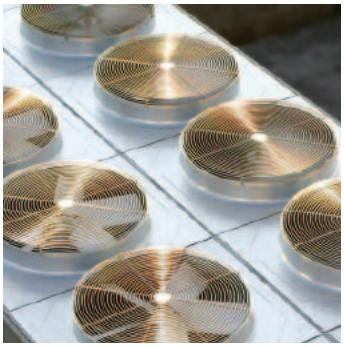
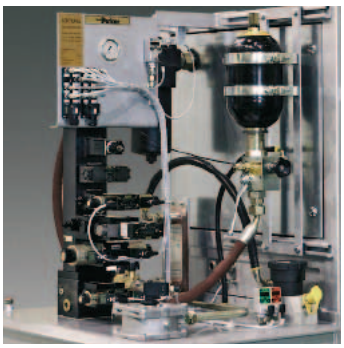


aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



AC30V Variable Speed Drive

For the Control of Pump, Fan and General Purpose Applications
0.75 - 18.5 kW

Parker

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.

Pump, Fan and General Purpose AC Drive - AC30V Drive

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Parker Hannifin

The global leader in motion and control technologies

A world class player on a local stage

Global Product Design

Parker Hannifin has more than 40 years experience in the design and manufacturing of drives, controls, motors and mechanical products. With dedicated global product development teams, Parker draws on industry-leading technological leadership and experience from engineering teams in Europe, North America and Asia.

Local Application Expertise

Parker has local engineering resources committed to adapting and applying our current products and technologies to best fit our customers' needs.

Manufacturing to Meet Our Customers' Needs

Parker is committed to meeting the increasing service demands that our customers require to succeed in the global industrial market. Parker's manufacturing teams seek continuous improvement through the implementation of lean manufacturing methods throughout the process. We measure ourselves on meeting our customers' expectations of quality and delivery, not just our own. In order to meet these expectations, Parker operates and continues to invest in our manufacturing facilities in Europe, North America and Asia.

Electromechanical Worldwide Manufacturing Locations

Europe
Littlehampton, United Kingdom
Dijon, France
Offenburg, Germany
Filderstadt, Germany
Milan, Italy

Asia
Wuxi, China
Chennai, India

North America
Rohnert Park, California
Irwin, Pennsylvania
Charlotte, North Carolina
New Ulm, Minnesota

Offenburg, Germany

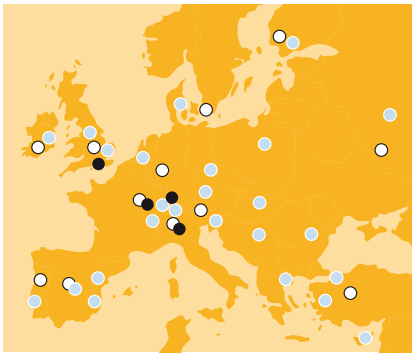
Local Manufacturing and Support in Europe

Parker provides sales assistance and local technical support through a network of dedicated sales teams and authorized technical distributors throughout Europe.

For contact information, please refer to the Sales Offices on the back cover of this document or visit www.parker.com

Milan, Italy

Littlehampton, UK



Electromechanical Manufacturing
Parker Sales Offices
Distributors

Dijon, France

Pump, Fan and General Purpose AC Drive - AC30V Drive

Overview

Description

AC30V drive has been designed to provide users with exceptional levels of control for pump, fan and general purpose applications. Its flexible and highly modular construction enables a wide range of communications and I/O modules to be easily added as required.

The AC30V has been designed with simplicity in mind, but this doesn't compromise its functionality. Integrated macros for a range of applications and PLC functionality enable more capable users to create sophisticated control that would previously have required a separate PLC.

Designed for operation in environment class 3C3 and 3C4 for Hydrogen Sulphide (H_2S) as standard (tested at 25 ppm for 1200 hours), temperatures up to 50 °C with optional integrated EMC filter to C2 1st environment and DC choke to reduce line harmonics. AC30V also complies with RoHS substance restrictions in accordance with EC Directive 2011/65/EU

Features

Flexibility

- **Suitable for operation with AC induction and Permanent Magnet AC (PMAC) servo motors**
- **Ethernet TCP/IP as standard**
- **I/O expansion options**
- **Support for popular industrial fieldbuses**
- **Chassis or through-panel mount as standard**

Simplicity

- **Parker Drive Quicktool (PDQ) drive management software tool**
- **Multi-language graphical keypad**
- **Quick start wizards**
- **Terminal covers removeable with drive in-situ**

Reliability

- **Conformally coated for harsh environment protection as standard**
- **Spring clamp control terminal connections**
- **Isolated power stack cooling with removable fan**

Technical Characteristics - Overview

Ratings
380-480 (±10 %) VAC Supplies Three Phase

Normal Duty				Heavy Duty				
kW	hp	Output Current [A_{rms}]		kW	hp	Output Current [A_{rms}]		Frame
		400 V	480 V			400 V	480 V	
1.1	1.5	3.5	3.0	0.75	1	2.5	2.1	D
1.5	2	4.5	3.4	1.1	1.5	3.5	3.0	D
2.2	3	5.5	4.8	1.5	2	4.5	3.4	D
3	4	7.5	5.8	2.2	3	5.5	4.8	D
4	5	10	7.6	3	4	7.5	5.8	D
5.5	7.5	12	11	4	5	10	7.6	D
7.5	10	16	14	5.5	7.5	12	11	E
11	15	23	21	7.5	10	16	14	E
15	20	32	27	11	15	23	21	F
18	25	38	36	15	20	32	27	F

Designed with you in mind

Throughout every stage of the design process, our engineering teams worked to equip the AC30V with a wealth of features that benefit both OEMs and End-users alike.

Working with the three principles of Flexibility, Simplicity and Reliability in mind, our engineers have created a product that not only delivers class-leading performance but also offers excellent useability in a host of motor control applications.

Flexibility (F)
A fully featured list of standard functionality along with the use of common control and option modules allows users to put the drive to work in many different applications without having to invest significant time and effort in re-engineering motor control systems.

Simplicity (S)
From the clear and consise backlit LCD display to the power terminal covers that can be removed with the drive in the cabinet, AC30V has been engineered to make the process of operating and maintaining the drive as easy as possible.

Reliability (R)
Although no one can guarantee problems will never happen, our engineers have taken every possible step to reduce the likelihood of them occurring, as well as including a number of features in the AC30V that will ensure any loss of productivity is minimised and production restarted as safely and as soon as possible.

