

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



Superheat Controller for Bipolar Electric Expansion Valve

Parker Sporlan PSD4 stepper motor driver to control Parker's range of SER, SERI and SEHI electric expansion valves



ENGINEERING YOUR SUCCESS.

With over 65 years of valve design expertise and with more than 10 years experience in superheat control know-how, Parker Sporlan is the ideal partner for optimum refrigeration performance, and reduced energy consumption.

PSD4 is a stand alone, electronic valve driver, specifically designed for the control of Parker Sporlan's SER, SERI and SEHI range of bipolar stepper motor valves.

The Parker Sporlan's family of SER, SERI and SEHI valves and PSD4 driver, improves superheat control for air conditioning and refrigeration systems, by controlling the difference between the actual temperature and the saturation temperature of the refrigerant.

Configuring the controller to match the Sporlan electric expansion valve, to optimise system performance is easy. Customers simply select the valve type from a pick list held in the controller's memory, and the system is ready to start.

The PSD4 has four models, all DIN rail mounting. Ranging from simple stand-alone units, without display, to a models with LCD display and communication interfaces cards, such as CANbus, Modbus RS-485, making it ideal for OEM's who require system flexibility and external control and monitoring.

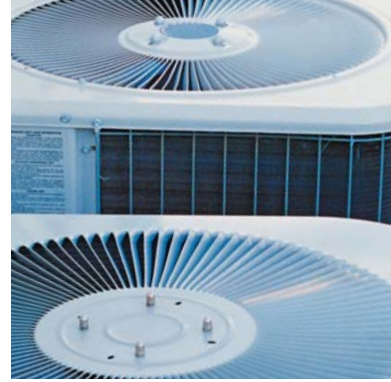
The PSD4 has two selectable methods of control, superheat controller or analogue positioner.

PSD4 has 4 configurable analogue inputs, for the most commonly used transducers, NTC, PT1000, 0-5 V ratiometric, 0-10 V, 0-20 mA & 4-20 mA, for pressure and temperature inputs. Two of the analogue inputs can be used as emergency back up in the event of one of the other inputs failing.

When the controller is selected to work as an analogue positioner, one of the analogue inputs is configured for 0 to 10 volts input. This function is ideal for OEM's who have designed their own superheat algorithm and wishes to use this to control the valve position.

The PSD4 valve driver can be used in the following application:

- Heat pumps
- Air Conditioning
- Chillers



SER-C

Technical Specifications

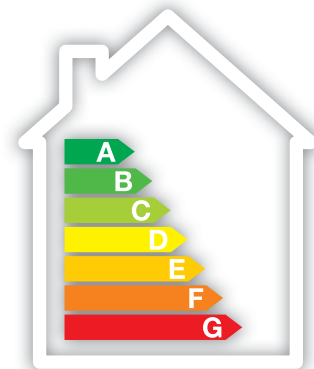
- Voltage supply 24Vac +10% -15%
- Ambient temperature range -20 to +60 °C (@r.H < 95% non-condensing)
- 4 x Programmable analogue inputs* (NTC, PT1000, 0..20 mA, 4..20mA, 0..5 V)
- 3 x Configurable Digital inputs (Enable the controller, change parameters set and resynchronise)
- 1 x Configurable Digital output (Alarm, solenoid valve)
- 3 x Serial ports*:
 - TTL Port for quick down load of parameters via PSKEY10 (Programming key) and PSIF20TUXI (PC programming kit),
 - Dedicated communications port, Modbus RS-485, CANbus,
- 4 DIN mounting
- Available with optional LCD display*
- 5 LED status indicators for controllers supplied without display
- Relay output (8A)
- Interface to external controllers via communication port
- Remote mounting LCD display PSV4GBR
- SuperCap valve closing up unit PSS4B

* Model dependent



Widest range of cooling capacity, with Sporlan SER, SERI and SEHI family of electric expansion valves up to 1.400 kW.

