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CompactLogix™ 5370 L3 Programmable Automation Controllers

AB QUALITY *Allen-Bradley* · *Rockwell Software*

Rockwell Automation

Agenda

1. Hardware Overview

2. Features and Benefits

3. Applications

4. Anatomy

5. Positioning

6. Documentation

CompactLogix 5370 L3 Programmable Automation Controllers (PACs)

Expanding on the <u>scalability</u> of the Logix family of controllers, the CompactLogix 5370 L3 PACs offer a wider variety of options from which to choose and provide best-fit alternatives for your specific application requirements.

This offering, together with Kinetix® 350, provides a strong <u>motion solution</u> with <u>performance</u> and <u>cost competitiveness</u> for customers who require high performance in a compact and affordable package and significantly lowers the cost to deploy integrated motion in a variety of machine applications, all on one common network – EtherNet/IP.
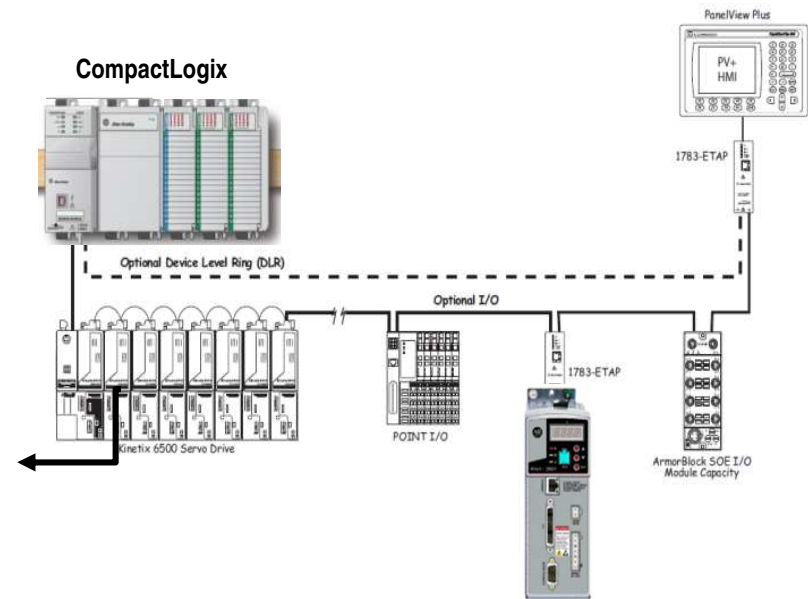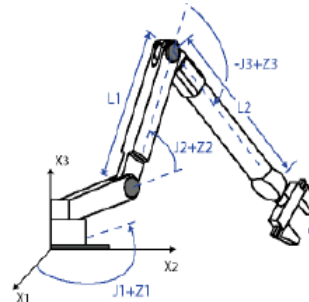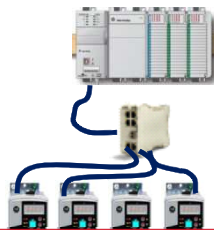
Hardware Overview

New faster CPU

- >2x performance improvement for standard applications over current L3x series controller

- >2.5x performance improvement for motion applications over current L3x series controller

NEW!

Integrated Motion support – CIP Motion

- Up to 16 axis supported on unmodified Ethernet network

- 2-3axis/ms with 2-2.5x faster application program execution

- Kinematics support (Same as ControlLogix®)

- Kinetix 350 Single Axis Servo Drive

  - Safe Torque Off

 - 240V single phase, 240/460V three phase

  - 400w – 3Kw

High performance, scalable motion solution at a lower acquisition cost for value-driven applications

Hardware Overview (cont.)

Dual Ethernet Port

NEW!