Engineered cooling improves reliability

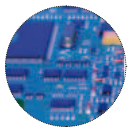
- Intelligent design minimises force ventilation requirements **(R)**
- Removable fan improves maintainability **(R)**
- Isolated power stack cooling path reduces contamination of control electronics **(R)**

Compact footprint, chassis or through-panel mounting

- Multi-position feet with keyhole slots for ease of mounting **(F)(S)**
- Reduced heat radiation allows side-by-side mounting **(F)**

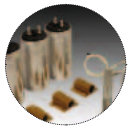
Unobstructed access to power and dynamic brake terminals

- Terminal covers removable with drive in-situ **(S)**
- Dynamic brake switch fitted as standard **(F)**



Suitable for harsh environments

- AC30V is conformally coated as standard and meets the requirements of environment classes 3C1, 3C2 (all defined substances) plus 3C3 and 3C4 for Hydrogen Sulphide (H_2S) **(F)(R)**



Suited to all environments

- Internal EMC filter options up to C2 1st environment for use in commercial buildings **(F)**
- CE marked to EN61800-5-1 and NTRL listed to UL508C and C22.2#14 **(F)(R)**
- DC chokes above 2.2 kW reduce harmonics to below IEC/EN61000-3-12 limits **(F)(R)**

Expandable I/O capabilities

- A range of option modules expand AC30V to accomodate application specific I/O **(F)**
- Spring clamp terminals reduce installation time and risk of loose connections **(S)(R)**

IEC61131 PLC functionality included

- The included PLC functionality enables AC30V to take greater control of its surrounding and in some instances removes the need for an external PLC altogether **(F)(S)**

Ethernet connectivity and inbuilt diagnostic web pages

- Inbuilt web pages allow AC30V to be interrogated over the onboard Ethernet and Modbus TCP/IP connection **(S)**

Simplified configuration and data storage with SD cards

- SD card simplifies firmware updates and allows drive configuration and data to be stored **(S)**

Intuitive and easy to use, multi-function graphical keypad

- Remote mountable and easy to use tactile keypad makes drive setup and operation simple **(S)**

Field-fittable communications

- Seamless integration into automation systems **(F)**

Safe-Torque-Off (STO) for safety critical applications

- Protecting users and machinery against unexpected motor start-up in accordance with EN13849-1 at PLe Cat3 or SIL 3 to EN61800-5-2 **(F)(R)**

Graphical keypad

The tactile IP55 keypad can be mounted either on the drive itself or remotely and provides access to all drive functions.

The backlit LCD display can be configured to present information in any one of a number of different languages, or even in your own custom language with your own user-defined units.

Simple setup wizard and macros

- **Integrated quick start wizards means you don't have to be an expert to configure the drive within minutes**
- **Dedicated macros and integrated function blocks simplify the creation of specific motor control applications**

Keypad Remote Mounting

The graphical keypad can be mounted remotely to the drive with the use of a connecting cable. When remote mounting, a blanking cover can be fitted to the drive in place of the keypad.

Simple and effective pump and fan control

Saving energy through speed control

Pumps and fans are widely used throughout industry. Some estimates suggest that a large proportion of these can be as much as 20 % oversized for the application they are used in. When these are operated at a constant speed, a significant amount of the power consumed by the motor is wasted, costing your company considerable amounts of money and creating additional CO_2 emissions.

Matching the speed of pumps and fans to process demands with the AC30V ensures that the motor will always operate at the optimal speed to deliver just the right amount of air or fluid. This can result in significant energy savings. A 20 % reduction in speed will actually reduce energy consumption by almost 50 % and payback can be achieved in **less than 18 months in many cases.**

Speed control = Savings

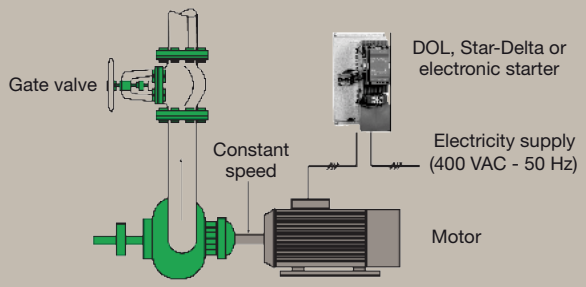
- Up to 50 % energy savings
- Improved power factor
- Reduced maintenance
- Quieter operation
- Increased service life
- Reduced carbon footprint

Improved power factor and service life

Pumps and fans that continuously operate at maximum speed inevitably have shorter life spans and are subject to unnecessary wear and tear. Variable speed drives can help improve service life while also reducing energy consumption and improving the power factor of your installations.

In addition to the cut in energy costs, you'll also see significant savings with maintenance and repair bills and a noticeable reduction in noise pollution as well.

Control by flow regulation, motor run at maximum speed

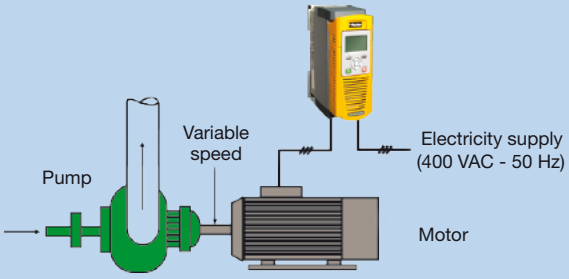


- Constant speed
- Power consumption higher than needed
- Poor power factor
- Higher energy costs
- Increased mechanical wear

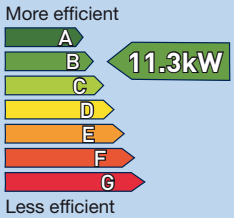
€ 23 126/Year

= 22 kW x 8760 h x € 0.12/kWh

Control by AC30V variable speed drive



- Variable speed
- Power consumption is matched to load
- Improved power factor
- Reduced energy costs
- Reduced maintenance



Assuming a 20 % reduction in speed Power
= (.8 x.8 x.8 x 22 kW) = 11.3 kW

€ 11 879/Year

= 11.3 kW x 8760 h x € 0.12/kWh

Total annual energy saving = € 11 247

Designed to put you in control of your energy savings

AC30V is supplied complete with a raft of features designed to simplify pump and fan control. In addition to quick setup, dedicated pump and fan macros, there are a number of other features dedicated to energy-saving pump and fan control such as:

Automatic belt breakage detection
Interactive monitoring of the running conditions of a fan allows AC30V to detect a breakage in the drive belt between the fan and motor, stop the motor and indicate an alarm condition.

Catching a spinning load - "fly-catching"
The fan control algorithms enable the AC30V to detect when a fan is free-wheeling and to regain control of it before running it at the commanded speed.

PID Control
Multiple PID control loops can be programmed to monitor process variables and adjust the speed of the motor accordingly to achieve the required variable setpoint.

Intelligent pump profiles
Our advanced intelligent pump control algorithms monitor motor loads and provides users with a number of features designed specifically for pump control applications, such as:

- Pump dry running protection
- Flow detection (low and no-flow)
- Blocked pump detection

Essential services (Fire mode)
Selected via digital input, Fire mode will cause the drive to run continuously at the maximum programmed speed ignoring all other control signals and alarm conditions.

Energy optimisation
Under constant speed conditions, the motor power waveforms from the drive are optimised to reduce motor energy consumption without compromising performance.

Skip frequencies
Up to 4 speed and frequency bands can be programmed in the AC30V, to enable resonant points on the fan to be avoided, reducing vibration, wear and noise.

Timed run function
10 daily start/stop events can be programmed with different running speeds across a 7 day period. This function requires the optional Real Time Clock (RTC) module and is ideally suited to applications where regular operating patterns or periods of activity need to be accomodated, such as in a production environment.

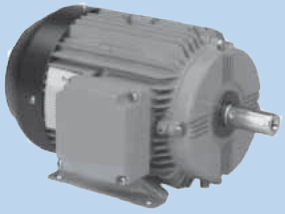
Process Timers
Multiple hours-run timers can be programmed to generate text alerts on the drive keypad to coincide with process maintenance intervals.

Engineered for any motor

In addition to the energy-saving associated with VSD control of pump and fans. Additional energy saving can be achieved by using permanent magnet (PMAC) servo motors. AC30V offers effective and affordable control of either AC induction motors or PMAC motors.

