

B

B

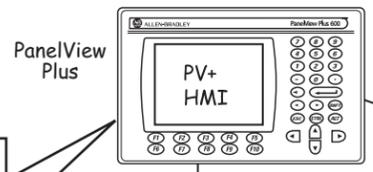
A

A

Plant MRP System, Database, Order Tracking Systems

Configuration
 EtherNet/IP, DeviceNet and RA Controllers enable business systems to plant floor communications, providing the ability to share thousands of pieces of information with no programming required

HMI Capacity
 200 screens
 250 tags per screen



HMI Configuration Option
 • RS-232 or EtherNet/IP connection.
 • As an option to using a PV+ you can use a VersaView industrial computer with windows XP, RSLogix 5000, Drive Executive Lite and RS View Studio for ME to have an HMI and programming terminal in one.

HMI Performance
 With 50 tags/display and 100 alarm tags the typical update time on ENET is 1 sec and RS-232 is 2 sec

PowerFlex 4-Class VFD Capacity
 • 0.5 - 15 HP
 • 0.2-11.2 KW
 • 120V - 600V
 • 24vDC digital I/O
 • Analog I/O
 • EtherNet/IP adapter

PowerFlex 7-Class VFD Capacity
 • 0.5 - 9000 HP
 • 0.37-6770 KW
 • 200V - 690V
 • 24V DC & 120V AC digital I/O
 • Analog I/O
 • Internal EtherNet/IP adapter

PowerFlex 4-Class VFD Configuration
 • Built-in operator display for configuration and monitoring
 • Remote (Nema 1 & 4) HIM options
 • DriveExplorer and DriveExecutive software tool options

PowerFlex 7-Class VFD Configuration
 • Requires a HIM or drive software tool to configure
 • Local (on drive cover) and remote (Nema 1 & 4) HIM options
 • Drive Explorer and DriveExecutive software tool options

PowerFlex 4-Class VFD Performance
 • V/Hz or SVC
 • Slip compensation
 • 40:1 speed range
 • EtherNet/IP allows complete access to data in drive
 • "Multi-Drive" feature allows up to 5 drives per node
 • Serial peripheral interface (19.2K bps)

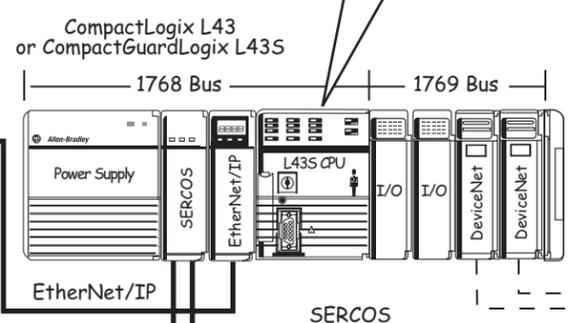
PowerFlex 7-Class VFD Performance
 • V/Hz, SVC, Full vector with force technology
 • Slip compensation
 • Torque control
 • Adjustable voltage mode
 • 40:1 to 1000:1 speed range
 • EtherNet/IP allows complete access to all the data in drive

CompactLogix L43, L43S Control Capacity
 • 1-4 axis co-ordinated motion
 • Up to 2 auxiliary feedback
 • Up to 6 virtual axis
 • 2Mbyte user memory
 • Supports 2 additional 1768 modules
 • Built-in RS-232 port that supports ASCII, DH-485, DF1, and Modems
L43S
 • .5Mbyte safety memory
 • Up to SIL 3 PLe programmable safety
 • Broad suite of Safety certified application instructions.

CompactLogix L43, L43S Control Configuration
 • Any mix of 1768 SERCOS or EtherNet/IP modules
 • Any mix of 1769 discrete, analog or specialty I/O modules
 • Up to 32 points per digital modules and 8 points per analog module
 • 1769 I/O modules can be individually configured down to a 1 msec scan rate
 • Up to 8 1769 I/O modules on the local rack and 16 modules total
 • Up to 3 1769 I/O banks maximum

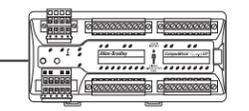
Machine Safety
 • SIL 3 PLe Integrated safety with Compact GuardLogix L43S, L45S PACs
 • PointGuard safety I/O on EtherNet
 • CompactBlock Guard I/O on EtherNet

CompactLogix L43, L43S Performance Within the Local Chassis
 • 2 msec is the minimum I/O update rate for all I/O in the local chassis
 • Add 2 msec for each DeviceNet scanner or High Speed Counter module
 • For standard I/O the screw to screw update (throughout) for local inputs and outputs through a 1K program is 10-12 msec
 • Faster throughput can be accomplished by using the faster I/O specialty modules
 • Optimal system performance can be achieved by individually setting the scan rate of each 1769 I/O module to maximize the efficiency of the controller



POINT I/O & POINTGuard I/O

POINT I/O Capacity
 • The maximum is 63 POINT I/O modules per adapter
 • The adapter supplies 1 amp current for POINT modules
 • To connect additional modules, use 1734-EP24V DC Expansion Power supplies
 • Refer to individual module spec's to determine power requirements
 • PointGuard modules can be used anywhere for SIL2 or SIL3 safety inputs and outputs

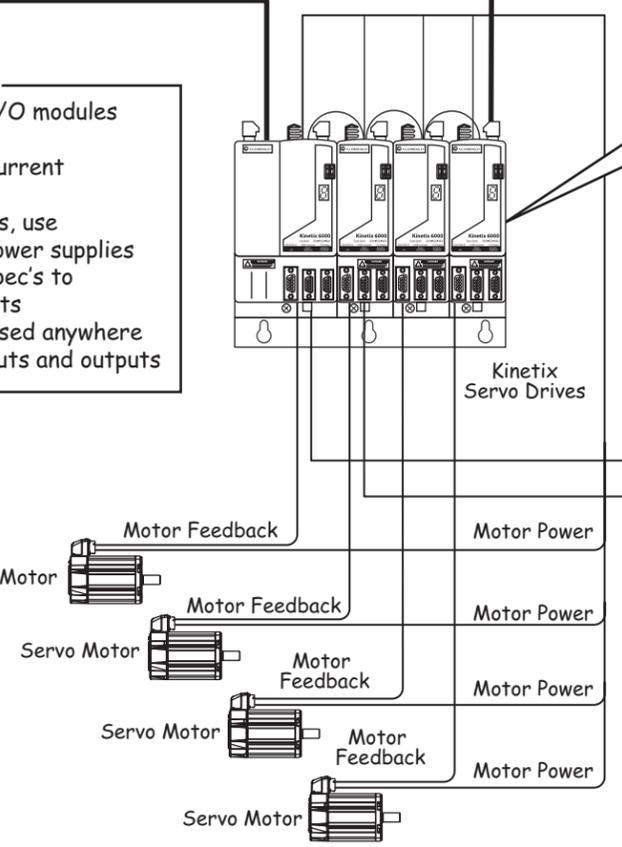


Distributed EtherNet Safety
 • 1791ES SIL 3 PLe modules are available in 16pt input and also 8 input/4 bipolar outputs versions

SERVO Capacity
 • 95-500V AC input voltage
 • 0.1-112 KW
 • 0.086-482 Nm torque (0.76-4266 lb-in)
 • Up to 7250 rpm
 • Up to 2,000,000 feedback resolution

SERVO Configuration
 • Compatible with Kinetix 2000, 6000 & 7000 and Ultra 3000 drive systems
 • Auxiliary feedback can be used for position control or master position input for camming and gearing
 • Utilizes high speed SERCOS interface
 • Built-in drive and motor configuration
 • Incremental and absolute feedback compatible motors
 • Motor environmental ratings from IP43-IP67K

SERVO Performance
 • Up to 4 axis @ 1 m sec update
 • High speed registration input on Kinetix drive can trigger a motion task in RSLogix 5000 for faster event task performance



Bill of Material

Qty	Catalog #	Description
System: Controller Hardware		
1	1768-L43	COMPACTLOGIX L43 PROCESSOR, 2 MEG MEMORY
		OR
1	1768-L43S	COMPACTGUARDLOGIX INTEGRATED CONTROLLER WITH 2M STD AND .5M SAFETY MEMORY
<i>Note: CompactLogix L43 and L43S have (1) serial port. Using this port for HMI does limit the ability to connect a programming terminal to the L43 and L43S. Consider moving the PV+ to Ethernet using the 1768-ENBT</i>		
1	1768-M04SE	COMPACTLOGIX SERCOS MODULE
1	1768-PA3	120/240 VAC INPT. PWR SUPPLY
<i>Note: 1768-PA3 can power (2) 1768 modules (1) 1768-L43 Processor (8) 1769 Modules</i>		
1	1768-ENBT	COMPACTLOGIX ETHERNET/IP COMM MODULE
1	1769-OF2	2 CHANNEL ANALOG CURRENT/VOLTAGE OUTPUT MODULE
1	1769-IQ16F	16 POINT 24 VDC HIGH SPEED INPUT MODULE
1	1769-ECR	RIGHT END CAP/TERMINATOR
HMI Hardware		
1	2711P-B6C1A	PANELVIEW PLUS 600 COLOR KEY/TOUCH TERMINAL , ETHERNET
<i>Note: Panelview 400 and 600 terminals provide a low cost integrated Ethernet solution to provide high performance capability at a affordable price.</i>		
1	2711-NC13	5 METER RS232 OPERATING/ PROGRAMMING CABLE
Distributed I/O Hardware - POINT I/O		
1	1734-AENT	1734 ETHERNET/IP ADAPTER
1	1734-FPD	FIELD POTENTIAL DISTRIBUTOR
1	1734-IA2	120V AC 2 CHANNEL INPUT MODULE
1	1734-OA2	120/230V AC 2 CHANNEL OUTPUT MODULE
2	1734-IB8S	8 24V DC SAFETY INPUTS
1	1734-OB8S	8 24V DC SAFETY OUTPUTS
2	1734-TB	MODULE BASE W/ REMOVABLE IEC SCREW TERMINALS
1	1794-PS13	85-264V AC TO 24V DC 1.3A POWER SUPPLY
Drive Hardware		
1	20AA2P2A0AYYADNN	POWERFLEX 70 DRIVE - DEVICENET
<i>Note: PowerFlex drives come in many variations - before ordering, you will need to identify voltage rating, horsepower, and enclosure type. In addition, you may wish to add on optional equipment, such as HIM module or Brake Resister. Please refer to the PowerFlex Selection Guide for additional details on selecting the right drive for you application.</i>		