- 10/100 Mbps
- Ethernet switch that supports Device Level Ring (DLR)
  - Allows user to connect the Ethernet network in a ring topology
  - Resiliency from loss of one network connection allows to replace devices/drives one at a time without stopping production – similar to star topology
  - Ring supervisor capability (same as ETAP or 1756-EN2TR)
  - Reduces the number of Ethernet switches in the system which reduces cost
- CIP Motion capability (ERM models only)
  - Supports all motion instructions including kinematics
- Open socket capabilities
  - Up to 32 sockets available
  - Supported in the embedded Ethernet ports
  - Supports packets size of up to 500bytes
  - Send using existing MSG command

Ring

Linear

Star
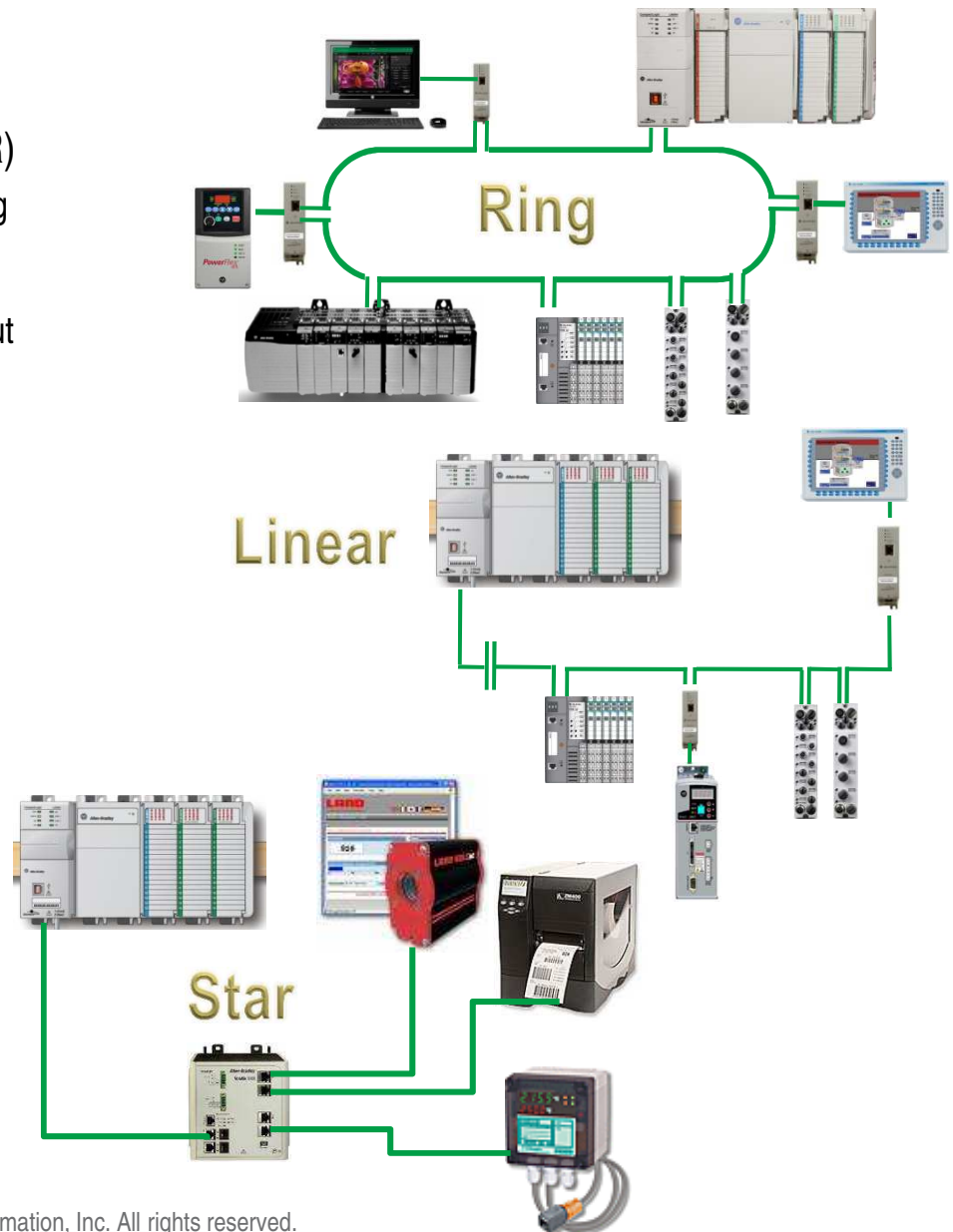
Hardware Overview (cont.)

