



aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



Xpress PAC

Finally, machine control beyond the box



ENGINEERING YOUR SUCCESS.



WARNING – USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Xpress PAC

Truly Integrated Machine Control Solutions

Xpress PAC is the first truly integrated family of machine control solutions available from one vendor. From HMI to mechanics and everything in between, Parker's Xpress PAC family of programmable automation control products offer unique advantages unavailable from any other source.



Advantages

- World-class visualization and motion platform products
- Fast, cost-effective motionbus
- Open Ethernet protocols
- Industry-leading mechanical solutions
- Industry's largest, strongest sales application support & service network

A Good Investment Today...

The Xpress PAC family is specifically designed to offer unprecedented interoperability:

- Expedite project implementation
- Reduce time to market
- Increase ROI

The Xpress PAC family centers around our new ACR-96xx Programmable

Automation Controller. A truly converged platform, the ACR-96xx includes logic, motion and HMI in a single scalable product.

Interact Xpress HMI is the machine-level member of the Xpress PAC family. Interact Xpress provides your system with a connection to the other side of the plant, or your plant on the other side of the world. The Xpress PAC family supports standards-based development environments, open communications protocols and integrated remote support and data collection capabilities.

These features guarantee a migration path as your needs evolve and provide the industry's easiest tools for moving information off the plant floor to wherever it's needed.

Xpress PAC Family Benefits

Development	<ul style="list-style-type: none"> • Guarantees interoperability from a single product family including HMI, controls, drives, motors, gearheads and mechanics
	<ul style="list-style-type: none"> • Dramatically reduces development and integration time via automatically shared development tools and data
	<ul style="list-style-type: none"> • Reduces or eliminates training with intuitive design tools that can be learned "on the fly" • Moves "Information Anywhere" with the integrated web-publishing tools
Open Connectivity	<ul style="list-style-type: none"> • The ACR-96xx automatically generates a suite of common tags for each axis of motion
	<ul style="list-style-type: none"> • HMI tags are automatically imported from our controllers and many third-party devices
	<ul style="list-style-type: none"> • Support for open, industry-standard field bus protocols such as EtherNet/IP™ and CANopen
Machine Layout and Wiring	<ul style="list-style-type: none"> • Reduces wiring time and costs with ETHERNET Powerlink high-speed motion bus
	<ul style="list-style-type: none"> • Quick and easy Ethernet cabling
Remote Support	<ul style="list-style-type: none"> • Remote editing and support over any IP connection

Xpress PAC is a multi-faceted integrated automation solution offering:

- Visualization
- IEC Control
- Network/Fieldbus
- Motion Control
- Drive
- Motor
- Mechanics

...and for the Future

The Xpress PAC family supports standards-based development environments, open communications protocols and integrated remote support and data collection capabilities.

These features guarantee a migration path as your needs evolve and provide the industry's easiest tools for moving information off the plant floor to wherever it's needed.



ACR-96xx Controller

Proven Control Engine with IEC 61131-3 Programming

The ACR-96xx Controller provides multitasking of up to 16 simultaneous programs with multiple coordinate systems.

Motion and Programming Capabilities:

- IEC 61131 programming
 - Structured text, ladder logic and CFC
 - PLCOpen motion function blocks
 - Parker function blocks
- Linear interpolation up to 8 axes
- Up to 16 PLC tasks: timer, cyclic or interrupt configurable task priority
- Additional 16 AcroBasic tasks available
- Segmented electronic camming
- Electronic gearing with real-time phase advance
- Linear, circular and helical interpolation
- Analog or digital feedback
- Gantry lock
- Backlash and ballscrew compensation

Hardware Features:

- EPL versions support up to 16 axes of coordinated motion
- Available support for traditional analog drives
- Analog versions are available in 2-, 4-, 6- or 8- axis models
- Equipped with 2MB of user memory standard
- Robust connectors hold up in harsh environments
- EtherNet/IP, CANopen, USB2.0, RS232 and RS485 communications are supported, with multiple channels available simultaneously
- Industry-standard Ethernet/IP communications
- ETHERNET Powerlink digital motion bus
- CANopen I/O support for over 1000 points of I/O
- Indicator LED's improve your troubleshooting capability



ACR-96XX supports standard PLCOpen function blocks, and adds Parker custom multi-axis functions

