T39 - What’s New in Logix
Agenda

Controllers

Distributed I/O

Condition Monitoring

Networks & Security

On-Machine™ Products
Integrated Architecture® Portfolio

Design Software
- Studio 5000®
- CCW
- Arena®

Distributed Control System
- PlantPAx®

Visualization & Information Software
- FactoryTalk®
- ThinManager®

Programmable Automation Controllers
- CompactLogix™
- ControlLogix®
- GuardLogix®
- Armor™
- GuardLogix®

Industrial Network Infrastructure & Media
- Stratix®

Operator Interfaces & Industrial Computers
- PanelView™
- MobileView™

Smart Sensing Devices
- RightSight™
- VisiSight™
- RFID
- Pressure

Input / Output Devices
- Compact I/O™
- FLEX™ I/O
- POINT I/O™
- ArmorBlock®
- ArmorPOINT®

Motor Control Devices
- PowerFlex®
- IntelliCENTER®

Motion Control
- Kinetix®
- iTAK®
- MagneMotion®
Controllers Update
Controller Portfolio

Micro Control Platform

**Micro800™ Controller**
- Low acquisition cost
- Easy connectivity
- Simple programming tools
- Ideal for standalone machines

Standard Machines

**CompactLogix™ Controller**
- Multiple control disciplines
- Flexible and scalable
- Real-time information-enabled
- Standard, unmodified Ethernet
- One common integrated design environment
- Local and distributed I/O options

Complex Machines and Process

**ControlLogix® Controller**

Process Safety

**AADvance®/Trusted® Control**
- Scalable redundancy for fault tolerance
- Provides safety and availability requirements
- Distributed processing power
CompactLogix™ Controllers

CompactLogix™ 5370
- Integrated Motion on EtherNet/IP up to 16 axes
- Linear and Device Level Ring network topologies for up to 48 nodes
- Integrated safety up to SIL 3, PLe cat. 4 versions
- On-Machine™ version

CompactLogix™ 5380
- Integrated Motion on EtherNet/IP up to 32 axes
- Two Ethernet ports for dual IP or support for Linear and Device Level Ring topologies for up to 80 nodes
- Enables high-speed I/O, motion control
- Enhanced security features

CompactLogix™ 5480
- Enables high-speed I/O, and Integrated Motion on EtherNet/IP up to 150 axes
- Includes 3 GbE EtherNet/IP ports that support both Linear or Device Level Ring topologies up to 250 nodes
- Provides a Logix based real-time controller that runs in parallel to an instance of Windows 10 IoT Enterprise
- Enhanced security features

Multiple disciplines
Flexible and scalable
One common design environment
ControlLogix® Controllers

ControlLogix® 5570 Controller
- Integrated Motion on EtherNet/IP up to 100 axes
- Integrated safety up to SIL 3, PLe cat. 4 versions
- On-Machine™ versions
- Conformal coat and extreme environment versions
- Redundancy and removal insertion under power

ControlLogix® 5580 Controller
- Integrated Motion on EtherNet/IP up to 256 axes
- 1 gigabit (Gb) embedded Ethernet port enables high-speed I/O and motion control for up to 300 nodes
- Conformal coat versions
- Removal Insertion Under Power
- Enhanced security features
ControlLogix® 5570 Controller

- Safety applications
- Redundancy applications
- Phase Manager
- Extreme environment applications

**New in 1Q CY2017:**

ControlLogix® 5570 Redundancy v30.051

- Controller based audit log
- Anomaly described in Product Notice 2017-02-002 - ControlLogix® Firmware V20.057 and V24.052 Used In a Redundant Configuration with Specific Module Types - Outputs May Fail to Update After Switchover (201702002)

**New in 2Q CY2018:**

ControlLogix® 5570 Redundancy v31.05
CompactLogix™ 5380 Controller

High performance CPU
- Enables faster system performance, reduced system complexity and enhanced security
- Increased scalability: 600 KB – 10 MB, up to 32 axes on EtherNet/IP and 80 nodes

Dual 1-Gb Embedded EtherNet/IP Ports
- Configurable Dual IP or DLR 128,000 packets/sec

