



SINCE 1893



CONTROLS & SOLUTIONS

WATER TECHNOLOGY

PRODUCTS AND SYSTEMS FOR USE IN WATER TECHNOLOGY

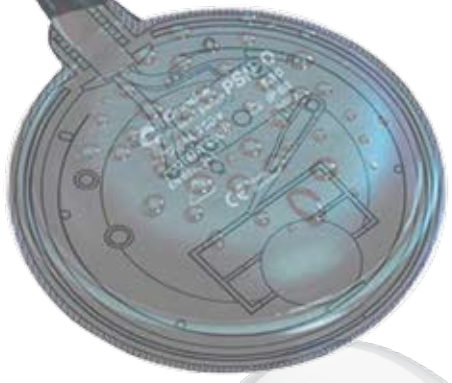


www.condor-cpc.com



CONDOR - GUARANTOR

FOR TOP QUALITY



125 years Condor

Enthusiasm and competence over four generations



The best of inspiration, innovation and craftsmanship

The company Condor was founded by August Frede in 1893, and first after its founding, it dealt with centrifuges, milking machines and also later pumps. With the issue of the world's first patent for a membrane pressure control for the automatic control of pumps in 1935, the era of Condor switching devices began.

Also the brand name MDR dates back to this time.

As the years continued, the product portfolio expanded constantly. Alongside motor protection relays and float switches, CPC offers through their own switch design and also customer-specified switching solutions of all types, for example pump and compressor controls, motor start-up controls or customer-specified special solutions.

As the "inventors of the pressure switch", all employees feel committed to the long and successful tradition of the company. Without a continuous, innovative and qualitative further development of our products, this persistently successful track record would not have been imaginable.

Condor itself was already certified according DIN ISO 9003 in 1993 and according to DIN ISO 9001 in 1995. This likewise has applied for CPC since its founding as an independent limited company. The basis for all of our handling and thoughts are these high demands for quality, which are to be optimized daily.

As customers of ours, you can consult our excellently qualified employees at any time. It does not matter whether your concerns are of a technical or commercial nature.

A symbol for quality since 1893.





Condor - our strengths

Competence · Efficiency · Reliability · Flexibility



Competent

In-house Control engineering

Condor Pressure Control has 30 years of experience developing and producing electronic liquid controls for level-dependent pump control systems.

You will benefit from our long-standing experience in various industries, which is also reflected in our products.

Value for money

Water technology at its highest level

In addition to a large number of standard controls, Condor Pressure Control closely cooperates with its subsidiary Scharco Elektronik to develop custom control solutions for a wide range of applications.

The result is a perfect all-round solution for us and our customers at excellent value for money.

Reliability

Worldwide, Condor is recognized as an excellent and reliable partner for innovative Pressure and Water technology.

Condor Pressure Control offers standardized and custom control system solutions for drinking water, raw water and wastewater.

We strive to find solutions that support sustainability in the water industry.

Flexible

Solutions for your individual requirements

We manufacture your pump controls according to individual wishes and requirements.

Apart from individual pump controls, Condor also offers numerous components for a useful extension of the pump controls themselves as well as an extensive range of accessories for level control.



Condor Certificates and approvals



Certified according to ISO 9001 : 2008

Condor is certified in ISO 9001 : 2008 and works together with various accredited laboratories.



As of August 5, 2014 Condor Pressure Control has reached the status of an AEO-C (Authorized Economic Operator) with the certificate no. DE AEOC 119710 for simplified customs processes. You will find the certificate itself as a PDF-file in our Download Center - www.condor-cpc.com.

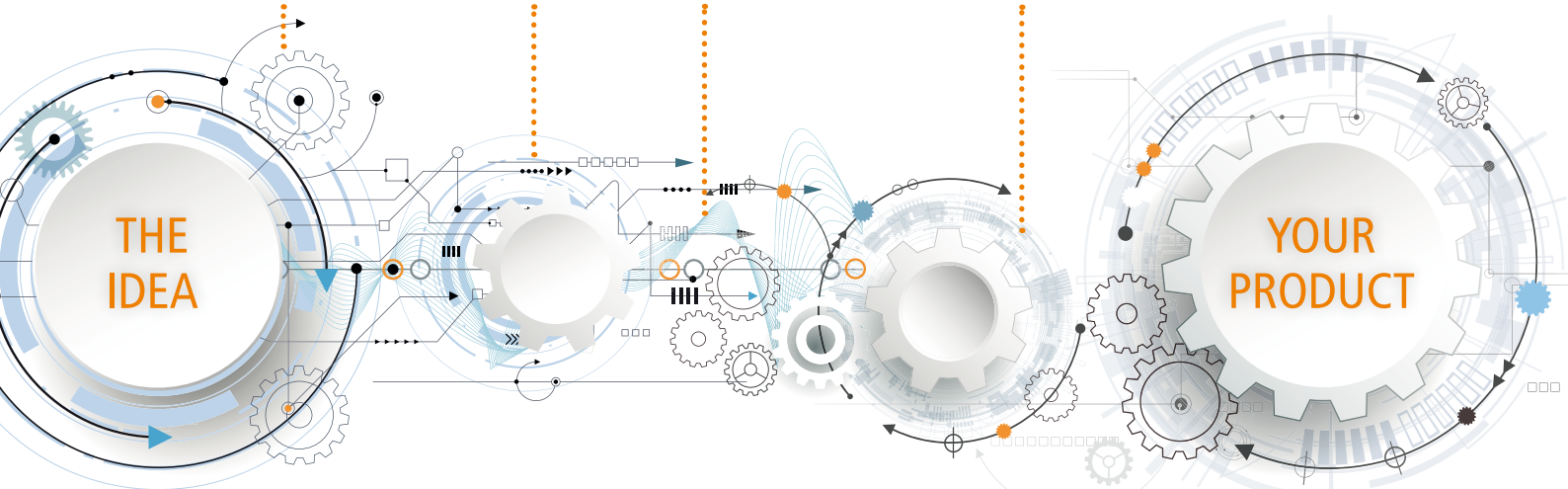




The **Condor** Solution system

From the idea to the finished product

IDEA..... specification design implementation & tests production & logistics PRODUCT



OUR SERVICE

Process support and system adjustments for efficient production and long-term availability

Finding the solution for your problems is our top priority

Our team can advise competently about all possibilities for a solution for your existing problems as well as delivery dates, times and prices. Simply contact us. We support you purposefully and professionally with realization

of your project according to your requirements. Individual solutions for the field electronic controls are a further component in our service programme.



Operating under the slogan, **CONTROLS & SOLUTIONS** ...

customers can get everything from a single source – from switching devices to system solutions – completely tailored to their needs. Already during the development of new product range and variations, prototypes are subjected to early intensive, mechanical and electric lifetime tests on our own testing stations. Even during the product life cycle, all of our products are continuously tested to ensure that your performance requirements are being met.

Many of the needed parts are produced in our own production and, therefore, are subject to our quality monitoring all the way through the whole supply chain.

Design changes and optimization of the needed tools can be quickly and efficiently realized in our own tool-making department. Furthermore, we only work together with long-standing and sought-after suppliers.

A certification is for us the most fundamental requirement in the selection of suppliers.



Dipl.-Kfm.
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Managing Director



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Finding the solution for your problems is our top priority.

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Condor

Industries and applications



Your individual wishes

You will benefit from our long-standing experience in various industries, which is also reflected in our products. Therefore, we are the right partner for your individual wishes.

With our long-term know how of below-mentioned example fields of application, we will gladly find the optimal solution also for you and your special application area.



Water management / pumps level control



- For the field of water technology, Condor is the problem solver. We point out possible solutions and build customer-specified complete solutions for you and in line with your demands.
- Electronic level control as well as electronic pump controls (in connection with float switches for pumps) guarantee for the highest possible degree of certainty in monitoring fill levels or in filling up and pumping dry.
- Along with electronic devices, we offer a wide range of electro-mechanical pressure switches with the most various choice of membranes, connector materials and higher IP protection types.
- With our pump controls, we can offer you standardized devices for the field of wastewater management, for example in wastewater pump systems, ducts and pumping stations.
- Controls possess various approvals, for example VDE, VDS, ATEX, GL, KEMA, CSA or UL



Condor products

- individual and versatile

Industries



Compressors



- In the field of pressure controls and switches, Condor offers the complete assortment and has been number 1 in Germany as well as in Europe for a long time. The tried and tested MDR series as well as the electronic pressure controls represent reliability and competence.
- The high quality of pressure controls is continuously confirmed in extensive tests, for example lifetime and vibration tests.
- For use with direct, alternating and rotary current application up to 15 kW.
- For a coordinated cooperation between several compressors, Condor offers standardized compressor controls and as well as customer-specified special solutions.
- Continuous further development and even newer customer-specified solutions help you in the completion of new projects.
- Switches possess various approvals, for example VDE, VDS, ATEX, GL, KEMA, CSA or UL.



Motor technology

Our entire motor-protection switch programme for use in all industrial areas becomes a successful complete range through its versatile accessories.

Beyond that, we are able to offer customer-specified motor start-up controls by using our own internal control system design.



Fire protection extinguishing systems

- VdS pressure controls are designed primarily for use in stationary water-based extinguishing systems.
- The high quality of pressure switches is constantly proven through demanding tests, for example salt-spray corrosion tests or water hammer tests.
- Pressure switches have been approved by VdS Schadenverhütung GmbH under the approval numbers G4090032 and G4090008. Following pressure ranges can be used: 0.35-1 bar, 0.7-10 bar, 1 – 12.5 bar and 1.0 – 16 bar.
- As VdS recognized production sites, we are able to manufacture a variety of possible customer-specified variations, for example with a reset function, with plastic flanges or with Viton membranes.
- Upon request, customer-specific circuit boards with specified wiring and LED displays in an integrated design are available and realizable.



Condor Industries and applications

Industries



Shipbuilding / offshore

- GL pressure controls, with a pressure range up to 250 bar, have been approved by Germanischer Lloyd, one of the largest classification societies, under the approval number 86884-10 HH.
- All GL pressure switches can be equipped with a reset function in order to ensure the realization of maintenance work.
- Monitoring pressure of fluids and gases in pipelines, boilers, pressure tanks and devices. In addition for automatic operation of compressor and pump motors, for example for water supply, with addition pumps, fireextinguishing systems and air pressure systems.
- The high quality of pressure switches is constantly proven through demanding tests, for example salt-spray corrosion tests or vibration tests.
- High long-term stability under extreme climates and temperature changes.
- For use with direct, alternating and rotary current application up to 15 kW.



Mining / chemistry

- As ATEX recognized production sites, we are able to manufacture a variety of possible customer-specified variations, for example with a reset function, with impact-resistant zinc or aluminium covers or with blue M20 cable glands.
- ATEX pressure controls, with a pressure range up to 250 bar, have been approved by TÜV Nord under the approval number TÜV 11 ATEX 079696. Control switches in the explosion protection type are used.



I M2 Ex ia I Mb Mining
(firedamp-susceptible mines)



II 2G Ex ia IIA, IIB, IIC T6 Gb Industry
(explosive gas atmospheres)



II 2D Ex ia IIC T85°C Db Industry
(explosive dust atmospheres, except mines)

- Monitoring pressure of fluids and gases in pipelines, boilers, pressure tanks and devices, as well as level control over fluids and gases explosive areas.
- The high quality of pressure switches is constantly proven through demanding tests.
- With our switches, reliable devices are also available for use in vacuum applications for explosive areas.
- With ceramic measuring cells, shielded cable and an especially developed stainless steel casings, Condor offers high-precision fill-level probes with ATEX approval for the most diverse applications, for example wastewater.



Railway technology / vehicles


- For applications in the field of railway technology, Condor offers special pressure switches in customer-specified variations.
- Monitoring pressure of fluids and gases in pipelines, boilers, pressure tanks and devices. In addition, in process controls, cooling and pressure technology as well as hydraulic applications.
- The high quality of pressure switches is constantly proven through demanding tests, for example salt-spray corrosion tests, vibration and shock or low temperature tests.
- High long-term stability under extreme climates and temperature changes.
- For use with direct, alternating and rotary current application up to 15 kW.
- The right choice of material for good fire protection.
- Connection available via electric, heavy-duty connector, for example via a rectangular industrial connector according to DIN EN 175301 (DIN 43650) or via a bayonet connector according to ISO 15170-1 (DIN 72585-1).

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Control pressure switches, Electronic Components

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CPS-L

NEW!



CPS-B new generation

NEW!



CPS-B with soft starter new generation



CPS-M PLUS

Level control technology

Industries



CPS-L

The CPS-L pump control is designed for the automatic control of one pump (max. 4 KW / 9A)

P. 12, 13

Level control technology, this pump control can be ideally used for pumping systems in the field of domestic waste and sewage water as well as rain water.

CPS-B new generation

Compact pump controls CPS-B1 and -B2 of the latest generation for more system transparency. They are designed for the automatic control of one or two pumps (max. 4 kW/9A)

P. 14, 15

Level control technology, this pump control can be ideally used for pumping systems in the field of domestic waste and sewage water as well as rain water.

NEW!

CPS-B SA new generation

Compact pump control CPS-B1 and -B2 with soft starter of the latest generation, are designed for the automatic control of one or two pumps (max. 11 kW/25A)

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Level control technology, this pump control can be ideally used for pumping systems in the field of domestic waste and sewage water as well as rain water.

NEW!

CPS-M PLUS

Modular pump control CPS-M PLUS of the latest generation for more system transparency and function. They are designed for the automatic control for the operation of up to four pumps (max. 75 kW)

P. 18, 19

Level control technology, for use in municipal, industrial, commercial and domestic applications.

PUMP CONTROLS

INDIVIDUAL & VERSATILE

Condor products application areas:

- Waste water management
- Air pressure technology
- Compressor control and monitoring
- Level measurement
- Pump control
- Rain water utilization
- Pumping stations
- Control system for riding surfaces
- Small sewage treatment plants



Pump control CPS-L

Pump control CPS-L

... for price sensitive applications



Pump control CPS-L

For many price sensitive applications with limited available space, cost-effective but powerful pump controls are needed.

pumping systems in the field of domestic waste and sewage water as well as rain water.

Condor's pump control CPS-L handily fulfills these requirements. The CPS-L pump control is designed for the automatic control of one pump (max. 4 KW / 9A).

With its compact design, but with no essential concessions in terms of functions, this pump control can be ideally used for

Advantages

- Compact housing (w200xh220xd140mm, incl. accessories). The CPS-L can be nearly used too broad
- Extensive basic equipment includes membrane keypad for operation / programming, LED displays for pump condition, illuminated display and extensive functionality / adjustability (see detailed description).
- Suitable for the control of pumps and sensors in explosive areas (ATEX) in accordance with DIN EN 60079-14, DIN VDE 0660 and EN 60947 (relay for manual motor starters is optional).
- Option available for serial PC-interface and software "WaterTel" .



Technical details

Adjustable control parameter

- Alarm level
- ATEX-mode
- Date / time
- Phase sequence monitoring
- Turn on delay
- On / off switch levels
- Failure display
- Short start against pump stucking
- Max. operating time
- Follow-up time
- Switching function of the potential-free alarm relay
- Language (G, E, F, I...)
- Maintenance display
- Cyclical emptying

Options

- 2 x 9 V battery (power failure alarm)
- 230V (2,3 kW/9A) operating voltage is available
- MCB optional
- Overload relay (BI-metal) can be added
- Cylinder lock for the cover
- Pressure sensor (measuring range 0-2 meters w.c.) can be added

Operation and Display

- Display 2x16 illuminated symbols
- Menu with membrane keypad
- Manual-OFF-Automatic – mode selection
- LED display for pump status
- LED display for pump readiness
- Both buzzer and LED alarm indication
- Open cover interlock
- Detailed menu with all relevant setting options
- Maintenance display
- ATEX-mode
- Phase sequence monitoring
- Display of operating hours and switching cycles

Available connections

- Thermal contact (zero voltage safe)
- 1 X 230V / 1A output for possibly small compressor
- Potential-free alarm relay
- NC aux-contact

Level monitoring

- 1 or 2 float switches
- Impact pressure method (optional: plug-on modul)
- 4-20 mA analog input e.g. for level sensor
- Separate high water float switch

Technical data CPS-L	
Housing	ABS
Dimensions	w 200 x h 220 x d 140 mm, incl. accessories
Cable glands	2 x M25 x 1,5 3 x M16 x 1,5 1 x M12 x 1,5
Protection class	IP54
Max. protection on site	16A
Max. power of the pump	4KW
Number of pumps	1 pump
Control voltage	230V AC

Technical data CPS-L	
Operating voltage / supply line	3x 400V 50 Hz (L1, L2, L3, N, PE)
Temperature range	0...+50°C
Potential-free alarm contact	5A (2A inductive)
Rated current	1,0 bis 1,6A 1,6 bis 2,5 A 2,5 bis 4,0 A 4,0 bis 6,0 A 5,5 bis 8,0 A 7,0 bis 9,0 A

Pump control CPS-B

... high quality & compact pump control



pump control CPS-B1 and CPS B2 - new generation

Compact pump controls CPS-B1 and -B2 of the latest generation for more system transparency. They are designed for the automatic control of one or two pumps (max. 4 kW/9A)

This pump control can be ideally used for pumping systems **in the field of domestic waste and sewage water as well as rain water.** For use in municipal, industrial, commercial and domestic applications.

With **high quality basic equipment in standard version** (main circuit breaker, manual motor starter, new QVGA color touch screen...).

Advantages

- compact housing (w265xh270xd145mm) - especially suitable for the installation in exterior columns
- high quality basic equipment in standard execution (main circuit breaker, manual motor starter, Manual-0-Automatic function, **new QVGA color touch screen**, **USB interface**, connection systems different level monitoring...)
- free-selectable level monitoring
- all control functions are performed via the QVGA touch screen
- suitable for the operation of pumps and sensors in explosive areas (ATEX) **
- for the use of 230V or 400V AC pumps
- telecontrol system with Ethernet-Modul or GSM-Modem (optional)
- pressure sensor (measuring range 0-2 meters w.c.) can be added



Technical details

Adjustable control parameter

- alarm relay, programmable function
- ATEX-Mode
- date / time
- phase sequence monitoring and phase drop monitoring
- turn-on delay
- on / off switch levels
- integrated buzzer (can be switched on and off)
- integrated time switch for compressor function
- short pump start against locking
- load changeover time for pumps (CPS-B2)
- max. pump operating time
- minimum pressure monitoring
- password protection
- pump follow-up time
- compressor or agitator activation
- installed languages: DE, EN, FR, NL, IT (other languages on request)
- power monitoring (electrical)
- power monitoring (thermal-magnetic)
- delay time / high water alarm
- delay time between pump 1 and pump 2 (CPS-B2)
- maintenance display
- periodic emptying

Options

- battery 6AA NiMH 1,2V (power failure alarm)
- execution - voltage 230V (2,2kW/9A)
- installation in exterior columns
+ panel heater, + flashing light, + small compressor
- Ethernet module or GSM Modem retrofittable in the control unit
- pressure sensor (measuring range 0-2 meters w.c.)
- sep. housing for PTC relais, RCD, etc.
- cylinder lock for the cover
- zener barrier (1 or 2 pieces integrable)

Operation and Display

- ATEX-mode
- menu navigation via backlit QVGA color touch screen:
- graphical display and plain text display
- graphical display - for level states
- graphical display - for operating states (pumps)
- graphical display - operational fault
- phase sequence monitoring and phase drop monitoring
- error list (20 fields saved retentively)
- Manual-OFF-Automatic - mode selection
- main circuit breaker
- internal buzzer
- transparent cover (locks in the open status)
- motor current indication
- manual motor starter (operable from outside)
- date / time adjustable
- maintenance display

Available connections

- 1 pump (CPS-B1) or 2 pumps (CPS-B2)
- thermal contact (zero voltage safe)
ATEX, standard, ON / OFF function can be selected
- 2 x 230V / 2A output for possible small compressor
- 3 x potential-free alarm relays
(3x change-over contact)
- float switch terminal for emergency operation function
- USB interface for software update
- connecting terminal
- terminal blocks for network supply
- plug-in terminals for level measurement
- pump connection - on the contactor

Level monitoring

- 1, 2 (CPS-B1) or 3 float switches (CPS-B2)
- impact pressure sensor (measuring 0-2mWs)
can be retrofitted
- 4-20 mA analog input e.g. for level sensor
- separate high water float switch

Technical Details CPS-B

Housing	ABS-plastic housing
Dimensions	w 265 x h 270 x d 145 mm, incl. accessories
Cable glands	3x M25 x 1,5 5x M16 x 1,5 1x M12 x 1,5
Protection class	IP54
Max. protection on site	25A
Max. power of the pump	4kW
Number of pumps	1 pump (-B1); 2 pumps (-B2)
Control voltage	230V AC / 24 V DC

Technical Details CPS-B

operating voltage	400V / 230 AC 50/60 Hz
temperature range	0...+50°C
potential-free alarm relay	5A (2A inductive)
storage temperature	-20 + 70°C

* Photo shows optional accessories. Please refer to the back!

** The rules of the DIN EN 60079 to be observed! The pump control is only provided for the „safe area“.

***Technical changes and mistakes reserve.

Pump control CPS-B with soft starter

... gentle on material!



condor
pump control CPS-B2 - soft starter - new generation

Compact pump control CPS-B1 and -B2 with soft starter of the latest generation, are designed for the **automatic control of one or two pumps (max. 11 kW/25A)**

With high quality basic equipment in standard execution (main circuit breaker, manual motor starter, Manual-0-Auto, new QVGA color touch screen for operating conditions of the pumps, soft start, ...) optionally equipped with additional accessories.