PLCOpen Function Blocks:		Parker Function Blocks:		
Administrative	Motion	Gear	Cam	Other Custom Functions
MC_Power	MC_MoveAbsolute	ACR_GearIn	ACR_Camin	ACR_ReadFlag
MC_ReadStatus	MC_MoveRelative	ACR_GearIn_lhpos	ACR_Camin_lhpos	ACR_ReadDintParameter
MC_ReadAxisError	MC_MoveAdditive	ACR_GearIn_Trq	ACR_Camin_Trq	ACR_ReadRealParameter
MC_ReadParameter	MC_MoveVelocity	ACR_GearIn_Trqp	ACR_Camin_Trqp	ACR_WriteFlag
MC_ReadBoolParameter	MC_Home	ACR_GearOut		ACR_WriteDintParameter
MC_WriteParameter	MC_Stop	ACR_GearOut_Trq		ACR_WriteRealParameter
MC_WriteBoolParameter		ACR_GearOut_Trqp		ACR_MoveCoordinated
MC_ReadActualPosition				ACR_TouchProbe

Industry-standard Programming In a Proven Platform

The ACR-96xx offers the best of IEC 61131-3 standard programming. With structured text, continuous function chart and ladder diagram programming, we offer the right language for your application.

Get on the Right Bus!

The ACR-96xx supports EPL for high-speed motion and CANopen for analog and discrete I/O. EtherNet/IP is also supported for integration with other PLC's and HMI's. EtherNet/IP, CANopen, USB2.0, RS232 and RS485 communications are supported, with multiple channels available simultaneously.

Scalability and Migration

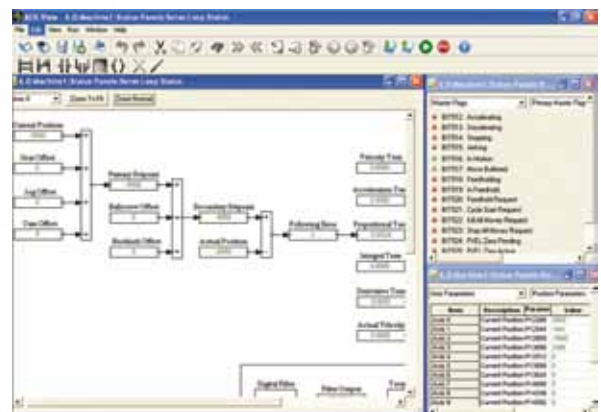
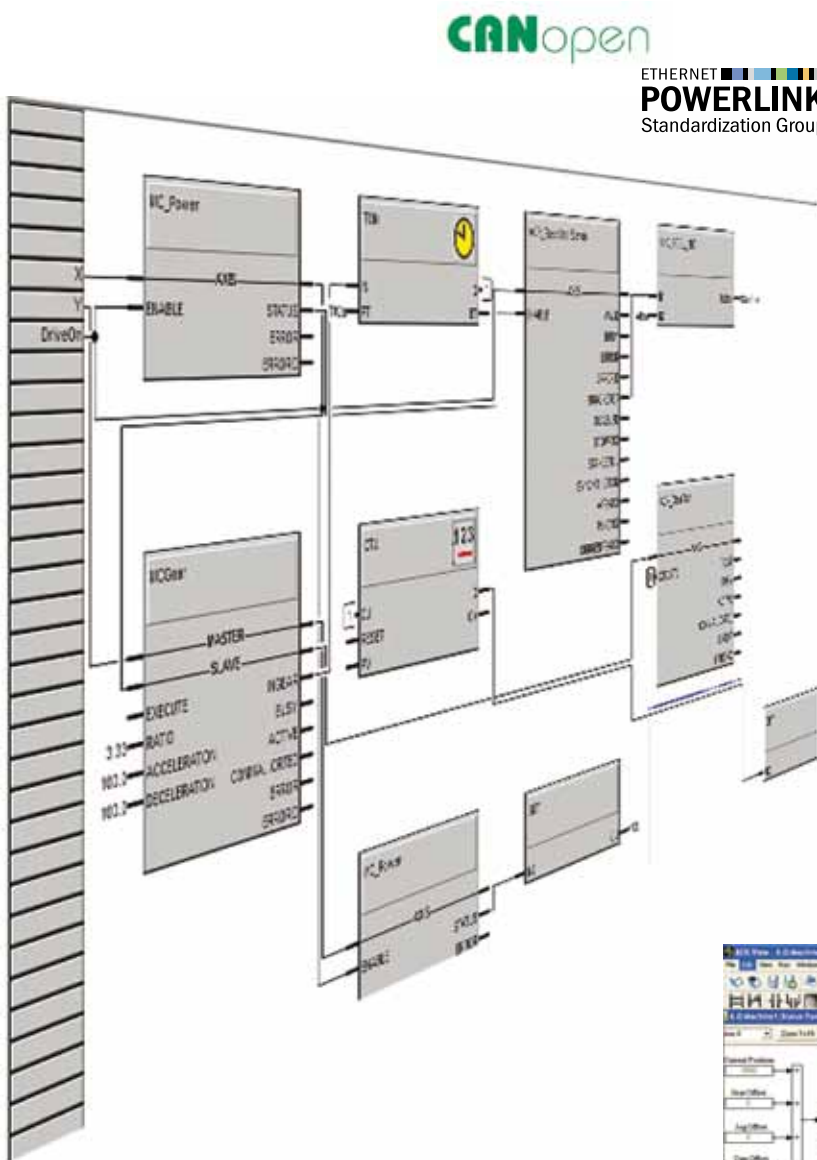
The ACR-96xx Xpress PAC utilizes industry standards wherever possible. This approach protects your development investment by allowing seamless migration to our future Xpress family controllers or even to third-party devices. Develop your application once and deploy it easily across multiple locations and controllers.

