

| | |
|--------------------------------|--|
| Variant | <input type="checkbox"/> standard (210), <input type="checkbox"/> chemically resistant (211) |
| Fluid Type | clear or translucent liquid |
| Flow Range | <input type="checkbox"/> 0.5...20 l/min, <input type="checkbox"/> l/min |
| Pulse Output | <input type="checkbox"/> TTL (~0.1...~2 kHz, max. 0.5 mA) |
| Sensitivity | pulses per liter of water |
| Control/Alarm Output | <input type="checkbox"/> PNP (NO), <input type="checkbox"/> NPN (NO) |
| Output Ratings | max. 100 mA, max. 40 V |
| Display Refresh | 1 s |
| Power Supply | 18...30 VDC, max. 2 Vp-p at 50 Hz |
| Consumption | less than 200 mA |
| Measurement Error | $\leq \pm 1\% \pm 0.01\%$ from span for 1 °C |
| Reproducibility | $\leq \pm 0.3\%$ |
| Medium Viscosity | 1...1000 CST |
| Medium Temperature | max. 90 °C |
| Medium Pressure | max. 12 bar |
| Ambient Temperature / Humidity | -10...65 °C / 0...85% RH |
| Housing Protection Class | IP67 |
| Wetted Parts | PVDF, Viton®, Vectra®, EPDM |
| Ports and Seals | <input type="checkbox"/> POM and NBR, <input type="checkbox"/> 316SS and PTFE |

Warranty and Support

.....
serial number

.....
manufacturing date

QC check mark(passed)
(stamp)

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QD-8.2.4-WC

Warranty

COMECO warrants this product to be free from defects in materials and workmanship for 1 year. If your unit is found to be defective within that time, we will promptly repair or replace it. This warranty does not cover accidental damage, wear or tear, or consequential or incidental loss. This warranty does not cover any defects caused by wrong transportation, storage, installation, or operating (see 'Specifications').

Technical support

In the unlikely event that you encounter a problem with your COMECO device, please call your local dealer or contact directly our support team.

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FLOW CONTROLLER

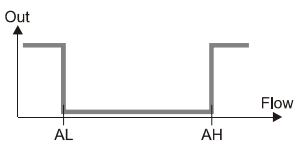
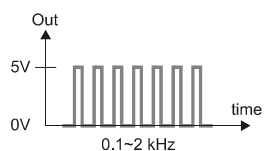
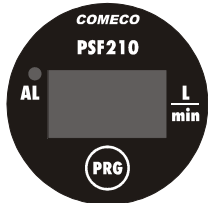
PSF21x

OPERATION MANUAL



Please read this Operation Manual before mounting and operating!
Save the Manual for future references!

Operating



Programming

- ◆ Press and hold the **PRG** key until **AL** or **AH** appears on the display.
- ◆ Release the key to setup AL/AH alarm limit within range from 0.5 to 20.0 L/min.
- ◆ Increase the blinking digit value by tapping on the key and hold it to go to the next digit.
- ◆ When all digits have been set, press and hold the key to store the value in the device memory and exit programming mode.

Operating

- ◆ When in operating mode, PSF21x indicates the current flow on the LED display within specified range (see 'Specifications').
- ◆ If pulse output is ordered, PSF21x generates a TTL impulse sequence with frequency depending on the flow rate (see 'Specifications').

- ◆ Alarm output stays off if the measured flow is between AL and AH and goes on outside alarm 'window'.
- ◆ Alarm LED lamp 'AL' lights when the alarm output is on.

Display Messages

- ◆ $\overline{\text{f}}$ (over range), display value > 999
- ◆ $\underline{\text{f}}$ (under range), display value < -99
- ◆ OL (over load) - flow rate is over specified range (see 'Specs').
- ◆ --- (initial check), device initialization.
- ◆ Sto (store), settings are stored in memory.

