



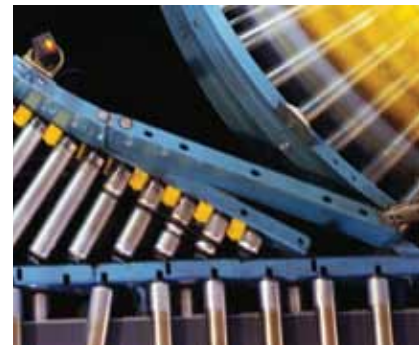
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climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



AC10 Variable Speed Drive

For Simple, Reliable Motor Control in General Purpose Applications

0.25 - 30 HP (0.2-22 kW)



ENGINEERING YOUR SUCCESS.



WARNING - USER RESPONSIBILITY

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Parker Hannifin

The global leader in motion and control technologies and systems

Global Partnerships Global Support

Parker is committed to helping make our customers more productive and more profitable through our global offering of motion and control products and systems. In an increasingly competitive global economy, we seek to develop customer relationships as technology partnerships. Working closely with our customers, we can ensure the best selection of technologies to suit the needs of our customers' applications.



Electromechanical Technologies for High Dynamic Performance and Precision Motion

Parker electromechanical technologies form an important part of Parker's global motion and control offering. Electromechanical systems combine high performance speed and position control with the flexibility to adapt the systems to the rapidly changing needs of the industries we serve.



aerospace
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SSD Drives Division Manufacturing

Parker SSD drive products are manufactured globally to provide our customers with quality products at a competitive price point. In addition to factory-direct support, Parker provides sales assistance and local technical support through a group of dedicated sales teams and a network of authorized systems integrators, field service engineers, and technical distributors across the globe. For contact information, please refer to the Sales Offices listed on the back cover of this document or visit www.parker.com/ssdusa



Charlotte, NC



Littlehampton, UK



Wuxi, China



Chennai, India

Variable Speed Drive - AC10 Series

Overview

Description

AC10 Micro Drive is a simple, reliable and economical solution to every-day motor control applications requiring speed or torque control within the power range of 0.25 HP to 30 HP. Having compact dimensions and features normally only associated with higher specification drives, including, sensorless vector mode, output frequency up to 590 Hz, 3 phase 460 V supplies in all 5 frame sizes and a full 150% overload at 0.5 Hz for 1 minute, AC10 provides an optimized solution for OEM machine builders looking for a compact, cost-effective drive without compromising on performance. The AC10 is suitable for either AC induction or permanent magnet AC motor designs.

Features

Simplicity

AC10 is designed to reduce the time and effort required to install, setup and commission through its easy to use integrated keypad. Minimal wiring requirements and two easily accessed terminal rails make AC10 fast and simple to install, having you up and running in no time at all. Auto-tuning sensorless vector mode takes AC10 beyond simple V/Hz control allowing users requiring greater dynamic speed or torque control for their application to benefit from the drives enhanced 0.5% speed and 5% torque accuracy.

Reliability

Proven technology and manufacturing techniques ensure AC10 has been engineered and built to deliver consistently outstanding levels of performance day in, day out ensuring maximum uptime and productivity. Thanks to its conformally coated PCBs, AC10 is able to withstand even the most severe class 3C3 environment which many other drives in this class would struggle with, allowing you to operate AC10 with the utmost confidence in more applications



Technical Characteristics - Overview

Power Supply	220V - 240V $\pm 15\%$ Single Phase 220V - 240V $\pm 15\%$ Three Phase 380V - 480V $+10\%/-15\%$ Three Phase
Input Frequency	44-67 Hz
Power Range	0.25-30 HP (0.2-22 kW)
Operating Temperature	0-40 °C
Protection	IP20
Analog Inputs	2x (0-10 V, 0-5 V, 0-20 mA, 4-20 mA)
Analog Outputs	1x (0-10 V, 0-20 mA)
Digital Inputs	5x 24 VDC
Digital Outputs	1x 24 VDC
Relay Output	1x 5 A @230 VAC





Inverter Duty AC Induction Motors

An ideal complement to AC10, an inverter duty AC motor matched to the AC10 will provide you with a complete motor/drive package for optimal performance in your application.