Leverage Your Installed Base

The Xpress PAC family products are designed to work together - but they also play well with others. Our commitment to industry standards allows the ACR-96xx to communicate with many vendors' existing protocols. And, where a more obscure connection is necessary, our Interact Xpress HMI offers communications and data transfer with virtually any device you may ever encounter.

ACR-View

ACR-View automatically generates a suite of common tags for each project you define. These tags can be automatically used in your Xpress HMI application.

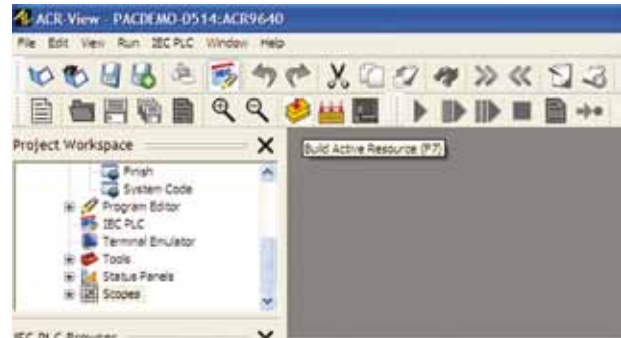
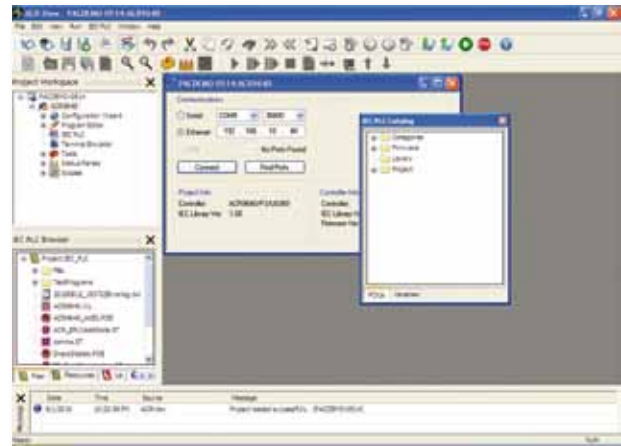


ACR-View Software Development Kit

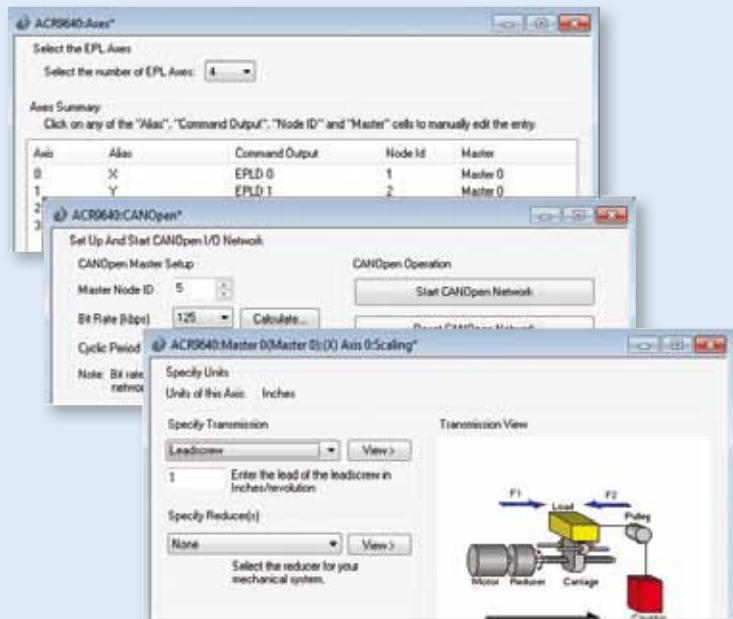
ACR-View is a powerful project-development suite that assists the user of the ACR family products in programming, debugging and commissioning their application. Many features are incorporated to assist both the novice and expert users in developing code. All the tools needed to build and maintain a motion project are included:

- Ethernet, USB, CANopen and serial connection support
- Project Configuration Wizard
- Servo tuning tools
- Built-in oscilloscope, strip chart and XY plot
- IEC 61131-3 editor (structured text, ladder diagram and continuous function chart)
- Real-time terminal interface
- Servo loop diagnostic tool
- Comprehensive status panels
- Integrated help files

Development Overview



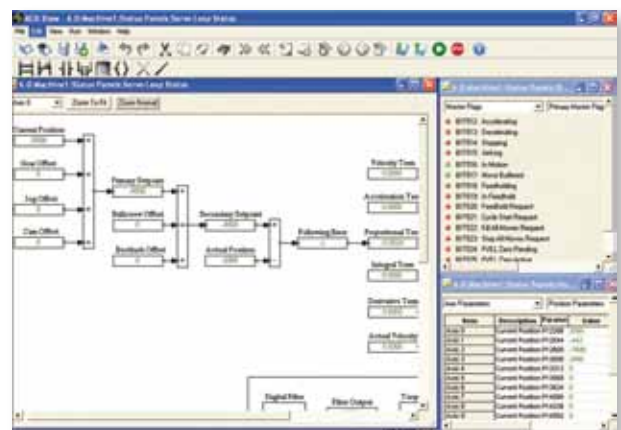
Configuration Wizard



Project set-up is streamlined through the use of the Configuration Wizard. The ACR-9xxx can be configured in a matter of minutes as the user is guided through a series of simple steps. ACR-View will set the necessary parameters to have the controller ready for motion and code development.

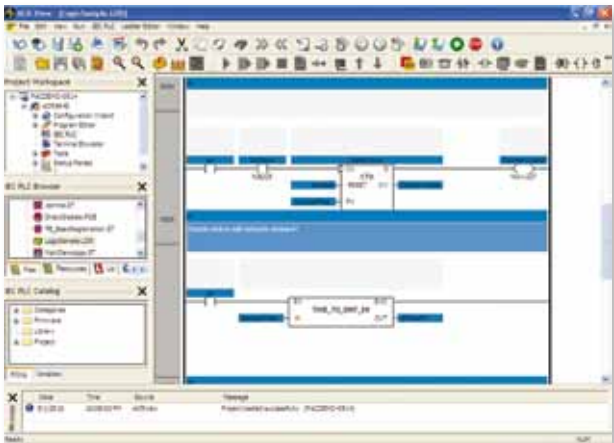
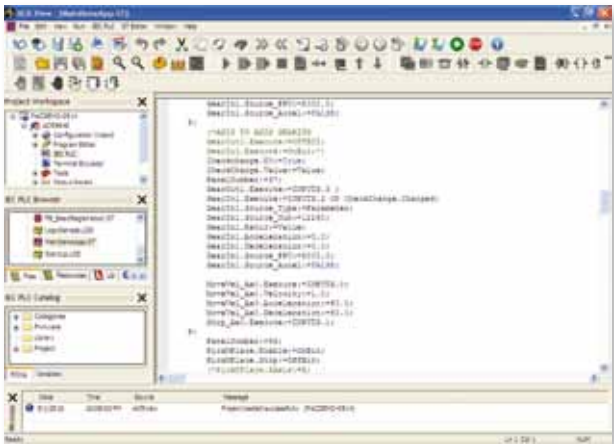
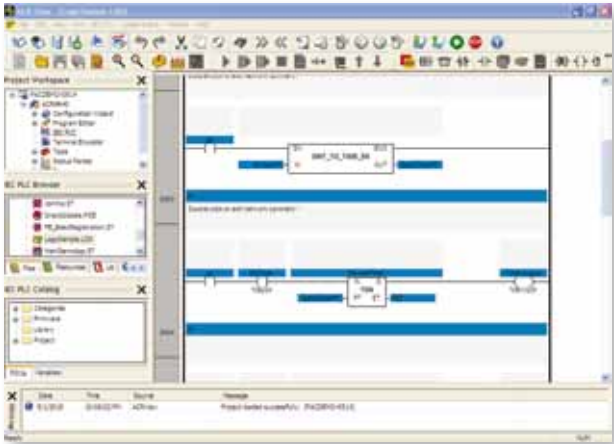
ACR-View's configurable environment allows you to create a development system that works the way you do. Elements of the environment can be docked, floated or moved to where they work best for you. Additional information is available from tool tips and a context sensitive help system.

