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

ViX Series

Micro Servo Drive

Parker

ENGINEERING YOUR SUCCESS.

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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.

Worldwide Manufacturing Locations

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

Asia
Shanghai, China
Chennai, India

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

Offenburg, Germany

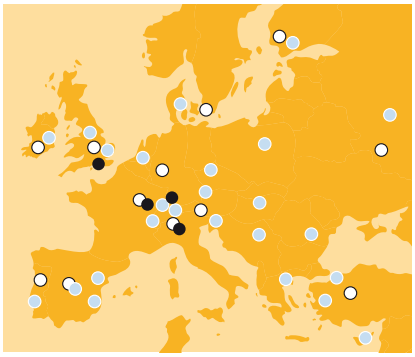
Local Manufacturing and Support in Europe

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



Manufacturing
Parker Sales Offices
Distributors

Dijon, France

Micro Servo Drive - ViX

Overview

Description

The freely-programmable, intelligent ViX servo drive delivers high levels of functionality and flexibility in programmable motion control. With an output in the 250-500 VA power range, ViX uses field-oriented digital control technology, to give enhanced dynamic performance with improved efficiency. Housed within an extremely compact case, ViX is suitable either for direct panel mounting or for attachment to a standard DIN rail.
The ViX drive is produced in two versions having continuous current ratings of 2.5 A and 5 A at motor bus voltages up to 80 V. A peak current capability of three times the continuous rating provides an outstanding acceleration performance. The device offers the choice of either resolver or encoder feedback (user selectable). To assist with initial commissioning, the drive can correct most motor and feedback wiring errors automatically

Features

- Fully digital design
- Field-oriented control for improved dynamic performance
- Panel or DIN rail mounting
- 2.5 A & 5.0 Arms
- 80 V DC Bus
- Built-in controller using Parker's proven EASI code
- Powerful EASI-V front-end software
- Programmable resolution
- Optional CANopen/RS485 interface
- Automatic standby current reduction
- Compact size
- Compatible with Parker servo motors

Technical Characteristics - Overview

Device	Continuous current [Arms]	Peak current [A] (<2 s)	Interface	Supply voltage [VDC]
ViX250-AE	2.5	7.5	analog	24 & 24...80
ViX500-AE	5	15		24 & 48...80
ViX250-AH	2.5	7.5	High Res analog	24 & 24...80
ViX500-AH	5	15		24 & 48...80
ViX250-IE	2.5	7.5	Easi Code	24 & 24...80
ViX500-IE	5	15		24 & 48...80
ViX250-IH	2.5	7.5	High Res Easi Code	24 & 24...80
ViX500-IH	5	15		24 & 48...80
ViX250-CE	2.5	7.5	CANopen	24 & 24...80
ViX500-CE	5	15		24 & 48...80
ViX250-CH	2.5	7.5	High Res CANopen	24 & 24...80
ViX500-CH	5	15		24 & 48...80

Product Description

A powerful front-end software package is supplied with the drive and permits straightforward, rapid configuration and tuning. When used with Parker servo motors, only the motor type number is required for full configuration.
ViX intelligent drives incorporate a powerful controller using Parker's well-proven EASI command language. As well as carrying out all basic motion control functions, the controller performs more advanced operations such as external encoder following and registration moves. All necessary configuration is performed by software. In addition to an RS232C interface which is included in the standard drive, an optional factory-installed fieldbus module allows for both CANopen and RS485 communication.
The base version of the drive can be controlled by step-direction signals in addition to an analog velocity or torque demand. ViX forms part of a new, fully-integrated system of motion control components which includes digital servo and stepper drives, power supplies, operator panels and extension I/Os. These components complement Parker's range of mechanical positioning systems which includes precision tables, electric cylinders and linear actuators.

Digital technology

The operating core of the ViX drive is based on a powerful digital processor. Armed with information about the motor and drive parameters, the processor is able to set the operating conditions in the current loop with a high degree of precision. In this way the bandwidth of the torque amplifier can be optimized for the specific configuration, allowing a wide range of motors to be accommodated without compromising on performance. In addition, set-up is virtually instantaneous without the need to adjust multiple parameters. The relevant data for Parker high-performance servo motors is held in a database within the EASE-V software package.

Flexible communication options

ViX is supplied as standard with an integral RS232 communication interface. To keep the wiring as simple as possible, dual RJ45 connectors on the underside of the drive provide a built in daisy-chaining facility.
The last drive in the chain automatically detects that no more units are connected and creates a loop return back to the host controller. Optional built-in modules provide both RS485 and CANopen communication to allow for integration within Fieldbus systems.

Powerful, user-friendly configuration software

ViX series drives utilize Parker's EASI-V software package, a comprehensive front-end tool for system configuration and tuning.
This Windows™-based software incorporates wizard-guided set-up procedures using simple click-entry screens. Configuration is simple and straightforward. Entering the data for Parker servo motors could not be easier - simply select the motor from a pull down menu. Other motors may be used by entering the relevant parameters.