9-Pin D-shell serial port replaced with USB Type B port *NEW!*

- USB 2.0 communicating at full-speed (12mb/s)
- Device port (temporary connection only)
- Improved performance for flashing firmware, uploads and downloads, on-line edits, and bridging to the backplane
- Device only, Not a host
  - No ASCII communications via USB
    - For ASCII applications use 1769-ASCII or 1769-SM2 or 1734 ASCII module
  - No connection to visualization or other USB devices
- Connect to PC using a standard USB Type B cable
- Used for
  - Flashing firmware
  - Upload/Downloads
  - Bridging to the backplane
  - Online edits and mode changes

Enhanced SDRAM memory

- Provides faster and more robust reads and writes

Performance improvement for firmware flashing

- existing 1769-L32E/35E to v20 via Serial port >= 15 mins
- CompactLogix 5370 L3 PACs via USB port ~ 1 min

Hardware Overview (cont.)

Removable Secure Digital (SD) memory card

- Industrially rated and certified Secure Digital card
  - 1784-SD1 (1GB)
  - 1784-SD2 (2GB)
- Faster reads and writes compared to Compact Flash
- Rated for use in SIL 2 applications
- New capabilities in the CompactLogix 5370 L3 controllers
  - Application/Project storage
  - Firmware Supervisor
  - Runtime tag data read/write
- 1GB SD card ships with every CompactLogix 5370 L3 PAC
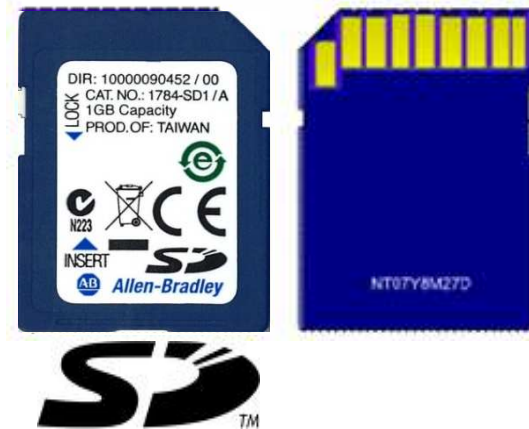
Battery-less Energy Storage Solution

- Eliminates maintenance, transportation and environmental issues associated with lithium batteries
- Embedded in every new CompactLogix 5370 L3 controller

