

# Aries Series



## High-Power, Compact Digital Servo Drives

With its “plug in and spin” design, the Aries family of compact digital servo drives requires no setup. Users simply attach any Parker “smart encoder” motor and the drive automatically configures. Available in seven versions (100, 200, 400, 750, 1300, 2000 and 3000 Watts), the Aries family gives users a robust and cost-effective digital servo product – users only pay for the level of performance they need. Unlike the competition, the Aries family is designed with open architecture in mind, so it can also be configured for use with any manufacturer’s motion controller and servo motor.

The Aries comes standard as a torque-only amplifier but is software selectable to run in velocity mode. An optional step-and-direction version is also available for users replacing stepper systems or not wanting to change their current step-and-direction command interface.

Additional benefits can be gained when the Aries servo drive is used with Parker’s ACR9000 multi-axis controller. The Drive Talk feature allows access to the Aries drive parameters from the ACR9000 controller for advanced control, display and diagnostics. Using the high-speed SSI interface, the ACR9000 can take advantage of the absolute positioning capabilities and extremely high resolution (131,072 counts/rev) of a motor equipped with a Heidenhain EnDat absolute encoder.

### Aries Features

- Plug in and spin – no set up required; drive auto-configures when used with Parker’s “smart encoder” motor
- Drive Talk – ACR9000 controller can access all drive parameters
- Auto-tuning available
- Optimized for Parker’s brushless rotary and linear servo motors
- Supported feedback devices include Smart encoder, quadrature encoder, Heidenhain EnDat absolute encoder and resolver
- 7 versions available: 100, 200, 400, 750, 1300, 2000 and 3000 Watts
- Standard high-density D-sub connectors for easy connectivity to any system
- 120/240 VAC input with required 120/240 VAC keep alive circuitry
- CE (EMC & LVD), UL compliant
- Compact design
- Brake relay
- Optional velocity and step-and-direction signal inputs



Access the Aries drive from the ACR9000 controller



Aries Specifications

Specifications

Motor Output Power

Shaft Power @ Continuous Current

Shaft Power @ Peak Current

Drive Output Power

Continuous Current (RMS)

Peak Current (RMS)

Bus Voltage

PWM

Drive Input Voltage

Specifications

Motor Output Power

Shaft Power @ Continuous Current

Shaft Power @ Peak Current

Drive Output Power

Continuous Current (RMS)

Peak Current (RMS)

Bus Voltage

PWM

Drive Input Voltage

Performance

Servo Update

Accuracy

Commutation

Inputs

Command

Enable/Reset

Encoder

Resolver

Outputs

Fault

Brake

Encoder Out

Communications

Type

Baud Rate

Multi-drop

Drive talk

Standards

Environmental

Temperature

Humidity

Shock/Vibration

Weight - lbs (kg)

AR-01\_E

AR-02\_E

AR-04\_E

AR-08\_E

AR-13\_E

AR-20\_E

AR-30\_E

AR-01

100 Watts\*  
300 Watts\*

1 Amp  
3 Amps

AR-02

200 Watts\*  
600 Watts\*

1.75 Amps  
5.25 Amps

AR-04

400 Watts\*  
1200 Watts\*

3 Amps  
9 Amps

AR-08

750 Watts\*  
2250 Watts\*

4.5 Amps  
13.5 Amps

170/340 VDC

16 or 32 kHz, motor dependent

120/240 VAC, 1Ø, 50/60 Hz

AR-13

1300 Watts\*  
3900 Watts\*

6.3 Amp  
14.2 Amps

170/340 VDC

16 or 32 kHz, motor dep.

120/240 VAC, 1 or 3 ph, 50/60 Hz

AR-20

2000 Watts\*  
6000 Watts\*

10 Amps  
30 Amps

340 VDC

16 kHz

240 VAC, 1 or 3 ph, 50/60 Hz

AR-30

3000 Watts\*  
9000 Watts\*

16 Amps  
48 Amps

340 VDC

16 kHz

240 VAC, 3 phase, 50/60 Hz

62.5 µ seconds  
± 1 encoder count; encoder dependent  
Sinusoidal

14-bit resolution ADC, ± 10 V (torque/velocity control)  
Step and direction, 2 MHz max (position control)  
5-24 VDC  
5 MHz (pre-quadrature); RS-422 compatible differential input  
12-bit A to D input (gives 4096 counts/rev), absolute accuracy 11 arc-min