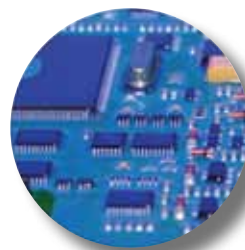


Permanent Magnet AC Motors

Parker manufactures a line of compact and energy efficient permanent magnet AC motors that are compatible with the AC10.

AC10 Drives Range

One of the smallest micro-drives available and with five different frame sizes covering a power range of 0.25 HP through to 30 HP, AC10 is a low-cost, compact solution for simple AC induction motor control in a wide range of applications across a host of different industries.



Suited to all environments

- Optional Internal EMC filter allows use in C3 industrial environments
- Conformal coating provides protection in arduous class 3C3 environments
- Global availability and support
- 50°C operating temperature (with derating)
- Fan-cooled heatsink, convection cooled electronics



Flexible I/O

- Flexible digital inputs and outputs, and relay output to suit your application needs
- 1 analog output and 2 analog inputs for connection to speed potentiometers and panel meters
- Internal dynamic brake switch as standard



Modbus/RS485 communication

- Connection to Parker PDB drive setup and monitoring tool
- Connection to PLC or other Modbus RTU/RS485 network



Extra power when it's needed

- 150 % overload for 60 seconds at 0.5 Hz to provide extra starting torque for shifting high inertia loads
- Output power can be up-rated for operation in lower ambient temperatures



Simple or enhanced performance

- Simple V/Hz control for general energy saving applications
- Enhanced auto-tuning sensorless vector control providing higher dynamic performance for applications requiring greater speed or torque accuracy



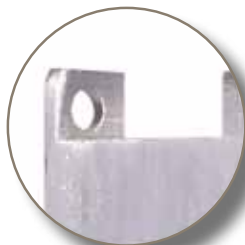
All at the touch of a button

- Standard ergonomic keypad providing full access to all drive functions
- 4 LEDs provide instant indication of drive status
- Remote mountable keypad option for ease of setup and operation
- Simple out of the box operation thanks to integrated macros and quick start guide



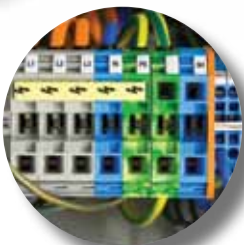
High Speed Operation

- Up to 590 Hz output for high speed operations such as spindles, centrifuges, mixers etc.



Compact Dimensions

- When compared to other micro drives of similar functionality, AC10 is noticeably more compact reducing cabinet space and freeing up valuable floor space.



Choice of operating voltages

- 230V single and three phase input up to 3 HP
- 480V three phase input from 0.25 HP through 30 HP



Control at your fingertips

AC10 comes complete with an ergonomic operator keypad as standard, featuring 4 LED drive status indicators, a 4 digit 7 segment LED display and a tactile membrane style keypad.

In addition to displaying operating status and running information, the LED display is also used to access drive configuration parameters which can be quickly and easily changed via the keypad. A three level menu structure ensures that configuration is simple and organized.

The keypad can also be used to take local control of the motor to start, stop, increase or decrease motor speed.

An optional remote mounting keypad is also available, providing the same functionality as the drive mounted keypad.

Applications

AC10 provides a no-fuss approach to general purpose industrial motor control applications across a wide range of industries, giving users the benefits of the inherent energy-saving properties of using a variable speed drive, as well as the improved reliability and extended service life benefits associated with smoother starting and stopping of regularly cycling loads.

Making use of pre-defined control logic, **Application Macros** enable users to quickly configure the AC10 for control of one of a number of pre-defined functions. Information is presented to the user in a template format which can then be simply and easily populated with the specific details of the application.

Typical applications for AC10 include...