1	22A-A1P5N114	POWERFLEX 4 DRIVE
1	22-COM-D	POWERFLEX4 DEVICENET INTERFACE
1	22-XCOMM-DC-	EXTENAL DSI COMM KIT BASE
Motion Hardware		
1	2094-BC02-M02	MODULE, INTEGRATED, 400/460V, 15KW CONV. 15A INV.
3	2094-BMP5	MODULE, AXIS, 400/460V, 4A INV.
1	2094-PRS4	SLIM POWER RAIL, 230V OR 460V, 4 AXES
1	2090-XXLF-X330B	AC LINE FILTER, ROXBURGH MIF330
4	MPL-B310P-SJ22AA	MOTOR, SERVO, 1.58 NM, 5000RPM, SINGL, 460V, 3.0KG
4	2090-XXNPMP-16S03	CABLE, NON-FLEX, MOTOR POWER,MP/1326AB,16 GAUGE,3M
4	2090-XXNFMP-S03	CABLE, NON-FLEX, MOTOR FEEDBACK, MP/1326AB, 3M
<i>Note: Catalog numbers consist of characters, each of which identifies a specific version or option for that component. Reference Publication GMC-SG002I-EN-E Kinetix Motion Control Selection Guide for additional information</i>		
Other Hardware		
1	1756-CP3	RS-232 CONFIGURATION CABLE
1	ENET SWITCH 8-PORT	ETHERNET SWITCH 8-PORT
1	1791ES-IBXOBV4	COMPACTBLOCK GUARD I/O
<i>Note: It is recommended to use industrial switches with network management capability.</i>		
Optional Hardware		
1	6180W-15BPXPH	VERSAVIEW 15-INCH WORKSTATION, KEYPAD & TOUCH PERFORMANCE FEATURES, WINDOWS XP HMI SOFTWARE
1	1784-CF64	64MEG COMPACTFLASH CARD
1	1769-SDN	DEVICENET SCANNER FOR 1769 BUS
1	1769-HSC	2/4 CHANNEL HIGH SPEED COUNTER/ENCODER MODULE
Recommended Software		
1	RLD250xxE*	RSLOGIX 5000 LITE, CONTAINS ALL LANGUAGES / RSLINX LITE
<i>Note: CompactLogix Controllers can be programmed using RSLogix 5000 Lite, Standard, Full, or Pro.</i>		
1	9701-VWSTMENE	RSVIEW STUDIO FOR MACHINE EDITION
<i>Note: You will need to purchase the RSView runtime in addition to the studio if you upgrade from PanelView Plus to the VersaView PC.</i>		
1	9306-4EXP02ENE	DRIVE EXPLORER
1	9355-WABENE	RSLINX PROFESSIONAL - DATA MONITOR AND DDE/OPC SUPPORT

About this Configuration

This Integrated Architecture system demonstrates the scalability of the integrated CompactLogix & Kinetix Motion Control System. This system utilizes a standard EtherNet/IP network for high speed I/O control, drive control and controller to controller interlocking as well as easy integration with the business system, the Internet and co-exist with any commercially available Ethernet technologies. Although drawn in a typical 4 axis configuration, this is an ideal solution for machines that require 1 to 4 axes of coordinated motion control, the ability to control additional, non-coordinated axes, and need to link the machines on the plant floor with the business enterprise system over 1 single network.

About the Products

Logix Controllers

- A common set of controls, networks and programming software available in multiple hardware platforms
- Multiple control disciplines in a single controller - sequential / motion / drives / process / safety
- Multiple Program Languages available in all controllers - Ladder Diagram, Function Block, Structured Text, and Sequential Function Chart
- Embedded RS-232 port provides remote access as well as ASCII, DH-485, DF-1, Modbus Master/Slave and bridging to other networks enabling remote device configuration
- Tag-based architecture instead of addresses, provides automatic documentation native in the controller
- Easily handle your safety and control needs by using Compact GuardLogix for complete safety compliance

Kinetix Servos

- Safe torque off and advanced safety options for SIL 3 PL e requirements
- Scalable solution for applications from 100W to 112KW
- Integrated platform to simplify machine design and commissioning
- Smart Motor Technology to provide automatic identification of correct motor-to-drive connectivity
- High precision performance with over 2,000,000 count position feedback
- Low inertia, food grade, stainless steel, integrated gearmotors and linear actuators to handle a variety of applications and environmental challenges
- Simplify installation using the 2094 Line Interface Module (LIM) as the incoming power source for an entire control panel

PanelView Plus HMI

- Reuse tags from Logix controllers by choosing them from a list
- 4"-15" screen sizes available
- Touchscreen, keypad or combination
- Integrated EtherNet/IP and RS-232 communications (most modules), add-on communication for many other networks
- Advanced Operator Interface features such as trending, expressions, data logging, animation, diagnostics and alarming

PowerFlex Drives

- Safe torque off and advanced safety options for SIL 3 PL e requirements
- Serves applications ranging from 0.2 kW (0.25 hp) to 6,770 kW (9,000 hp)
- Common set of networks, operator interface and programming for all PowerFlex drives
- Communication Options - EtherNet/IP, ControlNet, DeviceNet, DH Plus, RIO, 3rd party networks
- Hundreds of pieces of status and diagnostic information are shared with Logix controllers directly

POINT I/O

- Available in IP-20 or IP-67 styles
- SIL 3 PL e safety modules can be used in any location alongside standard modules
- Densities from 2-8 points per module
- Removable screw or spring terminals without rewiring
- Mounts horizontally or vertically with no derating required
- Supports EtherNet/IP, ControlNet, DeviceNet and 3rd party networks

For More Information and Help

For more information contact your local distributor or Rockwell Automation sales representative.

- www.ab.com
- A - Z Product Directory
- Publication Library
- samplecode.rockwellautomation.com
- My Support

HMI Capacity
 200 screens
 250 tags per screen

HMI Configuration Option
 • RS-232 or EtherNet/IP connection.
 • As an option to using a PV+ you can use a VersaView industrial computer with windows XP, RSLogix 5000, Drive Executive Lite and RS View Studio for ME to have an HMI and programming terminal in one.

HMI Performance
 With 50 tags/display and 100 alarm tags the typical update time on ENET is 1 sec and RS-232 is 2 sec

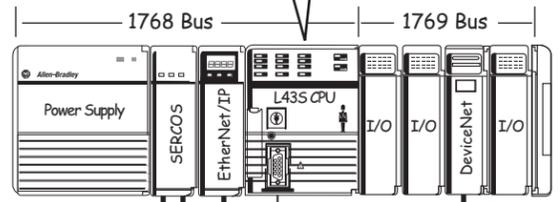
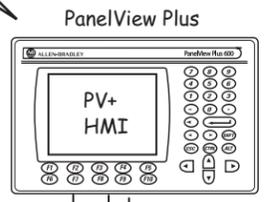
Plant MRP
 System, Database, Order Tracking Systems

Configuration
 EtherNet/IP, DeviceNet and RA Controllers enable business systems to plant floor communications, providing the ability to share thousands of pieces of information with no programming required

CompactLogix L43, L43S Control Capacity
 • 1-4 axis co-ordinated motion
 • Up to 2 auxiliary feedback
 • Up to 6 virtual axis
 • 2Mbyte user memory
 • Supports 2 additional 1768 modules
 • Built-in RS-232 port that supports ASCII, DH-485, DF1, and Modems
L43S
 • .5Mbyte safety memory
 • Up to SIL 3 PLe programmable safety
 • Broad suite of Safety certified application instructions.

CompactLogix L43, L43S Control Configuration
 • Any mix of 1768 SERCOS or EtherNet/IP modules
 • Any mix of 1769 discrete, analog or specialty I/O modules
 • Up to 32 points per digital modules and 8 points per analog module
 • 1769 I/O modules can be individually configured down to a 1 msec scan rate
 • Up to 8 1769 I/O modules on the local rack and 16 modules total
 • Up to 3 1769 I/O banks maximum

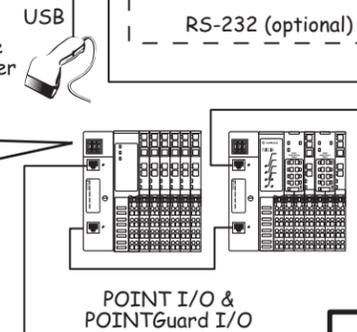
CompactLogix L43, L43S Performance Within the Local Chassis
 • 2 msec is the minimum I/O update rate for all I/O in the local chassis
 • Add 2 msec for each DeviceNet scanner or High Speed Counter module
 • For standard I/O the screw to screw update (throughout) for local inputs and outputs through a 1K program is 10-12 msec
 • Faster throughput can be accomplished by using the faster I/O specialty modules
 • Optimal system performance can be achieved by individually setting the scan rate of each 1769 I/O module to maximize the efficiency of the controller



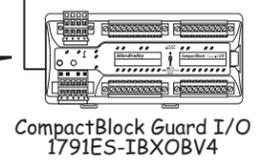
DeviceNet Capacity
 • Up to 63 nodes
 • Trunkline can be up to 500m without repeaters
 • Each device can be up to 6m (20 ft) from the trunk

DeviceNet Configuration
 • DeviceNet requires a power supply to provide power to devices on the network.
 • Several media options are available
 • Can extend distance with repeaters
 • Seamless routing from EtherNet/IP to DeviceNet for configuration

