T70 - Introduction to FLEX 5000™ I/O, the Next Generation of FLEX™ I/O
FLEX 5000™ I/O
Shipping in 2018!

Performance
1 Gb EtherNet/IP™
1 Gb Backplane Speed

Standard I/O
32 Channel Digital In/Out
8 Channel Analog In/Out

Safety I/O (SIL 3, PLe, Cat. 4)
16 Channel Digital In/Out
4 Channel Analog In/Out

Rugged Design
Operating Temperature:
-40 °C…70 °C

Extreme Environments:
Class G1, G2, and G3

Hazardous Environments:
Class I, Div. 2
Zone 2 Groups
A, B, C, D, E, F

Network Media and Topology
2 Copper/2 Fiber Ports
Supports DLR, Star, Linear, PRP

Easy snap-on installation
Removal and Insertion Under Power (RIUP)

Consistent I/O Wiring
Direct Termination of 2, 3 & 4 wire devices
Simplified System Design and Maintenance

- Mount up to 8 or 16 I/O Modules
- Dual Color Light-emitting Diodes (LEDs) for Status & Diagnostics
- Interconnect Cable Bank Expansion
- Adapter Power Removal Terminal
- Stair Step Design for Ease of Wiring / Visibility
- Consistent Power Wiring with Jumpers
FLEX 5000™ I/O
Flexibility in Design and Maintenance

**Simplified System Design and Maintenance**

- Removable Terminal Block
- Z-Axis Removal
- On-Line Addition* & RIUP
- One to One TB Mapping
- TB3, TB3I, TB3W, TB3T, TB3AC, TB32
- Per Channel CJC, Remote CJC support
- Screw and Spring/Push-in TB Options
- Simple Plug-in Shielding TB
- Easy Terminal Base Selection
- Current Sourcing - Analog

*On-line Addition for Standard modules only
Mount the I/O to Meet Application Requirements

- XT for G3
  -40 °C…70 °C Standard
  -1000…2000 m Altitude

Horizontal or Vertical

Certifications available at release
FLEX 5000™ I/O
Comparison to FLEX™ I/O

- Same DIN Rail Footprint as FLEX I/O
- Maximum Wiring Consistency
- Increased Capacity & System Performance
### Control and Configure at the Channel Level

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Protection &amp; Diagnostics</th>
<th>Time Stamping with PTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Standard Data Structures</td>
<td>- Electronic Fusing, Overvoltage, Overload, Reverse Polarity</td>
<td>- I/O COS</td>
</tr>
<tr>
<td>- Per Channel selection</td>
<td>- Power, Temperature, Open Wire, Short Circuit</td>
<td>- Diagnostics</td>
</tr>
<tr>
<td>- Scaling &amp; Alarming on Module</td>
<td></td>
<td>- Events</td>
</tr>
</tbody>
</table>
Integrate Safety up to SIL 3

**FLEX 5000™ I/O**

**Integrated Control and Safety for the Process Industry**

- Designed for Fail-safe Applications
  - CIP™ Safety Modules
  - Single channel SIL 3 /PLe/Cat. 4

- Simplify Safety Implementation
  - Mix Standard and Safety I/O on same I/O bank

- Full Range of Modules
  - Digital, Analog, HART, Temperature and Frequency

*Available in Future Release*
FLEX 5000™ I/O
Flexible Network Topologies

DLR | Star | Linear | PRP*

Copper or SFP Fiber Ports

*Scheduled for December 2018
**FLEX 5000™ I/O**

Higher Performance – Standard I/O

**Digital I/O**
- ≤ 100 μs screw to backplane
- 200us RPI Support
- Counter Functionality
- Input Events
- Scheduled Output
- ≤ 1 ms S2S Response Time*

**Analog I/O**
- ≤ 2 ms screw to backplane
- 200us RPI Support
- 16 bits Resolution
- Alarms and Scaling
- Current Sourcing
- ≤ 5 ms S2S Response Time*
- Universal Analog Input

*Under test conditions
Safety Digital I/O

- ~4 ms Safety Reaction Time
- 2 ms RPI Support
- Single Channel SIL 3/PLe/Cat. 4
- Support Low, High, Continuous Demand

Safety Analog I/O

- ~10 ms Safety Reaction Time
- 2 ms RPI Support
- 16 bits Resolution
- Single Channel SIL 3/PLe/Cat. 4
- Channel-to-Channel Isolation
- HART V7 Support
- Configurable Safety State