5-24 VDC  
Solid state, normally open; 1 Amp @ 24 VDC max  
RS-422 compatible differential driver; 5 MHz max. output frequency (pre-quadrature)

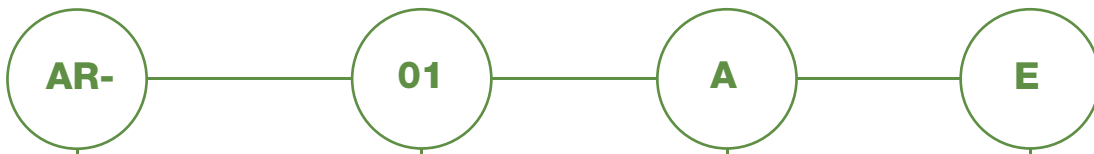
RS-232 (3-wire)/RS-485 (2-wire) ASCII  
Fixed at 9600  
Up to 99 units (RS485 only)  
RS-485 (2 wire)

UL, cUL, CE(LVD), CE(EMC)

0-45° C (32-113° F) except AR-13\_E 0-40° C (32-104° F)  
0-95% non-condensing  
15g, 11 msec half sine / 10-2000 Hz @ 2g

1.68 (0.76)  
1.90 (0.86)  
2.54 (1.15)  
2.82 (1.28)  
3.60 (1.63)  
7.35 (3.33)  
7.40 (3.36)

\* @ 240 VAC



Aries Digital Drive Series

Example AR-01AE

Maximum Shaft Power

01 - 100 Watts    13 - 1300 Watts  
02 - 200 Watts    20 - 2000 Watts  
04 - 400 Watts    30 - 3000 Watts  
08 - 750 Watts

Command Interface

A - Analog ± 10 V  
S - Step and direction

Motor Feedback

E - Encoder, smart encoder,  
Heidenhain EnDat  
R - Resolver

Motor Speed-Torque Performance Curves

Please refer to [www.parkermotion.com](http://www.parkermotion.com) for motor/drive performance curves. The Aries drive is compatible with the following Parker motor series:

Rotary Motors  
Linear Motors

MPP Series, BE Series, SM Series  
Trilogy linear motors and actuators, LXR linear stages

Cables & Accessories

Aries Drive to Controller  
Drive

Controller

Cable

AR-_-A- AR-_-A-	ACR Controller (RBC Breakout on ACR9000) 6K Controller	71-021599-04 71-021600-04
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Aries Drive to Motor  
Drive

Motor

Power Cable

Feedback Cable

AR-01 – AR-08 AR-13 – AR-30	PS or Option 5 connection motors PS or Option 5 connection motors	P-1A1-xx P-3B1-xx	F-1A1-xx F-1A1-xx
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Aries Accessories  
Part Number

Description

71-021609-01 VM26-PM VM15-PM	Aries RS-232/485 serial communication dongle 26-pin screw terminal breakout for drive I/O connector 15-pin screw terminal breakout for feedback connector
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AR-01 – AR-13

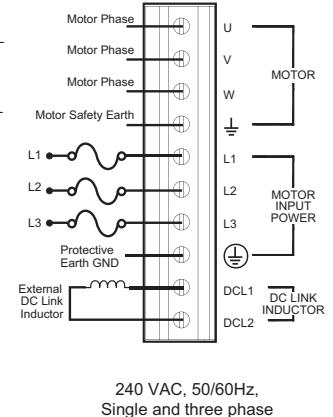
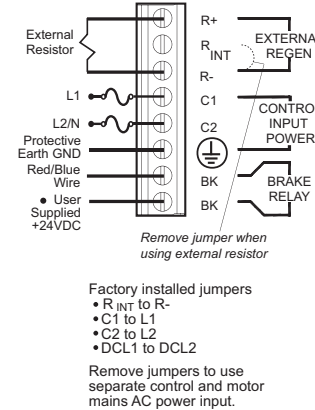
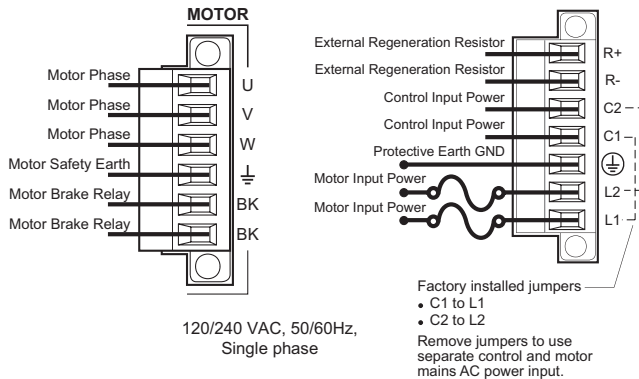
AR-20 and AR-30