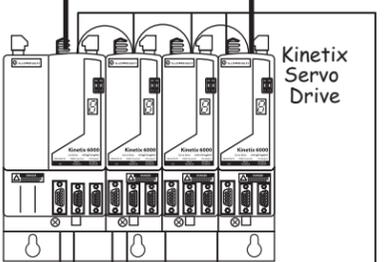
POINT I/O Capacity
 • The maximum is 63 POINT I/O modules per adapter
 • The adapter supplies 1 amp current for POINT modules
 • To connect additional modules, use 1734-EP24V DC Expansion Power supplies
 • Refer to individual module spec's to determine power requirements
 • PointGuard modules can be used anywhere for SIL2 or SIL3 safety inputs and outputs



Distributed EtherNet Safety
 • 1791ES SIL 3 PL e modules are available in 16pt input and also 8 input/4 bi polar outputs versions



SERVO Capacity
 • 95-500 VAC input voltage
 • 0.1-112KW
 • 0.086-482 Nm torque (0.76-4266 lb-in)
 • Up to 7250 rpm
 • Up to 2,000,000 feedback resolution

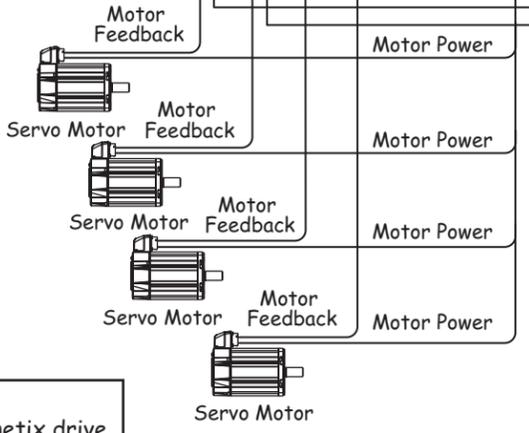


PowerFlex 4-Class VFD Capacity
 • 0.5 - 15 HP
 • 0.2 - 11.2KW
 • 120V - 600V
 • 24vDC digital I/O
 • Analog I/O
 • DeviceNet adapter

PowerFlex 7-Class VFD Capacity
 • 0.5 - 9000 HP
 • 0.37 - 6770KW
 • 200V - 690V
 • 24vDC & 120vAC digital I/O
 • Analog I/O
 • Internal DeviceNet adapter

PowerFlex 7-Class VFD Configuration
 • Requires a HIM or drive software tool to configure
 • Local (on drive cover) and remote (Nema 1 & 4) HIM options
 • Drive Explorer and DriveExecutive software tool options

SERVO Configuration
 • Compatible with Kinetix 2000, 6000 & 7000 and Ultra 3000 drive systems
 • Auxiliary feedback can be used for position control or master position input for camming and gearing
 • Utilizes high speed SERCOS interface
 • Built-in drive and motor configuration
 • Incremental and absolute feedback compatible motors
 • Motor environmental ratings from IP43-IP67K



SERVO Performance
 • Up to 4 axis @ 1 m sec update
 • High speed registration input on Kinetix drive can trigger a motion task in RSLogix 5000 for faster event task performance

PowerFlex 4-Class VFD Configuration
 • Built-in operator display for configuration and monitoring
 • Remote (Nema 1 & 4) HIM options
 • DriveExplorer and DriveExecutive software tool options

PowerFlex 4-Class VFD Performance
 • V/Hz or SVC
 • Slip compensation
 • 40:1 speed range
 • DeviceNet allows complete access to data in drive
 • "Multi-Drive" feature allows up to 5 drives per node
 • Serial peripheral interface (19.2K bps)

PowerFlex 7-Class VFD Performance
 • V/Hz, SVC, Full vector with Force technology
 • Slip compensation
 • Torque control
 • Adjustable voltage mode
 • 40:1 to 1000:1 speed range
 • DeviceNet allows complete access to all the data in drive

Note: Performance is what we tested, not the max capacity



CompactLogix L43 Integrated Motion Distributed I/O over DeviceNet

Bill of Material

Qty	Catalog #	Description
System: Controller Hardware		
1	1768-L43	COMPACTLOGIX L43 PROCESSOR, 2 MEG MEMORY
1	1768-L43S	OR COMPACTGUARDLOGIX INTEGRATED CONTROLLER WITH 2M STD AND .5M SAFETY MEMORY

Note: CompactLogix L43 and L43S have (1) serial port. Using this port for HMI does limit the ability to connect a programming terminal to the L43 and L43S. Consider moving the PV+ to Ethernet using the 1768-ENBT

1	1768-M04SE	COMPACTLOGIX SERCOS MODULE
1	1768-PA3	120/240 VAC INPT. PWR SUPPLY

Note: 1768-PA3 can power (2) 1768 modules

1) 1768-L43 Processor (8) 1769 Modules

1	1768-ENBT	COMPACTLOGIX ETHERNET/IP COMM MODULE
1	1769-OF2	2 CHANNEL ANALOG CURRENT/VOLTAGE OUTPUT MODULE
2	1769-IQ16F	16 POINT 24 VDC HIGH SPEED INPUT MODULE
1	1769-SDN	DEVICENET SCANNER FOR 1769 BUS
1	1769-ECR	RIGHT END CAP/TERMINATOR

HMI Hardware

1	2711P-B6C1A	PANELVIEW PLUS 600 COLORKEY/TOUCH TERMINAL, ETHERNET
---	-------------	--

Note: Panelview 400 and 600 terminals provide a low cost integrated Ethernet solution to provide high performance capability at a affordable price.

1	2711-NC13	5 METER RS232 OPERATING/ PROGRAMMING CABLE
---	-----------	---

Distributed Network Hardware

2	1485A-T1E4	NEMA 6P, 13 TERMINATOR WITH IDC BASE
2	1485P-P1E4-R5	NEMA 6P, 13 MICRO MODULE WITH IDC BASE
3	1485K-P1F5-C	RIGHT ANGLE MICRO 1M TO CONDUCTOR
3	1485T-P1E4-B1	NEMA 6P, 13 POWER TAP WITH IDC BASE, 1M LENGTH
1	1485C-P1E75	FLAT CABLE, CLASS I, TPE JACKET, 75M
1	1606-XLDNET8	DEVICENET 24VDC POWER SUPPLY

Note: DeviceNet provides several media options (Flat Cable, Thick/Thin Cable). These options provide the versatility to select the cable that best fits your application. Refer to the Devicenet Selection Guide for additional details.

Distributed Devicenet Devices

1	193-EC1AB	E3 ELECTRONIC OVERLOAD RELAY, 100-C09...C23, 1-5
---	-----------	---

Drive Hardware

1	20AA2P2A0AYYADNN	POWERFLEX 70DRIVE - DEVICENET
---	------------------	----------------------------------

Note: PowerFlex drives come in many variations - before ordering, you will need to identify voltage rating, horsepower, and enclosure type. In addition, you may wish to add on optional equipment, such as HIM module or Brake Resister. Please refer to the PowerFlex Selection Guide for additional details on selecting the right drive for you application.

1	22A-A1P5N114	POWERFLEX 4 DRIVE
1	22-COM-D	POWERFLEX4 DEVICENET INTERFACE
1	22-XCOMM-DC-	EXTERNAL DSI COMM KIT BASE

Motion Hardware

1	2094-BC02-M02	MODULE INTEGRATED. 400 / 450V, 15KW CONV. 15A INV.
3	2094-BMP5	MODULE, AXIS, 400/460V, 4A INV.
1	2094-PRS4	SLIM POWER RAIL, 230V OR 460V, 4 AXES
1	2090-XXLF-X330B	AC LINE FILTER,ROXBURGH MIF330
4	MPL-B310P-5J22AA	MOTOR,SERVO,1.58 NM,5000RPM,SINGL, 460V,3.0KG
4	2090-XXNPMP-16S03	CABLE,NON-FLEX,MOTOR POWER,MP/1326AB,16 GAUGE,3M
4	2090-XXNFMP-S03	CABLE,NON-FLEX,MOTOR FEEDBACK,MP/1326AB,3M

Note: Catalog numbers consist of characters, each of which identifies a specific version or option for that component. Reference Publication GMC-SG002I-EN-E Kinetix Motion Control Selection Guide for additional information

Other Hardware

1	1756-CP3	RS-232 CONFIGURATION CABLE
2	ENET SWITCH 8-PORT	ETHERNET SWITCH 8-PORT
1	1791ES-IBXOBV4	COMPACTBLOCK GUARD I/O

Note: It is recommended to use industrial switches.

Distributed I/O Hardware - POINT I/O

1	1734-AENT	1734 ETHERNET/IP ADAPTER
1	1734-FPD	FIELD POTENTIAL DISTRIBUTOR
1	1734-IA2	120V AC 2 CHANNEL INPUT MODULE
1	1734-OA2	120/230V AC 2 CHANNEL OUTPUT MODULE
2	1734-IB8S	8 24V DC SAFETY INPUTS
1	1734-OB8S	8 24V DC SAFETY OUTPUTS
2	1734-TB	MODULE BASE W/ REMOVABLE IEC SCREW TERMINALS
1	1794-PS13	85-264V AC TO 24V DC 1.3A POWER SUPPLY

Recommended Software

1	RLD250xxE*	RSLOGIX 5000 LITE, CONTAINS ALL LANGUAGES / RSLINX LITE
---	------------	--

Note: CompactLogix Controllers can be programmed using RSLogix 5000 Lite, Standard, Full, or Pro.

1	9701-VWSTMENE	RSVIEW STUDIO FOR MACHINE EDITION
---	---------------	--------------------------------------

Note: You will need to purchase the RSView runtime in addition to the studio if you upgrade from PanelView Plus to the VersaView PC.

