

PSD1 Parker Servo Drive

Servo Drives for EtherNet Networks



ENGINEERING YOUR SUCCESS.

Parker Hannifin Corporation

Parker Hannifin is a Fortune 250 global leader in motion and control technologies. For 100 years the company has engineered the success of its customers in a wide range of diversified industrial and aerospace markets. Learn more at www.parker.com or @parkerhannifin.

We have more than 300 manufacturing plants worldwide and are the only company to offer our customers a choice of hydraulic, pneumatic, electromechanical, and computer motion control solutions.

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Global Headquarters: Cleveland, Ohio



✓ Engineering Expertise



✓ Premier Customer Service



✓ Worldwide Support Network

Innovative Automation Products and System Solutions

The Parker Electromechanical and Drives Division brings together leading brands in industrial automation, including ***Acroloop, Bayside, Compumotor, CTC, Custom Servo Motor, Daedal, Hauser, IPS, Trilogy, and SSD.***

When it comes to electromechanical components and solutions, Parker provides an unmatched product portfolio with solutions ranging from the mechanics through the software.

For complete information on Parker electromechanical products or to discuss your next solution, contact Parker today.

- For access to complete information on our website, use the web address listed with the products in this shortform catalog
- For literature, visit us online at www.parker.com/emn
- For information on software and training programs, visit www.parkermotion.com/support_training.html

Parker Servo Drive - PSD

Overview

Description

The Parker Servo Drive family, or PSD1, combines the latest in high performance servo technology with features that provide unique value to OEMs and machine builders. Hiperface DSL feedback greatly reduces complexity with only one cable connection between drive and motor. A removable SD card enables rapid drive exchange and software updates. The PSD1-M is the most compact multi-axis servo system on the market and is available with modules as one, two or three axis versions.

Available with power ratings from 2 to 30 Amps, the series offers a choice of form factors. The PSD1-S is a standalone drive which can be connected directly to the AC line. The PSD1-M is a multi-axis servo system where each axis module can supply up to three servo motors. The base configuration consists of a common DC bus supply and multiple PSD1-M modules, connected through DC bus bars. The modules are available as one, two or three axis versions.

Applications include:

- Packaging machines
- Material forming machines
- Handling machines
- General automation

- Hiperface DSL ® feedback
Reduced cabling; only one cable connection between drive & motor
- EtherNet/IP, EtherCAT, PROFINET communication
- Quick and simple wiring
- Removable SD card
- Same software functionality for standalone drive and multi-axis servo system

PSD1-S unique features

- Single or three phase power supply
- Compact housing
- Particularly suitable for small machines

PSD1-M unique features

- The most compact multi-axis servo system on the market
- One, two or three axis versions combined in one housing
- Common DC bus connection for energy exchange between drives

Technical characteristics - Overview

Standalone PSD1-S	Continuous current [A _{rms}]	Peak current A (≤ 2 s)
PSD1 SW1200	2	6
PSD1 SW1300	5	15

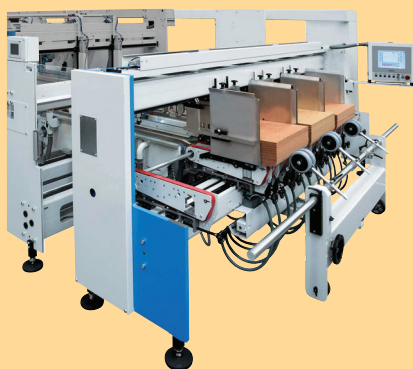


Multi axis PSD1-M	Continuous current [A _{rms}]	Peak current A (≤ 2 s)
PSD1 MW1300	5	10
PSD1 MW1400	8	16
PSD1 MW1600	15	30
PSD1 MW1800	30	60
PSD1 MW2220	2 + 2	4 + 4
PSD1 MW2330	5 + 5	10 + 10
PSD1 MW2440	8 + 8	16 + 16
PSD1 MW2630	15 + 5	30 + 10
PSD1 MW3222	2 + 2 + 2	4 + 4 + 4
PSD1 MW3433	8 + 5 + 5	16 + 10 + 10

