DISIBEINT

level sensors and relays

CATALOGUE

2024

www.disibeint.com

DISIBEINT ELECTRONIC SL remains present in the field of manufacturing components for industrial automation for more than 50 years, keeping in constant evolution its wide range of products structured in different families:

· Level sensors, magnetic switches and magnetic transducers
· Level relays for liquids and solids
· Timers
· Control, monitoring and logic relays
· Devices for Industrial IoT communication

It is a permanent concern to give an adequate response to the problems that arise during the automation of the different industrial processes, providing the most suitable material for each application.

Directive of Electromagnetic Compatibility
EMC 2004/108/CEE from 15/12/2004
- Emission (UNE-EN 61000 6-4/2007/A1:2011)
- Immunity (UNE-EN 61000 6-2/2006)

Low voltage directive
LVD 2006/95/CEE from 12/12/2007
- Machinery (UNE-EN -60204 -1/2007/A1:2009)
- Measuring electronic devices (UNE-EN 61010-1/2011)

Directive of certain hazardous substances
2011/65/CEE from 8/06/2011 and the ammended Annex II 2015/863/UE
The products do not contain: Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr +6), Polybrominated biphenyls (PBB), Diphenyl ethers (PBDE), Bis (2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Bybutyl phthalate (DBP) and Diisobutyl phthalate (DIBP).

WARRANTY

The products supplied by DISIBEINT ELECTRONIC SL have a guarantee of two (2) years against any defect due to the materials used or the manufacturing process thereof.

It does not cover the defects caused during transport or by a bad application, as well as the elements subject to wear or the direct or indirect consequences caused in the installation or by an improper use of the product.

Catalogue 2024

· First edition: January 29, 2024

IMPORTANT NOTE: This document may be updated several times a year and some data may vary. Whole data is constantly updated on the web and that is the one that have value for all purposes.

PRODUCTS CATALOGUE

2024

DISIBEINT ELECTRONIC SL
Segle XX, 91 · 08032 – Barcelona (Spain)
+34 934 560 995
disibeint@disibeint.com
www.disibeint.com

CONTROL OF LIQUIDS: SWITCHES AND SENSORS

From a well in the middle of the field to a fuel tank, in critical tests of a chemical laboratory or in simple domestic processes, treatment plants, cleaning or storage processes, the quantity of liquid must be controlled efficiently. Since for the same application different methods can be used, then we group them by their work function indicating the advantages that each type of sensor provides.

The type of output of each family of products is indicated in the upper right corner of each table:

- Potential free contacts (relay, micro switch, reed contact) for point-to-point controls.
- Potential free contact on equipment that needs supply voltage.
- Continuous output (4-20 mA, 0-10 V, ohms) for an uninterrupted reading of the tank capacity.
- Modbus RS485 output option via Modbus RTU.

FLOAT SWITCHES

Float level control is a simple and economical system. The internal micro switch is activated or deactivated by the action of a ball that moves following the impulse of the flotation.
Typical applications are the automation of pumping equipment or the signaling of different level points. They are used both in sewage treatment plants and in sanitary water tanks. The models that support aggressive liquids such as caustic soda or various corrosive acids deserve special mention.
They are also used to double security in facilities equipped with other control systems, such as high or low level alarm, for example.

20 .. 21

CONDUCTIVE ELECTRODES

Detecting the level through conductive electrodes is a simple, robust method that offers a wide versatility in a large number of processes. They can be installed both vertically and horizontally and the same device can contain up to five electrodes that the user adapts to the distance he needs. Unit models are often used in borehole surveys.

22 .. 30

The conductive electrodes must be connected to the appropriate level relay depending on the characteristics of the application. There are numerous models that, combining them, cover a wide range of detection and control possibilities. The choice of the ideal relay provides advantages such as electrical safety and a solid control maneuver.

100 .. 101

For control maneuvers of a single level point or for common filling or emptying controls, it is convenient to use a compact system that combines the electrodes with the relay. It saves space, control elements, wiring and installation time.
Similarly, the option with RS485 output via Modbus RTU allows integrated communication with more complex control systems.

31 .. 34

FLOOD CONTROL

Although most level controls could be adapted to detect floods, these models have been specifically designed for this compromised function. Garages, laundries, basements, clean rooms or servers, among others, are the objective of this set of sensors and associated relays.

33 .. 34

LEAK CONTROL

Keeping the presence of leaks and losses in double chamber deposits controlled is easy using these devices.
Ease of installation, robustness, detection security and parallel systems such as cable break detection configure them as maximum efficiency.

33

CONTROL OF LIQUIDS: LEVEL MAGNETIC SWITCHES

The principle of operation of the magnetic level switches is based on the action of a magnet housed in a float on contacts housed within an airtight tube. When the float reaches the point where the contact is located, it switches providing a signal that will start an alarm, act on an automaton, stop a pump or activate an electrovalve.

This apparent simplicity is capable of generating a multitude of variants combining materials, process connections, electrical connections, quantity and type of contact, etc. Except for the miniature, fixed length models, the rest of them are made to measure according to the characteristics of the tank, the working conditions and the requirements of electrical control.

Taking simple protection and maintenance measures will provide a long life for these equipment.

MINIATURE · FIXED LENGTH · 1 LEVEL

Vertical installation models are placed at the level detection point, usually as a maximum level control. Due to its small size, it allows the control of low-rise tanks.

Horizontal installation models can be placed anywhere in the tank and are suitable as a minimum level control. Various sensors distributed along the tank wall offer an economical signaling mode.

55 .. 61

MINIATURE · VARIABLE LENGTH · UP TO 3 LEVELS

Small dimensions of the floats allow to occupy very little space inside the tank. They also allow to reach levels very close to the bottom of it.

The length is determined by the requirements of the tank containing the liquid to be controlled. They are made to measure by establishing the quantity and type of contacts based on the final need: signaling, alarm, emptying control, etc. Communication with the user before starting manufacturing is essential to specify the characteristics of the switch.

62 .. 65

STANDARD · VARIABLE LENGTH · UP TO 5 LEVELS

Robustness, precision and reliability make up the cover letter of these magnetic switches, which accumulate the experience of fifty years of development. They are manufactured in stainless steel and technical plastics, covering wide possibilities with different types of liquids, from harmless to the most aggressive.

The characteristics of each device are agreed with the user involving key factors such as the process connection or the electrical connection mode as well as the working conditions that will determine exclusive differentiating details.

66 .. 80

OPTION: WITH INTEGRATED OPERATION · 1 OR 2 LEVELS

Simple maneuvers such as the control of a single level or a control of maximum and minimum level are resolved with the models that incorporate in the head itself the automatism and a relay output for the activation of the related control element. A convenient and fast way to start an effective automation with the minimum possible elements.

67 .. 80

OPTION: WITH MODBUS OUTPUT

The models that are provided with junction box have the option of incorporating an output with RS485 communication via Modbus RTU. An ideal method to interface with complex dashboards, remote transmission or remote control.

67 .. 80

INDEX BY APPLICATION

ADJUSTABLE HEIGHT		
	Since the length cannot be altered once the equipment has been manufactured, the height-adjustable models favor a fine adjustment by displacing the tube. Another common application is the control of changing levels depending on the type of liquid, its concentration or the needs of the application: the quick adjustment eliminates keeping duplicate elements and working time.	81 .. 82

HYBRID CONSTRUCTION		
	The combination of different materials in the construction of the magnetic switches provides benefits such as cost reduction, constructive improvements and dimensional adaptation.	83 .. 84

ATEX		
	In installations that require the intrinsic safety protection method (ia), these level switches can be installed provided they are connected to the corresponding galvanic insulators because they are considered “Simple Electrical Devices”. The category and zone of use correspond to those assigned by the barrier/insulator.	85

OPTION: TEMPERATURE SENSOR	
	Many models have the possibility of incorporating a temperature sensor at the lower end of the sensor. Check the availability of this option in the chosen model.

LEVEL OF LIQUIDS: LEVEL MAGNETIC TRANSDUCERS

A continuous level measurement is essential when you need to handle processes in which few liters mean high costs, or when the measurements have to be integrated into Scada systems or control rooms.

Magnetic level transducers are precise and stable measuring instruments that are easily integrated into complex applications. That is why they are manufactured to measure and in various process connections including the special ones for food environments. We use stainless steel and technical plastics to cover the maximum possible number of liquids in the most diverse working conditions.

4-20 mA ANALOG OUTPUT

The converter integrated in the sensor head can be connected to 2, 3 or 4 wire systems, providing supply voltage to the current loop if necessary.

The reading resolution is 5 or 10 mm and the measurement distance can be requested to be set at the precise distance you want to measure.

The 4-20 mA loop relays are the ideal complement to obtain a system of measurement, visualization and control of deposits of any type and size.

93 .. 94

OPTION: WITH MODBUS OUTPUT

The models with junction box have the option of incorporating an output with RS485 communication via Modbus RTU. An ideal method to interface with complex dashboards, remote transmission or remote control.

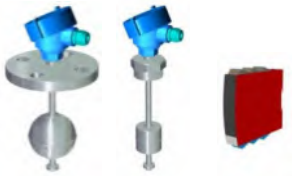
93 .. 94

RESISTIVE ANALOG OUTPUT

With identical precision performance, the variation of the electrical resistance depending on the position of the float is what determines the level of liquid in the tank.

95

4-20 mA OUTPUT - ATEX



In installations that require the intrinsic safety protection method (ia), these level transducers can be installed as long as they are connected to the corresponding insulators. The category and zone of use correspond to those assigned by the barrier/insulator.

96

OPTION: TEMPERATURE SENSOR

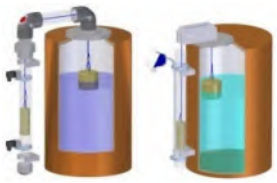
Many models have the possibility of incorporating a temperature sensor at the lower end of the sensor.
Check the availability of this option in the model of your choice.

CONTROL OF LIQUIDS: OTHER SYSTEMS FOR MEASUREMENT AND VISUALIZATION

LEVEL MODULAR SYSTEM		
	Using the modular level system, the detection points for each installation can be comfortably established, and added or removed when necessary. A flexible solution that is necessarily complemented by the associated SNIA or SNI relays, which are chosen according to their individual performance.	87 103

LEVEL EXTERNAL CONTROL		
	In storage systems where it is impossible to access the interior of the container, external control sensors solve the task of detecting the level. They detect through plastic tanks with non-conductive walls less than 8 mm thick. They are used for the rapid replacement of the container in liquid transfer systems, in external display tubes, etc.	89

BY-PASS INDICATORS		
	Bypass level indicators can adopt various configurations depending on the characteristics of the tank in which they are installed. To the simple visual indication can be added externally spot detection controls as well as transmitters for continuous level reading.	90

VISUAL CONTROL		
	A single opening in the upper part of the tank may be sufficient to place these visual controls that, inversely to the liquid level, indicate their state. As with the by-pass indicators, they can be complemented with spot detection controls or with transmitters with 4-20 mA output.	91

CONTROL OF SOLIDS

The control of the level of solid products demands specific requirements in the detection elements. Among others are the adapted installation forms, robustness and durability, all taken into account during the design process of these equipment.

