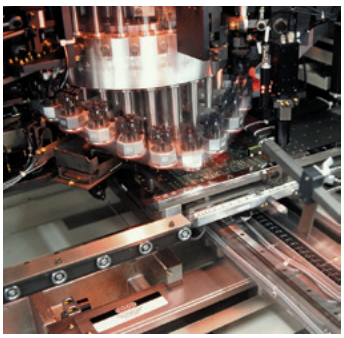
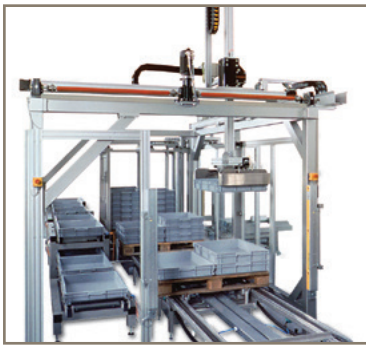
aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



PSD1 Parker Servo Drive

Standalone Servo Drive and Multi-axis Servo System



Parker

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Parker Servo Drive - PSD

Parker Hannifin

The global leader in motion and control technologies

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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.

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Milan, Italy

Littlehampton, UK

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Dijon, France

Parker Servo Drive - PSD

Overview

Description

The PSD1 is Parker Servo Drive family, available with different power rating from 2 to 30A and form factors.
Today the offering contains:
The PSD1-S is a standalone drive which can be connected directly to the main supply.
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 multiples PSD1-M modules, connected through DC bus bars. The modules are available as one, two or three axis versions. This makes the system highly flexible.
PSD1-M servo system is particularly suitable for all centralised automation systems, such as those found in many packaging machines, where large numbers of drives are often required offering significant advantages.

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

Common Features

- **Hiperface DSL feedback ®**
  Reduced cabling; only one cable connection between drive & motor
- **EtherCAT - Real time communication as standard**
- **Quick and simple wiring**
- **Removable SD card**
- **Same software functionalities for standalone drive and multi-axis servo system**

PSD1-S unique features

- **Single or three phases 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 axis PSD1 S	Continuous current [A_{rms}]	Peak current A (≤ 2 s)
PSD1 SW1200	2	6
PSD1 SW1300	5	15

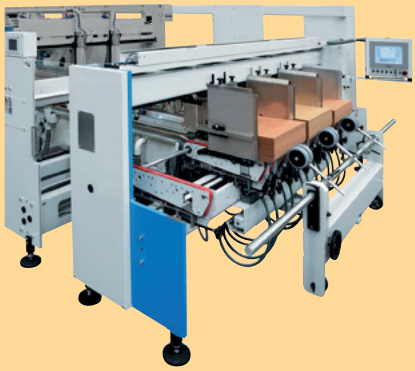
Multi axis PSD1 M	Continuous current [A_{rms}]	Peak current A (≤ 2 s)
PSD1 MW1300	5	10
PSD1 MW1400	8	16
PSD1 MW1600	15	30
PSD1 MW1800	30	60
PSD1 MW2220	2 + 2	4 + 4
PSD1 MW2330	5 + 5	10 + 10
PSD1 MW2440	8 + 8	16 + 16
PSD1 MW2630	15 + 5	30 + 10
PSD1 MW3222	2 + 2 + 2	4 + 4 + 4
PSD1 MW3433	8 + 5 + 5	16 +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

(additional module on request)

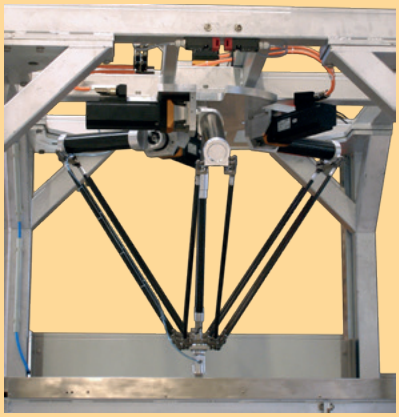
PSD Overview

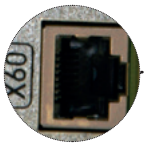
Applications

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, whilst 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.

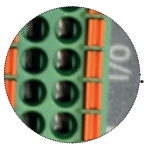




EtherCAT®

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.