Product Features

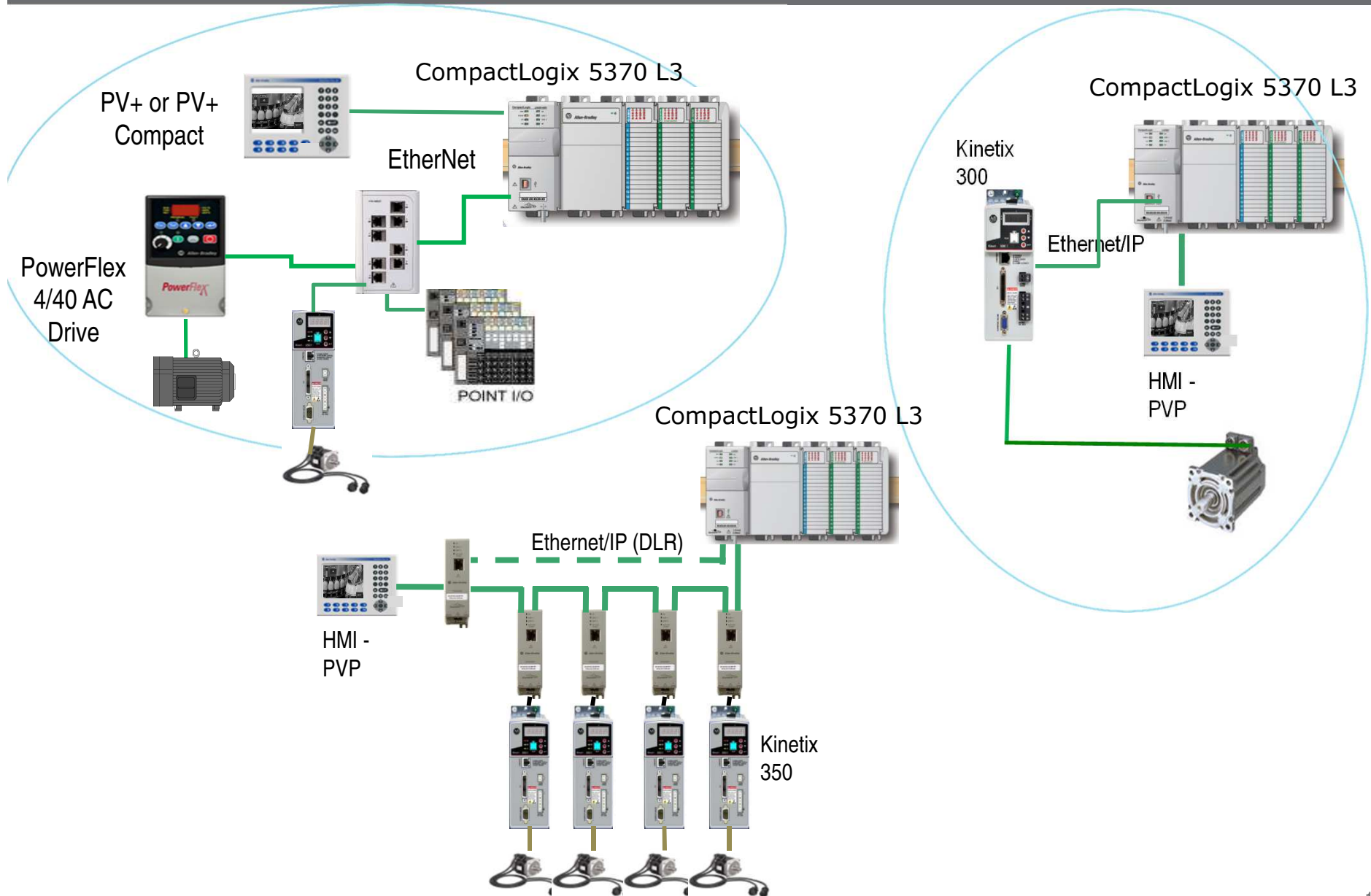|	1769-L30ER	1769-L30ERM	1769-L30ER-NSE	1769-L33ER	1769-L33ERM	1769-L36ERM
User memory	1 MB	1 MB	1 MB	2 MB	2 MB	3 MB
Controller tasks	32	32	32	32	32	32
Programs per task	100	100	100	100	100	100
Integrated Motion	--	4 axis CIP motion	--	--	8 axis CIP motion	16 axis CIP motion
Package Size	67.5mm wide x 118mm high x 105mm deep					
Certifications	cULH (Class I Division 2), KCC UL (UL 508), ULH (Class I & II, Division 2 and Class III, Divisions 1 & 2) ATEX, CE, C-Tick Marine and GOST certifications anticipated in 2012					
Local Expansion Modules	8	8	8	16	16	30
Local Expansion I/O points (max)	256	256	256	512	512	960
Built-in Communication Ports	USB and EtherNet/IP (2 ports supporting DLR)					
Communication Module Additions	DeviceNet with 1769-SDN or 3rd party					
Flash Memory Card	Industrially rated and certified Secure Digital (SD) memory card (1 and 2 GB options); all controllers shipped with 1 GB card					

Product Features (cont.)

	1769-L30ER	1769-L30ERM	1769-L30ER-NSE	1769-L33ER	1769-L33ERM	1769-L36ERM
Controller/TCP connections	256 / 120	256 / 120	256 / 120	256 / 120	256 / 120	256 / 120
Ethernet I/O IP nodes	16	16	16	32	32	48
Total number of axes (CIP)	100	100	100	100	100	100
Servo Drives (position loop CIP)	--	4	--	--	8	16
Virtual axes	100	100	100	100	100	100
Feedback only, torque, velocity (max CIP motion drives)	--	16	--	--	32	48
Axes/ms	--	2	--	--	2	2
Kinematics support	--	yes	--	--	yes	yes
Software / Firmware	RSLogix 5000 V20 and RSLinx Classic V2.59 Firmware v20.1x or later					

Example Applications

- Indexing Tables
- Automatic assembly machines
- Simple case packers and erectors
- Hoisting & Cranes
- Winders, Rewinders, Slitters
- Process Skids
- Packaging
  - Vertical form fill and seal equipment
  - Horizontal form fill and seal equipment

Typical Configuration for Simple, Small to Mid-size Applications

CompactLogix 5370 L3

PV+ or PV+ Compact

EtherNet

PowerFlex 4/40 AC Drive

POINT I/O

CompactLogix 5370 L3

Kinetix 300

Ethernet/IP

HMI - PVP

CompactLogix 5370 L3

Ethernet/IP (DLR)

