



# Electromagnetic Pumps PSP Series



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## Technical Sheet

Culligan presents a full line of professional electromagnetic pumps, designed for horizontal installation, with mechanical adjustment of stroke, advanced digital electronics and high performance hydraulics. The wide range of available models and options (pump heads, flow rates, inputs and outputs) will allow you to choose the perfect pump for your application needs.

### MAIN FEATURES

- Advanced multifunctional electronics, with backlit alphanumeric display
- Mechanical adjustment of stroke length (injection volume)
- Multilingual interface (Italian, English, French, Spanish, German)
- Two configuration levels, standard and advanced, both password-protected
- Storage of configuration and calibration data in non-volatile memory for at least 10 years
- Dosing schedule at set hours and days (internal clock)
- Built-in counter of injected litres, and membrane working hours and shots
- “Service” menu
- “Autoset” function, for factory data restoring with different codes for different pump models and configurations
- Self-priming function (only available with optional injection flow control)
- Internal system for overheating control / safety
- Dosing chamber with anti-spill system
- Multi-voltage power supply 90-250 V~ (cable with Schuko plug)
- Standard digital inputs for external consent and level control
- Optional input for injection flow control
- Optional output, to be chosen among: alarm relay (NO / NC), 4-20mA signal, pulse repetition (SSR) for sending remotely the magnet pulse to other pumps provided with pulse input
- Optional serial port, RS232 or RS485 with Modbus RTU communication protocol
- These pumps are supplied with standard accessory kit (foot filter; injection valve; hoses for suction, delivery and bleed lines), fitting kit, cables with M8 connector for input / output wiring

### TECHNICAL DATA

Power Supply	100 ... 240 V~, 50/60 Hz, 60 VA max. (standard version: cable with Schuko plug; without plug upon request)
Electrical Protection	Fuse 5x20 F1.6A
Display	2-row (x 12 characters), alphanumeric, with backlight
Keys	5 membrane keys (MENU/OK, ESC, ↑, ↓, ON/OFF)

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**Company with UNI EN ISO 9001:2015 certified quality system**

LED	2 LEDs: "POWER" and "PULSE"
Internal Clock	RTC, precision $\pm 5$ sec/month, with CR2032 buffer battery (minimum autonomy of 3 years with no power supply)
Dosage Precision	-5 ... +10% (with max stroke length)
Materials	Housing PP reinforced with glass fibre Pump head PVDF (also with self-bleeding valve), PP or methacrylate
Membrane	high quality EPDM with fabric reinforcement, steel core and PTFE coating on the side in contact with the fluid Seals PTFE for PVDF heads, FPM or EPDM for PP or methacrylate heads Valves ceramic ball (with PVDF, PP or PVC body, depending on model)
Viscosity of injected product	0 ... 200 mPas (standard head) 200 ... 500 mPas (head with spring valve) 500 ... 3000 mPas (PKT/HV special head, only for flow rates >5 l/h)
Environment	Storage temperature -20 ... +60 °C Working temperature -10 ... +45 °C RH max 92 % no condensing
Protection Rate	IP65
Dimensions	110 x 260 x h 190 mm (max overall dimensions, wirings excluded)
Weight	approx. 3 to 5.5 kg (depending on model)

*Note: Dimensions and weight may slightly differ depending on configurations.*

Digital Inputs EXT.CON / PULSE	<p>this input changes depending on the pump model:</p> <ul style="list-style-type: none"> <li>• for pump with analogic input, accept voltage-free contact (NO / NC), from filter pump contactor or input for three-wire micro-magnetic flow sensor</li> <li>• for PSP161 model, is a pulse input for water meter; accept voltage-free contact; if connected in parallel with other similar inputs of similar pumps, it is advisable to insert a signal splitter</li> </ul>
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*Note: physically this input is only one, so it will be not possible to have a pump with separate pulse and consent inputs; a possible "cut-off" of the pulse signal should be managed externally to the pump.*

LEV	voltage-free contact from level sensor
FLW (injection)	optional; contact from injection flow sensor

### **Analog Inputs Specifications (depending on model)**

*(Note: precision/repeatability data refer to the electronics, and do not take into account the sensor)*

mA	0-20 or 4-20 mA (configurable); input impedance 30 $\Omega$ ; precision > $\pm 0.05$ mA, repeatability > $\pm 0.03$ mA
pH/RX	input impedance > $10^{12}$ $\Omega$ ; range pH: 0.00 ... 14.00 pH; precision > $\pm 0.03$ pH, repeatability > $\pm 0.03$ pH range ORP: 0 ... +1000 mV; precision > $\pm 3$ mV, repeatability > $\pm 2$ mV
Chlorine	with open amperometric cell (CLE12 or CLE16) range 0 ... 1.00 or 0 ... 2.00 ppm (specify upon order), linear range, may reach 5 ppm with cell saturation error; precision > $\pm 0.03$ ppm, repeatability > $\pm 0.02$ ppm
Conductivity	automatic thermo-compensation not available; also available with software for automatic purge of cooling towers; range depending on the cell constant: K = 10cm → 2, 20, 200 $\mu$ S/cm K = 1cm → 2, 20, 200, 2000 $\mu$ S/cm K = 0.1cm → 20, 200, 2000 $\mu$ S/cm, 20 mS/cm K = 5cm → 2, 20, 200, 2000 $\mu$ S/cm precision > 0.5% FS, repeatability > 0.3% FS

### Outputs (optional)

Alarm Relay	NO / NC contact, configurable, max 250V~, 3A resistive
mA Output	4-20 mA, directly proportional to the dosage percentage (0-150 injections/min ⇒ 4-20 mA) on 400Ohm max load, precision 1%, without galvanic separation from inputs
Pulse Repetition	SSR contact (solid state relay), max 40V 50mA, duration 60msec
Serial Port	RS232 or RS485, three-wire, 9600 or 19200 or 38400 BPS, 8 bit, no parity, 1 stop bit, ASCII communication or Modbus RTU protocol

VERSION	MODEL		INPUTS				OUTPUTS		
	Self-draining	Manual stroke adj.	Level	Enabling or impulse	mA	Flow sensor	Alarm relay	Pulse repet.	RS485
PSP		STD	STD	STD	STD		STD		
PSP AS	STD	STD	STD	STD	STD		STD		
PSP FL		STD	STD	STD	STD	STD	STD		
PSP ASF	STD	STD	STD	STD	STD	STD	STD		
PSP RI		STD	STD	STD	STD			STD	
PSP ASR	STD	STD	STD	STD	STD			STD	
PSP RF		STD	STD	STD	STD	STD		STD	
PSP ARF	STD	STD	STD	STD	STD	STD		STD	
PSP RS		STD	STD	STD	STD				STD
PSP ARS	STD	STD	STD	STD	STD				STD
PSP R4F		STD	STD	STD	STD	STD			STD
PSP A4F	STD	STD	STD	STD	STD	STD			STD

### Hydraulic Specifications

Note: These data refer to standard heads, dosing of no-viscous liquids, temperature 25°C, mechanical stroke length 100%, working frequency 180 pulses/minute.

### Portate standard

Version	Flow Rate max (l/h)	Pressure max (bar)	Hose (IDxOD)
2@16	2	16	4x6
5@10	5	10	4x6
8@7	8	7	5x8
13@4	13	4	5x8
20@2	20	2	5x8
32@2	32	2	9x12