1	9306-4EXP02ENE	DRIVE EXPLORER
1	9355-WABENE	RSLINX PROFESSIONAL - DATA MONITOR AND DDE/OPC SUPPORT

About this Configuration

This Integrated Architecture system demonstrates the scalability of the integrated CompactLogix & Kinetix Motion Control System utilizing a DeviceNet network for high speed I/O control and drive control, while taking advantage of a standard EtherNet/IP network to link the machines on the plant floor with the business enterprise, Internet, and co-exist with commercially available Ethernet technologies. Although drawn in a typical 4 axis configuration, this is an ideal solution for machines that require 1 to 4 axes of coordinated motion control, as well as the ability to control non-coordinated axes over a DeviceNet network.

About the Products

Logix Controllers

- A common set of controls, networks and programming software available in multiple hardware platforms
- Multiple control disciplines in a single controller - sequential / motion / drives / process / safety
- Multiple Program Languages available in all controllers - Ladder Diagram, Function Block, Structured Text, and Sequential Function Chart
- Embedded RS-232 port provides remote access as well as ASCII, DH-485, DF-1, Modbus Master/Slave and bridging to other networks enabling remote device configuration
- Tag-based architecture instead of addresses, provides automatic documentation native in the controller
- Easily handle your safety and control needs by using Compact GuardLogix for complete safety compliance

Kinetix Servos

- Safe torque off and advanced safety options for SIL 3 PL e requirements
- Scalable solution for applications from 100W to 112KW
- Integrated platform to simplify machine design and commissioning
- Smart Motor Technology to provide automatic identification of correct motor-to-drive connectivity
- High precision performance with over 2,000,000 count position feedback
- Low inertia, food grade, stainless steel, integrated gearmotors and linear actuators to handle a variety of applications and environmental challenges
- Simplify installation using the 2094 Line Interface Module (LIM) as the incoming power source for an entire control panel

PanelView Plus HMI

- Reuse tags from Logix controllers by choosing them from a list
- 4"-15" screen sizes available
- Touchscreen, keypad or combination
- Integrated EtherNet/IP and RS-232 communications (most modules), add-on communication for many other networks
- Advanced Operator Interface features such as trending, expressions, data logging, animation, diagnostics and alarming

PowerFlex Drives

- Safe torque off and advanced safety options for SIL 3 PL e requirements
- Serves applications ranging from 0.2 kW (0.25 hp) to 6,770 kW (9,000 hp)
- Common set of networks, operator interface and programming for all PowerFlex drives
- Communication Options - EtherNet/IP, ControlNet, DeviceNet, DH Plus, RIO, 3rd party networks

POINT I/O

- Available in IP-20 or IP-67 styles
- SIL 3 PL e safety modules can be used in any location alongside standard modules
- Densities from 2-8 points per module
- Removable screw or spring terminals without rewiring
- Mounts horizontally or vertically with no derating required
- Supports EtherNet/IP, ControlNet, DeviceNet and 3rd party networks

For More Information and Help

For more information contact your local distributor or Rockwell Automation sales representative.

- www.ab.com
- A - Z Product Directory
- Publication Library
- samplecode.rockwellautomation.com
- My Support

Plant MRP System, Database, Order Tracking Systems

Configuration
 EtherNet/IP, DeviceNet and RA Controllers enable business systems to plant floor communications, providing the ability to share thousands of pieces of information with no programming required

HMI Capacity
 200 screens
 250 tags per screen

HMI Configuration Option
 • RS-232 or EtherNet/IP connection.
 • As an option to using a PV+ you can use a VersaView industrial computer with Windows XP, RSLogix 5000, Drive Executive Lite and RS View Studio for ME to have an HMI and programming terminal in one.

HMI Performance
 With 50 tags/display and 100 alarm tags the typical update time on ENET is 1 sec and RS-232 is 2 sec

Distributed EtherNet Safety
 • 1791ES-IB16 16 SIL2, & 8 SIL 3 PL e inputs
 • 1791ES-IB8XOBV4 8 SIL2, 4 SIL 3 PL e inputs and 4 SIL 3 PL e 2amp bipolar safety outputs

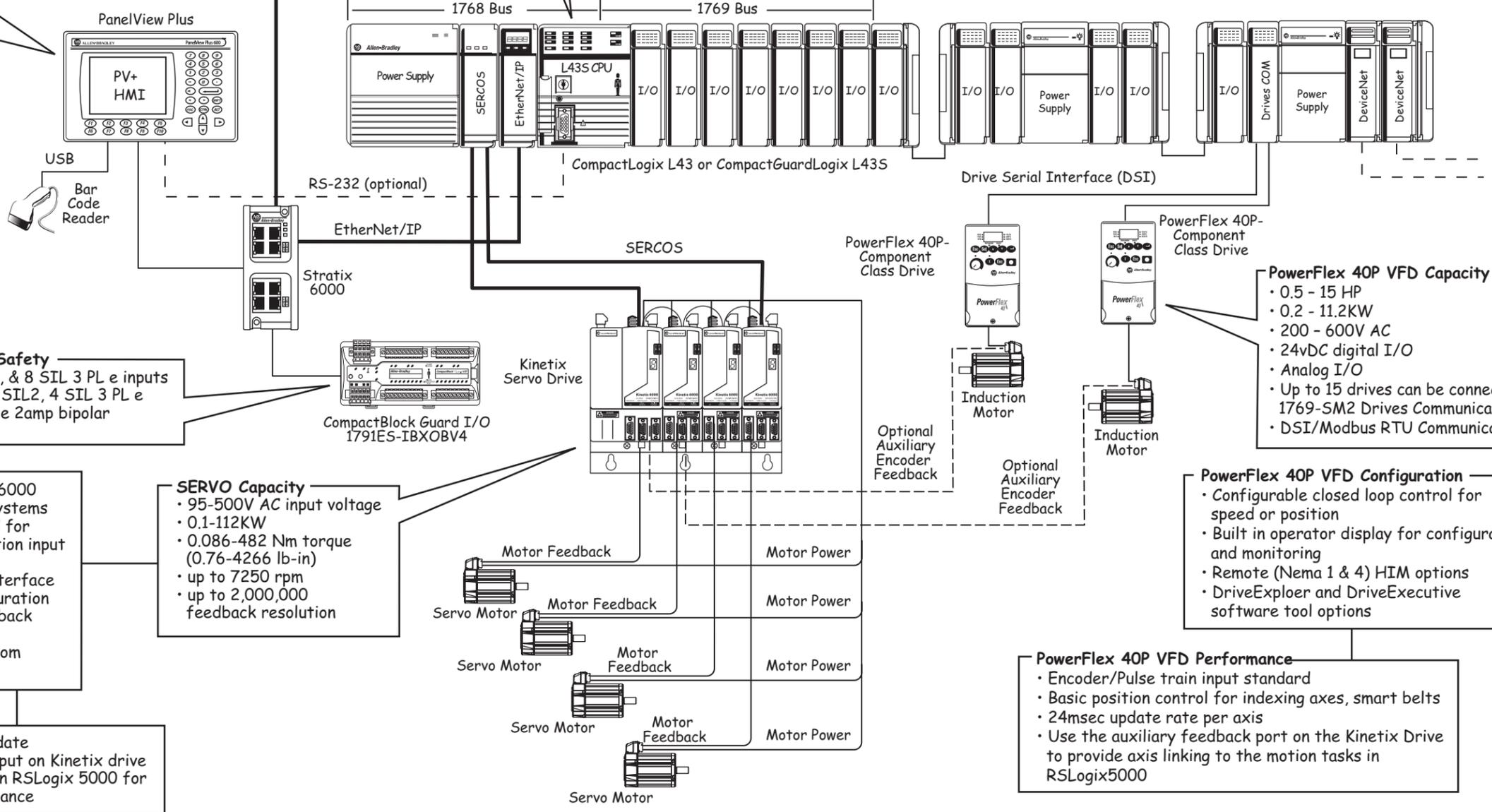
SERVO Configuration
 • Compatible with Kinetix 2000, 6000 & 7000 and Ultra 3000 drive systems
 • Auxiliary feedback can be used for position control or master position input for camming and gearing
 • Utilizes high speed SERCOS interface
 • Built-in drive and motor configuration
 • Incremental and absolute feedback compatible motors
 • Motor environmental ratings from IP43-IP67K

SERVO Performance
 • Up to 4 axis @ 1 m sec update
 • High speed registration input on Kinetix drive can trigger a motion task in RSLogix 5000 for faster event task performance

CompactLogix L43, L43S Control Capacity
 • 1-4 axis co-ordinated motion
 • Up to 2 auxiliary feedback
 • Up to 6 virtual axis
 • 2Mbyte user memory
 • Supports 2 additional 1768 modules
 • Built-in RS-232 port that supports ASCII, DH-485, DF1, and Modems
L43S
 • .5Mbyte safety memory
 • Up to SIL 3 PLe programmable safety
 • Broad suite of Safety certified application instructions.