CAPACITIVE SENSORS

Made of PVC and PTFE, the capacitive sensors with connection to a relay have a high resistance to abrasion wear of the products with which it is in contact. 45

The capacitive relay incorporates the maximum-minimum level control maneuver when two sensors are connected. 104

Capacitive sensors with direct connection do not need any specific relay but can act on PLCs, auxiliary relays, or any other device that supports their characteristics. 46

MEMBRANE SWITCHES

They are installed in the walls of tanks or silos so that the product, upon reaching its location, acts on the internal micro switch and it executes the control or alarm systems to which it is connected.

The membranes of different materials and qualities allow contact and resistance to a large number of products. 51

ROTARY PADDLE SWITCHES

When the product being controlled reaches the height of the rotating blade, it stops it and a contact is activated that will act on the control or alarm systems.

They can withstand large loads. There are numerous combinations of dimensions and blades with the aim of covering as many products as possible and with the greatest diversity of working conditions. 52

DISPLACEMENT SWITCHES

Installed on the roof of the silo, they are especially suitable for the detection of products that form a slope during loading. When the material displaces the cone from the lower end, a micro switch acts in turn connected to the corresponding control system. 53

VIBRATING SENSORS

The vibration detection system is suitable for solid products, either in grain or powder. The different types of models are chosen based on the average density of the product to be controlled, its humidity or its particle size. 54

OTHER FUNCTIONS

WIND SPEED		
	Cranes, ornamental fountains, awnings or other outdoor facilities are likely to be damaged by the force of the wind. The conjunction of a resistant anemometer with the relay that collects and manages its signal makes up a key element in this type of installation.	97 .. 98

ACCESSORIES

Accessories can be decisive in completing an installation more safely or simply with a better finish. Often necessary and other times essential. Here you will find the elements with which to complement the installation or commissioning of sensors and relays.

ACCESSORIES	
	140 .. 143

RELAYS

The evolution of industrial automation is not understood without the presence of relays. Leaving aside the classic maneuvering relays, the functions associated with the action of the contacts reinforce their presence in most of the processes that depend on time, voltage, a limit switch or many other variables.

We manufacture relays in three different box formats, adapting to the demands of the industry: firstly the plug-ins to the undecal connection base, the most comfortable way to wire in the electrical cabinet and replace if necessary. Secondly, those that have direct fastening to rail, bottom panel. And finally those that are installed in standard 45 mm cabinets. Three alternatives for the same function.

LEVEL RELAYS

Level relays for conductive liquids cover a wide range of detection and control possibilities. Choosing the ideal relay provides advantages such as electrical safety and a solid control operation. 100 .. 103

The level relays for solids using capacitive sensors incorporate the appropriate maneuvers for optimal control. 104

TIMERS

Automation often means that the time between processes or their duration is key to obtaining a satisfactory result, repeated tirelessly throughout repetitive cycles.

The special timing functions designed for specific tasks coexist with the classic ones by configuring a complete range of elements for efficient time management
.

VOLTAGE RELAYS

Maintaining adequate voltage margins at the input of motors or compromised lines ensures that no inconvenience will appear during the work day. Whether in alternating current, continuous or three-phase, the voltage relays monitor and control the appearance of high voltage spikes or unexpected drops.
Beyond the models with analog adjustment, the digital ones provide accuracy in the adjustment, precise information and multiply the output and communication options.

CURRENT RELAYS AND CURRENT LOOP RELAYS

Monitoring and controlling the intensity that circulates through the elements of our facilities ensures optimum performance. From a few milliamps to many amps, either alternating or continuous, the intensity relays offer various functions for thorough monitoring.

The current loop relays are designed to integrate with sensors, displays and other components that work under the same 4-20 mA loop. They provide food, set slogans and show the translated values to the units of each process.

PHASE RELAYS		
	Whether in domestic, industrial or even in power plants, phase relays are key elements to maintain the stability and order of the three-phase voltage that feeds machinery, engines or turbines. From the classic phase failure relay, without any adjustment, to the sophisticated digital relay capable of evaluating the state of each phase and acting according to what the user decides, seeing the state of the three-phase line on a screen, all form Part of a wide range of controllers.	125 .. 126

TACHOMETRIC RELAYS		
	Connected to turn detection sensors, tachometric relays monitor the RPM of engines, turbines, generators or anemometers to act at the selected detection points. Digital models facilitate adjustment and visualization precisely.	127

PUMPS CONTROL		
	A balanced management of bilge systems or others in which several pumps are involved is essential to save time and extend the life of the pumps. Pump control relays have functions for individual or alternative control of 2 or 3 pumps.	128

RELAYS FOR SENSORS		
	These relays provide power for three-wire sensors and amplify their response in a potential-free contact mode.	129

LOGICAL FUNCTIONS		
	They convert signals from sensors or limit switches into logical functions.	130

CONTACTS PROTECTION		
	Also known as contact amplifiers, they are associated with instruments with low breaking capacity to amplify their signal, perform pre-established maneuvers or delay their execution.	131

INDUSTRIAL IoT: The Industrial *Internet of Things*

Sensors and relays usually work locally, at the foot of warehouses, machinery, instruments, etc. If until now your actions and results had to be transmitted through buses with extensive cabling, IoT technology opens a new scenario where data is transmitted wirelessly, at high speed and in greater quantity. Its remote storage in the cloud along with the powerful analysis tools that can be executed from any web browser, anywhere, extends the possibilities of control and efficiency to limits that are yet to be defined.

This technology is called to revolutionize current automation systems. We join it incorporating level sensors, communication equipment, signal concentrators and a web platform that configure an essential set for the expansion and improvement of existing facilities as well as the development and application of new.

COMMUNICATION		
	dePACK is an IoT datalogger with conductive, analog 4-20 mA, PNP, Namur, capacitive and potentiometric inputs, equipped with different types of communication: RS232, RS485, Ethernet, GPRS, LoRa, Wi-Fi. Elements for the connection via RS485 of multiple sensors and their communication via LoRa to the signal concentrator. Equipment for receiving and sending remote signals.	134

LIQUIDS LEVEL		
	Conductive electrodes, magnetic switches and magnetic transducers with Modbus RTU communication option are basic elements for measuring, controlling and displaying the level in IoT systems.	135

ENERGY		
	The single-phase or three-phase network meters are the ideal complement to keep under control the parameters of the supply voltage line in our facilities, allowing the detection of unexpected consumptions as well as optimizing work times and processes.	136

deDAT		
	IoT Cloud platform, customizable for each application. It allows to group data from different applications and execute remote control actions and alarms in real time. Analysis and data processing, generation of reports. Available for desktop, mobile and tablet devices.	137

SUPPLY VOLTAGES

AC

Transformer With isolation

Code	Value
024	24 V
048	48 V
110	110 V
115	115 V
125	125 V
220	220 V
230	230 V
240	240 V
380	380 V
400	400 V
415	415 V
440	440 V
500	500 V

Capacitor Without isolation

Code	Value
810	110 V
820	220 V
824	24 V
830	230 V
834	24 VACDC +230 VAC
840	240 V

DC

Without isolation

Code	Valor
710	110 V
712	12 V
720	220 V
724	24 V
725	125 V
748	48 V
772	72 V

With isolation

Code	Value
624	24 V

AC/DC

With isolation

Analogic relays

Code	Value
901	15..70 V
902	60..240 V

Digital relays

Code	Value
903	15..70 V
904	60..240 V

Without isolation

Code	Value
U12	12 V
U24	24 V
U40	24..240 V

RANGES

TIME

Code	Value
3S	3 s
15S	15 s
30S	30 s
1M	1 m
2M	2 m
3M	3 m
5M	5 m
10M	10 m
15M	15 m
30M	30 m
1H	1 h
2H	2 h
3H	3 h
100	0,01 s..100 h
192	1 s..192 h
16M	15 s..16 m
8H	8 m..8 h
18H	2 s..18 h

VOLTAGE

Code	Value
4V	4 V
12V	12 V
20V	20 V
24V	24 V
48V	48 V
50V	50 V
72V	72 VDC
110	110 VDC
125	125 V
200	200 V
220	220 VAC
230	230 VAC
400	400 VAC
500	500 VAC
690	690 VAC
8500	8..500 VCA

CURRENT

Code	Value
V05	50 mV
V06	60 mV
V10	100 mV
V15	150 mV
1MA	1 mA
5MA	5 mA
A02	20 mA
A10	100 mA
A20	200 mA
A50	500 mA
1A	1 A
2A	2 A
5A	5 A

RESISTIVITY/LEVEL

Code	Value
100	10..100 KΩ
45K	8..45 KΩ
4M7	200 KΩ..4,7 MΩ
5N	1..5 niveles
80N	1..80 niveles

FREQUENCY

Code	Value
50	50 Hz
60	60 Hz

R.P.M

Code	Value
15K	300..15.000
3K	3..3.000

DIGITAL CONTROL RELAYS

INTERFACE

Code	Value
9	With display 4 languages
Q	Without display Without comm.
U	With display RS232/RS485

Nº RELAYS

Code	Value
0	Without relays
3	3 relays

RELAY TYPE

Code	Value
0	Without relays
A	SPST NO

COMMUNICATION

Code	Value
0	Without bus
4	4-20 mA
3	RS232
8	RS485

CE

CE CONFORMITY DECLARATION
QUALITY CERTIFICATE

The company

DISIBEINT ELECTRONIC SL
Segle XX, 91
E08032 Barcelona - Spain
VAT: B-60893849

Declares under its sole responsability that the following products:

- Float Switches with generic references INCR, INMR, INME, INMF
- Level sensors and your accessories, with generic references NS, NR, NCP, NCV, NP, SC, CNM, CNP, CNPR, CNV, SVR, IBT, BPCB, BPCBA, CBBP
- Level Magnetic Switches with generic reference IMN
- Level Magnetic Transducers with generic references TMN, TMR
- Electronic relays embraced under the generic denomination of the series P*nnn*, D*nnn* and S*nnn, being 'nnn'* any combination of letters and/or numbers that make up a specific reference

identified with the brand DISIBEINT, have been manufactured according to the instructions of our procedure manual and are in conformity with:

Directive of Electromagnetic Compatibility
EMC 2014/30/UE from 26/02/2014
- Emission (UNE-EN 61000 6-4/2007/A1:2011)
- Immunity (UNE-EN 61000 6-2/2006)

Low Voltage Directive
LVD 2014/35/UE from 26/02/2014
- Machinery (UNE-EN 60204 -1/2007/A1:2009)
- Measuring Electronic Devices (UNE-EN 61010-1/2011)

Directive about certain hazardous sustances
2011/65/UE from 08/06/2011 and the ammended Annex II 2015/863/UE
The products do not contain: Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr +6), Polybrominated biphenyls (PBB), Diphenyl ethers (PBDE), Bis (2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Bybutyl phthalate (DBP) and Diisobutyl phthalate (DIBP).

Any trace of impurities of the substances in the parts is below the levels specified by RoHS. No excepcions are made.