New in 4Q CY2016 (v30+):
- 5 MB, 8 MB and 10 MB options
ControlLogix® 5580 Controller

- Enables faster system performance, reduced system complexity and enhanced security
- Embedded GbE for the growing number of smart devices
- Supports large, complex applications with up to 256 axes of motion, 300 nodes and 40 MB user memory

New in 1Q CY2018 (v31):
- Support for Analog & SERCOS motion: Allows ControlLogix® 5580 to be used in analog & SERCOS motion applications that use M02HYD, M02AE, M02AS, M03SE, M08SE, M16SE and M08SEG. This will be a key enabler of controller migration
- Enhanced kinematics: Support for up to a delta 5-axes robot. Level 3 robotic control capability has become a key differentiator for OEMs in the packaging, assembly and material handling applications

Targeted for 4Q CY2018 (v32)
- PhaseManager™ software
## Logix 5000™ Controllers

<table>
<thead>
<tr>
<th>CompactLogix™ 5380</th>
<th>Memory</th>
<th>Nodes</th>
<th>Integrated Motion on EtherNet/IP</th>
<th>Local I/O</th>
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<tbody>
<tr>
<td>5069-L306ER(M)</td>
<td>600 KB</td>
<td>16</td>
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<td>5069-L310ER(M)</td>
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<td>5069-L380ERM</td>
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<table>
<thead>
<tr>
<th>ControlLogix® 5580</th>
<th>Memory</th>
<th>Nodes</th>
<th>Total Axes of Motion</th>
<th>Local I/O</th>
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<tbody>
<tr>
<td>1756-L81E</td>
<td>3 MB</td>
<td>100</td>
<td>256 (subject to node limit)</td>
<td>16</td>
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<tr>
<td>1756-L82E</td>
<td>5 MB</td>
<td>175</td>
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<tr>
<td>1756-L85E</td>
<td>40 MB</td>
<td>300*</td>
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<td>16</td>
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</tbody>
</table>

**Note:** Memory and Local I/O values are subject to node limit.
## High Performance Safety Controllers

### What's new

<table>
<thead>
<tr>
<th>Scalable Safety Level</th>
<th>High Performance</th>
<th>Increased Safety Integration</th>
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</thead>
<tbody>
<tr>
<td>SIL CL2, Up to Pld – Primary Controller</td>
<td><strong>Multi-core CPU</strong>&lt;br&gt;Optimized for faster safety reaction time</td>
<td><strong>Networked Safety Functions with drives and Motion</strong>&lt;br&gt;By using safety instructions in the safety task</td>
</tr>
<tr>
<td>SIL CL3, Up to PLe – Primary Controller + Partner</td>
<td></td>
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</tbody>
</table>
Compact GuardLogix® 5380

High performance CPU
• Optimized for faster safety reaction time

Scalable Safety Level
• SIL CL2, Up to PLd

Dual 1-Gb Embedded EtherNet/IP Ports
• Configurable Dual IP or DLR
• Integrated Safety on EtherNet/IP

Compact 5000™ local Safety I/O

Increased Scalability
• 5069-L306ER(M)S2: 600 KB Std / 300 KB Sfy; 2 axes; 16 nodes
• 5069-L310ER(M)S2: 1 MB Std / 0.5 MB Sfy; 4 axes; 24 nodes
• 5069-L320ER(M)S2: 2 MB Std / 1 MB Sfy; 8 axes; 40 nodes
• 5069-L330ER(M)S2: 3 MB Std / 1.5 MB Sfy; 16 axes; 50 nodes
• 5069-L340ER(M)S2: 4 MB Std / 2 MB Sfy; 20 axes; 55 nodes
• 5069-L350ER(M)S2: 5 MB Std / 2.5 MB Sfy; 24 axes; 60 nodes
• 5069-L380ER(M)S2: 8 MB Std / 4 MB Sfy; 28 axes; 70 nodes
• 5069-L3100ER(M)S2: 10 MB Std / 5 MB Sfy; 32 axes; 80 nodes
GuardLogix® 5580 Controller