This pump control can be among other things for the operation of pumps and sensors in explosive areas (ATEX). **

Advantages

- **compact housing** (w400xh390xd170mm)
- **high quality basic equipment** in standard execution (main circuit breaker, manual motor starter, soft start, Manual-0-Auto, **QVGA color touch screen for operating conditions** of the pumps, external serial PC-interface, display illuminated, extensive functionality and adjustability - see detailed description)
- **Soft starter (three phase systems)** - the soft starter controls the voltage steps from a selectable initial value to one hundred percent - this allows a stepless acceleration of under load motors from standstill
- **Soft start** - this cuts maintenance costs and extends the pump's lifetime
- suitable for the operation of **pumps (EEx d) in explosive areas (ATEX)** **
- **free installation areas** e.g. for two zener barriers (operation of measuring and control technology as safe electrical circuits)**



Technical details

Adjustable control parameter

- alarm relay, programmable function
- ATEX-Mode
- date / time
- phase sequence monitoring and phase drop monitoring via soft start
- turn-on-delay
- on / off switch levels of the pumps
- reading errors
- integrated buzzer (can be turned on/off)
- integrated time switch for compressor function
- short pump start against locking
- load changeover time for pumps
- max. pump operating time
- follow-up time
- password protection
- pump power monitoring (electronic)
- soft start - adjustable parameters (start / stop ramp, kick start, starting voltage, current monitoring, Line or Delta)
- compressor or agitator activation
- installed languages: DE, EN, FR, NL, IT (other languages on request)
- power monitoring (thermal-magnetic)
- delay time between pump 1 and pump 2 (CPS-B2)
- maintenance display
- periodic emptying

Options

- battery 12 V / 1,2 Ah + cable set (buffering power failure alarm)
- installation in exterior columns
+ panel heater, + flashing light, + small compressor
- pressure sensor (measuring range 0-2 meters w.c.)
- cylinder lock for the cover
- zener barrier (1 or 2 pieces integrable)
- additional cable glands

Operation and Display

- ATEX-mode
- display of operation hours and switching cycles
- error list (20 fields saved retentively)
- manual-OFF-Automatic - mode selection
- main circuit breaker
- transparent cover locks in the open status
- menu navigation via backlit QVGA color touch screen:
- graphical display and plain text display
- graphical display - for level states
- graphical display - for operating states (pumps)
- graphical display - operational fault
- motor current indication - LCD display
- from outside operable manual motor starter
- date / time adjustable
- maintenance display

Available connections

- 1 pump (CPS-B1) or 2 pumps (CPS-B2)
- thermal contact (zero voltage safe)
- connection for external maintenance switch
- 2x 230V / 2A output for possibly small compressor
- 3x potential-free alarm relays (3x change-over contact)
- float switch terminal for emergency operation function
- RS232- connection for software update
- terminal blocks for network supply
- plug-in terminals for level measurement
- terminal blocks for pump connection (Line / Delta)

Level monitoring

- 1, 2 (CPS-B1) or 3 float switches (CPS-B2)
- dynamic pressure measuring system (modular optional attachable)
- 4-20 mA analog input e.g. for level sensor
- separate high water float switch

Technical Details CPS-B SA

Housing	ABS-plastic housing
Dimensions	w 400 x h 390 x d 170 mm, incl. accessories
Cable glands	3x M32 x 1,5 2x M25 x 1,5 6x M16 x 1,5 1x M12 x 1,5
Protection class	IP54
Max. protection on site	50A
Max. power of the pump	7,5 kW / 11 kW
Number of pumps	1 pump (-B1); 2 pumps (-B2)
Control voltage	230V AC / 24 V DC

Technical Details CPS-B SA

operating voltage / supply line	400V / 230 AC 50/60 Hz (3L, N, PE)
temperature range	0...+50°C
potential free alarm contact	5A (2A inductive)
power: rated current:	4 - 7,5 kW 5,3 - 16 A
power: rated current:	7,5 - 11 kW 8,3 - 25 A

* Photo shows optional accessories. Please refer to the back!

** The rules of the DIN EN 60079 to be observed! The pump control is only provided for the „safe area“.

***Technical changes and mistakes reserve.

Pump control CPS-M PLUS

... for up to 4 pumps!



Pump control CPS-M PLUS

Modular pump control CPS-M PLUS of the latest generation for more system transparency and function. They are designed for the automatic control for the operation of up to four pumps (max. 75 kW).

This pump control can be ideally used for pumping systems in the field of domestic waste and sewage water as well as rain water. For use in municipal, industrial, commercial and domestic applicatons.

By connecting the **optional Ethernet module** and the web server authorized users can log in anytime, anywhere via the Internet in the control CPS-M PLUS. **The pumps and systems can be monitored and operated remotely.**

Advantages

- **variable enclosure concepts**
- **high quality basic equipment in standard execution** (QVGA color touch screen, „manual-OFF-Automatic“, manual motor starter, float switch operation, level sensor or impact pressure method,.. see detailed description)
- customized solutions - **if desired, completely assembled and wired in an outer enclosure**
- suitable for the **operation of pumps and sensors in explosive areas (ATEX) ****
- **Telecontrol system** - Ethernet modul or GSM-modem for data transmission in the control unit can be retrofitted
- Simple operation via software and / or web server. USB interface for software updates or data readout via USB stick
- **different pump start-up phases** - direct starting, star/delta starting, soft starting, frequency drive



Technical details

Adjustable control parameter

- alarm relay, programmable function
- ATEX-Mode
- date / time
- phase sequence monitoring and phase drop monitoring
- turn-on delay
- on / off switch levels for each pump (alarm level)
- integrated buzzer (can be switched on and off)
- integrated time switch for compressor function
- short pump start against locking
- load changeover time for pumps
- max. pump operating time
- minimum and maximum current monitoring
- password protection
- compressor or agitator activation
- installed languages: DE, EN, FR, NL, IT, PL (other languages on request)
- power monitoring (electronical)
- power monitoring (thermal-magnetic)
- delay time / high water alarm
- delay time between pump „1“ and pump „2“
- maintenance display
- periodic emptying

Options

- alarm system 6 A5 NiMH 1,2V (power failure alarm)
- operating voltage 230V pumps
- installation in exterior columns
 - + panel heater, + flashing light, + small compressor
- MCB
- „manuell-OFF-Automatic“ (rotary or toggle switch)
- LED display for operating states (pumps)
- PTC Relais, RCD, Line protection, overvoltage protection,... integrable
- pressure sensor (measuring range 0-2 meters w.c.)
- cylinder lock for the cover
- zener barrier (for safe circuits)**

Operation and Display

- ATEX-Mode
- backlit QVGA color touch screen
- display of operating hours and switching cycles
- phase sequence monitoring and phase drop monitoring
- error list (20 fields saved retentively)
- menu navigation via backlit QVGA color touch screen:
 - graphical display and plain text display
 - graphical display - for level states
 - graphical display - for operating states (pumps)
 - graphical display - operational fault
- „manual-OFF-Automatic“ - mode selection
- plain text display
- motor current indication
- manual motor starter
- key lock
- date / time adjustable
- detailed menu with all relevant setting options
- maintenance display

Available connections

- 1 - 4 pumps
- per pump 1 thermal contact (zero voltage safe) and 1 thermal contact (automatically resetting)
- 2 x 230V / 1A output for possible small compressor
- 3 x potential-free alarm relays (3x change-over contact)
- connecting terminal (24 VDC)
- terminal blocks for network measurement
- screw terminals for level measurement
- terminal blocks for pump connection
- screw terminals for 4-20 mA analog output

Level monitoring

- 1 or 4 float switches
- impact pressure sensor (measuring 0-2 mWs) - refitted at any time
- 4-20 mA analog input e.g. for level sensor
- separate high water float switch

Technical Details CPS-M PLUS	
housing	metall- / ABS-plastic housing
dimensions	depending on the equipment
cable glands	depending on the equipment
protection class	min. IP54
max. protection on site	depending on the equipment
max. power of the pump	depending on the equipment
number of pumps	1 - 4 pumps
control voltage	230V AC / 24 V DC

Technical Details CPS-M PLUS	
operating voltage	400V / 230 AC 50/60 Hz (special voltages possible)
temperature range	0...+50°C
potential-free alarm relay	5A (2A induktiv)
analog output	4 20 mA

* Photo shows optional accessories. Please refer to the back!

** The rules of the DIN EN 60079 to be observed! The pump control is only provided for the „safe area“.

***Technical changes and mistakes reserve.



Equipment features CPS-L/ CPS-B / CPS-B SA & CPS-M PLUS

Connection Systems	CPS-L	CPS-B	CPS-B SA	CPS-M PLUS
Number of Pumps	1	1 / 2	1 / 2	1 / 2 / 3 / 4
Number of inputs for thermo contact monitoring per pump	1 per pump	1 per pump	1 per pump	2 per pump
230V / AC output e.g. for heater or small compressor	•	•	•	•
Number of potential-free alarm relays	1 x	3 x 1 pump 3 x 2 pump	3 x 1 pump 3 x 2 pump	3 x 1-2 pump/ 6 x 3-4 pump
Float switch terminal for emergency operation function	○	•	•	○
Modular terminals for main supply	•	•	•	•
Modular terminals for pump connection	-	-	•	•
Possible level monitoring	CPS-L	CPS-B	CPS-B SA	CPS-M PLUS
1 float switch	•	•	•	1-2 pump
2 float switches	•	•	•	1-2 pump
3 float switches	-	•	•	1-2 pump
Separate high water float switch (positive pump actuation)	•	•	•	•
4-20mA analog input	•	•	•	•
Impact pressure method 0-2 m	○	○	○	○
Pressure switch connection	-	-	-	-
Adjustable control parameters	CPS-L	CPS-B	CPS-B SA	CPS-M PLUS
Run-dry monitoring	-	•	•	•
On / off switch levels	•	•	•	•
High water level / alarm level	•	•	•	•
Pump follow-up time	•	•	•	•
Load changeover time for pumps	-	•	•	•
Max. pump operating time (STOP + ALARM / ALARM)	•	•	•	•
Delay time between pump 1 and pump 2	-	•	•	•
Current measurement per pump	○	•	•	•
Turn on delay after a power failure	•	•	•	•
Short pump start against locking	•	•	•	•
Periodic emptying	•	•	•	•
Delay time high water	•	•	•	•
ATEX-Mode	•	•	•	•
Unit of measurement (mm, cm, mbar,...) selectable	-	•	•	•
Language selection	D / GB / NL / F / I	D / GB / NL / F / I	D / GB / NL / F / I	D / GB / NL / F / I
Date / time adjustable	•	•	•	•
Maintenance display	•	•	•	•
Compressor or agitator activation	-	•	•	•
Integrated time switch for compressor function	-	•	•	•
Phase drop monitoring (Ue=0V)	•	•	•	•
Phase sequence detection	•	•	•	•
Integrated buzzer (disconnectable)	•	•	•	•
Alarm relay, programmable function	-	•	•	•
Monitoring of the current limit value of the pump	○	•	•	•
Password protection	•	•	•	•
Operation and indication	CPS-L	CPS-B	CPS-B SA	CPS-M PLUS
LCD Display 2x16 illuminated signs Display	•	-	-	-
Backlit QVGA color touch screen	-	•	•	•
Graphics display / Icons	-	•	•	•
Plain text display	•	•	•	•
Menu navigation via QVGA touch screen	-	•	•	•
Menu navigation via 4 sensor keys	•	-	-	-
Hand-0-Automatic sensor keys for mode selection of the pumps	•	-	-	-
Hand-0-Automatic via touch screen	-	•	•	•
LED display for idle state	•	•	•	•
LED display for operating pump status	•	-	-	-
Operational fault LED display / buzzer	•	•	•	•
Display of all operating conditions via TFT-display	-	•	•	•
From outside operable manual motor starter	-	•	•	-
Transparent cover (lockable version available)	-	•	•	-
Cover locks in the open status	•	•	•	-
Motor current measurement and monitoring	○	•	•	•
Display operationg hours and switching cycles	•	•	•	•
Error list	•	•	•	•
Key lock	•	•	•	•
Operating and connection instructions	-	•	•	-
Connection diagram in the terminal compartment!	-	•	•	-

• Standard / ○ Option / - Not available

PUMP CONTROLS

OF THE LATEST GENERATION



Pump controls

Accessories	CPS-L	CPS-B	CPS-B SA	CPS-M PLUS
Battery modul (2x lithium battery)	-	○	○	○
Battery (2 x 9 V)	○	-	-	-
Number of Zener barriers	-	max. 2	max. 2	any number
LED module	-	-	-	○
Internal heater	-	-	○	○
Overload relays	○	-	-	-
Manual motor starter	-	●	●	●
Power contactors	●	●	●	●
Leak testing for pumps	-	-	-	○
Residual current devices (each pump / whole plant)	-	x ¹	x ¹	○
Voltmeter / Ammeter	-	-	-	○
Larger ABS-plastic housing	-	-	-	○
Metal housing	-	-	-	○
Key switch	-	-	-	○
Operating hour meter	-	-	-	○
Control transformer 400/230 VAC	-	-	-	○
H-O-A (manual mode - off- automatic mode)function by menu-oper	-	-	-	○
Telecontrol system - GSM-modem	-	○	○	○
Main circuit-breaker MCP	○	●	●	○
Telecontrol system - Ethernet Modul	-	○	○	○
Control module to control a compressor	-	○	○	○
With additional exit (400V)	-	-	-	○
PTC-Relais each pump control - analysis by the thermal contact.	-	x ¹	x ¹	○
Phase drop relay with undervoltage control	-	x ¹	x ¹	○
Analog output 4-20 mA	-	-	-	●
Different LED signal lamps	-	-	-	○
Lightning protection (fine, medium, large)	-	-	-	○
Emergency voltage supply	-	-	-	○
Input terminals greater than 4qmm	-	-	○	○
Pump start-up phase - direct starting	●	●	-	●
Pump start-up phase - star/delta starting	-	-	-	●
Pump start-up phase - soft starting	-	-	●	●
Pump start-up phase - frequency drive	-	-	-	○

● Standard / ○ Option / - Not available / x¹ on request

Pump control CPS-P1

...for simple applications!



The Condor Pump Control P1 (Easy) is a conventional electronic control for one motor pump with direct start.

It is used for the control and monitoring of pumps in domestic waste and sewage water as well as rain water.

The control's ease of use makes it especially suited for domestic applications.

Advantages

- **Compact housing** (w200x h200xd140mm, incl. accessories). The CPS-P can be nearly used too broad.
- **simple and cost-effective electric control** r



Technical details

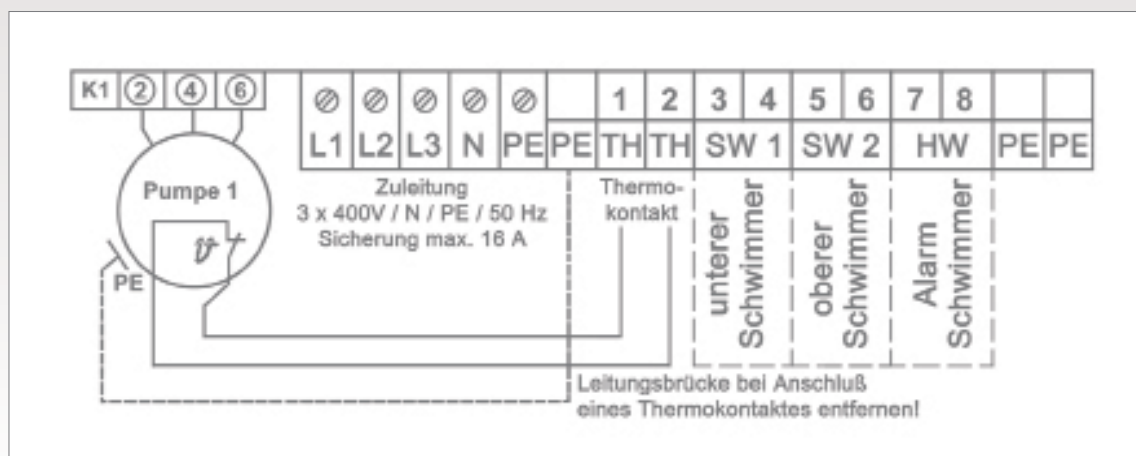
Equipment features

- Manual motor starter (1,0 A-10,0 A)
- **Power contactors** 5,5 kW
- Button (Manually pumping)
- Fault message light (red)
- Buzzer 10-90 dB
- **Connection for float switch - pump ON**
- **Connection for float switch - pump OFF**
- **Connection for float switch - high water alarm**
- **Thermal contact connection** T1
- Connection - external alarm 230 V AC

Technical data CPS-P1	
Housing	ABS
Dimensions	w 200 x h 200 x d 140 mm, incl. accessories
Cable glands	
Protection class	IP 54
Max. protection on site	16 A
Max. power of the pump	
Number of pumps	1
Control voltage	

Technische Daten CPS-P1	
Operating voltage / supply line	3x 400V 50 Hz (L1, L2; L3; N, PE)
Temperature range	
Connection - external alarm	230 V AC
Rated current	1,0 - 1,6A 1,6 - 2,5A 2,5 - 4,0A 4,0 - 6,3A 6,3 - 10,0A

Dimensions Aqua Control P1





Optional equipment

Controls CPS-B / CPS-L / CPS-M PLUS / CPS-P1

Accessories & Components for a useful extension

We manufacture your pump controls according to individual wishes and requirements.

Apart from individual pump controls, Condor also offers numerous components for a useful extension of the pump controls themselves as well as an extensive range of accessories for level control.

The Water technology Solutions Division covers development, manufacture and sale of electronic level control as well as electronic pump controls - customer-specified complete solutions for you and in line with your demands.

Our own development department as well as our own control engineering allow us to flexibly and innovatively respond to special customer requirements.



Leuchte / Blitzleuchte / Hupe



Telecontrol system

(Ethernet modul or GSM-modem for data transmission)

Optional equipment

Controls CPS-B / CPS-L / CPS-M PLUS / CPS-P1

Accessories & Components for a useful extension

On this page you can find a small extract out of our range of components and accessories.



Alarm system



Manual motor starters



Control cabinets / Exterior columns



Level measuring processes



Lightning protection / overvoltage protection



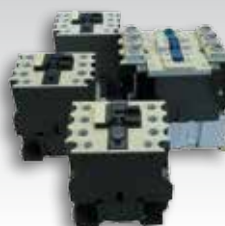
Level controls

L



Digital motor starter

D



Contactors



Residual current circuit breakers (RCD)



System components Communication / Modem / Telecontrol system

S



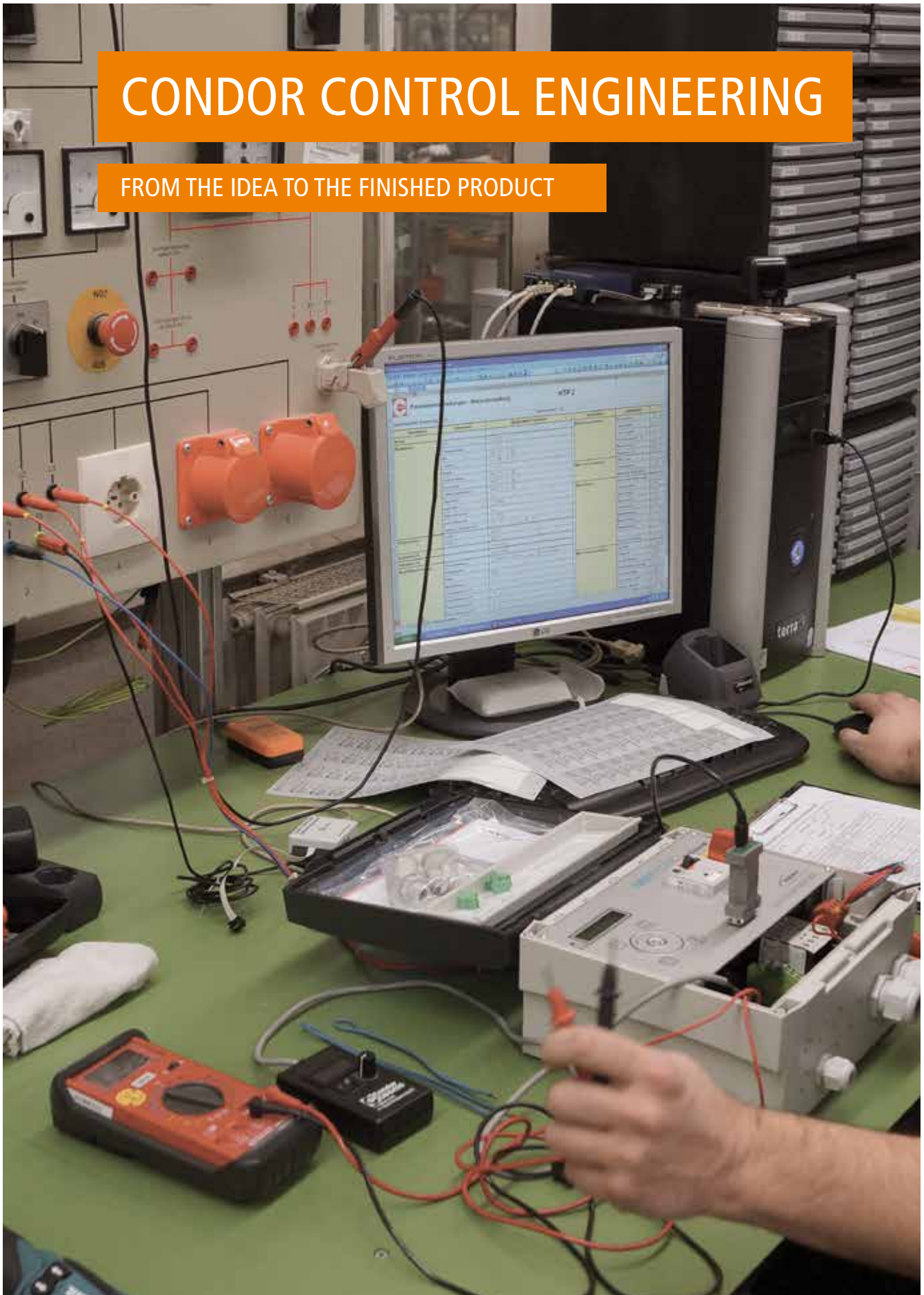
Lamps / Flashing lights / Horns



Voltmeter / ammeter

CONDOR CONTROL ENGINEERING

FROM THE IDEA TO THE FINISHED PRODUCT



External cabinets / general

Housing

The housing consists of hot pressed GRP. The front and rear walls are polished. The doors have an opening angle of 180°.

