



32-Channel SIL-3 Single Ended Analog /Digital Input Card

3115/ 3126

PRODUCT HIGHLIGHTS

- Safety and Critical Control Applications
- Configurable Redundancy
 - Single, Dual, Triple, Quad
- 1 ms Analog and Digital SOE
- Advanced Diagnostics
- Optimized versatility of Spares
- Hart Compatible

PRODUCT OVERVIEW

Compliant to the following standards: IEC61508:2010, IEC61511:2003, IEC61131-2, IEC61131-6, NFPA72, EN-54, NFPA85, ABS

Applications: The 32- Channel Scanning Single Ended Analog/Digital Input Card is well suited for use in safety and critical control applications, power industry, process control and rotating machinery.

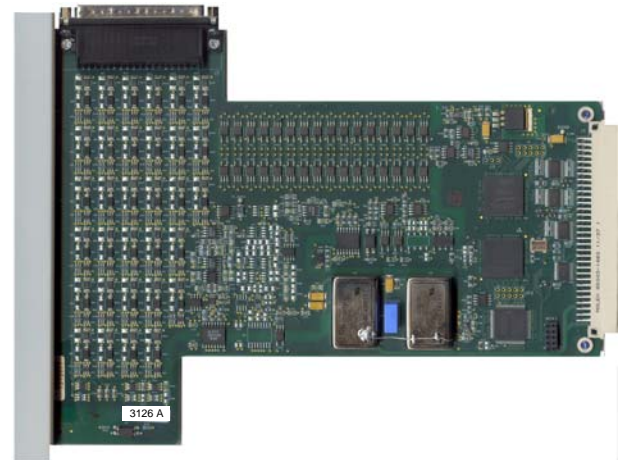
Benefits:

Configurable redundancy reduces costs as the redundant inputs are configured to the availability, integrity and system cost requirements. The flexible architectures allow redundant inputs to be on the same card or different cards. Those cards may be placed in the same chassis or in different chassis.

The user-friendly redundant termination module simplifies the wiring. A single sensor may be wired in parallel to redundant cards or multiple sensors may be wired to the same or multiple input cards and voted.

Advanced voting algorithms are selectable for redundant inputs without requiring additional programming in logic. All inputs are read by the chassis processors and then presented to the logic solving processors to be voted independently. A choice of twelve advanced voting algorithms is selectable from a drop down list. The selectable algorithms include the degradation of available inputs, highest, lowest, average, and action to take if there are no valid inputs available. The status of the inputs is evaluated first then the selected algorithm is applied to produce the logical result for use as the process tag. Un-usable or faulted inputs are annunciated.

Advanced diagnostics allow the redundant input cards to be configured in a 1oo2D configuration. Your process will not be forced to shut down or go to a safe state if two inputs disagree. The advanced diagnostics is able to determine if and which one of the two inputs are healthy. You now have the power to determine what action to take.



3126 32-Ch Analog/Digital Input Card

The 1millisecond time stamping of analog and digital signals provides the highest resolution for process analysis as inputs are scanned 1000 times a second.

Optimized versatility of spare card reduces inventory costs. One input card may be used with 14 different signal input options. The versatility is in the termination module connected to the card, which is where the input signal conditioning is done.

RTP is the Best Technology for Your Investment, Here's why:

The 3000 TAS is a multi-processor architecture that delivers exceptional performance and comprehensive diagnostics. The results speak for themselves: A reaction time of 12 msec, true 1 msec SOE (Analog and Digital), an MTBF of greater than 50000 years, an MTTFS of greater than 60000 years, and a PFD_{avg} 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.**

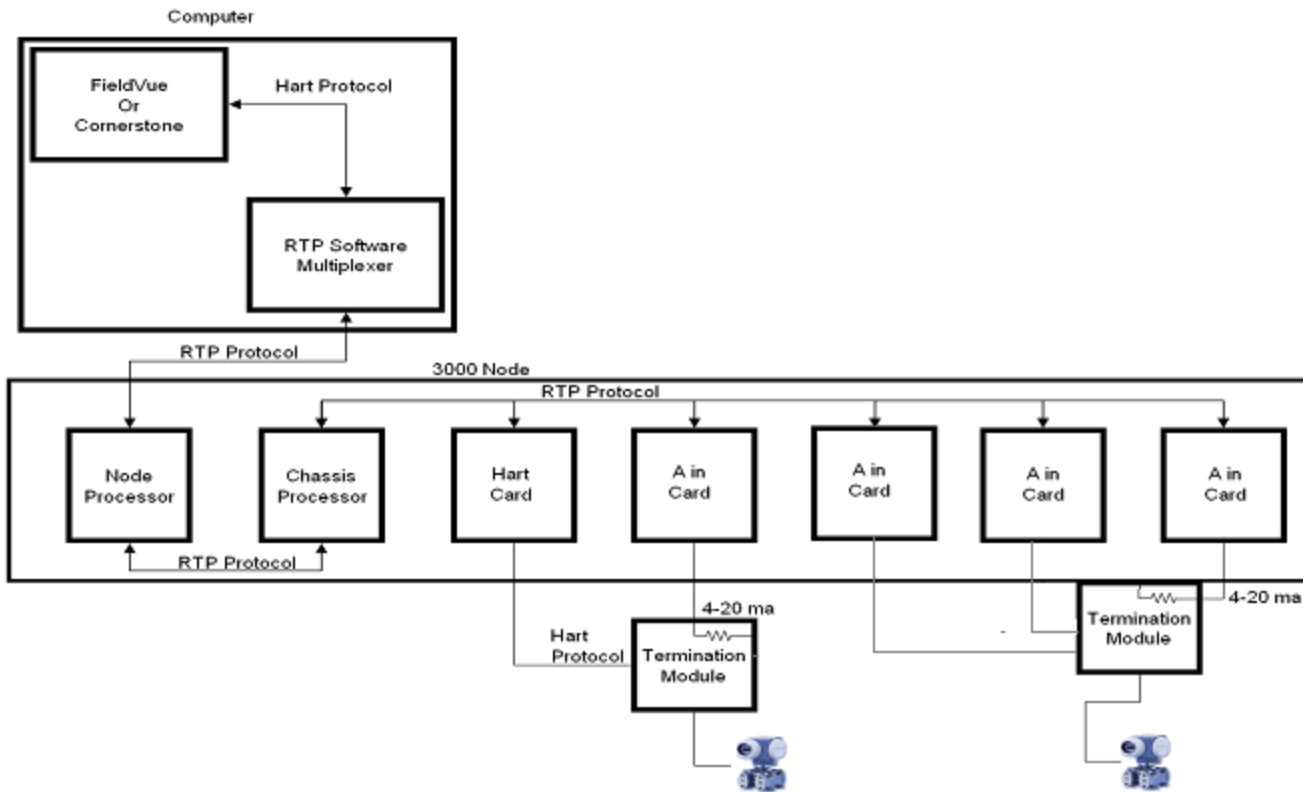
Finally, a Safety Instrumented System (SIS) should always take the process it protects to a safe state when it is required to do so, and it should never interfere with the operation of the process at any time. **The 3000 TAS does this better than any other system.**

