

# PowerFlex™ 700S



## Optimized Integration.

### PowerFlex 700S AC Drive

#### Function Modules

The Allen-Bradley PowerFlex 700S AC drive, a version of PowerFlex 700 power platform, offers optimized integration for the most demanding drive control and drive system applications. Harness the power of Logix by including the Embedded Logix option, "DriveLogix", on the PowerFlex 700S. The PowerFlex 700S with DriveLogix combines the powerful performance and flexible control of PowerFlex AC drives with the high-performance Logix engine to produce a highly functional, cost-effective drive and control solution.

#### Integrated Installation

- Innovative bookshelf design optimizes panel space, allowing Zero Stacking™ or side-by-side mounting of the drives
- Drive design incorporates proven noise and voltage suppression characteristics, reducing installation concerns for noise-sensitive environments
- Pull-apart control terminal blocks allow for easy wiring and quick disconnect
- Embedded Logix for space saving drive and control

#### Integrated Drive Commissioning

- LCD Human Interface Module features an assisted start-up utility that allows users to easily configure and tune the drive
- Optimized global voltage settings designed to worldwide standards allow quick set-up anywhere in the world
- PC tools such as DriveTools™ 2000 or RSLogix 5000™, assist with programming, configuration, monitoring and troubleshooting
- Flash upgrade for both the Drive Control and programmable DriveLogix capabilities equip the designer with the latest control features available

#### Integrated Application Solutions

- Multiple high performance motor control algorithms for maximum application flexibility within one drive
- Standard transistor and available drive-mounted (or separately mounted) braking resistor provide cost-effective dynamic brake options
- Multiple feedback options optimize the accuracy of speed and position regulators
- High speed 24 V DC I/O and high resolution analog I/O
- Integrated position loop for applications from simple indexing to electronic line shaft configurations
- SynchLink fiber optic link for the highest level of drive coordination
- AC or DC common bus configurations for stand alone or multiple drive solutions



PowerFlex 700S AC Drive



PowerFlex 700S AC Drive  
with DriveLogix

PowerFlex 700S AC Drive 0.37 to 55 kW; 0.5 to 100 hp

#### Communications

PowerFlex drives offer a dedicated internal communication options helping the user to cost-effectively assemble highly integrated applications linking drives to the manufacturing process. By utilizing Drive Peripheral Interface (DPI), PowerFlex drives interface to a variety of HIM (Human Interface Modules) and communication networks.

#### Programming Solutions with Logix

- DriveLogix, the embedded Logix engine, provides true programmability, within an industry standard programming environment
- Common Logix engine allows program portability with other Logix platforms
- Application software modules available for applications such as winding, positioning, tensioning and more...

AB Parts



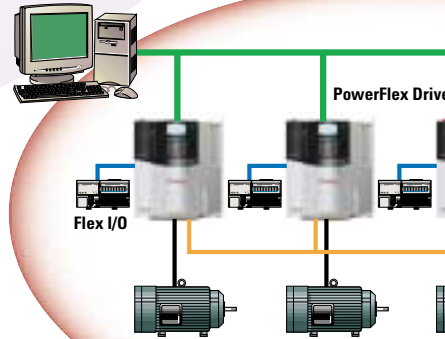
**Rockwell  
Automation**

## PowerFlex 700S - Powerful Performance

The PowerFlex 700S offers powerful performance and integrated features to meet the demands of new and traditional Allen-Bradley drive applications.



- Selectable high-performance motor control algorithms utilizing FORCE Technology
  - Field Oriented Control (FOC)
  - FOC Sensorless operation
  - FOC for brushless motors
- Speed regulation is +/- 0.001% of top speed with a feedback device over a wide speed range, providing reduced speed ripple at low speeds
- Synchronized Position, Speed, Torque and process control loops optimize throughput
- Integral position loop with motor and load side feedback devices
  - Coarse to fine interpolator for external planners
  - Direct positioning for precise machine control
  - Point to Point for indexing
- (2) Standard quadrature encoder inputs with optional feedback boards for resolver and high resolution Stegmann feedback devices
- SynchLink™, a high performance, high speed, synchronization and drive-to-drive data link
  - Processor synchronization for multiple devices within 1 µSec
  - 50 µSec maximum transfer rates with multiple data configurations
  - Transmitting drive and application data
- Ten step assisted start-up routine for configuring motor control, motor data, feedback devices, motor tests/tuning and speed control
- Complete motor autotune and inertia measurement for both induction and brushless motor control
- Advanced diagnostics including fault/alarm queue and configurable high speed trend buffers
- Advanced functions for lost motion compensation, Servo Lock and speed response shaping for precision drive control