The roof is flush with the walls so that the cabinets can be arranged next to each other or in tandem.

It is possible to take the doors off for the ease of assembly and to remove any transverse members on the underside of the cabinet. The installed parts are fixed by means of pressed-in captive nut retainers (M10) in the side walls. On the rear walls are domed captive nuts for the

retrofitting of insert nuts. The pivoted handle is provided for the installation of profile half cylinders. A pivoted handle with double locking is available as an option.

The doors are fitted with a three-point locking mechanism. The profile half cylinder is protected from dirt by a lock cover. The cabinet is mounted on a standardised base (DIN 43629 Part 2). Ventilation: natural air circulation, available colour: RAL 7035 (Light Grey), protection class: IP 44 according to DIN VDE 0470 EN 60529, double insulated

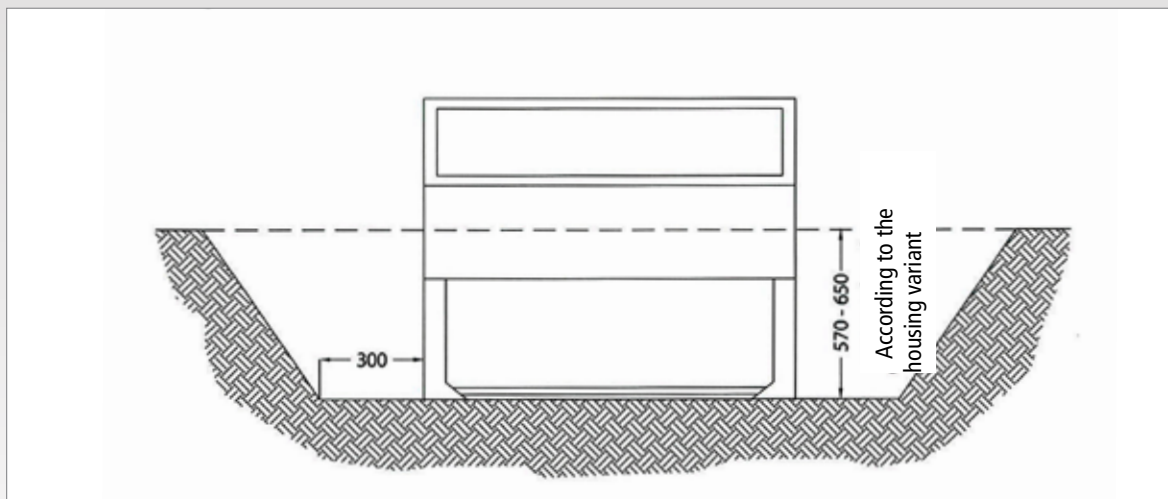
Base

The standardised marketplace base is also constructed from hot pressed GRP, making it weatherproof and resistant to all aggressive media present in the ground as well as products containing benzene, such as petrol, heating oil and machine oil. The high degree of temperature resistance allows the installation of subsequent asphaltting works. Inside the base there is a cable clamp rail. Colour: RAL 7035 (Light Grey). The base is supplied as a building kit; assembly is in accordance with the accompanying drawing.

The cable clamp rail must be mounted in the base immediately during the assembly process. An optional grating or base bottom plate can be attached to the underside of the base using the M12 hex bolts, nuts and washers supplied with the shipment.

Installation depth of base: see sketch

Sketch - Installation depth of base



External cabinets



External cabinet with flashing light

Type 9001 GRP distribution cabinet, IP 44 incl. mounting plate, cable clamp rail, factory-installed profile half cylinder with 3 keys.

Version / designation*	Part No.
Dimensions approx. W 320 x H 1420 x D 234 mm (incl. pressed-on base)	281443
Dimensions approx. W 590 x H 1775 x D 320 mm	281467
Dimensions approx. W 785 x H 1775 x D 320 mm	281474
Dimensions approx. W 1115 x H 1775 x D 320 mm	281481
Dimensions approx. W 1115 x H 2000 x D 320 mm	281528
Dimensions approx. W 1445 x H 1775 x D 320 mm	281498
Dimensions approx. W 1445 x H 2000 x D 320 mm	282419
Simultaneously locking cylinder with key	603330

External cabinet with empty compartment for energy supplier



GRP distribution cabinet with empty compartment (left) for energy supplier, overall width ... mm, IP44, divided interior, empty compartment for energy supplier with double locking, customer part with single locking, factory-installed simultaneously locking cylinder Type 9001, including base, cable clamp rail and mounting plates.

Version / designation*	Part No.
Dimensions approx. W 1115 x H 1775 x D 320 mm	281504
Dimensions approx. W 1445 x H 1775 x D 320 mm	281511
Dimensions approx. W 1115 x H 2000 x D 320 mm	284598
Dimensions approx. W 1445 x H 2000 x D 320 mm	281535

External cabinet with energy supplier part

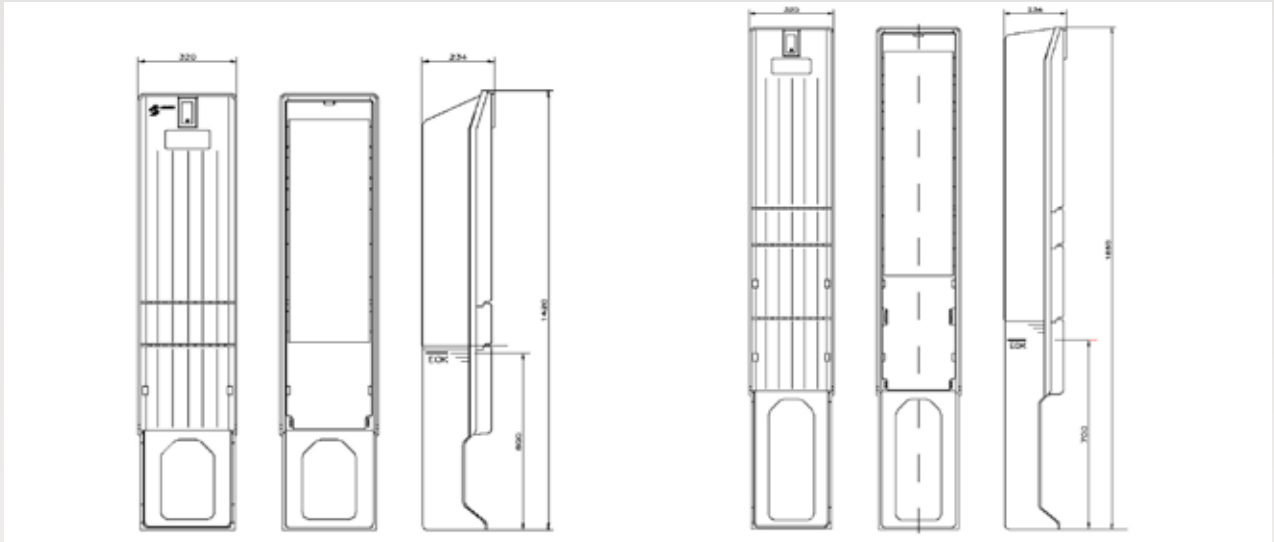


GRP cabinet overall width ... mm, IP44, divided interior, LH compartment for energy supplier with double locking, RH customer compartment with simple locking, factory-installed simultaneously locking cylinder Type 9001, incl. separate loosely supplied base, cable clamp rail and mounting plate, without domestic junction box, without selective mains circuit breaker.

Version / designation*	Part No.
Dimensions approx. W 1115 x H 1775 x D 320 mm	281542
Dimensions approx. W 1445 x H 1775 x D 320 mm	281559
Dimensions approx. W 1115 x H 2000 x D 320 mm	283935
Dimensions approx. W 1445 x H 2000 x D 320 mm	281566
Domestic junction box size HAK NH 00 without safety devices for installation in the energy supply industry	

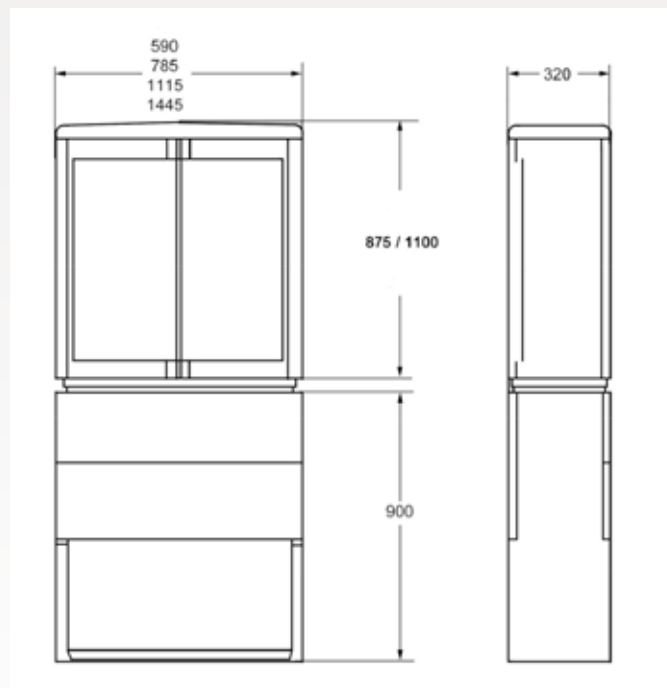
*Other versions are available on request

External cabinets / dimensions



- A metal mounting plate (2 mm) H/W 600 x 278 mm
- Dimensions H / W / D: 1420/320/234 mm
- Installation depth: 600 mm

- One metal mounting plate (2 mm) H/W 1000 x 278 mm
- Dimensions H / W / D: 1850/320/234 mm
- Installation depth: 700 mm



- One or two metal mounting plates (2 mm)
- H/W 665 x 485 mm – 915 x 1340 mm
- Installation depth: 570 - 650 mm

Lighting module, mounted and wired



- Lamp 35 W / 50 Hz / 270 lm
- Earthed socket
- Door contact switch
- incl. protection via 25A/30mA double pole RCD and B6A circuit breaker
- Protection class IP20

Designation	Description	Weight (in g)	Part No.
Lighting module	Size 0-1, for external cabinets width 590 mm or 785 mm	900	281733
Lighting module	Size 02, for external cabinets width 1115 mm or 1445 mm	1100	281740

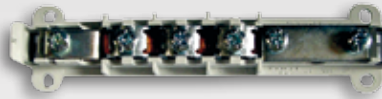
Control cabinet heater, mounted and wired



- Switch cabinet heater incl. heater
- Power supply 230 V / 50 Hz
- Protection class IP54 (heating element)
- Protection class IP20 (thermostat)
- Temperature adjustment range 0–60°C
- Top-hat rail mounting 35 mm
- Fuse protection T6, 3A

Designation	Description	Weight (in g)	Part No.
Control cabinet heater 30 W	incl. adjustable thermostat and fuse T6, 3A	360	281689
Control cabinet heater 50 W	incl. adjustable thermostat and fuse T6, 3A	393	281702
Control cabinet heater 100 W	incl. adjustable thermostat and fuse T6, 3A	457	281719
Control cabinet heater 150 W	incl. adjustable thermostat and fuse T6, 3A	480	281726
Internal heater 20 W	Includes non-adjustable thermostat and T6, 3A fuse, integrated in the CPS modular controls	80	281399
Temperature controller	Top-hat rail mounting 35 mm, 250 V AC, adjustment range 0 to +60 °C, 1x NC contact, ohmic switching current (inductive) 10 (2)A, IP20, UL certification	80	284697
Humidity controller (hygrostat)	Top-hat rail mounting 35 mm, 24–250 V AC, adjustment range +35 to +100%, 1x changeover contact, ohmic switching current (inductive) 5 (0.2)A, IP20,	80	284703

Equipotential bonding rail



- Equipotential bonding rail with plastic cover
- Connection for 1 x strap terminal 30 x 3.5 mm
1 x circular conductors 8–10 mm²
6 x circular conductors 2.5-16 mm²
- Nickel-plated brass
- Stainless steel (on request)

Designation	Description	Weight (in g)	Part No.
Equipotential bonding rail	Lightning current capacity 100 kA, standard version	350	281641
Equipotential bonding rail	Clamping unit with screw locking device acc. to DIN VDE 0618-1 (e.g. as required in industry and EX areas)	-	Available on request
Equipotential bonding rail	V2A stainless steel, stainless steel 1.4301, lightning current capability 100 kA	-	Available on request

Switch cabinet ventilation



- Filter fan 230 V AC / 22 W/0, 14A
- Air flow rate with filter 55 m³/h
- Protection class IP54
- Material: ABS UL94V-0, colour RAL 7035
- Operating temperature 10°C–70°C
- Fan service life (at 40°C) 50,000 hours
- Temperature controller +5°C – +60°C

Designation	Description	Weight (in g)	Part No.
Filter fan	230 V AC, 150 x 150 x 77 mm, noise level 43 dB(A), IP54	800	284673
Outlet filter	Incl. filter, IP54, ABS RAL 7035, 150 x 150 x 25 mm	114	284666
Ventilation labyrinth	Diameter 70 mm, colour grey, IP44	35	281757
Electromechanical temperature controller	1 x NO contact, adjustment range +5 °C to +60 °C, ohmic switching current (inductive) 10 (2)A, 250V AC, bimetallic, UL certification	80	284680

Door stay, base filing material, locking cylinder



- Base filling material
- Clay granules for humidity control
- Mechanical door stay
Prevents accidental opening or closing of the cabinet door(s)

Designation	Description	Weight (in g)	Part No.
Door stay	Galvanised metal, for external cabinet 590–1445 mm	460	281665
Base filling material	Clay granules for humidity control 25 l	13000	281765
Base filling material	Clay granules for humidity control 50 l	26500	281771
Locking cylinder	Type 9001 simultaneous locking cylinder incl. 3 keys	80	281672

Permanent beacon EM 12-240V AC/DC, mounted and wired



- Vandal-proof construction for all mechanical and weather-related requirements
- Impact-resistant polycarbonate dome (up to 20 J)
- Tamper-proof lamp replacement from the back with bayonet fitting
- Protection class IP65
- Certification: UL
- Power supply: 12 - 240 V AC/DC
- Mounting: Recessed
- Temperature range: - 20°C...60°C

Designation	Description	Weight (in g)	Part No.
Permanent beacon 230 V	impact-resistant, colour red, incl. bulb 230 V AC / 7 W	130	281788
Permanent beacon 12 V	impact-resistant, colour red, incl. bulb 12 V DC / 5 W	130	281795
Permanent beacon 24 V	impact-resistant, colour red, incl. bulb 24 V DC / 7 W	130	284437
Designation	Description	Weight (in g)	Part No.
Lamp	Incandescent bulb 230 V / 7 W, fitting BA15d	9	601656
Lamp	Incandescent bulb 12 V / 5 W, fitting BA15d	10	601650
Lamp	Incandescent bulb 24 V / 7 W, fitting BA15d	9	607688

Flashing light, mounted and wired

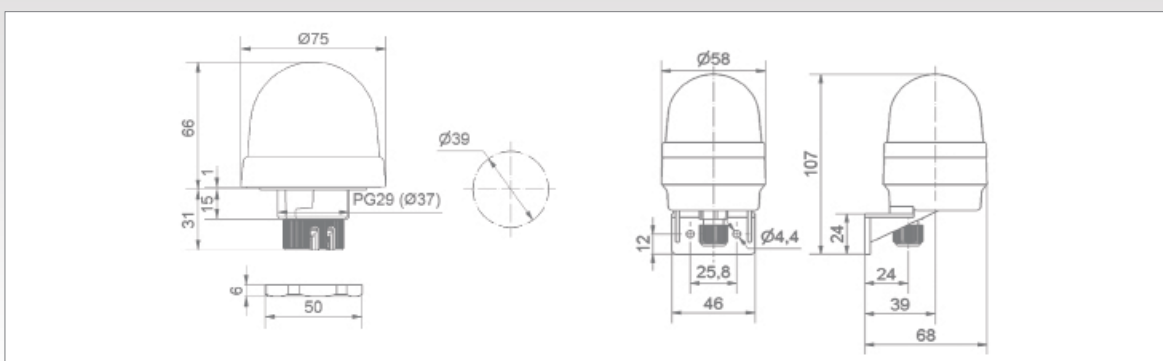


- Vandal-proof construction for all mechanical and weather-related requirements
- Powerful xenon flasher
- Impact-resistant polycarbonate dome (up to 20 J)
- Protection class IP65
- Certification: UL
- Power supply: 12 – 240 V AC/DC
- Mounting: Recessed
- Temperature range: - 20°C...50°C

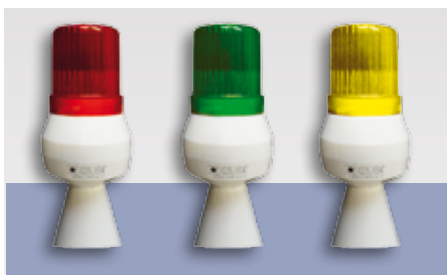
Designation	Description	Weight (in g)	Part No.
Flashing beacon 230 V	impact-resistant, colour red, flashing beacon	136	281801
Flashing beacon 12 V	impact-resistant, colour red, flashing beacon	136	281818
Flashing beacon 24 V	impact-resistant, colour red, flashing beacon	136	284635
Designation	Description	Weight (in g)	Part No.
Flashing beacon 230 V	colour red, incl. angle for wall mounting (excludes mounting)	113	281825

Further selection of accessories available on request.

Dimensions



Mini-horn / permanent beacon, mounted and wired



- Type KLL mini horn / signal light
- Housing ABS grey
- Protection class IP43 NEMA Type 2
- Temperature range: -25°C to +50°C
- Sound pressure 88–92 dB
- Dome colours red / green / yellow

Designation	Description	Weight (in g)	Part No.
Mini horn / warning light 230 V AC	Dome colour red, incl. bulb 230 V AC / 7 W	229	281887
Mini horn / warning light 12 V DC	Dome colour red, incl. bulb 12 V DC / 5 W	229	281870
Mini horn / warning light 24 V DC	Dome colour red, incl. bulb 24 V DC / 7 W	229	284642
Designation	Description	Weight (in g)	Part No.
Lamp	Incandescent bulb 230 V / 7 W, fitting BA15d	9	601656
Lamp	Incandescent bulb 12 V / 5 W, fitting BA15d	10	601650
Lamp	Incandescent bulb 24 V / 7 W, fitting BA15d	9	607688

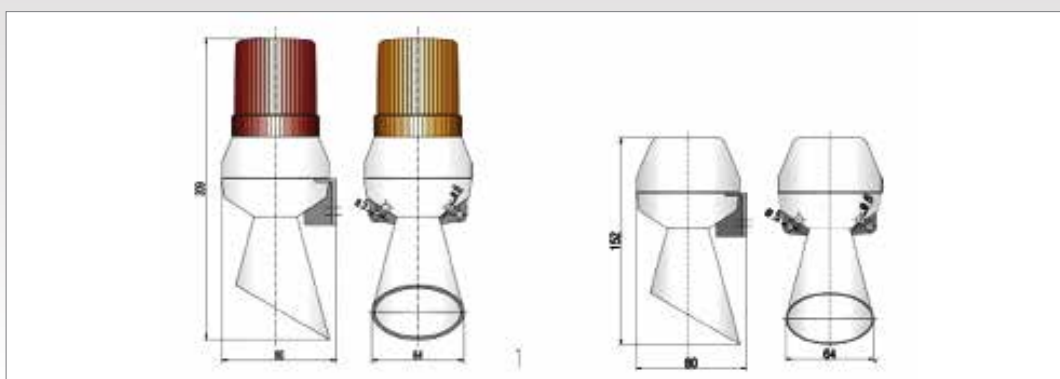
Mini horn with sound outlet horn, mounted and wired



- Housing ABS grey
- Cable entry 6.5–15 mm
- Protection class IP43 NEMA Type 2
- Temperature range: -25°C to +50°C
- Sound pressure 88–92 dB
- Duty cycle 100%

Designation	Description	Weight (in g)	Part No.
Mini horn 230 V AC	Sound outlet pointing downwards	180	283980
Mini horn 12 V DC	Sound outlet pointing downwards	180	281894
Mini horn 24 V DC	Sound outlet pointing downwards	180	284659

Dimensions





Mains-emergency power changeover switch in housing



- Mains-emergency power changeover switch acc. to EN 60947-3
- Installed in housing W x H x D 235 x 215 x 120 mm
- IP55 (with lid closed)
- with 4 x knockouts each on the top and bottom of the housing for M25/M32 cable gland
- 4-pole / 3 x 400 V AC
- switching capacity 11 22 kW
- Continuous current 32 50A

Designation	Description	Weight (in g)	Part No.
Mains-emergency power changeover switch up to 32 A	Switching capacity 11 kW, continuous current 32 A	1150	284826
Mains-emergency power changeover switch up to 50 A	Switching capacity 22kW, continuous current 50 A	1290	284833

CEE wall socket



- CEE wall socket
- 5-pin, 400 V, 6 h
- Protection class IP44
- Housing material PA6
- Contacts: copper-zinc alloy
- Can be used as the connecting socket for the mains-emergency power changeover switch

Designation	Description	Weight (in g)	Part No.
CEE wall socket 16 A	16 A, 400 V AC, 6 h	400	605156
CEE wall socket 16 A	16 A, 400 V AC, 6 h, with phase inverter	400	677156
CEE wall socket 32 A	32 A, 400 V AC, 6 h	500	605256
CEE wall socket 32 A	32 A, 400 V AC, 6 h, with phase inverter	500	677256
CEE wall socket 63 A	63 A, 400 V AC, 6 h, IP67	950	835356

CEE plug with connecting cable



- High quality CEE plug connections for the use on construction sites and in industry
- 5-pin, 400 V, 6 h
- Protection class IP44
- Housing material PA6, silicone- and halogen-free
- Contacts: copper-zinc alloy
- incl. 3 m rubber cable H07 RN-F
- Can be used as a connecting cable for controls or an emergency power supply

Designation	Description	Weight (in g)	Part No.
CEE socket 16 A	incl. 3 m rubber cable H07 RN-F 5 x 2.5 mm ²	1660	284895
CEE socket 32 A	incl. 3 m rubber cable H07 RN-F 5 x 4.0 mm ²	1710	284901
CEE socket 63 A	incl. 3 m rubber cable H07 RN-F 5 x 16 mm ²	4750	284918
Designation	Description	Weight (in g)	Part No.
CEE socket 16 A with phase inverter	incl. 3 m rubber cable H07 RN-F 5 x 2.5 mm ²	1660	284925
CEE socket 32 A with phase inverter	incl. 3 m rubber cable H07 RN-F 5 x 4.0 mm ²	1710	284932

CEE wall socket, wired, incl. fuse



- CEE socket with earthed socket
- 5-pin, 400 V / 230 V AC, IP44
- Housing material: PA6
- Contacts: copper-zinc alloy
- 32 A version with fine-wire fuse for earthed socket
- Four-pole, 40 A / 30 mA RCD
- Circuit breaker

Designation	Description	Weight (in g)	Part No.
CEE wall socket 16 A with earthed socket	incl. 40 A / 30 mA RCD and B16 A circuit breaker hard-wired into the electrical control unit	1750	281962
CEE wall socket 32 A with earthed socket	incl. 40 A / 30 mA RCD and B25 A circuit breaker hard-wired into the electrical control unit	2100	281979

Individual cables, CEE components and fuse accessories are available upon request.

