

Model	Compliant with:	
IPA04-HC IPA15-HC	CE Marking Directive 93/68/EEC	CE
	Low Voltage Directive 2006/95/EC	LVD
	EMC Directive 2004/108/EC	EMC

This product has been shown to meet the requirements of both UL508C as a Recognized Component, and the European Union CE requirements for Marking (93/68/EEC), Safety (IEC 61010-1 ed3.0 per 2006/95/EC Low Voltage Directive) and Electromagnetic Compatibility (IEC 61800-3 ed2.0 per 204/108/EC) when installed, operated and maintained as described in the product Hardware Installation Guide.

Per IEC 61800-3 ed2.1 section 3.2.5, the IPA is considered a PDS (Power Drive System) of rated voltage less than 1000V, intended for use in the second environment (industrial) and not intended for direct use in the first environment (residential). This means only those individuals familiar with the EMC requirements of power drive systems should install this product and that this product is designed for connection to mains distribution networks other than low-voltage networks, which may supply domestic premises. The drives can tolerate atmospheric pollution degree 2, which means only dry, non-conductive pollution is acceptable.



Safety Warning



High-performance motion control equipment is capable of producing rapid movement and very high forces. Unexpected motion may occur especially during the development of controller programs. KEEP WELL CLEAR of any machinery driven by stepper or servo motors. Never touch any part of the equipment while it is in operation. This product is sold as a motion control component to be installed in a complete system using good engineering practice. Care must be taken to ensure that the product is installed and used in a safe manner according to local safety laws and regulations. In particular, the product must be positioned such that no part is accessible while power may be applied. This and other information from Parker Hannifin Corporation, its subsidiaries, and authorized distributors provides product or system options for further investigation by users having technical expertise. Before you select or use any product or system, it is important that you analyze all aspects of your application and review the information concerning the product in the current product catalog. 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, safety, and warning requirements of the application are met. If the equipment is used in any manner that does not conform to the instructions given in this user guide, then the protection provided by the equipment may be impaired.

IPA Intelligent Parker Amplifier Quick Reference Guide

IPA Servo Drive/Controller



Electromechanical Division
Parker Hannifin Corporation
p/n 88-032480-01A
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<http://www.parkermotion.com/ipa>



X5 – Drive I/O		
Signal	Pin	
Input 0+	1	
Input 0–	14	
Input 1+	2	
Input 1–	15	
Input 2+	3	
Input 2–	16	
High-Speed Input 4+	4	
High-Speed Input 4–	17	
High-Speed Input 5+ (or Aux Encoder A+)*	5	
High-Speed Input 5– (or Aux Encoder A–)*	18	
High-Speed Input 6+ (or Aux Encoder B+)*	6	
High-Speed Input 6– (or Aux Encoder B–)*	19	
Input 3+	7	
Input 3–	20	
5VDC	8	
GND	21	
Output 32+	9	
Output 32–	22	
Output 33+	10	
Output 33–	23	
Output 34+	11	
Output 34–	24	
Output 35+	12	
Output 35–	25	
Not used	13	

*Can be used as a high-speed input or an auxiliary encoder. Twisted pairs are outlined by a box.

Drive Controller Status LEDs			
Middle LED	Top LED	What it means	
Off	Green	Drive enabled	
Yellow	Green	Drive enabled, Regeneration active	
Yellow/Green (alternating)	Green	Drive enabled, Autorun mode	
Off	Red	Drive disabled, No faults	
Yellow	Red	Drive disabled, No bridge power	
Yellow & 1 Green (flash)	Red	Drive disabled, Bridge fault	
Yellow & 2 Green (flashes)	Red	Drive disabled, Feedback fault	
Yellow & 3 Green (flashes)	Red	Drive disabled, Thermal fault	
Yellow & 4 Green (flashes)	Red	Drive disabled, Other fault	
Yellow & 5 Green (flashes)	Red	Drive disabled, Drive parameter fault	
Green	Red	Hardware watchdog fault – Ethernet LED will be Red	

*On power-up, the LED patterns will cycle until the drive is fully booted.