PMAC motors offer additional benefits over standard AC induction motors

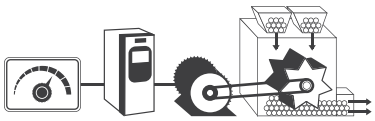
Up to 10 % additional energy saving
Up to 75 % smaller



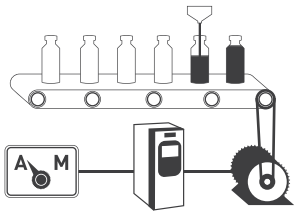
Application Macros

Making use of pre-defined control logic, application macros enables users to quickly configure the AC30V 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 specifc details of the application. This removes the complexity of designing the application logic from scratch.

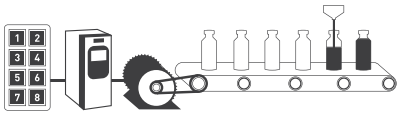
Basic Speed Control
Set speed and voltage or current with start / stop direction control



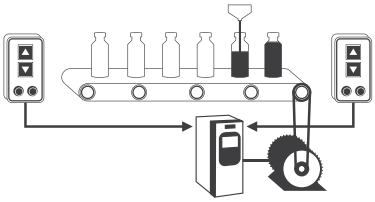
Automatic/Manual Control
Set to run with local speed setting or external reference



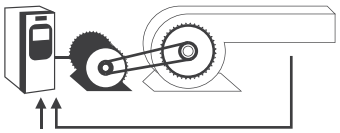
Preset Speed Control
Select up to 8 pre-programmed speeds using digital inputs



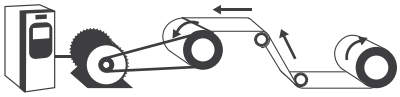
Raise / Lower
Increase or reduce speed using digital inputs



PID Control
Control the pressure, flow, temperature or any process variable

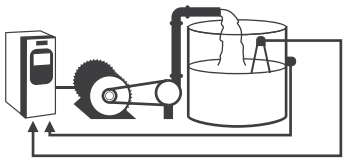


Torque Control
Control the motor torque limit using an analogue input

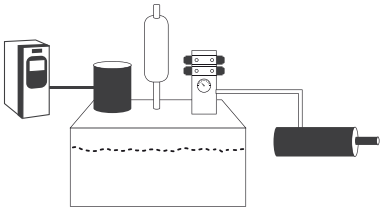


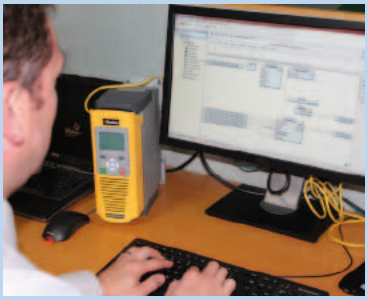
Fan Control
Dedicated fan control with specific fan functionality

Pump Control
Dedicated pump control with specific pump functionality



Hydraulic Pump Applications
Efficient control of hydraulic pump applications, including accumulator charging, pressure control, flow control





Integrated IEC61131 PLC Functionality

For applications requiring more flexibility or control than offered by the pre-defined application macros included in the drive, users have the ability to create their own control logic. The integrated IEC61131 functionality can be accessed and programmed with our advanced programming software. For more details, contact your local sales office.

Applications

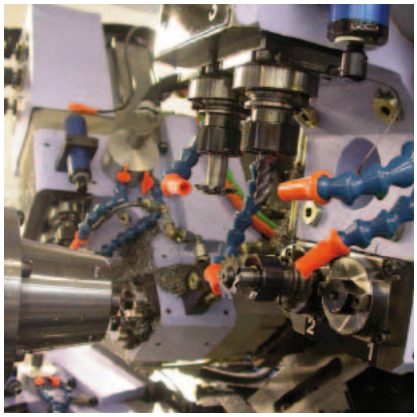
With over 30 years experience of designing and building AC and DC drives and systems, Parker has a wealth of expertise in a host of different industries. The AC30V has been built on this experience and incorporates many flexible and innovative features, making it ideally suited for use in many industrial and commercial applications. Additional communications and expanded I/O option modules extend the capabilities of the AC30V still further, making it an extremely flexible solution for all types of open-loop motor control requirements.

Industrial Pump Control

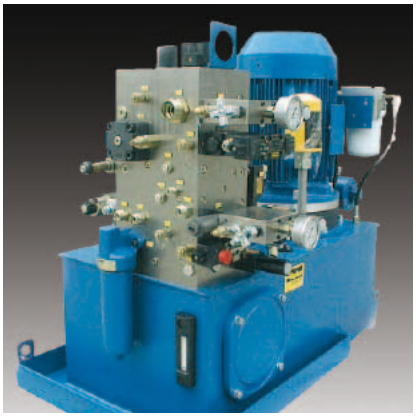
Industrial Fan Control

Conveyor Control

Air Compressor Control



Machine Spindle



Hydraulic Pump Control

Technical Characteristics

Power Ratings

Order Code	Normal Duty Ratings			Heavy Duty Ratings			Frame
	kW/HP	Output Current A_{rms}		kW/HP	Output Current A_{rms}		
		400 VAC	480 VAC		400 VAC	480 VAC	
380-480 (± 10 %) VAC Supplies Three Phase							
31V-4D0004-B●-■◆-0000	1.1/1.5	3.5	3.0	0.75/1	2.5	2.1	D
31V-4D0005-B●-■◆-0000	1.5/2	4.5	3.4	1.1/1.5	3.5	3.0	D
31V-4D0006-B●-■◆-0000	2.2/3	5.5	4.8	1.5/2	4.5	3.4	D
31V-4D0008-B●-■◆-0000	3/4	7.5	5.8	2.2/3	5.5	4.8	D
31V-4D0010-B●-■◆-0000	4/5	10	7.6	3/4	7.5	5.8	D
31V-4D0012-B●-■◆-0000	5.5/7.5	12	11	4/5	10	7.6	D
31V-4D0016-B●-■◆-0000	7.5/10	16	14	5.5/7.5	12	11	E
31V-4D0023-B●-■◆-0000	11/15	23	21	7.5/10	16	14	E
31V-4D0032-B●-■◆-0000	15/20	32	27	11/15	23	21	F
31V-4D0038-B●-■◆-0000	18/25	38	36	15/20	32	27	F

See Ordering Information for full order codes and description

Electrical Characteristics

Power Supply	400 V Nominal
Rated Input Voltage	3* 380...480 VAC ±10 %
Input Frequency	45...65 Hz
Maximum Switching Frequency	4 kHz up to maximum of 12 kHz - de-rating may apply
Overload: Heavy Duty	150 % for 30 seconds - 180 % for 0.5 s
Overload: Normal Duty	110 % for 30 seconds - 180 % of HD FLC. for 0.5 s
Output Frequencies	0...500 Hz at 4 kHz switching frequency
	0...1000 Hz at 8 kHz switching frequency
	0...1500 Hz at 12 kHz switching frequency
Earth Leakage Current	>10 mA (all models)
Input Power Factor	0.94

