

► Electronic monitoring relays PMDsigma

With electronic monitoring relays, the focus is on electrical safety. Monitoring relays reduce the number of hazardous situations for man and machine and increase the service life of plant and machinery. Save costs and be sure of an efficient production cycle.



PMD s10

Applications PMD s10

Using the measured true power, it is possible to derive variables such as fill level, volume, torque or air pressure. The following example applications illustrate potential areas of use:

- Contamination of sieves or filters on ventilation systems
- To check for dry running or pump blockage
- Viscosity of fluids on mixers
- Wear and tear on tools
- To control the brush pressure on car washes
- To monitor conveyors for blockages or wear and tear



Technical details – Electronic monitoring relays PMDsigma



PMD s20

Type	Application area	Features
PMD s10	Monitoring and conversion of true power for single/three-phase AC/DC supplies, monitoring of overload and underload. Suitable for use with frequency-controlled motors and current transformers.	► Menu-driven stepless adjustment of function parameters via display and rotary knob ► Display for measurements, diagnostics and menu navigation ► Measuring range is set automatically for current and voltage
PMD s20	Monitors the insulation resistance of unearthed AC/DC power supplies (IT networks), e.g. on ships, in areas used for medical applications, as a trigger when impermissible insulation resistances occur. Meets the requirements of DIN EN 61557-8, IEC 60364-7-710 and DIN VDE 0100-710.	► Response value R_{on}: selectable from 10 ... 200 kΩ ► Rated mains voltage: 0 ... 400 VAC/DC ► Rated mains voltage U_L: 0 ... 300 VAC/DC

Applications PMD s20

The PMD s20 can be used to monitor the insulation resistance of unearthed AC/DC systems. Thanks to the separate supply voltage, monitoring of the de-energised system is possible. Typical application areas include:

- ▶ Clinical operating theatres
- ▶ Offshore installations such as wind turbines, sewage treatment plants and shiplifts
- ▶ Electroplating and surface finishing systems

Your benefits at a glance

- ▶ Quick and easy settings using the rotary knob (push and turn) to reduce set-up and commissioning times
- ▶ Error-proof: menu-guided configuration with device-internal cross-comparison
- ▶ Simple handling when replacing devices thanks to exchangeable program memory for porting data
- ▶ Minimal downtimes thanks to extended diagnostics and measurement indication via display



	Certification	Order number
▶ Analogue output for current and voltage: Voltage output 0 ... 10 V, current output convertible from 0 ... 20 mA to 4 ... 20 mA ▶ 2 relay outputs (auxiliary contacts (C/O)) for monitoring underload and overload ▶ Measuring voltage (3 AC), U_M (AC/DC): 100 ... 550 V ▶ Measuring current (I_M): 1 ... 12 A AC/DC ▶ Dimensions (H x W x D) in mm: 100/98¹⁾ x 45 x 120	CE, cULus Listed	▶ Spring-loaded terminals PMD s10 C _____ 761 100 ▶ Plug-in screw terminals PMD s10 _____ 760 100
▶ Supply voltage U_B AC/DC: 24 ... 240 VAC/DC ▶ Frequency range AC: 50 ... 60 Hz ▶ Start suppression/reaction time: selectable from 0 ... 30 s ▶ Hysteresis: selectable from 0 ... 50 % ▶ Dimensions (H x W x D) in mm: 100/98¹⁾ x 45 x 120	CE, cULus Listed	▶ Spring-loaded terminals PMD s20 C _____ 761 120 ▶ Plug-in screw terminals PMD s20 _____ 760 120

Keep up-to-date on PMDsigma:

 Webcode: web150376

Online information at www.pilz.com

¹⁾ Height incl. spring-loaded terminals/plug-in screw terminals

► Electronic monitoring relays PMDsrangle

With monitoring relays, the focus is on the protection of persons and machinery against insulation faults, residual voltages, overvoltage, overcurrent, overload, temperature overload as well as monitoring standstill and true power. Significantly reduce hazardous situations for human and machine, while at the same time increasing the service life of your plant.



S3UM



S11M



S1WP

Safe monitoring of every situation

Reliable electronic monitoring and control of your plant or machinery is always the priority. Save costs and guarantee an efficient production cycle. Simply by using monitoring relays! You'll find the right device for every monitoring task.