- Conveyor
- Centrifuge
- Fans
- Mixers
- Packaging Machines
- Textile Machines
- Pumps
- Strapping Machines
- Labeling Machines
- Industrial Washing Machines
- Machine Tool Spindles
- Roller Doors



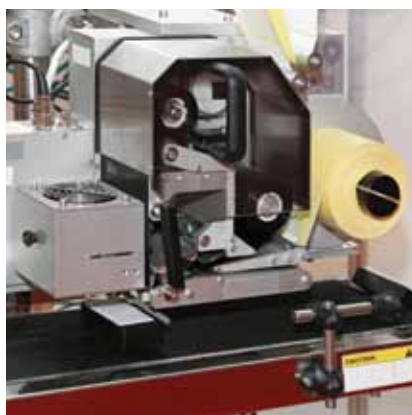
Conveyors



Fans

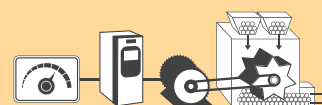


Mixers



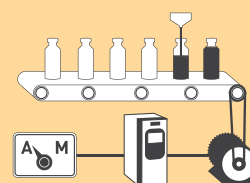
Packaging Machines

AC10 Standard Application Macros include...



BASIC SPEED CONTROL

Set speed and voltage or current with start/stop direction control



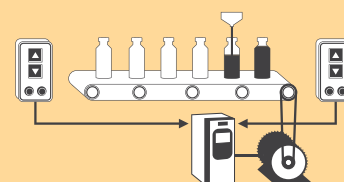
AUTOMATIC/MANUAL CONTROL

Set to run with local speed setting or external reference



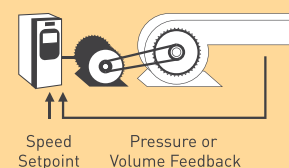
PRESET SPEED CONTROL

Select up to 8 pre-programmed speeds using digital inputs



RAISE/LOWER

Increase or reduce speed using digital inputs



PID CONTROL

Control the pressure, flow, temperature or any process variable

Technical Characteristics

Power Ratings

230V Single Phase Input					480V Three Phase Input				
Part Number	Nominal Power		Output Current [A]	Frame Size	Part Number	Nominal Power		Output Current [A]	Frame Size
	HP	kW				HP	kW		
10G-11-0015-BN	0.25	0.2	1.4	1	10G-41-0006-BN	0.25	0.2	0.5	1
10G-11-0025-BN	0.5	0.4	2.4	1	10G-41-0010-BN	0.5	0.4	0.9	1
10G-11-0035-BN	0.75	0.55	3.3	1	10G-41-0015-BN	0.75	0.55	1.3	1
10G-11-0045-BN	1	0.75	4.3	1	10G-42-0020-BN	1	0.75	1.7	2
10G-12-0050-BN	1.5	1.1	4.8	2	10G-42-0030-BN	1.5	1.1	2.6	2
10G-12-0070-BN	2	1.5	6.7	2	10G-42-0040-BN	2	1.5	3.5	2
10G-12-0100-BN	3	2.2	9.6	2	10G-42-0065-BN	3	2.2	5.7	2
230V Three Phase Input					10G-43-0090-BN	5	4	7.8	3
Part Number	Nominal Power		Output Current [A]	Frame Size	10G-43-0120-BN	7.5	5.5	10	3
	HP	kW			10G-44-0170-BN	10	7.5	15	4
10G-31-0015-BN	0.25	0.2	1.4	1	10G-44-0230-BN	15	11	20	4
10G-31-0025-BN	0.5	0.4	2.4	1	10G-45-0320-BN	20	15	28	5
10G-31-0035-BN	0.75	0.55	3.3	1	10G-45-0380-BN	25	18.5	33	5
10G-31-0045-BN	1	0.75	4.3	1	10G-45-0440-BN	30	22	38	5
10G-32-0050-BN	1.5	1.1	4.8	2					
10G-32-0070-BN	2	1.5	6.7	2					
10G-32-0100-BN	3	2.2	9.6	2					

Electrical Characteristics

Power Supply	1 phase 220V - 240V $\pm 15\%$ 3 phase 220V - 240V $\pm 15\%$ 3 phase 380V - 480V $+10\%/-15\%$
Rated Input Frequency	44-67 Hz
Maximum Switching Frequency	10 kHz without derating
Overload	150% of Rated Current for 60 seconds
Output Frequency	0.5-590 Hz
Switching Frequency	2-10 kHz selectable
Control Mode	Volts/Hertz or Sensorless Vector (SLV) Mode
Earth Leakage Current	>10 mA (all models)



