Product Highlights

- 16 Digital Output Channels
- Supports Source Voltages from 19V to 30V DC
- Monitors Field Wiring
- Readback of Output States
- Fuse Protected Outputs
- I/O Bus Checking Diagnostics
- LED Card Health Indicators
- Hot Swappable
- 1 Safety FET for every 2 Channels
- Automatic Channel shutdown when output is shorted

Product Overview

The 3028/00-001 Fault Detecting Digital Output Card is TUV approved for SIL-3 applications. It provides switching control of 16 points of DC voltage field signals to any 3000 system. All channels are isolated from the RTP chassis ground. Voltages of 19V to 30V DC may be controlled by the output channels. Each channel can source up to 0.5 amp per channel and is protected by a 1 amp slow acting fuse. This card is IEC 61131-2 qualified and performs comprehensive diagnostic tests on all output channels and backplane communications; any errors detected are reported to the operating program.

To verify the card is connected to the field load and operating properly, the card performs field wiring tests to detect a line open or line short. Channel output state readback tests confirm the actual state of the channel is the commanded state for the channel. Any fault will set the channel to a safe (off) state.

I/O Bus checking diagnostics are performed on all output data and command transfers to the card. Each transfer is performed twice (all the data bits in the second transfer are inverted.) Both transfers are then compared to insure that no errors exist in the data path between the output card and the processor. I/O bus slot address and control signal contention tests are also performed. Cable detection tests verify that the termination cable is properly connected to the card.

Any faults detected set status bits in an error detection variable returned to the user application. Watchdog timers on the card can open all of the output channels in the event backplane communication errors persist.

Following a power-up or reset, all outputs are disabled (off), and remain off until enabled by the operating program.

Card health status is visible through LED indicators on the card’s front panel. Channel status is visible through LED’s on the cards associated termination module. For field maintenance, these cards may be replaced with a spare, without powering-down the chassis.

RTP is the Best Technology for Your Investment,
Here’s Why:
The 3000 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 3000 years, an MTTFS of greater than 4000 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.

Net Suite 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 does this better than any other system.
Electrical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module Safety Integrity Level</td>
<td>SIL 3</td>
</tr>
<tr>
<td>Number of Outputs</td>
<td>16 channels</td>
</tr>
<tr>
<td>Isolation</td>
<td>500V AC/DC to RTP chassis ground</td>
</tr>
<tr>
<td>Maximum Open Circuit Voltage</td>
<td>30V DC</td>
</tr>
<tr>
<td>Maximum Closed Circuit</td>
<td>0.5A per channel, Fuse protected to 1A slow acting fuse</td>
</tr>
<tr>
<td>Maximum Power Per Channel</td>
<td>15W</td>
</tr>
<tr>
<td>Maximum Voltage Drop @ 0.5A</td>
<td>1.25V</td>
</tr>
<tr>
<td>Minimum Load per Channel</td>
<td>6 mA single configuration, 12 mA dual redundant configuration, 18 mA triple redundant configuration</td>
</tr>
<tr>
<td>Maximum Leakage Current</td>
<td>250 µA per channel (Output Off)</td>
</tr>
<tr>
<td>Switching Times</td>
<td>&lt; 175 µsec</td>
</tr>
<tr>
<td>Power On/Reset Condition</td>
<td>All outputs reset to Off state</td>
</tr>
<tr>
<td>Power Requirements</td>
<td>+5V DC @ 200 mA</td>
</tr>
</tbody>
</table>

External Field Power
- +19V to +30V DC @ 8.2A maximum
- < 500 µsec

Output Test Pulses
- < 500 µsec

Environmental*
- Operating Temperature Range: –20ºC to +60ºC
- Storage Temperature Range: –25ºC to +85ºC
- Relative Humidity Range: 10% to 95%, non-condensing

*Complies with IEC 61131-2

Termination Modules*
- 3099/36-000 16-Ch Digital Output Triple Termination Module w/ Diodes
- 3099/36-001 16-Ch Digital Output Single Termination Module w/ Diodes

Termination Cable
- Included with 3028/00 Card

*Consult factory for a complete list of all available terminations

Dual Redundant Output Configuration

Trademark acknowledgments: RTP is a registered trademark of RTP Corp. All other product or service names mentioned herein are trademarks of their respective owners. Specifications and information are subject to change without notice. Contact RTP’s corporate office for the latest specifications.

All information, data, graphics and statements in this document are proprietary intellectual property of RTP Corp. unless otherwise indicated and are to be considered RTP Corp. confidential. This intellectual property is made available solely for the direct use of potential or licensed RTP Corp. customers in their application of RTP Corp. products, and any other use or distribution is expressly prohibited. If you have received this publication in error, immediately delete, discard or return all copies to RTP Corp.