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

ETHERNET Powerlink
Real-Time Industrial ETHERNET
Servo Drives & Controllers

Parker

ENGINEERING **YOUR** SUCCESS.

ETHERNET Powerlink

MotionBus Systems from the Global Leader in Motion Control

Parker understands the challenges facing OEMs in high-tech industries. To help meet their challenges, Parker's team of highly experienced motion system designers use a systematic project management process to deliver the most advanced linear motion technologies available.

For all industrial automation solutions, Parker Automation combines speed, accuracy and high-load capability to give machine builders and OEMs a competitive edge.

Medical device manufacturers utilize Parker's integrated automation solutions specifically designed to reduce time-to-market and engineering costs while improving compliance with today's stringent government regulations.

For semiconductor manufacturers, our extensive expertise in vacuum preparation, cleanroom facilities and large-format systems enable us to design and build motion components and systems that increase throughput with increased precision, coordinated motion.

Parker is the only supplier that can provide complete technical and engineered solutions to OEMs for any packaging requirement. Parker's innovative engineering, breadth of line, worldwide distribution, and outstanding customer service set the standard for the industrial motion market in all these areas:

- **Application analysis**
- **Engineering assistance**
- **Systems design**
- **Assemblies, kits and subsystems**
- **2-year warranty**
- **ISO certified**
- **Global support and services**
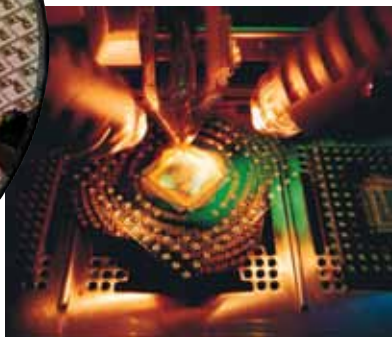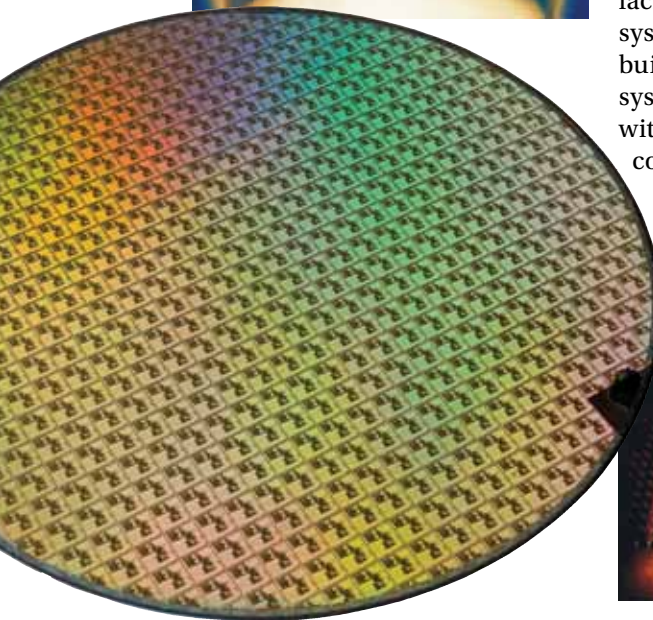
System Solutions using ETHERNET Powerlink Communications

The high speed ETHERNET Powerlink motionbus provides significant advantages in every step of your project from design 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**
- **Replace the traditional ±10V 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 μs**

ETHERNET
POWERLINK
Standardization Group
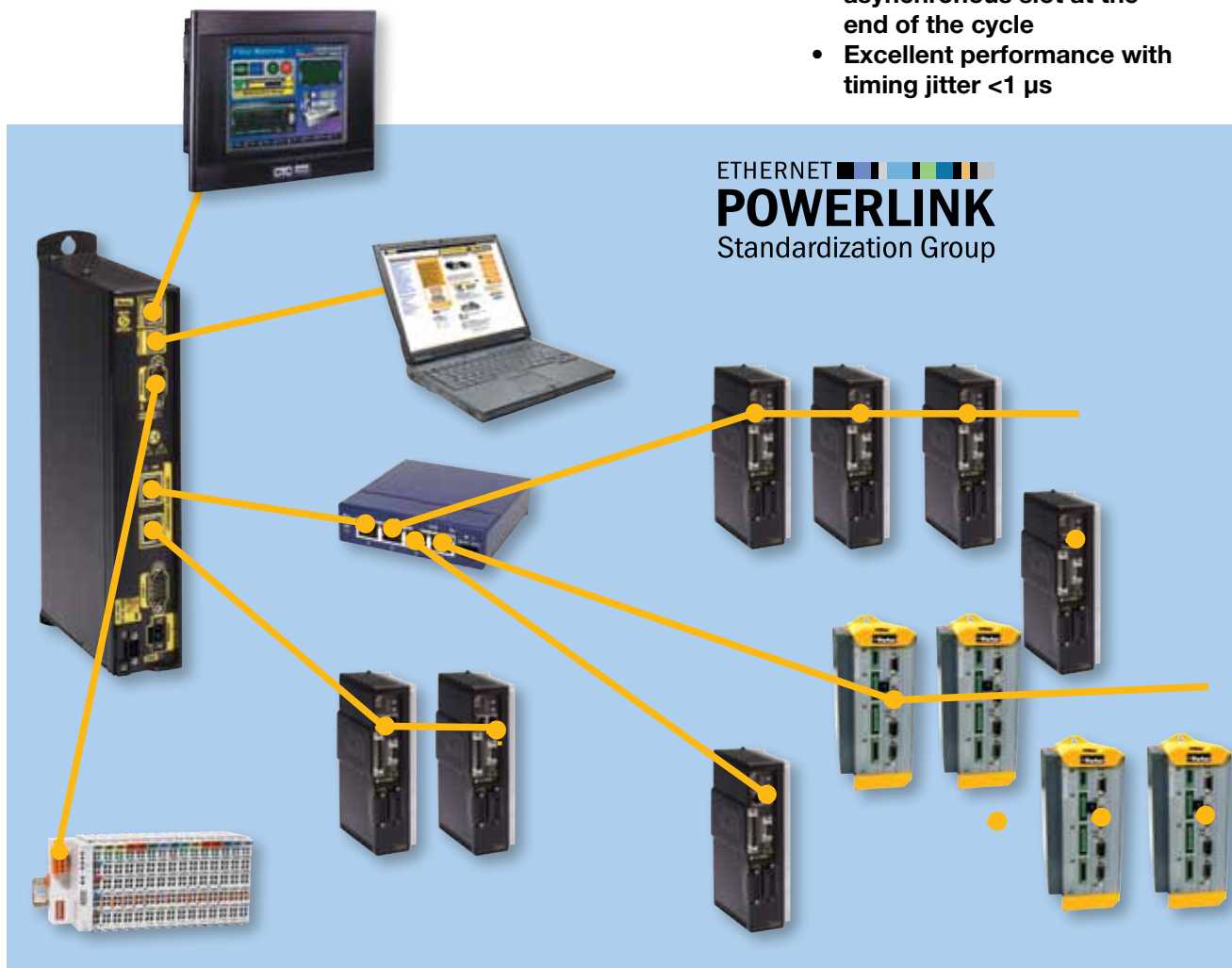
ETHERNET Powerlink