Environmental Characteristics

Temperature range	Operating Temperature: 0-50°C, derate above 40°C
Humidity	Operating humidity: Below 90% Relative Humidity, non-condensing
Vibration	Below 0.5 g
Altitude	1000 m ASL
Protection Degree	IP20
Chemically Active Substances	For the standard product, compliance with EN60271-3-3 is Class 3C3

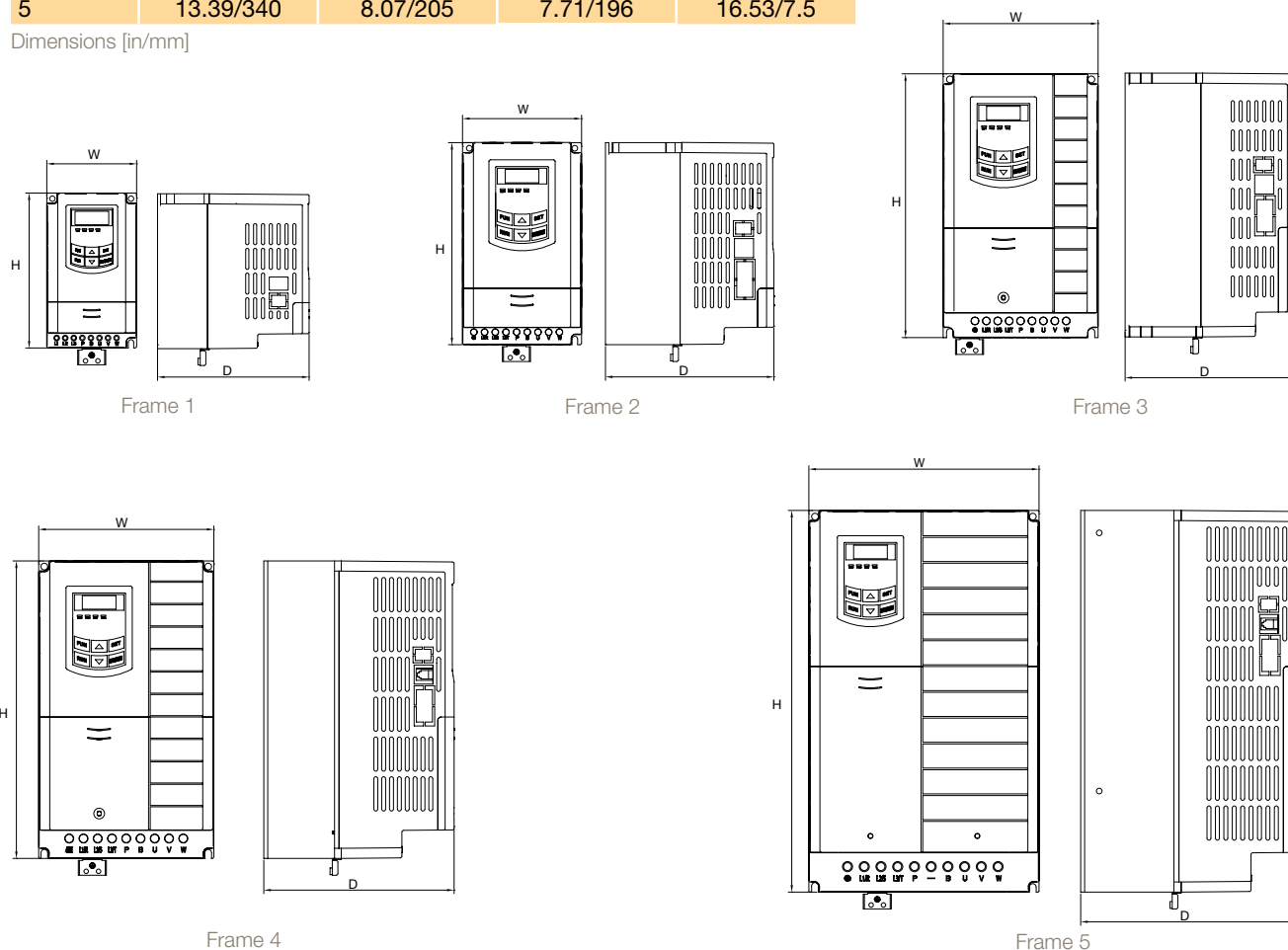
Standards and Conformance

Overvoltage Category	Overvoltage category III (numeral defining an impulse withstand level)
EMC Compatibility	Meets the requirements of IEC/EN61800-3 : 2004 "Adjustable speed electrical power drive systems – Part 3"
Certifications	UL Listed. UL508C and CSA 22.2