High performance CPU
• Optimized for faster safety reaction time

Scalable Safety Level
• SIL CL2, Up to PLd – Primary Controller
• SIL CL3, Up to PLe – Primary Controller + Safety Partner

1-Gb Embedded EtherNet/IP Port
• Integrated Safety on EtherNet/IP, I/O and Safety Devices

IEC 61800-5-2 Safety Instructions
• New drive safety instructions with Kinetix® 5700 ERS4 drive
  ▪ Safe stop 1, Safe Stop 2, Safe Operation Stop
  ▪ Safe Limited Speed, Safe Limited Position
  ▪ Safe Brake Control with external brake, Safe Direction

Increased Scalability
• 1756-L81ES: 3.0 MB Std / 1.5 MB Sfy; 100 nodes
• 1756-L82ES: 5.0 MB Std / 2.5 MB Sfy; 175 nodes
• 1756-L83ES: 10 MB Std / 5.0 MB Sfy; 250 nodes
• 1756-L84ES: 20 MB Std / 6.0 MB Sfy 250 nodes
ENTERPRISE (Level 4)
- Private or Public Cloud
- On premise scales virtually, in cloud scales elastically
- Remotely administered

SYSTEM (Levels 2 through 3)
- Industrial or white-box computing
- Miniature IDC
- Virtually runs any application, has wider breadth

DEVICE (Levels 1 through 2)
- In cabinet, in chassis, in controller computing
- Right size and form for function
- Helps analytics happen at correct level of hierarchy

CONNECTED SERVICES
- Design / Implementation / Integration
- Application Specific Support
- 24x7 Monitoring and Administration
- On-site Response

SCALABLE COMPUTE
ControlLogix® Compute Module

In chassis computing
- Enables easier information access by having compute capability at the source of the information
- Can be used to help reduce downtime and improve operational efficiency by monitoring the equipment or machine in real time
- Can be used to help predict downtime before it occurs
- Intel Atom 1.46 GHz dual core processor, 4 GB RAM
- 32 GB SSD (approx. 20 GB free space for user applications)

Flexible
- Easily add value to existing ControlLogix® applications without having to disrupt production
- Supports next generation machine or equipment designs allowing differentiation
- Windows® 10 IoT Enterprise (64-bit) or Linux (32-bit)

Simplified architectures
- Supports integrated visualization with onboard DisplayPort for direct connection to high definition industrial monitors
- Built in API to allow for direct communication with a ControlLogix® processor via the backplane
- Run commercially available off-the-shelf or custom applications in the same chassis as the ControlLogix® controller
Introducing CompactLogix™ 5480 Controller

Integration of third-party Applications
• Run Windows-based software applications alongside the control application on single controller
• Logix runs independently of Windows
• Commercially available CPU for high performance

Simplified Architectures and Smaller Machine footprint
• (3) Logix 1-Gb Embedded EtherNet/IP Ports for flexible network architectures
• Integrated DisplayPort for direct connection to a high definition VersaView® industrial monitor
  • DisplayPort supports standard converters for HDMI, DVI, VGA displays
• Built in RSLinx® OPC communication between Logix and Windows
• Dedicated interfaces for Windows 10 IoT Enterprise
  • (1) GbE port
  • (2) USB 3.0 ports

Enhanced Security
• Digitally signed and encrypted firmware
• License based content protection
• Controller based change detection and logging
• Role-based access control to routines and Add-On instructions

Compact 5000™ Local I/O
• Supports up to 31 local I/O modules
I/O Update
## I/O Portfolio

### Chassis-Based ControlLogix® I/O
- I/O diagnostics for detection of both system and field-side failures
- Electronic keying to help prevent replacement errors
- Wide range of modules from high performance to process control

### On-Machine™ ArmorBlock® I/O
- IP67 rated modules
- Reduces wiring and panel space
- Quick connect for daisy chaining modules
- Analog, Digital, specialty, machine safety and IO-Link options available

### Process & Process Safety FLEX™, 1715 / 1719 I/O
- 1715 I/O provides high availability for ControlLogix®
- FLEX™ I/O High signal density on a distributed platform
- 1719 I/O for hazardous locations