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**
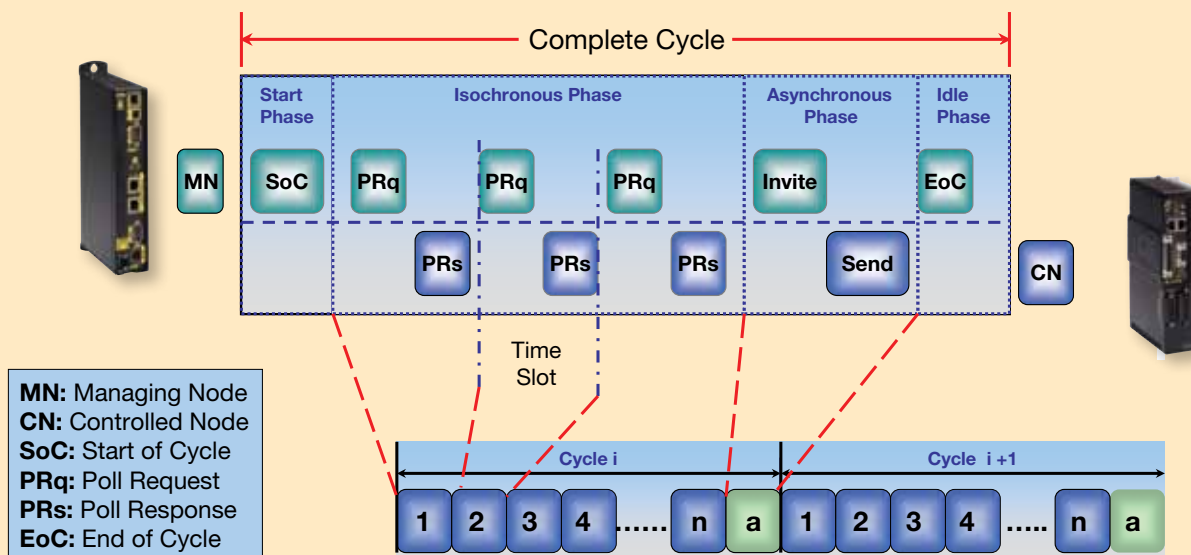
EPL ServoDrive
Controlled Node (CN)

- **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**

Commanded position/velocity, digital outputs, drive enable, drive reset

Actual position/velocity, inputs, following error, torque, drive fault, extended axis status

ACR90xx Multi-axis EPL Controller

Aries or Compax3 EPL Servo Drive

Slot Communications Network Protocol

Complete Cycle

| Start Phase | Isochronous Phase | | Asynchronous Phase | Idle Phase |

MN — SoC — PRq — PRq — PRq — Invite — EoC

PRs — PRs — PRs — Send — CN

Time Slot

MN: Managing Node
CN: Controlled Node
SoC: Start of Cycle
PRq: Poll Request
PRs: Poll Response
EoC: End of Cycle

Cycle i   Cycle i +1

1 2 3 4 …… n a 1 2 3 4 ….. n a

The Winning Combination of Industrial Ethernet plus Digital MotionBus

Industrial Ethernet

Ethernet networks have enjoyed popularity in industrial plants for many years. Typically applied at higher levels, Ethernet has been the chosen network for such non-time-critical communications as IT networks and gathering data from the factory floor. For automation applications, which require very precise timing, more dedicated network topologies utilizing lower-bandwidth fieldbus networks have been used.

- **Widely deployed and understood**
- **Network visibility**
- **All digital system reduces EMI susceptibility**
- **Commonality of Ethernet hardware components reduces cost**

Digital Motionbus

A motionbus is a digital communications network that replaces the traditional analog ±10V command signal between a motion controller and a servo drive. In today's world of digital drives and controls, it no longer makes sense to pass an analog signal from controller to drive.

In addition to the advantages of digital communications, a motionbus is designed with a high-bandwidth to pass both control and motor feedback information. This eliminates the need for a feedback cable from the drive to the controller, thereby reducing system wiring. Additional system benefits are then realized with faster installations, lower maintenance costs and higher system reliability.

- **All-digital system reduces EMI issues**
- **Simplified cabling**
- **Reduced installation time**
- **Single communications access point to system**

ETHERNET Powerlink

ETHERNET Powerlink is a high-speed, digital motionbus solution connecting a motion controller to multiple drives and I/O points using standard Ethernet networking hardware. This centralized, real-time communication system for automation and motion control makes Ethernet deterministic for real-time industrial applications.

ETHERNET Powerlink is a powerful motionbus solution that combines the benefits of fieldbus network wiring, Ethernet speeds and visibility, consumer volume hardware costs and open platforms.

ETHERNET Powerlink is an industrial Ethernet solution for automation featuring real-time performance, microsecond precision and standard Ethernet hardware. Determinism, or guaranteed timing of information, is achieved with standard Ethernet hardware by using network time-slot management. Each ETHERNET Powerlink-controlled node (CN) has a dedicated time slot with which to send and receive information to and from the managed node (MN).

ETHERNET Powerlink is an open standard maintained by the ETHERNET Powerlink Standardization Group. Multiple vendors, OEMs and users drive the standard so that it addresses the needs of the industry. Being an open standard, ETHERNET Powerlink is free from typical patent and IP ownership that can negatively affect the availability and attractiveness of a single-vendor solution.

- **Simplified, standard cabling and hubs support any topology**
- **Reduced installation times; IT techs already trained on installation**
- **Single communication access point**
- **Centralized performance with distributed architecture**
- **Both the front office and the manufacturing floor can use the same Ethernet network**
- **Consumer volumes drive hardware costs down**
- **Open standard for greater flexibility**
- **All-digital system reduces EMI issues**

EPL Drives and Control Solutions

Aries EPL Servo Drive: Compact, Versatile Performance

The Aries EPL servo drives combine Parker's high performance digital servo control technology with the real time performance benefits of ETHERNET Powerlink motionbus technology.