Environmental Characteristics

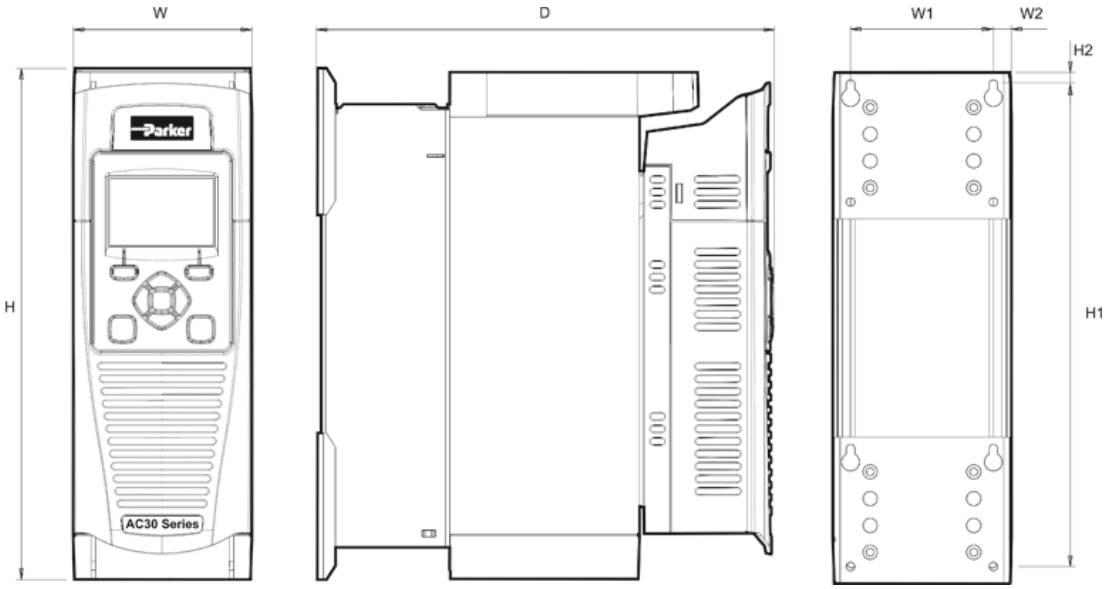
Operating Temperature	0...+40 °C Normal Duty, 0...+45 °C Heavy Duty. Derate up to a maximum of +50 °C
Storage Temperature	-25...+55 °C
Shipping Temperature	-25...+70 °C
Product Enclosure Rating	IP20 - remainder of surfaces (Europe) UL (c-UL) Open Type (North America/Canada)
(Cubicle mounted)	IP20 UL (c-UL) Open Type (North America/Canada)
(Through-panel mounted)	IP20 UL (c-UL) Open Type (North America/Canada)
Altitude	1000 m ASL. Derate output by 1 % per 100 m to a maximum of 2000 m
Operating Humidity	Maximum 85 % relative humidity at 40 °C non-condensing
Atmosphere	Non-flammable, non-corrosive and dust free
Climatic Conditions	Class 3k3, as defined by EN60721-3-3
Chemically Active Substances	For the standard product, compliance with EN60271-3-3 is: • Both classes 3C3 and 3C4 for Hydrogen Sulphide gas (H_2S) at a concentration of 25 ppm for 1200 hours • Both classes 3C1 (rural) and 3C2 (urban) for all 9 defined substances as defined in table 4
Operating Vibration	Test Fc of EN60068-2-6 10 Hz<=f<=57 Hz sinusoidal 0.075 mm amplitude 57 Hz<=f<=150 Hz sinusoidal 1 g 10 sweep cycles per axis on each of three mutually perpendicular axis

Standards and Conformance

Overvoltage Category	Overvoltage category III (numeral defining an impulse withstand level)
Pollution Degree	Pollution degree II (non-conductive pollution, except for temporary condensation) for control electronics Pollution Degree III (dirty air rating) for through-panel mounted parts
North America/Canada	Complies with the requirements of UL508C and CSA22.2 #14 as an open-type drive
Europe	This product conforms with the Low Voltage Directive 2006/95/EC
EMC Compatibility	CE Marked in accordance with 2004/108/EC (EMC Directive)
RoHS Compliance	This product complies with RoHS substance restrictions in accordance with EC Directive 2011/65/EU

Dimensions

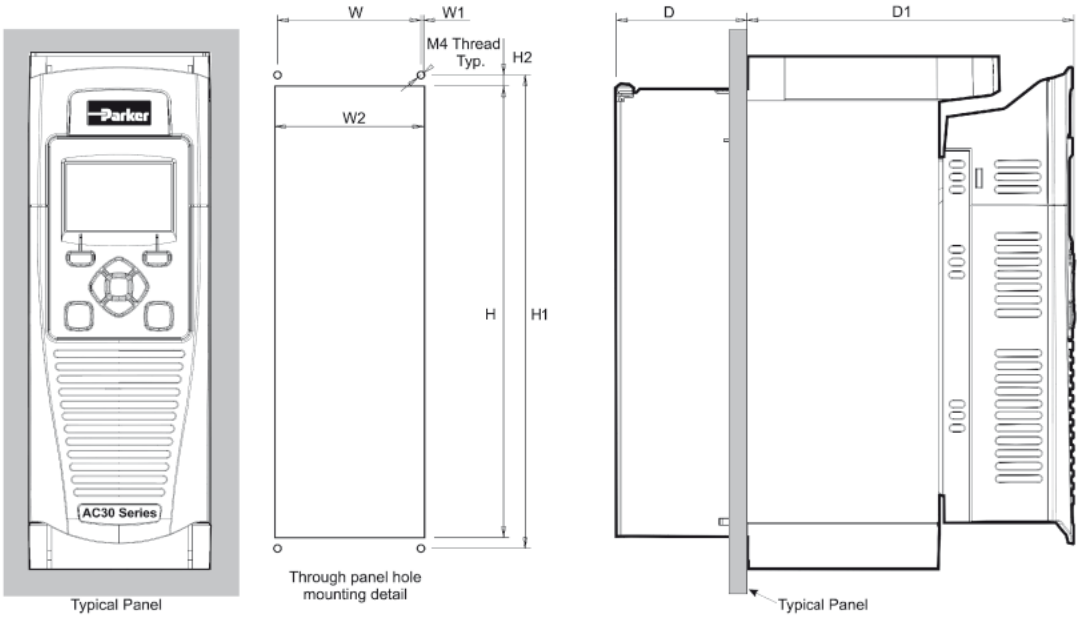
Panel Mounting



Dimensions [mm]

Model	Max. Weight [kg]	H	H1	H2	W	W1	W2	D	Fixings
Frame D	4.5	286.0	270.0	6.5	100.0	80.0	10.0	255.0	Slot 4.5 mm wide. Use M4 fixings
Frame E	6.8	333.0	320.0	6.5	125.0	100.0	12.5	255.0	
Frame F	10.0	383.0	370.0	6.5	150.0	125.0	12.5	255.0	

Through Panel Mounting



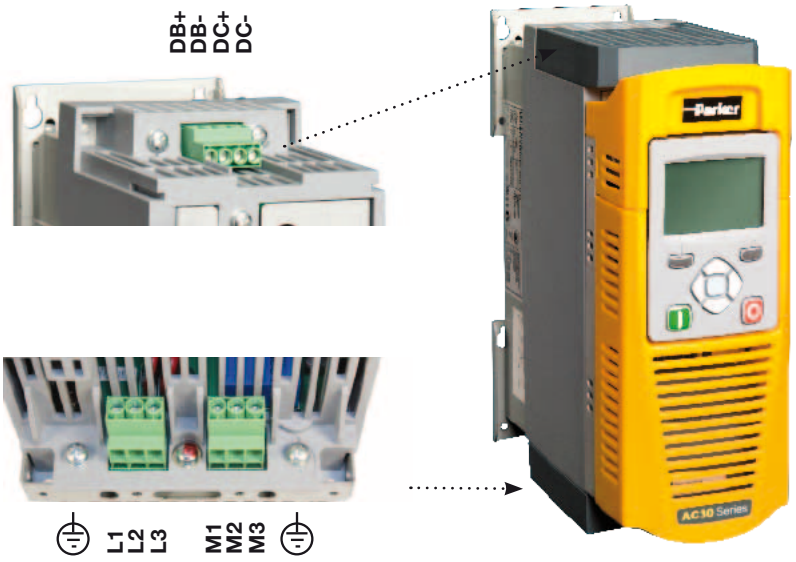
Dimensions [mm]