### Discrete Machine Compact I/O™ Compact 5000™ I/O
- Compact 5000™ high performance I/O for CompactLogix™ 5380 and ControlLogix® 5580
- 1769 high density I/O for CompactLogix™ 5370

### In-Cabinet Machine POINT I/O™ Modules
- Ideal for applications requiring flexibility and low cost of ownership
- Compact design makes installation easier
- HART, specialty, machine safety and IO-Link options available

### Condition Monitoring Dynamix™ Monitoring
- Integrates machine protection with your standard control system
- Dual Ethernet ports supporting both Linear and Device Level Ring topologies
FLEX 5000™ I/O Modules
Next Generation Flex I/O

- Footprint consistent with 1794 FLEX™ I/O
- High performance
- Dual 1-Gb Embedded EtherNet/IP Ports
  - Copper or Fiber
  - Supports Star, Device Level Ring, and PRP topologies (future)
- Rugged Design
  - Operating Temperature: -40...70°C
- Support for Safety I/O (up to SIL 3, PLe, Category 4)
  - 16 Channel Digital In/Out
  - 4 Channel Analog In/Out
- Consistent I/O Wiring
- Easy Snap-on Installation
  - Removal and insertion under power (RIUP)
- Expanded Capacity
  - Support up to 16 modules per adapter
- Runtime Changes
  - Add / modify modules without stopping the controller
1756-IF8I, 1756-IRT8I, 1756-OF8I
- Industry standard 8-channel density
- Up to 24 bits of usable resolution
- 1 ms input sampling of floating point values
- Increased accuracy, repeatability & stability over entire operating temperature range

Migration Capabilities from 6-Channel Modules
- Emulation mode in new firmware to enable migration without having to change application code
- SIL 1 Systematic Capability 2 Type Certified for use in a ControlLogix® SIL 2 architecture
- New 1492 cables to preserve IFM wiring
- 1756-RM011 Migration Guide
ControlLogix® Isolated Analog HART

1756-IF16IH
• First 16 channel isolated module in the 1756 portfolio
• Same specs as 1756-IF8I, with increased channel density to 16 channels
• 1 HART modem per channel

HART Data “Out-Of-The-Box” via the Add-on Profile
• Field device information with status
• 4 HART process variables with status
• Supports HART 5, 6, 7 read/write capability
• Configure and monitor analog and digital data from a remote workstation
• Direct field device interface removes the need for HART multiplexers
• Ready for Device Type Manager (DTM) support for remote, device configuration
POINT Guard I/O™ Modules

New 1734-OBV2S Bipolar Safety Output Module
- Provides 2 bipolar output pairs per module
- Up to 4 contactors can be wired per module
- One output provides dual channel control
- 1.25A Output load current at 40C operation, continuous and pilot duty

Complimentary Migration Option
- Provides the same diagnostics, short circuit protection and overload detection as provided on 1791ES and 1732ES bipolar safety output modules

Safety Rated
- Up to category 4 and PLe, for each output

Flexible
- Any POINT Guard I/O™ module can be used in combination with all other POINT I/O™ modules
- Use with GuardLogix® or Compact GuardLogix® controllers, beginning with Logix Designer V17+

Both sourcing and bipolar safety output types in POINT Guard I/O™ modules
New in 2017

V3 Firmware

- HART pass-through and DTM
- User defined thresholds for 1715-IF16
  - Ability to set custom thresholds above and below the measurement range
  - Indication of diagnostic failures
- HI/LO trip threshold for analog signals
- Timestamping on I/O change of state for 1715-IB16D
  - 10 ms resolution typical (64-bit)
- ControlFLASH™ support upgrades of I/O modules
  - Field upgrade I/O firmware after taking the system offline
  - Knowledgebase # 1027750
1719 Ex I/O
Intrinsic Safety for Zone 2 or Class I, Div 2 Mounting

