

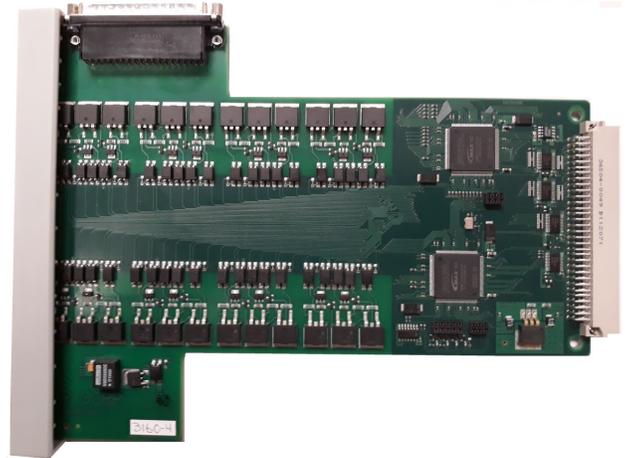


# 16-Channel Digital Output Card

3160

## PRODUCT HIGHLIGHTS

- Supports Source Voltages of 20 to 140 VDC
- Source up to 0.5 A per Channel
- Single, or Dual, Redundancy
- Channel Read Back Validation
- Switch Testing
- One Safety switch for every two Channels



3160 -16 Ch Digital Output Card

## PRODUCT OVERVIEW

The 16 Channel Digital Output Card is designed to be used in any 3200 N+ family chassis. It provides the user with the means to switch up to 16 points of DC voltage under program control. It can support a range of source voltages from 20 VDC to 140 VDC.

Output switching is performed by optically isolated power MOSFET drivers. The 16 output channels are factory configured as sourcing outputs. When connected to field devices such as an indicator lamp, solenoid valve, interposing relay, and other discrete control devices, the 16-Channel Digital Output card can source up to 0.5 amps per channel, 8 amps maximum per card.

Active circuit testing provides on and off testing of FETs for stuck conditions and channel read back values. Any fault detected is reported in the integer status word for the card.

The 3160 16-Channel card has one safety switch for every two channels. The safety switch provides the diagnostics additional capability to de-energize the output channels in response to a fault condition or watchdog timer timeout. Diagnostics test each output channel's safety switch to verify operation and reports any faults detected.

Replacing the 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.

### RTP is the Best Technology for Your Investment,

Here's why:

This product is compatible with the 3000 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 50000 years an MTTFs of greater than 60000 years, and a PFDavg of  $5 \times 10^{-5}$ . **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.**

## SPECIFICATIONS

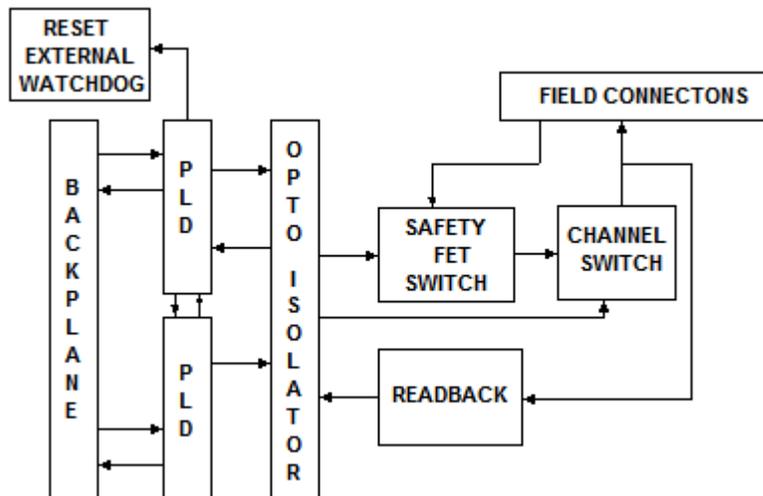
Number of Channels	16
Maximum open circuit voltage	140 VDC
Maximum closed circuit current per channel	0.5 Amp Fuse protected to 1.0 Amp Slow Acting
Maximum power dissipation per channel	.8 Watts
Maximum voltage drop @ 0.5 Amps	1.6 Volts
Minimum Load	2 mA
Maximum Leakage Current with Outputs off	500 $\mu$ A
Maximum Output Test Pulse Width	< 150 $\mu$ s
Output Configuration	16 Sourcing FET outputs with 8 FET safety switches. (one safety switch for every 2 channels )
Backplane to Card Output Delay Time	<175 $\mu$ s (ON to OFF)
Backplane to Card Output Delay Time	<175 $\mu$ s (OFF to ON)
Isolation from RTP system	500V AC/DC
Backplane Power	5 VDC @ 350 mA
Field Power	20 VDC to 140 VDC, 8.2 Amps maximum
Power Dissipation	15 Watts – 51 BTU/hr
Programmable Watchdog Timer	150 msec
Hardware Watchdog Timer	0.68 to 1.4 seconds

## ENVIRONMENTAL SPECIFICATIONS

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 MODULES

3099/36-200	16 Channel Dual Redundant Termination Module with fuses, diodes, and channel LEDs, 20-50V
3099/36-201	16 Channel Dual Redundant Termination Module with fuses, diodes, and channel LEDs, 51-140V



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