Status Panels



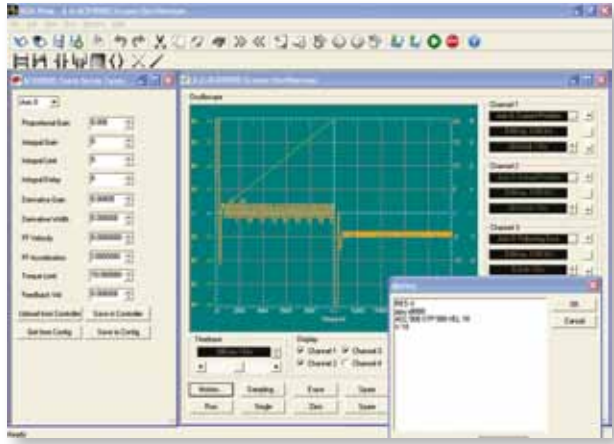
View virtually any parameter or flag within the controller using the Bit and Numeric Status panels. The Servo Loop Status panel allows in-depth analysis of servo operation.

Editors



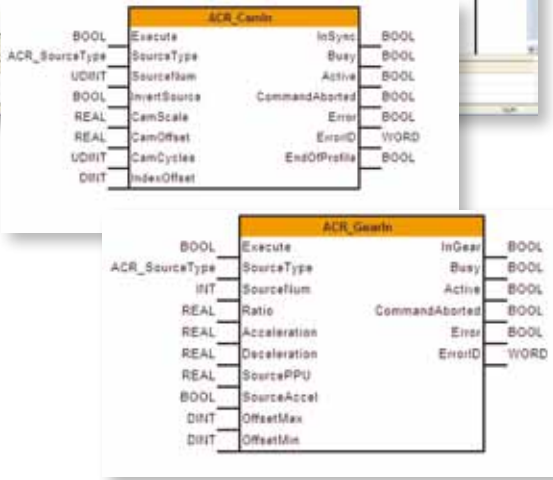
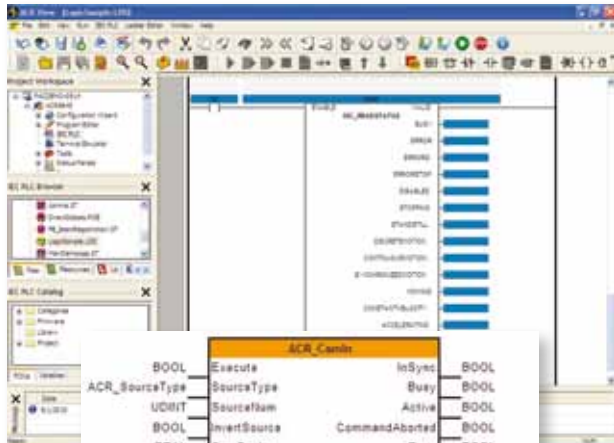
IEC 61131-3 editors support complete project development in one or several supported languages. Motion and I/O logic are supported in all languages.

Tuning



Servo tuning can be optimized with ACR-View's powerful oscilloscope feature. Up to four channels of data can be observed and stored. Tuning gains are updated immediately and move profiles can be tailored to best fit the application's needs.

Motion Control Function Blocks



ACR-View not only incorporates the industry-standard PLCOpen function blocks for motion, but goes beyond with proprietary multi-axis and coordinated function blocks.

Interact Xpress HMI

Complete Control & Complete Information Anywhere... Anytime

Interact Xpress is the machine-level HMI member of the Xpress PAC family. Interact Xpress provides your system with a connection to the rest of the company or the rest of the world. It offers a completely web-published environment where any plant-floor data or information can be accessed from any web browser with an Ethernet connection to the XPR PowerStation on your machine.