Overview

PSF21x is a programmable flow controller designed for use with low-viscous clear or translucent liquids, transmitting IR light. The operating principle is based on the liquid volume measurement through light-weight rotor, IR sensor, and sophisticated electronics for measurement and control. The material types used (PVDF, Vectra®, Viton®, EPDM, etc.) have a good thermal (up to 90 °C) resistance. A special variant with increased chemical resistance also extends the controller application. Other ranges except the standard 0.5...20 l/min are available on request. PSF21x is equipped with a local 3-digit LED display and a hidden key for easy programming and flow monitoring. Output capabilities include TTL pulse output as well as PNP or NPN alarm output that activates when either of the programmable alarm limits is reached. PSF21x can be used as a flow meter, flow transmitter with pulse output, ON/OFF flow controller, or alarm unit suitable for water treatment and other applications.



Safety note:

The appropriate national safety regulations must be observed when installing, putting into operation, and running this instrument.

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The undersigned hereby declares, on behalf of COMECO Inc., that this device has been manufactured in compliance with standards EN 61010 and EN 61326, and meets the requirements of Directives 2004/108/EC, 2006/95/EC and 2011/65/EC.

Vladimir Sakaliyski
CEO

COMECO Inc.

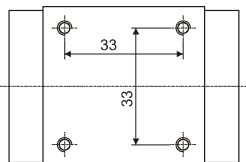
Waste Disposal



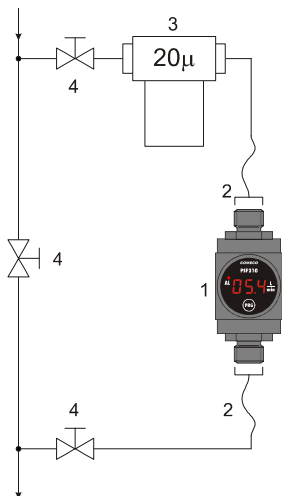
Do not dispose of electronic devices together with household waste material!

If disposed of within European Union, this product should be treated and recycled in accordance with the laws of your jurisdiction implementing the WEEE Directive 2002/96 on the Waste Electrical and Electronic Equipment.

Mounting



- ◆ Install PSF21x to the wall or mounting plate fixing it with 4 screws M4 with proper length to the unit back threaded holes as shown on the left drawing.



1 - PSF21x
2 - flexible hoses
3 - filter
4 - bypass valves

- ◆ Install PSF21x in the pipe system using flexible hoses with 1/2" union nuts according to the drawing on the left. Do not over-tighten!
- ⚠ *Clean the medium-supply lines thoroughly before use!
Use of 20 µm pre-filter is advisable because solid particles or medium contamination may damage the flow sensor and/or influence the measurement results!*
- ◆ Make sure the arrow marking matches the flow direction!
- ◆ Slowly fill the system to avoid air damaging the PSF21x rotor!
- ◆ Avoid uncontrolled air pressure through the unit. This may destroy the rotor!

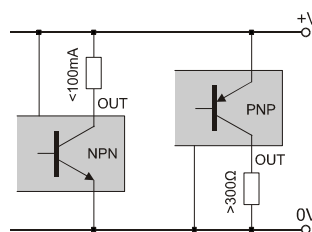
**Important notes:**

- ◆ *The fluid to be measured must be compatible with the wetted parts, ports and seals!*
- ◆ *Mind that the operating principle of PSF21x is based on volume measurement, i.e. air in water is considered medium!*

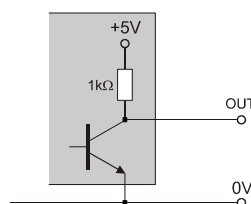
Wiring

| Color | Signal |
|--------|-------------------|
| white | TTL pulse output |
| yellow | alarm output |
| red | power supply (+V) |
| black | common (0 V) |

- ◆ Connect PSF21x cable wires to your system observing the wire colors as given on the left.



- ◆ Connect the PNP/NPN output to your alarm/control system according to the left schematic and following the limitations given in 'Specifications'.



- ◆ Connect the TTL pulse output to your measuring system according to the left schematic and following the limitations given in 'Specifications'.