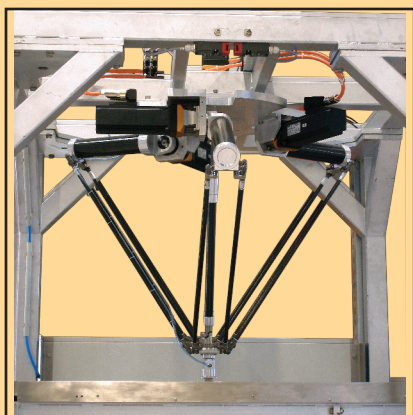
PSD Overview

Applications

PSD1-M has been developed for all applications where multiple drives are normally used and gives both OEMs and end users the opportunity to reduce build, configuration and operating costs, while boosting productivity and profitability.



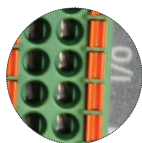
Typical applications for PSD1-M include packaging machines, material forming machines, textile, paper, converting and plastics machines, where large numbers of axes are required.



EtherNet/IP™
EtherCAT®
PROFINET

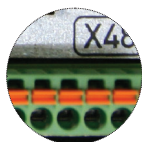
High speed communication

- Communication over EtherNet via TCP/IP
- Onboard EtherCAT connection
- 100 Mbit/s, 500 µs cycle time



Inputs / Outputs

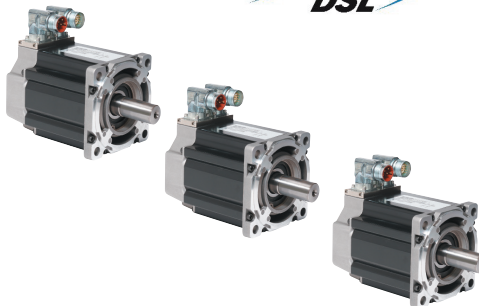
- PSD offers 4 fast digital inputs and 2 digital outputs per axis
- Connection via fast and simple push-in direct plug-in technology



Quick and Simple Wiring

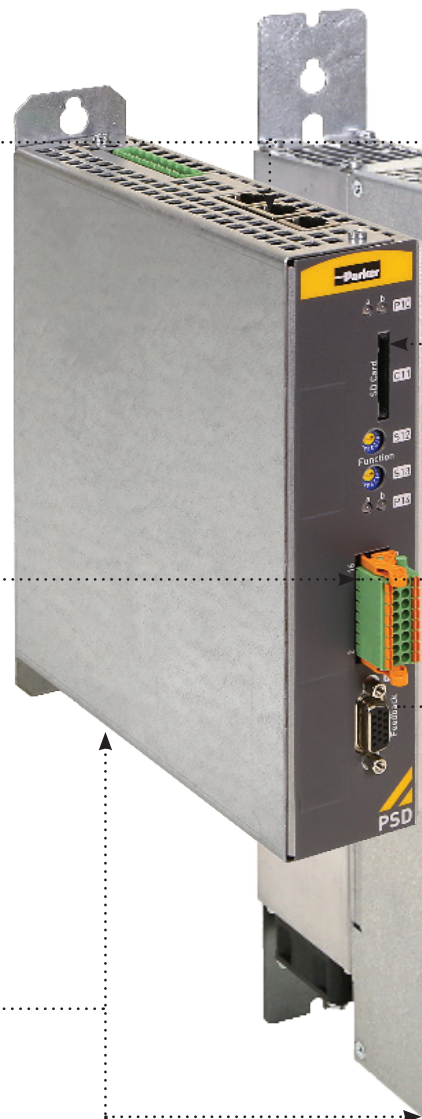
- Single cable connection between drive and MPP motor
- Reduction in wiring costs
- Increase reliability