The Aries EPL servo drives deliver all the performance benefits that digital drive technology has to offer, including fast update rates and ease of installation. The Aries EPL can run rotary or linear servomotors with a wide range of feedback devices, making it the ideal drive choice to solve a variety of machine applications.

- **ETHERNET Powerlink enabled servo drive**
- **Integrated 2-port Ethernet hub**
- **Rotary or linear servo motor control**
- **3, 4.5 and 6.3 A RMS continuous current**
- **120/240 VAC power input**
- **Multiple feedback options – Smart encoder, quadrature encoder, Heidenhain EnDat absolute encoder**
- **Auto-Tuning**
- **CE (EMC & LVD), UL recognized**

Compax3 EPL Servo Drive: Rugged, Industrial, Powerful

The Compax3 servo drives combine a high performance, digital design with industrial ruggedness and expansive power capabilities Compax3 servo drives are designed for industrial applications with heavy duty features such as built-in regeneration capabilities and AC input line filtering. The wide variety of power levels, up to 155 A RMS, ensures that no application is too large for the Compax3 servo drive.

- **ETHERNET Powerlink enabled servo drive**
- **Integrated 2-port Ethernet hub**
- **Rotary or linear servo motor control**
- **From 2.5 to 155 A RMS continuous current**
- **Built-in regeneration and line filtering**
- **120/240/480 VAC single- and three-phase power input**
- **Quadrature encoder, absolute encoder and resolver feedback**
- **CE (EMC & LVD), UL and cUL recognized**

ACR9030/ACR9040 EPL Motion Controllers: Configure to Meet Virtually any Application

ETHERNET Powerlink expands the ACR EPL family by adding a real-time motion controller over standard Ethernet hardware. The high speed digital communications network enhances machine performance and configuration possibilities while reducing set-up time and installation complexity.

- **Control of 16 ETHERNET Powerlink drives**
- **10/100 Base-T Ethernet**
- **USB 2.0**
- **EtherNet/IP compatibility**
- **CANopen expansion I/O**
- **CE (EMC & LVD), UL and cUL Recognized**
- **Multitasking of up to 24 simultaneous programs**
- **Interpolation of 8 axes in any combination**

Fast, Efficient, Connected

The ACR EPL family is Parker's premier standalone motion controller family, capable of controlling up to 16 axes of motion. Connectivity and communication features give the ACR EPL flexibility for use in a wide variety of machine architectures. The ACR EPL excels as a standalone machine and motion controller, interfacing with a PC or working alongside a PLC. A powerful DSP makes the ACR EPL an outstanding multitasking servo controller. The ACR EPL includes easy-to-use project-development tools that enable fast, efficient application creation and maintenance. The ACR EPL is the solution for standalone applications requiring industry-leading performance in an affordable and easy-to-use package.

ACR9040 EPL

Available in Two Different Form Factors:

**ACR9040
EPL Controller Only**

The ACR9040 is a compact, cost-effective, EPL-only controller. Only requiring 24VDC input power, the 9040 includes Ethernet, USB and an integrated 2-port hub for ETHERNET Powerlink connections. I/O can be added using CANopen or by utilizing the inputs and outputs on the EPL drives.

**ACR9030
EPL controller with additional stepper and servo outputs**

The ACR9030 offers the flexibility of combining traditional servo and stepper outputs with EPL drives. The 9030 can be configured with 2, 4, 6, or 8 servo/stepper axes for a total of 16 axes of control. On-board I/O and auxiliary encoder inputs are included, and additional I/O can be added using CANopen or by utilizing the inputs and outputs on the EPL drives. This unit requires 120/240VAC input.

System Design Solutions

ACR EPL...Machine Design Flexibility

When the ACR EPL controllers are combined with the high-speed ETHERNET Powerlink motionbus, the design possibilities are virtually limitless. Whether the application requires the flexibility of distributed control, or the tight synchronization of high performance centralized control, the Parker EPL system delivers.

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.

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 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.

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.

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.

ACR EPL...Connect

The EtherNet/IP™ network is designed to use standard Ethernet and TCP/IP equipment for the industrial environment. The application layer protocol is an open standard—CIP™ (Control and Information Protocol). CIP is the same upper-layer protocol used by DeviceNet™ and ControlNet™ networks, allowing interoperability between various industrial devices.

EtherNet/IP Included

The ACR can operate as a server/slave device within an EtherNet/IP network. This protocol is enabled in all ACR controllers with Ethernet. No special order code or software is required. The EtherNet/IP protocol can run alongside standard TCP/IP, bringing together plant floor automation and office networks.

ACR with Interact Xpress and InteractX™

Integrating the ACR with Parker CTC's HMI is accomplished over EtherNet/IP.

- **Drivers are available to enable communications to PA, EPX, XPR, HPC and HPX series**
- **Supports point-to-point or networked connections**
- **Breakthrough graphic technology**
- **Panel tool library for easy screen development**
- **Integrated web publishing**

ACR EPL...Solutions

Connectivity and communication features give the ACR flexibility for use in a wide variety of machine architectures. The ACR EPL excels as a standalone machine and motion controller, interfacing with a PC or working alongside a PLC.

AcroBASIC

The ACR series of controllers utilizes a dedicated high-level programming language called AcroBASIC. This easy-to-use language supports a wide range of motion, I/O and communication functions. Several hundred intuitive mnemonic commands are incorporated into AcroBASIC for quick application development. The open nature of the ACR appeals to advanced programmers as well. Virtually every possible motion parameter and flag can be readily accessed, allowing the user to tailor applications to the specific machine requirements.

MultiTasking

The ACR controllers are true pre-emptive multitaskers capable of performing multiple tasks simultaneously and toggling tasks based on the program conditions. The ACR multitasker can control up to 16 AcroBASIC programs and 8 ladder logic PLC programs simultaneously. Due to the preemptive nature of the multitasking kernel, programs are only allocated processing time when running. Programs can be called on an as-needed basis.

Motion Features

The ACR is loaded with powerful motion functionality, including:

- **Segmented electronic CAM**
- **Electronic gearing with real-time phase advance**
- **Linear interpolation to 8 axes**
- **Programmable limit switch with multiple sources**
- **Advanced gantry control**
- **3D arcs and tangent axis control**
- **Hardware & capture registers**
- **Time-based moves**

Fast Ethernet & USB 2.0

The ACR EPL controllers are equipped with both 100baseT Ethernet and USB2.0. ACR EPL supports connection of up to four separate devices over Ethernet or in combination with USB and RS232. Each ACR has a programmable IP address so single or multiple controllers can be easily integrated in factory networks.

