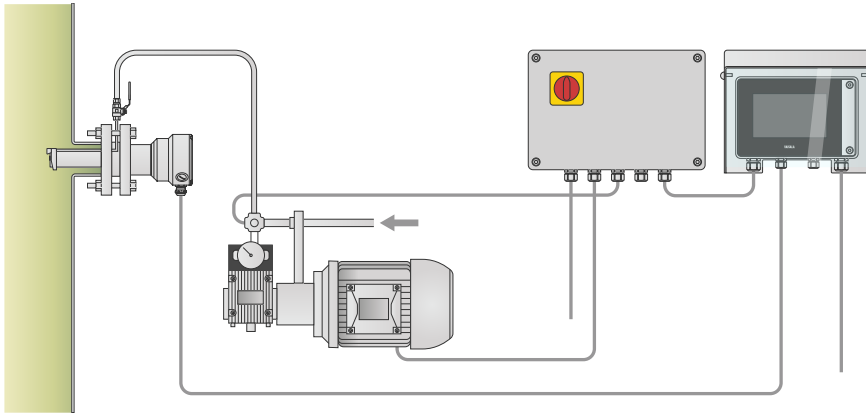




Pressurized Water Wash System PWS100

For Polaris™ process refractometers



Features

- Outlet pressure up to 100 bar
- Field-proven components
- HPU51 high pressure unit complete with pump, motor, and unloader
- ERT51 External Relay Terminal with 3-phase contactors
- High pressure hose included
- Compatible with Polaris™ PR53 series refractometers
- Wash control with Vaisala Indigo520 Transmitter

The PWS100 pressurized water washing system adds a field-proven wash solution to the Polaris™ process refractometer series. When the measured process medium is sensitive to hot steam or the process flow is not sufficient to maintain the prism cleanliness, the periodic pressure wash system provides a reliable method to clean the prism.

Benefits

The high-pressure solvent and optimal temperature of the PWS100 system effectively remove residues that might have accumulated on the refractometer prism. This ensures measurement accuracy in challenging applications where prism cleanliness might otherwise be compromised.

The field-proven system provides high-quality, particle-free solvent and optimal pressure to be used for the wash system. The components and the system design are based on the success and 40 years of field experience from Vaisala K-PATENTS® process refractometers in various industries and applications.

Principle

In the pressurized water washing system, high-pressure water is flushed through a wash nozzle with high speed.

The PWS100 comprises of two components: HPU51 high-pressure unit and ERT51 External Relay Terminal, which supplies power to HPU51. The check valves and the wash nozzle are included in the Polaris process refractometer or flow cell.

Easy installation

The water wash valves are controlled by safe voltage-level solenoids, not requiring an electrician for wiring and connection. The solenoid power supply

and safety shut-off switch are included in the external relay terminal, providing convenient commissioning for the system.

Indigo520-controlled

The wash cycles are controlled by dry contact switches included in the Indigo520 transmitter. Indigo520 provides an easy-to-use user interface for configuring and controlling the wash sequence, and the necessary diagnostics tools for verifying the wash cycle efficiency. Alternatively, when Indigo520 is not used, the washes can also be controlled with a standard PLC relay.

HPU51 technical data

Operating environment

| | |
|-----------------------|----------------------------------|
| Operating temperature | 0 ... +50 °C (+32 ... +122 °F) |
| Storage temperature | -30 ... +60 °C (-22 ... +140 °F) |
| Operating humidity | 0-100 %RH, non-condensing |

Inputs and outputs

| | |
|-------------------|--|
| Control voltage | 24 V DC ±10% |
| Power consumption | < 10 W |
| Motor input | 2.2 kW (400 V 50 Hz) 2.2 kW (460 V 60 Hz) |

Water parameters

| | |
|-------------------------------|---|
| Recommended inlet pressure | 3 ... 5 bar |
| Maximum operating pressure | 100 bar |
| Maximum operating temperature | 70 °C (158 °F) (90 °C (194 °F), interval use only) |
| Maximum water volume | 10.6 l (2.8 gal)/min |
| Recommended water supply | 22 l (5.8 gal)/min |

PWS100 typical wash pressures

| Wash nozzle | Minimum above process pressure | Maximum above process pressure |
|---|--------------------------------|--------------------------------|
| Integral wash nozzle in PR53AP/GP | 15 bar (220 psi) | 40 bar (600 psi) |
| Sanitary Elbow Flow Cell SEFC wash nozzle | 25 bar (350 psi) | 35 bar (500 psi) |
| PR53SD wash nozzle | 20 bar (290 psi) | 30 bar (435 psi) |