**Installation Standards**
For Class I, Div. 2 follow NEC 500-510
For Zone 2, follow IEC 60079-14
1719 Ex I/O

Key Benefits of 1719 Ex I/O Modules

- **Easy to Configure:** Add-on Profile support in Studio 5000® v24 and above
- **Reliability:** EtherNet/IP DLR adapter and optional N+1 Power supply redundancy
- **Reduced Space:** Compact chassis-based design, slim module form factor
- **Scalability:** Available in an 8- and 22-slot chassis with optional 24-slot expansion

1719 Ex I/O module is an intrinsically safe distributed I/O solution enabling customers to integrate devices in hazardous areas to The Connected Enterprise via EtherNet/IP
Compact 5000™ I/O Modules

High performance
• Dual 1-Gb Embedded EtherNet/IP Ports

Power
• Separate system power for better isolation
• Built-in power input with field power to I/O modules

Enhanced standard functions
• Common data structures
• Change of State
• Immediate output
• Timestamping – 10 ms accuracy at 1 ns resolution
• Native simple counters

Local and distributed I/O for CompactLogix™ 5380
Distributed I/O for ControlLogix® 5580

New in CY2017:
• 120/240VAC Input and Output modules
• Additional density options for relay output (16-channel) and 24 VDC output (8-channel)
• Small network adapter

New in Q1/Q2 CY2018:
• Serial module
• Digital Safety I/O
Compact 5000™ I/O Modules

- **Compact 5000™ Serial**
  - Target release: 1Q CY2018

- **Compact 5000™ Safety**
  - Target release: 2Q CY2018

- **CompactLogix™ 5380 Controllers**
  - Full connectivity to Compact 5000™ I/O both locally and remotely via adapter

- **ControlLogix® 5580 Controllers**
  - Full connectivity to Compact 5000™ I/O remotely via adapter

*Available in Q1/Q2 CY2018*
Condition Monitoring Update
Introduction

Why Monitor Machine Condition?

- In any plant we have assets (big or small) that we want to:
  - Protect from damage
  - Prevent problems that would result in a loss of production
  - Assure or improve Quality
  - Reduce maintenance costs
Integrated Condition Monitoring

**Dynamix™ 1444 Monitors**
- Integrated condition monitoring
- API-670 capable machinery protection
- Smart machine monitoring…
- Automated fault detection and identification within the Integrated Architecture
- Secure configuration in Studio 5000 Logix Designer® software

**Dynamix™ 2500 Portables**
- Data collector for predictive maintenance and machinery vibration diagnostics.
  - Part of a comprehensive CbM program
  - Download your measurements to Emonitor® CMS
- A real-time, multi-channel signal analyzer
  - A standalone instrument for use in balancing, run up / coastdown analysis, bump testing and more.

**Emonitor® CMS Software**
- Proven, comprehensive tools for executing any size condition based monitoring program
- Online and offline analysis and data collection
- Automated diagnostics
  - Fault frequency identification
  - Built-in and user editable rule sets

**Sensors**
- 1442 Series Eddy Current Probes
  - API-670 compliant sensors, extension cables and drivers for all common size and range requirements
- 1443 Series Sensors
  - Industrial accelerometers, cables and mounting solutions
Dynamix™ System Architectures
Condition Monitoring within the Integrated Architecture
Fault Indicators in Logix
Integrated Fault Detection and Identification

- Tags represent the tools used to measure the considered fault indicators
  - Alarms signal detection
  - Trends monitor propagation

Dynamix™ provides the measurement, signal processing and integration tools necessary to present the indicators of condition or fault, configurable for any machine, to Logix as simple tags over EtherNet/IP.
Fault Indicators in the Integrated Architecture

- True machine condition made “part of what you do”.
- Fault Indicators can be acted on, the same as any other tags.
- Fault Indicators can be presented on faceplates and other HMI’s the same as any other tags.
- Fault Indicators can be written to your historian and trended the same as any other tags.
Introducing Emonitor® CMS
Software for Any Condition Based Maintenance Program

Emonitor® CMS is our most complete and advanced software package…

The Right Software, Made simple…
- No Functional Levels
- No Tag Limits
- No Missing Features
- No Hidden Costs
- No Options

