

PRODUCT HIGHLIGHTS

- **■** Non-Interfering
- Competitively Priced
- 1 ms Analog and Digital SOE
- **■** High 16-bit resolution
- Hart Compatible
- **■** Advanced Diagnostics
- 32 Channels



Applications:

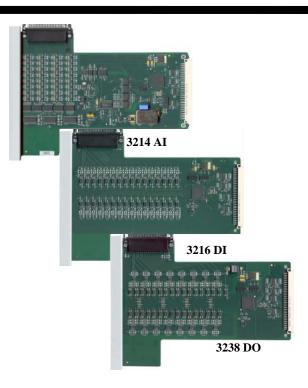
A new series of IO cards have been developed for use in Safety applications where non- SIL points may be configured and are considered non-critical. It provides a low cost option for functionality not directly related to the safety instrumented functions of the application.

Benefits:

Non-Interfering. When used in a safety system, these cards may co-exist in the same chassis, communicating on the same bus, to the same processors and not interfere with the safety operation of the SIS. All chassis backplane communications are subject to extensive diagnostics the same as the safety cards.

Competitively Priced. Why pay for safety functionality and increased availability when it is not required? At the same time, why settle for less performance? The 3200 series I/O offers outstanding performance. For example, the 3214 analog input card provides a sampling rate of 1000 times a second. 1 millisecond SOE resolution is provided for both analog and digital input signals for process analysis.

Hart compatible. The 3214 analog input card is hart compatible. It may be used with the RTP 3018 Hart Card and CornerstoneTM software to improve process efficiency, reduce maintenance requirements and enhance overall productivity.



Advanced Diagnostics. I/O bus checking diagnostics, card address tests and configuration tests are performed each time the chassis processor accesses the cards. All data and control transfers are performed twice, once using the actual data and then using inverted data. Both versions of the data are compared to verify that all I/O bus data bits are functioning properly on the backplane. I/O bus slot address and control signal contention tests are also performed, as it is similarly done on the safety cards.

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 5x10⁻⁵. *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.*

Architecture: The 3200 series IO cards are designed for use in non-redundant IO configurations.

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 cables attached to the card, replace the card, attach the cables and enable the card within NetArrays. A front panel LED indicates if the card is online or offline.

3214 Analog Input. The 3214 Analog Input card provides 32 single ended input channels. Field devices providing inputs of 0-10 volts or +/- 10 volts are supported. In addition, the card is capable of receiving current inputs of 0-20 mA, +/- 20 mA and 4-20 mA. When used with current inputs, the field termination assembly module includes a 250 ohm 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. 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 channel of the analog input card has a programmable guard band to set the high and low limits of the input signal. Any signal outside of the range will set the corresponding integer error bit in the channel error status word. No additional programming is required.

3216 Digital Input. The 3216 Digital Input card provides 32 optically isolated digital input channels. It supports 24VDC sinking input signals. SOE data is recorded at a 1 millisecond timestamp resolution. This card provides an input filter of 25 microseconds with additional filtering capability being provided in the software.

The card can be used with field devices requiring an external voltage source or field devices providing the voltage source.

3238 Digital Output. The 3238 Digital Output Card provides 32 optically isolated sourcing output channels. It supports 10V to 30V DC and can source up to 0.5A per channel (8A max per card).

Available termination modules provide options for LED indication, fuse protection, or diode protection for each channel

RTP has established a widely known reputation of manufacturing robust quality systems that meet the latest and most rigorous standards. The 3200 series I/O cards are no exception. RTP is not your traditional system. RTP is the Technologically Advanced System.

SPECIFICATIONS:

3214 Analog Input Card	
Electrical:	
Number of channels	32
Full Scale Input Signal Range	$0 \text{ to} \pm 10 \text{ VD C}$
Guard Band Input Signal Range	+10.0 to +10.1 VDC or -10.0 to -10.1 VDC
Input Current Range (Current Mode):	±20.2mA
Input Impedance (Voltage)	>2 Mega Ohms
Input Impedance (Current)	250 Ohms
Input Bias Current	4.55 μA maximum
Max Input Source Impedance Voltage mode	1000 Ω maximum including cables
Analog input error (maximum error at 25 °C)	+/-0.0275% (Voltage measurement)
Analog input error (temperature coefficient)	+/-0.0010% of full scale/K
Maximum error over full temperature range	+/-0.0575% (Voltage measurement)
Analog input error (maximum error at 25 °C)	+/-0.0375% (Current measurement with I-to-V
,	termination module)
Analog input error (temperature coefficient)	+/-0.0020% of full scale/K
Maximum error over full temperature range	+/-0.0975% (Current measurement with I-to-V
r	termination module)
Digital resolution	16 bits
Type of input	Single ended.
Sample repetition rate	1000 sample sets per second.
Input filter characteristics - order	First order
Input filter characteristics – transition frequency	-3dB @ 59.9 KHz
Isolation	500V Channel to RTP BUS
Non-linearity	+/-0.028 % of full scale
Repeatability at fixed temperature after 10 second	+/-0.028 % of full scale
stabilization time	
Power Requirements:	
Backplane Power	+5VDC @ 400 mA supplied by the RTP backplane
Backplane External	+24VDC @ 75mA (BPEXT)
Termination Modules:	5 foot cable included
3099/55-100:	Analog Voltage Input
3099/55-101:	Analog Current Input with fuses and I-to-V resistors.
Power Requirement –100:	None
Power Requirement –101:	3.2 Amps at 24 Volts
3216 Digital Input Card	·
Electrical:	
Number of channels	32
Sinking input nominal voltage	24 VDC
Sinking input nominal current	10.2 mA
Sinking input low voltage	< 5 VDC
Sinking input low voltage Sinking input low current	< 0.1 mA
Sinking input low current Sinking input high Voltage	> 15 VDC
Sinking input high voltage Sinking input high current	> 6.0 mA
Sinking input nigh current Sinking input maximum Voltage	30 VDC
Sinking input maximum voltage Sinking input maximum current	13.0 mA
Maximum permanent allowed overload (no damage)	+30 VDC, -30 VDC
Digital input delay time from 0 to 1 transition	1 millisecond maximum (SOE)
Digital input delay time from 0 to 1 transition Digital input delay time from 1 to 0 transition	1 millisecond maximum (SOE) 1 millisecond maximum (SOE)
Existence of common points between channels Includion Field to PTP	All channels share a common return
Isolation Field to RTP	500 VDC
Isolation channel to channel	None
Type of input Channel Filtering:	IEC61131-2 Type 2
Channel Filtering:	25us hardware digital filter. Additional filtering can be implemented in software
	LOC IMPLEMENTED IN SOLUMIC

Power Requirements:	
Backplane Power requirements:	+5VDC @ 250mA max
Field voltage	+18-30V @ 416mA max
Termination Modules:	5 foot cable included
3099/55-100	Single DC Sinking Term Module (no fuses)
3099/55-102	Single DC Sinking Term Module (with fuses)
Power Requirement –102:	330 mAmps at 24 Volts with fuses
	Reset-able Fuse rating 300 mA Hold, 600 mA Trip
Max total current available	3.2 Amps
3238 Digital Output Card	
Electrical:	
Number of channels	32
Isolation from RTP system	500V AC/DC
Channel to channel isolation	None
Maximum open circuit voltage	30VDC
Maximum closed circuit current	0.5 Amp
	Note: Total Current for all channels not to exceed 8
	Amps
Maximum power dissipation per channel	0.63 Watts
Maximum voltage drop @ 0.5 Amps	1.25 Volts
Minimum Load	0 mA
Maximum Leakage Current with Outputs off	250 uA
Output configuration	32 sourcing outputs
Switching Time (off-to-on)	<175μS
Switching Time (on-to-off)	<175μS
Power Requirements:	
Backplane Power	+24VDC @300 mA supplied by the RTP backplane
Field Power requirements	+10 VDC to +30 VDC, 8.2 Amps maximum
Power Dissipation	14 Watts – 48 BTU/hr
Termination Modules:	5 foot cable included
3099/56-100	Digital Output no fuse, LEDs, diodes
3099/56-101	Digital Output with fuses, LEDs, diodes
3099/56-102	Digital Output with diodes only
3099/56-103	Digital Output with LEDs only
Power Requirement:	24 VDC @ 8 Amps maximum
	Max current per channel 0.5 Amps
Common Environmental:	
Temperature Range	-20° to +60°C, Operating
	-25° to +85°C, Storage
Humidity Range	10 to 95 % Relative Humidity, non-condensing
Altitude:	Operation to 10,000 feet

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