PC-Centric Applications

In many machines, a host PC is responsible for management of the user interface, motion control, I/O, vision and other processes. For the OEM and end-users that require custom PC software, Parker supplies libraries for developing applications in C++, VB and .NET. The ComACR 32-bit OLE automation (COM) server

Advanced Motion with PLC Automation

EtherNet/IP capability gives ACR users a popular connectivity option to PLCs and other master devices supporting the protocol.

Applications can be developed in AcroBASIC and reside in the 9000. The controller is added to the EtherNet/IP network as a slave I/O device, allowing the master PLC to interrogate or set any controller parameter, variable value or to initiate a motion sequence. The master has continuous access to ACR parameters and flags. Simply assign an IP address to the ACR without any additional set-up to integrate into the network.

When advanced motion is required in a machine utilizing PLCs, the ACR is an easy-to-integrate alterative. Let the ACR be the "motion module" in the PLC system to handle complex motion requirements such as linear and circular interpolation, contouring, camming and gearing.

Class 1 and Class 3 CIP Messages are Supported by the ACR EPL

Class 1 (UDP) – I/O with Cyclic Updates Implicit messaging is a "Class 1" connection type, providing point-to-point or multicast messaging over a UDP connection.

Typical applications use implicit messaging for I/O data transfer. Data is sent cyclically based on a user-defined duration. In most PLCs, the ACR will be seen as an Ethernet-based I/O block.

Class 3 (TCP) CIP Messages (connected and unconnected) Explicit messaging is a "Class 3" connection type, providing point-to-point, event-driven messaging over a TCP connection. The scanner/master PLC device reads and writes data to the slave. In a typical application, a function block in a ladder program would be used to send a message to the ACR to command or change motion.

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**
- **Structured text program editor**
- **Ladder logic program editor**
- **Real-time terminal interface**
- **Servo loop diagnostic tool**
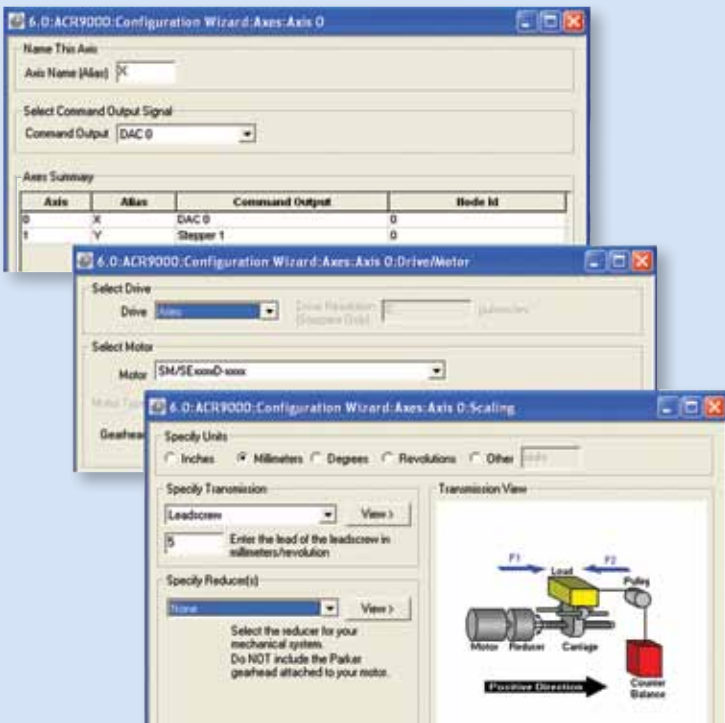- **Comprehensive status panels**
- **Integrated help files**

Terminal, Help and Project Tree
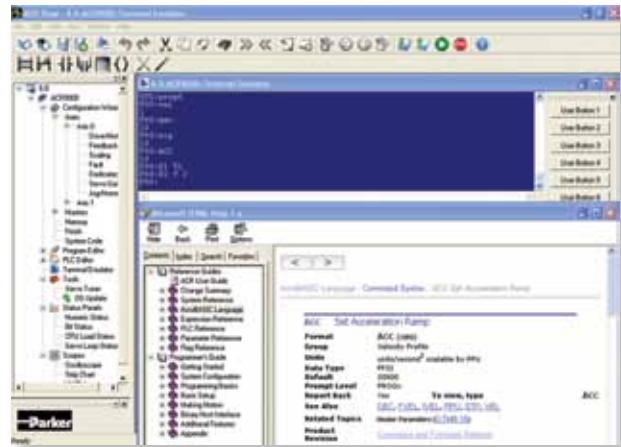
Configuration Wizard

Project set-up is streamlined through the use of the Configuration Wizard. The ACR9000 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.

Commissioning

Within the Configuration Wizard is an easy-to-use commissioning tool. Quickly verify the key motion and hardware settings for each axis, such as direction, velocity and limit function. Users can then proceed to programming with confidence in the physical settings.
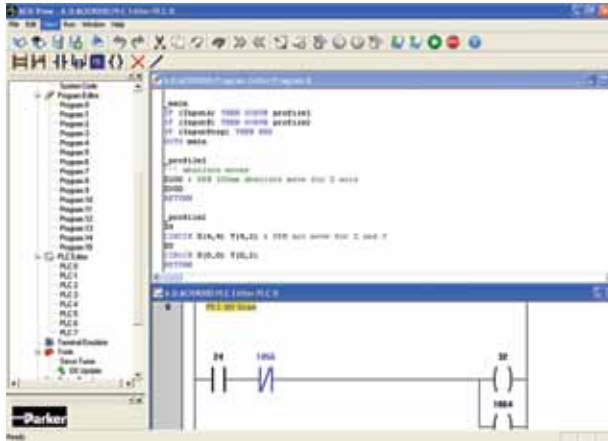
Editors

Program and ladder editor tools allow straightforward development of both motion and I/O application code. Color-coded syntax checker assist in programming. PLC programs can be written in either ladder or text.