SEHI-175



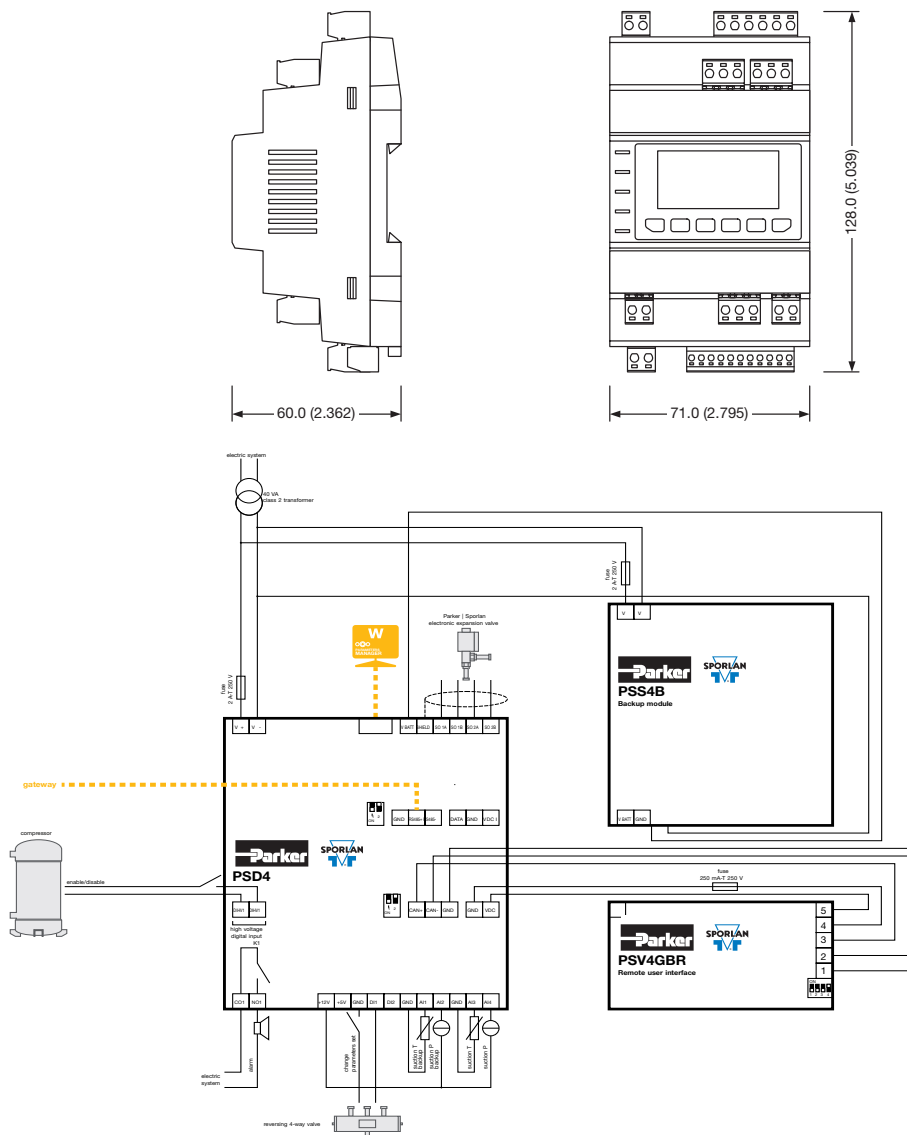
PSD4 Driver for Heat pumps, Air conditioning, Chillers, Packaged rooftop units

Order Selection Guide PSD4

	Va. c.	Hz	A/I	D/I	D/O	SO	BS	PP	SP	CB	RS	DP
PSD4 Super Heat Controllers NO DISPLAY												
PSD4BX3	24	50/60	4	3	1-5 A	1	✓	1	1	-	-	-
PSD4BM3	24	50/60	4	3	1-5 A	1	✓	1	2	-	✓	-
PSD4BC3	24	50/60	4	3	1-5 A	1	✓	1	1	✓	-	-
PSD4BF3	24	50/60	4	3	1-5 A	1	✓	1	3	✓	✓	-
PSD4 Super Heat Controllers DISPLAY												
PSD4DF3	24	50/60	4	3	1-5 A	1	✓	1	3	✓	✓	✓

Key:

A/I = Analogue input - D/I = Digital Input - D/O = Digital Output - SO = Stepper Output - BS = Battery Back Up - PP = Programming Port - SP = Serial Port - CB = CANBus - IN = INTRABUS - RS = Modbus RS-485 - DP = Display Fitted (LED)* LED.



Options

EVPT5108

Steel Pressure transducers, 0.5 to 8 bar working pressure, power supply 8-28 VDC, 4-20 mA output 2 wire. 7/16" male - 20 UNF threaded tip

EVPT5130

Steel Pressure transducers, 0 to 30 bar working pressure, power supply 8-28 VDC, 4-20 mA output 2 wire. 7/16" male - 20 UNF threaded tip

EVTPN530F202

Fast response temperature Probes NTC 10kOhm @ 25°C
Overmoulded bulb -50 to 110°C

PSPTB0008C1GB Pressure Range -1 to 8 barg

PSPTB0015C1GB Pressure Range -1 to 15 barg

PSPTB0030G1GB Pressure Range 0 to 30 barg

PSPTB0050G1GB Pressure Range 0 to 50 barg

Stainless Steel Pressure transducer, power supply 8 to 28 Vdc, 4-20mA output 2 wire. 7/16" 20 UNF threaded tip female connection, including access pin for Schraeder valve.