HMI - PVP

Kinetix 350

Anatomy

LED Indicators

SD Card Door

Mode Switch

SD card

Reset Switch

IP & MAC address label

USB Port

Dual Ethernet Port w/ DLR EtherNet/IP - CIP Motion
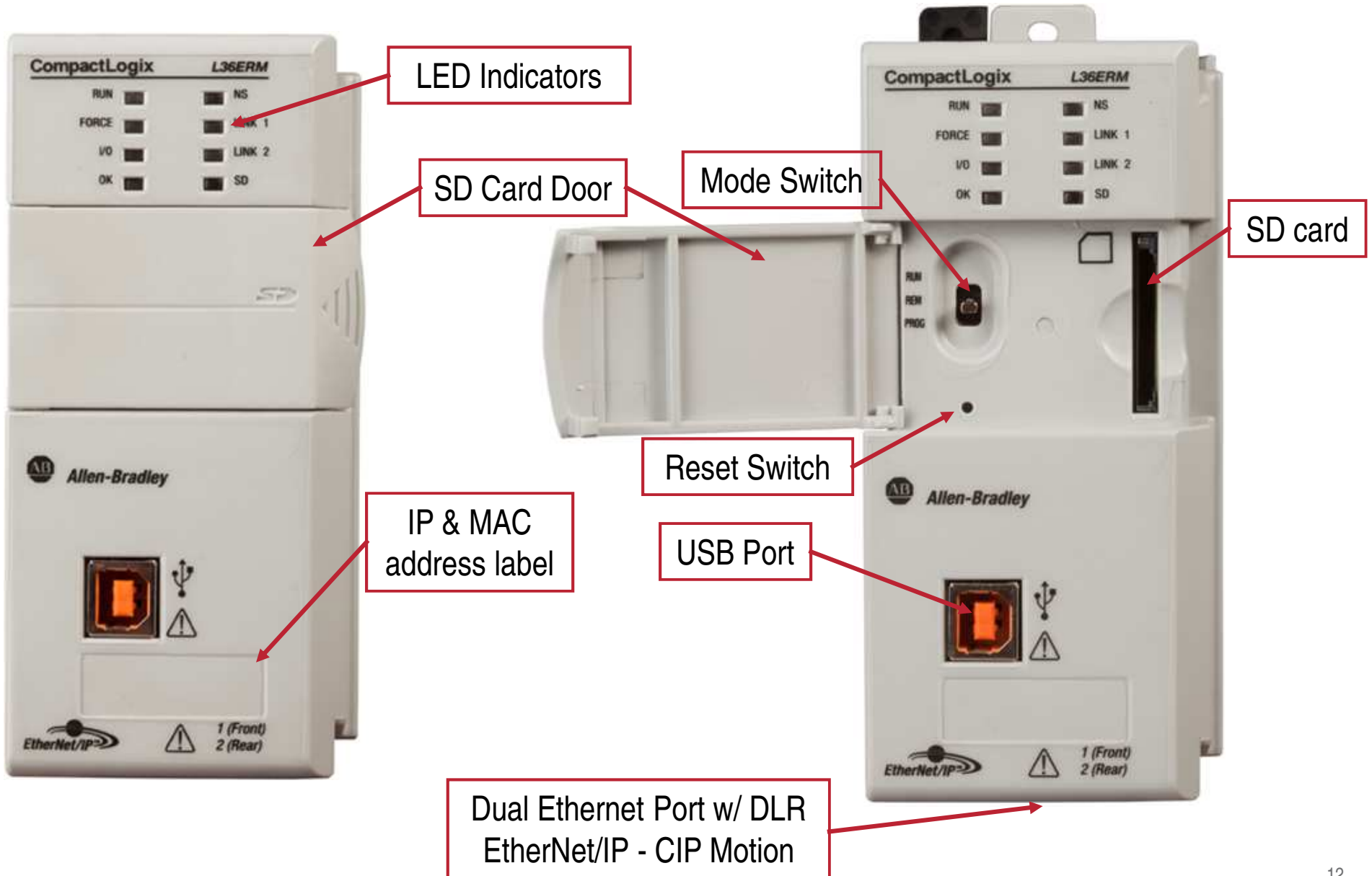
Understanding Catalog Nomenclature