Earthed socket, wired, incl. fuse



- Earthed socket with hinged cover
- 250 V AC / 50 Hz / 16 A
- Protection class IP54
- Double-pole, 25 A / 30 mA RCD
- Circuit breaker

Designation	Description	Weight (in g)	Part No.
Earthed socket 16A for wall mounting	incl. 25 A / 30 mA, double-pole RCD and B16 A circuit breaker hard-wired into the electrical control unit	630	281986

Selective main circuit breaker



- Selective main circuit breakers (SMCBs) for use in the electricity supply sector e.g. in electric meter boxes
- Standards: DIN VDE 0641 T11 / EN 60898
- E characteristic acc. to E DIN VDE 0645/05.96
- Rated voltage 230/400 V AC
- Rated current 10–100 A
- Rated short-circuit breaking capacity I_{cn} 25 kA
- Number of poles: 1, 3, 3+N
- Connection terminals
 - 2.5 – 50 mm² (input side)
 - 1.5 – 35 mm² (output side)

Designation	Description	Weight (in g)	Part No.
Selective main circuit breaker	16A, 3-pole, 400 V AC, tripping characteristic E	1063	281580
Selective main circuit breaker	20A, 3-pole, 400 V AC, tripping characteristic E	1063	281597
Selective main circuit breaker	25A, 3-pole, 400 V AC, tripping characteristic E	1063	281603
Selective main circuit breaker	35A, 3-pole, 400 V AC, tripping characteristic E	1063	281610
Selective main circuit breaker	50A, 3-pole, 400 V AC, tripping characteristic E	1063	281627
Selective main circuit breaker	63A, 3-pole, 400 V AC, tripping characteristic E	1063	281634

Further circuit breakers with tripping characteristics F and C available upon request



PUMP CONTROLS & LEVEL MEASURING...

...FOR A CLEAN ENVIRONMENT!



Float switch
PSN



Electronic pump control
ENP



Electronic level relay
ENR



Electronic level relay
HRH-5



Stainless steel
level sensor ENS

Level control

Industries



→	Level measurement methods	P. 38 -42	
PSN	Float switches which turns On and Off depending on the cable length	P. 43 - 46	Fill level switch in wastewater pumping stations, used water tanks, stormwater utilization systems, sump pits, etc. for direct and indirect control of pumps.
ENP	Electronic pump control Single and dual pump control with monitoring functions	P. 49, 50	Electronic level controls are used where fill levels in tanks and pits have to be kept at an exact level or where fluids should be pumped out.
ENR	Electronic level relay Measuring range 0,1 – 2 m Output signal 0 - 10 V	P. 51, 52	Electrode relays monitor the fill levels of conductive fluids by means of rod or dipped electrodes in tanks.
HRH-5	Electronic level relay For level monitoring	P. 53, 54	For constant detection of minimal changes in water level in shafts and pits, larger pump stations for wastewater or stormwater drainage, with and without the risk of explosions.
ENS	Stainless steel level sensor Output signal 4 - 20 mA	P. 55,56	Bell plungers: robust and maintenance-friendly solution for detecting fill levels in pressurized drainage systems, small pump stations, sewage collection shafts. Approved for use in explosion-risk areas.
→	Accessories: Bells and accessories for Level Monitoring	P. 57	



Type "WASTE"
waste water



Typ "ACS"
Drinkable



Typ "SiHF"
High Temperature



Typ "FEP"
Chemical Ambient



Typ "ATEX-Schutz"
II 1G Ex ia IIC T6 Explosive*

Suspended float switch

Industries

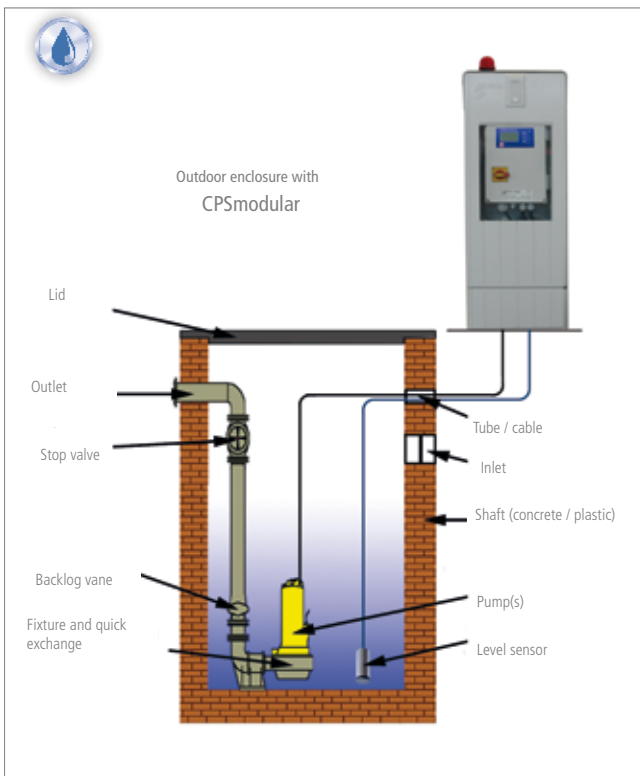


<p>"WASTE" / "ACS" / "SiHF" / "FEP" / "ATEX"</p> <p>NEW!</p>	Suspended float switch - "T" series	P. 47, 48	Used in domestic , industrial or municipal sector , for waste water , drinking water , chemical substances and environment for use in explosive areas (ATEX) . Ideal for level control in drainage systems , pumping stations , wastewater systems , drinkable water fountains, drinks an foodstuffs , ship building , ...
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**others on request

* The rules of the DIN EN 60079 to be observed!

For level measurement there are different methods that can be used



1. Level measurement method using float switches or suspended float switch
2. Impact pressure
 - 2.1 Impact pressure method in closed systems
 - 2.2 Impact pressure method in open systems
 - 2.2.1 Open system method with air replenishment
 - 2.2.2 Open system method with bubblers
3. Conductivity measurement method
4. Hydrostatic measurement method (ENS)

1. Description float switches - Digital Measurement method



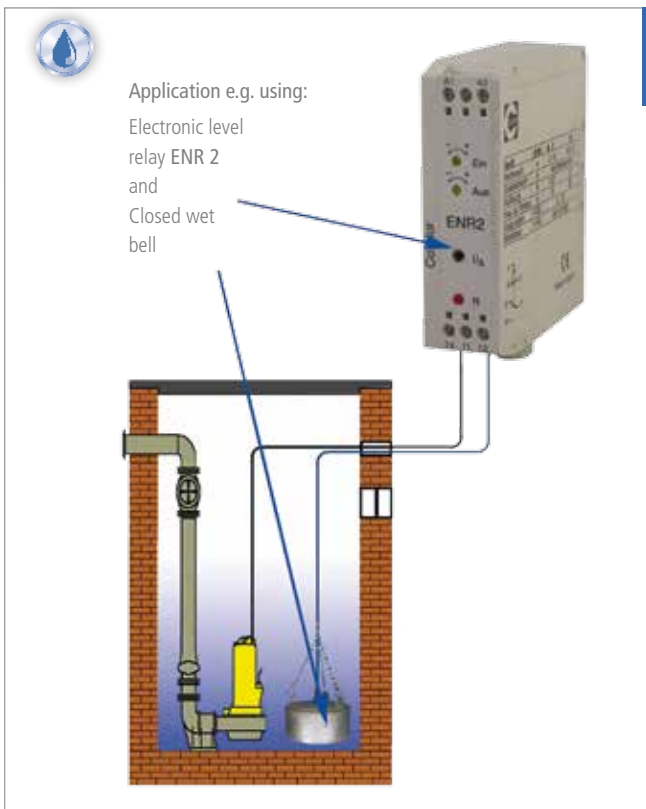
In this application, contacts placed within a floating enclosure are closed / opened depending on the inclination angle of the float switch.



Application e.g. using:

- Float switches
- PSN – O
- Suspended float switch ((series "T")

2.1 Impact pressure method, closed system

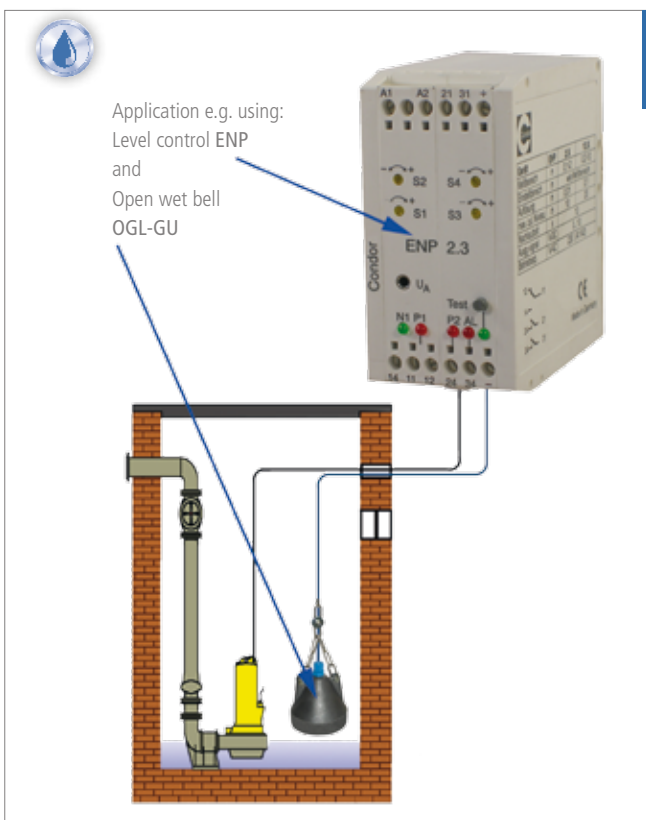


In this application the level change is transmitted via a pneumatic tube to the sensor and evaluated. The two types of systems - closed and open - are described in more detail below:

Closed system

For the use of a closed system, a completely sealed measuring system is an absolute necessity. A leak in the system, through which air can diffuse, leads to a drop in pressure and subsequently a malfunction of the device. The sealed bell GGL-8 (see accessories section) placed into the medium seals the measurement system at the "measuring point".

2.2.1 Impact pressure method, open system with air replenishment



Open systems

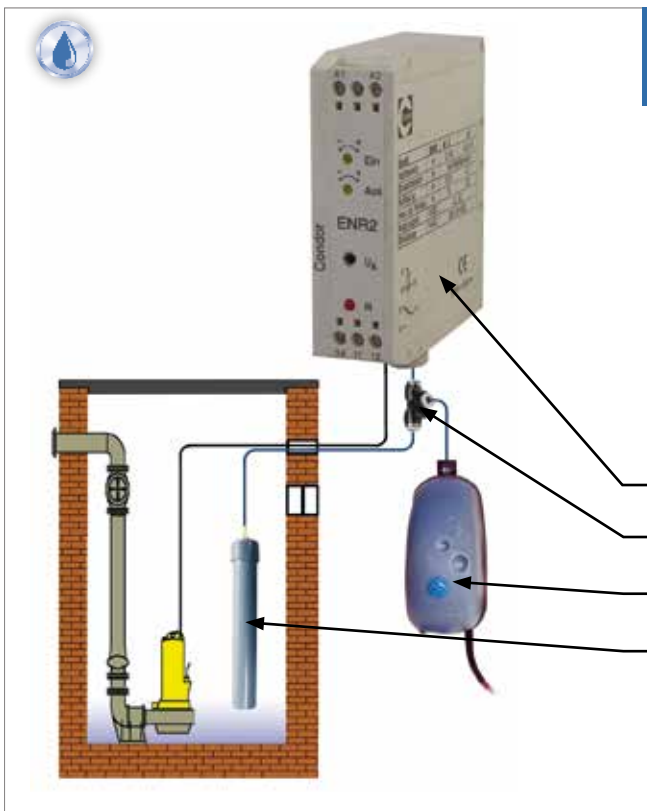
In open systems, the medium to be monitored creates pressure inside the pneumatic tube which is then electronically evaluated. Any leaks, which could lead to false measurement results, can be compensated for by suitable aeration or by bubbler operation.

Air replenishment operation

Open systems which function without aeration must achieve a regeneration of pressure within the system - this can be reached by an increase in volume and temporary operation in air replenishment mode. Any air losses in the measurement system will thereby be compensated for which, during the emptying process, causes the level to drop so far at regular intervals that the bell becomes exposed and air can therefore penetrate into the system (air replenishment).

In addition, with the help of a wet bell, the air volume within the measuring system should be increased.

2.2.2 Impact pressure method, open system using bubblers



In this application, the aid of a small compressor is necessary, whereby in either continuous or periodic operation, air is fed into the system. The pressure within the measuring system (pneumatic tube) therefore remains constant. Only when a change in the level occurs is the pressure altered in the measuring system, which is subsequently detected by the evaluating unit.

Application e.g. using:

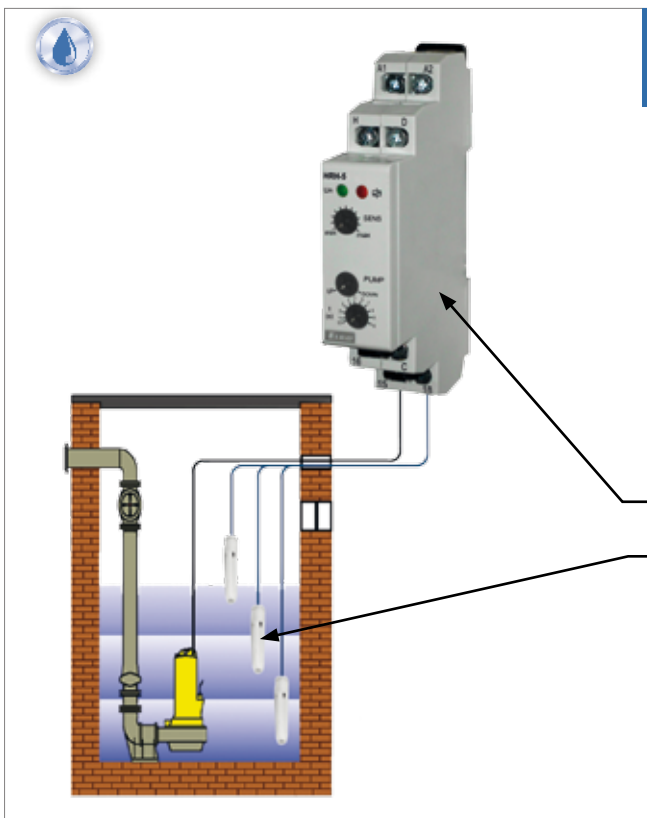
Electronic level relay ENR 2

T-connector for pneumatic tube

Small air compressor Rena Air 100

Open wet bell OGL

3. Conductivity measuring method



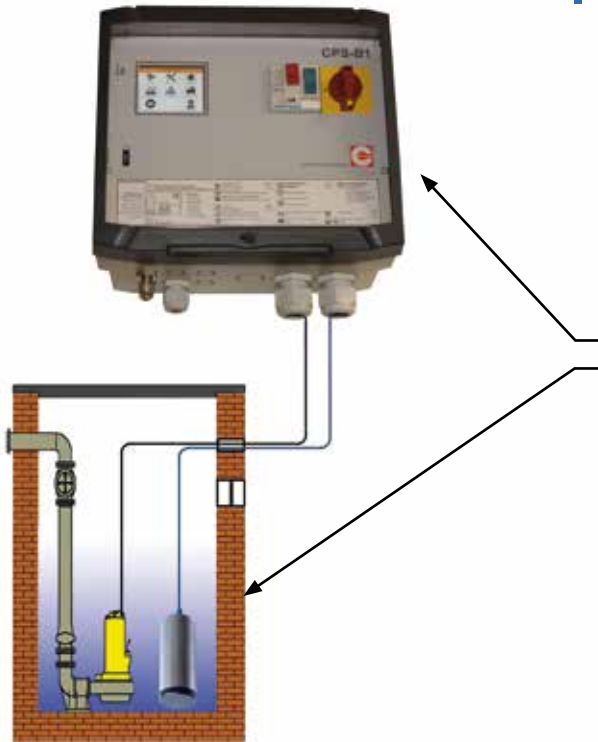
In this application, immersion electrodes are connected to an electronic analyser. When the electrodes are moistened by the liquid being measured, their conductivity alters correspondingly. One or two variable threshold values can then be adjusted.

Application e.g. using:

Electronic level relay HRH-5 and

Electrodes TEL - ..

4. Hydrostatic measurement method



In this application, a level sensor is lowered into the medium within a sealed enclosure, whereby ceramic or piezoresistive sensors are used. The filling level pressure then acts directly on the ceramic or piezoresistive sensor and the subsequent value is then transmitted as a 4-20 mA signal via the connecting lead.

Application e.g. using:

Electronic pump control CPS-B1 New Generation
and Level sensor ENS

Float switches which turns ON or OFF depending on the cable length.

Type Designations

- PSN-O** Float switches for emptying. On reaching the upper switching threshold the switching mechanism activates the pump. On reaching the lower switching threshold the pump is switched off. This float switch can also be used as run dry protection.
- PSN-F** Float switches for filling. On reaching the lower switching threshold the switching mechanism activates the pump. On reaching the upper switching threshold the pump is switched off.
- PSN-X** Float switches for filling and emptying.
- PSN-.. + ST** Float switch with plug and socket for pump connection.
- PSN-O DB** Float switches for emptying with integrated cable breakage and short-circuit monitoring, with gold flashed contacts.
- PSN-X-SP** Float switches for filling and emptying for PLC application and for intrinsically safe circuits, with gold flashed contacts.

Neoprene Insulated Lead

Highly flexible lead acc. to VDE 282 Part 4 resp. HD 22.4 S3 guarantees a long service life.

Protective Conductor Connection acc. to VDE 0631 Part 1 protection class 1 resp. EN 60730-1

A metal shield connected to the protective conductor of the lead ensures additional protection against electrical shock.

Perfect Casing

The inner chamber with the switch mechanism and lead are seamlessly enclosed by isolating polypropylene.

Contact Rating

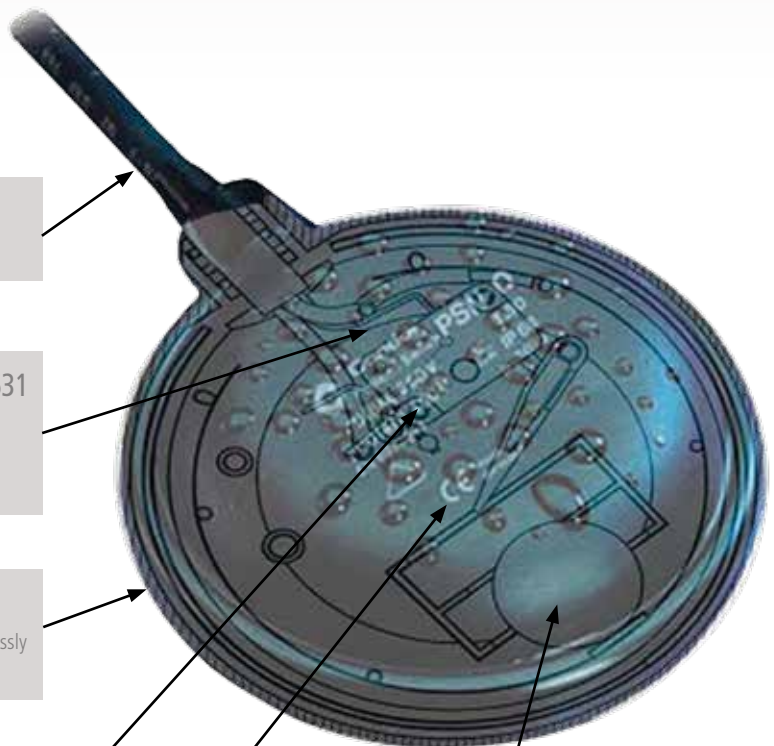
Motors with a switching capacity of up to 1.1 kW (at 250 V~) may be switched directly.