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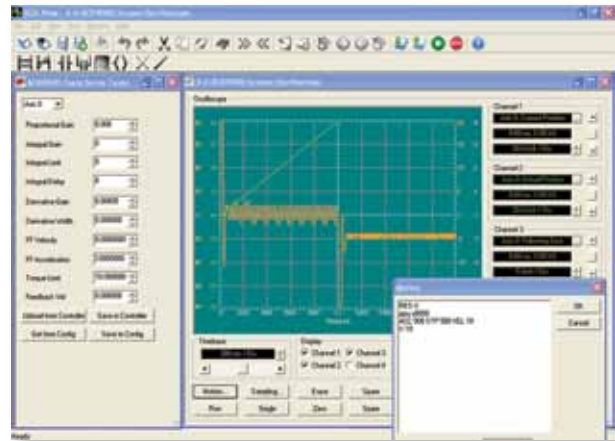
Servo tuning can be optimized with ACR-View's powerful Oscilloscope feature. Up to four channels of data can be observed and stored. Tuning gains are updated immediately and move profiles can be tailored to best fit the application's needs.
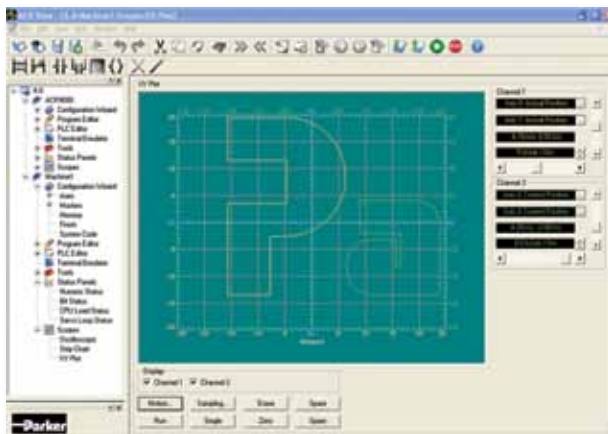
XY Plot

In addition to the Oscilloscope, ACR-View includes an XY Plot, which allows the user to display X vs Y positions for two pairs of axes at once. Easily visual a 2-D path, using any of the onboard position parameters.

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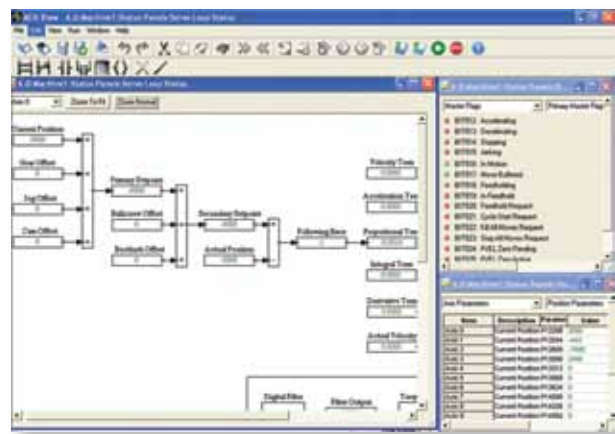
View virtually any parameter or flag within the controller using the Bit and Numeric Status panels. The Servo Loop Status panel allows in-depth analysis of servo operation.

Specifications

Aries and Compax3 EPL Drive

		Aries EPL	Compax3 EPL
Power Output	Drive Current, continuous (A RMS)	3, 4.5, 6.3	SxxxV2: 2.5, 6.3, 10, 15 SxxxV4: 3.8, 7.5, 15, 30 HxxxV4: 50, 90, 125, 155
	Drive Current, peak (A RMS)	9, 13.5, 14.2	SxxxV2: 5, 12.6, 20, 30 SxxxV4: 7.6, 15, 30, 60 HxxxV4: 75, 135, 188, 233
	Commutation	Sinusoidal	Sinusoidal
	PWM Frequency	16 or 32 kHz, motor dependent	8/16/32 kHz, model dependent
Power Input		120/240 VAC	SxxxV2: 80–253 VAC; SxxxV4: 80–528 VAC; HxxxV4: 350–528 VAC
Control Power Input		120/240 VAC, required	24VDC, required
Performance	Torque Loop update	62.5 µsec	62.5 µsec
	Velocity Loop update	125 µsec	125 µsec
	Position Loop update	125 µsec	125 µsec
Communications		Ethernet, ETHERNET Powerlink	RS232/485, ETHERNET Powerlink
Inputs	Digital inputs	7 programmable inputs, 5–24 VDC	8–20 programmable inputs, sinking, 24 V nom. @ 10 mA
	Analog inputs	N/A	2 (dedicated); 14-bit
	Encoder input	2 MHz (pre-quadrature)	5 MHz (pre-quadrature)
	Safety input		EN954-1 CAT3
Outputs	Digital outputs	4 programmable outputs	4–16 programmable outputs
	Analog outputs	N/A	Two (dedicated); 8 bit; software configurable as monitor outputs
	Fault Brake	5–24 VDC solid state, N.O., 1 amp @ 24 VDC max	N.O., 1.6 A @ 24 VDC max
Feedback		Incremental encoder, Parker smart encoder, EnDat 2.1 absolute encoder	Incremental encoder, resolver, EnDat and Hiperface absolute encoder
Environmental	Temperature	0–45°C (32–113°F) except AR-13, 0–40°C (32–104°F)	0–45°C (32–113°F)
	Humidity	0–95%, non-condensing	0–85%, non-condensing
Regeneration		Internal capacitance, internal circuitry to accommodate external resistor	Internal capacitance, internal circuitry to accommodate external resistor
Standards		UL Recognized, CE (EMC), CE (LVD)	UL and cUL Recognized, CE (EMC), CE (LVD)

More detailed specifications are available in the product manuals at parkermotion.com

