% to 95%, non-condensing |

Termination Module

| | |
|-------------|---|
| 3099/31-000 | Triple Termination Module - Voltage Input |
| 3099/31-100 | Single Termination Module - Voltage Input |



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