Barcelona, May 2021

Felipe Calvo Herrero

CONVENTIONS USED IN THIS TARIFF

CONDUCTIVE SENSORS

Prices are calculated for any length up to 1000 mm for all electrodes, unless otherwise stated.

MAGNETIC SWITCHES

Prices are calculated for any length up to 1000 mm and provided with 1 standard float depending on the model, unless otherwise indicated.

For all items with configurable options, these can condition the final price.

The options can be configured in the tab of each product at www.disibeint.com.

Prices are expressed in Euros.

Prices may vary throughout the duration of this tariff. Check the permanently updated prices at www.disibeint.com, which are the ones that have value for all purposes.

Consult with us

SENSORS

Application · It can be used in wells, reservoirs, ponds and installations requiring liquid level control
· Very used to protect pumping systems
· They are easy to install and require no maintenance

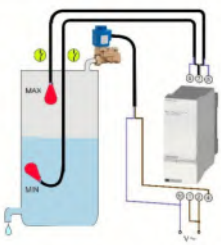
Image	Reference / Description	Cable (m)	Price
	**INCR** · Maximum or minimum control · For clean waters · Reduced dimensions: ø28x157 mm · Manufactured in PE · Micro-switch commute. 4 A / 230 VAC · +60 ºC. 1 kg/cm². IP68	2 5 10	
	**INMR ECO** · Maximum or minimum control · For dirty or residual waters · Manufactured in PP · Microswitch SPDT 10 A / 250 VAC · +60 ºC. 6 kg/cm². IP68	6 10 15 20 30	
	**INMR INOX** · Maximum or minimum control · For chemicals and liquids with temperature · Manufactured in SS AISI316 (1.4401) · Microswitch SPDT 5 A / 250 VAC · +100ºC. IP68	3 6 10 20 30	
	**INME** · Maximum and/or minimum control · For dirty and residual waters without crusts growing · Manufactured in PE · Microswitch SPDT 10 A / 250 VAC · +60 ºC. 5 kg/cm². IP68	2 5 10	
	**INME ECO** · Maximum or minimum control · For clean waters and few shaked liquids · Manufactured in PP · Microswitch SPDT 16 A / 250 VAC · +70 ºC. 3,5 bar. IP68	5 10 15 20	
	**INMF** · Maximum or minimum control · For clean waters and few shaked liquids · Manufactured in PP · Microswitch SPDT 20 A / 250 VAC · +85 ºC. 3,5 kg/cm². IP68	5 10	
	**INMR** · Maximum and/or minimum control · For clean and residual waters without crusts growing · Manufactured in Polystyrene antishock · Microswitch SPDT 15 A / 250 VAC · +60 ºC. 4 kg/cm². IP68	2 5 10	

Image	Reference / Description	Cable (m)	Price
	**INMR VS** · Maximum or minimum control · For liquids specially shaked · Large working angle: 165º · Manufactured in PP copolymer · Microswitch SPDT 20 A / 250 VAC · +85 ºC. 3,5 kg/cm². IP68	5	
		10	
	**INMR AMS** · Maximum or minimum control · Compulsory use in drinking water · Large working angle: 165º · Manufactured in especial PP, certif. ACS · Microswitch SPDT 16 A / 250 VAC · +85 ºC. 3,5 kg/cm². IP68	5	
		10	
		15	
	**INMR HYP** · Maximum and/or minimum control · For chemicals and agressive liquids · Manufactured in Hypalon · Microswitch SPDT 16 A / 250 VAC · +90 ºC. 4 kg/cm². IP68	5	
		10	
	**INMR HYP EX** · Maximum and/or minimum control · Used in classified zones (gas or powder) · Manufactured in Hypalon · Microswitch SPDT 10 mA / 24 VAC/DC · -20..+70 ºC. 4 kg/cm². IP68 · CE0081 II I G Ex ia IIC IP6X Tº 70ºC - LCIE 00 ATEX 6003 X	5	
		10	
	**SG** · Guided support for the connection and installation of various types of sensors: float switches, conductive sensors, magnetic switches, etc. · Process connection: thread 1"1/2, PVC · Incorporates counterweight to maintain the verticality of the assembly	-	

Accessories INCR	Price
PVC plug for holding the sensors INCR, 1´´G	

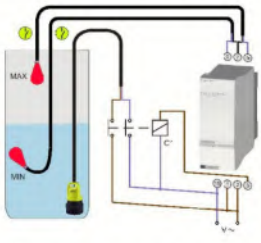
Products related with FLOAT SWITCHES	Page
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for the control of pumps	128

USEFUL INFORMATION



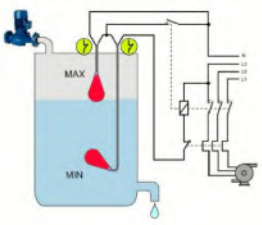
Filling control using the relay PSPS

PSPS relay simply performs the start-stop operation in a filling application.
Use the NO contacts at rest.



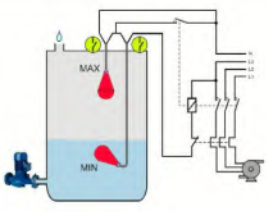
Emptying control using the relay PSPS

The joint use of the PSPS relay and an auxiliary relay allows the start-stop maneuver in an emptying application.
Use the NO contacts at rest.



Filling control

Use the NC contacts at rest.



Emptying control

Use the NO contacts at rest.

Application
· Exclusive use in conductive liquids, are used to control level points both independent or combined into small tanks or in deep wells
· Need to connect to a standard relay for conductive liquids
· The number of electrodes is determined by the function of the chosen relay

Common data
· Electrodes made of SS AISI316 (1.4401)
· The electrodes can be cut to adjust the desired level point

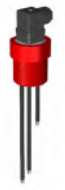
Image	*Reference / Description*	*Connection*	*1 E*	*2 E*	*3 E*	*4 E*	*5 E*
	**NR 1 1/2** · Process connection: Top screw PVC 1"1/2 G · Electrical connection: DIN43650 connector · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP65 · Maximum 4 electrodes	1´´1/2					
	**NRI 1 1/2** · Electrodes isolated with Polyolefine PE · Process connection: Top screw PVC 1"1/2 G · Electrical connection: DIN43650 connector · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP65 · Maximum 4 electrodes	1´´1/2					
	**NR 1 1/2 PG9** · Process connection: Top screw PVC 1"1/2 G · Electrical connection: Cable 3 m · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP66 · Maximum 5 electrodes	1´´1/2					
	**NRI 1 1/2 PG9** · Electrodes isolated with Polyolefine PE · Process connection: Top screw 1"1/2 G (PVC) · Electrical connection: Cable 3 m (PVC) · Temperature: +70 ºC · Pressure: 5 kg/cm² (20 ºC) · Protection: IP66 · Maximum 5 electrodes	1´´1/2					
	**NR 1 1/2 M12** · Process connection: Top screw PVC 1"1/2 G · Electrical connection: M12 connector · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP65 · Maximum 4 electrodes	1´´1/2					
	**NRI 1 1/2 M12** · Electrodes isolated with Polyolefine PE · Process connection: Top screw PVC 1"1/2 G · Electrical connection: M12 connector · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP65 · Maximum 4 electrodes	1´´1/2					
	**NRA 1 1/2** · It can be used with alimentary and pharmaceutical products · Process connection: Top screw 1"1/2 G (PTFE) · Electrical connection: DIN43650 connector · Temperature: +100 ºC · Pressure: 1 kg/cm² (20 ºC) · Protection: IP65 · Maximum 4 electrodes	1´´1/2					

Image	Reference / Description	Connection	1 E	2 E	3 E	4 E	5 E
	**NRAI 1 1/2** · Electrodes isolated with PTFE. It can be used with alimentary and pharmaceutical products · Process connection: Top screw 1"1/2 G (PTFE) · Electrical connection: DIN43650 connector · Temperature: +100 ºC · Pressure: 1 kg/cm² (to 20 ºC) · Protection: IP66 · Maximum 4 electrodes	1´´1/2					
	**NRA 1 1/2 PG9** · It can be used with alimentary and pharmaceutical products · Process connection: Top screw 1"1/2 G (PTFE) · Electrical connection: Cable 3 m (Silicone) · Temperature: +100 ºC · Pressure: 1 kg/cm² (to 20 ºC) · Protection: IP66 · Maximum 5 electrodes	1´´1/2					
	**NRAI 1 1/2 PG9** · Electrodes isolated with PTFE. It can be used with alimentary products · Process connection: Top screw 1"1/2 G (PTFE) · Electrical connection: Cable 3 m (Silicone) · Temperature: +100 ºC · Pressure: 1 kg/cm² (to 20 ºC) · Protection: IP66 · Maximum 5 electrodes	1´´1/2					
	**NRA 1 1/2 M12** · It can be used with alimentary and pharmaceutical products · Process connection: Top screw 1"1/2 G (PTFE) · Electrical connection: M12 connector · Temperature: +100 ºC · Pressure: 1 kg/cm² (20 ºC) · Protection: IP65 · Maximum 4 electrodes	1´´1/2					
	**NRAI 1 1/2 M12** · Electrodes isolated with PTFE. It can be used with alimentary and pharmaceutical products · Process connection: Top screw 1"1/2 G (PTFE) · Electrical connection: M12 connector · Temperature: +100 ºC · Pressure: 1 kg/cm² (to 20 ºC) · Protection: IP66 · Maximum 4 electrodes	1´´1/2					
	**NCVS TP PP** · Process connection: Top screw 1" G (PP) · Electrical connection: PVC cable (3 meters) · Temperature: +70 ºC · Pressure: 5 kg/cm² (at 20 ºC) · Protection: IP67 · Maximum 3 electrodes	1´´					
	**NCVS TC PP** · Process connection: Top screw 1" G (PP) · Electrical connection: connector DIN43650 · Temperature: +70 ºC · Pressure: 5 kg/cm² (at 20 ºC) · Protection: IP65 · Maximum 3 electrodes	1´´					

Image	Reference / Description	Connection	1 E	2 E	3 E	4 E	5 E
	**NCVS TC12 PP** · Process connection: Top screw 1" G (PP) · Electrical connection: connector M12 · Temperature: +70 ºC · Pressure: 5 kg/cm² (at 20 ºC) · Protection: IP65 · Maximum 3 electrodes	1´´					
	**NCVSI TP PP** · Electrodes isolated with Polyolefine PE · Process connection: Top screw 1" G (PP) · Electrical connection: PVC cable (3 meters) · Temperature: +70 ºC · Pressure: 5 kg/cm² (at 20 ºC) · Protection: IP67 · Maximum 3 electrodes	1´´					
	**NCVSI TC PP** · Electrodes isolated with Polyolefine PE · Process connection: Top screw 1" G (PP) · Electrical connection: connector DIN43650 · Temperature: +70 ºC · Pressure: 5 kg/cm² (at 20 ºC) · Protection: IP65 · Maximum 3 electrodes	1´´					
	**NCVSI TC12 PP** · Electrodes isolated with Polyolefine PE · Process connection: Top screw 1" G (PP) · Electrical connection: connector M12 · Temperature: +70 ºC · Pressure: 5 kg/cm² (at 20 ºC) · Protection: IP65 · Maximum 3 electrodes	1´´					
	**NRX 1** · Process connection: Top screw. 1" G. SS AISI316 (1.4401) · Electrical connection: Silicone cable (1 meter) · Temperature: +100 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP66 · Maximum 2 electrodes	1´´					
	**NRXI 1** · Electrodes isolated with PTFE · Process connection: Top screw. 1" G. SS AISI316 (1.4401) · Electrical connection: Silicone cable (1 meter) · Temperature: +100 ºC · Pressure: 1 kg/cm² (to 20 ºC) · Protection: IP66 · Maximum 2 electrodes	1´´					
	**NT** · Electrode for independent level points · Process connection: Nipple 1/4" G. SS AISI316 (1.4401) · Electrical connection: Terminal by screw · Temperature: +140 ºC · Pressure: 5 kg/cm²	1/4´´					