ACR9030/ACR9040 EPL Controller

Hardware	Axes/controller	ACR9030: 2,4, 6 or 8 servo/stepper axes (max 16 total axes); 16 EPL axes ACR9040: 16 EPL axes
	Power Requirement	ACR9030: 90–240 VAC ACR9040: 24 VDC, 1 amp
	Processor	32-bit floating-point DSP @ 150 MFLOPS / 75 MHz
	User memory	1 MB Flash-based. Retains user programs and system configuration parameters
	Firmware	Flash-based
	Operating system	Multi-tasking RTOS
	Battery Backup	Non-volatile memory retains all system and user variables (optional)
Performance	Multi-tasking	8 coordinated systems/16 text programs/8 ladder programs
	Trajectory update	64-bit precision, 500 μs (axes dependent)
	Interpolation	Linear, circular, sinusoidal, helical, elliptical, spline, 3D arcs
Communications	ETHERNET Powerlink	ETHERNET Powerlink V2. Integrated 2-port Hub, RJ-45 connectors Supports EPL DS402 Drives in Interpolated Position Mode
	Serial Interface	1 serial port (RS232 and/or RS422)
	Ethernet	10/100 Base-T, RJ-45 connector. Supports IP Protocols TCP/UDP, EtherNet/IP
	USB	USB 2.0, Type B connection
	CANopen	Standard 9-pin D-Sub connector Supports DS401 protocol for I/O devices
Inputs/Outputs (ACR9030 only)	Analog outputs	16-bit resolution DAC, up to 8 outputs
	Stepper outputs	Up to 8 @ 2.5 MHz maximum
	Encoder input	Up to 10 at 20 MHz post-quadrature maximum Software configurable for Synchronous Serial Interface (SSI), quadrature, step and direction, CW/CCW modes
	Digital Onboard I/O	24 VDC optically isolated. Inputs support both NPN and PNP devices
	General Purpose	12 general purpose inputs for 2 to 4 axes 40 inputs for 6 to 8 axes
	High Speed Triggers (1 μsec capture time)	8 trigger inputs for 2 to 4 axes 16 trigger inputs for 6 to 8 axes
	Outputs	4 outputs for 2 to 4 axes 8 outputs for 6 to 8 axes
	Dedicated Axis I/O	Drive Enable, Reset outputs, Fault Input on axes connector for or servo/stepper axes
Provided Software	Development Software	ACR-View Software Development Kit
	Language Support	Libraries for C++, VB6, C#, VB.NET, LabVIEW

Specifications

Aries EPL Dimensions

mm (in)

AR-04PE

AR-08PE

AR-13PE

135.9 (5.35)

128.3 (5.05)

OW
Overall width

4.57
(0.180)

Fin height

2x clearance for
M4 or #8
mounting screws

50.8
(2.00)

13.5 (0.53)

204.9
(8.07)

177.8
(7.00)

P clip for motor
cable grounding
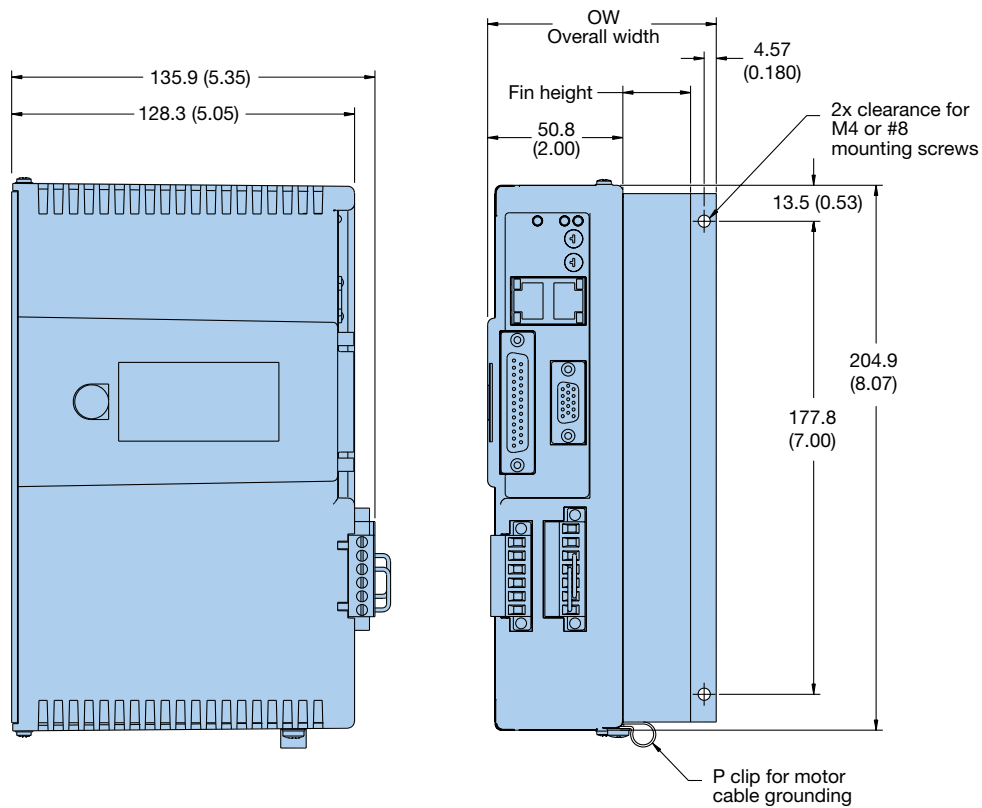
	OW	Fin Height
AR-04PE	76.3 (3.01)	15.88 (0.625)
AR-08PE	85.9 (3.38)	25.40 (1.000)
AR-13PE	101.3 (4.38)	50.80 (2.000)

Compax3 EPL Dimensions

S025V2, S063V2, S100V2, S150V2
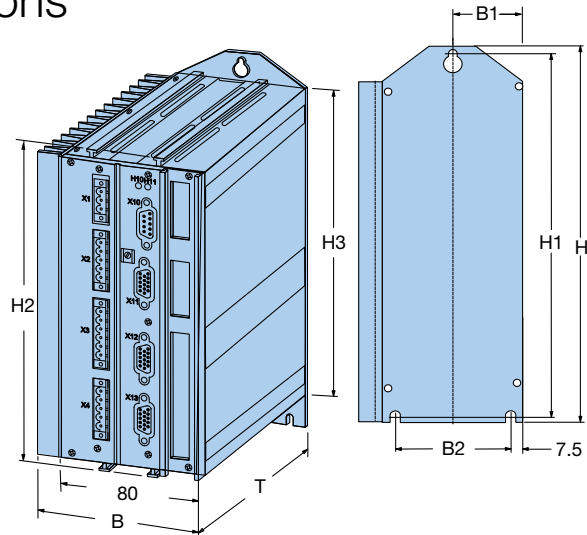
S038V4, S075V4, S150V4, S300V4
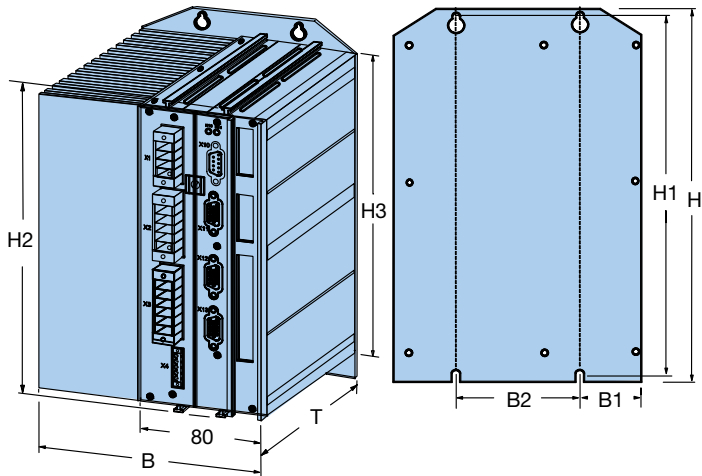
H050V4, H090V4, H125V4, H155V4