Dimensions

AC10				
Frame	Height (H)	Width (W)	Depth (D)	Weight [lb/kg]
1	5.43/138	3.15/80	5.31/135	2.76/1.25
2	7.09/180	4.17/106	5.91/150	3.88/1.76
3	9.25/235	5.43/138	5.98/152	6.53/2.96
4	10.43/265	6.14/156	6.69/170	10.80/4.9
5	13.39/340	8.07/205	7.71/196	16.53/7.5

Dimensions [in/mm]



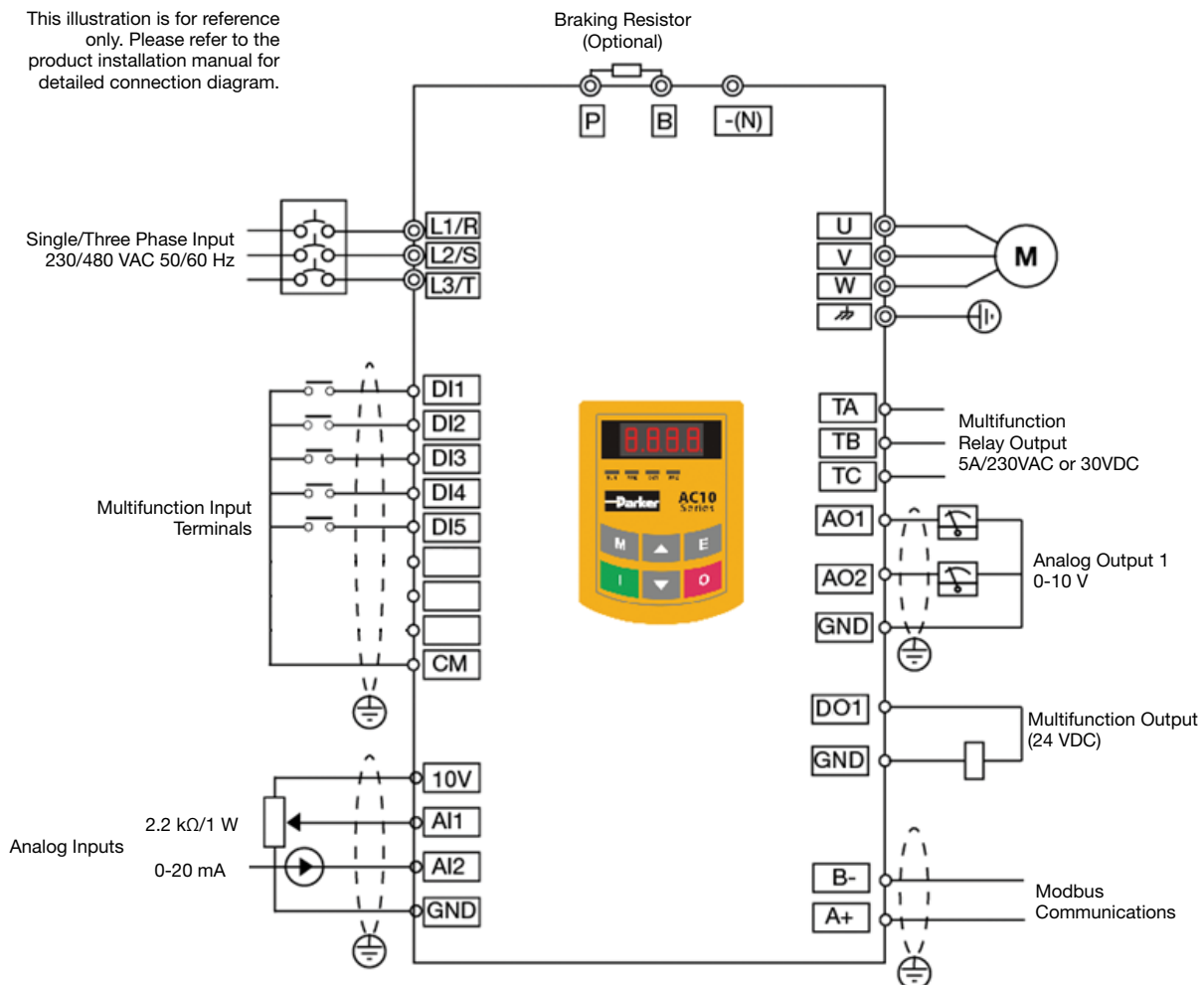
Connections

Terminal	Description
L1/R	Single or three phase input L1
L2/S	Single or three phase input L2
L3/T	Three phase input L3
P	Braking Resistor
B	Braking Resistor
U	Motor Output phase 1/U
V	Motor Output phase 2/V
W	Motor Output phase 3/W

- Analog Inputs: (0-10 V, 0-5 V, 0-20 mA, 4-20 mA)
- Analog Output: (0-10 V, 0-20 mA)
- Digital Inputs: Nominal 24 VDC
- Digital Output: Nominal 24 VDC
- Relay Output: Volt free (dry) contact, 5A@230 VAC max

Terminal	Description
TA	Alarm N/O relay contact, 5 amp rated
TB	Alarm N/C relay contact, 5 amp rated
TC	Drive Alarm common
DO1	Digital Output 1
24V	24 VDC Power output (max 50 mA)
CM	0 V DC common
DI1	Digital Input 1
DI2	Digital Input 2
DI3	Digital Input 3
DI4	Digital Input 4
DI5	Digital Input 5
10V	10 V Reference supply (max 20 mA)
AI1	Analog input 1
AI2	Analog input 2
GND	Power Supply 0 V
AO1	Analog Output
A+	RS485 Channel A
B-	RS485 Channel B

This illustration is for reference only. Please refer to the product installation manual for detailed connection diagram.



Accessories and Options

Remote Mounting Keypad