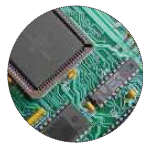
HIPERFACE®
DSL



Reduce machine footprint

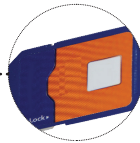
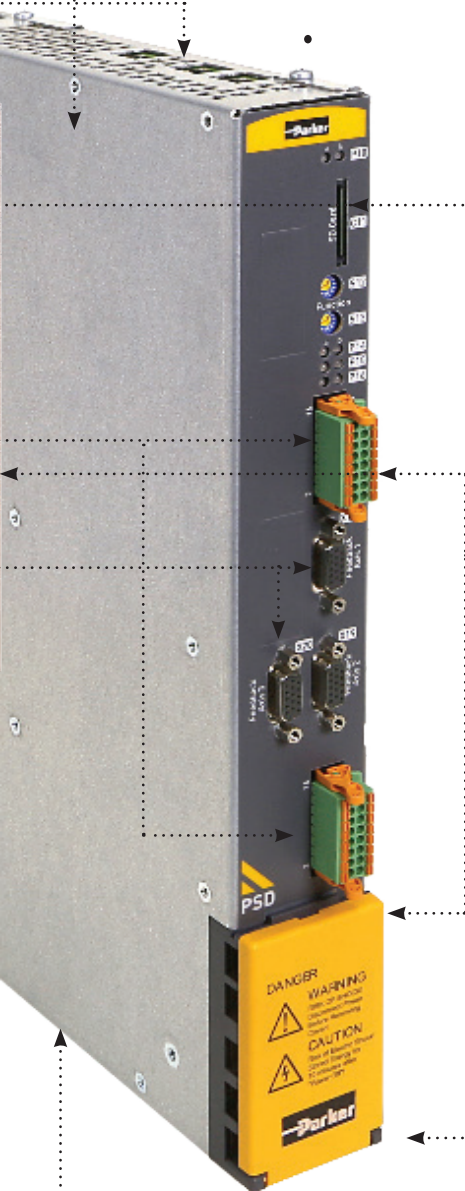
- Up to 3 axes in one single housing
- Reduce the size of the cabinet
- Electronics footprint is up to 40 % smaller than traditional solutions





High Performance and customization capabilities

- Autotuning
- Observer technology
- Anti resonance adjustments, vibration suppression, notch-filter...
- Fast control loops (sample times):
 - Current control 62,5 μ s
 - Speed control 125 μ s
 - Position control 125 μ s



Removable SD card

- Easy exchange between drives, less than 1 minute
- Software upgrade
- Parameters and application memory



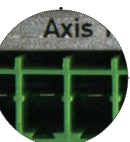
STO Safety Functions reduce time and cost, no additional cabling

- 2 Safe Torque Off (STO) circuits for 3 axis module (one for axis 1 and one for axis 2,3)
- 2 independent Safe Torque Off circuits for 2 axis module
- 1 Safe Torque Off circuit for 1 axis module



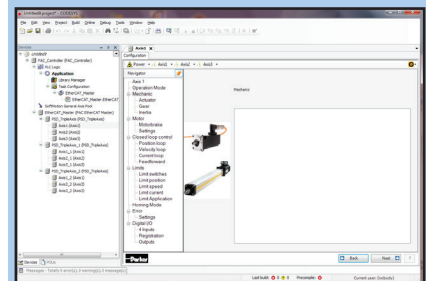
DC Bus energy saving

- Energy exchange between drives
- No accessories required



PSD Configuration Plug-in

With the help of the Parker Automation Manager (PAM) all ongoing tasks can be managed. Based on the PAM framework a complete integrated tool is available. The set-up and commissioning of the drive can be done easily using the wizard based configuration tool. Parker motors will be recognized by a electronic nameplate. Technical data for the Parker linear actuators such as ETH, HPLA etc are available in database.