Model	H	H1	H2	W	W1	W2	D	D1	Fixings
Frame D	250	262	6	79	1.5	82	72	181	Use M4 fixings
Frame E	297	309	6	104	1	102	72	181	
Frame F	347	359	6	129	1	127	72	181	

Connections

Power connections

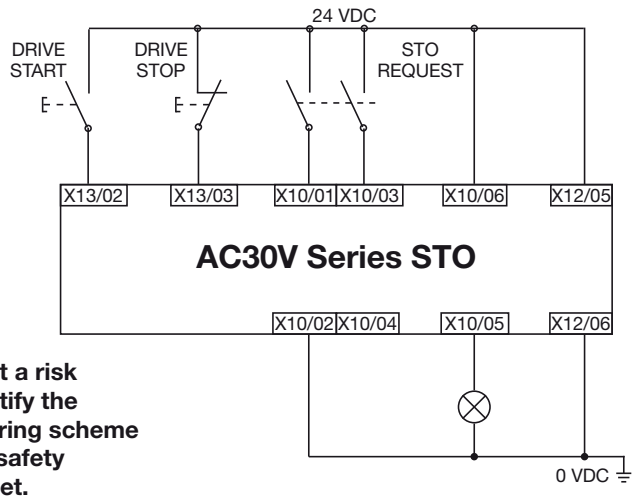
Term.	Description
DB+	Dynamic Brake Resistor
DB-	Dynamic Brake Resistor
DC+	DC Link Bus +Ve
DC-	DC Link Bus -Ve
L1	L1 AC Input Supply
L2	L2 AC Input Supply
L3	L3 AC input Supply
M1	Motor Output 1/U
M2	Motor Output 2/V
M3	Motor Output 3/W



Safe Torque Off (STO)

The AC30V series features Safe Torque Off functionality as standard, offering users protection against unexpected motor start-up in accordance with EN13849-1 at PLe Cat 3 or SIL 3 to EN61800-5-2. The STO functionality helps protect personnel and machinery by preventing the drive from restarting automatically. It disables the drive pulses and inhibits the power supply to the motor, so that the drive cannot generate any potentially hazardous movement. The state is monitored internally within the drive.

Term.	Label	Description
X10/01	STO A Input	STO Channel A input signal
X10/02	STO Common	Return signals for STO A and STO B
X10/03	STO B Input	STO Channel B input signal
X10/04	STO Common	Return signals for STO A and STO B
X10/05	STATUS A	STO Status Indication
X10/06	STATUS B	STO Status Indication



The example wiring diagram shows the minimum connections required to implement STO with the AC30V series AC drives.

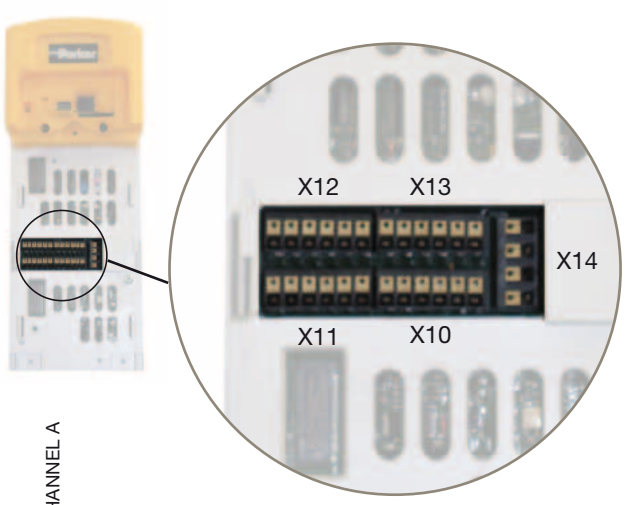
Users must conduct a risk assessment to identify the appropriate STO wiring scheme and ensure that all safety requirements are met.

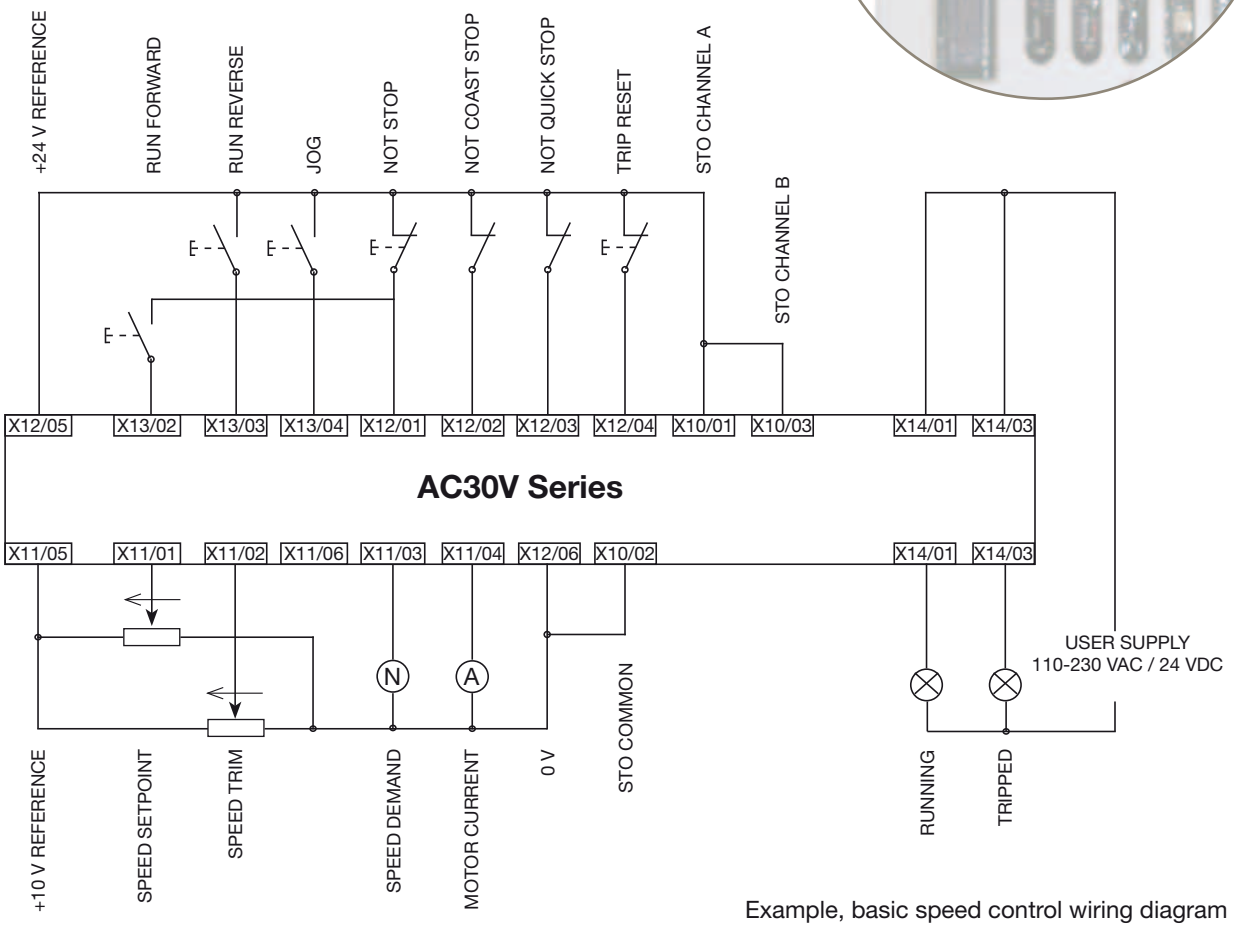
It is the user's responsibility to ensure the safe and correct use of the STO function of the AC30V Series. User's should read and fully understand chapter 6 (Safe Torque Off) of the product user manual. Manual No. HA501718U001