The remote mounting keypad allows users to mount the keypad away from the drive, such as on the door of an electrical enclosure, allows users to configure, operate and monitor the drive without having to access the drive directly. The remote keypad provides the same functionality as the drive mounted keypad and is connected to the drive via a 1.5 meter cable plugged into the port on the left hand side of the drive.



Order Code	Description
1001-00-00	Remote Keypad (All AC10)

Three Phase Line Reactor

Line reactors can help limit input harmonics and act as a current limiting device. They help protect the AC10 from potentially harmful power line disturbances.

AC10 Part Number	HP (230V)	Line Reactor Part Number	Inductance [mH]
10G-31-0015-BN	0.25	CO473957U016	6.9
10G-31-0025-BN	0.5	CO473957U021	5.3
10G-31-0035-BN	0.75	CO473957U034	3.2
10G-31-0045-BN	1	CO473957U048	2.3
10G-32-0050-BN	1.5	CO473958U110	2.1
10G-32-0070-BN	2	CO473957U076	1.5
10G-32-0100-BN	3	CO473957U110	1



AC10 Part Number	HP (480V)	Line Reactor Part Number	Inductance [mH]
10G-41-0006-BN	0.25	CO473958U010	33
10G-41-0010-BN	.5	CO473958U011	21
10G-41-0015-BN	.75	CO473958U016	14
10G-42-0020-BN	1	CO473958U021	11
10G-42-0030-BN	1.5	CO473958U047	7.7
10G-42-0040-BN	2	CO473958U034	6.8
10G-42-0065-BN	3	CO473958U048	4.8
10G-43-0090-BN	5	CO473958U076	3
10G-43-0120-BN	7.5	CO473958U110	2.1
10G-44-0170-BN	10	CO473958U140	1.6
10G-44-0230-BN	15	CO473958U210	1.1
10G-45-0320-BN	20	CO473958U280	0.82
10G-45-0380-BN	25	CO473958U350	0.71
10G-45-0440-BN	30	CO473958U460	0.55