- Reduces HMI development time by automatically sharing tags with the ACR-96xx programmable automation controller
- Pre-built template screens for common functions reduce your time to market
- Integrated development environment allows applications to be designed and edited on the runtime system
- HMI designer/editor supports multiple runtime versions, eliminating version control management headaches
- Easy, object-based screen development using a "tool bin" of pre-configured panels tools and drag-and-drop editing
- Panel tools include pushbuttons, numeric entry, selection entry, numeric displays, bar graphs, meters, gauges, sliders, message displays, time/date display and more
- 3-D, shaded panel tool graphic are available in multiple styles with no additional work
- Includes an integrated graphics library
- Jpeg (.jpg) and Flash (.swf) image support
- Complex animation capabilities and video support
- Web link support



- Pre-configured alarm tool with automatic collection of historical alarm data
- Integrated tag editor with drag-and-drop tools and import/export to Excel and other software packages
- Development software for offline design/editing supports Windows® 2000 and Windows® XP operating systems
- Reduces SCADA development time by up to 80%, when used with our InteractX SCADA

- Interact Xpress is offered in everything from a no-display system to a 15" integrated display size
- More than 40 bundled communications servers allow Xpress to work with everything from our ACR-96xx Xpress to virtually any legacy equipment you may have

Real-time trending with 1000-point buffer for each pen.



Windows® is a registered trademark of Microsoft Corporation.

Parker's Interact Xpress HMI with InteractX SCADA delivers your plant-floor data wherever it's needed, when it's needed.

Interact Xpress HMI



With more than 40 communications drivers, our HMI connects to virtually any controller you may have.

Any Flash-Enabled Browser... Anywhere



Our industry-leading web-publishing capability allows you to view, control and even edit your HMI application from any Flash-enabled browser... anywhere.

InteractX SCADA



InteractX reads tags and displays screens developed in Interact Xpress directly. This level of integration reduces SCADA development times by up to 80%.

Controllers

We work with virtually any controller. Of course, we work well with the ACR-96xx Xpress PAC, but we also play well with others.



Parker Factory Display



The PFD Series Plant Floor Display enables large-format, scoreboard-style display of critical information to the plant floor.

Xpress Drive Solutions

System Design Solutions

The Xpress PAC family features the high-speed ETHERNET Powerlink motionbus, which provides significant advantages in every step of your project from design through to commissioning and even field service. System design flexibility is built in, offering both the tight synchronization of centralized control and the flexibility of distributed control.

- Modular
- Scalable for future development or machine platforms
- Simplified cabling
- Single communication access point
- Centralized or decentralized architectures

Machine Design Flexibility

Drives can be linked in a simple, cost-effective daisy chain arrangement, in a tree structure or a combination of both, utilizing the built-in hubs in the drives and controller. Since EPL employs standard Ethernet hardware, devices can be separated by up to 100 meters, or external hubs can be employed to further expand the configuration possibilities.

With the capability to specify up to 8 independent coordinate systems, program 16 separate concurrently running tasks and distribute drives throughout the machine, Parker's EPL system is a truly modular design choice.

Connectivity

The ACR EPL controllers include a separate Ethernet port for TCP/IP and EtherNet/IP™ traffic. The ACR controller acts as a gateway between the real-time EPL domain and other communications, allowing the EPL network to remain focused on time-critical motion and I/O functions. The controller can service multiple communications channels at once, giving users many options for PC and PLC connectivity in development and normal operation.

Two drive families to deliver the power range you need:

Compax3 2.5 to 155 A RMS



ETHERNET Powerlink Communications

- Replace the traditional ± 10 V analog control and feedback cables with an all-digital Ethernet network
- Real-time, deterministic data to and from nodes is guaranteed each cycle with the slot communications network protocol, illustrated in the diagram below
- Proven, robust CANopen profiles are sent over proven, robust Ethernet hardware
- Standard TCP/IP communications does not interrupt determinism, as it takes place during the asynchronous slot at the end of the cycle
- Excellent performance with timing jitter $< 1 \mu\text{s}$

Ease of Troubleshooting

As part of the standard EPL cycle, a complete set of drive status parameters is transmitted back to the controller. HMIs, application programs and error-handling routines all have immediate access to this status information, greatly enhancing the EPL system's ability to intelligently handle and troubleshoot drive events.

Modular Maintenance

Since drives can be removed or added to the system without dropping the entire network, machine downtime can be reduced by enabling maintenance on independent machine modules while the rest of the machine is operating.

Faster Set-up, Enhanced Performance, Less Downtime

Parker's EPL system offers many advantages before, during and after machine commissioning. Offering a choice of communications options, including Ethernet, USB or serial, the ACR EPL becomes a virtual hub allowing access to all the drives and I/O in the system. Drive configuration, set-up and even firmware upgrades can all be accomplished using the ACR-View Software Development Kit. Auto-inertia detection significantly simplifies the tuning process.