Image	Reference / Description	Connection	1 E	2 E	3 E	4 E	5 E
	**NTM PVC** · Electrode for independent level points · Fast height adjustment · Process connection: Nipple 1/2", 3/4", 1" G. PVC, PTFE, PVDF · Electrical connection: Terminal by screw · Temperature: +60 ºC (PVC) / +140 ºC (PTFE/PVDF) · Pressure: Atmosférica · Protection: IP50	1/2´´-3/4´´-1´´					
	**NB** · Electrode holder for independent level points · For tanks with pressure and temperature · Process connection: Nipple 1/2" G. SS AISI316 (1.4401) · Electrical connection: Terminal by screw · Temperature: +220 ºC · Pressure: 20 bar · The electrodes must be ordered separately (see [Accessories NB] at the end of this section)	1/2´´					
	**NRT2 PG9** · Electrode for liquid detection in pipes · Electrode material: SS AISI303 (1.4305) · Process connection: Top screw. 1/2" G (PVC) · Electrical connection: PVC Cable, 3 meters · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP50	1/2´´					
	**NRT2 TC** · Electrode for liquid detection in pipes · Electrode material: SS AISI303 (1.4305) · Process connection: Top screw. 1/2" G (PVC) · Electrical connection: DIN43650 connector · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP50	1/2´´					
	**NTBI** · Used in alimentary and pharmacy processes · Process conn.: Thread 1/4", 1/2", 3/4" or 1" G. SS AISI316 (1.4401) · Electrical connection: SS connection housing · Temperature: +100 ºC · Pressure: Atmospherical · Protection: IP67 · Maximum 2 electrodes	1/4´´-1/2´´ 3/4´´-1´´					
	**NTBII** · Used in alimentary and pharmacy processes · Electrodes isolated with PTFE · Process conn. Top screw. 1/4", 1/2", 3/4" or 1" G. SS AISI316 · Electrical connection: SS Connection housing · Temperature: +100 ºC · Pressure: Atmospherical · Protection: IP67 · Maximum. 2 electrodes	1/4´´-1/2´´ 3/4´´-1´´					
	**NCPS TB INOX** · The common electrode is the process connection · Process connection: Nipple. 1" G. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Temperature: +100 ºC · Pressure: 5 kg/cm² (at 20 ºC) · Protection: IP67 · Maximum 3 electrodes	1´´					

Image	Reference / Description	Connection	1 E	2 E	3 E	4 E	5 E
	**NCPSI TB INOX** · The common electrode is the process connection · Electrodes isolated with PTFE · Process connection: Nipple 1" G. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Temperature: +100 ºC · Pressure: 1 kg/cm² (to 20ºC) · Protection: IP67 · Maximum 3 electrodes	1´´					
	**NCVS TB INOX** · Process connection: Nipple 1" G. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Temperature: +100 ºC · Pressure: 5 kg/cm² (to 20ºC) · Protection: IP67 · Maximum 3 electrodes	1´´					
	**NCVSI TB INOX** · Electrodes isolated with PTFE · Process connection: Nipple. 1" G. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Temperature: +100 ºC · Pressure: 1 kg/cm² (to 20ºC) · Protection: IP67 · Maximum 3 electrodes	1´´					
	**NCVS TB PVC** · Process connection: Nipple. 1"1/2 G. PVC · Electrical connection: Connection housing. PBT · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP67 · Maximum 5 electrodes	1´´1/2					
	**NCVSI TB PVC** · Electrodes isolated with Polyolefine PE · Process connection: Nipple. 1"1/2 G. PVC · Electrical connection: Connection housing. PBT · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP67 · Maximum 5 electrodes	1´´1/2					
	**NCVSC TB PVC** · Electrode holding: Twisted wire ø3 mm. SS AISI316 (1.4401). · Process connection: Top screw. 1"1/2 G (PVC) · Electrical connection: Connection housing. PBT · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP67 · Maximum 5 electrodes	1´´1/2					

Accessories NR	Price
Rod SS Ø5 mm without covering (1 m)	
Rod SS Ø5 mm with Poliolefine PE covering (1 m)	
Rod SS Ø5 mm with PTFE covering (1 m)	
PVC cable, 1 m	
Silicone cable, 1 m	
Rods separator in PVC	
Rods separator in PTFE	
Screw nut PVC 1' '1/2G	
Screw nut PTFE 1' '1/2G	

Accessories NCPS-NCVS	*Price*
Rod SS Ø5 mm without covering (1 m)	
Rod SS Ø5 mm without covering (1 m)	
Rod SS Ø5 mm with PTFE covering (1 m)	
KNT8: Module for RS485 Modbus RTU communication	

Accessories NB	*Price*
Electrode 1 m	
Electrode 2 m	

Accessories NCVSC	*Price*
Twisted cable Ø3mm, SS AISI316 with PVC covering (1m)	
KNT8: Module for RS485 Modbus RTU communication	

USEFUL INFORMATION

Basic concepts

Conductive electrodes must be connected to level relays, which are specially designed to correctly handle the signal collected by said electrodes. The level relay is chosen according to the specific control function of each installation. See pages 28 and 29 for the different types of relay.

DISIBIENT ELECTRONIC SL is not responsible for the behavior of these devices if they are connected to relays of other manufacturers.

Factors to consider

The correct operation of the electrode / relay assembly is based on several factors:
- The type of liquid container (well, reservoir, carafe, tank, ...)
- The resistivity / conductivity of the liquid to be controlled.
- The location of the electrodes in the tank, especially the common or reference electrode.
- Cable type and distance from electrodes to level relay
- Electromagnetic interferences or disturbances that can be radiated by external elements (frequency inverters).

Common or reference electrode

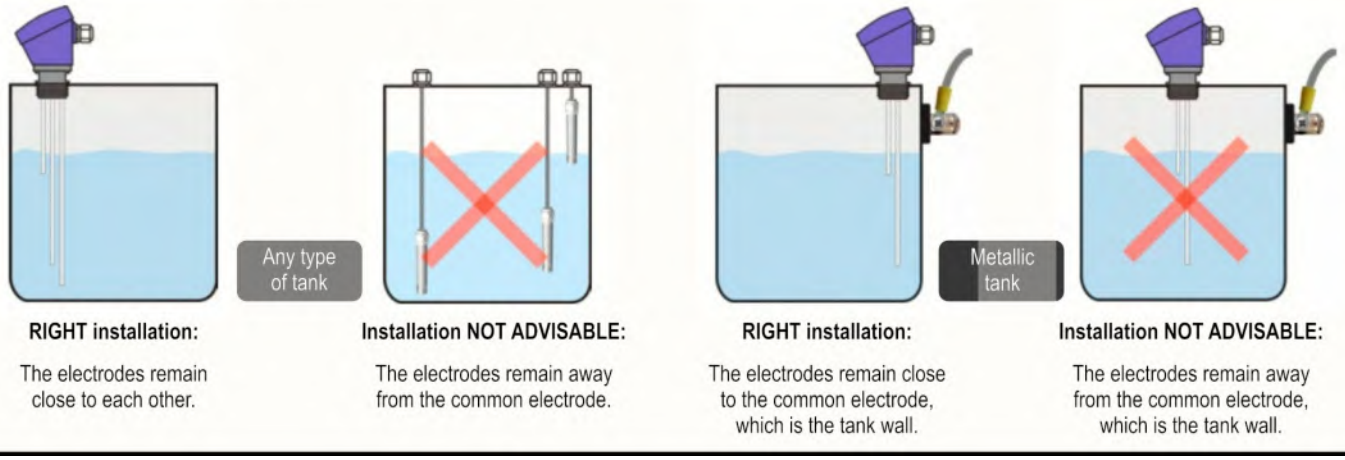
It is one of the key elements in the installation because the reading of the conductivity of the medium is always taken between it and the rest of the electrodes.

The common electrode must always be in contact with the medium, so make sure that its lower end is located in the lower part of the tank or immediately below the lower electrode (minimum level or minimum level alarm).

The ideal location places it as close as possible to the other electrodes. The greater the distance between the common electrode and the rest, the worse the behavior of the set may be since
- The higher the resistivity is measured and it may be that it moves away from the measuring range of the relay. There are different types of relays for different ranges of resistivity.
- The sensitivity to disturbances radiated by electromagnetic interference that may cause unsuspected effects on the level relay will be greater.

If the tank is metallic, it can be used as a common electrode since the medium will always be in contact with it. It is advisable that the rest of the electrodes are located as close as possible to the tank walls in order to avoid the aforementioned problems.

Placement of the electrodes



RIGHT installation:
The electrodes remain close to each other.

Installation NOT ADVISABLE:
The electrodes remain away from the common electrode.

RIGHT installation:
The electrodes remain close to the common electrode, which is the tank wall.

Installation NOT ADVISABLE:
The electrodes remain away from the common electrode, which is the tank wall.