Emonitor® Version 4.0

Emonitor® CMS: Easy to Buy & Easy to Own
Network Infrastructure Update
Network & Security Portfolio

**Stratix®**

Unmanaged & Lightly Managed Switches
- Low-cost, compact solutions
- Automatically negotiates speed and duplex settings
- No configuration required, or can be configured to support security, resiliency and bandwidth optimization

**Stratix®**

Managed Switches
- Access switches & distribution switches
- High Performance switching up to 10 GB
- Integrated Network Address Translation
- Integrated DLR with 3 ring support
- IT and OT configuration and support tools

**Stratix®**

Wireless Technology
- Connect hard-to-reach and remote areas
- Mobile access to equipment and key business systems
- Minimizes hardware and wiring

**Stratix®**

Security Appliances
- Secure real-time control communication
- Intrusion prevention using Deep Packet Inspection capabilities
- Routing and firewall capabilities
- Access control lists

**1756**

Communication Modules
- Communication links between devices and ControlLogix® controller
- Can use EtherNet/IP, ControlNet, and DeviceNet network protocols
- Supports real-time I/O & exchange messaging

**Linking Devices**

& Embedded Switch
- Connects control networks to device level networks
- Leverages existing network structures for migrations
1756-EN2TP Parallel Redundancy Protocol Module
Network Infrastructure Redundancy

- Enables **high availability for the network infrastructure** - helping minimize the risk of downtime
- **IEC 62439-3 compliant**
  - Same frame/packets sent out of both ports mitigating network switchover time
  - Different protocol used than when using DLR
- Acts as I/O scanner in controller chassis or I/O adapter in remote chassis
- Supports HMI communications
- Provides same performance and capacity as 1756-EN2TR
- Offers ControlLogix® redundancy system support
Stratix® 2500 Lightly Managed Switch

FLEXIBLE & SCALABLE

Two Installation Methods

• Out-of-the-box installation that prioritizes EtherNet/IP traffic and provides management of Multicast traffic, or
• Configured for specific applications to support security, resiliency and bandwidth optimization features

Features & Benefits

• Premier integration to the Rockwell Automation® Integrated Architecture® system
• Minimized downtime by monitoring traffic flow
• Improved network resiliency to help uncover errors before the network stops
• Increased network security with port security to control connections to the network when needed
• Reduced overall TCO with logical segmentation
Why Chose a Lightly Managed Switch Over an Unmanaged Switch?

Lightly Managed Switches address a number of key network challenges that unmanaged switches cannot:

- **Unplanned Downtime**
  - Loop detection and prevention

- **Network Performance**
  - QoS packet prioritization sends control traffic before Ethernet camera traffic
  - Virtual Segmentation

- **Collaboration with Remote Specialists**
  - Diagnostics for network troubleshooting

- **Security Risk Mitigation, Protect Availability and Performance**
  - Disable unused ports, and configure to only connect specific MAC IDs
  - Segmentation
Why Choose a Fully Managed Switch Over a Lightly Managed Switch?

Fully managed switches provided enhanced capabilities, security, resiliency protocol support, and greater topology flexibility. Examples vary by catalog and may include:

- **Higher port density and greater connectivity choices**
  - Fiber connectivity, Gig ports, and Power over Ethernet (PoE)
- **Automatic end device IP address assignment** through DHCP per Port
  - Simplifies Automatic Device Configuration
- Internal update and SD card for backup and restore capability
- Support of **REP resiliency protocol**
- **Integrated DLR, NAT, and support of PTP**
- **Greater security capabilities** through:
  - Access Control Lists, IEEE 802.1x Security, Centralized Authentication capability (RADIUS, TACACS+)
Stratix® 5700/54xx FW Update Highlights

- **Stratix® 5700 Device Level Ring (DLR) DHCP** – Allows IP address assignment to end devices on DLR – Enables Automatic Device Configuration on a ring topology

- **NTP to PTP translation (Stratix® 5400 and Stratix® 5410)** – Allows for the synchronization of NTP time and 1588 PTP time – Enabling technology to provide a common time base in a facility