Configuration/parameterization

- Wizard-guided query of all necessary inputs
- Graphically supported selection
- Reference to mechanical system / application


Diagnostics / maintenance / service

- Complete support of diagnostics and analysis functions
- Test functions
- 4-channel oscilloscope
- Signal tracking directly on the PC
- Various modes (single/normal/ auto/roll)
- Zoom function
- Export as image or table (for example to MS Excel)
- Enhanced optimization possibilities for the drive technology set-up
- Predefined motion profiles
- Convenient operation
- Automatic determination of the moment of inertia


Technical Characteristics


Technical Data


PSD1 SW Standalone Axis

	Type		Standalone Axis	
	Input voltage	VAC	3 ph 230 VAC ±10% 50-60 Hz, 1 ph 230 VAC ±10% 50-60 Hz 30-253 VAC	
	PWM Frequency nom.	kHz	8	8
	Possible PWM frequency	kHz	4 / 8 / 16	4 / 8 / 16
	Continuous current	A	2	5
	Peak current (≤ 2 s)	A	6	15

PSD1 MW Multi-Axis Module

	Type		Single Axis			
	DC Bus voltage	VDC	325-680 VDC ±10% (Rated voltage 560 VDC)			
	PWM Frequency nom.	kHz	8	8	4	4
	Possible PWM frequency	kHz	4 / 8 / 16	4 / 8 / 16	4 / 8 / 16	4 / 8 / 16
	Continuous current	A	5	8	15	30
	Peak current (≤ 2 s)	A	10	16	30	60

	Type		Twin Axis			
	DC Bus voltage	VDC	325-680 VDC ±10% (Rated voltage 560 VDC)			
	PWM Frequency nom.	kHz	8	8	8	4
	Possible PWM frequency	kHz	4 / 8 / 16	4 / 8 / 16	4 / 8 / 16	4 / 8 / 16
	Continuous current*	A	2 + 2	5 + 5	8 + 8	15 + 5
	Peak current (≤ 2 s)	A	4 + 4	10 + 10	16 + 16	30 + 10

	Type		Triple Axis			
	DC Bus voltage	VDC	325-680 VDC ±10% (Rated voltage 560 VDC)			
	PWM Frequency nom.	kHz	8	8		
	Possible PWM frequency	kHz	4 / 8 / 16	4 / 8 / 16		
	Continuous current*	A	2 + 2 + 2	8 + 5 + 5		
	Peak current (≤ 2 s)	A	4 + 4 + 4	16 + 10 + 10		

*with a continuous limit current at 16A max. by module

PSD1-MW-P - Power Supply Unit

Input Supply

Power Supply Type	Unit	PSD1 MW P010			with LCG-0030-0,86mH-UL*			PSD1 MW P020			with LCG-0055-0,45mH*		
Input Voltage		3 ph 230-480 VAC ±10% 50-60 Hz (Rated voltage 3 ph 400 VAC)											
Output Voltage		325-680 VDC ±10% (Rated voltage 560 VDC)											
Supplied Voltage	[VAC]	230	400	480	230	400	480	230	400	480	230	400	480
Output Power	[kVA]	6	10	10	9	15	15	12	20	20	19	30	30
Peak Output Power (<5 s)	[kVA]	12	20	20	18	30	30	24	40	40	36	60	60

Control Supply

Rated Input Voltage		24 VDC ±10 %											
Maximum Ripple		1 V _{pkpk}											
Supply Current	[A]	0.2 A			0.8 A			0.3 A			0.3 A		

(*) Operation of the P010 and P020 power supplies with additional line choke (to be ordered separately).