Circuit Breakers

AC10 Part Number	HP Rating (230V single phase)	Circuit Breaker Part Number
10G-11-0015-BN	0.25	DC473952U010
10G-11-0025-BN	0.5	
10G-11-0035-BN	0.75	
10G-11-0045-BN	1	DC473952U015
10G-12-0050-BN	1.5	
10G-12-0070-BN	2	
10G-12-0100-BN	3	DC473952U040

AC10 Part Number	HP Rating (230V 3 phase)	Circuit Breaker Part Number
10G-31-0015-BN	0.25	DC472106U015
10G-31-0025-BN	0.5	
10G-31-0035-BN	0.75	
10G-31-0045-BN	1	
10G-32-0050-BN	1.5	DC472106U020
10G-32-0070-BN	2	
10G-32-0100-BN	3	

AC10 Part Number	HP Rating (480V)	Circuit Breaker Part Number
10G-41-0006-BN	0.25	DC472106U015
10G-41-0010-BN	0.5	
10G-41-0015-BN	0.75	
10G-42-0020-BN	1	
10G-42-0030-BN	1.5	
10G-42-0040-BN	2	
10G-42-0065-BN	3	DC472106U020
10G-43-0090-BN	5	
10G-43-0120-BN	7.5	DC472106U030
10G-44-0170-BN	10	
10G-44-0230-BN	15	DC472106U050
10G-45-0320-BN	20	DC472106U070
10G-45-0380-BN	25	DC472106U080
10G-45-0440-BN	30	

Accessories and Options

Fuse Kits

Fuse kits provide protection on the AC line side, and include fuses and fuse blocks. Provided loose for panel mounting.

AC10 Part Number	HP Rating (230V single phase)	Fuse Kit Part Number	AC10 Part Number	HP Rating (480V)	Fuse Kit Part Number
10G-11-0015-BN	0.25	LA473950U006	10G-41-0006-BN	0.25	LA473951U003
10G-11-0025-BN	0.5	LA473950U010	10G-41-0010-BN	0.5	LA473951U006
10G-11-0035-BN	0.75	LA473950U015	10G-41-0015-BN	0.75	
10G-11-0045-BN	1	LA473950U020	10G-42-0020-BN	1	LA473951U010
10G-12-0050-BN	1.5	LA473950U025	10G-42-0030-BN	1.5	
10G-12-0070-BN	2		10G-42-0040-BN	2	LA473951U015
10G-12-0100-BN	3	LA473950U030	10G-42-0065-BN	3	LA473951U020
			10G-43-0090-BN	5	LA473951U030
			10G-43-0120-BN	7.5	
			10G-44-0170-BN	10	LA473951U050
			10G-44-0230-BN	15	LA473951U080
			10G-45-0320-BN	20	
			10G-45-0380-BN	25	
			10G-45-0440-BN	30	

AC10 Part Number	HP Rating (230V 3 phase)	Fuse Kit Part Number
10G-31-0015-BN	0.25	LA473951U006
10G-31-0025-BN	0.5	LA473951U010
10G-31-0035-BN	0.75	
10G-31-0045-BN	1	LA473951U015
10G-32-0050-BN	1.5	LA473951U020
10G-32-0070-BN	2	
10G-32-0100-BN	3	LA473951U025

Contactors

Rated 690VAC, 3-pole design. Provided loose for panel mounting.

AC10 Part Number	HP Rating	Contactor Part Number
10G-1X-XXXX-BN	All	DB473959U020
10G-31-XXXX-BN	All	DB473959U020
10G-4X-XXXX-BN	0.25 - 10	DB473959U020
10G-45-0320-BN	15 - 20	DB473959U030
10G-45-XXXX-BN	25 - 30	DB473115U040

Control Transformer

Provides 120 volt single phase from 230/460 volt line. Transformer kit is rated 150VA, and includes primary and secondary fuses.