*Available in Future Release
FLEX 5000™ I/O
Designed for The Connected Enterprise

Smart. Respond to your process faster with intelligent control.
- Diagnostics
- Premier HART Integration
- Enhanced Asset Data

Productive. Improve real-time operations with enhanced device integration.
- On-Line Maintenance
- Device Health
- System Topology

Secure. Safeguard your assets and protect your brand.
- Birth Certificates
- Secure Boot
- Implicit Protection
## FLEX 5000™ I/O
### Release Schedule

<table>
<thead>
<tr>
<th>Catalog</th>
<th>Description</th>
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<tbody>
<tr>
<td>5094-AENTR</td>
<td>EtherNet/IP Adapter RJ45 8 I/O</td>
<td>5094-IB16S</td>
<td>16 Point Digital Input Safety</td>
</tr>
<tr>
<td>5094-AEN2TR</td>
<td>EtherNet/IP Adapter RJ45 16 I/O</td>
<td>5094-OB16S</td>
<td>16 Point Digital Output Safety</td>
</tr>
<tr>
<td>5094-IB16</td>
<td>16 Point Digital Input</td>
<td>5094-OW4IS</td>
<td>4 Channel Relay Output Isolated Safety</td>
</tr>
<tr>
<td>5094-OB16</td>
<td>16 Point Digital Output</td>
<td>5094-IF4IHS</td>
<td>4 Channel Analog Input Isolated HART Safety</td>
</tr>
<tr>
<td>5094-OW8I</td>
<td>8 Channel Relay Output Isolated</td>
<td>5094-OF4IHS</td>
<td>4 Channel Analog Output Isolated HART Safety</td>
</tr>
<tr>
<td>5094-IF8</td>
<td>8 Channel Analog Input</td>
<td>5094-IRT8S</td>
<td>8 Channel RTD/Thermocouple Safety</td>
</tr>
<tr>
<td>5094-IY8</td>
<td>8 Channel Universal Analog Input</td>
<td>5094-IJ2IS</td>
<td>2 Channel Isolated Frequency Safety</td>
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<tr>
<td>5094-OF8</td>
<td>8 Channel Analog Output</td>
<td>5094-HSC</td>
<td>2 Channel High-Speed Counter</td>
</tr>
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**SIL 3 Safety**

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<tr>
<td>5094-IB32</td>
<td>32 Point Digital Input</td>
</tr>
<tr>
<td>5094-OB32</td>
<td>32 Point Digital Output</td>
</tr>
<tr>
<td>5094-OB82A</td>
<td>8 Point Digital Output 2 Amp</td>
</tr>
<tr>
<td>5094-IA16</td>
<td>16 Channel AC Input</td>
</tr>
<tr>
<td>5094-OA16</td>
<td>16 Channel AC Output</td>
</tr>
<tr>
<td>5094-IF8IH</td>
<td>8 Channel Analog Input Isolated HART</td>
</tr>
<tr>
<td>5094-OF8IH</td>
<td>8 Channel Analog Output Isolated HART</td>
</tr>
<tr>
<td>5094-IJ2I</td>
<td>2 Channel Isolated Frequency</td>
</tr>
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*All catalogs are available in Extreme Environment (XT) variant for G3 compliance*

**Future Release**

- CY18: Specific dates to be advised

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**Standard**

<table>
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<tbody>
<tr>
<td>5094-AENSFPRXT</td>
<td>EtherNet/IP Adapter SFP w XT</td>
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<tr>
<td>5094-AEN2SFPRXT</td>
<td>EtherNet/IP Adapter SFP w XT</td>
</tr>
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<td>5094-IB32</td>
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*Specific dates to be advised*
When to Consider FLEX 5000 I/O Versus FLEX I/O

- Continue to attach FLEX™ I/O with ControlLogix® 5570 Architecture
  - FLEX I/O is **ACTIVE** and supports all generations of Logix5000™ controllers
  - Longevity letters are available, including description of lifecycle support

- Attach FLEX 5000™ I/O with CompactLogix™ 5380/ControlLogix 5580 Standard or Safety Architecture
Flexible Network Media and Topologies | Rugged I/O Designed for Process Control | Wide Range of Standard and Safety Modules
Thank You!