CompactLogix L43, L43S Control Configuration
 • Any mix of 1768 SERCOS or EtherNet/IP modules
 • Any mix of 1769 discrete, analog or specialty I/O modules
 • Up to 32 points per digital modules and 8 points per analog module
 • 1769 I/O modules can be individually configured down to a 1 msec scan rate
 • Up to 8 1769 I/O modules on the local rack and 16 modules total
 • Up to 3 1769 I/O banks maximum

CompactLogix L43, L43S Performance Within the Local Chassis
 • 2 msec is the minimum I/O update rate for all I/O in the local chassis
 • Add 2 msec for each DeviceNet scanner or High Speed Counter module
 • For standard I/O the screw to screw update (throughout) for local inputs and outputs through a 1K program is 10-12 msec
 • Faster throughput can be accomplished by using the faster I/O specialty modules
 • Optimal system performance can be achieved by individually setting the scan rate of each 1769 I/O module to maximize the efficiency of the controller



Note: Performance is what we tested, not the max capacity



CompactLogix L43 Integrated Motion Stand Alone Machine

Bill of Material

Qty	Catalog #	Description
System: Controller Hardware		
1	1768-L43	COMPACTLOGIX L43 PROCESSOR, 2 MEG MEMORY
		OR
1	1768-L43S	COMPACTGUARDLOGIX INTEGRATED CONTROLLER WITH 2M STD AND .5M SAFETY MEMORY
<i>Note: CompactLogix L43 and L43S have (1) serial port. Using this port for HMI does limit the ability to connect a programming terminal to the L43 and L43S. Consider moving the PV+ to Ethernet using the 1768-ENBT</i>		
1	1768-M04SE	COMPACTLOGIX SERCOS MODULE
1	1768-PA3	120/240 VAC INPT. PWR SUPPLY
<i>Note: 1768-PA3 can power (2) 1768 modules (1) 1768-L43 Processor (8) 1769 Modules</i>		
1	1768-ENBT	COMPACTLOGIX ETHERNET/IP COMM MODULE
1	1769-OF2	2 CHANNEL ANALOG CURRENT/VOLTAGE OUTPUT MODULE
1	1769-IQ16F	16 POINT 24 VDC HIGH SPEED INPUT MODULE
2	1769-SDN	DEVICENET SCANNER FOR 1769 BUS
3	1769-ECR	RIGHT END CAP/TERMINATOR
3	1769-IF4	4 CHANNEL ANALOG CURRENT/ VOLTAGE INPUT MODULE
1	1769-IR6	6 CHANNEL RTD/RESISTANCE INPUT MODULE
2	1769-IQ16	16 POINT 24 VDC SINKING/ SOURCING INPUT MODULE
4	1769-OB16	16 POINT 24VDC SOURCING OUTPUT MODULE
2	1769-OF2	2 CHANNEL ANALOG CURRENT/ VOLTAGE OUTPUT MODULE
2	1769-PA4	120/240V AC INPT. PWR SUPPLY 4A @ 5V DC, 2A @ 24V DC
2	1769-CRL1	1FT (305MM) RIGHT-TO-LEFT BUS EXPANSION CABLE
1	1769-SM2	DSI/MODBUS COMMUNICATIONS MODULE FOR POWERFLEX DRIVES
HMI Hardware		
1	2711P-B6C1A	PANELVIEW PLUS 600 COLORKEY/TOUCH TERMINAL, ETHERNET
<i>Note: Panelview 400 and 600 terminals provide an low cost integrated Ethernet solution to provide high performance capability at an affordable price.</i>		
1	2711-NC13	5 METER RS232 OPERATING/ PROGRAMMING CABLE
Drive Hardware		
2	22D-DOION104	POWER FLEX 40P 5HP 480V AC DRIVE

2	1329L-KB0056	VN FDC AC VARIABLE SPEED AC MOTOR
2	845XXX	OPTICAL ENCODER
2	22 RJ45GBL-C20	DSI COMMUNICATION CABLE
Motion Hardware		
1	2094-BC02-M02	MODULE INTEGRATED. 400/450V, 15KW CONV. 15A INV.
3	2094-BMP5	MODULE, AXIS, 400/460V, 4A INV.
1	2094-PRS4	SLIM POWER RAIL, 230V OR 460V, 4 AXES
1	2090-XXLF-X330B	AC LINE FILTER, ROXBURGH MIF330
4	MPL-B310P-SJ22AA	MOTOR, SERVO, 1.58 NM, 5000RPM, SINGL, 460V,3.0KG
4	2090-XXNPMP-16S03	CABLE, NON-FLEX, MOTOR POWER, MP/1326AB, 16 GAUGE, 3M
4	2090-XXNFMP-S03	CABLE, NON-FLEX, MOTOR FEEDBACK, MP/1326AB, 3M
<i>Note: Catalog numbers consist of characters, each of which identifies a specific version or option for that component. Reference Publication GMC-SG002I-EN-E Kinetix Motion Control Selection Guide for additional information</i>		
Other Hardware		
1	1756-CP3	RS-232 CONFIGURATION CABLE
2	ENET SWITCH	ETHERNET SWITCH
1	1791ES-IBXOBV4	COMPACTBLOCK GUARD I/O
<i>Note: It is recommended to use industrial switches.</i>		
Optional Hardware		
1	6180W-15BPXPH	VERSAVIEW 15-INCH WORKSTATION, KEYPAD & TOUCH PERFORMANCE FEATURES, WINDOWS XP HMI SOFTWARE
1	1784-CF64	64MEG COMPACTFLASH CARD
1	1769-HSC	2/4 CHANNEL HIGH SPEED COUNTER/ENCODER MODULE
Recommended Software		
1	RLD250xxE*	RSLOGIX 5000 LITE, CONTAINS ALL LANGUAGES / RSLINX LITE
<i>Note: CompactLogix Controllers can be programmed using RSLogix 5000 Lite, Standard, Full, or Pro.</i>		
1	9701-VWSTMENE	RSVIEW STUDIO FOR MACHINE EDITION
<i>Note: You will need to purchase the RSView runtime in addition to the studio if you upgrade from PanelView Plus to the VersaView PC.</i>		
1	9306-4EXP02ENE	DRIVE EXPLORER
1	9355-WABENE	RSLINX PROFESSIONAL - DATA MONITOR AND DDE/OPC SUPPORT

About this Configuration

For machine builders that are looking for a scalable 1 to 4 coordinated axis motion control solution the integrated CompactLogix & Kinetix Motion Control System is an ideal choice. Utilizing localized I/O modules to interface the machine to the controller and a standard EtherNet/IP network to connect your HMI. In addition, you have the ability to link the machine at the plant floor level to the business enterprise system, the Internet and co-exist with any commercially available Ethernet technologies.

About the Products

Logix Controllers

- A common set of controls, networks and programming software available in multiple hardware platforms
- Multiple control disciplines in a single controller - sequential / motion / drives / process / safety
- Multiple Program Languages available in all controllers - Ladder Diagram, Function Block, Structured Text, and Sequential Function Chart
- Embedded RS-232 port provides remote access as well as ASCII, DH-485, DF-1, Modbus Master/Slave and bridging to other networks enabling remote device configuration
- Tag-based architecture instead of addresses, provides automatic documentation native in the controller
- Easily handle your safety and control needs by using Compact GuardLogix for complete safety compliance

Kinetix Servos

- Safe torque off and advanced safety options for SIL 3 PL e requirements
- Scalable solution for applications from 100W to 112KW
- Integrated platform to simplify machine design and commissioning
- Smart Motor Technology to provide automatic identification of correct motor-to-drive connectivity
- High precision performance with over 2,000,000 count position feedback
- Low inertia, food grade, stainless steel, integrated gearmotors and linear actuators to handle a variety of applications and environmental challenges
- Simplify installation using the 2094 Line Interface Module (LIM) as the incoming power source for an entire control panel

PanelView Plus HMI

- Reuse tags from Logix controllers by choosing them from a list
- 4"-15" screen sizes available
- Touchscreen, keypad or combination
- Integrated EtherNet/IP and RS-232 communications (most modules), add-on communication for many other networks
- Advanced Operator Interface features such as trending, expressions, data logging, animation, diagnostics and alarming

PowerFlex Drives

- Safe torque off and advanced safety options for SIL 3 PL e requirements
- Serves applications ranging from 0.2 kW (0.25 hp) to 6,770 kW (9,000 hp)
- Common set of networks, operator interface and programming for all PowerFlex drives
- Communication Options - EtherNet/IP, ControlNet, DeviceNet, DH Plus, RIO, 3rd party networks
- Hundreds of pieces of status and diagnostic information are shared with Logix controllers directly
- The PowerFlex 40P AC drive has the added capability to address needs for closed loop speed control and simple position control for applications like smart conveyors or indexing axes.

For More Information and Help

For more information contact your local distributor or Rockwell Automation sales representative.

- www.ab.com
- A - Z Product Directory
- Publication Library
- samplecode.rockwellautomation.com
- My Support

CompactLogix L4X Overview	1768-L43	1768-L45
Memory	2MB	3MB
Axis of motion	1 to 4	1 to 8
Auxillary feedback	2	4
Total IO Modules	16	30
1768 Extended Modules	2	4
Number of Network modules	2	2

Plant MRP System, Database, Order Tracking Systems

Configuration
EtherNet/IP, DeviceNet and RA Controllers enable business systems to plant floor communications, providing the ability to share thousands of pieces of information with no programming required

CompactLogix L4x, L4xS Control Capacity
 • 1-8 axis co-ordinated motion
 • Up to 4 auxiliary feedback
 • Up to 6 virtual axis
 • Supports 2 additional 1768 modules
 • Built-in RS-232 port that supports ASCII, DH-485, DF1, and Modems
L4xS
 • .5Mbyte safety memory
 • Up to SIL 3 PLe programmable safety
 • Broad suite of Safety certified application instructions.