P2NZ3000

DIN connector for pressure transducer series PSPT

CP2N03000AA25

5 meter PVC cable with DIN connector fitted for transducer series PSPT

PSS4B

SuperCap EEV closing unit (typically < 10 s) if power supply is lost.
Contact Parker-Race for more details.

PSIF20TUXI

TTL/USB serial interface for upload and download of parameters via the programming software

PSKEY10

Parameter quick set up key

PSV4GBR

Remote mounting LCD (128 x 64 pixel) programming panel, 118 x 10 mm, RTC, alarm, buzzer, isolated 12-24 VAC/DC power supply mounting accessories available.

PSPS

Power supply for PSKEY10 115-230 VAC / 9 VDC



Certification

- Low Voltage Directive EMC 2006/95/EEC
- EMC Directive 2004/108/EC
- Safety Product standard IEC EN 60730-1:2000
- EMC Emission Generic standard IEC EN 61000-6-3
- EMC Immunity Generic standard IEC EN 61000-6-1

- IEC Product standard 60730-1:1999
- UL 60730-1 (2003 edition 3) CSA 60730-1 (edition 3.2)
- RoHS according to 2002/95/EC
- WEEE according to 2002/96/EC
- REACH according to CE 1907/2006



Housing

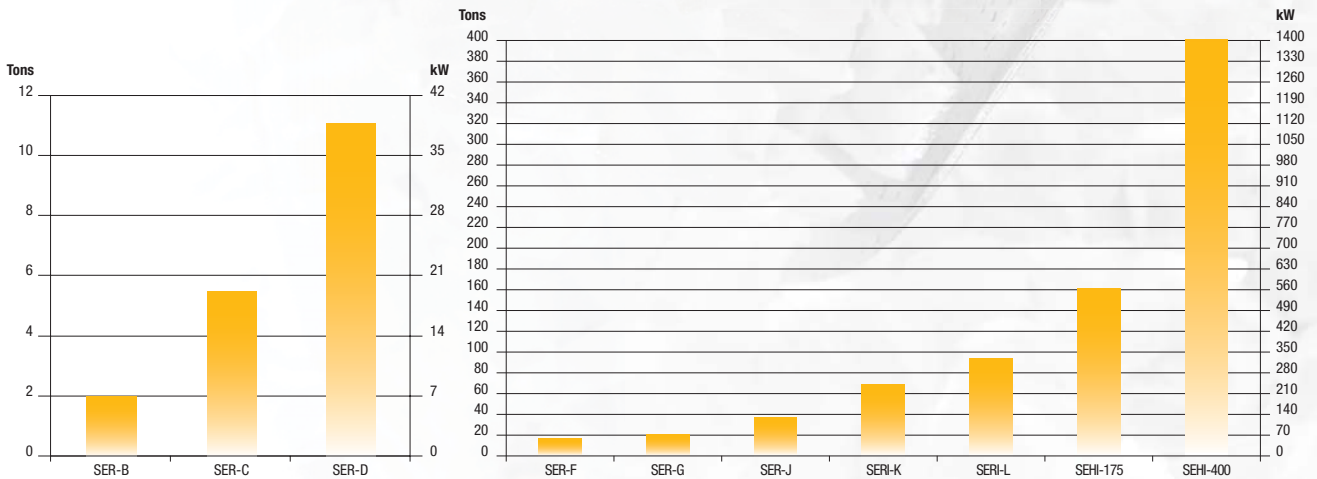
- 35mm DIN Guide according to EN 60715
- Plug-in terminal block connectors 5mm pitch
- Protection level IP20 with connectors fitted
- Protection level front cover only IP40
- Pollution degree - 2 (normal)

SER-SERI-SEHI

Valves & Driver PSD4



Capacity Chart for SER-SERI and SEHI Electric Expansion Valve Range



R-407C at 38°C (100°F) liquid, 7 bar (100 psi) pressure drop, and 5°C (40°F) evaporated temperature.



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.

OFFER OF SALE

Please, contact your Parker representation for a detailed "Offer of Sale".