User-friendly features

PMDsrangle units in 22.5 mm slimline housing cover the widest range of functions. Selectable measuring ranges and a high number of operating voltages enable flexible use. Quick and easy installation, practical terminals, a variety of operator elements as well as luminous displays all help to make commissioning easier and ensure the units are perfectly tailored to your specific application.

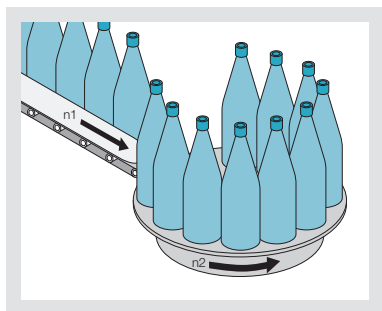


Many applications

You can use the PMDsrangle devices in a multitude of applications: for monitoring the temperature of motors, for monitoring voltage at bottle conveyor systems, to monitor blockages at pumps, and many other applications.

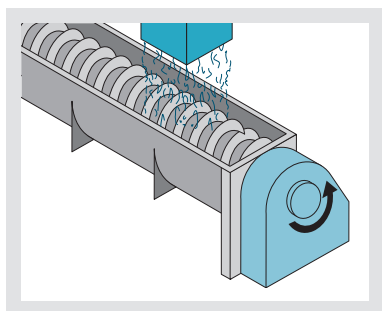
Your benefits at a glance

- ▶ Parameters can be set on the front, thereby reducing commissioning times
- ▶ Save space in the control cabinet: widths of just 22.5 mm
- ▶ Rapid diagnostics via LED status display



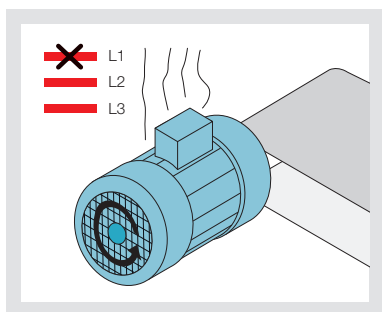
Bottling plant with voltage monitoring

Use voltage monitors, for example, to monitor voltage supplies on bottling plants. The monitoring relay ensures that the plant is shut down in a controlled manner. It also protects against an uncontrolled restart.



Screw conveyor with current monitoring

You need to monitor current, e.g. at a screw conveyor? It can provide protection against blockage and wear and tear, thereby helping with preventive maintenance.



Motor with thermistor monitoring

Use thermistor monitoring to protect your motors from overheating. Also prevent automatic start-up. This is particularly important for adverse cooling and where frequent start-up or braking of the motor is required. Thermistor monitoring relays such as S1MS are also available with ATEX approval.

Keep up-to-date on PMDsrangle:

Webcode:
web150375

Online information at www.pilz.com

► Technical details – PMDsrange

Selection guide – Electronic monitoring relays PMDsrange



S3UM



S1PN



S1IM



S1EN



S1WP

Type	Application area	
S3UM	Monitoring of overvoltage and undervoltage as well as the phase sequence in three-phase supplies	► Monitoring of supplies with and without neutral conductors ► Trip device for undervoltage and overvoltage ► Phase sequence evaluation ► Detects asymmetry and phase failure
S1PN	Monitoring of phase sequence and phase failure on three-phase supplies	► Measuring voltage up to 690 VAC ► Monitoring of rotary field direction = phase sequence, rotation direction on drives
S1IM	Monitors AC/DC currents for max. current values, single-phase	► 12 measuring ranges from 0.002 ... 15 A, selectable ► Reaction time can be set to up to 10 seconds ► Operates to either normally energised or normally de-energised mode ► Galvanic isolation between measuring and supply voltage ► UP version: measuring inputs are not polarity-sensitive
S1EN	Monitoring of insulation and earth faults on galvanically isolated AC/DC supplies (IT networks), single and three-phase. Meets the requirements of DIN EN 61557-8	► For DC and AC supplies ► Normally energised mode ► Fault latching or automatic reset ► Normal/test mode ► External reset button can be connected
S1WP	Monitoring and conversion of true power, DC supplies and single-/three-phase AC supplies, monitoring of overload and underload	► 9 different measuring ranges ► Large voltage measuring range ► Analogue output can be switched for current and voltage ► Relay output for monitoring underload and overload ► Suitable for use with frequency-controlled motors ► Suitable for current transformers
S1MS	Temperature monitoring circuits in accordance with DIN EN 44081 to protect motors, generators, storage areas, etc. from overheating	► For DC and AC supplies ► Normally energised mode ► Measuring circuit for connecting a temperature sensor (PTC resistor) ► Automatic reset