Application
· Exclusive use in conductive liquids, are used to control level points both independent or combined into small tanks or in deep wells
· Need to connect to a standard relay for conductive liquids
· The number of electrodes is determined by the function of the chosen relay

Common data
· Electrodes made of SS AISI316 (1.4401)
· The electrodes can be cut to adjust the desired level point

Image	*Reference / Description*	*Connection*	*1 E*	*2 E*	*3 E*	*4 E*	*5 E*
	**NCI** · Use in alimentary and pharmacy industries · Connection to process: Clamp flange. 1". SS AISI316 (1.4401) · Electrical Connection: Cable silicone · Temperature: +100 ºC · Pressure: 1 kg/cm² · Protection: IP66 · Maximum 2 electrodes	1´´					
	**NCPS DB INOX** · The common electrode is the process connection · Process connection: Flange. DN25. SS AISI316 (1.4401) · Electrical connection: PBT housing · Temperature: +100 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protección: IP66 · Maximum 3 electrodes	DN25					
	**NCPSI DB INOX** · The common electrode is the process connection · Electrodes isolated with PTFE · Process connection: Flange. DN25. SS AISI316 (1.4401) · Electrical connection: PBT housing · Temperature: +100 ºC · Pressure: 1 kg/cm² (to 20 ºC) · Protection: IP66 · Maximum 3 electrodes	DN25					
	**NCPS CB INOX** · The common electrode is the process connection · Process connection: Clamp flange. 2" G. SS AISI316 (1.4401) · Electrical connection: PBT housing · Temperature: +100 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP67 · Maximum 3 electrodes	2´´					
	**NCPSI CB INOX** · The common electrode is the process connection · Electrodes isolated with PTFE · Process connection: Clamp flange. 2" G. SS AISI316 (1.4401) · Electrical connection: PBT housing · Temperature: +100 ºC · Pressure: 1 kg/cm² (to 20 ºC) · Protection: IP67 · Maximum 3 electrodes	2´´					
	**NCVS DB INOX** · Process connection: Flange DN25. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Temperature: +100 ºC · Pressure: 5 kg/cm² (a 20 ºC) · Protection: IP67 · Maximum 3 electrodes	DN25					
	**NCVSI DB INOX** · Electrodes isolated with PTFE · Process connection: Flange DN25. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Temperature: +100 ºC · Pressure: 1 kg/cm² (to 20 ºC) · Protection: IP67 · Maximum 3 electrodes	DN25					

Image	Reference / Description	Connection	1 E	2 E	3 E	4 E	5 E
	**NCVS CB INOX** · The common electrode is one of the rods · Process connection: Clamp flange 2" G. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Temperature: +100 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP67 · Maximum 3 electrodes	2´´					
	**NCVSI CB INOX** · Electrodes isolated with PTFE · Process connection: Clamp flange 2" G. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Temperature: +100 ºC · Pressure: 1 kg/cm² (to 20 ºC) · Protection: IP67 · Maximum 3 electrodes	2´´					
	**NCVS DB PVC** · Process connection: PVC flange DN25 · Electrical connection: PBT housing · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP67 · Maximum 5 electrodes	DN25					
	**NCVSI DB PVC** · Electrodes isolated with Poliolefine PE · Process connection: PVC flange DN25 · Electrical connection: Connection housing. PBT · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP67 · Maximum 5 electrodes	DN25					
	**NCVSC DB PVC** · Electrode holding: Twisted wire ø3 mm. SS AISI316 (1.4401) · Process connection: Flange DN25. PVC · Electrical connection: Connection housing. PBT · Temperature: +70 ºC · Pressure: 5 kg/cm² (to 20 ºC) · Protection: IP67 · Maximum 5 electrodes	DN25					

Accessories NCPS-NCVS	Price
Rod SS Ø5 mm without covering (1 m)	
Rod SS Ø5 mm without covering (1 m)	
Rod SS Ø5 mm with PTFE covering (1 m)	
KNT8: Module for RS485 Modbus RTU communication	

Accessories NCVSC	Price
Twisted cable Ø3mm, SS AISI316 with PVC covering (1m)	
KNT8: Module for RS485 Modbus RTU communication	

Application
· Exclusive use in conductive liquids, are used to control level points both independent or combined into small tanks or in deep wells
· Need to connect to a standard relay for conductive liquids
· The number of electrodes is determined by the function of the chosen relay

Image	*Reference / Description*	*Connection*	*1 E*	*2 E*	*3 E*
	**NS** · Conductive electrode for wells and tanks · Process connection: hanging by cable (not supplied) · Electrical connection: Screwed terminal · Temperature: +70 ºC · Pressure: Atmospherical	Cable			
	**NS2** · Double conductive electrode for tanks · Process connection: hanging by cable · Electrical connection: PVC cable (5 m) · Temperature: +70 ºC · Pressure: Atmospherical	05 (cable 5 m) 10 (cable 10 m) 15 (cable 15 m)			
	**NSM** · Conductive electrode for wells and tanks · Process connection: hanging by cable · Cable length: upon request · Electrical connection: PVC cable, 2x0,5mm² · Temperature: +70 ºC · Pressure: Atmospherical	Cable no incluído			
	**N DN50** · Electrode holder for tanks with DIN alimentary fitting · Process connection: Fitting DN50 DIN 11851 · Electrical connection: By terminal screw · Temperature: +100ºC · Pressure: 1kg/cm² (to 20 ºC) · Protection: IP65 · Maximum 3 electrodes	N DN50			

Accessories	*Price*
PVC cable, 1 m	

Products related with CONDUCTIVE ELECTRODES	*Page*
Level relays for conductive electrodes	100..102
Overvoltage protector in the line of probes: PS-3	141

Application
· Exclusive use in conductive liquids, are used to control level points both independent or combined into small tanks or in deep wells.
· Amplifier incorporated into the housing.
· The control function determines the number of electrodes.

Common data
· Electrodes made of SS AISI316 (1.4401)
· The electrodes can be cut to adjust the desired level point.
· Output relay SPDT, 6A/250VAC

Image	*Reference / Description*	*Connection*	*1 E*	*2 E*	*3 E*
	**NCPR TB INOX** · Compact electrodes holder for low height tanks · The common electrode is the process connection · Process connection: Nipple 1" G. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · +70ºC. 5 kg/cm². IP67 · With 1 electrode: control of 1 level point · With 2 electrodes: control maximum/minimum	1/2´´ 1´´			
	**NCPRI TB INOX** · Compact electrodes holder for low height tanks · The common electrode is the process connection · Electrode isolated with PTFE · Process connection: Nipple 1" G. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · +70ºC. 5 kg/cm². IP67 · With 1 electrode: control of 1 level point · With 2 electrodes: control maximum/minimum	1´´			
	**NCVR TB INOX** · Compact electrodes holder for low height tanks · Process connection: Nipple 1" G. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · +70ºC. 5 kg/cm². IP67 · With 2 electrodes: control of 1 level point · With 3 electrodes: control maximum/minimum	1´´			
	**NCVRI TB INOX** · Compact electrodes holder for low height tanks · Electrodes isolated with PTFE · Process connection: Nipple 1" G. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · +70ºC. 5 kg/cm². IP67 · With 2 electrodes: control of 1 level point · With 3 electrodes: control maximum/minimum	1´´			
	**NCVR TB PVC** · Compact electrodes holder for low height tanks · Process connection: Top screw 1"1/2 G. PVC · Electrical connection: Connection housing. PBT · +70 ºC. 5 kg/cm². IP67 · With 2 electrodes: control of 1 level point · With 3 electrodes: control maximum/minimum	1´´1/2			
	**NCVRI TB PVC** · Compact electrodes holder for low height tanks · Electrodes isolated with Polyolefine PE · Process connection: Top screw 1"1/2 G. PVC · Electrical connection: Connection housing. PBT · +70 ºC. 5 kg/cm². IP67 · With 2 electrodes: control of 1 level point · With 3 electrodes: control maximum/minimum	1´´1/2			

Image	Reference / Description	Connection	1 E	2 E	3 E
	**NCVRC TB PVC** · Compact electrodes holder for large height tanks · Electrode holding: Twisted wire ø3 mm. SS AISI316 (1.4401) · Process connection: Top screw 1"1/2 G. PVC · Electrical connection: Connection housing. PBT · +70 ºC. 5 kg/cm². IP67 · With 2 electrodes: control of 1 level point · With 3 electrodes: control maximum/minimum	1´´1/2			

Accessories NCPR-NCVR	Price
Rod SS Ø5 mm without covering (1 m)	
Rod SS Ø5 mm without covering (1 m)	
Rod SS Ø5 mm with PTFE covering (1 m)	
Increase for voltages 901 or 902	

Accessories NCVRC	Price
Twisted cable Ø3mm, SS AISI316 with PVC covering (1m)	
Increase for voltages 901 or 902	

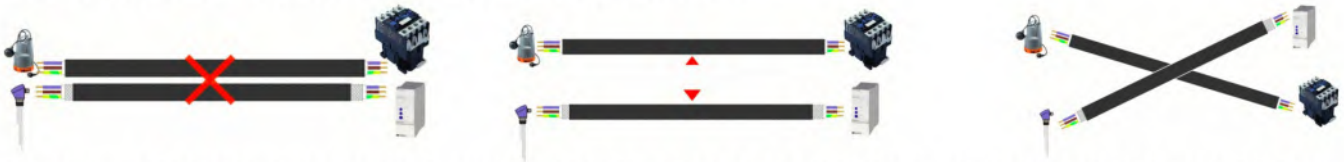
USEFUL INFORMATION

About the cable

The recommended section of the cable depends on the type of the cable, as indicated in the following section. The longer the cable, the greater the section of the cable.

It is highly recommended that the probe cable does not circulate in parallel with other power or inductive control cables (solenoid valves, motors, etc.). In case they have to be installed in parallel, we recommend that the distance between them be the maximum possible.

There is no problem that the probe cable intersects with the power cables.

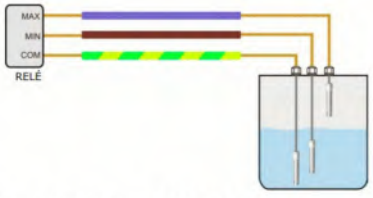


The maximum distance between the probes and the relay is always a function of the factors mentioned so far, so they should be taken into account when planning the installation. It could exceed 1000 meters with optimal operation or it could not do so with a distance less than 3 meters.

Connections according the type of the cable

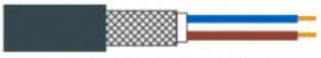
STANDARD [1 .. 1,5 mm²]

To be used when there are no special conditions in the installation. It offers zero immunity against electromagnetic disturbances.

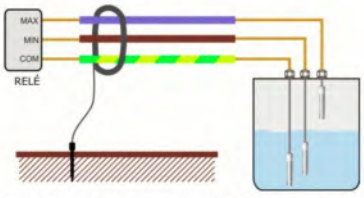


Each of the wires is connected to the corresponding electrode.

SHIELDED [1 .. 1,5 mm²]

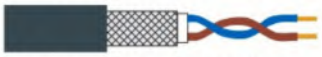


It offers limited immunity against electromagnetic disturbances.

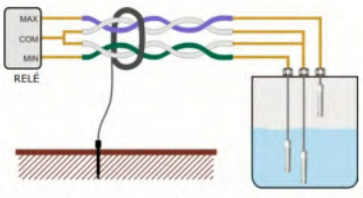


Each of the wires is connected to the corresponding electrode. The mesh is connected to the electrical ground, preferably next to the relay.

TWISTED PAIR WITH SHIELD [0,52 mm²]



It offers greater immunity against electromagnetic disturbances.



One of the wires of each pair is connected to the common electrode. The mesh is connected to the electrical ground, preferably next to the relay.

[If the electrical ground is not reliable, it is better not to connect the shield.]