Optional Motor Feedback

- Resolver, Endat 2.2, Biss C

Quick and Simple Wiring

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

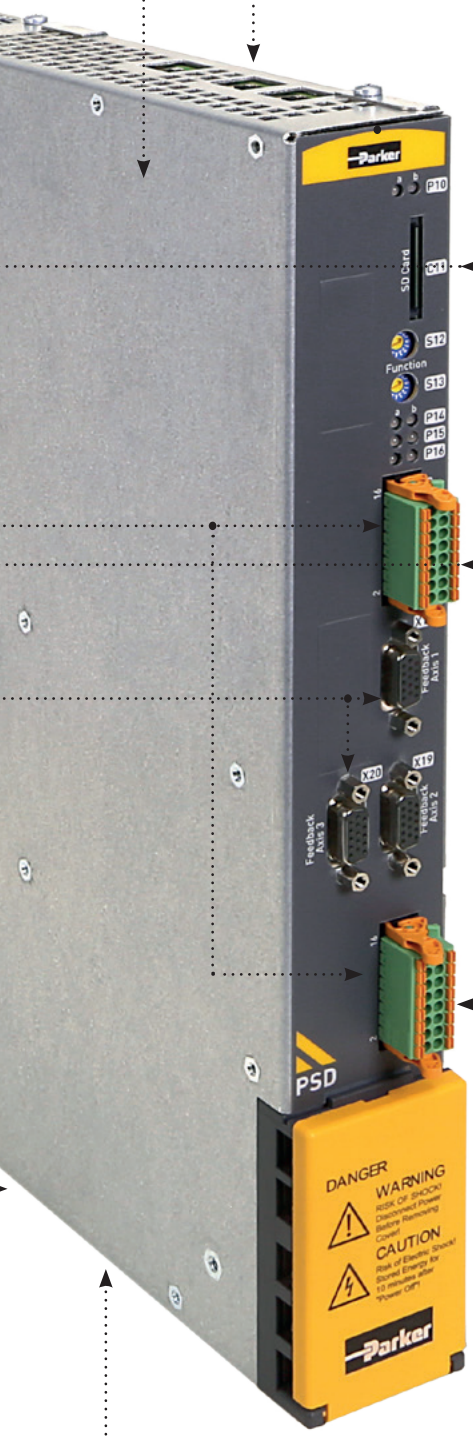
HIPERFACE® DSL

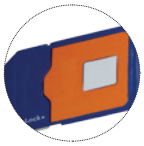
Reduce machine footprint

- Up to 3 axis 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 µs,
  - Speed control 125 µs,
  - Position control 125 µs





Removable SD card

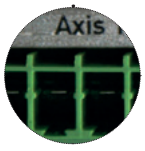
- Easy exchange between drives less than 1 minute
- Software upgrade
- Parameters and application memory

STO Safety Functions reduce time and cost , no need additional cabling

- 2 Safety Torque Off (STO) circuits for 3 axis module (one for axis1 and one for axis 2,3).
- 2 independent Safety Torque Off circuits for 2 axis module
- 1 Safety Torque Off circuit for 1 axis module
- Optional Safety Functions over EtherCAT FSoE (in development)

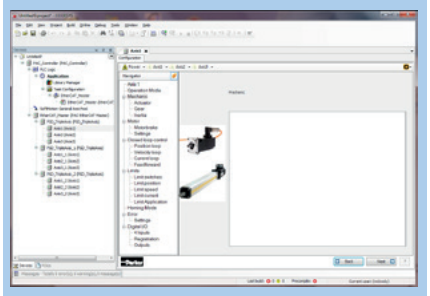
DC Bus energy saving

- 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 commisioning 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 Excel)
- Enhanced optimisation 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*230 VAC ±10 % 50...60 Hz 1*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 an continuous limit current at 16A max. by module

PSD1-MW-P - Power Supply Unit

Mains 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*230 ... 480 VAC ±10 % 50...60 Hz (Rated voltage 3*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