## Flexible Control

**NetLin Comms**  
DriveLogix integration into the NetLin communication architecture

**DriveLogix**  
The embedded Logix Engine

**Main Drive Control**  
Configurable outer control loops, motor control and high speed I/O

**Feedback Option**  
Resolver or and high resolution Stegmann encoder

**SynchLink**  
Fiber optic transmit and receive connections

**Human Interface Module**  
Four easy to use versions

**Status LED's**  
Status indications are visible with all covers installed to simplify diagnostics

**Internal EMC Filter**  
Meets environmental standards without requiring additional panel space

**Internal Communications**  
DPI communication modules for ControlNet, DeviceNet, EtherNet/IP, Remote I/O, Profibus...

**Wiring**  
Easy access to power and control terminals

## DriveLogix - Embedded Logix Engine

DriveLogix offers embedded Logix control for application programmability and control of auxiliary functions in one package, the PowerFlex 700S with DriveLogix.

- Common programming environment and multiple programming languages supported by all Logix platforms
  - Ladder Diagram, Function Block Diagram, Sequential Function Chart and Structured Text
- (8) separate tasks including (1) continuous and (7) periodic. Each task can support up to 32 programs and an unlimited number of routines for program organization
- 256 Kbytes of standard user memory and optional 768 Kbyte configuration.
- Non-Volatile storage available with the memory expansion option providing long term memory storage without a battery
- Local connection for up to (8) Flex I/O™ modules
  - Communication options including the RS-232 port and the same optional communication daughter cards used by the FlexLogix™ controller
  - Virtual backplane concept for program portability to other Logix platforms, seamless integration into the NetLinx architecture and direct drive communication

**Battery Back-Up**  
Retains Program Contents

**Direct Connection to PowerFlex 700S**  
High speed Dual port RAM Interface

**Memory Expansion Option**  
Additional User Available memory and Non-Volatile Storage

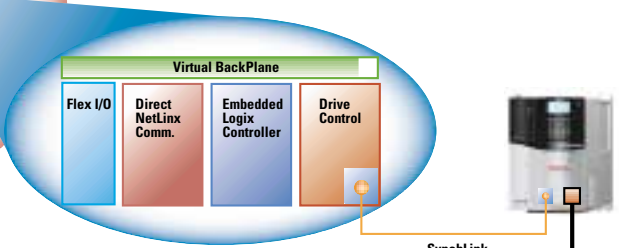
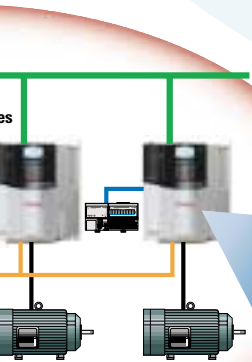
**RS232 Port**  
DF1 & ASCII for Programming & Device communications

**(1) Optional Network Daughtercard slot**  
Daughtercard slot ControlNet, DeviceNet and EtherNet/IP

**(6) LED's to Provide Status & Diagnostics**

- RUN
- OK
- BATTERY
- I/O
- RS232
- FORCE

**FlexBus Local Connector**  
Direct FLEX I/O connection



## Application Matched Architectures

The PowerFlex 700S AC drive is ideally suited for high performance applications in a wide variety of industries including Converting, Paper, Print, Metals, Material Handling, Automotive...

With the power and flexibility of Logix, the PowerFlex 700S DriveLogix provides a scalable solution for any application.

The PowerFlex 700S and PowerFlex 700S with DriveLogix gives you the flexibility needed to match your control system architecture to the demands of your application with centralized, distributed, embedded or stand alone configurations.



## Integrated Software

### DriveTools 2000

A powerful new PC based software suite, for programming, configuration and troubleshooting

- DriveExecutive – for online/offline configuration and management of drives and drive peripherals
- DriveObserver – for real time trending of drive information\*
- DriveExpert – for expert-system based troubleshooting assistance\*

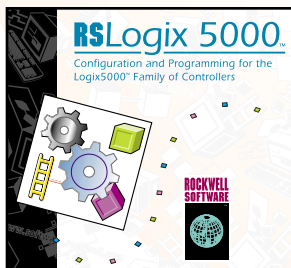
\*Check for availability



### RSLogix 5000

The PowerFlex 700S with DriveLogix utilizes RSLogix 5000, v10.0 or greater, with embedded DriveExecutive Lite for programming, configuration and troubleshooting the drive and embedded Logix controller

- Single programming software package for the entire family of Logix5000 products
- Reduces learning curve between controllers
- Multiple IEC1131-3 programming languages
- Symbolic tag and structure data model
- Relaxed, free-form editing reduces application development time
- Power programming tools to increase productivity



## PowerFlex 700Se

For applications that require highly specialized drive control solutions, the PowerFlex 700S Enhanced offers the ultimate in drive control capability. Customize drive control to meet the application or OEM specific demands.