Application
· Exclusive use in conductive liquids, are used to control level points both independent or combined into small tanks or in deep wells
· Amplifier incorporated into the housing
· The control function determines the number of electrodes

Common data
· Electrodes made of SS AISI316 (1.4401)
· The electrodes can be cut to adjust the desired level point.
· Output relay SPDT, 6A/250VAC

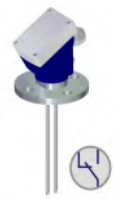
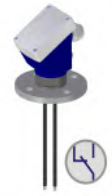
Image	*Reference / Description*	*Connection*	*1 E*	*2 E*	*3 E*
	**NCPR DB INOX** · Compact electrodes holder for low height tanks · The common electrode is the process connection · Process connection: Flange DN25. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · +70ºC. 5 kg/cm². IP67 · With 1 electrode: control of 1 level point · With 2 electrodes: control maximum/minimum	DN25			
	**NCPRI DB INOX** · Compact electrodes holder for low height tanks · The common electrode is the process connection · Electrodes isolated with PTFE · Process connection: Flange DN25. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · +70 ºC. 5 kg/cm². IP67 · With 1 electrode: control of 1 level point · With 2 electrodes: control maximum/minimum	DN25			
	**NCPR CB INOX** · Compact electrodes holder for tanks with Clamp flange · The common electrode is the process connection · Process connection: Clamp flange 2". SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · +70ºC. 5 kg/cm². IP67 · With 1 electrode: control of 1 level point · With 2 electrodes: control maximum/minimum	2´´			
	**NCPRI CB INOX** · Compact electrodes holder for tanks with Clamp flange · The common electrode is the process connection · Electrodes isolated with PTFE · Process connection: Clamp flange 2". SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · +70ºC. 5 kg/cm². IP67 · With 1 electrode: control of 1 level point · With 2 electrodes: control maximum/minimum	2´´			
	**NCVR DB INOX** · Compact electrodes holder for low height tanks · Process connection: Flange DN25. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · +70ºC. 5 kg/cm². IP67 · With 2 electrodes: control of 1 level point · With 3 electrodes: control maximum/minimum	DN25			
	**NCVRI DB INOX** · Compact electrodes holder for low height tanks · Electrodes isolated with PTFE · Process connection: Flange DN25. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · +70ºC. 5 kg/cm². IP67 · With 2 electrodes: control of 1 level point · With 3 electrodes: control maximum/minimum	DN25			
	**NCVR CB INOX** · Compact electrodes holder for tanks with Clamp flange · Process connection: Clamp flange 2". SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · +70ºC. 5 kg/cm². IP67 · With 2 electrodes: control of 1 level point · With 3 electrodes: control maximum/minimum	2´´			

Image	*Reference / Description*	*Connection*	*1 E*	*2 E*	*3 E*
	**NCVRI CB INOX** · Compact electrodes holder for tanks with Clamp flange · Electrodes isolated with PTFE · Process connection: Clamp flange 2". SS AISI316 · Electrical connection: Connection housing. PBT · +70ºC. 5 kg/cm². IP67 · With 2 electrodes: control of 1 level point · With 3 electrodes: control maximum/minimum	2´´			
	**NCVR DB PVC** · Compact electrodes holder for low height tanks · Process connection: Flange PVC DN25 · Electrical connection: Connection housing. PBT · +70 ºC. 5 kg/cm². IP67 · With 2 electrodes: control of 1 level point · With 3 electrodes: control maximum/minimum	DN25			
	**NCVRI DB PVC** · Compact electrodes holder for low height tanks · Electrodes isolated with Polyolefine PE · Process connection: Flange PVC DN25 · Electrical connection: Connection housing. PBT · +70 ºC. 5 kg/cm². IP67 · With 2 electrodes: control of 1 level point · With 3 electrodes: control maximum/minimum	DN25			
	**NCVRC DB PVC** · Compact electrodes holder for large height tanks · Electrode holding: Twisted wire ø3 mm. SS AISI316 (1.4401) · Process connection: Flange DN25. PVC · Electrical connection: Connection housing. PBT · +70 ºC. 5 kg/cm². IP67 · With 2 electrodes: control of 1 level point · With 3 electrodes: control maximum/minimum	DN25			

Accessories NCPR-NCVR	*Price*
Rod SS Ø5 mm without covering (1 m)	
Rod SS Ø5 mm without covering (1 m)	
Rod SS Ø5 mm with PTFE covering (1 m)	
Increase for voltages 901 or 902	

Accessories NCVRC	*Price*
Twisted cable Ø3mm, SS AISI316 with PVC covering (1m)	
Increase for voltages 901 or 902	

Application · Used in basements, offices, laundries, service galleries, clean rooms, etc.

Image	Reference / Description	Voltage	Cable (m)	Price
	**NP** · Sensor for floods detection · Connected to a level control relay · Process connection: By screws. · Electrical connection: PVC cable · Temperature: +70ºC · Pressure: Atmospherical · Protection: IP68		5	
	**NPS** · Sensor for floods detection · Connected to a level control relay · Compact and robust design · Process connection: By holding clamp · Electrical connection: PVC cable · Temperature: +70ºC · Pressure: Atmospherical · Protection: IP68		5	
	**NPR** · Sensor for floods detection · Process connection: By holding clamp · Electrical connection: PVC cable · Output: relay SPDT 6A/250VAC · Temperature: +70ºC · Pressure: Atmospherical · Protection: IP68	724	5	
		724	10	
		724	15	
		624	5	
		624	10	
		624	15	

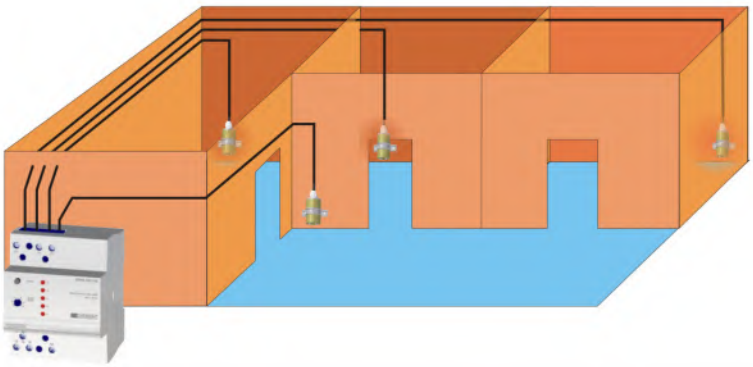
Products related with ALARM AND VISUALIZATION	*Page*
Relays for flood detection sensors	102

USEFUL INFORMATION

Connection of various sensors

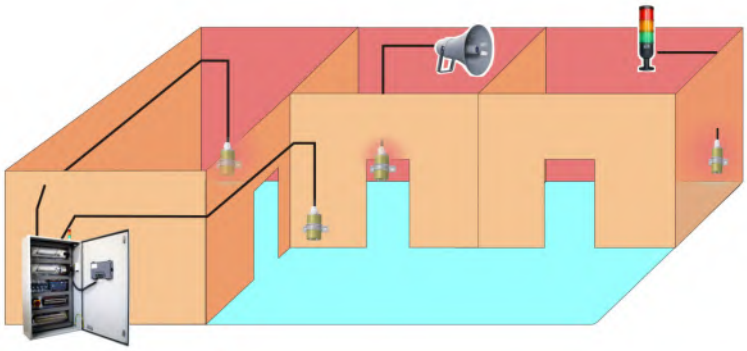
The SNNA and SNNY flood control relays accept up to 5 sensors simultaneously.

The detection of any sensor will activate the LED related to the input channel and the output relay in the case of SNNA.



Connection to other systems

NPR sensors can be connected to any device that accepts its type of output, being able to work independently or centralized from a control panel.



Application
· It is used to control the leakage in tanks of double chamber
· Built-in amplifier in the head for with relay output
· It requires the use of the sensor NS2R or IMNCR 70

Image	*Reference / Description*	*Cable (m)*	*Price*
	**NCAR AB PVC** · Detection of liquids leakage · Detection of cable breaking · Detection time: 500 ms · Warning mode: fix or flashing · Output relay: 6A 250V	-	
		-	
	**NS2R** · Resistive sensor for leak detection · Connection via M12 female connector	2	
		5	
		10	
	**IMNCR 70 PVC** · Level switch for leak detection · Connection via female M12 connector	2	
		5	
		10	

Application
· Non-contact liquid level detection
· Ideal for foam detection
· Reduced dimensions

Image	*Reference / Description*	*Price*
	**STV 600** · Flight time sensor · Scope: 0 .. 60 mm (white 90%) · Output: 2 x Push-Pull, LO function · Food: 19.2 .. 28.8 Vcc · Connection: 0.2 m cable + M12 4V connector	

Application
· They are used to obtain a continuous reading of liquid level.
· Used in control of pumps, compressors, water systems, hydraulics, pneumatics, machinery, etc.
· They must be assembled in the bottom of the tank to withstand the maximum pressure of the liquid.

Common data
· Ceramic sensor of high precision and long-term stability
· Supply voltage: 10..35 VDC

Image	*Reference / Description*	*Price*
	**TPSP 22 C** · General application. Compact size · Process connection: Thread 1/4", 1/2" BSP. SS 316L (1.4404) · Electrical connection: Connector DIN43650 · Ranges: 0/1..0/250 bar · Output: 4-20 mA · Temperature: 0..+80 ºC · Protection: IP65	
	**TPSP 22 M** · General application. Compact size · Process connection: Thread 1/2" BSP. SS 316L (1.4404) · Electrical connection: Connector M12 · Ranges: 0/1..0/250 bar · Output: 4-20 mA · Temperature: 0..+80 ºC · Protection: IP65	
	**TPSP 22 P** · General application. Compact size · Process connection: Thread 1/2" BSP. SS 316L (1.4404) · Electrical connection: Cable, 2 meters · Ranges: 0/1..0/250 bar · Output: 4-20 · Temperature: 0..+80 ºC · Protection: IP65	
	**TPSP 23 C** · General application. Compact size · Process connection: Thread 1/2" BSP. SS 316L (1.4404) · Electrical connection: Connector DIN43650 · Ranges: 0/1..0/250 bar · Output: 4-20 mA or 0-10 VDC · Temperature: 0..+80 ºC · Protection: IP65	
	**TPSP 23 M** · General application. Compact size · Process connection: Thread 1/2" BSP. SS 316L (1.4404) · Electrical connection: Connector M12 · Ranges: 0/1..0/250 bar · Output: 4-20 mA o 0-10 VDC · Temperature: 0..+80 ºC · Protection: IP65	
	**TPSP 23 P** · General application. Compact size · Process connection: Thread 1/2" BSP. SS 316L (1.4404) · Electrical connection: Cable, 2 meters · Ranges: 0/1..0/250 bar · Output: 4-20 mA o 0-10 VDC · Temperature: 0..+80 ºC · Protection: IP65	
	**TPSP 32 C** · Suitable for low pressures · Outcropping membrane · Process connection: Thread 1"1/4 BSP. SS AISI316 (1.4401) · Electrical connection: Connector DIN43650 · Ranges: 0/50..0/200 mBar · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP65	