Control wiring connections

Term.	Label
X10/01	STO A Input
X10/02	STO Common Return
X10/03	STO B Input
X10/04	STO Common Return
X10/05	STO Status A
X10/06	STO Status B
X11/01	ANIN 01 Analogue Input (±10 V, 0-10 V, 0-20 mA, 4-20 mA)
X11/02	ANIN 02 Analogue Input (±10 V, 0-10 V)
X11/03	ANOUT 01 Analogue output (±10 V, 0-10 V)
X11/04	ANOUT 02 Analogue output (0-10 V, 0-20 mA, 4-20 mA)
X11/05	+10 V Reference
X11/06	-10 V Reference
X12/01	DIGIN04 / DIGOUT 01 Digital In/Out
X12/02	DIGIN05 / DIGOUT 02 Digital In/Out
X12/03	DIGIN06 / DIGOUT 03 Digital In/Out
X12/04	DIGIN07 / DIGOUT 04 Digital In/Out
X12/05	User +24 V Output
X12/06	0 V Common

Term.	Label
X13/01	0V Common
X13/02	DIGIN 1 Digital Input
X13/03	DIGIN 2 Digital Input
X13/04	DIGIN 3 Digital Input
X13/05	+24 V Auxilary Input
X13/06	0 V Auxilary Input
X14/01	Relay Output 01 (Contact A)
X14/02	Relay Output 01 (Contact B)
X14/03	Relay Output 02 (Contact A)
X14/04	Relay Output 02 (Contact B)





Example, basic speed control wiring diagram

Accessories and Options

Operator Keypad

Order Code	Description
7001-00-00	IP54 Graphical keypad
7001-01-00	Keypad blanking cover
LA501991U300	Keypad remote mounting kit (3 m cable and screws)

7001-00-00

7001-01-00

Description:

The backlit LCD graphical keypad can be either mounted locally on the drive or remotely with the use of a remote mounting kit. The keypad has 3 pass code protected user access levels which allows operators, technicians, or engineers to gain access to the relevant level of drive information.

The keypad makes use of a softkey menu system and can be used to set-up and commission the drive, change parameter settings,monitor running status or diagnose warning or alarm conditions.

The keypad can display information in one of the following languages. The display is also capable of displaying a user defined language set as well as a customised set of units.

- English
- French
- German
- Italian
- Spanish
- Customised

Data Storage and Cables

Order Code	Description
IF501990	SD card 2GB
CM501989U010	Ethernet cable 1 m
CM501989U011	Ethernet cable 3 m
CM501989U012	Ethernet cable 5 m

IF501990

Mounting and Filter Kits

Order Code	Description
BO501911U001	Frame D through panel mounting gasket.
BO501911U002	Frame E through panel mounting gasket
BO501911U003	Frame F through panel mounting gasket
LA501935UU001	Frame D C2 environment filter kit
LA501935UU002	Frame E C2 environment filter kit
LA501935UU003	Frame F C2 environment filter kit

LA501935UU001

The environment filter kit consists of a motor cable ferrite core and screening brackets and is required to comply with the requirements of the EMC directive for a C2 enviroment.

Communication Interfaces

7003-PB-00	PROFIBUS DP-V1 communication interface
Supported Protocols	PROFIBUS-DP; Demand data and Data exchange
Communication Speed	Up to 12 Mbits/s; automatically detected
Max. number of devices	32 per segment, 126 total
Supported Messages	Up to 152 bytes cyclic I/O, 68 bytes class 1 and 2 acyclic data, 152 bytes configuration data. GSD file provided

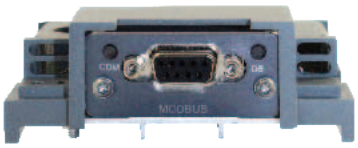
7003-DN-00	DeviceNet communication interface
Supported Protocols	DeviceNet protocol (slave)
Communication Speed	125, 250, 500 kbits/s or automatically detected
Max. number of devices	64
Supported Messages	Bit strobed I/O, Polled I/O, Cyclic I/O, Change of state , Explicit messaging

7003-CB-00	CANopen communication interface
Profile	DS301 V4.02
Communication Speed	10 k, 20 k, 50 k, 125 k, 250 k, 500 k, 1 Mbits/s or automatically detected
Max. number of devices	127
Supported Messages	SDO, PDO, NMT, SYNC

7003-PN-00	PROFINET I/O communication interface
Supported Protocols	PROFINET I/O Real-Time (RT) Protocol
Communication Speed	100 Mbits/s full duplex
Max. number of devices	Virtually unlimited
Supported Messages	Up to 256 bytes of cyclic I/O in data in each direction

7003-IP-00	Ethernet IP communication interface
Supported Protocols	Ethernet IP
Communication Speed	10/100 Mbits/s full/half duplex
Max. number of devices	Virtually unlimited
Supported Messages	Up to 256 bytes of consumed data and 256 bytes of produced data, CIP parameter object support, Explicit messaging

7003-RS-00	RS485 / Modbus RTU communication interface
Supported Protocols	Modbus RTU
Communication Speed	1200 to 115200 bits/s
Max. number of devices	247
Supported Messages	Up to 256 bytes of cyclic I/O data in each direction



Communication Interfaces

7003-BN-00*	BACnet MSTP communication interface
Supported Protocols	BACnet/MSTP
Communication Speed	up to 76.8 kbits/s
Max. number of devices	255
Supported Messages	Real time synchronisation according to DM-T S-B, COV notifications and Alarm/Event functionality

7003-BP-00*	BACnet/IP communication interface
Supported Protocols	BACnet/IP
Communication Speed	100 Mbits/s
Max. number of devices	255
Supported Messages	Real time synchronisation according to DM-T S-B, COV notifications and Alarm/Event functionality

7003-CC-00*	CC-Link communication interface
Profile	Supports all profiles for a 'remote device'
Communication Speed	Automatically detected up to 10 Mbits/s
Max. number of devices	64
Supported Messages	Cyclic I/O

7003-CN-00*	ControlNet communication interface
Supported Protocols	ControlNet
Communication Speed	5 Mbits/s
Max. number of devices	99
Supported Messages	Polled I/O

7003-EC-00*	EtherCAT communication interface
Supported Protocols	CANopen over EtherCAT (CoE) DS301 compliant
Communication Speed	100 Mbits/s
Max. number of devices	65534
Supported Messages	SDO, PDO, NMT, SYNC

7003-IM-00*	Ethernet TCP communication interface
Supported Protocols	Modbus/TCP
Communication Speed	10/100 Mbits/s
Max. number of devices	Virtually unlimited
Supported Messages	CIP parameter object support, Explicit messaging