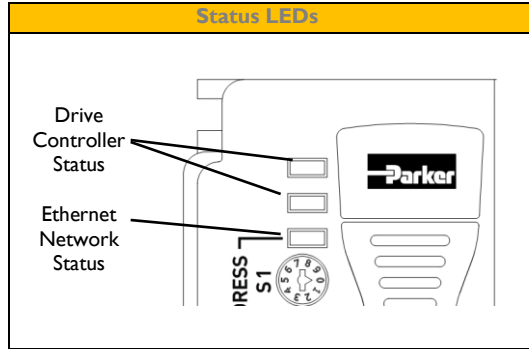
X7 – EN/AIN			
	Signal	Pin	Description
	CUST_24V	1	Control keep alive power
	TRQ_EN1	2	Torque enable input 1
	TRQ_EN2	3	Torque enable input 2
	TRQ_EN_24V	4	Bypass power for TE (30mA max)
	ANALOG_IN0	5	Differential analog input 0 +/-10V
	ANALOG_IN1	6	Differential analog input 1 +/-10V
	CUST_COM	7	Common for control keep alive power
	TRQ_EN1	8	Torque enable input 1
	TRQ_EN2	9	Torque enable input 2
	TRQ_EN_COM	10	Common for TRQ_EN_24V
	/ANALOG_IN0	11	Differential analog input 0 +/-10V
	/ANALOG_IN1	12	Differential analog input 1 +/-10V

Factory installed jumpers for the Torque Enable Input. Remove to enable externally.

X6 – Motor Feedback		
Signal	Pin	Description
ENC Z+ / DATA+	1	Encoder Z Channel in
ENC Z- / Data-	2	Encoder Z Channel in
DGND	3	Encoder power return
+5 VDC	4	+5 VDC Encoder power
+5 VDC	5	+5 VDC Hall power
DGND	6	Hall power return
ENC A- / SIN-	7	Encoder A Channel in
ENC A+ / SIN+	8	Encoder A Channel in
Hall 1 / SCLK+ *	9	Hall 1 input
Thermal+	10	Motor thermal switch/thermistor
Thermal-	15	Motor thermal witch/thermistor
ENC B- / COS-	11	Encoder B Channel in
ENC B+ / COS+	12	Encoder B Channel in
Hall 2 / SCLK- *	13	Hall 2 input
Hall 3	14	Hall 3 input

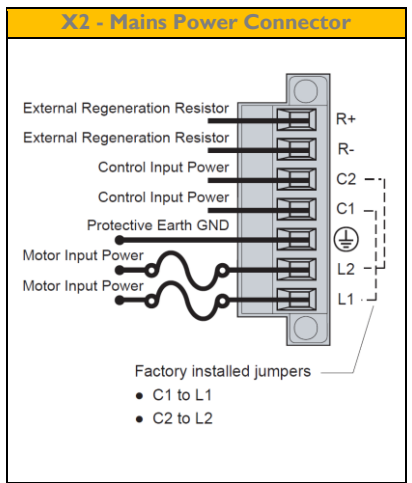
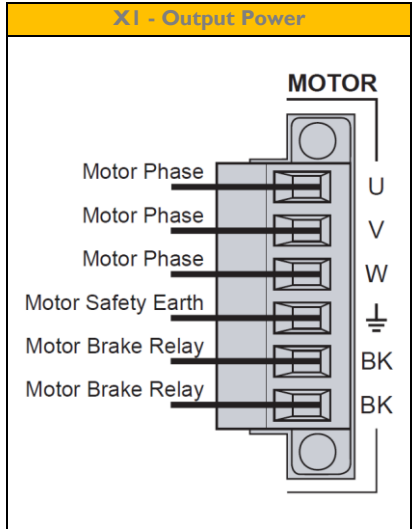
*When using the SinCos protocol, pins 9 and 13 require twisted pair wiring. Twisted pairs are outlined by a box.

X8 - HD5L (Future Feature)		
Signal	Pin	
12VDC/ DATA+	1	
GND/ DATA-	2	



Ethernet Network Status LED (Bottom)	
LED Status	What it means
Off	Reset or not active
Green	TCP connection
Red	UDP Connection
Red/Green	Alternating: UDP & TCP connection active

Ethernet Status LEDs			
LED	State	What it means	
Ethernet Link/ Activity	Off	No Ethernet link detected	
	Yellow, flashing	Ethernet link established; activity	
	Yellow	Ethernet link established	
Ethernet Speed	Off	Ethernet 10Mbps	
	Green	Ethernet 100Mbps	



IP Address Switches

The unit's IP address is 192.168.100.xx, with the last octet xx set with the rotary decimal switches. For example: to set to 14, rotate x10 switch to 1 and x1 switch to 4. Valid range is 01 to 99; 00 is not valid. (Set the IP address of your PC to 192.168.100.yyy, where yyy ≠ xx.)

Power Supply

120/240 VAC, 50-60Hz, single phase

Warning!

- You must connect the unit's protective conductor terminal, marked with the earth symbol ⊕ to a reliable system Protective Earth.
- The unit's connector strip terminals are at hazardous voltages when power is applied to the IPA Controller, and up to several minutes after power is removed. Lower voltages may still be present for several minutes after power is removed.
- During normal operation, these high voltage terminals must not be accessible to the user.

Fuse Information

The IPA has no internal fuses. For safety, you must provide a fuse in each of the AC input lines. See Fuse Information in the IPA Hardware Installation Guide.