



PRODUCT HIGHLIGHTS

- Compatible with all RTP3000 TAS systems (SIS, DCS, PLC)
- Cost Effective
- HART Compatible
- Voltage Input Options – 0V to 10V or $\pm 10V$
- Current Input Options – 4 to 20mA, 0 to 20 mA, or $\pm 20mA$
- 1 msec SOE resolution

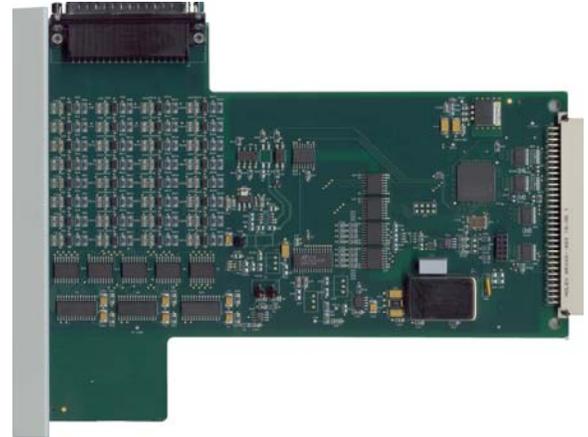
Product Overview

The 32-Channel Analog Input card provides a low cost option for use in general purpose PLC or DCS systems as well as for functionality not directly related to safety instrumented functions in SIL rated systems. The analog input card can be installed into any 3000TAS family chassis and provide measurements signals such as pressure, temperature, flow rate, position, etc.

The 3214 Analog Input card can be used with HART enabled devices to improve process efficiency, reduce maintenance requirements and enhance overall productivity. This can be accomplished through the use of Cornerstone™, FieldVue™, RTP's Multiplexer software, or other well known software packages and RTP's HART Communications Card (3018).

32 single ended analog input channels are available and can record SOE data with 1 millisecond timestamp resolution. The card is capable of processing input signals of 0-10 volts, +/- 10 volts, 0-20 mA, +/- 20 mA and 4-20 mA. When used with current inputs, the termination module includes a 250 Ω precision resistor per channel to convert the current to voltage.

In addition to the 32 input channels, two calibration channels are provided to monitor the onboard precision voltage source at the high end and low end. These voltages provide the user with a known precise reference to verify the A/D calibration.



3214 32-Channel Analog Input Card

Out of tolerance readings on either the high or low calibration channels will set the corresponding error bit in the integer error detection word of the analog input card.

Each card includes a five foot termination cable which can be connected to the RTP field termination module or existing terminal blocks. When using existing terminal blocks, the termination cable can be ordered with a connector on one end to mate to the card and stripped wires on the other end to mate to the existing termination assembly.

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 MBTF of greater than 50000 years an MTTFS of greater than 60000 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.**

Diagnostics detect the presence of the field termination cable. If the cable connection is insecure or removed, it will result in the card being placed offline and an error message being displayed in the device status window. The corresponding error bit is set in the integer error detection word.

Should a card need replaced, it 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