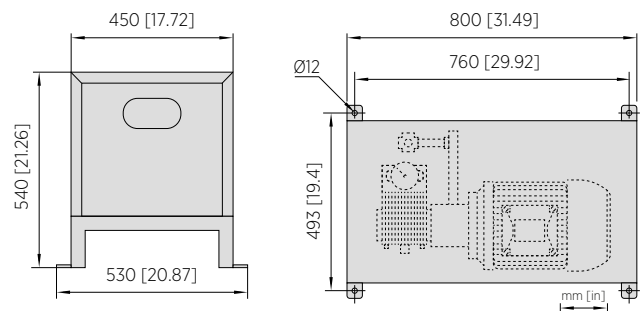
Compliance

| | |
|-------------------------------------|--|
| EU directives and regulations | Machinery Directive (2006/42/EC) EMC Directive (2014/30/EU) Low Voltage Directive (2014/35/EU) |
| Compliance marks | CE |
| Electromagnetic compatibility (EMC) | EN 61000-6-4 EN 61000-6-2 |

Mechanical specifications

| | |
|-------------|---|
| Check valve | AISI 316, FFKM O-ring ¹⁾ |
| Inlet | Cracking pressure 0.7 bar Connection: 3/8" F BSP |

¹⁾ 2.1 certificate included



HPU51 dimensions

ERT51 technical data

The ERT External Relay Terminal contains:

- Two 3-phase contactors
- Overload protection
- Timer relay
- Main switch

ERT controls the pump and the water valve of the pump.

ERT is controlled with Indigo520 control relay.

Operating environment

| | |
|----------------------------|----------------------------------|
| Operating environment | Indoor use Outdoor use |
| Use in wet location | No |
| Operating temperature | 0 ... +50 °C (+32 ... +122 °F) |
| Storage temperature | -30 ... +60 °C (-22 ... +140 °F) |
| Operating humidity | 0-100 %RH, non-condensing |
| Pollution degree | 2 (Non-conductive pollution) |
| Maximum operating altitude | 2000 m (approx. 6500 ft) |

Enclosure specifications

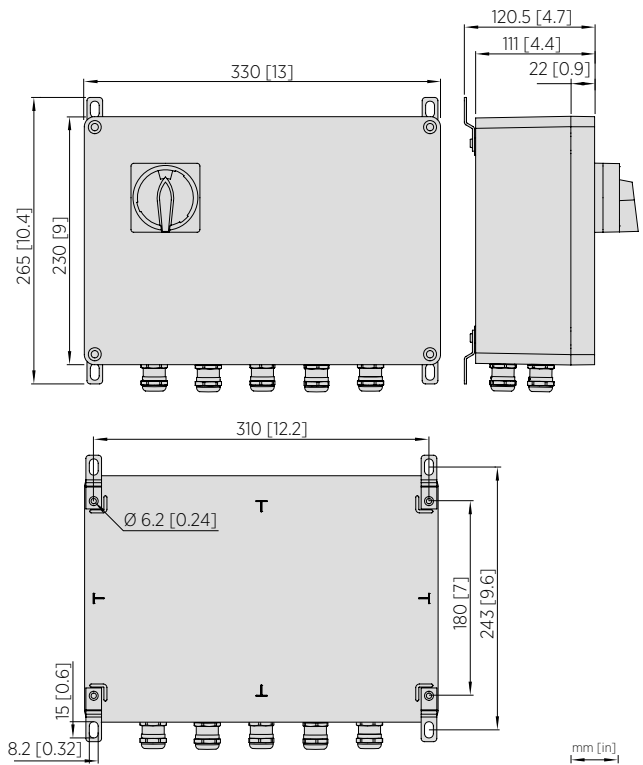
| Specification | Description |
|--------------------------------|--|
| Material | Aluminum painted with RAL color 7001 |
| Size (length x width x height) | 330 × 230 × 110 mm (12.99 × 9.06 × 4.33 in) |
| Weight | 3.6 kg (7.94 lb) |
| IP rating | IP66 |
| UL 50E (NEMA) rating | Type 4 |
| IK rating | IK 08 |
| Cable glands | M20 × 1.5, 5 ... 9 mm cable diameter |
| Conduit hub | M20 × 1.5 / 1/2" NPT |
| Dummy plug | M20 × 1.5/6 mm |

Inputs and outputs

| | |
|---------------------------|--|
| Operating voltage | 400 VAC ±10 %, 50 Hz (3-phase) 460 VAC ±10 %, 60 Hz (3-phase) |
| Maximum power consumption | 2.2 kW overload relay current level adjusted to this power |
| Control signals | 24 VDC ±10 %, max. 20 W (generated by internal PSU) |
| Overvoltage category | II |

Compliance

| | |
|-------------------------------|---|
| EU directives and regulations | EMC Directive (2014/30/EU) Low Voltage Directive (2014/35/EU) RoHS Directive (2011/65/EU) amended by 2015/863 |
| Safety | IEC/EN 61010-1 |
| Compliance marks | CE, China RoHS, RCM, UKCA |
| FCC compliance | FCC part 15 B, Class B |



ERT enclosure dimensions



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