Technical Characteristics

Technical Data

ViX servo drive

Model		ViX250	ViX500
	Unit		
Supply voltage and current			
Supply voltage	[V]	24...80 VDC +5 % -15 %	48...80 VDC +5 % - 15 %
Input current	[A]	2.5 (typ. 2...2.5)	6.3 (typ. 4...5)
Capacitance power module	[µF]	3300	6600
Output current (rms)	[A]	2.5	5
Peak current(1)	[A]	7.5	15
Logic voltage	[V]	24 VDC (21...27 VDC), 250 mA (without encoder, brake, outputs)	
Motor inductance	[mH]	0.5...10 mH recommended (speed range reduced if >10 mH)	
Motor current	[A]	selectable by software	
Motor brake		24 V, max. 2 A, energized to release	

(1) Maximum duration at peak current 2 seconds, maximum duty cycle 10 %. The time limit is set by an I^2t circuit, and will be reduced if the motor is stationary.

Inputs, Outputs, Interfaces, Feedback systems

Protection	
	• Short circuit (phase to phase, phase to ground) • Motor HV over & under-voltage trip • Drive/motor overtemperature (I^2t) • Reverse polarity on 24 V input • Commutation encoder fault, resolver fault
Feedback	
	• Resolver • Quadrature encoder (selected by software)
Resolver	
	12 Bit A/D (4096 counts/rev), absolute accuracy 30 arcmin
Encoder	
	5 V differential, 400 kHz max input frequency, resolution 500-5000 lines (pre-quadrature, i.e. up to 20000 counts/rev) Encoder supply: 5 V output for feedback & following encoder, 250 mA max. loading
Inputs / outputs	
	• Analog input (2): ±10 V differential, 12 bit resolution, velocity or torque demand • Position command input (2): Step/direction, step+/step- or quadrature encoder input with resolution equivalent to feedback device • Following encoder input: Compatible with feedback resolution, max. input freq. 2.0 MHz, configurable also as step/direction or step+/step- input • Digital inputs: 5 (4 are configurable as Home, Limits & Registration). Operating range 5...24 V. Software-configurable 4K7 pull-up/active low or 4K7 pull-down/active high • Digital outputs: 3 (one is configurable as Drive Healthy). Software-configurable active-low/sinking (5...24 V) or active-high/sourcing (24 V only), 50 mA max. per output • Encoder output: 5 V differential, resolution of feedback encoder or 4096 counts/rev for resolver • Fault output: NPN, open-collector output, normally low, active high • Analog output: 10-Bit, filtered PWM monitor output, torque or velocity

Communication interface	
	• RS232 (standard) • RS485 • CANopen
High-speed interface	
	Dual RJ45 connectors for CANopen, RS485 etc. (also provide daisy-chain ports for multi-axis RS232 connections)
Indicators	
	LEDs for HV/feedback fault, drive fault & comms status

(2) Analog input versions only.

Environmental Characteristics

Temperature range	
	0-50 °C local environment (fan cooling required above 40 °C)
Humidity	
	95 % non-condensing

