



FG PUMPS

METERING PUMPS FOR
CHEMICALS

A photograph of a grey, rectangular solenoid metering pump. The pump has a textured front panel with a vertical ribbed section on the left. On the right side, there is a control panel with a black knob and several ports. The pump is shown from a three-quarter perspective against a dark background.

FGS SERIES

Solenoid Metering Pumps

FGS Psp – PROFESSIONAL HORIZONTAL PUMP LINE



FGS psp series is a professional solenoid pumps series, designed for horizontal installation, with **mechanical adjustment of stroke, advanced digital electronics and high performance hydraulics**. The wide range of available models and options will allow to choose the perfect pump for your application needs.

MAIN FEATURES

- CONSENT input for external consent to the dosage and/or monitoring of water flow to the sensors.
- pH or redox input selection through configuration menu (FGS psp162 model).
- Separated inputs for level control and injection flow control.
- Alarms and errors (diagnostic) directly shown on display.
- Automatic compensation of the power voltage variations (from -30 up to +10%)
- Two configuration levels, standard and advanced, both protected by password.
- Configuration and calibration data saving on non-volatile memory for at least 10 years.
- Internal clock, equipped with buffer battery to ensure the functioning even when the pump is not powered; can be used for scheduling the pump operations.
- Auxiliary output (optional) for remote indication of the proper functioning of the pump: may be a programmable relay (NO or NC) or, alternatively, a 4–20 mA signal.
- "Repetition" output (optional) for sending remotely the magnet pulse to other pumps provided with pulse input.
- RS232C serial port (optional) for communication with a supervisor (e.g. RW14).
- Built-in counter of injected litres, useful for maintenance requests and resettable through password.
- Counters of diaphragm working hours and shots, can be displayed and reset via "service" password.
- Factory data restoring with different codes for different pump models and configurations.
- Multi-tension power supply.
- Multi-language interface.
- Self-priming function
- Mechanical adjustment of stroke (flow rate)

TECHNICAL DATA

Digital Inputs

LEVEL Accept voltage-free contact from level sensor

EXT. CONSENT/ PULSE This input changes depending on the pump model:

- **model FGS psp161**: pulse input for water meter; accept voltage-free contact; if this input has to be connected in parallel with similar inputs of other pumps, it is advisable to install a signal splitter;
- for pump with **analog input**, accept voltage-free contact (NO/NC), from filter pump contactor or input for three-wire micro-magnetic flow sensor

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.

FLOW (Injection) Optional; contact from injection flow control sensor

Analogic Inputs (depending on model)

mA 0–20 or 4–20 mA, selectable through configuration menu; input impedance 30Ω, precision > ±0.05 mA, repeatability > ±0.03 mA

pH/Rx input impedance > 10¹² Ω

- pH range: 0.00 ... 14.00 pH with precision > ±0.03pH, repeatability > ±0.03pH
- RX range: 0 ... +1000 mV with precision > ±3 mV, repeatability > ±2 mV

CHLORINE with open amperometric cell (CLE12 or CLE16); range 0 ... 1.00 / 0 ... 2.00 ppm (specify upon order); linear range, may reach 5 ppm with cell saturation error
precision > ±0.03 ppm; repeatability > ±0.02 ppm;

CONDUCTIVITY automatic thermos-compensation not available; measurement range depending on cell constant:

- K = 10 cm → 2, 20, 200 µS/cm
- K = 1 cm → 2, 20, 200, 2000 µS/cm
- K = 0.1 cm → 20, 200, 2000 µS/cm; 20 mS/cm
- K = 5 cm → 2, 20, 200, 2000 µS/cm

precision > ±0.5% FS; repeatability > ±0.3% FS;

Outputs (optional)

ALARM RELAY contact configurable NO / NC, max 250V~, 3A resistive

mA OUTPUT 4–20 mA, directly proportional to the dosing percentage (0–150 inj./min → 4–20 mA) on 400 Ω max load, precision 1% without galvanic separation from inputs

PULSE REPETITION SSR (solid state relay) contact, max 40 V / 50 mA, duration 60 msec

SERIAL PORT RS232, 3-wire, 9600 BPS, 8 bit, no parity

AVAILABLE MODELS

- FGS psp161**: Multi-function pump, with pulse and 0/4–20 mA inputs
- FGS psp162**: Model with built-in pH/RX-meter and electrode input on BNC connector
- FGS psp163**: Model with built-in chlorine meter, available in two version (psp163A with input for CLE12 cell, or psp163B with input for CLE16 cell)
- FGS psp164**: Model with built-in conductivity meter, also available with software for automatic purge of cooling towers

TECHNICAL FEATURES

POWER SUPPLY: 100 ... 240 V~, 50/60 Hz, max 60 VA

PROTECTION RATE: IP65

DIMENSIONS: 110 x 260 x h 190 mm

WEIGHT: approx. 3 to 5,5 kg (depending on model)

MATERIALS: PP housing reinforced with fiber glass; PVDF, PP or methacrylate pump head; diaphragm made with high quality EPDM with fabric reinforcement – steel core and PTFE coating on the side in contact with the fluid; seals in PTFE for PVDF pump heads, FPM or EPDM for PP or methacrylate pump heads; ceramic and PTFE ball valves

FREQUENCY: adjustable from 0 to 180 pulses/minute

DISPLAY: 2-row (x 12 characters), alphanumeric, with backlights

KEYS: 5 membrane keys: CAL, ESC, UP, DOWN, ON-OFF

LED: 2 LEDs: "POWER" and "PULSE"

DOSAGE PRECISION: -5 ... + 10% (with max stroke length)

VISCOSITY OF MEDIUM:

0...20 mPas (standard pump head)

200...500 mPas (pump head with spring valve)

500...3000 mPas (with special head, only for flowrates > 5 l/h)

MODEL (CURVE)	FLOWRATE (L/H)	PRESSURE (BAR)
A	2	16
B	5	10
C	13	4
D	20	2
E	32	2