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**

Aftermarket services
Commercial transports
Engines
General & business aviation
Helicopters
Launch vehicles
Military aircraft
Missiles
Power generation
Regional transports
Unmanned aerial vehicles

Key Products

Control systems & actuation products
Engine systems & components
Fluid conveyance systems & components
Fluid metering, delivery & atomization devices
Fuel systems & components
Fuel tank inerting systems
Hydraulic systems & components
Thermal management
Wheels & brakes



Climate Control **Key Markets**

Agriculture
Air conditioning
Construction Machinery
Food & beverage
Industrial machinery
Life sciences
Oil & gas
Precision cooling
Process
Refrigeration
Transportation

Key Products

Accumulators
Advanced actuators
CO₂ controls
Electronic controllers
Filter driers
Hand shut-off valves
Heat exchangers
Hose & fittings
Pressure regulating valves
Refrigerant distributors
Safety relief valves
Smart pumps
Solenoid valves
Thermostatic expansion valves



Electromechanical **Key Markets**

Aerospace
Factory automation
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, gantry robots & slides
Electrohydraulic actuation systems
Electromechanical actuation systems
Human machine interface
Linear motors
Stepper motors, servo motors, drives & controls
Structural extrusions



Filtration **Key Markets**

Aerospace
Food & beverage
Industrial plant & equipment
Life sciences
Marine
Mobile equipment
Oil & gas
Power generation & renewable energy
Process
Transportation
Water Purification

Key Products

Analytical gas generators
Compressed air filters & dryers
Engine air, coolant, fuel & oil filtration systems
Fluid condition monitoring systems
Hydraulic & lubrication filters
Hydrogen, nitrogen & zero air generators
Instrumentation filters
Membrane & fiber filters
Microfiltration
Sterile air filtration
Water desalination & purification filters & system



Fluid & Gas Handling

Key Markets

Aerial lift
Agriculture
Bulk chemical handling
Construction machinery
Food & beverage
Fuel & gas delivery
Industrial machinery
Life sciences
Marine
Mining
Mobile
Oil & gas
Renewable energy
Transportation

Key Products

Check valves
Connectors for low pressure fluid conveyance
Deep sea umbilicals
Diagnostic equipment
Hose couplings
Industrial hose
Mooring systems & power cables
PTFE hose & tubing
Quick couplings
Rubber & thermoplastic hose
Tube fittings & adapters
Tubing & plastic fittings



Hydraulics

Key Markets

Aerial lift
Agriculture
Alternative energy
Construction machinery
Forestry
Industrial machinery
Machine tools
Marine
Material handling
Mining
Oil & gas
Power generation
Refuse vehicles
Renewable energy
Truck hydraulics
Turf equipment

Key Products

Accumulators
Cartridge valves
Electrohydraulic actuators
Human machine interfaces
Hybrid drives
Hydraulic cylinders
Hydraulic motors & pumps
Hydraulic systems
Hydraulic valves & controls
Hydrostatic steering
Integrated hydraulic circuits
Power take-offs
Power units
Rotary actuators
Sensors



Pneumatics

Key Markets

Aerospace
Conveyor & material handling
Factory automation
Life science & medical
Machine tools
Packaging machinery
Transportation & automotive

Key Products

Air preparation
Brass fittings & valves
Manifolds
Pneumatic accessories
Pneumatic actuators & grippers
Pneumatic valves & controls
Quick disconnects
Rotary actuators
Rubber & thermoplastic hose & couplings
Structural extrusions
Thermoplastic tubing & fittings
Vacuum generators, cups & sensors



Process Control

Key Markets

Alternative fuels
Biopharmaceuticals
Chemical & refining
Food & beverage
Marine & shipbuilding
Medical & dental
Microelectronics
Nuclear Power
Offshore oil exploration
Oil & gas
Pharmaceuticals
Power generation
Pulp & paper
Steel
Water/wastewater

Key Products

Analytical Instruments
Analytical sample conditioning products & systems
Chemical injection fittings & valves
Fluoropolymer chemical delivery fittings, valves & pumps
High purity gas delivery fittings, valves, regulators & digital flow controllers
Industrial mass flow meters/ controllers
Permanent no-weld tube fittings
Precision industrial regulators & flow controllers
Process control double block & bleeds
Process control fittings, valves, regulators & manifold valves



Sealing & Shielding

Key Markets

Aerospace
Chemical processing
Consumer
Fluid power
General industrial
Information technology
Life sciences
Microelectronics
Military
Oil & gas
Power generation
Renewable energy
Telecommunications
Transportation

Key Products

Dynamic seals
Elastomeric o-rings
Electro-medical instrument design & assembly
EMI shielding
Extruded & precision-cut, fabricated elastomeric seals
High temperature metal seals
Homogeneous & inserted elastomeric shapes
Medical device fabrication & assembly
Metal & plastic retained composite seals
Shielded optical windows
Silicone tubing & extrusions
Thermal management
Vibration dampening

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