Environmental Characteristics

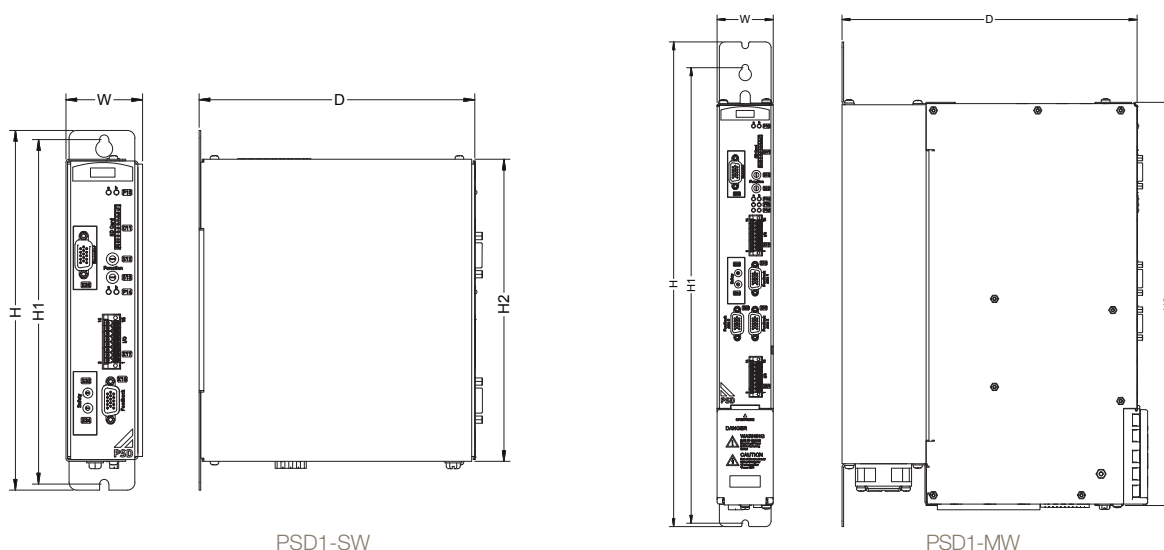
Operating Temperature	0-40°C
Storage Temperature	-25°C - 70°C
Shipping Temperature	-25°C - 70°C
Product Enclosure Rating	IP20 (for use in electrical cabinet) UL open type equipment
Altitude	1000 m ASL. Derate output current by 1.0 % per 100 m to a maximum of 2000 m
Operating Humidity	Class 3K3 - Maximum 85% non-condensing
Storage Humidity	Class 1K3 - Maximum 95% non-condensing
Shipping Humidity	Class 2K3 - Maximum 95% at 40°C
Operating Vibration	IEC60068-2-6, 10-57 Hz width 0.075 mm, 57-150 Hz accel. 9.81 m/s ²

Standards & Conformance

2006/95/EC	Low voltage directive
EN 60204-1	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN 61800-5-1	Adjustable speed electrical power drive systems - safety requirements, thermal and energy
UL	Power Conversion Equipment UL508C
2004/108/EC	EMC directive
EN 61800-3	Adjustable speed electrical power drive systems - Part 3: EMC product standard including specific test method
STO	Performance Level PL=e according to EN ISO 13849

Dimensions

Type	H [mm]	H1 [mm]	H2 [mm]	W [mm]	D [mm]	Weight [kg]
PSD1-SW	235	225	200	50	180	1.8
PSD1-MW 1/2/3 axes	432	405	360	50	263	4.3
PSD1-MW Single axis 30 A	432	405	360	100	263	8.6
PSD1-MW-P-010	432	405	360	50	263	3.6
PSD1-MW-P-020	432	405	360	100	263	5.4



Order Code

ParkerServo Drive PSD1

	1	2	3	4	5	6	7	8	9	10	11
Order example	PSD1	M	W	3	433	B	1	1	0	0	000

1 Drive Family	
PSD1	Parker Servo Drive

2 Device Type	
S	Standalone 230 VAC
M	Multi-axis 400 VAC

3 Mounting Type	
W	Wall mounting

4 Device Type	
1	One power stage
2	Two power stages
3	Three power stages
P	Power module

5 Device Type	
PSD1SW1	Standalone
200	2 Amp
300	5 Amp
PSD1MW1	One powerstage
300	5 Amp
400	8 Amp
600	15 Amp
800	30 Amp
PSD1MW2	Two powerstages
220	2 + 2 Amp
330	5 + 5 Amp
440	8 + 8 Amp
630	15 + 5 Amp
PSD1MW3	Three powerstages
222	2 + 2 + 2 Amp
433	8 + 5 + 5 Amp
PSD1MWP	Passive power supply
010	10 kVA
020	20 kVA

6 Technology	
B	Basic

7 Interface	
1	EtherCAT
2	PROFINET, EtherNet/IP

8 Feedback	
1	DSL

9 Option 1	
0	No option

10 Option 2	
0	No option

11 Customization	
000	Non customized

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