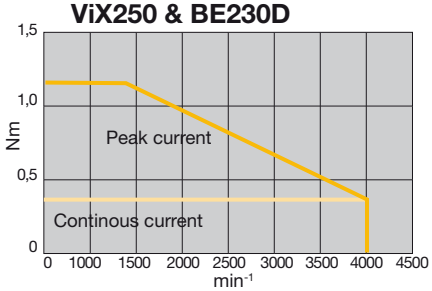
Standards and Conformance

CE - conformance and UL - listing	
	• CE marked • UL recognized - E194158

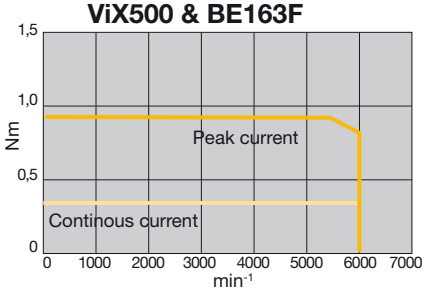
Performance Data

ViX servo drive with motor

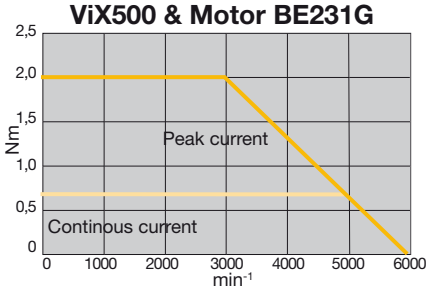
ViX250 & BE230D



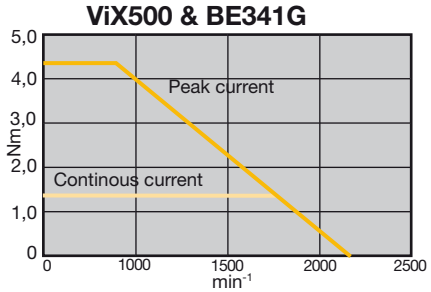
ViX500 & BE163F



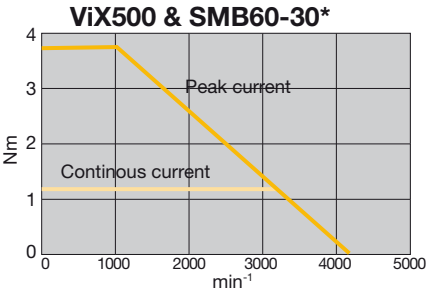
ViX500 & Motor BE231G



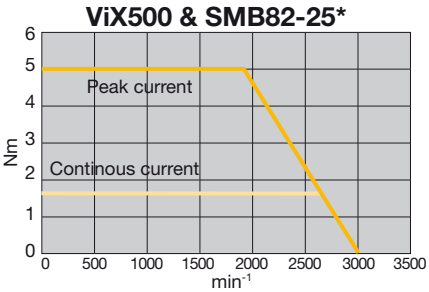
ViX500 & BE341G



ViX500 & SMB60-30*



ViX500 & SMB82-25*

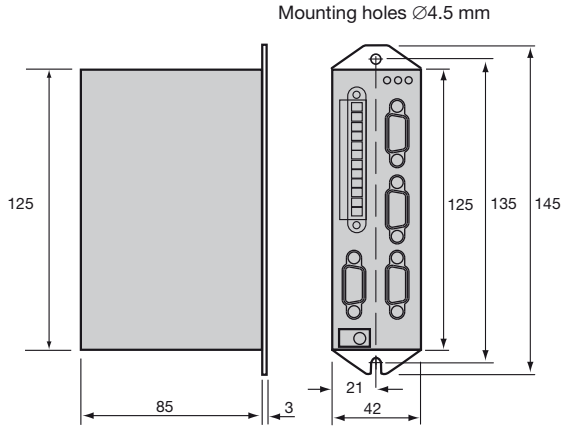


* 80 V windings

Dimensions

ViX servo drive

Dimensions [mm]



Mounting	
	vertical mounting, min. clearance 50 mm above & below drive, 10 mm each side panel mounting standard, DIN rail adaptor available

Accessories and Options

Parker offers a range of accessories for ViX drives including mating connector sets, motor cables and a DIN rail mounting kit. The range will be extended to include operator panels and I/O expansion modules.

Power module: VXLPSU240 and VXLPSU960

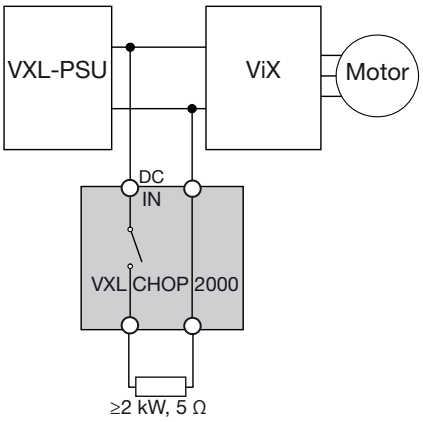
The Parker power supply offers a convenient way of powering a ViX servo drive. The continuous rated output is 240 W at 230 VAC input and supplies the 80 V main DC rail and operates directly from all AC supplies between 90 V and 264 V. No external EMC filters are required unless the motor leads are exceptionally long (e.g. greater than 30 m).

Technical characteristics

Power module:	VXLPSU240	VXLPSU960
AC input voltage, nominal (absolute limits)	115...230 VAC, 1phase (90...264 VAC)	400...500 VAC, 3phase
DC voltage	80 VDC, 3 A	80 VDC, 12 A
Rated output	240 W	960 W
Power factor	>0.895	>0.92
Dimensions (HxWxD)	140x63.5x118 mm	127x80x139 mm
Weight	0.720 kg	1.2 kg

Motor brake controller: VXLCHOP2000

The function of the VXLCHOP2000 is to dissipate the energy delivered by the motor in an external resistor thus damping the resulting overvoltage on the DC Bus. Up to 4 VXLCHOP2000 units can be connected in parallel to increase the braking power.



Technical characteristics

Motor brake controller:	VXLCHOP2000
DC voltage	80 VDC (24...110 VDC)
Rated output	2 kW
External braking resistor	≥2 kW, 5 Ω (provided by the customer)
Dimensions (HxWxD)	115x39x128 mm
Weight	0.2 kg

Order Code

ViX Servo Drive

	1	2	3	4
Ordering example	**ViX**	**250**	**I**	**E**

1	**Device type**	
	ViX	ViX servo drive
2	**Power**	
	250	250 VA
	500	500 VA
3	**Controlling**	
	I	Internal controller
	C	CAN & RS485-interface
	A	Analog input
4	**Feedback option**	
	E	Encoder or resolver
	H	High-resolution sine-cosine feedback[1]

[1] for use with the Parker linear motor tables. For further details, please refer to the corresponding catalog.

Accessories

Power module

	1	2
Ordering example	**VXLPSU**	**240**

1	**Device type**	
	VXLPSU	Power module
2	**Rated power**	
	240	240 W
	960	960 W

Motor brake controller

	1	2
Ordering example	**VXLCHOP**	**2000**

1	**Device type**	
	VXLCHOP	Motor brake controller
2	**Rated power**	
	2000	2 kW

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
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management