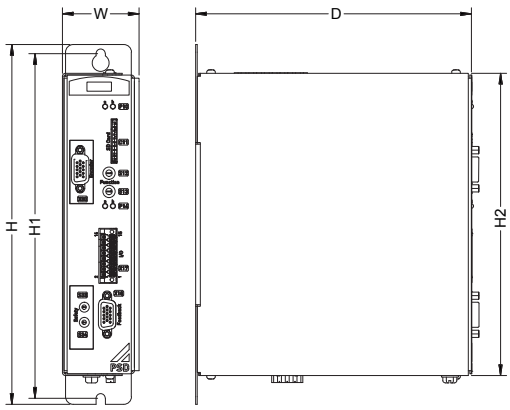
Operating Temperature	0...+40 °C
Storage Temperature	-25 °C...+70 °C
Shipping Temperature	-25 °C...+70 °C
Product Enclosure Rating	IP20 (only in closed electrical cabinet) UL open type equipment
Altitude	1000 m ASL. Derate output current by 1.0 % per 100 m to a maximum of 2000 m
Operating Humidity	Class 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

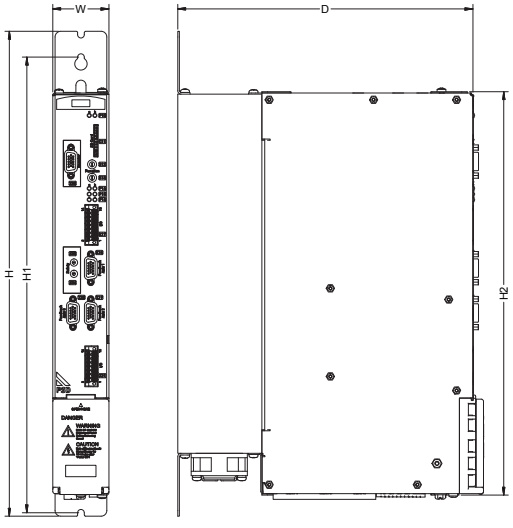
2006/95/EC	Low voltage directive
EN 60204-1	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN 61800-5-1	Adjustable speed electrical power drive systems - safety requirements, thermal and energy
UL	Power Conversion Equipment UL508C
2004/108/EC	EMC directive
EN 61800-3	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