1769 - L xx E R x - xxx

Bulletin Number

1769 = CompactLogix family

L = Controller family

Ethernet version

Storage Energy*

Blank = With Supercap for RTC
NSE   = No Supercap for RTC

Controller type

30 = 1MB Memory, 8 I/O Expansion, 16 Ethernet Nodes
33 = 2MB memory, 16 I/O Expansion, 32 Ethernet Nodes
36 = 3MB memory, 30 I/O Expansion, 64 Ethernet Nodes

Dual Ethernet with DLR capability

Motion

Blank = Motion Not Supported
M   = Motion Supported (4, 8, 16 axis depending on controller type)
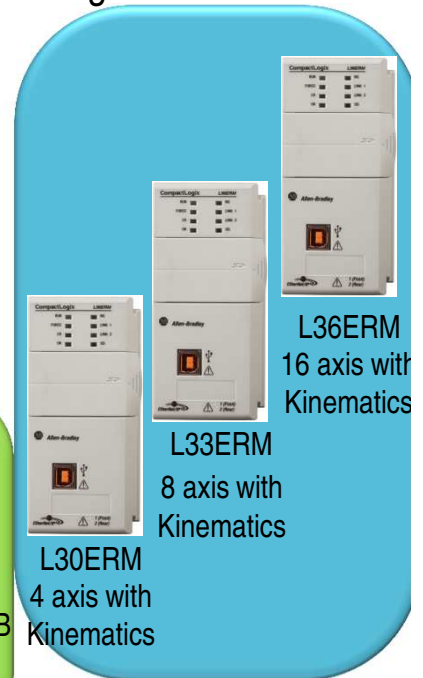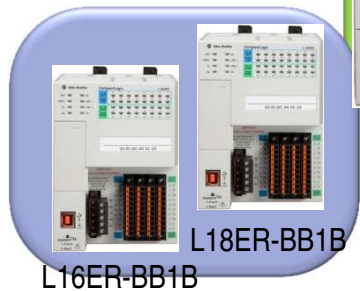
Note: * Applicable for L30ER only

Positioning

Controllers without Integrated Motion | Controllers with Integrated Motion

General Purpose Machine Controller

Small Machine Controller

Small Stand-Alone & Ancillary Equipment Controller

L16ER-BB1B

L18ER-BB1B

L24ER-QB1B

L24ER-QBFC1B

L30ER/L30ER-NSE

L33ER

L18ERM-BB1B
2 axis with Kinematics

L27ERM-QBFC1B
4 axis with Kinematics

L30ERM
4 axis with Kinematics

L33ERM
8 axis with Kinematics

L36ERM
16 axis with Kinematics

Note: NSE – No Storage Energy (No RTC SuperCap)

Documentation*

Publication Title	Publication Number
CompactLogix 5370 L3 Programmable Automation Controllers Product Profile	1769-PP010
What's New: RSLogix 5000 V20 Design and Configuration Software Product Profile	9324-PP006
CompactLogix Controllers, Revision 20 Firmware Release Notes	1769-RN020
CompactLogix Controllers (1769-L3x) Packing Contents	1769-PC006
CompactLogix System User Manual	1769-UM021
CompactLogix Selection Guide	1769-SG001
CompactLogix Technical Data	1769-TD005
CompactLogix Controllers Quick Start	IASIMP-QS023
CIP Motion Configuration and Startup User Manual	MOTION-UM003
Logix5000 Motion Controllers Instructions Reference Manual	MOTION-RM002
Logix 5000 Controllers Execution Time and Memory Use Reference Manual	1756-RM087
Connect POINT I/O Modules over a DeviceNet Network Quick Start	IASIMP-QS026
Connect POINT I/O Modules over an EtherNet/IP Network Quick Start	IASIMP-QS027
Connect a PowerFlex 40 Drive over a DeviceNet Network Quick Start	IASIMP-QS028
Connect a PowerFlex 40 Drive over an EtherNet/IP Network Quick Start	IASIMP-QS029
Connect a PowerFlex 70 Drive over a DeviceNet Network Quick Start	IASIMP-QS030
Connect a PowerFlex 70 Drive over an EtherNet/IP Network Quick Start	IASIMP-QS031
Connect a Kinetix 350 Multi-axis Servo Drive System over an EtherNet/IP Network Quick Start	IASIMP-QS032
Connect a PanelView Plus Terminal over an EtherNet/IP Network Quick Start	IASIMP-QS033

*Available at product release.

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