* Product available Q1, 2013

Input and Output Cards

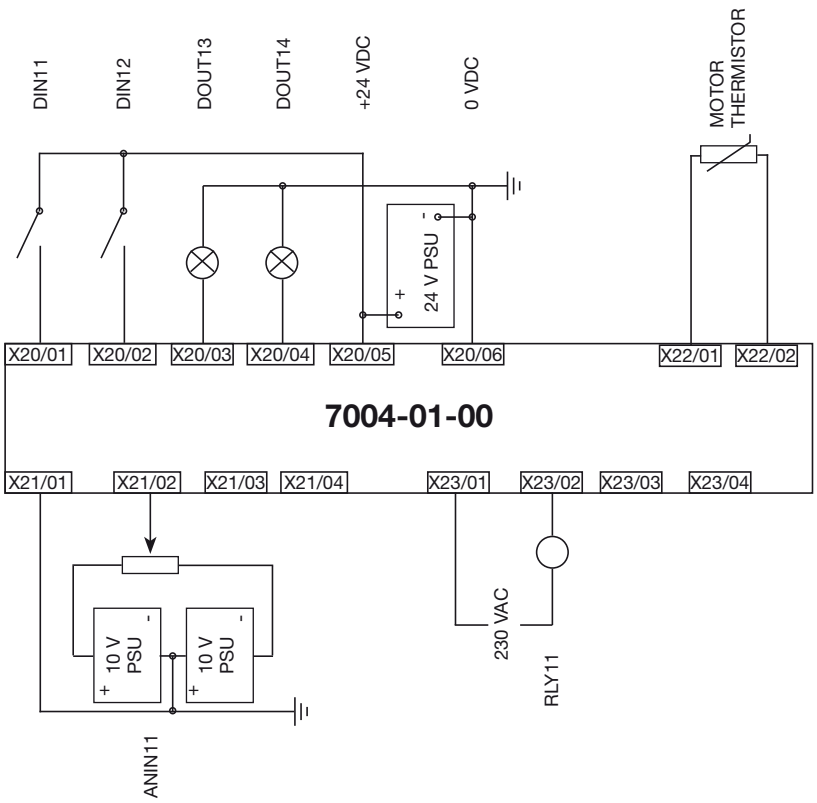
7004-01-00 - General Purpose I/O Module

Digital Inputs & Outputs	4x Digital inputs or outputs
Analogue Inputs/Outputs	3x Analogue inputs (±10 V)
Relay Outputs	2x Volt-free relay outputs (230 VAC)
Motor Thermistor Inputs	1x Motor thermistor input
Real time Clock	Included

Description:

The general purpose I/O (GPIO) option module can be fitted to all AC30V series drives in the upper I/O option module slot. The modules are field-fittable and offer users the opportunity to expand the drives standard I/O capability, allowing more complex motor control solutions to be implemented.

Connection Details:



Terminal	Label
X20/01	DIN11/DOUT11
X20/02	DIN12/DOUT12
X20/03	DIN13/DOUT13
X20/04	DIN14/DOUT14
X20/05	+24 VDC
X20/06	0 VDC COMMON
X21/01	REFERENCE
X21/02	ANIN11
X21/03	REFERENCE
X21/04	ANIN12
X22/01	MOTOR THERMISTOR
X22/02	MOTOR THERMISTOR
X23/01	RLY11
X23/02	RLY11
X23/04	RLY12
X23/04	RLY12

Example connection details for 7004-01-00 GPIO module

7004-02-00 - Motor Thermistor Input Module

Motor Thermistor Inputs	1x Motor thermistor input
Thermistor Compatibility	PTC, NTC, KTY
Thermistor Resistance Range	0...4.5 kΩ

Description:

The Isolated motor thermistor input module provides a means of monitoring motor temperature in order to protect the motor from a potentially damaging high temperature.

By default the drive will trip if the motor exceeds a user-defined temperature threshold thereby preventing motor temperature from rising further.

7004-03-00 - Real Time Clock and Motor Thermistor Input Module

Motor Thermistor Inputs	1x Motor thermistor input
Thermistor Compatibility	PTC, NTC, KTY
Thermistor Resistance Range	0...4.5 kΩ
Time Format	Seconds
Accuracy (drive powered)	±1 minute / month (RTC trim=0)
Accuracy (drive unpowered)	±5 minutes / month (RTC trim=0)
Battery Backup Duration	6 Months

Description:

A real-time clock (RTC) is provided for the user to program the drive to perform functions at specified times. The RTC is battery-backed, so continues to run when the drive is unpowered. The battery recharges when the drive is powered.

An isolated motor thermistor input is also included in the 7004-03-00 module.

Anciliary Parts

Ouput Chokes

To reduce capacitive currents and prevent nuisance tripping in installations with longer cable runs, a choke may be fitted to the drives output in series with the motor.

Order Code	Motor Power Normal Duty [kW]	Choke Inductance [mH]	Current [A_{rms}]
CO055931	1.1	2	7.5
	1.5		
	2.2		
	3.0		
CO57283	4.0	0.9	22
	5.5		
	7.5		
CO57284	11	0.45	33
	15		
CO57285	18	0.3	44

EMC Filters

A range of custom designed optional EMC (Electromagnetic Compatibility) filters are available for use with Parker's range of drive products. They are used to help achieve conformance with the EMC directive BS EN 61800-3:2004- "Adjustable speed electrical power drive systems Part 3".

Order Code	Motor Power Normal Duty [kW]	Frame Size
CO501894	1.1	D
	1.5	D
	2.2	D
	3.0	D
	4.0	D
	5.5	D
	7.5	E
	11	E
CO501895	15	F
	18	F

Braking Resistors

These resistor sets are designed for stopping the system at rated power. Rated for 10 seconds in a 100 seconds duty cycle. They are metal-clad resistors and should be mounted on a heatsink (back panel) and covered to prevent injury from burning.

Order Code	Power Rating [W]	Resistance [Ω]	Continuous Current [A]
CZ467717	200	100	1.4
CZ463068	200	56	1.9
CZ467716	500	56	3.0
CZ388396	500	36	3.7