High Quality HR-Foam Floating Body

Physical properties and chemical resistance of the polypropylene body are extraordinarily high, so that damages due to mechanical impact or chemical influence may be ruled out.

KLS Ball Guiding System

The new ball guiding system KLS ensures an even higher switching accuracy within the tolerance range.



Type overview float switches PSN



Float switch PSN- ...

Order reference	Description	Cable length	Weight in g	Part No.
PSN-O 3 m	for emptying	3 m	500	234166
PSN-O 5 m		5 m	650	234173
PSN-O 10 m		10 m	1000	234180
PSN-O 15 m		15 m	1350	234197
PSN-O 20 m		20 m	1700	234203
PSN-O 30 m		30 m	2400	237082
PSN-F 3 m	for filling	3 m	500	234210
PSN-F 5 m		5 m	650	234227
PSN-F 10 m		10 m	1000	234234
PSN-F 15 m		15 m	1350	234241
PSN-F 20 m		20 m	1700	234258
PSN-F 30 m		30 m	2400	258421



Float switch PSN- ...+ ST

Order reference	Description	Cable length	Weight in g	Part No.
PSN-X 3 m	for filling and emptying export-version without protective conductor 1 SPDT	3 m	500	234265
PSN-X 5 m		5 m	650	234272
PSN-X 10 m		10 m	1000	234289
PSN-X 15 m		15 m	1350	234296
PSN-X 20 m		20 m	1700	234302
PSN-X 30 m		30 m	2400	237174
PSN-O + ST 5 m	Float switch with plug and socket for pump connection	5 m	750	234319
PSN-O + ST 10 m		10 m	1100	234326
PSN-F + ST 5 m		5 m	750	234333
PSN-F + ST 10 m		10 m	1100	234340
PSN-O DB 5 m	for emptying with integrated cable breakage and short-circuit monitoring, with gold flashed contacts	5 m	650	234357
PSN-O DB 10 m		10 m	1000	234364
PSN-X SP 5 m	for filling and emptying	5 m	650	234371
PSN-X SP 10 m	for PLC application and for intrinsically safe circuits, with gold flashed contacts, export-version without protective conductor, 1 SPDT	10 m	1000	234388
PSN-X SP 15 m		15 m	1350	236092
PSN-X SP 20 m		20 m	1700	236115
PSN-X SP 30 m		30 m	2400	245254
PSN-X SP 40 m		40 m	3100	245261

Accessories for Float switches PSN



Weight BG - PS



Cable support K - PS



Zener barrier

Order reference	Description	Weight in g	Part No.
BG-PS	Weight for float switch, color of body blue (for free setting of the switching differences)	400	236658
IG-PS	Weight for float switch, color of body yellow (for free setting of the switching differences)	180	234401
K-PS	Cable support for float switch PSN, (fixing by means of a standard clip)	5	234418
Zener barrier MTL7778 28 V AC	Zener barrier for use e.g. of float switches in areas that are at risk of explosion	110	283072
Zener barrier MTL7787 28 V DC	Attention: The input voltage of the zener barrier mustn't exceed 28 V (AC / DC).	110	260479

Float switch PSN - Digital measurement procedure

Technical Data PSN-O/F/X (ST/SP)			
Rated operational voltage U_e (AC)	PSN-O/F/X	PSN...+ST...	PSN-X SP
		250 V ~ 400 V ~	250 V ~
Rated operational current I_e (AC)	10(8) A (250 V ~)	10(8) A	max. 400 mA
	10(4) A (400 V ~)		
Contact rating		1,1 kW	
Max. cycles Cycles 50 E3		≥ 50.000	
Temperature resistance Cable VDE 282 T 4 12/95 Body		60 °C 85 °C	
Temperature resistance gem. VDE PSN-O / PSN-F * PSN-O / PSN-F PSN-O / PSN-F PSN-X SP		10 A – T 45 °C 8 A – T 50 °C 6 A – T 60 °C T 60 °C	
Protection watertight, depth 10 m		IP 68	
Wire cross sections VDE 0631 T 1 01/96		3 x 1 mm ²	
Lead - black		H 07 RN-F	

Technical Data PSN-O DB	
Rated operational voltage U_e	< 30 V-DC
Rated operational current I_e	11 mA (R=2,7k) 2,4 mA (R=12,7k)
Rated switching capacity* Thermal switching capacity	250 V AC, 1 mA 250 V AC, 6 A
Max. cycles Cycles 50 E3	≥ 50.000
Temperature resistance Cable VDE 282 T 4 12/95 Body	60 °C 85 °C
Protection watertight, depth 10 m	IP 68
Wire cross sections VDE 0631 T 1 01/96	3 x 1 mm ²
Lead black	H 07 RN-F

* These models were conceived so that they can be used in circuits with a low switching capacity (min. 1mA / 4V) and with a middle switching capacity (max. 5A).
The respective product may be used only in one of these circuit types during his complete use duration.

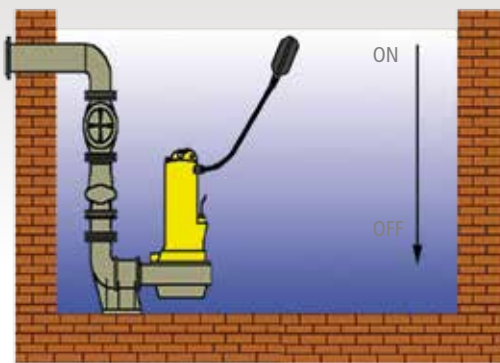
Resistance Body / Cable

Resistance
Formic acid (hydrous 10%), Gasoline (normal), Diesel, Formaldehyde (hydrous 40%), Glycerine, Fuel oil, Lactic acid (hydrous 10%), Phosphoric acid (hydrous 10%), Nitric acid (hydrous 10%), Sulfuric acid (hydrous 35%), Washing powder

Limited resistance
Acetic acid (hydrous 10%), Nitric acid (hydrous 10%), Chlorinated water, Hydrogen peroxide *

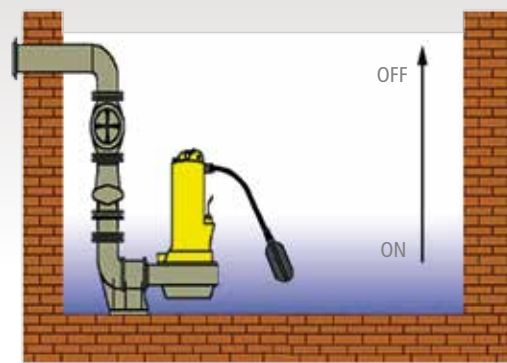
*No approval for use in drinking water...

Types



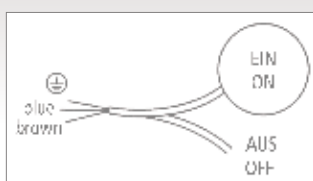
PSN-O Float switch for emptying
Contact closes in upper position and switches the pump on.

PSN-X Float switch for filling and emptying
Export-version with 1 SPDT without protective conductor and VDE-Approval mark.

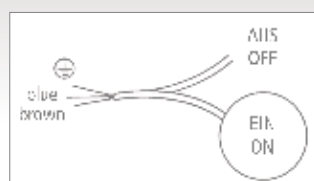


PSN-F Float switch for filling
Contact opens in upper position and switches the pump off.

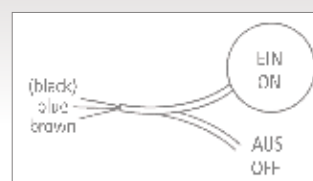
Circuit Diagrams Float switch PSN



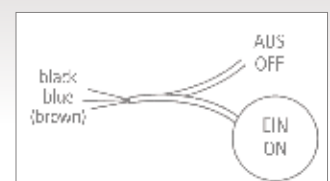
Float switch PSN-O
for emptying



Float switch PSN-F
for filling



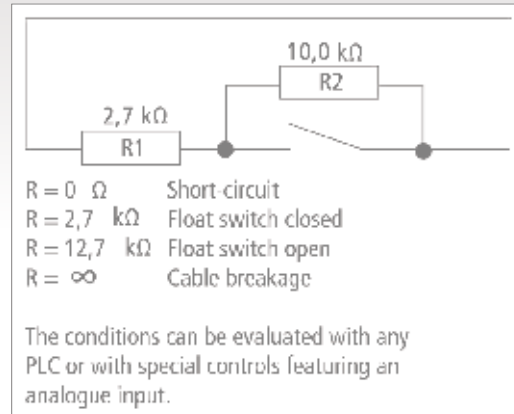
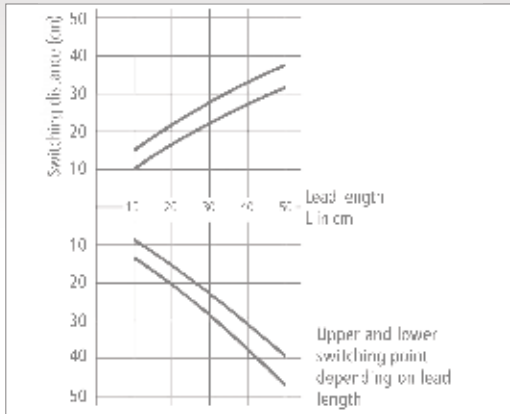
Float switch PSN-X
here in function for emptying



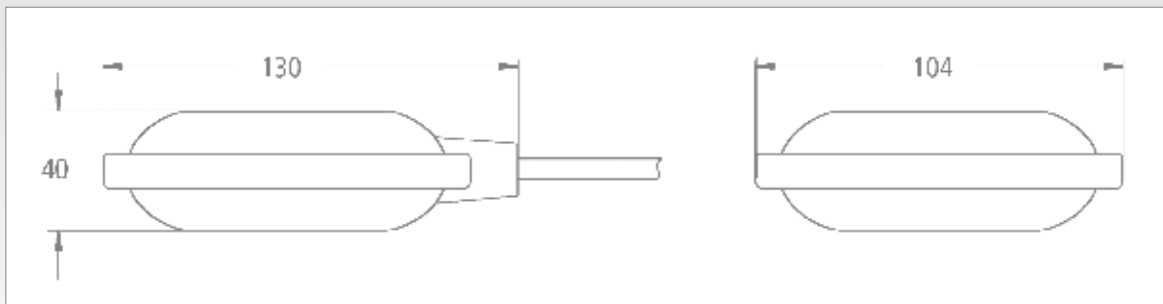
Float switch PSN-X
here in function for filling

Switching Diagram PSN

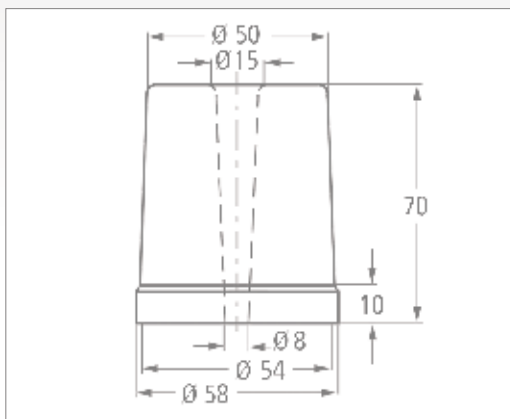
Inner wiring PSN-O DB



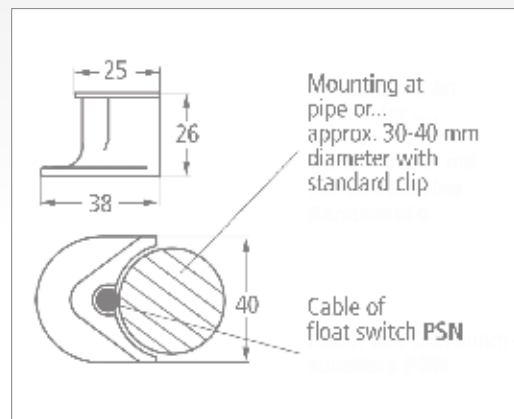
Dimensions PSN / Accessories



Float switch PSN

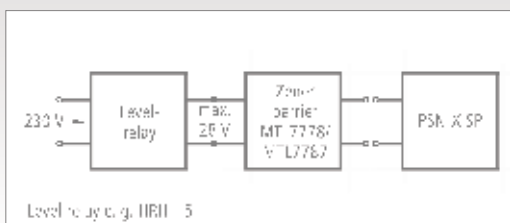


Weight BG-PS / IG-PS



Cable support K-PS

Atex-connecting of the PSN with the zener barrier MTL 7778 / MTL 7787



Technical Data MTL 7778 / MTL 7787	
Max. input voltage U	28 V AC (MTL7778) 28 V DC (MTL7787)
Contact resistance R	600 Ω (MTL7778) 300 Ω (MTL7787)
Operating current	47 mA (MTL7778) 93 mA (MTL7787)

A exceeding the input voltage at the zener barrier leads to the destruction

Suspended float switch - „T“ series

...the patented level controller



NEW!

Suspended float switch „WASTE“ - for use in waste water systems.

The hanging float switch of series „T“ are ideal for level control in drainage systems , pumping stations and wastewater systems.

Used in domestic, industrial or municipal sector, for wastewater, drinking water, chemical substances and environment for use in explosive areas (ATEX)* - (type variety - More on request).

The float switch is hanging freely regulated to the desired level.

By increase or decrease in the liquid level , the situation of the float switch changed, whereby the micro switch opens the circuit or closes (Principle of operation).

Selection (others on request)



„T“ Series / Type: „ACS“
Application: Drinkable



„SiHF“
High Temperature



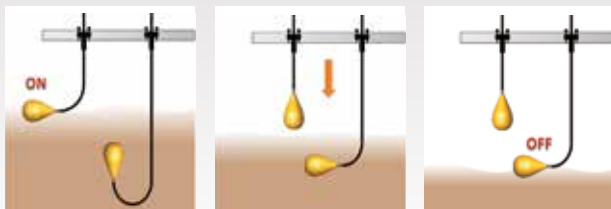
„FEP“
Chemical Ambient



Atex-Schutz
II 1G Ex ia IIC T6
Explosive *



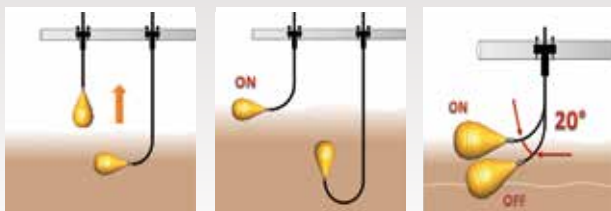
Principle of operation



The high level starts the pump...

...the tank drains...

...the low level stops the pump..



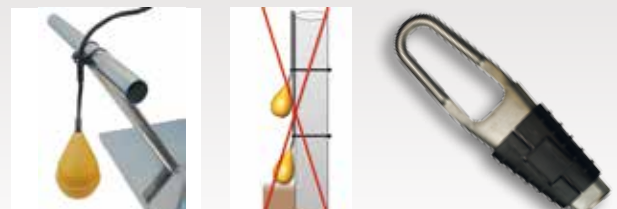
...the tank fills...

...and the high level starts the pump.

activation angle: 20°

Used in couple with another of the same type allows you to adjust the levels of minimum and maximum. It's also possible to use a third and fourth regulator respectively for minimum and maximum alarm.

Fixing



CORRECT - hanging freely!

WRONG

Fixing kit - Straining clamp, Art. 282396

Advantages

- Used in couple with another of the same type allows you to adjust the levels of minimum and maximum. It's also possible to use a third and fourth regulator respectively for minimum and maximum alarm.
- Three watertight chambers level regulator with freely suspended trim variation.
- Unlike traditional floats that float on the water surface, the float switch of „T“ series thanks to its special construction with integrated counterweight, remains underwater.
- Float switch of „T“ series produced without chemicals, mercury free, 100% recyclable - patented.

* The rules of the DIN EN 60079 to be observed!

Suspended float switch - „T” series

- Technical Details -

Adjustable control parameters:



The third watertight chamber and the weight of the metallic grit guaranteed the typical overturning functioning.

Technical Details:

Type	„WASTE”	„ACS”	„SiHF”	„FEP”	„ATEX”
Artikelnummer	286431	286448	286455	286462	285618
Application areas	Dirty water systems, drainage plants, pumping stations...	Water main, drinkable water fountains, drinks and foodstuffs, aquarium, fishponds, swimming pool...	Resistant to heat and severe temperature changes. Can be used primarily in steel producing industry, aviation industry, ship building, cement, glass factories, ceramic factories...	Suitable for immersion in: hydrocarbons, medical and scientific plants, purification plants, air conditioning equipment..	For use in explosive environments*. Suitable for level regulation in drainage plants, pumping stations and dirty water systems...
Cable**	H07 RN-F 3x1 - Ø 8,8mm (2 functions); H05 RN-F 3X1 - Ø 7,4mm (2 functions); H07 RN8-F 3G1 - Ø 8,8mm (1 function) H07 RN-F 3G1 oil resistant - Ø 8,8mm (1 function) ; 10 - 20 m	ACS + AD8 3X1 - Ø 8,8mm (2 functions) (10 m - 20 m) - (32,8 ft - 65,6 ft)	SiHF 4G1,5 - Ø 8,8mm (2 functions) (10 m - 20 m) - (32,8 ft - 65,6 ft)	FEP - FFR105OPR5F 4G0.75 - Ø 8,8mm (2 functions) (10 m - 20 m) - (32,8 ft - 65,6 ft)	H05RN-F 4G0,75 (RN8-F mix) Ø 8,8mm (2 functions) (10 m - 20 m) - (32,8 ft - 65,6 ft)
Grommet	EPDM Santoprene	Megol	Viton	Viton	EPDM
Casing	Polypropylene	Polypropylene	Polypropylene	Polypropylene	Composite Mat. - Carbon Black
Power Supply	20(8)A 250 V	20(8)A 250 V	20(8)A 250 V	20(8)A 250 V	max. 4-40 Vac /max 100 mA
Activation Angle	20°	20°	20°	20°	20°
Depth	20 m - 65,6 ft	20 m - 65,6 ft	20 m - 65,6 ft	20 m - 65,6 ft	20 m - 65,6 ft
Temperature	min. -15°C - max. +60°C	min. -15°C - max. +40°C	max. +80°C	max. +80°C	min. -20°C - max. +80°C
Protection Grade	IP 68	IP 68	IP 68	IP 68	IP 68
Class	I - II	II	I	I	I
Specific Gravity	0,95 - 1,05 kg/dm ³	0,95 - 1,05 kg/dm ³	0,95 - 1,05 kg/dm ³	0,95 - 1,05 kg/dm ³	0,95 - 1,05 kg/dm ³
Certificates / Approvals	Straining clamp (stainless steel) , part no. 282396				
Fixing kit (optional)	CE	CE	CE	CE	CE II 1GEx ia IIC T6 2010ATEX 2328 (TecnoPlastic)*

**Other cable materials are available on request

***Technical changes and mistakes reserve.

Electronic pump control ENP



Electronic single/dual pump control with monitoring features

Electronic pump control for filling and emptying a tank with integrated relative pressure transducer for panel board mounting, connection for pneumatic tube, four adjustable switching points, three relay outputs, staging and sequencing control, isolating transformer acc. to VDE 0550.

Function: The device analyses the pressure applied to the sensor.

Two pumps for emptying a tank are connected to terminals 11/14 and 21/24 on alarm can be connected to terminals 31/34.

All levels are adjustable.