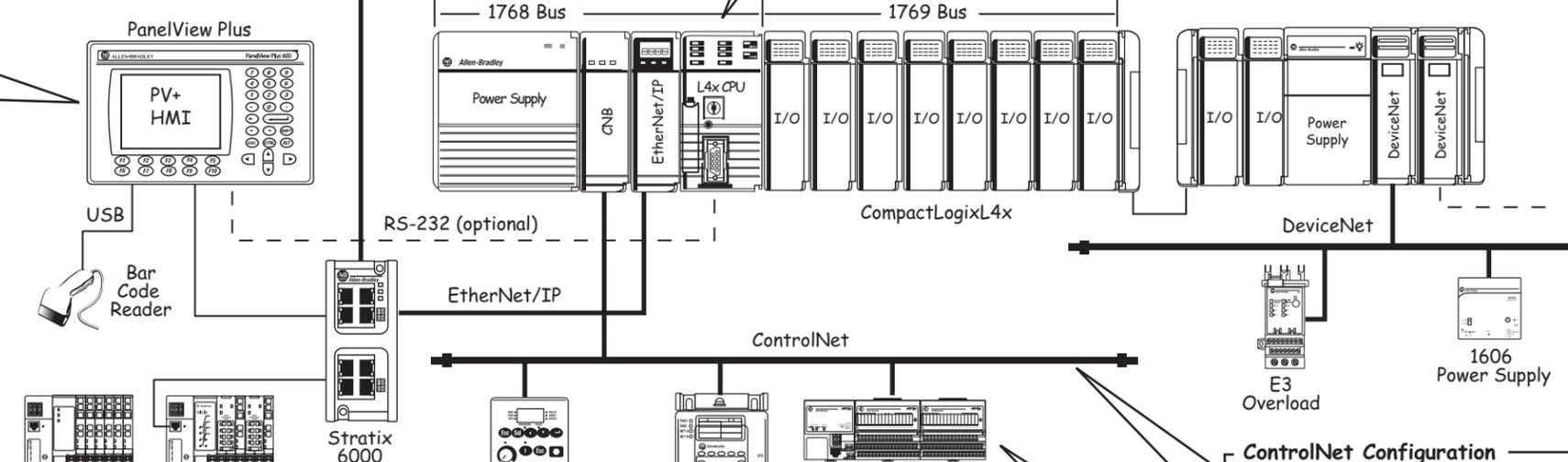
CompactLogix L4x, L4xS Control Configuration
 • Any mix of 1768 SERCOS or network modules
 • Any mix of 1769 discrete, analog or specialty I/O modules
 • Up to 32 points per digital modules and 8 points per analog module
 • 1769 I/O modules can be individually configured down to a 1 msec scan rate
 • Up to 8 1769 I/O modules on the local rack and 30 modules total
 • Up to 3 1769 I/O banks maximum

CompactLogix L4x, L4xS Performance Within the Local Chassis
 • 2 msec is the minimum I/O update rate for all I/O in the local chassis
 • Add 2 msec for each DeviceNet scanner or High Speed Counter module
 • For standard I/O the screw to screw update (throughout) for local inputs and outputs through a 1K program is 10-12 msec
 • Faster throughput can be accomplished by using the faster I/O specialty modules
 • Optimal system performance can be achieved by individually setting the scan rate of each 1769 I/O module to maximize the efficiency of the controller

HMI Capacity
 • 200 screens
 • 250 tags per screen

HMI Configuration Option
 • RS-232 or EtherNet/IP connection.
 • As an option to using a PV+ you can use a VersaView industrial computer with Windows XP, RSLogix 5000, Drive Executive Lite and RS View Studio for ME to have an HMI and programming terminal in one.

HMI Performance
 With 50 tags/display and 100 alarm tags the typical update time on ENET is 1 sec and RS-232 is 2 sec

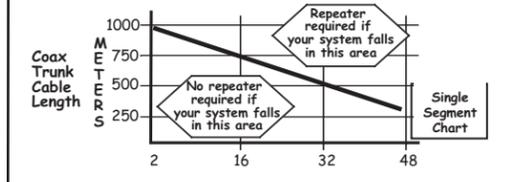


DeviceNet Capacity
 • Up to 63 nodes
 • Trunkline can be up to 500m without repeaters
 • Each device can be up to 6m (20 ft) from the trunk

DeviceNet Configuration
 • DeviceNet requires a power supply to provide power to devices on the network.
 • Several media options are available
 • Can extend distance with repeaters
 • Seamless routing from EtherNet/IP to DeviceNet for configuration

ControlNet Configuration
 • You can configure some devices to update faster or slower than the rest based on your needs (optimizing the network)
 • CNET will guarantee your requirements are met (deterministic and repeatable)

ControlNet Configuration
 • ControlNet supports up to 99 nodes
 • Use the chart below to determine if repeaters are needed
 • ControlNet uses Coax or Fiber trunkline and 1 meter taps to connect each device
 • Using fiber repeaters, ControlNet supports tree, star and ring topologies and distances of over 25 km



POINT I/O Capacity
 • The maximum is 63 POINT I/O modules per adapter
 • The adapter supplies 1 amp current for POINT modules
 • To connect additional modules, use 1734-EP24V DC Expansion Power supplies
 • Refer to individual module spec's to determine power requirements
 • PointGuard modules can be used anywhere for SIL2 or SIL3 safety inputs and outputs

PowerFlex 4-Class Performance
 • V/Hz or SVC
 • Slip compensation
 • 40:1 speed range
 • ControlNet allows complete access to all data in drive
 • "Multi-Drive" feature allows up to 5 drives per node
 • Serial peripheral interface (19.2K bps)

PowerFlex 4-Class Capacity
 • 0.5 - 15 HP
 • 120V - 600V
 • 24vDC digital I/O
 • Analog I/O
 • Internal ControlNet adapter on PowerFlex 40

PowerFlex 4-Class Configuration
 • Built-in operator display for configuration and monitoring
 • Remote (Nema 1 & 4) HIM options
 • DriveExplorer and DriveExecutive software tool options

PowerFlex 7-Class Configuration
 • Requires a HIM or drive software tool to configure, can also configure in RSLogix 5000 V16
 • Local (on drive cover) and remote (Nema 1 & 4) HIM options
 • DriveExplorer and Drive Executive software tool options

PowerFlex 7-Class Capacity
 • 0.5 - 1250 HP
 • 200V - 690V
 • 24vDC & 120vAC digital I/O
 • Analog I/O
 • Internal ControlNet adapter

PowerFlex 7-Class Performance
 • V/Hz, SVC, Full vector with Force technology
 • Slip compensation
 • Torque control
 • Adjustable voltage mode
 • 40:1 to 1000:1 speed range
 • ControlNet allows complete access to data in drive

FLEX I/O Capacity
 • Up to 8 modules/per node
 • 4-32 Pts per module
 • Up to 256 digital points/Node
 • Up to 64 analog points per node

Note: Performance is what we tested, not the max capacity



L4X Multi Network System

Bill of Material

Qty	Catalog #	Description
System: Controller Hardware		
1	1768-L4x	COMPACTLOGIX L43 PROCESSOR, 2 MEG MEMORY
		OR
1	1768-L4xS	COMPACTGUARDLOGIX INTEGRATED CONTROLLER WITH 2M STD AND .5M SAFETY MEMORY
<i>Note: CompactLogix L4x and L4xS have (1) serial port. Using this port for HMI does limit the ability to connect a programming terminal to the L4x and L4xS. Consider moving the PV+ to Ethernet using the 1768-ENBT</i>		
1	1768-PA3	120/240 VAC INPT. PWR SUPPLY
<i>Note: 1768-PA3 can power (2) 1768 Modules (1) 1768-L43 Processor (8) 1769 Modules</i>		
1	1768-ENBT	COMPACTLOGIX ETHERNET/IP COMM MODULE
1	1768-CNB	CONTROLNET BRIDGE MODULE
1	1769-OF2	2 CHANNEL ANALOG CURRENT/VOLTAGE OUTPUT MODULE
1	1769-IQ16F	16 POINT 24 VDC HIGH SPEED INPUT MODULE
2	1769-SDN	DEVICENET SCANNER FOR 1769 BUS
2	1769-ECR	RIGHT END CAP/TERMINATOR
3	1769-IF4	4 CHANNEL ANALOG CURRENT/ VOLTAGE INPUT MODULE
1	1769-IR6	6 CHANNEL RTD/RESISTANCE INPUT MODULE
2	1769-IQ16	16 POINT 24 VDC SINKING /SOURCING INPUT MODULE
1	1769-OB16	16 POINT 24 VDC SOURCING OUTPUT MODULE
1	1769-OF2	2 CHANNEL ANALOG CURRENT/ VOLTAGE OUTPUT MODULE
1	1769-PA4	120/240V AC INPUT PWR SUPPLY 4A @ 5V DC, 2A @ 24V DC
2	1769-CRL1	1FT (305MM) RIGHT-TO-LEFT BUS EXPANSION CABLE
HMI Hardware		
1	2711P-B6C1A	PANELVIEW PLUS 600 COLOR KEY/TOUCH TERMINAL, ETHERNET
<i>Note: Panelview 400 and 600 terminals provide a low cost integrated Ethernet solution to provide high performance capability at a affordable price.</i>		
1	2711-NC13	5 METER RS232 OPERATING/ PROGRAMMING CABLE
Distributed I/O Hardware - FLEX I/O		
1	1794-ACN15	ControlNet A
1	1794-PS3	POWER SUPPLY
1	1794-IB32	32PT. DC DIGITAL INPUT
1	1794-OB16P	16PT. PROTECTED DC OUTPUT
1	1794-IE12	12PT. ANALOG INPUT
		1794-OE12
1	1794-IRT8	THERMO/RTD
3	1794-TB3G	GROUND TERMINAL BASE
1	1794-TB32	TERMINAL BASE FOR 32 POINTS
1	1794-TBN	NEMA SCREW TERMINAL BASE
1	1794-TBNF	NEMA FUSED TERMINAL BASE
1	1794-IA8	8PT 120VAC INPUT
1	1794-OM8	8PT 22VAC OUTPUT

Distributed I/O Hardware - POINT I/O		
1	1734-ADNT	1734 DEVICENET/IP ADAPTER
1	1734-FPD	FIELD POTENTIAL DISTRIBUTOR
1	1734-IA2	120V AC 2 CHANNEL INPUT MODULE
1	1734-OA2	120/230V AC 2 CHANNEL OUTPUT MODULE
2	1734-IB8S	8 24V DC SAFETY INPUTS
1	1734-OB8S	8 24V DC SAFETY OUTPUTS
2	1734-TB	MODULE BASE W/ REMOVABLE IEC SCREW TERMINALS
1	1794-PS13	85-264V AC TO 24V DC 1.3A POWER SUPPLY

Distributed Devicenet Devices		
1	193-EC1AB	E3 ELECTRONIC OVERLOAD RELAY, 100-C09 ... C23, 1-5A

Drive Hardware		
1	20AA2P2A0AYYADNN	POWERFLEX 70 DRIVE - DEVICENET

Note: PowerFlex drives come in many variations - before ordering, you will need to identify voltage rating, horsepower, and enclosure type. In addition, you may wish to add on optional equipment, such as HIM module or Brake Resister. Please refer to the PowerFlex Selection Guide for additional details on selecting the right drive for your application.