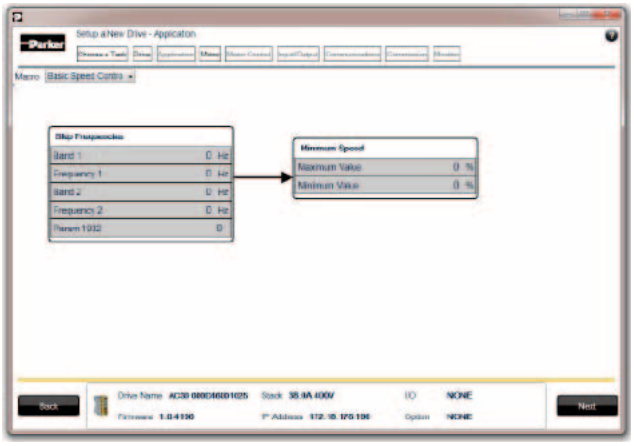
Parker Drive Quicktool (PDQ) Software

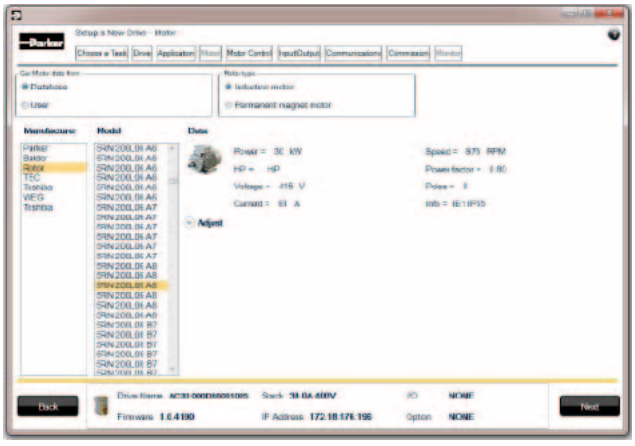
Description

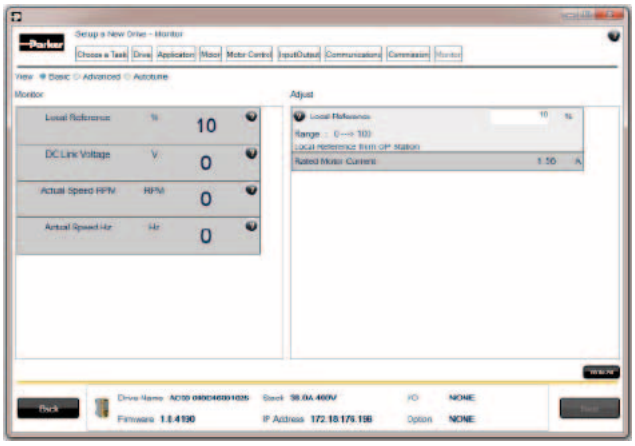
PDQ is a programming, monitoring and diagnostic software platform for AC30V series variable speed drives.
Communication between the drive and PC is via the in-built Ethernet port at the top of of the drive. The software will automatically detect all AC30V's connected to the Ethernet network.

A number of wizards guide users through every aspect of using the software:

- Setup wizards guide the user through every stage of commissioning a new drive, or reconfiguring an existing drive; from selecting a motor from the supplied database, or entering specific motor data, through to configuring application macro's or control logic to suit your specific application.
- Tuning wizards allow technicians to monitor and adjust drive parameters in either a simple predefined environment or an advanced mode which allows access to every parameter in the drive.







Parker Drive Quicktool is shipped with every drive and can also be downloaded for free from the Parker website.
www.parker.com/ssd/pdq

Order Code

AC30V Variable Speed Drive

Order Code	Normal Duty Ratings			Heavy Duty Ratings			Frame
	kW/HP	Output Current A_{rms}		kW/HP	Output Current A_{rms}		
		400 VAC	480 VAC		400 VAC	480 VAC	
380-480 (±10 %) VAC Supplies Three Phase							
31V-4D0004-B●-■◆-0000	1.1/1.5	3.5	3.0	0.75/1	2.5	2.1	D
31V-4D0005-B●-■◆-0000	1.5/2	4.5	3.4	1.1/1.5	3.5	3.0	D
31V-4D0006-B●-■◆-0000	2.2/3	5.5	4.8	1.5/2	4.5	3.4	D
31V-4D0008-B●-■◆-0000	3/4	7.5	5.8	2.2/3	5.5	4.8	D
31V-4D0010-B●-■◆-0000	4/5	10	7.6	3/4	7.5	5.8	D
31V-4D0012-B●-■◆-0000	5.5/7.5	12	11	4/5	10	7.6	D
31V-4D0016-B●-■◆-0000	7.5/10	16	14	5.5/7.5	12	11	E
31V-4D0023-B●-■◆-0000	11/15	23	21	7.5/10	16	14	E
31V-4D0032-B●-■◆-0000	15/20	32	27	11/15	23	21	F
31V-4D0038-B●-■◆-0000	18/25	38	36	15/20	32	27	F

●	EMC Filter Options
N	No filter
F	C2 Filter
E	C3 Filter

■	Graphical Keypad Options
2	Graphical Keypad
1	Keypad Blanking Cover
0	No Keypad

◆	Environmental Protection Options
S	Standard Coating
E	Enhanced Coating

The choice of filter should be determined by the environment in which the drive will be installed as defined in IEC/EN61800-3

C2 Filter = Domestic & Commercial
C3 Filter = Industrial

The AC30V is conformally coated as standard at our optimal level of coating. This allows the drive to be used in both classes 3C3 and 3C4 for Hydrogen Sulphide gas (H_2S) at a concentration of 25 ppm for 1200 hours. It is also compliant to both classes 3C1 (rural) and 3C2 (urban) for all nine defined substances in table 4 in EN60271-3-3

Accessories

Graphical Keypad

Order Code	Description
7001-00-00	Graphical keypad for local or remote mounting
7001-01-00	Keypad blanking cover
LA501991U300	Kepyad remote mounting kit (3 m cable and screws)

I/O Options

Order Code	Description
7004-01-00	General purpose I/O module
7004-02-00	Motor thermistor input module
7004-03-00	Real time clock and motor thermistor input module

Communication Interfaces

Order Code	Description
7003-PB-00	Profibus DPV1
7003-PN-00	Profinet IO
7003-DN-00	DeviceNet
7003-CN-00*	ControlNet
7003-CB-00	CANopen
7003-IP-00	Ethernet IP
7003-IM-00*	Ethernet TCP
7003-EC-00*	EtherCAT
7003-BP-00*	BACnet IP
7003-BN-00*	BACnet MSTP
7003-RS-00	RS485/Modbus RTU
7003-CC-00*	CC-Link

* Available Q1 2013

Related Products

Round Frame Asynchronous Vector Motors

Description

These IE2 efficiency round frame asynchronous induction motors are suitable for use with the Parker range of AC Drives. Featuring a durable rigid construction, these motors are specially engineered for use in heavy industrial applications. Featuring axial, In-Line force ventilation fan, the round frame motor is suitable for general purpose control applications.

- Light Aluminium body
- IP55 Protection as minimum
- Foot or flange mounting options
- Paint finished in black
- Insulation Class F (IEC - EN60034 -1)
- Auxiliary cooling fan allows low-speed operation
- 3x PTC thermistors embedded in motor stator

Options

- Adjustable terminal box mounting position
- Holding brake
- IE3 efficicency
- 8-Pole versions also available

NX Series PMAC Sensorless Motors

0.2 - 7.5 kW, 0.45 - 41 Nm

Description

The sensorless version of NX Series motors has been designed to offer a cost effective brushless motor solution when used in conjunction with AC30V drives. Controlled without feedback sensor, NX Series servo motors are innovative, compact, high performance and extremely efficient alternative to traditional induction motors.

Features and Benefits

- Cost effective brushless solution
- Sensorless control with AC30V drives
- More compact and efficient than induction motors
- More robust design due to the lack of feedback sensor
- No need for cooling fan

"For more details or to order motors, please contact your local sales office"

Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374.

AEROSPACE

Key Markets
- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

Key Products
- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes

CLIMATE CONTROL

Key Markets
- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

Key Products
- CO^2 controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves

ELECTROMECHANICAL

Key Markets
- Aerospace
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

Key Products
- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions

FILTRATION

Key Markets
- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

Key Products
- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators

FLUID & GAS HANDLING

Key Markets
- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

Key Products
- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects

HYDRAULICS

Key Markets
- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

Key Products
- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects

PNEUMATICS

Key Markets
- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

Key Products
- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors

PROCESS CONTROL

Key Markets
- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

Key Products
- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds

SEALING & SHIELDING

Key Markets
- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

Key Products
- Dynamic seals
- Elastomeric o-rings
- EMI shielding
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192-300022N1 October 2012

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