The LED's illuminate when the pumps or the alarm are switched on. The relays are activated. The tripping delay for the alarm is fixed, preset value

Order reference	Type Code	Measuring range (m)	Max. inaccuracy at 25°C	Resolution	Operating voltage U_B (V-AC)	max. perm. level	Weight (in g)	Part No.
ENP 2.3 oN		0,1–2 m	2,5 %	0,01 m	230	10 m	295	260486
ENP 2.3		0,1–2 m	2,5 %	0,01 m	230	10 m	295	260493
ENP 4.3		0,1–4 m	2,5 %	0,01 m	230	10 m	295	260509
ENP 10.3		0,1 – 10 m	2,5 %	0,10 m	230	20 m	295	260516

* oN = without Follow-up time *¹ Other voltages are also available upon request. *² 0 V = 0,1m / 10 V = measuring range end value

*³ Accessories see page 115

Technical operating data	
Permissible operating voltage range	±10 %
Operating voltage influence at ± 10% operating voltage fluctuation	< 0,1 %
Duty factor ED	100 %
Permissible ambient and media temperature	-20°C up to +60°C
Permissible ambient humidity rel. humidity, non-condensing	10 % up to 90 %
Permissible storage temperature	-40°C up to 80°C
Clearance and creepage distances	VDE 0110
Working position	any position
Power consumption	max. 1,5 VA

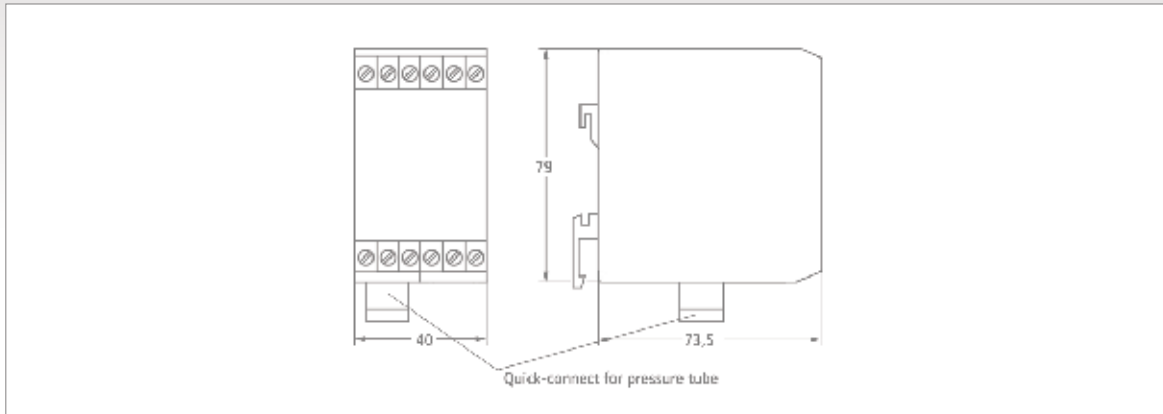
Pressure connection	
Quick connect suitable pneumatic tube e.g.	6 x 1 mm Festo PAN

Analogue output	
Analogue voltage signal max. 5 mA short-circuit proof	0 - 10 V

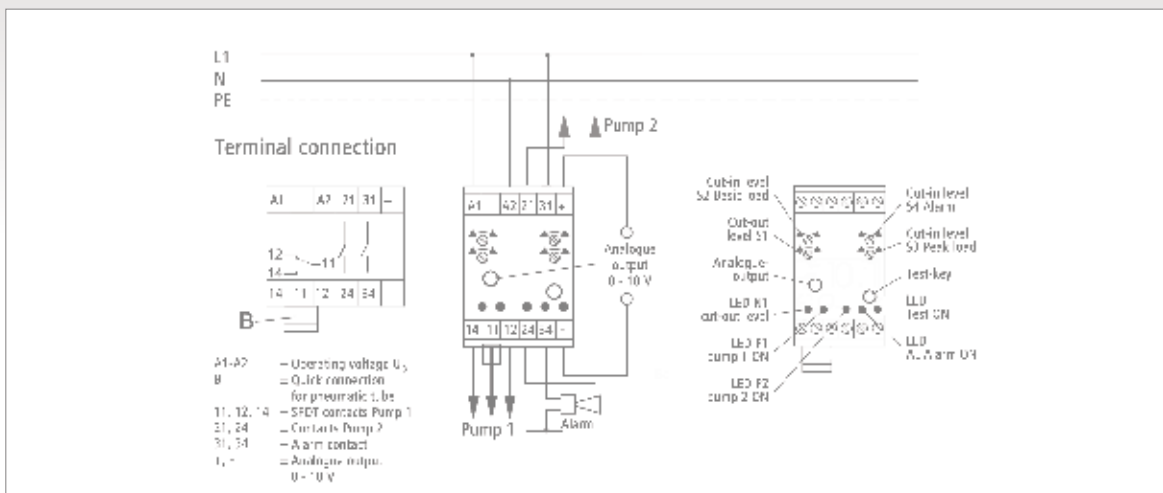
Enclosure	
Material	ABS flameproof, UL-approved
Mounting	snap on 35 mm DIN-rail connector acc. to EN 50 035
Enclosure protection	IP 40
Protection against shock	acc. VBG 4
Terminals	Cage clamps
Cross section	2,5 mm ²
Weight	295 g
Male jack plug Jack 2.5 mm	2,5 mm

Power section	
Series voltage acc. to VDE 0660 and VDE 0110 Group C	250 V-AC
Maximum continuous current per contact	6 A-AC
Maximum switching capacity per contact	1.500 VA (AC) 50 W (DC)
Mechanical life Schaltspiele	approx. 1 x 10 ⁷
Electrical life (max. load) Cycles	approx. 1 x 10 ⁵

Dimensions ENP

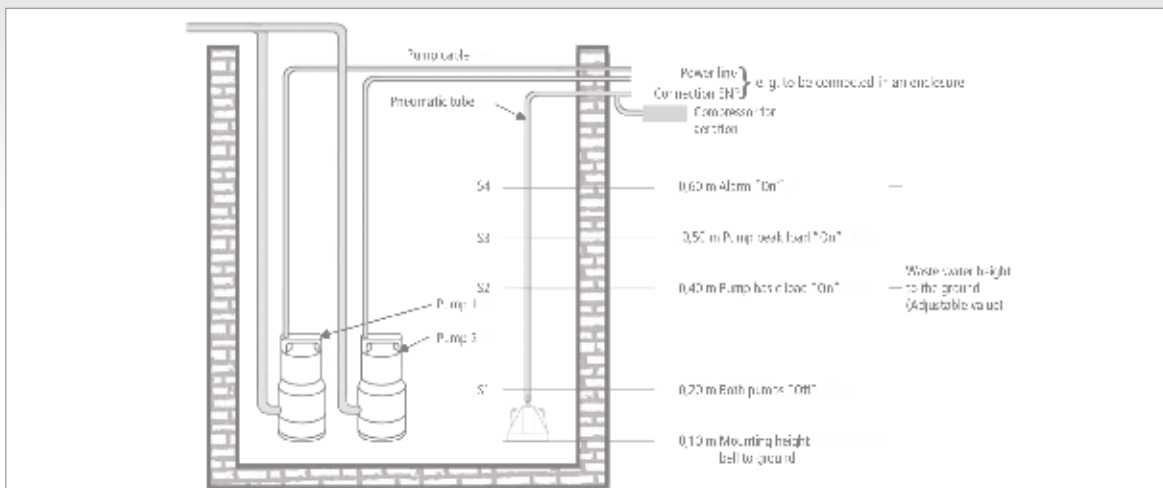


Wiring Diagram ENP



ENP as single or dual-pump control

Wiring diagrams ENP



Electronic level relay ENR



- Electronic level relay for all ranges from 0.1 – 2 m
- For panel board mounting
- Measurement according to impact pressure method
- Relay output
- Output signal: 0 – 10 V

Electronic level relay with integrated relative pressure transformer for panel board mounting, quick-connect for pneumatic tube, two adjustable thresholds, relay output and isolating transformer according to VDE 0550.

Function: The device evaluates the pressure applied to the sensor. Should a pump for emptying a tank be connected to terminals 11 and 12, then the pump is switched on when the upper threshold is exceeded. The pump is switched off when falling below the lower threshold. Both thresholds are adjustable. The LED illuminates when the pump is running, whereby the relay is deactivated.

Order reference	Type Code	Measuring range (m)	Max. inaccuracy at 25°C	Resolution	Operating voltage U_B (V-AC)	max. perm. level	Weight (in g)	Part No.
ENR 2		0,1–2 m	2,5 %	0,01 m	230	10 m	100	260523

Accessories see page 115

0 V = 0,1m / 10 V = measuring range end value

Technical operating data	
Permissible operating voltage range	±10 %
Operating voltage influence at ± 10% operating voltage fluctuation	< 0,1 %
Duty factor ED	100 %
Permissible ambient and media temperature	-20°C up to +60°C
Permissible ambient humidity rel. humidity, non-condensing	10 % up to 90 %
Permissible storage temperature	-40°C up to 80°C
Clearance and creepage distances	VDE 0110
Working position	any position
Power consumption	max. 1 VA

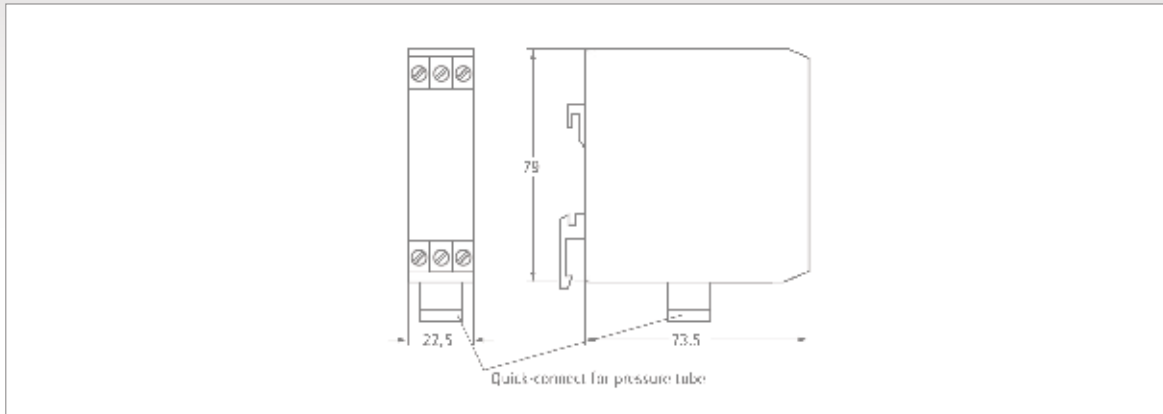
Pressure connection	
Quick connect suitable pneumatic tube e.g.	6 x 1 mm Festo PAN

Analogue output	
Analogue voltage signal max. 5 mA short-circuit proof	0 - 10 V

Enclosure	
Material	ABS flameproof, UL-approved
Mounting	snap on 35 mm DIN-rail connector acc. to EN 50 035
Enclosure protection	IP 40
Protection against shock	acc. VBG 4
Terminals	Cage clamps
Cross section	2,5 mm ²
Weight	100 g
Male jack plug Jack 2.5 mm	2,5 mm

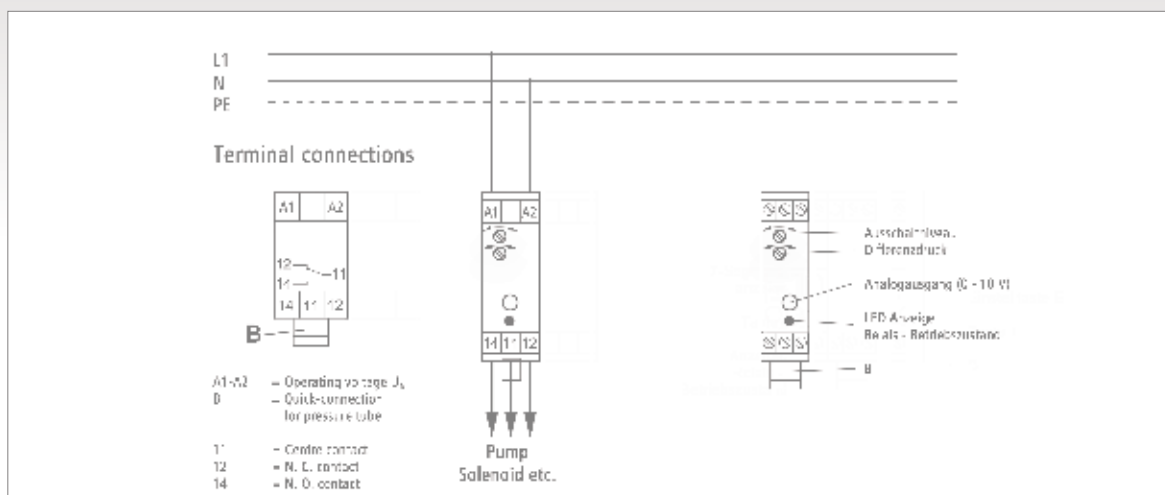
Power section	
Series voltage acc. to VDE 0660 and VDE 0110 Group C	250 V-AC
Maximum continuous current per contact	6 A-AC
Maximum switching capacity per contact	1.500 VA (AC) 50 W (DC)
Mechanical life Schaltspiele	approx. 1×10^7
Electrical life (max. load) Cycles	approx. 1×10^5

Dimensions ENR



Dimensions in mmr

Wiring Diagram ENR



Electronic measurement method - Electronic level relay HRH-5

Electronic level relay HRH-5



Level relay for level monitoring, using 2 or 3 electrodes
1 SPDT

Standard relay for level monitoring with 1 and 2 threshold values, infinitely variable limit values, 1 SPDT and isolating transformer according to VDE 0550.

Function: The electrodes are connected to the relay. Should the tank be made of a conductive material, it can be used as a third electrode (For connection see wiring diagram).

AC current is used in order to avoid polarisation, electrolysis and undesired oxidation of the electrodes.

To minimize false relay switching (e.g. pollution of the probes, humidity ...), the switching sensitivity can be adjusted to the conductivity of the respective media.

Ordering reference	Type Code	adjustable hysteresis (kΩ)	Time reaction	Adjustable delay time	Operating voltage (V-AC / DC)	Weight (in g)	Part No.
ENR 2 HRH-5		5 - 100 kΩ	< 400 ms	0,5 - 10 s	24...240 V-AC / DC	92	250203

Accessories, electrodes for HRH-5



Ordering reference	Description	Applica-tion	Part No.
TEL-00	Single electrode with screw version		236467
TEL-05	Single electrode, 5m cabel H07 RN-F 1x1,5 mm ²		260684
TEL-10	Single electrode, 10 m cabel H07 RN-F 1x1,5 mm ²		260691
TEL-20	Single electrode, 20 m cabel H07 RN-F 1x1,5 mm ²		260707
TEL-TW-05	Single electrode, 5 m cabel TML-B 1x1,5 mm ² Waquasan Reg. Nr. 11156/09564	Suitable for use with potable water. Temperature range 0 ... 90°C	260714
TEL-TW-10	Single electrode, 10 m cabel TML-B 1x1,5 mm ² Waquasan Reg. Nr. 11156/09564		260721
TEL-TW-20	Single electrode, 20 m cabel TML-B 1x1,5 mm ² Waquasan Reg. Nr. 11156/09564		260738

Level control technology

Dipped elektrodes TEL	
Electrode and screw	stainless steel (1.4301 or higher)
plastic coat	polyethylene
seal	brass
Cable optional	1-conductor cable, for example Rubber Cable H07 RN-F

Dipped elektrodes TEL-TW (suitable for drinking water)		
Electrode and screw	stainless steel 1.4305	
plastic coat	ISO-LEN® 1000	Food law-tion statement from the manufacturer
seal	NBR	KTW and DVGW W 270
Cable optional	FACAB DRINCABLE + 07 KTW-W270-acs 1x1,5 mm ² ARISTONCAVI 2010	KTW and DVGW W 270

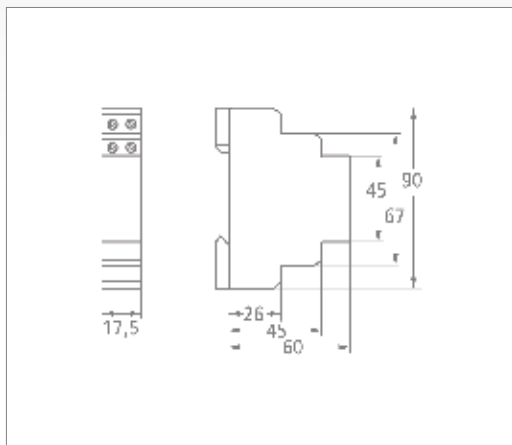
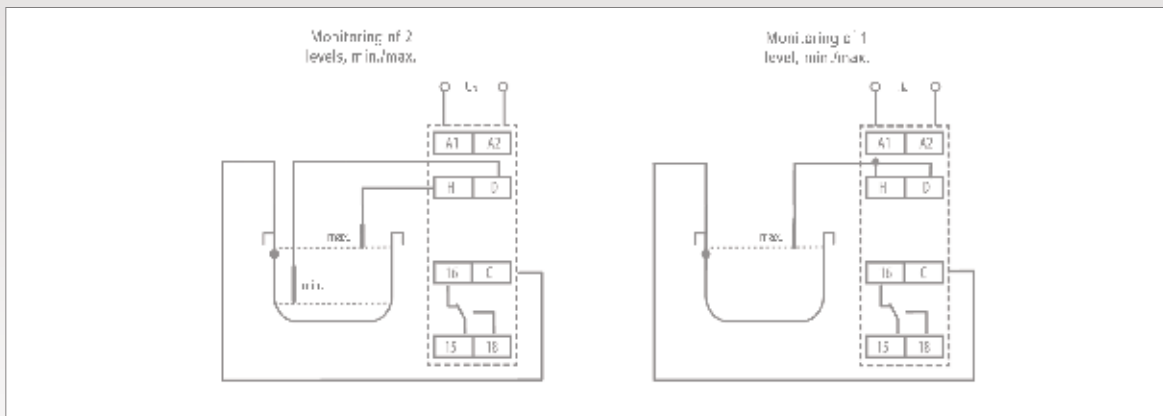
Enclosure	
Material	ABS flameproof, UL-approved
Mounting	snap on 35 mm DIN-rail connector acc. to EN 50 035
Degree of Protection	IP 40
Shock protection	acc. to VBG 4
Connection Box	Box-type terminals
Max. cross-section with cable end sleeves	max, 1 x 4, 2 x 2,5 mm ² max, 1 x 2,5, 2 x 1,5 mm ²

Output contacts	
Series voltage acc. to VDE 0660 and VDE 0110 Group C	24...240 V-AC/DC
Maximum continuous current per contact	8 A AC1
max. switching capacity (240V AC1/ 24 V DC)	2.500 VA, 240 W
min. switching capacity (24 V DC)	500 mW
Mechanical life Cycles	approx. 1 x 10 ⁷
Electrical life (max load) Cycles	approx. 1 x 10 ⁵
Weight	72 g

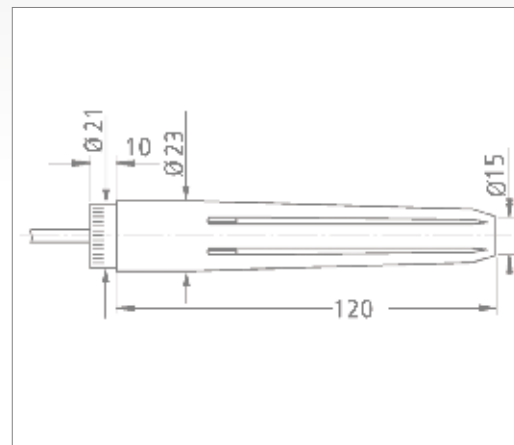
Technical operating data	
Permissible operating voltage range	-15 % +10 %
Operating voltage influence at ± 10% operating voltage fluctuation	< 0,1 %
Duty factor ED	100 %
Permissible ambient temperature	-20°C bis 55°C

Technical operating data	
Permissible storing temperature	- 30°C bis 70°C
Clearance and creepage distances	VDE 0110
Working position	any position
Power consumption	max. 2,0 VA

Wiring Diagram HRH-5 (Sample with a conducting tank)



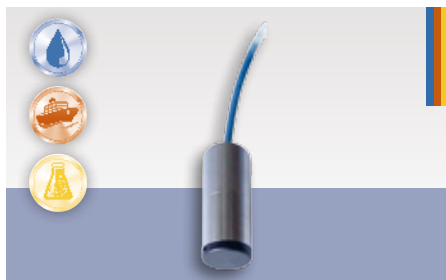
Electronic level relay HRH-5



Electrode TEL-05-..

Hydrostatic measurement method - Stainless steel level sensor ENS

Stainless steel level sensor ENS



With ceramic measuring cell, shielded cable and a specially designed stainless steel enclosure, Condor offers a precision level sensor for all different types of applications, like e.g. wastewater. The sensor offers extremely high media resistance and the especially large membrane makes the sensor insensitive to pollution.

The ENS level sensor is also available with ATEX (explosive atmosphere) approval.

The shielded cable protects the output signal (4 – 20 mA) against electromechanical influences.