1	22A-A1P5N114	POWERFLEX 4 DRIVE
1	22-COM-D	POWERFLEX 4 DEVICENET INTERFACE

1	22-XVCOMM-DC	EXTERNAL DSI COMM KIT BASE
---	--------------	----------------------------

Other Hardware		
1	1756-CP3	RS-232 CONFIGURATION CABLE
1	ENET SWITCH 8-PORT	ETHERNET SWITCH 8-PORT

Note: It is recommended to use industrial switches with network management capability.

Optional Hardware		
1	6180W-15BPXPH	VERSAVIEW 15-INCH WORKSTATION, KEYPAD & TOUCH PERFORMANCE FEATURES, WINDOWS XP HMI SOFTWARE

1	1784-CF64	64MEG COMPACTFLASH CARD
1	1769-HSC	2/4 CHANNEL HIGH SPEED COUNTER/ENCODER MODULE

Recommended Software		
1	RLD250xxE*	RSLOGIX 5000 LITE, CONTAINS ALL LANGUAGES / RSLINX LITE

Note: CompactLogix Controllers can be programmed using RSLogix 5000 Lite, Standard, Full, or Pro.

1	9701-VWSTMENE	RSVIEW STUDIO FOR MACHINE EDITION
---	---------------	-----------------------------------

Note: You will need to purchase the RSView runtime in addition to the studio if you upgrade from PanelView Plus to the VersaView PC.

1	9306-4EXP02ENE	DRIVE EXPLORER
1	9355-WABENE	RSLINX PROFESSIONAL DATA MONITOR AND DDE/OPC SUPPORT

About this Configuration

This Integrated Architecture system demonstrates the scalability of the integrated CompactLogix & Kinetix Motion Control System. This system utilizes a standard EtherNet/IP network for high speed I/O control, drive control and controller to controller interlocking as well as easy integration with the business system, the Internet and co-exist with any commercially available Ethernet technologies. This is an ideal solution for machines that require 1 to 8 axes of coordinated motion control, the ability to control additional, non-coordinated axes, and need to link the machines on the plant floor with the business enterprise system over 1 single network.

About the Products

Logix Controllers

- A common set of controls, networks and programming software available in multiple hardware platforms
- Multiple control disciplines in a single controller - sequential / motion / drives / process / safety
- Multiple Program Languages available in all controllers - Ladder Diagram, Function Block, Structured Text, and Sequential Function Chart
- Embedded RS-232 port provides remote access as well as ASCII, DH-485, DF-1, Modbus Master/Slave and bridging to other networks enabling remote device configuration
- Tag-based architecture instead of addresses, provides automatic documentation native in the controller
- Easily handle your safety and control needs by using Compact GuardLogix for complete safety compliance

Kinetix Servos

- Safe torque off and advanced safety options for SIL 3 PL e requirements
- Scalable solution for applications from 100W to 112KW
- Integrated platform to simplify machine design and commissioning
- Smart Motor Technology to provide automatic identification of correct motor-to-drive connectivity
- High precision performance with over 2,000,000 count position feedback
- Low inertia, food grade, stainless steel, integrated gearmotors and linear actuators to handle a variety of applications and environmental challenges
- Simplify installation using the 2094 Line Interface Module (LIM) as the incoming power source for an entire control panel

PanelView Plus HMI

- Reuse tags from Logix controllers by choosing them from a list
- 4"-15" screen sizes available
- Touchscreen, keypad or combination
- Integrated EtherNet/IP and RS-232 communications (most modules), add-on communication for many other networks
- Advanced Operator Interface features such as trending, expressions, data logging, animation, diagnostics and alarming

PowerFlex Drives

- Safe torque off and advanced safety options for SIL 3 PL e requirements
- Serves applications ranging from 0.2 kW (0.25 hp) to 6,770 kW (9,000 hp)
- Common set of networks, operator interface and programming for all PowerFlex drives
- Communication Options - EtherNet/IP, ControlNet, DeviceNet, DH Plus, RIO, 3rd party networks
- Hundreds of pieces of status and diagnostic information are shared with Logix controllers directly
- Premier Integration in RSLogix 5000 v. 16 allows users to consolidate drive system configuration, operation and maintenance into a single, integrated environment

POINT I/O

- Available in IP-20 or IP-67 styles
- SIL 3 PL e safety modules can be used in any location alongside standard modules
- Densities from 2-8 points per module
- Removable screw or spring terminals without rewiring
- Mounts horizontally or vertically with no derating required
- Supports EtherNet/IP, ControlNet, DeviceNet and 3rd party networks

FLEX I/O

- Densities from 4-32 points per module
- Screw, spring, Dshell, fused and knife disconnect terminals available
- Mounts horizontally or vertically with no derating required
- Supports EtherNet/IP, ControlNet, DeviceNet and 3rd party networks

For More Information and Help

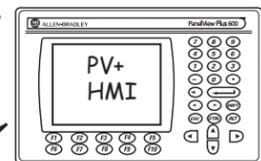
For more information contact your local distributor or Rockwell Automation sales representative.

- www.ab.com
- A - Z Product Directory
- Publication Library
- samplecode.rockwellautomation.com
- My Support

CompactLogix L4X Overview	1768-L43	1768-L45
Memory	2MB	3MB
Axis of motion	1 to 4	1 to 8
Auxillary feedback	2	4
Total IO Modules	16	30
1768 Extended Modules	2	4
Number of Network modules	2	2

HMI Capacity
200 screens
250 tags per screen

PanelView Plus



USB



PowerFlex 7-
Architecture
Class Drive

Plant MRP
System, Database,
Order Tracking Systems

Configuration

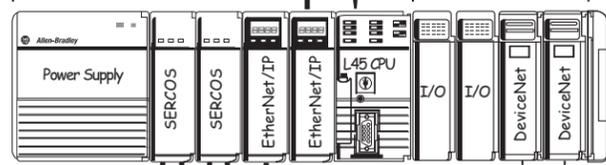
EtherNet/IP, DeviceNet and RA
Controllers enable business systems
to plant floor communications, providing
the ability to share thousands of pieces of
information with no programming required

Stratix
6000

CompactLogix L45

1768 Bus

1769 Bus



EtherNet/IP

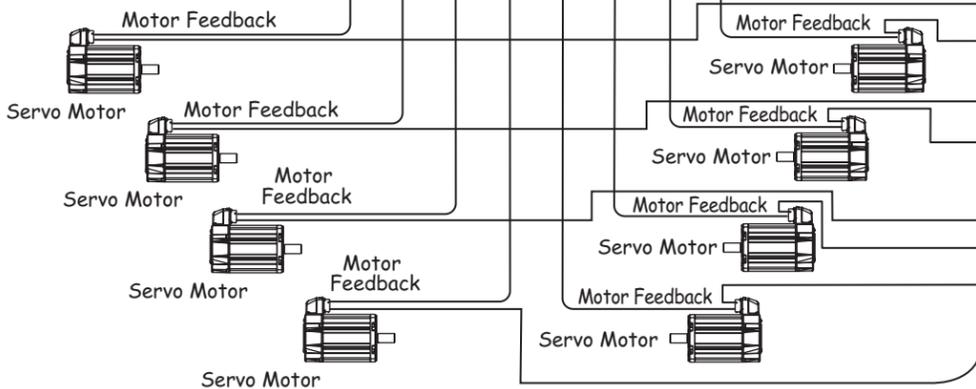
SERCOS

POINT I/O &
POINTGuard I/O

CompactBlock Guard I/O
1791ES-IBX0BV4

Kinetix
Servo Drives

Motor Power



Auxiliary
Feedback

CompactLogix L45, L45S Control Capacity

- 1-8 axis co-ordinated motion
- Up to 4 auxiliary feedback
- Up to 6 virtual axis
- 3Mbyte user memory
- Supports 4 additional 1768 modules max of 2 1768 network modules
- Built-in RS-232 port that supports ASCII, DH-485, DF1, DF1 Radio, and Modems

L45S

- .5Mbyte safety memory
- Up to SIL 3 PL e programmable safety
- Broad suite of Safety certified application instructions.

CompactLogix L45, L45S Control Configuration

- Any mix of 1768 SERCOS or network modules
- Any mix of 1769 discrete, analog or specialty I/O modules
- Up to 32 points per digital modules and 8 points per analog module
- 1769 I/O modules can be individually configured down to a 1 msec scan rate
- Up to 8 1769 I/O modules on the local rack and 30 modules total
- Up to 3 1769 I/O banks maximum

CompactLogix L45, L45S Performance Within the Local Chassis

- 2 msec is the minimum I/O update rate for all I/O in the local chassis
- Add 2 msec for each DeviceNet scanner or High Speed Counter module
- For standard I/O the screw to screw update (throughout) for local inputs and outputs through a 1K program is 10-12 msec
- Faster throughput can be accomplished by using the faster I/O specialty modules
- Optimal system performance can be achieved by individually setting the scan rate of each 1769 I/O module to maximize the efficiency of the controller
- Up to 8 1769 I/O modules on the local rack and 30 modules total
- Up to 3 1769 I/O banks maximum

SERVO Capacity

- 95-500V AC input voltage
- 0.1-112 KW
- 0.086-482 Nm torque (0.76-4266 lb-in)
- Up to 7250 rpm
- Up to 2,000,000 feedback resolution

SERVO Configuration

- Compatible with Kinetix 2000, 6000 & 7000 and Ultra 3000 drive systems
- Auxiliary feedback can be used for position control or master position input for camming and gearing
- Utilizes high speed SERCOS interface
- Built-in drive and motor configuration
- Incremental and absolute feedback compatible motors
- Motor environmental ratings from IP43-IP67K

SERVO Performance

- 2 sets of 4 axis @ .5msec updt e at 8MBaud
- High speed registration input on Kinetix drive can trigger a motion task in RSLogix 5000 for faster event task performance

HMI Configuration Option

- RS-232 or EtherNet/IP connection.
- As an option to using a PV+ you can use a VersaView industrial computer with windows XP, RSLogix 5000, Drive Executive Lite and RS View Studio for ME to have an HMI and programming terminal in one.