Common features

- Dimensions (H x W x D) in mm: 87 x 22.5 x 121
- Selectable measuring ranges available in many operating voltages
- With screw terminals

Technical features	Certification	Order number ¹⁾
- Supply voltage (U_B): AC: 120, 230 V; DC: 24 V - Output contact: 1 auxiliary contact (C/O) - Measuring voltage (3 AC) (U_M): AC: 42, 100/110, 230, 400/440, 440/480, 415/460, 500/550 V, selectable	- CE, cULus Listed, CCC - CE, CCC - CE, CCC	24 VDC (U_B), 230 VAC (U_M) _____ 837 260 24 VDC (U_B), 400/440 VAC (U_M) _____ 837 270 24 VDC (U_B), 415/460 VAC (U_M) _____ 837 280
- Supply voltage (U_B): AC: 200 ... 240, 400 ... 500, 550 ... 690 V - Output contacts: 2 auxiliary contacts (2 C/O)	- CE, cULus Listed, CCC - CE, CCC - CE, CCC	200 ... 240 V _____ 890 200 400 ... 500 V _____ 890 210 550 ... 690 V _____ 890 220
- Supply voltage (U_B): AC: 24, 42 ... 48, 110 ... 127, 230 ... 240 V; DC: 24 V - Output contact: 1 auxiliary contact (C/O)	CE, cULus Listed, CCC	110 ... 130 VAC (U_B), 15 A (I_M) _____ 828 040 230 ... 240 VAC (U_B), 15 A (I_M) _____ 828 050 24 VDC (U_B), 15 A (I_M) _____ 828 035
- Supply voltage (U_B): AC/DC: 24 ... 240 V - Output contact: 1 auxiliary contact (C/O) - Rated mains voltage (monitored supply): - 50 kΩ version: AC/DC: 0 ... 240 V - 200 kΩ version: AC/DC: 0 ... 400 V - Max. measuring current (DC): - 50 kΩ version: 2.4 mA - 200 kΩ version: 1.0 mA	CE, cULus Listed, CCC	24 ... 240 VAC/DC (U_B), 50 kΩ _____ 884 100 24 ... 240 VAC/DC (U_B), 200 kΩ _____ 884 110
- Supply voltage (U_B): DC: 24 V; AC/DC: 230 V - Output contact: 1 auxiliary contact (C/O) - Measuring voltage: 3 AC/DC: 0 ... 120, 0 ... 240, 0 ... 415, 0 ... 550 V 1 AC/DC: 0 ... 70, 0 ... 140, 0 ... 240, 0 ... 320 V	CE, cULus Listed, UL/cUL, CCC	24 V DC (U_B), 0 ... 240 VAC/DC (U_M), 9 A (I_M) _____ 890 010 24 V DC (U_B), 0 ... 415 VAC/DC (U_M), 9 A (I_M) _____ 890 020 24 V DC (U_B), 0 ... 550 VAC/DC (U_M), 9 A (I_M) _____ 890 030
- Supply voltage (U_B): AC: 48, 110, 230, 240, 400 V; AC/DC: 24 V - Output contacts: 2 auxiliary contacts (2 C/O)	- CE, cULus Listed, CCC - CE, cULus Listed, CCC - CE, CCC	24 VAC/DC (U_B) _____ 839 775 230 VAC (U_B) _____ 839 760 400 VAC (U_B) _____ 839 770

¹⁾ Other versions on request

Order number features: U_B = Supply voltage;
U_M = Measuring voltage; I_M = Measuring current

Technical
documentation for
electronic monitoring
relays PMDsrangle:

 Webcode:
web150635

Online information
at www.pilz.com