PSD1-SW

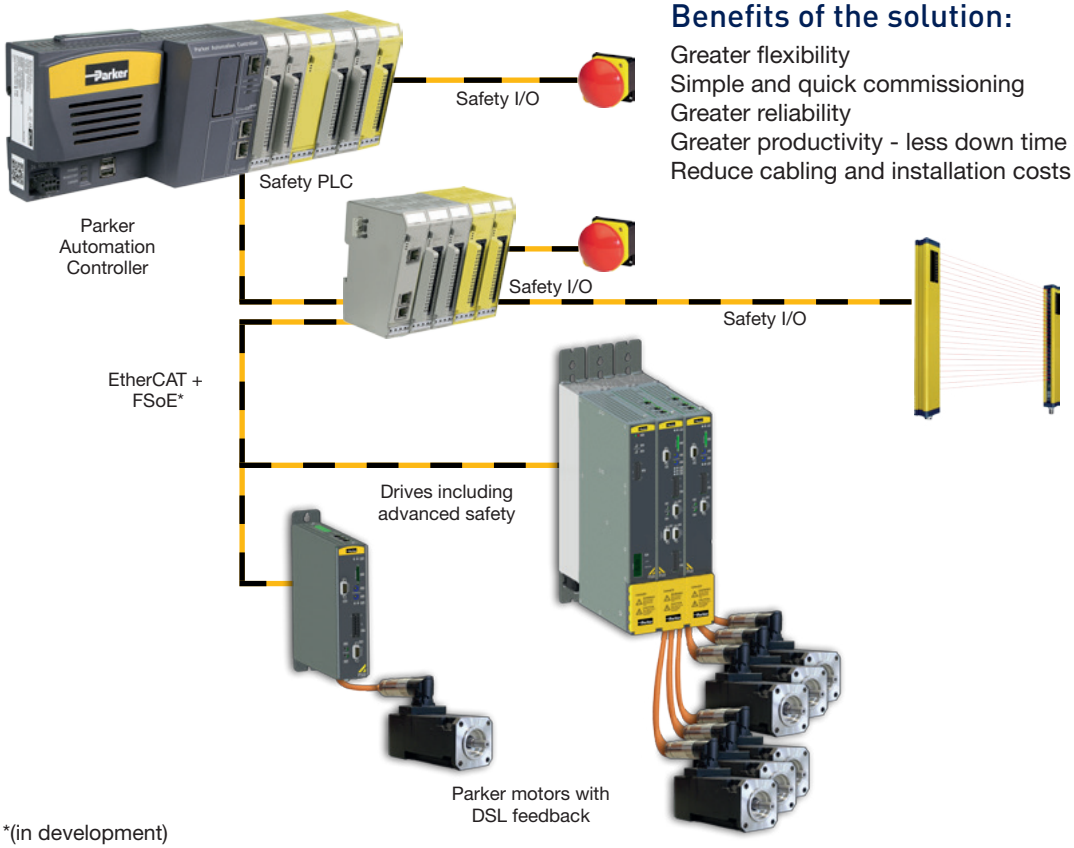


PSD1-MW

Specific Functionalities

Safety configuration

The Parker Servo Drives have featured "Safe Torque Off" (STO) as standard function, helping to protect users and machinery against unexpected motor start-up. Performance Level PL=e according to EN ISO 13849.
In order to fulfil the new machinery directive 2006/42/EG, the PSD can be equipped with a safety option board.
The system does not need any additional wiring, as the Functional Safety over EtherCAT (FSoE)* uses the existing wiring.



Benefits of the solution:

Greater flexibility
Simple and quick commissioning
Greater reliability
Greater productivity - less down time & quicker restart
Reduce cabling and installation costs

*(in development)

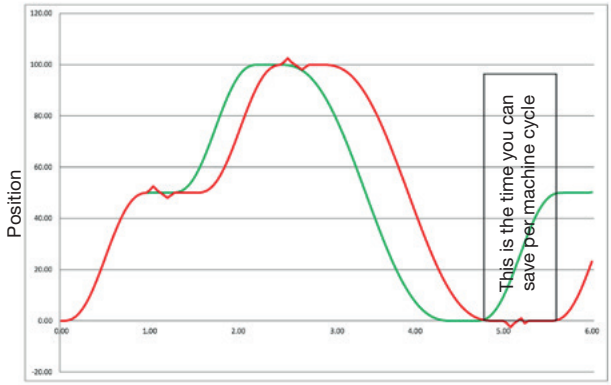
Specific control feature for high dynamic machines

Vibration suppression

New machines need increasingly higher clock rates, but highly dynamic setvalue changes stimulate mechanical resonance of the machine. Mechanical vibrations lead to quality loss and/or reduced clock rates

=> Vibration suppression helps to boost the performance of your machine

Your benefit



Without vibration suppression
With vibration suppression

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 230VAC**
	M	**Multi-axis 400VAC**
3	**Mounting Type**	
	W	**Wall mounting**
	C	Cold plate*
	P	Push through IP20*
4	**Device Type**	
	1	**One powerstage**
	2	**Two powerstages**
	3	**Three powerstages**
	P	**Power module**
5	**Device Type**	
	PSD1SW1 Standalone	
	200	**2 Ampere**
	300	**5 Ampere**
	PSD1MW1 One powerstage	
	300	**5 Ampere**
	400	**8 Ampere**
	600	**15 Ampere**
	800	30 Ampere*
	PSD1MW2 Two powerstages	
	220	**2 + 2 Ampere**
	330	**5 + 5 Ampere**
	440	**8 + 8 Ampere**
	630	15 + 5 Ampere*
	PSD1MW3 Three powerstages	
	222	**2 + 2 + 2 Ampere**
	433	**8 + 5 + 5 Ampere**
	PSD1MWP Passive power supply	
	010	**10 kVA**
	020	20 kVA*

6	**Technology**	
	B	**Basic**
7	**Interface**	
	1	**EtherCAT**
	2	PROFINET*
	3	Ethernet/IP*
8	**Feedback**	
	1	**DSL**
	2	EnDat 2.2*
	3	BiSS C*
	4	Resolver*
9	**Option 1**	
	0	**No option**
	1	Functional Safety over Ethercat*
10	**Option 2**	
	0	**No option**
11	**Customisation**	
	000	**Non customized**

Note: in bold, reference already available
* in development

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192-010001N2 March 2014

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