- **Stratix® 5400 DLR with 3 ring support** – Addition of DLR to the Stratix® 5400 platform and support for 3 rings simultaneously – Provides solution for DLR requirements beyond 50 devices

- **Crypto Firmware as standard (all versions)** – The crypto firmware is now shipped as the standard IOS on new units – Provides encrypted management messaging for enhanced security
New easy-to-use FactoryTalk® Network Manager™ Software:

- Discovers plant floor network (EtherNet/IP and CIP™) and provides many enhanced topology views
- Provides real-time capture of alarms and events, configuration, backup and export capabilities
- Allows for creation of configuration templates

BENEFITS

- More easily deploy, commission, and maintain your control system networks
- Simplifies management and troubleshooting activities
On-Machine™ Update
What are On-Machine™ Products?

- **On-Machine™** products are characterized by:
  - Enhanced environmental ratings
  - On board diagnostics
  - Plug and play electronics
  - Modular wiring connections

- **Improved MTTR**
  - Increased diagnostics
  - Faster module replacement
  - No need to open panels to see device diagnostics
  - Faster maintenance/repair

- **Improved Reliability**
  - Less wiring errors
  - Fewer points of failure

- **Increased Productivity**
  - Simpler engineering & documentation
  - Easier & faster installation
  - No disassembly required to mount and wire
  - Simplified testing

- **Reduced Total Cost**
  - Design, installation & downtime
Comprehensive On-Machine™ Solution

- Programmable Controllers
- Ethernet Switches
- Connection Systems and Network Media
- Distributed I/O
- Distributed Motor Control
- Switches, Push Buttons and Signaling
- Sensors
- Power Supplies
- Safety Components
- Operator Interface
- Safety

Rockwell Automation offers a complete portfolio of On-Machine™ products
On-Machine™ Control

Standard and Safety On-Machine™ Control

- Up to SIL 3, PLe, cat. 4 in an IP67-rated housing
- Reduced wiring times, panel size reduction, increased uptime

| Armor™ CompactLogix™ 5370 and Armor™ Compact GuardLogix® 5370 Controllers |
|-----------------|----------------|------|----------------|-----------------|
| 1769-L33ERMO(S) | 2 MB/1 MB      | 32   | 8              | Single IP address, DLR |
| 1769-L36ERMO(S) | 3 MB/1.5 MB    | 48   | 16             |                 |
| 1769-L37ERMO(S) | 3 MB/1.5 MB    | 64   | 16             |                 |

<table>
<thead>
<tr>
<th>Armor™ ControlLogix® 5570 and Armor™ GuardLogix® 5570 Controllers</th>
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<td>1756-L72EROM(S)</td>
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<td>1756-L73EROM(S)</td>
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</tbody>
</table>
## 1732ES ArmorBlock® Guard I/O™

### Catalog Information

<table>
<thead>
<tr>
<th>Catalog Numbers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1732ES-IB12XOBV2</td>
<td>12 single channel input (6 dual)+ 2 dual channel bipolar output</td>
</tr>
<tr>
<td>1732ES-IB12XOB4</td>
<td>12 single channel input (6 dual)+ 4 single channel sourcing output (2 dual)</td>
</tr>
<tr>
<td>1732ES-IB16</td>
<td>16 single channel input (8 dual)</td>
</tr>
<tr>
<td>1732ES-IB8XOB8</td>
<td>8 single channel input (4 dual)+ 8 single channel sourcing output (4 dual)</td>
</tr>
<tr>
<td>1732ES-IB8XOBV4</td>
<td>8 single channel input (4 dual)+ 4 dual channel bipolar output</td>
</tr>
</tbody>
</table>

- New catalog numbers added for more options to optimize the count of I/O points in a single unit
- Dual IP65 and IP67 ratings
- UL, CE, C-Tick, KCC, c-UL-us, China RoHS marking and TÜV
- TÜV certified up to category 4, SIL 3, PLe
  - Single channel Performance Level d and dual channel Performance Level e
- Configure with Studio 5000 environment, V18 minimum
Thank You!