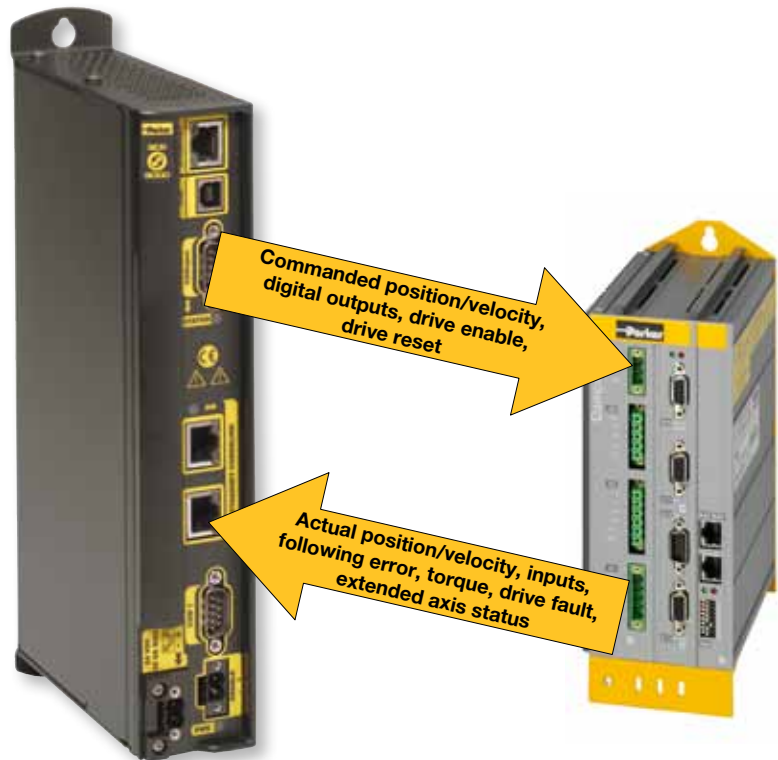
ETHERNET Powerlink

EPL Controller Managing Node (MN)

- Stores and runs the motion program
- Supervises and controls local drive I/O and system expansion I/O
- Generates motion trajectories for all axes
- Sends position set points to drives
- Synchronizes positions of multiple axes for tightly coordinated motion

EPL ServoDrive Controlled Node (CN)

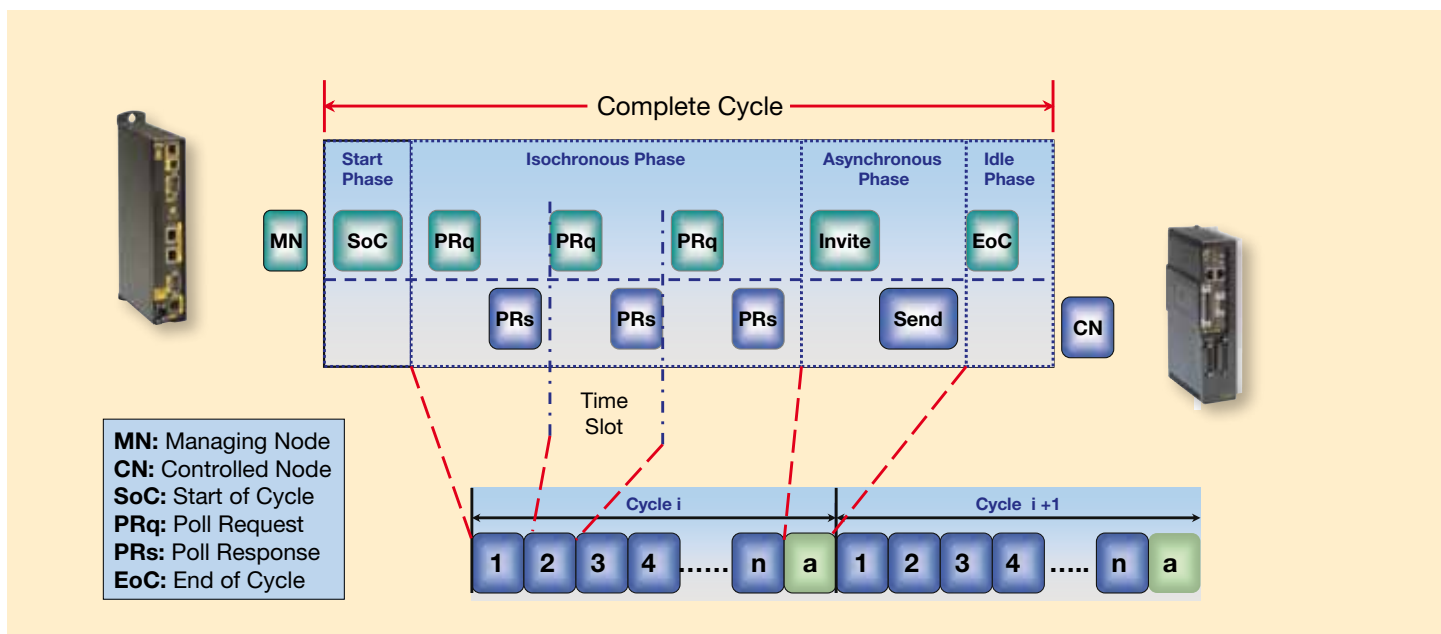
- Closing servo loops including torque, velocity and position loops
- Local I/O (7 in, 4 out)
- High-speed inputs for registration
- Encoder feedback from motor