Output Power Connector

Mains Power Connector

Control Connector

Power/Motor Connector



Drive I/O Connector

Encoder Feedback

Resolver Feedback

Signal	Pin	Signal	Pin
ENABLE+	1	DIRECTION+	12
ENABLE-	21	DIRECTION-	13
DGND	2	AIN+	14
ENC A+	3	AIN-	15
ENC A-	4	DGND	17
ENC B+	5	RESET+	18
ENC B-	6	RESET-	23
ENC Z+	7	DGND	19
ENC Z-	8	DGND	20
FAULT+	9	DGND	22
FAULT-	16	DGND	24
STEP+	10	RS-232Rx/RS-485+	25
STEP-	11	RS-232Tx/RS-485-	26

Signal	Pin
ENC Z+/DATA+	1
ENC Z-/DATA-	2
DGND	3
+5 VDC (250mA max)	4
+5 VDC (250mA max)	5
DGND	6
ENC A-/SIN-	7
ENC A+/SIN+	8
Hall 1/SCLK+	9
Thermal+	10
Thermal-	15
ENC B-/COS-	10
ENC B+/COS+	12
Hall 2/SCLK-	13
Hall 3	14

Signal	Pin
No Connection	1
No Connection	2
Thermal-	3
Reference+	4
Reference-	15
No Connection	5
Thermal-	6
Thermal+	10
SIN-	7
SIN+	8
No Connection	9
COS-	11
COS+	12
No Connection	13
No Connection	14

NOTE: A box surrounding the pins indicates that twisted-pair wiring is required.

## Aries Dimensions

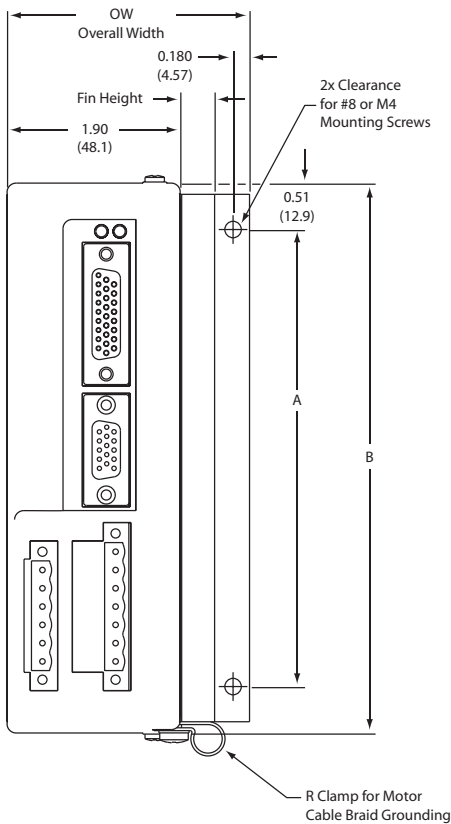
Drive Dimensions

Drive	A- in (mm)	B- in (mm)	Fin Height in (mm)	Overall Width (OW) in (mm)
AR-01	5.00 (127)	6.02 (153)	0.010 (0.25)	2.29 (58.2)
AR-02	5.00 (127)	6.02 (153)	0.375 (9.5)	2.65 (67.3)
AR-04	6.00 (152)	7.02 (178)	0.625 (15.9)	2.90 (73.7)
AR-08	6.00 (152)	7.02 (178)	1.000 (25.4)	3.28 (83.3)
AR-13	6.00 (152)	7.02 (178)	2.00 (50.8)	4.28 (108.7)
AR-20 & 30	-	-	1.48 (37.5)	4.67 (118.5)

Drive	Overall Depth in (mm)	Overall Depth with Cables in (mm)
AR-01	5.05 (128)	7.60 (193)
AR-02	5.05 (128)	7.60 (193)
AR-04	5.05 (128)	7.60 (193)
AR-08	5.05 (128)	7.60 (193)
AR-13	5.05 (128)	7.60 (193)
AR-20 & 30	6.72 (171)	9.27 (235.5)

### AR-01 – AR-13



### AR-20 and AR-30