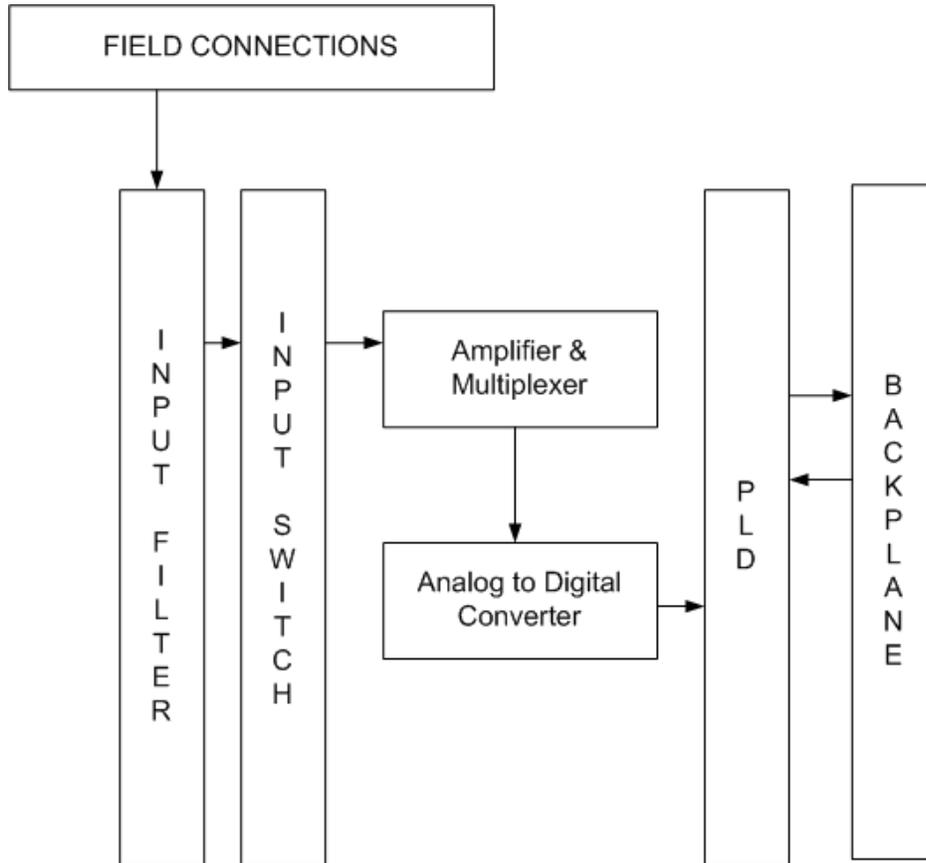
| | |
|---|--|
| Number of Channels | 32 |
| Input Signals | Voltage: 0-10 VDC, ± 10 VDC Current: 4-20 mA, 0-20 mA, ± 20 mA |
| Full Scale Value | Voltage: 10V Current: 20mA |
| Input Signal Guard Band | 1% |
| Input Impedance | Voltage: >2 Mega Ohms Current: 250 Ohms |
| Input Bias Current | 4.55 μ A maximum |
| Max Input Source Impedance | Voltage: 1000 Ω maximum including cables |
| Analog input error (maximum error at 25 °C) | Voltage: $\pm 0.055\%$ full scale value Current: $\pm 0.075\%$ full scale value |
| Analog input error (temperature coefficient) | Voltage: ± 0.0020 full scale value/ $^{\circ}$ C Current $\pm 0.004\%$ full scale value/ $^{\circ}$ C |
| Maximum error over full temperature range | Voltage: $\pm 0.115\%$ full scale value Current: $\pm 0.195\%$ full scale value |
| Digital resolution | 16 bits |
| Type of input | Single ended |
| Scan Rate | 1000 sample sets per second |
| Input filter characteristics - order | First order |
| Input filter characteristics – transition frequency | -3dB @ 59.9 KHz |
| Type of protection | 15 Volt TVS per channel, Digital isolators (magnetic) |
| Isolation | 500V Channel to RTP BUS |
| Common points between channels | All channels share a single common |
| Crosstalk between channels at d.c., a.c. 50 Hz and a.c. 60 Hz | -84 dB |
| Non-linearty | $\pm 0.028\%$ of full scale value |
| Repeatability at fixed temperature after 10 second stabilization time | $\pm 0.028\%$ of full scale value |
| Power Dissipation | 3.8 Watts or 13 BTU/hr |
| Backplane Power | 5VDC @ 400 mA supplied by the RTP backplane 24VDC @ 75 mA |

Environmental Specification

| | |
|-----------------------------|------------------------------------|
| Operating Temperature Range | -20° C to $+60^{\circ}$ C |
| Storage Temperature Range | -25° C to $+85^{\circ}$ C |
| Relative Humidity Range | 10% to 95%, non-condensing |

Termination Module

| | |
|-------------|---|
| 3099/21-102 | Single Termination Module - 32 channel voltage input |
| 3099/21-002 | Triple Termination Module - 32 channel voltage input |
| 3099/21-107 | Single Termination Module - 32 channel current input w/ removable field wiring connection |
| 3099/21-007 | Triple Termination Module - 32 channel current input w/ removable field wiring connection |
| 3099/55-100 | Single Termination Module - 32 channel voltage input - rotatable mounting |
| 3099/55-101 | Single Termination Module - 32 channel current input - rotatable mounting |



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