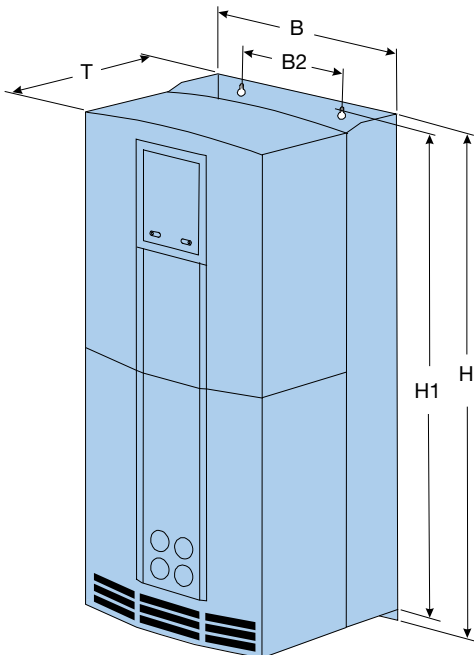| Compax3	Dimensions [mm]								Weight [kg]
	H	B	T	H2	H3	B1	B2	H1	
S025V2	222	84	172	203	191	40	65	210	2.0
S063V2	222	100	172	203	191	40	65	210	2.5
S100V2	279	115	172	259	248	40	65	267	4.3
S150V2	279	158	172	259	248	39	80	267	6.8
S015V4	279	84	172	259	248	40	65	267	3.1
S038V4	279	100	172	259	248	40	65	267	3.5
S075V4	279	115	172	259	248	40	65	267	4.3
S150V4	279	158	172	259	248	39	80	267	6.8
S300V4	412	175	172	391	380	47.5	80	400	10.9
H050V4	453	252	245	–	–	–	150	440	17.4
H090V4	669	257	312	–	–	–	150	630	32.5
H125V4	720	257	355	–	–	–	150	700	41.0
H155V4	720	257	355	–	–	–	150	700	41.0

Specifications

ACR9030/ACR9040 EPL Dimensions

in (mm)

ACR9030

1 – 4 Axis

90.9 (3.58)
6.4 (0.25)
17.0 (0.67)
45.5 (1.79)

3x Ø 4.6 (0.188) clearance for M4 or #8 mounting screws

ETHERNET

USB

CANopen

Optional analog axes (2 or 4)

266.7 (10.50)
254.0 (10.00)
234.9 (9.25)

PowerLink

RS-232

Enable

26.4 (1.04)
38.1 (1.50)

5 – 8 Axis

127.0 (5.00)
6.4 (0.25)
17.0 (0.67)
63.5 (2.50)

3x Ø 4.6 (0.188) clearance for M4 or #8 mounting screws

266.7 (10.50)
254.0 (10.00)
234.9 (9.25)

For 8 axis version only

44.5 (1.75)
38.1 (1.50)

134.6 (5.30)
125.7 (4.95)

ACR9040

134.6 (5.30)

44.5 (1.75)
22.23 (0.875)
6.4 (0.25)
17 (0.67)

264.6 (10.42)
234.9 (9.25)
254.0 (10.00)

ACR9030/ACR9040 Accessories

Accessory	Part Number	Description
ACR EPL to EPL Drive Accessories	71-028656-XX	Shielded ETHERNET cable to Aries EPL drives Cables offered in 1' (-01), 3' (-03), 5' (-05), 10' (-10), 25' (-25) lengths, e.g., 71-028656-10
9030 to Analog/ Stepper Drive Cables Note: Cables offered in 4' (-04) or -10' (-10) lengths, e.g., 71-021599-04	71-021599-XX	ACR-to-Aries command cable (analog only)
	71-021110-XX	ACR-to-ViX command cable
	71-021108-XX	ACR-to-Compax3 command cable (analog only)
	71-023715-XX	ACR-to-Dynaserv G3
	71-021112-XX	ACR-to-Gemini command cable (analog only)
	71-022316-XX	ACR-to-Gemini command cable (step & direction only)
	71-021113-XX	ACR-to-stepper cable (25 pin stepper connector)
	71-022344-XX	26-pin flying lead cable
Expansion I/O Cables	71-022338-02	2' Expansion I/O cable (9-pin D-sub to flying lead)
	71-022338-04	4' Expansion I/O cable (9-pin D-sub to flying lead)
RS232 Communication Cable	71-016939-10	10' RS-232 communication cable
ACR9030 Breakouts	VM25	25-pin screw terminal breakout board for onboard I/O connector and Limit/Home (2' cable included)
	VM26	26-pin screw terminal breakout board for axes connectors, DIN rail mount (2' cable included)
Aries EPL Breakouts	VM25	25-pin screw terminal breakout board for local I/O (2' cable included)
	VM15-PM	15-pin screw terminal breakout for feedback connector
9030 AC Power Adapter	43-011905-01	240 VAC Power plug adapter
Power Supply	PS-60W	24 VDC, 60W power supply for I/O, enable and 9040 controller
Parker I/O System (Expansion I/O)	PIO-337	PIO Bus coupler, CANopen standard
	PIO-347	PIO Bus coupler, CANopen economy
	PIO-430	PIO 24 VDC digital input module, 8 channel
	PIO-402	PIO 24 VDC digital input module, 4 channel
	PIO-400	PIO 24 VDC digital input module, 2 channel
	PIO-530	PIO 24 VDC digital output module, 8 channel, 0.5 Amp
	PIO-504	PIO 24 VDC digital output module, 4 channel, 0.5 Amp
	PIO-501	PIO 24 VDC digital output module, 2 channel, 0.5 Amp
	PIO-468	PIO 0-10 VDC analog input module, 4 channel
	PIO-480	PIO 0-20 mA analog output module, 2 channel, differential isolated
	PIO-550	PIO 0-10 VDC analog output module, 2 channel
	PIO-552	PIO 0-20 mA analog
	PIO-600	PIO end module

Ordering Information

Fill in an order code from each of the numbered fields to create a complete model order code.