Image	Reference / Description	Price
	**TPSP 34 C** · Continuous measurement in liquids, even with impurities · Outcropping membrane · Process connection: Thread 1" BSP. SS AISI316 (1.4401) · Electrical connection: Connector DIN 43650 · Ranges: 0/0,25..0/100 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP65	
	**TPSP 34 M** · Continuous measurement in liquids, even with impurities · Outcropping membrane · Process connection: Thread 1" BSP. SS AISI316 (1.4401) · Electrical connection: Connector M12 · Ranges: 0/0,25..0/100 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP65	
	**TPSP 34 P** · Continuous measurement in liquids, even with impurities · Outcropping membrane · Process connection: Thread 1" BSP. SS AISI316 (1.4401) · Electrical connection: Cable, 2 meters · Ranges: 0/0,25..0/100 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP65	
	**TPSP 37 C** · Continuous measurement of pressure in aggressive liquids · Outcropping membrane · Process connection: Thread 1"1/4 BSP. PTFE · Electrical connection: Connector DIN 43650 · Ranges: 0/0,25..0/10 bar · Output: 4-20 mA · Temperature: -5..+70 ºC · Protection: IP65	
	**TPSP 39 C** · Continuous measurement of pressure in aggressive liquids · Outcropping membrane · Process connection: Thread 1"1/4. PP · Electrical connection: Connector DIN 43650 · Ranges:0/0,25..0/10 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+55 ºC · Protection: IP65	
	**TPSP 39 M** · Continuous measurement of pressure in aggressive liquids · Outcropping membrane · Process connection: Thread 1"1/4. PP · Electrical connection: Connector M12 · Ranges:0/0,25..0/10 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+55 ºC · Protection: IP65	
	**TPSP 39 P** · Continuous measurement of pressure in aggressive liquids · Outcropping membrane · Process connection: Thread 1"1/4. PP · Electrical connection: Cable, 2 meters · Ranges:0/0,25..0/10 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+55 ºC · Protection: IP65	

Image	Reference / Description	Price
	**TPSP 41 C** · General application · Process connection: Thread 1/4", 1/2" BSP or NPT. SS AISI316 (1.4401) · Electrical connection: Connector DIN43650 · Ranges: 0/0,25..0/250 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: 0..+90 ºC · Protection: IP65	
	**TPSP 41 M** · General application · Process connection: Thread 1/4", 1/2" BSP or NPT. SS AISI316 (1.4401) · Electrical connection: Connector M12 · Ranges: 0/0,25..0/250 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: 0..+90 ºC · Protection: IP65	
	**TPSP 41 P** · General application · Process connection: Thread 1/4", 1/2" BSP or NPT. SS AISI316 (1.4401) · Electrical connection: Cable, 2 meters · Ranges: 0/0,25..0/250 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: 0..+90 ºC · Protection: IP65	
	**TPSP 41 FG C** · General application · Process connection: Thread 1/2" BSP. SS AISI316 (1.4401) · Wide detection surface (Ø 9 mm) · Electrical connection: Connector DIN43650 · Ranges: 0/0,25..0/60 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: 0..+90 ºC · Protection: IP65	
	**TPSP 41 FG M** · Applicable in seawater, osmosis processes, etc. · Process connection: Thread 1/2" BSP. SS AISI 904-L (1.4539) · Electrical connection: Connector M12 · Wide detection surface (Ø9 mm) · Ranges: 0/0,25..0/250 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP65	
	**TPSP 41 FG P** · Applicable in seawater, osmosis processes, etc. · Process connection: Thread 1/2" BSP. SS AISI 904-L (1.4539) · Wide detection surface (Ø 9 mm) · Electrical connection: Connector M12 · Ranges: 0/0,25..0/60 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP65	
	**TPSP 41 904-L C** · Applicable in seawater, osmosis processes, etc. · Process connection: Thread 1/2" BSP. SS AISI 904-L (1.4539) · Electrical connection: Connector DIN43650 · Ranges: 0/0,25..0/250 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP65	

Image	Reference / Description	Price
	**TPSP 41 904-L M** · Applicable in seawater, osmosis processes, etc. · Process connection: Thread 1/2" BSP. SS AISI 904-L (1.4539) · Electrical connection: Connector M12 · Ranges: 0/0,25..0/250 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP65	
	**TPSP 41 904-L P** · Applicable in seawater, osmosis processes, etc. · Process connection: Thread 1/2" BSP. SS AISI 904-L (1.4539) · Electrical connection: Cable, 2 meters · Ranges: 0/0,25..0/250 bar. Option 125 mBar (BP) · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP65	
	**TPSP 42 P** · For the control in pipe branches, distribution boxes, etc. · Suitable in high humidity environments or outdoor · Process connection: Thread 1/2" BSP. SS AISI316 (1.4401) · Electrical connection: Cable with double sealing, atm tube and twisted prop · Ranges: 0/0,25..0/250 bar · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP68	
	**TPSP 54 C** · For the control in pipe branches, distribution boxes, etc. · Suitable in high humidity environments or outdoor · Process connection: Thread 1/2" BSP. SS AISI316 (1.4401) · Electrical connection: Cable with double sealing, atm tube and twisted prop · Ranges: 0/0,25..0/250 bar · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP68	
	**TPSP 54 M** · For the control in pipe branches, distribution boxes, etc. · Suitable in high humidity environments or outdoor · Process connection: Thread 1/2" BSP. SS AISI316 (1.4401) · Electrical connection: Cable with double sealing, atm tube and twisted prop · Ranges: 0/0,25..0/250 bar · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP68	
	**TPSP 54 P** · For the control in pipe branches, distribution boxes, etc. · Suitable in high humidity environments or outdoor · Process connection: Thread 1/2" BSP. SS AISI316 (1.4401) · Electrical connection: Cable with double sealing, atm tube and twisted prop · Ranges: 0/0,25..0/250 bar · Output: 4-20 mA or 0..10 VDC · Temperature: -5..+90 ºC · Protection: IP68	

Accessories TPSP	Price
VTP: Digital meter 4-20 mA	
CS5: cable special for pressure sensors TPSP xx P, 1 m	
BP: Option "Low Pressure", range 0/125 mBar	

Products related with PRESSURE SENSORS	Page
Current relays for 4-20 mA loop: SAJ, SAJA/B, SAKA	124
Current relays for DC: SAB, PABA/B, DABA/B, SABA/B, PAFA, DAFA, SAFA	116..117
Board instrument of digital display: IPD	142
Protector against atmospheric discharges for 4-20mA loop: PS-4	140

Application
· They are used to obtain a continuous reading of the liquid level.
· Used in pump control, level measurement, wells, etc.
· They are installed in the upper part of the container, held by the cable itself, until reaching the lowest point of measurement.

Common data
· Ceramic sensor of high precision and long-term stability
· Supply voltage: 10..35 VDC

Image	*Reference / Description*	*Price*
	**TPSM 40** · Suitable for clean water or liquid without impurities · General application and wells · Manufactured in SS AISI316 (1.4401). ø23 mm · Process connection: Hanging by the cable · Electrical connection: Cable, 10 meters · Ranges: 0/0,25..0/40 bar. Optional 125 mBar (BP)	
	**TPSM 41** · Suitable for clean water or liquid without impurities. Special for wells · Manufactured in SS AISI316 (1.4401). ø18 mm · Process connection: Hanging by the cable · Electrical connection: Cable, 10 meters · Ranges: 0/0,25..0/20 bar	
	**TPSM 51** · Specifications for low pressure · Manufactured in SS AISI316L (1.4404). ø40 mm · Process connection: 1/2" BSP · Electrical connection: Cable, 3 meters · Ranges: 0/50..0/200 mbar · Temperature: -5..+70 °C	
	**TPSM 54** · Suitable for diesel and liquids without impurities · Manufactured in SS AISI316 (1.4401). ø23 mm · Process connection: Thread ½" BSP · Electrical connection: Cable, 10 meters · Ranges: 0/0,25..0/40 bar	
	**TPSM 59** · Suitable for aggressive liquids and chemicals · Manufactured in PP. ø23 mm · Process connection: Thread 1/4" BSP · Electrical conneciona: Cbale, 10 meters</br> · Ranges: 0/0,25..0/10 bar	
	**TPSM 64** · Suitable for wastewater or liquids with non solid impurities · Outcropping membrane · Manufactured in SS AISI316 (1.4401). ø23 mm · Process connection: Thread 1/2" BSP · Ranges: 0/0,25..0/40 bar	
	**TPSM 65** · Suitable for wastewater or liquids with solid impurities · Outcropping membrane · Manufactured in SS AISI316 (1.4401). ø23 mm · Process connection: Hanging by the cable · Electrical connection: Cable, 10 meters · Ranges: 0/0,25..0/40 bar. Optional 125 mBar (BP)	

Image	Reference / Description	Price
	**TPSM 66** · Suitable for wastewater or viscous liquids · Outcropping membrane · Manufactured in SS AISI316 (1.4401). ø23 mm · Process connection: Hanging by the cable · Electrical connection: Cable, 10 meters · Ranges: 0/0,25..0/40 bar	
	**TPSM 76** · Suitable for wastewater or viscous liquids · Manufactured in PP. ø23 mm · Process connection: Hanging by the cable · Electrical connection: Cable, 10 meters · Ranges: 0/0,25..0/10 bar	
	**TPSM 77** · Suitable for wastewater or marine waters · Manufactured in PP. ø23 mm · Process connection: Thread 1/2"BSP · Electrical connection: Cable, 10 meters · Ranges: 0/0,25..0/10 bar	
	**TPSM 79** · Suitable for wastewater or marine waters · Manufactured in PP. ø23 mm · Process connection: Hanging by the cable · Electrical connection: Cable, 10 meters · Ranges: 0/0,25..0/10 bar. Optional 125 mBar (BP)	
	**TPSM TB** · Adapter for installing a pressure sensor with top screw and connection housing · Process connection: screw cap. Any measure from 1/2"G. SS AISI316 (1.4401) or PVC · Electrical connection: Connection housing. PBT · Protection: IP67	

Accessories TPSM	Price
CS7: cable special for pressure sensors TPSM, 1 m	
PAC: Holding clamp for the cable	

Products related with PRESSURE SENSORS	Page
Current relays for 4-20 mA loop: SAJ, SAJA/B, SAKA	124
Current relays for DC: SAB, PABA/B, DABA/B, SABA/B, PAFA, DAFA, SAFA	116..117
Board instrument of digital display: IPD	142
Protector against atmospheric discharges for 4-20mA loop: PS-4	140

Application The ultrasound sensor emits impulses towards the product to be controlled, which reflects them towards the sensor. The measurement of the time that elapses from the emission of the signals to their reception translates into the height of the product level inside the tank.

Common data
· Adjustment by teach button
· Output: PNP NO/NC + 4-20 mA
· Supply: 10..30 VDC
· Operating temperature: -20..+70ºC

Image	*Reference / Description*	*Price*
	**SNU 18P** · Dimensions: M18, L = 91.6 mm · Nominal range: 2200 mm · Dead zone: 200 mm · Resolution: <= 3 mm	
	**SNU 30P** · Dimensions: M90, L = 99 mm · Nominal range: 6000 mm · Dead zone: 350 mm · Resolution: 0.1% full scale	

Products related with ULTRASONIC SENSORS	*Page*
Current relay for 4-20mA loop: SAJ, SAJA/B, SAKA	124
Current relays for DC: SAB, PABA/B, DABA/B, SABA/B, PAFA, DAFA, SAFA	124
Board instrument of digital display: IPD	142

Application
· They are used for the detection of liquids of different density and viscosity.
· They can detect plastic deposits from the outside.
· They can detect without being in contact with the liquid.
· They must be connected to any of the capacitive relays PNAS/T - DNAS/T.