The PowerFlex 700S Enhanced is available only as an engineered solution, and is currently available from Rockwell Automation through our Engineered Drives Business, Reliance Electric Japan LTD.

<b>Operator Interface</b>	• LCD HIM places drive information in a 7-line by 21-character display
<b>Standards</b>	<ul style="list-style-type: none"> <li>• CSA/cUL</li> <li>• UL</li> <li>• CE</li> </ul>
	EMC Low Voltage EN61800-3 EN60204-1 / EN50178
<b>Input Specifications</b>	3-Phase Voltage: 380-480V +/- 10% Frequency: 47 to 63 Hz Logic Control Ride Through: 0.25 seconds
<b>Output Specifications</b>	Voltage: Adjustable from 0V to rated motor Frequency Range: 0-300Hz Instantaneous Over Current Trip: 220-300% based on drive rating
<b>Enclosure and Ambient Operating Temperatures</b>	Open Type: 0° - 50° C (32° - 122° F) Type 1: 0° - 40° C (32° - 104° F) IP20: 0° - 50° C (32° - 122° F)

**Dimensions mm (in) & Ratings**

Output Power		400 Volt Class				Frame Size	480 Volt Class			Frame Size
		Output Current			Output Current					
kW ND (HD)	HP ND (HD)	Cont. ND (HD)	1 min. ND (HD)	3 sec. ND (HD)		Cont. ND (HD)	1 min. ND (HD)	3 sec. ND (HD)		
0.37 (0.25)	0.5 (0.33)	1.3	1.4	2.0	1	1.1	1.2	1.7	1	
0.75 (0.55)	1 (0.75)	2.1	2.4	3.2	1	2.1	2.4	3.2	1	
1.5 (1.1)	2 (1.5)	3.5	4.5	6.0	1	3.4	4.5	6.0	1	
2.2 (1.5)	3 (2)	5.0	5.5	7.5	1	5.0	5.5	7.5	1	
4 (3)	5 (3)	8.7	9.9	13.2	1	8.0	8.8	12.0	1	
5.5 (4)	7.5 (5)	11.5	13.0	17.4	1	11.0	12.1	16.5	1	
7.5 (5.5)	10 (7.5)	15.4	17.3	23.1	1	14.0	16.5	22.0	1	
11 (7.5)	15 (10)	22.0	24.2	33.0	1	22.0	24.2	33.0	1	
15 (11)	20 (15)	30.0	33.0	45.0	2	27.0	33.0	44.0	2	
18.5 (15)	25 (20)	37.0	45.0	60.0	2	34.0	40.5	54.0	2	
22 (18.5)	30 (25)	43.0	55.5	74.0	3	40.0	51.0	68.0	3	
30 (22)	40 (30)	56.0	64.5	86.0	3	52.0	60.0	80.0	3	
37 (30)	50 (40)	72.0	84.0	112	3	65.0	78.0	104	3	
45 (37)	60 (50)	85.0	108	144	4	77.0	97.5	130	4	
55 (45)	75 (60)	105 (85) <sup>2</sup>	116 (128) <sup>2</sup>	158 (170) <sup>2</sup>	5	96 (77) <sup>2</sup>	106 (116) <sup>2</sup>	144 (154) <sup>2</sup>	5	
55 (45)	100 (75)	125 (96) <sup>2</sup>	138 (144) <sup>2</sup>	163 (168) <sup>2</sup>	5	125 (96) <sup>2</sup>	138 (144) <sup>2</sup>	163 (168) <sup>2</sup>	5	

Dimensions			
Frame Size	Height mm (in.)	Width mm (in.)	Depth mm (in.)
1	389 (15.31)	200 (7.87)	202.7 (7.98)
2	389 (15.31)	285 (11.22)	202.7 (7.98)
3	564 (22.20)	285 (11.22)	202.7 (7.98)
4	See note 3	285 (11.22) <sup>1</sup>	202.7 (7.98) <sup>1</sup>
5	644 (25.37) <sup>4</sup>	369.4 (14.54)	271.1 (10.67)

- Notes:
- 1) These values are preliminary, and are subject to change.
  - 2) Frame 5 and 6 drives have dual current ratings, one for normal duty operation, and one for heavy duty operation.
  - 3) Not available at time of publication
  - 4) When using the supplied junction box (100 HP drives only), add an additional 45.1 mm (1.78 in.) to this dimension.

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