Aries EPL

Order Example:

①	②	③	④
AR-	04	P	E

① **Series**
AR-   Digital drive

② **Maximum Shaft Power**
04   400 Watts, 3 A (rms)
08   750 Watts, 4.5 A (rms)
13   1300 Watts, 6.3 A (rms)

③ **Command Interface**
P   ETHERNET Powerlink

④ **Motor Feedback**
E   Encoder

Compax3 EPL

Order Example:

①	②	③	④
S025 V2	F10	I10T10	M00

① **Series**
S025 V2 2.5 A (rms) / 120 - 240 VAC, 1Ø
S063 V2 6.3 A (rms) / 120 - 240 VAC, 1Ø
S100 V2 10 A (rms) / 120 - 240 VAC, 3Ø
S150 V2 15 A (rms) / 120 - 240 VAC, 3Ø
S038 V4 3.8 A (rms) / 208 - 480 VAC, 3Ø
S075 V4 7.5 A (rms) / 208 - 480 VAC, 3Ø
S150 V4 15 A (rms) / 208 - 480 VAC, 3Ø
S300 V4 30 A (rms) / 208 - 480 VAC, 3Ø
H050 V4 50 A (rms) / 400 - 480 VAC, 3Ø
H090 V4 90 A (rms) / 400 - 480 VAC, 3Ø
H125 V4 125 A (rms) / 400 - 480 VAC, 3Ø
H155 V4 155 A (rms) / 400 - 480 VAC, 3Ø

② **Feedback**
F10   Resolver
F11   Absolute encoder/Sin-Cos®/Stegmann/Hiper-face
F12   Quadrature encoder/SineCosine linear/EnDat 2.1

③ **Control Options**
I30 T11   Positioning/Interpolation via EPL
I30 T30   IEC with EPL
I30 T40   IEC Cam control with EPL

④ **Additional Options**
M00   No options
M10   Additional I/O with HEDA
M11   HEDA
M12   Additional I/O

ACR EPL

Order Example:

①	②	③	④
9030	P3	U4	B

① **Series**
9030   120/240 VAC input
9040   24 VDC input
* All models include ACR-View Software Development Kit CD and power cable for 120 VAC installations (Parker P/N: 44-000054-01).

② **Communications**
P1   Ethernet, USB and Serial
P3   Add CANopen to P1 version

③ **# of Axes, Encoder Inputs**
9040 – EPL Only
U0   16 EPL Axes

9030 – EPL + Servo/Stepper
U2   2 Axes, 3 Encoder inputs
U4   4 Axes, 5 Encoder inputs
U6   6 Axes, 8 Encoder inputs
U8   8 Axes, 10 Encoder inputs

④ **Memory**
B   Add Battery Backed RAM

Other ACR-Related Parker Products

Human Machine Interface

Parker's range of HMI solutions include cost-effective, dedicated HMI panels as well as flexible Industrial PC's running Windows® based InteractX HMI software. Connectivity to the ACR is supported via EtherNet/IP. Application development is simplified by programming in a familiar environment, including support for OPC, ActiveX and Visual Basic.

PIO

The modular Parker I/O System (PIO) is a convenient and flexible product for connecting field devices to an ACR. The PIO communicates with the controller via CANopen. A wide variety of digital and analog modules are available.
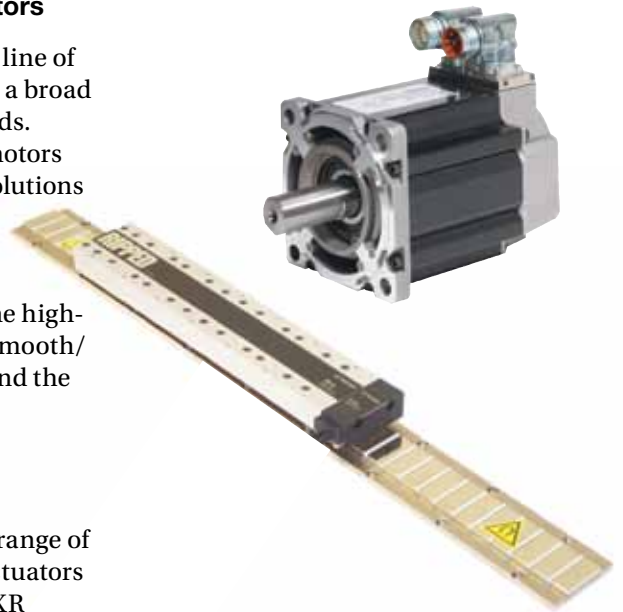
Features

- **Opto-Isolated**
- **Compact, DIN-rail mount**
- **Easy to install and expand**
- **Safe, reliable contacting**
- **Different voltages can be combined**
- **Error and status LEDs**

Rotary and Linear Motors

Parker offers a complete line of motor products meeting a broad range of application needs. Parker Trilogy's linear motors offer industry-leading solutions for both ironcore and ironless technologies. The wide range of rotary servo motors includes the high-torque MPP Series, the smooth/high-inertia SM Series and the cost-effective BE Series.

Positioning Tables

Parker offers the widest range of precision mechanical actuators in the industry. The 400XR series of modular linear positioners is available in an unrivaled array of sizes, features and options. Single- and multi-axis systems combine with the unique ACR features for performance and value.

Gantry Control: LOCK feature of ACR offers outstanding control of linear motor gantry systems. A dedicated feedback loop monitors and corrects the position of the parallel axes to maintain precise alignment.
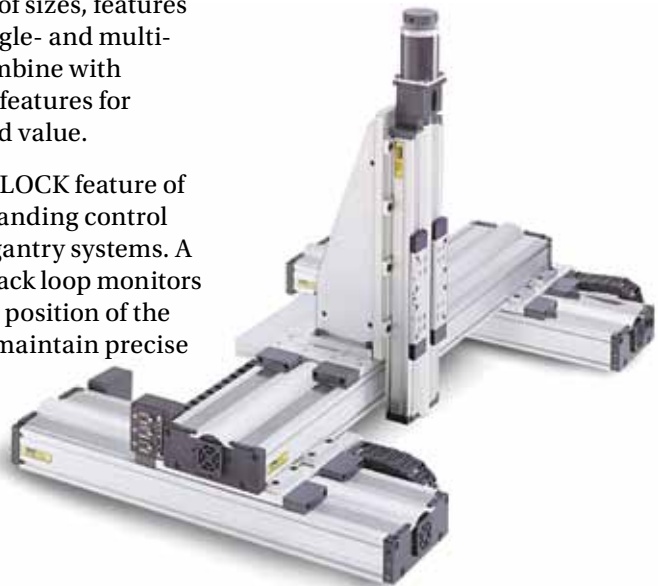
Ballscrew Compensation: Use the error map data provided with a precision grade XR table to improve accuracy with the powerful yet easy-to-use ACR compensation feature.

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