Order reference	Type Code	Measuring range	Cable length	EX Approval	Weight (in g)	Part No.
ENS 1/10		bis 1,0 m	10 m		1000	245414
ENS 4/10		bis 4,0 m	10 m		1000	290193
ENS 10/15		bis 10,0 m	15 m		1250	290049
ENS 1/10 EX		bis 1,0 m	10 m	X	1000	245421
ENS 1/15 EX		bis 1,0 m	15 m	X	1250	245438
ENS 1/20 EX		bis 1,0 m	20 m	X	1500	290025
ENS 1/25 EX		bis 1,0 m	25 m	X	1750	245445
ENS 1/30 EX		bis 1,0 m	30 m	X	2000	245452
ENS 4/10 EX		bis 4,0 m	10 m	X	1000	242673
ENS 4/15 EX		bis 4,0 m	15 m	X	1250	242680
ENS 4/20 EX		bis 4,0 m	20 m	X	1500	290209
ENS 4/25 EX		bis 4,0 m	25 m	X	1750	290216
ENS 4/30 EX		bis 4,0 m	30 m	X	2000	290230
ENS 4/40 EX		bis 4,0 m	40 m	X	2500	290247
ENS 10/10 EX		bis 10,0 m	10 m	X	1000	242703
ENS 10/15 EX		bis 10,0 m	15 m	X	1250	242697

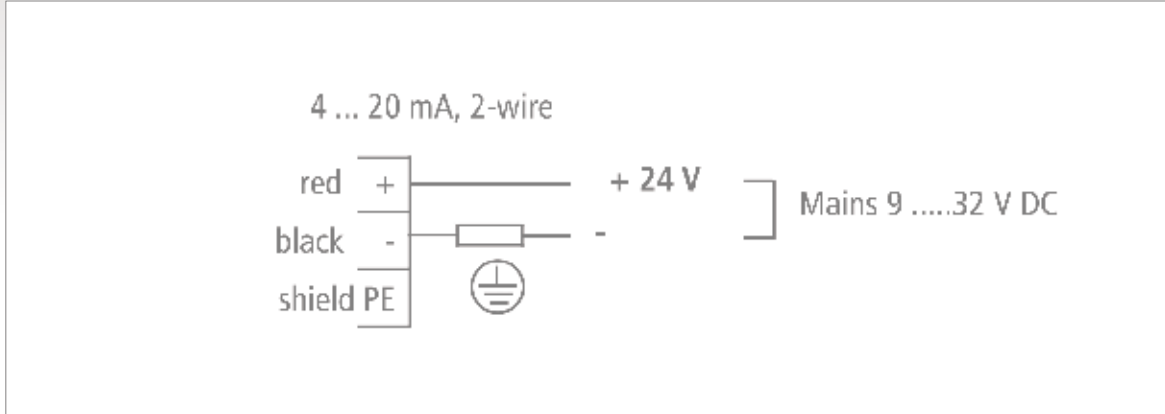
Accessories ENS

Description	Weight (in g)	Part No.
Galvanized fixing clamp for level sensor	165	290223
Stainless steel fixing clamp for level sensor	170	282396
Protective cap for level sensor as replacement	12	282372
Terminal box ENS - to extend the connection line of electronic immersion sensors -	30 g	282389

Technical operating data	
Measuring range	0 – 25 mbar (0 - 0,254 mWs) up to 0 – 60 bar (0 - 612 mWs)
Output signal	4 – 20 mA, 2-wire
Accuracy	< 0,2 % v. M.E.
Adjustment time	200 ms (other values on demand)
Auxiliary voltage	9...32 V DC, max. 30 mA (12...30 V for EX-type)
Temperature range	-25...80 °C (-25...70 °C for EX-type)

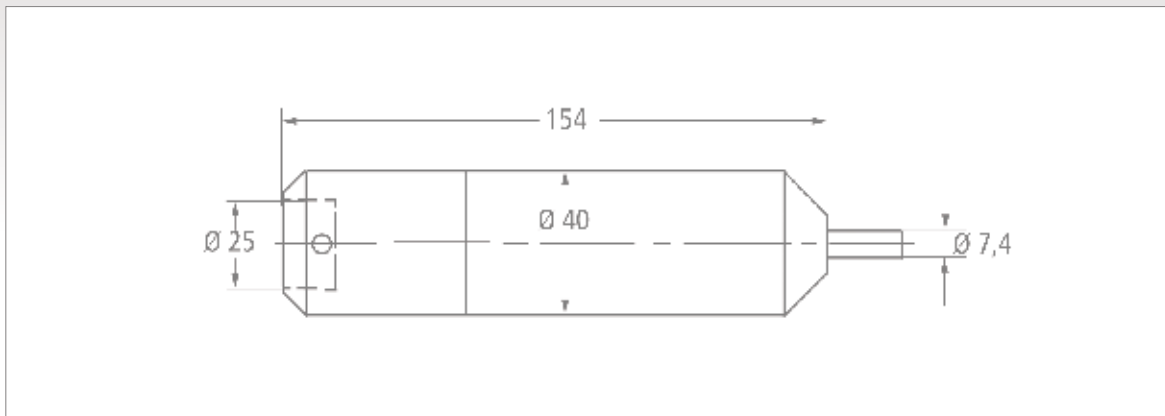
Technical operating data	
Temperature influence	< 0,015 %/K of measuring range
Housing	Stainless steel, 1.4571
Degree of Protection	IP 68
Electrical connection	Kevlar braided PE cable, wire cross-section 0,34 mm ² , with pressure compensation
EX-protection	EEx ia IIC T6

Wiring diagram ENS



Level Sensor ENS

Dimensions ENS



Level Sensor ENS

Application example:



Level sensor ENS
Monitors e.g. Wastewater/Water level in a pump shaft

Bells and Accessories for Level Monitoring



Bell OGL



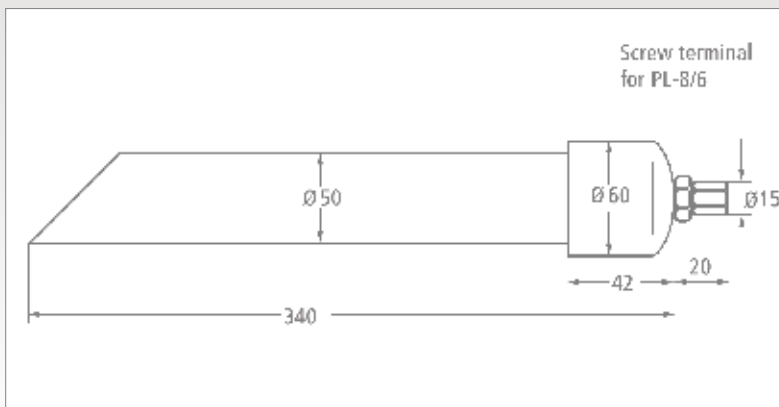
Bell OGL-GU



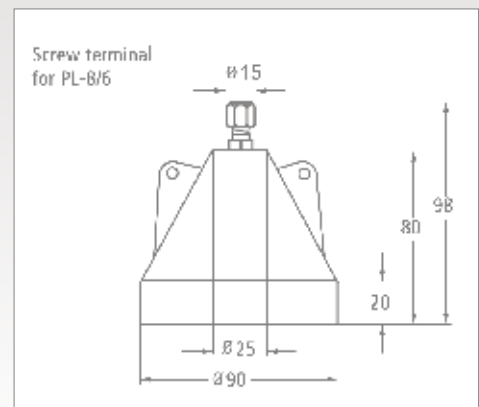
Small air compressor in plastic casing

Order reference	Description	Weight (in g)	Part No.
	Wet bells		
OGL-8	Open wet bell with screw connection for PL-8/6	250	260530
OGL Installation kit	Installation kit for OGL-8, stainless steel, screw tube clamp and Stockschraube	150	282198
OGL-8 GU	Open wet bell (gray cast iron with stainless steel chain) with screw connection for PL-8/6, chain length 2,9 m	1100	290117
	Pneumatic tube (PL) PL-8/6 – 8 mm outer-ø, 6 mm inner-ø PL-6/4 – 6 mm outer-ø, 4 mm inner-ø		
PL-8/6, 10 m	10m rope PL-8/6	225	260554
PL-8/6, 20 m	20m rope PL-8/6	450	260561
PL-8/6, 1 m	Length > 20 m, each m (max. length per rope 100 m)	23	260578
PL-6/4, 1 m	Pneumatic tube PL-6 (price / m)	20	260585
	Screw connections		
Screw connection 1/8"	Screw connection 1/8" for OGL-8 GU / GGL-8	20	260592
R-SCH	Reducing screw connector for PL from PL-8/6 to PL-6/4	22	260615
T-ST 6	T-plug connector für PL-6/4 for aeration	11	260622
T-SCH 8	T-screw connector for PL-8/6 for aeration	14	260639
	Small compressors		
Rena-Air 100	for aeration, incl. check and security valve with T-screw connector for PL-8/6 (120 L/h; 150 mb; 3W; 230 V AC IP X4), e.g. usable with open wet bells	315	260646
Rena-Air 100 in casing	for aeration, incl. check and security valve with T-screw connector for PL-8/6 (120 L/h; 150 mb; 3W; 230 V AC IP X4), e.g. usable with open wet bells	720	260653

Bell Dimensions



Bell OGL



Bell OGL – GU



CSDU-M



CSDU-M



Manual motor starters - See our main catalogue!

Motor Technology

Industries



CSDU

Star/Delta Connection

P. 60, 61

Motor Technology,
for the protective start of the motor

CSDU-M

Star/Delta Connection with pressure switch
MDR 3 - CSDU-M

P. 62

Motor Technology,
for the protective start of the motor

The pressure switch MDR 3 included in the scope of supply replaces a contactor and can be delivered in different options.

Registered at the German Patent and Trade-mark Office as utility model.

LANGJÄHRIGE ERFAHRUNGEN..

...IN DEN VERSCHIEDENSTEN BRANCHEN

CSDU-M Condor Star/Delta Connection With Pressure Switch MDR 3

KOMPRESSOR

Star/delta connection for the protective start of the motor



Fig. CSDU 7,5 complete

The Condor Pressure Control GmbH CSDU Star/delta connection offers, in due consideration of the relevant standards, the possibility of economically operating motors with a switching capacity greater than 4 kW using public mains networks.

With this 2-stage starter the inrush current (star circuit) is reduced by 1/3 of the height to be expected when starting the motor directly. The torque is equally reduced during start-up phase.

During the start-up phase (1 – 32 seconds), a special change-over relay with a contact switching time of 50 ms, guarantees reliable change over from star to delta operation.

During continuous operation, all motors connected to the Star/delta connection are protected by a manual motor starter with thermal and magnetic trip.

Standard executions contain a manual motor starter and an on / off switch for the control circuit. Complete star/delta connections additionally have a main circuit-breaker with enclosure locking, an emergency button, an hour meter and an operating LED.

Star/delta connections as standard-version with an additional transformer are used, if there is no neutral leader connected.

Type overview CSDU

Order reference	Description	Weight (in g)	Part No.
	Complete version		
CSDU 5,5 complete	5,5 kW, Ue: 400V AC / 50 Hz, Supply line: 3L/N/PE Manual motor starter: 9 - 13 A (Rated current) Enclosure 200 x 400 x 140 mm (width x height x depth)	4100	256601
CSDU 7,5 complete	7,5 kW, Ue: 400V AC / 50 Hz, Supply line: 3L/N/PE Manual motor starter 14 - 20 A (Rated current) Enclosure 200 x 400 x 140 mm (width x height x depth)	4250	256618
CSDU 11,0 complete	11 kW, Ue: 400V AC / 50 Hz, Supply line: 3L/N/PE Manual motor starter 19 - 25 A (Rated current) Enclosure 200 x 400 x 140 mm (width x height x depth)	4400	256625
CSDU 15,0 complete	15 kW, Ue: 400V AC / 50 Hz, Supply line: 3L/N/PE Manual motor starter 28 - 40 A (Rated current) Enclosure 300 x 400 x 140 mm (width x height x depth)	4550	256632
	Standard version		
CSDU 5,5 standard	5,5 kW, Ue: 400V AC / 50 Hz, Supply line: 3L/N/PE Manual motor starter 9 - 13 A (Rated current) Enclosure 200 x 400 x 140 mm (width x height x depth)	3500	256656
CSDU 7,5 standard	7,5 kW, Ue: 400V AC / 50 Hz, Supply line: 3L/N/PE Manual motor starter 14 - 20 A (Rated current) Enclosure 200 x 400 x 140 mm (width x height x depth)	3650	256663
CSDU 11,0 standard	11 kW, Ue: 400V AC / 50 Hz, Supply line: 3L/N/PE Manual motor starter 19 - 25 A (Rated current) Enclosure 200 x 400 x 140 mm (width x height x depth)	3800	256670
CSDU 15,0 standard	15 kW, Ue: 400V AC / 50 Hz, Supply line: 3L/N/PE Manual motor starter 28 - 40 A (Rated current) Enclosure 300 x 400 x 140 mm (width x height x depth)	3950	256687
	Standard version with transformer (trafo)		
CSDU 5,5 trafo	5,5 kW, Ue: 400V AC / 50 Hz, Supply line: 3L/N/PE Manual motor starter 9 - 13 A (Rated current) Enclosure 200 x 400 x 140 mm (width x height x depth)	4300	256717
CSDU 7,5 trafo	7,5 kW, Ue: 400V AC / 50 Hz, Supply line: 3L/N/PE Manual motor starter 14 - 20 A (Rated current) Enclosure 200 x 400 x 140 mm (width x height x depth)	4450	256724
CDU 11,0 trafo	11 kW, Ue: 400V AC / 50 Hz, Supply line: 3L/N/PE Manual motor starter 19 - 25 A (Rated current) Enclosure 200 x 400 x 140 mm (width x height x depth)	4600	256731
CSDU 15,0 trafo	15 kW, Ue: 400V AC / 50 Hz, Supply line: 3L/N/PE Manual motor starter 28 - 40 A (Rated current) Enclosure 300 x 400 x 140 mm (width x height x depth)	4750	256748

Other manual motor starters on request.

Star/delta connection with pressure switch MDR 3



Fig. CSDU-M

For the star/delta connection special switches or contactor combinations are used. The pressure switch MDR 3 that has to be installed separately to the compressor of the new Condor Pressure Control star/delta CSDU-M serves as a so-called main contactor for this type of control. Thereby the contactor is not necessary anymore. The applied pressure switch MDR 3 can be used in different pressure ranges and has a wide variety of optional accessories (e.g.

The Star-delta connection is used in order to reduce high currents when starting electric motors. With this 2-stage starter the inrush current (star circuit) is reduced by 1/3 of the height to be expected when starting the motor directly.

The Condor Pressure Control CSDU offers the possibility to operate a motor until 7.5 kW using public supply networks. This control can be connected to a power supply without neutral leader!

The pressure switch MDR 3 included in the scope of supply replaces a contactor and can be delivered in different options.

The Condor Pressure Control star/delta with pressure with MDR 3 is registered at the German Patent and Trademark Office as utility model number 20 2015 104 249 .

unloader valves, on-/off switch, phase sequence monitoring and phase drop monitoring, hourmeter kit, etc.).

Both of the star/delta contactors as well as the star/delta change-over relays and the motor connecting clamps are built in a compact housing of the CSDU-M.

Standard Version and Options

- stable and **compact housing** (w 200 x h 240 x d 140 mm)
- completely pre-wired and **ready for connection**
- equipped with Condor pressure switch MDR 3, in function as main contactor (available in different variations - see main catalogue)
- **unloader valves**
- **ON-OFF-switch**
- **hour meter** (optional)
- **overload relay** (optional)
- **shunt release or undervoltage release** (optional)
- **phase sequence monitoring** and **phase drop monitoring** (optional)
- Other options available on request

Order reference	Description	Weight (in g)	Part No..
CSDU 7,5 - MDR 3	Condor Star/delta connection with pressure switch MDR 3	4000	286097

Technical Data CSDU 7,5 - MDR 3 to DIN EN 60947	
Operating volatage / supply line	400VAC 50 Hz; 3L/PE
Control voltage	400 VAC 50 Hz
Motor rating P1	7500W
Rated operational current I _e max at 400 V AC 3	16A
Protection on site	20 A (träge)
Time range - transfer relay	0,5 - 32 sek.
Time star > delta	40ms

Technical Data CSDU-MDR 3 to DIN EN 60947	
Degree of protection	IP 54
Protection class	I
Temperature range (storage)	-20 °C to +70 °C
Operating temperature	0 °C...+50 °C
Permissible ambient humidity rel. humidity, non-condensing	10 % up to 90 %
Housing	ABS-plastic housing
Dimension (housing), cable glands	B200 x H240 x T140 mm

CONDOR PRODUCTS

INNOVATIVE & RELIABLE TECHNOLOGIES



Production - control boards



VARIOTEST



ROTATEST



CSG420

Test devices

- VARIOTEST** The Condor-VARIOTEST is a universal test instrument featuring acoustic signals for:
- ROTATEST** The Condor-ROTATEST is a Phase-sequence indicator with optical display
- CSG420** The Condor-CSG420 is an adjustable sensor simulator 4-20 mA

P. 65

P. 66

P. 68

Industries

Testing technology

Testing technology

Testing technology



Multifunctions timer relay FMF



Multifunction timer relais IMF

Multifunction timer relay

- FMF** Multifunction timer relay in compact industrial standard casing
8 switchable time ranges
universal current
- IMF** Multifunction timer relay featuring installation type dimensions
4 switchable time ranges
universal current

P. 69 -71

P. 72 - 74

Industries

Controls

Controls

VARIOTEST



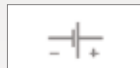
The Condor-Variotest is a universal test instrument featuring acoustic signals for:



Continuity and/or resistance testing up to 20 kΩ



Direct and alternating voltage checking up to 500 V



Polarity test for D.C. from 6 V to 500 V



Phase checking (outer conductor) Mp conductor and protective conductor



Checking function of RCCB's with IΔN max. 30 mA



Semi-conductor testing

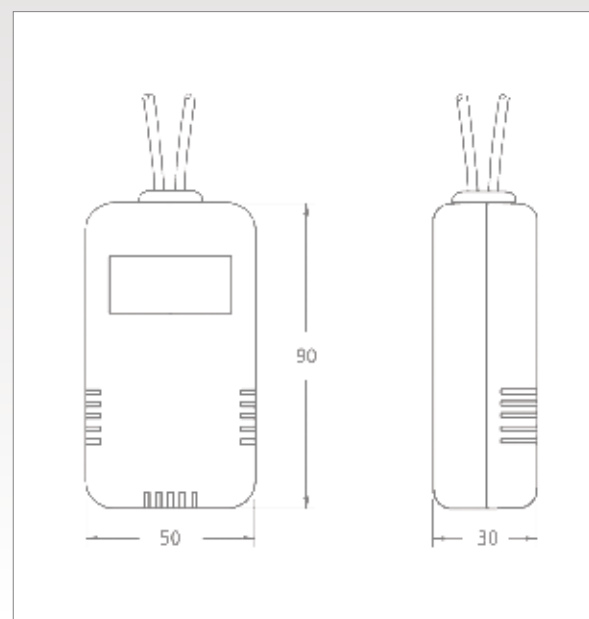
The Condor-VARIOTEST

- is protected against external voltages up to 500 V and limits the current input to max. 4 mA. Destruction as a result of incorrect handling is practically impossible.
- distinguishes between D.C. and A.C. voltages or a resistance value by sound pitch and frequency change respectively.
- is equipped with an ON-OFF switch.
- is supplied with the battery inserted and is ready for immediate use.
- Measuring probes and leads acc. to IEC 1010 Part 2-031.

Order reference	Packing (units)	Weight (in g)	Part No.
VARIOTEST	1	115	260301

Technical Data / Dimensions

Technical Data Variotest	
Test range	0 – 20 kΩ 0 – 500 V
Audio frequency	up to 20 kHz
Leads	80 cm
Measuring probes	crush proof
Protection	protective double insulation
Clearance and creepage distances	acc. to VDE 0110
Power supply	Battery 9 V Block
Included in the scope of supply	IEC 6F22



ROTATEST



The Condor-Rotatest indicates the phase sequence in a three-phase mains circuit and thus the direction of rotation for electromotive appliances.

The additional phase monitoring glow lamps also indicate whether all the outer conductors are live and ensure that the neutral and outer conductors have not been interchanged.

VDE 0100 stipulates:

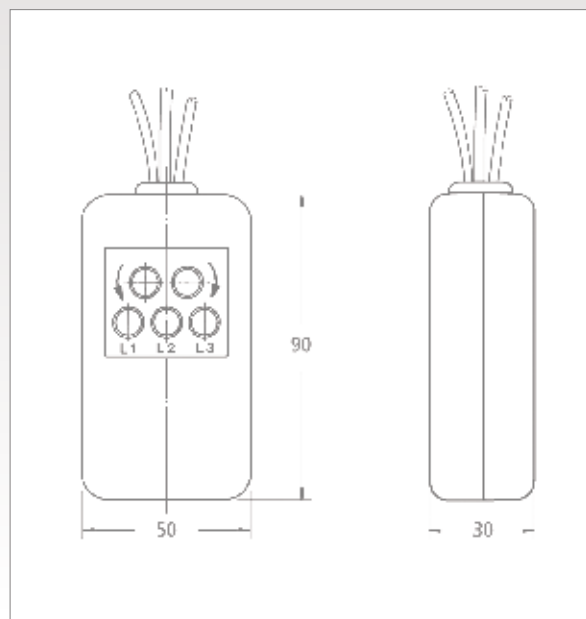
Three-phase sockets shall be connected in such a manner that a rotation field to the right is reached when looking at the front of the sockets clockwise.

Measuring probes and leads acc. to IEC 1010 Part 2-031.

Order reference	Packing (units)	Weight (in g)	Part No.
ROTATEST	1	195	260318

Technical Data / Dimensions

Technical Data Rotatest	
Voltage range	250 V up to max. 650 V
Current consumption at 380 V	5 mA
Duty factor ED at 380 V	100 %
Leads	80 cm
Measuring probes	crush proof
Clearance and creepage distances	acc. to VDE 0110





CSG420

The sensor simulator Condor-CSG420 is used to simulate a level sensor (4 – 20 mA) on an electronic control unit

Functions:

Adjustable DC current 4 – 20 mA
Measurement of the terminal voltage

Features

LCD – Display
Functions selector switch
Potentiometer for current adjustment

Applications

- Commissioning
- Repairs
- Trouble shooting

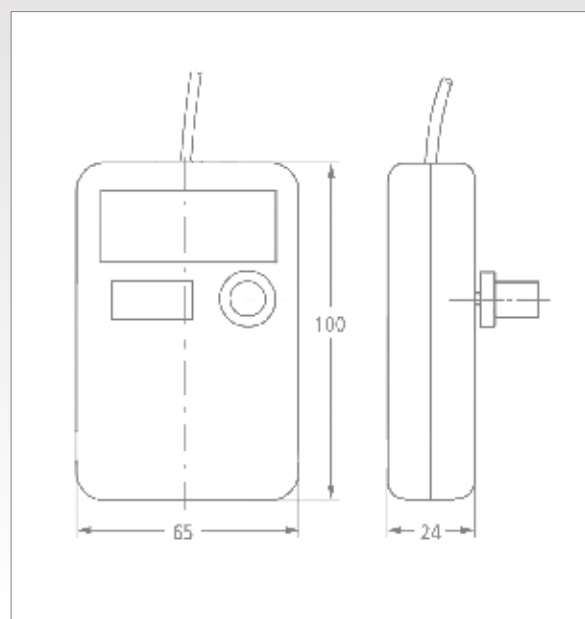
Operational after aiming of the supply-tension.



Order reference	Packing (units)	Weight (in g)	Part No.
CSG420	1	220	249634

Technical Data / Dimensions

Technical Data CSG420	
Adjustable current range	3,5 mA up to 25,5 mA
Terminal voltage measuring range	8,5V up to 32 V
Display accuracy	2 % v. E. ± 1 Digit
Leads	ca. 100 cm
Clearance and creepage distances	acc. to VDE 0110
Power supply Included in the scope of supply	Battery 9 V Block IEC 6F22



Multifunction timer relay FMF



- Multifunction relay in compact industrial standard casing
- 8 selectable time ranges
- Universal current
- 2 SPDT's
- Remote-control terminal
- Voltage activation

The multifunction timer relay FMF is specifically designed for rough industrial environments. All inputs and outputs are both interference free and non-destructive at voltage surges of up to 2 kV. Contact activation may be carried out not only by conventional means such as an isolated contact (between A1 and B1) but also by applying the operating voltage to B1. This helps to reduce wiring and contact requirements of the control and prevents destruction of the devices due to faulty wiring.