HMI Performance

- With 50 tags/display and 100 alarm tags the typical update time on ENET is 1 sec and RS-232 is 2 sec

PowerFlex 7-Class VFD Capacity

- 0.5 - 9000 HP
- 0.37-6770 KW
- 200V - 690V
- 24V DC & 120V AC digital I/O
- Analog I/O
- Internal EtherNet/IP adapter

PowerFlex 7-Class VFD Configuration

- Requires a HIM or drive software tool to configure, can also configure in RSLogix 5000 V16
- Local (on drive cover) and remote (Nema 1 & 4) HIM options
- Drive Explorer and DriveExecutive software tool options

PowerFlex 7-Class VFD Performance

- V/Hz, SVC, Full vector with Force technology
- Slip compensation
- Torque control
- Adjustable voltage mode
- 40:1 to 1000:1 speed range
- EtherNet/IP allows complete access to all the data in drive

POINT I/O Capacity

- The maximum is 63 POINT I/O modules per adapter
- The adapter supplies 1 amp current for POINT modules
- To connect additional modules, use 1734-EP24V DC Expansion Power supplies
- Refer to individual module spec's to determine power requirements
- PointGuard modules can be used anywhere for SIL2 or SIL3 safety inputs and outputs

Distributed EtherNet Safety

- 1791ES SIL 3 PL e modules are available in 16pt input and also 8 input/4 bi polar outputs versions

Bill of Material

Qty	Catalog #	Description
System: Controller Hardware		
System: Controller Hardware		
1	1768-L45	COMPACTLOGIX L43 PROCESSOR, 3 MEG MEMORY
		OR
1	1768-L45S	COMPACTGUARDLOGIX INTEGRATED CONTROLLER WITH 2M STD AND .5M SAFETY MEMORY
Note: CompactLogix L45 and L45S have (1) serial port. Using this port for HMI does limit the ability to connect a programming terminal to the L4. Consider moving the PV+ to Ethernet using the 1768-ENBT		
2	1768-M04SE	COMPACTLOGIX SERCOS MODULE
1	1768-PA3	120/240 VAC INPT. PWR SUPPLY
Note: 1768-PA3 can power (4) 1768 modules (1) 1768-L45 Processor (8) 1769 Modules		
2	1768-ENBT	COMPACTLOGIX ETHERNET/IP COMM MODULE
1	1769-OF2	2 CHANNEL ANALOG CURRENT/VOLTAGE OUTPUT MODULE
1	1769-IQ16F	16 POINT 24 VDC HIGH SPEED INPUT MODULE
1	1769-ECR	RIGHT END CAP/TERMINATOR
HMI Hardware		
1	2711P-B6C1A	PANELVIEW PLUS 600 COLOR KEY/TOUCH TERMINAL, ETHERNET
Note: Panelview 400 and 600 terminals provide a low cost integrated Ethernet solution to provide high performance capability at an affordable price.		
1	2711-NC13	5 METER RS232 OPERATING/PROGRAMMING CABLE
Distributed I/O Hardware - POINT I/O		
1	1734-AENT	1734 ETHERNET/IP ADAPTER
1	1734-FPD	FIELD POTENTIAL DISTRIBUTOR
1	1734-IA2	120V AC 2 CHANNEL INPUT MODULE
1	1734-OA2	120/230V AC 2 CHANNEL OUTPUT MODULE
2	1734-IB8S	8 24V DC SAFETY INPUTS
1	1734-OB8S	8 24V DC SAFETY OUTPUTS
2	1734-TB	MODULE BASE W/ REMOVABLE IEC SCREW TERMINALS
1	1794-PS13	85-264V AC TO 24V DC 1.3A POWER SUPPLY
Drive Hardware		
1	20AA2P2A0AYYADNN	POWERFLEX 70 DRIVE - DEVICENET
Note: PowerFlex drives come in many variations - before ordering, you will need to identify voltage rating, horsepower, and enclosure type. In addition, you may wish to add on optional equipment, such as HIM module or Brake Resister. Please refer to the PowerFlex Selection Guide for additional details on selecting the right drive for you application.		

Motion Hardware		
1	2094-BC02-M02	MODULE, INTEGRATED, 400/460V, 15KW CONV. 15A INV.
7	2094-BMP5	MODULE, AXIS, 400/460V, 4A INV.
1	2094-PRS8	SLIM POWER RAIL, 230V OR 460V, 8 AXES
1	2090-XXLF-X330B	AC LINE FILTER, ROXBURGH MIF330
8	MPL-B310P-SJ22AA	MOTOR, SERVO, 1.58 NM, 5000RPM, SINGL, 460V, 3.0KG
8	2090-XXNPMP-16S03	CABLE, NON-FLEX, MOTOR POWER, MP/1326AB, 16 GAUGE, 3M
8	2090-XXNFMP-S03	CABLE, NON-FLEX, MOTOR FEEDBACK, MP/1326AB, 3M
Note: Catalog numbers consist of characters, each of which identifies a specific version or option for that component. Reference Publication GMC-SG002I-EN-E Kinetix Motion Control Selection Guide for additional information		
Other Hardware		
1	1756-CP3	RS-232 CONFIGURATION CABLE
1	ENET SWITCH 8-PORT	ETHERNET SWITCH 8-PORT
1	1791ES-IBXOBV4	COMPACTBLOCK GUARD I/O
Note: It is recommended to use industrial switches with network management capability.		
Optional Hardware		
1	6180W-15BPXPH	VERSAVIEW 15-INCH WORKSTATION, KEYPAD & TOUCH PERFORMANCE FEATURES, WINDOWS XP HMI SOFTWARE
1	1784-CF64	64MEG COMPACTFLASH CARD
2	1769-SDN	DEVICENET SCANNER FOR 1769 BUS
1	1769-HSC	2/4 CHANNEL HIGH SPEED COUNTER/ENCODER MODULE
Recommended Software		
1	RLD250xxE*	RSLOGIX 5000 LITE, CONTAINS ALL LANGUAGES / RSLINX LITE
Note: CompactLogix Controllers can be programmed using RSLogix 5000 Lite, Standard, Full, or Pro.		
1	9701-VWSTMENE	RSVIEW STUDIO FOR MACHINE EDITION
Note: You will need to purchase the RSView runtime in addition to the studio if you upgrade from PanelView Plus to the VersaView PC.		
1	9306-4EXP02ENE	DRIVE EXPLORER
1	9355-WABENE	RSLINX PROFESSIONAL - DATA MONITOR AND DDE/OPC SUPPORT

About this Configuration

This Integrated Architecture system demonstrates the scalability of the integrated CompactLogix & Kinetix Motion Control System. This system utilizes a standard EtherNet/IP network for high speed I/O control, drive control and controller to controller interlocking as well as easy integration with the business system, the Internet and co-exist with any commercially available Ethernet technologies. Although drawn in a typical 8 axis configuration, this is an ideal solution for machines that require 1 to 8 axes of coordinated motion control, the ability to control additional, non-coordinated axes, and need to link the machines on the plant floor with the business enterprise system over 1 single network.

About the Products

Logix Controllers

- A common set of controls, networks and programming software available in multiple hardware platforms
- Multiple control disciplines in a single controller - sequential / motion / drives / process / safety
- Multiple Program Languages available in all controllers - Ladder Diagram, Function Block, Structured Text, and Sequential Function Chart
- Embedded RS-232 port provides remote access as well as ASCII, DH-485, DF-1, Modbus Master/Slave and bridging to other networks enabling remote device configuration
- Tag-based architecture instead of addresses, provides automatic documentation native in the controller
- Easily handle your safety and control needs by using Compact GuardLogix for complete safety compliance

Kinetix Servos

- Safe torque off and advanced safety options for SIL 3 PL e requirements
- Scalable solution for applications from 100W to 112KW
- Integrated platform to simplify machine design and commissioning
- Smart Motor Technology to provide automatic identification of correct motor-to-drive connectivity
- High precision performance with over 2,000,000 count position feedback
- Low inertia, food grade, stainless steel, integrated gear motors and linear actuators to handle a variety of applications and environmental challenges
- Simplify installation using the 2094 Line Interface Module (LIM) as the incoming power source for an entire control panel

PanelView Plus HMI

- Reuse tags from Logix controllers by choosing them from a list
- 4"-15" screen sizes available
- Touchscreen, keypad or combination
- Integrated EtherNet/IP and RS-232 communications (most modules), add-on communication for many other networks
- Advanced Operator Interface features such as trending, expressions, data logging, animation, diagnostics and alarming

PowerFlex Drives

- Safe torque off and advanced safety options for SIL 3 PL e requirements
- Serves applications ranging from 0.2 kW (0.25 hp) to 6,770 kW (9,000 hp)
- Common set of networks, operator interface and programming for all PowerFlex drives
- Communication Options - EtherNet/IP, ControlNet, DeviceNet, DH Plus, RIO, 3rd party networks
- Hundreds of pieces of status and diagnostic information are shared with Logix controllers directly
- Premier Integration in RSLogix 5000 v. 16 allows users to consolidate drive system configuration, operation and maintenance into a single, integrated environment

POINT I/O

- Available in IP-20 or IP-67 styles
- SIL 3 PL e safety modules can be used in any location alongside standard modules
- Densities from 2-8 points per module
- Removable screw or spring terminals without rewiring
- Mounts horizontally or vertically with no derating required
- Supports EtherNet/IP, ControlNet, DeviceNet and 3rd party networks

For More Information and Help

For more information contact your local distributor or Rockwell Automation sales representative.

- www.ab.com
- A - Z Product Directory
- Publication Library
- samplecode.rockwellautomation.com
- My Support