ACR-9xxx Multi-axis
EPL Controller

Compax3
EPL Servo Drive

Slot Communications Network Protocol



Parker Worldwide

Europe, Middle East, Africa

AE – United Arab Emirates, Dubai
Tel: +971 4 8127100
parker.me@parker.com

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe, Wiener Neustadt
Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AZ – Azerbaijan, Baku
Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles
Tel: +32 (0)67 280 900
parker.belgium@parker.com

BY – Belarus, Minsk
Tel: +375 17 209 9399
parker.belarus@parker.com

CH – Switzerland, Etoy
Tel: +41 (0)21 821 87 00
parker.switzerland@parker.com

CZ – Czech Republic, Klecany
Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup
Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid
Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve
Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens
Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budapest
Tel: +36 1 220 4155
parker.hungary@parker.com

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21
parker.italy@parker.com

KZ – Kazakhstan, Almaty
Tel: +7 7272 505 800
parker.easteurope@parker.com

NL – The Netherlands, Oldenzaal
Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Asker
Tel: +47 66 75 34 00
parker.norway@parker.com

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira
Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest
Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow
Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga
Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SK – Slovakia, Banská Bystrica
Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650
parker.slovenia@parker.com

TR – Turkey, Istanbul
Tel: +90 216 4997081
parker.turkey@parker.com

UA – Ukraine, Kiev
Tel: +380 44 494 2731
parker.ukraine@parker.com

UK – United Kingdom, Warwick
Tel: +44 (0)1926 317 878
parker.uk@parker.com

ZA – South Africa, Kempton Park
Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

North America

CA – Canada, Milton, Ontario
Tel: +1 905 693 3000

US – USA, Cleveland
Tel: +1 216 896 3000

Asia Pacific

AU – Australia, Castle Hill
Tel: +61 (0)2-9634 7777

CN – China, Shanghai
Tel: +86 21 2899 5000

HK – Hong Kong
Tel: +852 2428 8008

IN – India, Mumbai
Tel: +91 22 6513 7081-85

JP – Japan, Tokyo
Tel: +81 (0)3 6408 3901

KR – South Korea, Seoul
Tel: +82 2 559 0400

MY – Malaysia, Shah Alam
Tel: +60 3 7849 0800

NZ – New Zealand, Mt Wellington
Tel: +64 9 574 1744

SG – Singapore
Tel: +65 6887 6300

TH – Thailand, Bangkok
Tel: +662 717 8140

TW – Taiwan, Taipei
Tel: +886 2 2298 8987

South America

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129

BR – Brazil, Cachoeirinha RS
Tel: +55 51 3470 9144

CL – Chile, Santiago
Tel: +56 2 623 1216

MX – Mexico, Apodaca
Tel: +52 81 8156 6000

VE – Venezuela, Caracas
Tel: +58 212 238 5422

We reserve the right to make technical changes. The data correspond to the technical state at the time of printing.
© 2011 Parker Hannifin Corporation.
All rights reserved.

192-122001N1

April 2011



EMEA Product Information Centre

Free phone: 00 800 27 27 5374

(from AT, BE, CH, CZ, DE, DK, EE, ES, FI, FR, IE, IL, IS, IT, LU, MT, NL, NO, PL, PT, RU, SE, SK, UK, ZA)

US Product Information Centre

Toll-free number: 1-800-27 27 537

www.parker.com

Your local authorized Parker distributor