Order Code	Description
LA473961U0150	Control transformer kit
CH352006U015	Spare primary fuse
CH352124U025	Spare secondary fuse

Dynamic Braking Resistors

During deceleration, or with an over-hauling load, the motor acts as a generator. Energy flows back from the motor into the DC link capacitors within the drive, causing their voltage to rise. If this voltage exceeds a maximum value, the drive will trip to protect the capacitors and internal power devices. To increase the drive's dynamic braking capability, high power resistor(s), connected across the DC link, allow the dissipation of this excess energy for short term stoppage or braking.

AC10 Part Number	HP Rating	DB Kit Part Number	Resistance [Ohms]	Power [W]	AC10 Part Number	HP Rating	DB Kit Part Number	Resistance [Ohms]	Power [W]
10G-11-XXXX-BN	All	LA471357	100	200	10G-41-0006-BN	0.25	LA471353	500	60
10G-31-0015-BN	0.25	LA471357	100	200	10G-41-0010-BN	0.5			
10G-31-0025-BN	0.5				10G-41-0015-BN	0.75			
10G-31-0035-BN	0.75	LA471358	56	200	10G-42-0020-BN	1	LA471355	200	100
10G-31-0045-BN	1				10G-42-0030-BN	1.5			
10G-32-0050-BN	1.5				10G-42-0040-BN	2			
10G-32-0070-BN	2				10G-42-0065-BN	3			
10G-32-0100-BN	3				10G-43-0090-BN	5.0	LA471357	100	200
					10G-43-0120-BN	7.5			
					10G-44-0170-BN	10	LA471359	56	500
					10G-44-0230-BN	15			
					10G-45-0320-BN	20	Consult factory		
					10G-45-0380-BN	25			
					10G-45-0440-BN	30			



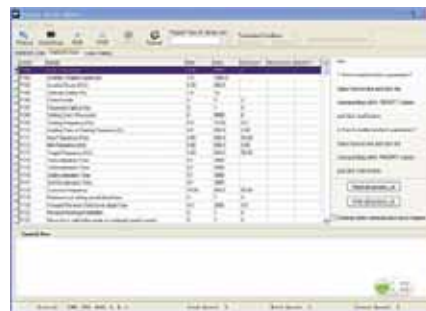
Software - Parker Drive Basic (PDB) Configuration and Diagnostic Monitoring Software

Parker Drive Basic is a monitoring and configuration software tool for use with AC10 Variable Speed Drives. It is provided free of charge with the AC10, and updates will be available as released on our website.

Connecting to the AC10 over Modbus, Parker Drive Basic enables users to import, modify and export drive parameters as well as providing a convenient means of starting, stopping and monitoring the operation of the drive.

Note: an RS232/RS485 adapter is required to enable connection between PC and drive.

To download PDB software, please visit www.parker.com/ssdusa/software



Order Code

AC10

	1	2		3	4		5		6	7
Order example	10	G	-	1	1	-	0015	-	B	N

1	Product Family	
	10	AC10 Variable Speed Drive
2	Industry	
	G	General Purpose
3	Voltage	
	1	230 V Single Phase
	3	230 V Three Phase
	4	480 V Three Phase
4&5	Frame Size & Rating	
	230 V Supply	
	1	0015 0.25 HP/0.2 kW
	1	0025 0.5 HP/0.4 kW
	1	0035 0.75 HP/0.55 kW
	1	0045 1 HP/0.75 kW
	2	0050 1.5 HP/1.1 kW
	2	0070 2 HP/1.5 kW
	2	0100 3 HP/2.2 kW
	480 V Supply	
	1	0006 0.25 HP/0.2 kW
	1	0010 0.5 HP/0.4 kW
	1	0015 0.75 HP/0.55 kW
	2	0020 1 HP/0.75 kW
	2	0030 1.5 HP/1.1 kW
	2	0040 2 HP/1.5 kW
	2	0065 3 HP/2.2 kW
	3	0090 5 HP/4.0 kW
	3	0120 7.5 HP/5.5 kW
	4	0170 10 HP/7.5 kW
	4	0230 15 HP/11 kW
	5	0320 20 HP/15 kW
	5	0380 25 HP/18.5 kW
	5	0440 30 HP/22 kW
6	Braking Module	
	B	Braking Module Installed
7	EMC Filter	
	N	No Filter Installed
	F	C3 EMC Filter Installed



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