Online repair. Although the 3115 Input card is SIL 2, in a redundant configuration it is considered SIL 3. Redundant configurations provide ease of replacement. There is never a need to stop the process. Replace and/or re-configure the Input card without shutting off power. The Input card is hot swappable. In a redundant configuration, you may degrade to a single input card and maintain the SIL 3 rating for several weeks. Replacement is easy, just disable the card to be replaced, disconnect the termination cable and remove it. Install the replacement, cable it and enable it. That's it. If using the 3126 Input cards, the same procedure is followed, however the SIL 3 rating is maintained indefinitely.

Online modifications. If adding a new channel or new card, wire it into the redundant termination module, make the configuration change in the development software and download the new file online. This allows existing logic and IO to continue processing undisturbed while the new logic and IO is initialized.

Compact design. The 3126 Input card is a compact version of a dual redundant 3115 Input card. It is rated SIL 3 in the single configuration. If your SIL 3 application is limited in space, installing a single 3126 Input card will meet the requirement.

Hart compatible. Reduce cost by applying Hart only on the input channels required. There is no need to pay for Hart communications on points where it is not used or required. There is no need to pay for additional equipment such as a Hart multiplexer. Simply add the RTP 3018 Hart card and wire it to the appropriate input channels. The user Cornerstone™ or FieldVue™ may be installed as an interface to the RTP Software Multiplexer. Hart protocol commands are thus provided for process variables, range information, and device status as part of the control strategy. This added capability allows the user to improve process efficiency, reduce maintenance requirements and enhance overall productivity of the process.



As shown in the diagram above, an asset management application may be configured by using the RTP Hart card with the Analog Input cards. An asset management system consists of a PC with user-supplied Cornerstone™ or FieldVue™ software installed as an interface to the RTP Software Multiplexer. Hart protocol commands are thus provided for process variables, range information, device status as part of the control strategy. The 16 Channel 3018 Hart Card is wired in parallel to the 32-Channel, 4-20ma, Analog Input card for monitoring and calibration of the Rosemont pressure transducer. Cost is reduced as this approach provides the flexibility to use Hart communications only on the input channels needed.

SPECIFICATIONS

Module Safety Integrity Level

3115- SIL 2 in single configuration
SIL 3 in redundant configuration
3126 - SIL 3

Number of Inputs 32 channels

Isolation

System: 500 VAC RMS or 500 VDC

Channel: 500 VAC RMS*

Full Scale Range: $\pm 10.00\text{V}$ ($\pm 20.2\text{ mA}$)

Digital Input Range: 24 VDC, 48 VDC
115 VDC, 115 VAC
230 VAC

AI Range: +/- 10 VDC; 0 – 10 VDC
0 – 20mA; 4 – 20mA

Scan Rate 1000 scans per second

Accuracy

Voltage Mode:

Maximum error at 25°C: $\pm 0.0275\%$ of full scale

Temperature Coefficient: $\pm 0.0010\%$ of full scale/K

Maximum error (0 to 55°C): $\pm 0.0575\%$ of full scale

Current Mode:

Maximum error at 25°C: $\pm 0.0375\%$ of full scale

Temperature Coefficient: $\pm 0.0020\%$ of full scale/K

Maximum error (0 to 55°C): $\pm 0.0975\%$ of full scale

Non-Linearity: $\pm 0.028\%$ of full scale

Repeatability: $\pm 0.028\%$ of full scale

Resolution 16 bits

Input Source Impedance:

3126: > 1 Mega ohms

3115: > 2 Mega ohms

Power Requirements

+5V DC @ 400 mA

+24V DC @ 100 mA backplane

Environmental*

Standard Operating Temperature Range:

-20°C to +60°C

Storage Temperature Range: -25°C to +85°C

Relative Humidity Range: 10% to 95%, non-condensing

Complies with IEC 61131-2

***Termination Module: 3019/21-X09**

Termination Cable: 5 foot cable included with 3115 or 3126 Cards

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