Adjustable functions:

- delay on make
- delay on break
- on-delay single shot
- flashing

Remote control:

A remote control can be realized with 2 wires connected to the terminals Z1 / Z2 and a 100 kΩ potentiometer, whereby the FMF potentiometer must be set to 0.

Order reference	Time	Operating voltage U_B (V-AC/DC)	SPDT's	Part No.
FMF	0,1 s – ca. 7 h	22,5 – 240	2	230403

Technical Data

Technical Data FMF	
Permissible operating voltage range	± 10%
Operating voltage influence at ± 10% operating voltage fluctuation	< 0,5 %
Duty factor ED	100%
Permissible ambient and media temperature	- 20°C up to +60°C
Permissible ambient humidity rel. humidity, non-condensing	10% up to 90%
Permissible storage temperature	- 40°C up to +80°C
Clearance and creepage distances	VDE 0110
Working position	any position
Power consumption	max. 2 VA

Output contacts FMF	
Series voltage acc. to VDE 0660 and VDE 0110 Group C	250 V-AC
Maximum continuous current 1-change-over, 2-change-over	6 A-AC
Maximum switching capacity per contact	1.500 VA (AC) 50 W (DC)
Mechanical life Cycles	approx. 1×10^7
Electrical life (max. load) Cycles	approx. 2×10^5
Resistance of remote-control Standard	100 kΩ

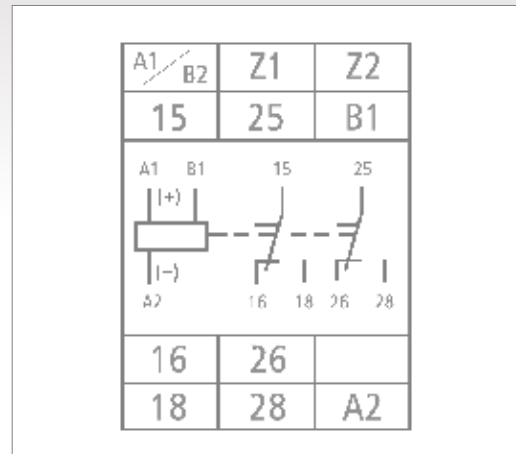
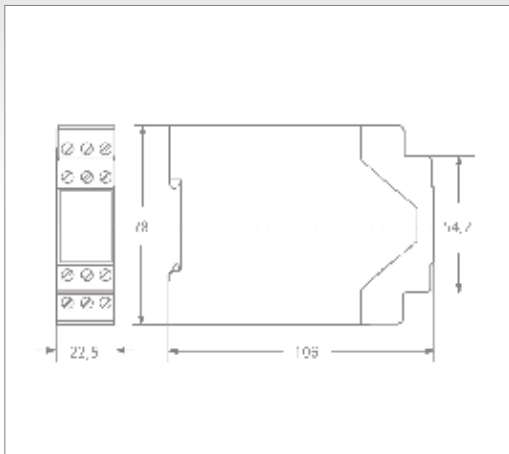
Multifunction timer relay FMF

Enclosure data	
Material	ABS flameproof, UL-approved
Mounting	snap on 35 mm DIN-rail connector acc. to EN 50 035
Enclosure-protection	IP 40
Protection against shock	acc. VBG 4
Terminals	Screw terminals with self-lifting clamps
Cross-section	2 x 1,5 mm ²
Weight	200 g

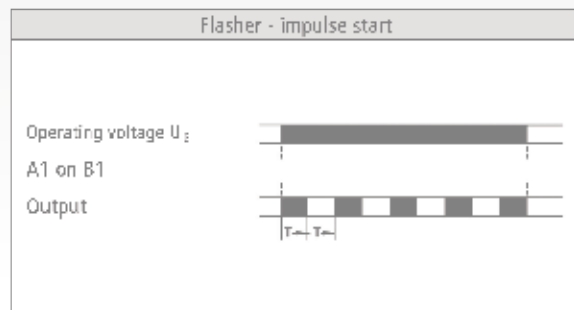
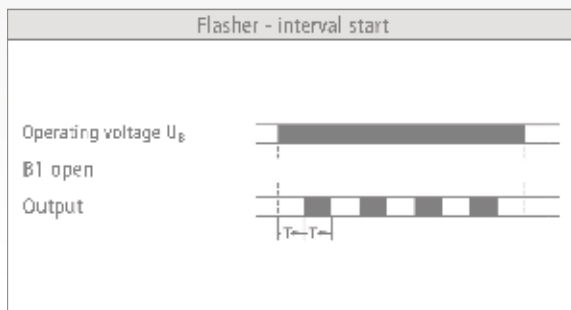
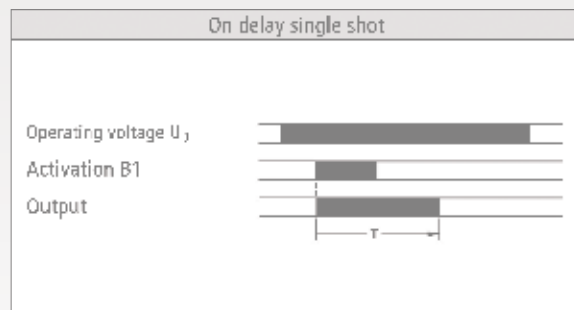
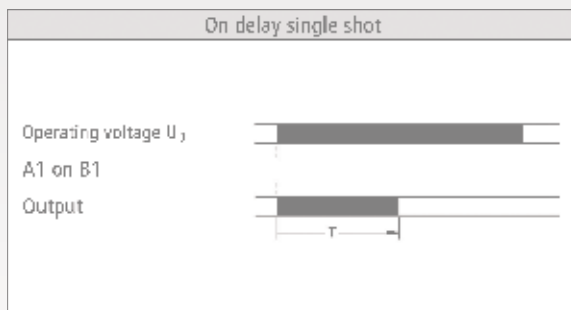
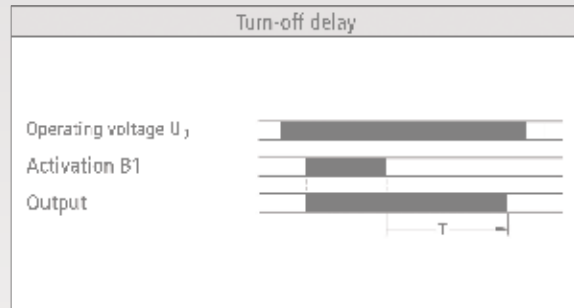
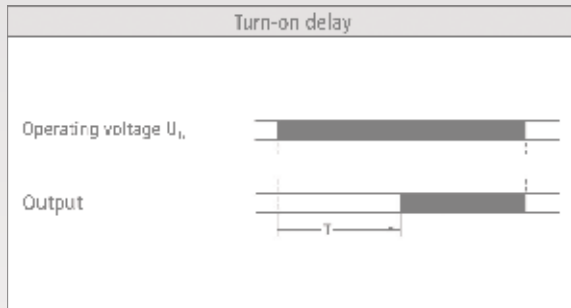
General data	
Tolerance range	± 10%
Repeatability	± 0,5 %
Temperature range	approx. 0,2 % / °C
Recovery time	< 100 ms

Time ranges	
Initial value	End value
0,05 s	1 s
0,2 s	4 s
1,6 s	32 s
12,5 s	250 s
5 s	100 s
20 s	400s
160 s (ca. 2,7 min)	3200 s (ca. 53 min)
1250 s (ca. 21 min)	25000 s (ca. 417 min)

Dimensions- / Circuit Diagram FMF



Functional Overview FMF



Multifunction timer relay IMF

- Multifunction relay featuring installation type dimensions
- 4 selectable time ranges
- Universal current
- 1 SPDT
- Contact activation



The multifunction timer relay IMF is specifically designed for rough industrial environments. All inputs and outputs are both interference free and non-destructive at voltage surges of up to 2.000 V. Contact activation may be carried out not only by conventional means such as a voltage-free contact (between A1 and B1), but also by applying the operating voltage to B1. This helps to reduce wiring and contact requirements of the control and prevents destruction of the devices due to faulty wiring.

Adjustable functions:

- delay on make
- delay on break
- on-delay single shot
- flashing

Order reference	Time	Operating voltage U_B (V-AC/DC)	SPDT's	Part No.
IMF	0,6 s – 60 min	12 – 240 \pm 10 %	1	230410

Technical Data

Technical Data IMF	
Permissible operating voltage range	\pm 10%
Operating voltage influence at \pm 10% operating voltage fluctuation	< 0,5 %
Duty factor ED	100%
Permissible ambient and media temperature	- 20°C up to +60°C
Permissible ambient humidity rel. humidity, non-condensing	10% up to 90%
Permissible storage temperature	- 40°C up to +80°C
Clearance and creepage distances	VDE 0110
Working position	any position
Power consumption	max. 2 VA

Output contacts IMF	
Series voltage acc. to VDE 0660 and VDE 0110 Group C	250 V-AC
Maximum continuous current 1-change-over, 2-change-over	6 A-AC
Maximum switching capacity per contact	1.500 VA (AC) 50 W (DC)
Mechanical life Cycles	approx. 1×10^7
Electrical life (max. load) Cycles	approx. 2×10^5

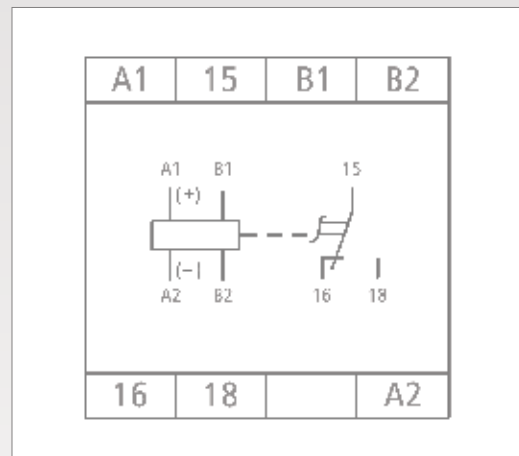
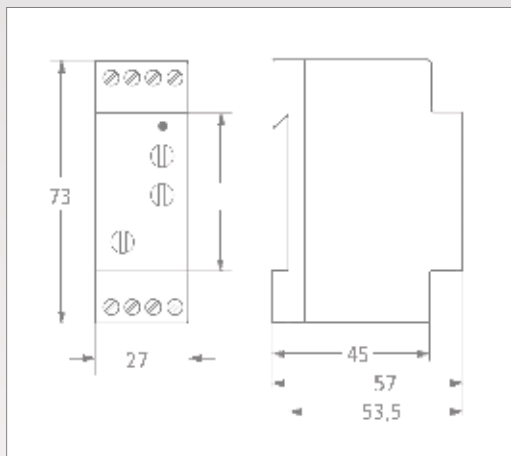
Multifunction timer relay IMF

Enclosure data	
Material	ABS flameproof, UL-approved
Mounting	snap on 35 mm DIN-rail connector acc. to EN 50 035
Enclosure-protection	IP 40
Protection against shock	approx VBG 4
Terminals	elevator clamp
Cross-section	2,5 mm ²
Weight	75 g

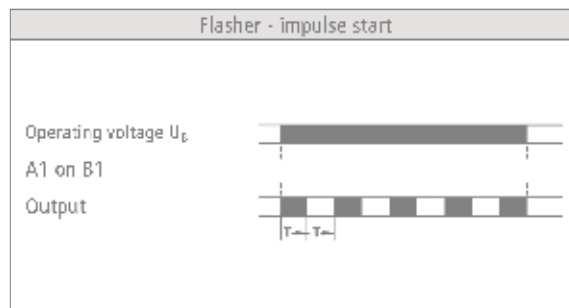
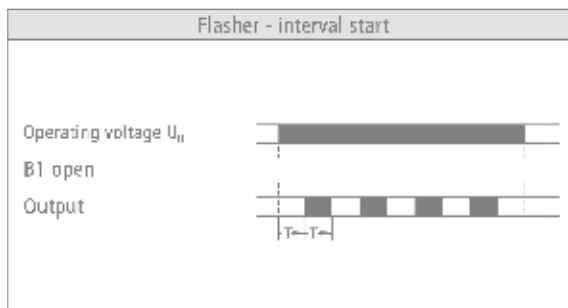
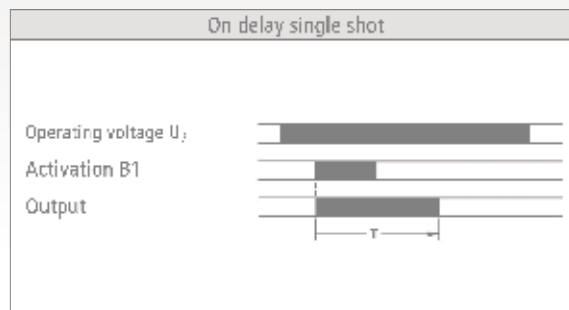
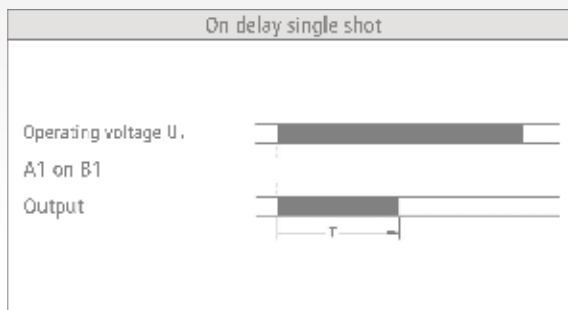
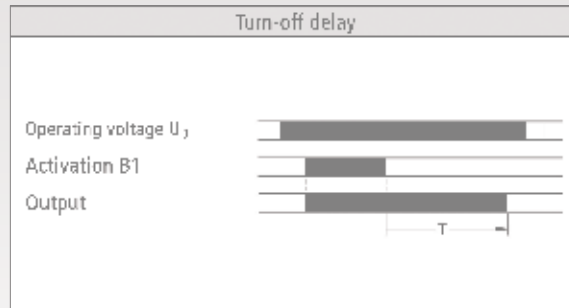
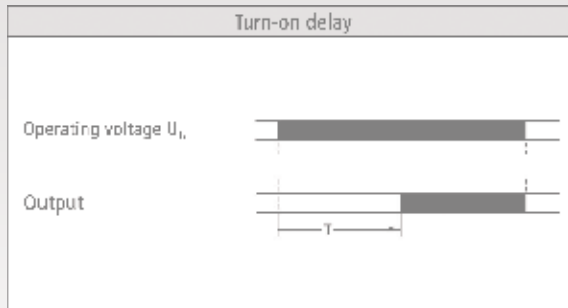
General data	
Tolerance range	± 10%
Repeatability	± 0,5 %
Temperature range	ca. 0,2 % / °C
Recovery time	< 100 ms

Time ranges	
Initial value	End value
0,6 s	6 s
6 s	60 s
0,6 min	6 min
6 min	60 min

Dimensions- / Circuit Diagram IMF



Functional Overview IMF





Condor Catalogue Overview



Ask for our main catalogue as well as speciality catalogues for water technology, GL and ATEX products and our individual pump control flyer!

You will find the catalogues in our Download Center - www.condor-cpc.com



<http://www.condor-werke.de/download-center-en.html>

On **YouTube** you will find instructions for pressure adjustment as well as other information videos - QR-Code.



<https://www.youtube.com/channel/UC10vgkmZIH3gxVlxZ5B5WDQ/featured>





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Condor

More information and contact details about our representatives can be found on our website www.condor-werke.com

CONDOR PRODUCTS

WORLDWIDE





Condor Werke USA, Inc.

A Condor-Werke Company



In 1999 Condor Werke USA, Inc. was founded for the distribution of Condor products, with its headquarters in Charlotte, North Carolina.

Its own development department offers support in the manufacturing of special products and product variations for the unique requirements of the American market.

Following intensive tests in the testing laboratory, the distribution of the product line began via our centrally located logistics center in Kentucky

In this location, custom devices and special product variations are also produced by our assembly department.

This enables us to work with the flexibility required to react to customer requests at any time.

Condor Werke USA today counts a number of notable manufactures in North-, Central- and South America among its clientele.

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Scharco Electronics

A Condor Werke Company



In 1961 Scharco was founded as a manufacturer of time-, measuring and monitoring relays. With 50 years of experience in the field of control technology, today Scharco develops and manufactures customer-specific solutions in a variety of areas of industrial electronics.

Working together – from idea to product

In keeping with this motto, Scharco offers a comprehensive range of services; from product concept and development right up to manufacturing on our production line, Scharco provides its customers with complete, proactive support in the development of custom-made control solutions.

Scharco's expertise includes, for example, the following key areas:

- Water technology,
- Compressed air technology,
- Cash desk control (check-out),
- Vehicle workshop equipment

Scharco's knowledge of its customer's requirements with regard to applications enables them to provide effective consultation and to work together with the customer in developing products that are attractive and in keeping with the current market.

Given this specialist knowledge of the requirements of certain market sectors, it is not without reason that Scharco is one of Europe's leading manufacturers.

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Condor

Terms of Delivery

MORE

SERVICE / QUALITY

AND PERFORMANCE



Terms of Delivery

During handling of orders the General Terms and Conditions (AGB) of the Condor Pressure Control GmbH are determining. These conditions can be seen under www.condor-cpc.com.

The retention of title also applies if our goods are finished or already worked on, as well as with mixture or blending with other goods.

For demands from far sales of supplied goods the extended retention of title applies.

You find the current price list on our homepage www.condor-cpc.com as pdf-file for downloading.

Place of delivery and area of jurisdiction is Warendorf in Germany.

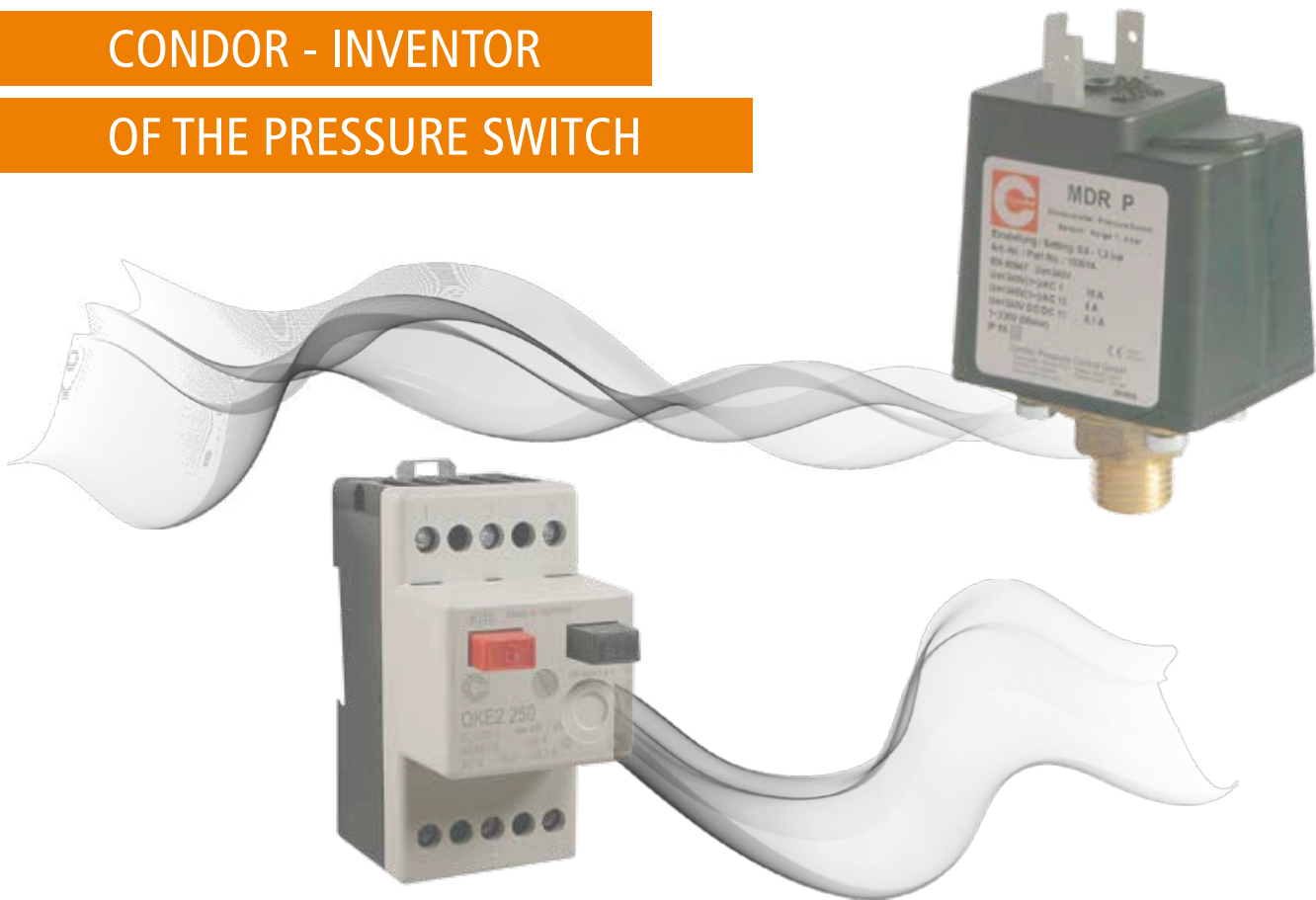
Impressum

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CONDOR - INVENTOR

OF THE PRESSURE SWITCH



The background features a blue and white globe of the Earth, overlaid with a complex network of thin grey lines and small black and orange dots, representing a global network or data flow. A hand is visible on the right side, interacting with the network.

CONDOR PRODUCTS WORLDWIDE

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