Common data
· Sensitivity adjustable via multiturn potentiometer.
· Led indicative of detection of the product.
· Temperature: -15..+70ºC
· Pressure: 10 Kg/cm²
· Protection: IP65

Image	*Reference / Description*	*Price*
	**SCS 35** · Manufactured in PVC · Process connection: Hanging by cable (5 m) · Electrical connection: Cable	
	**SCR 35** · Manufactured in PVC · Process connection: Thread 1"1/4 G · Electrical connection: Cable	
	**SCRR 35** · Manufactured in PVC · Process connection: Thread 1"1/2 G · Electrical connection: Cable	
	**SCRR 35 T** · Manufactured in PTFE (nonsticky) · Usable in pharmaceutical or food industry · Process connection: Thread 1"1/2 G · Electrical connection: Cable	
	**SCRR 35 43650** · Manufactured in PVC · Process connection: Thread 1"1/2 G · Electrical connection: DIN43650 connector	
	**SCRR 35 T 43650** · Manufactured in PTFE (nonsticky) · Usable in pharmaceutical or food industry · Process connection: Thread 1"1/2 G · Electrical connection: DIN43650 connector	

Products related with CAPACITIVE SENSORS	*Page*
Amplifiers relays for capacitive sensors: PNAS/T, DNAS/T	104

Application
· They are used for the detection of solid materials in grain, powder, aggregates, chemical products, etc.
· They can detect plastic deposits from the outside.
· They can detect without being in contact with the liquid.
· Direct connection to an auxiliary relay, PLC, etc.

Common data
· Sensitivity adjustable via multiturn potentiometer.
· Led indicative of detection of the product.
· Supply voltage: AC or DC, according to model
· Output: NO, NC or SCR, according to model
· Temperature: -25..+80ºC
· Protection: IP67

Image	Reference / Description	Voltage	Output	Mode	Detection	Model	Price
	**SCM 18P ... A** · Made of Polyester · Threaded body M18 · Electrical connection: Cable 2 m · Detection distance: 8 or 12 mm, depending on model	20..250 VAC	NO+NC	NPN	Flush	SCM 18P BN 1A	
		20..250 VAC	NO+NC	NPN	No flush	SCM 18P BN 2A	
		20..250 VAC	NO+NC	PNP	Flush	SCM 18P BP 1A	
		20..250 VAC	NO+NC	PNP	No flush	SCM 18P BP 2A	
		10..40 VDC	NO	SRC	Flush	SCM 18P A0 1A	
		10..40 VDC	NO	SRC	No flush	SCM 18P A0 2A	
		10..40 VDC	NC	SRC	Flush	SCM 18P C0 1A	
		10..40 VDC	NC	SRC	No flush	SCM 18P C0 2A	
	**SCM 18P ... E** · Made of Polyester · Threaded body M18 · Electrical connection: M12 connector · Detection distance: 8 or 12 mm, depending on model	20..250 VAC	NO+NC	NPN	Flush	SCM 18P BN 1E	
		20..250 VAC	NO+NC	NPN	No flush	SCM 18P BN 2E	
		20..250 VAC	NO+NC	PNP	Flush	SCM 18P BP 1E	
		20..250 VAC	NO+NC	PNP	No flush	SCM 18P BP 2E	
		10..40 VDC	NO	SRC	Flush	SCM 18P A0 1E	
		10..40 VDC	NO	SRC	No flush	SCM 18P A0 2E	
		10..40 VDC	NC	SRC	Flush	SCM 18P C0 1E	
		10..40 VDC	NC	SRC	No flush	SCM 18P C0 2E	
	**SCM 30P ... A** · Made of Polyester · Threaded body M18 · Electrical connection: Cable 2 m · Detection distance: 16 or 25 mm, depending on model	20..250 VAC	NO+NC	NPN	Flush	SCM 30P BN 1A	
		20..250 VAC	NO+NC	NPN	No flush	SCM 30P BN 2A	
		20..250 VAC	NO+NC	PNP	Flush	SCM 30P BP 1A	
		20..250 VAC	NO+NC	PNP	No flush	SCM 30P BP 2A	
		20..250 VAC	NO/NC	SRC	Flush	SCM 30P 00 1A	
		20..250 VAC	NO/NC	SRC	No flush	SCM 30P 00 2A	
	**SCM 30P ... E** · Made of Polyester · Threaded body M18 · Electrical connection: M12 connector · Detection distance: 16 or 25 mm, depending on model	20..250 VAC	NO+NC	NPN	Flush	SCM 30P BN 1E	
		20..250 VAC	NO+NC	NPN	No flush	SCM 30P BN 2E	
		20..250 VAC	NO+NC	PNP	Flush	SCM 30P BP 1E	
		20..250 VAC	NO+NC	PNP	No flush	SCM 30P BP 2E	
		20..250 VAC	NO/NC	SRC	Flush	SCM 30P 00 1E	
		20..250 VAC	NO/NC	SRC	No flush	SCM 30P 00 2E	

Application · They are used in open tanks to control liquids at atmospheric pressure.
· The float contains no magnetic components making it ideal for recovery of oil tanks, drilling, etc.. ss well as those in which the temperature is high (Stainless Steel models.)

Common data · The length of the sensor is limited by the characteristics of each float.

Image	*Reference / Description*	*Length*	*Price*
	**INMS** · Process connection: Threaded M12 · Microruptor output SPDT 10A/250V · Float: SS AISI316 (1.4401), ø95 mm · Length: 200, 400 or 600 mm · -20..+70ºC (box), +150°C (float). IP66	200 400 600	
	**INMB** · Process connection: Screws, 2 holes ø5,3 mm · Output: 1 Microruptor SPST NO 10A/230V - 1 Microruptor SPST NC 10A/230V · Float: SS AISI316 (1.4401), ø110 · Length: 2000 mm, maximum · -20..+70ºC (housing), +200°C (float). IP66	<= 2000	
	**INMB EX** · Process connection : Screws, 4 holes ø6 mm · Output: 1 Microruptor SPST NO 10A/380V - 1 Microruptor SPST NC 10A/380V · Float: SS AISI316 (1.4401), ø110 mm · Length: 2000 mm, maximum · -10..+80ºC (housing), +200°C (float). IP66 · ATEX EExd IIC T6	<= 2000	
	**INMG** · Process connection: Top screw 1" G · Output: Reed contact SPDT 1A/230V, 60W/VA · Float: PVC, ø29x85 mm. e>0,7 g/cm³ · Length: 210..600 mm · +60ºC. IP65	210 .. 6000	

Application
· For liquid level control and other fluid mixtures.
· For the control of pumps or signaling of different levels.
· The pressure inside the tube acts on a switch placed in the housing.
· Can signal pressures from 20 mm water column.

Image	*Reference / Description*	*Contacts*	*Housing*	*Membrane*	*Price*
	**INPN** · Housing: Aluminum · Pressure chamber: Polyester with fiberglass · Connection tube: Threaded 1"G (not supplied) · Models with 1 or 2 contacts · Temperature: +60ºC · Pressure: Atmospheric · Protection: IP53	1	Aluminium	Nitrile	
		1	Aluminium	Viton	
		1	Plastic	Viton	
		2	Aluminium	Nitrile	
		2	Aluminium	Viton	
		2	Plastic	Viton	

Application · To be installed on the side of storage tanks, process tanks, etc.
· They are used for high or low level, control low-level staging, etc. Commonly used on boats because of their robustness

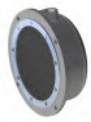
Image	*Reference / Description*	*Price*
	**INML 10 BC** · Process connection: Flange 1"1/2 NPT x 5 kg/cm². SS AISI304 (1.4301) · Electrical connection: Aluminum connection housing ø70x78 mm · Output: Microswitch SPDT 5A / 250 VAC · -10..+100 ºC. 15 kg/cm². 0,65 g/cm³. IP65	
	**INML 10 BCEX** · Process connection: Flange 1"1/2 NPT x 5 kg/cm². SS AISI304 (1.4301) · Electrical connection: Aluminum connection housing ø70x78 mm · Output: Microswitch SPDT 5A / 250 VAC · -10..+100 ºC. 15 kg/cm². 0,65 g/cm³. IP65 · ATEX II 2 G EEx d IIB T6	
	**INML 10 BQ** · Process connection: Flange 1"1/2 NPT x 5 kg/cm². SS AISI304 (1.4301) · Electrical connection: Aluminum connection housing ø70x78 mm · Output: Microswitch SPDT 5A / 250 VAC · -10..+100 ºC. 15 kg/cm². 0,65 g/cm³. IP65 · Marine certificate	
	**INML 20 BC** · Process connection: Flange 1"1/2 NPT x 5 kg/cm². SS AISI304 (1.4301) · Electrical connection: Aluminum connection housing ø70x78 mm · Output: Reed 1A / 30W / 220 VAC / 220 VDC · -25..+200 ºC. 15 kg/cm². 0,65 g/cm³. IP65	
	**INML 10 TR** · Process connection: Thread 1"1/2 NPT. SS AISI304 (1.4301) · Electrical connection: Connection housing. Aluminum. ø70x78 mm · Output: Microswitch SPDT 5A / 250VCA · -10..+100 ºC. 15 kg/cm². 0,65 g/cm³. IP65	
	**INML 20 TR** · Process connection: Thread 1"1/2 NPT. SS AISI304 (1.4301) · Electrical connection: Connection housing. Aluminum. ø70x78 mm · Output: Microswitch SPDT 5A / 250VCA · -25..+200 ºC. 15 kg/cm². 0,65 g/cm³. IP65	

Application · Suitable for monitoring flows in small and medium circulation systems of non-aggressive liquids.

Image	*Reference / Description*	*Connection*	*Price*
	**SF 140** · Flow switch by mechanical driving · Process connection: Thread 3/8" - 1/2" - 3/4"- 1" G · Electrical connection: DIN 43650 connector · -10..+110 ºC. 25 bar. IP65	3/8´´	
		1/2´´	
		3/4´´	
		1´´	
	**SF 145** · Flow switch by mechanical driving · Process connection: Thread 1" G · Electrical connection: Housing · Relay output, SPDT, 15A 250V · -40..+85 ºC. 25 bar.	1´´ (Mod. 1K)	
		1´´ (Mod. 1RE)	
		1´´ (Mod. 2E)	

Application · Level control for solids with easy flow at atmospheric pressure.
· The membrane must be exposed to the material to be controlled. When the material entering the silo piles and cover the membrane, the pressure forces it to operate the switch placed inside the box.

Common data · Membranes optional in Neoprene, Viton, SS
· Density of the product: 0,3..2,5 t/m³

Image	*Reference / Description*	*Membrane*	*Price*
	**CNM 10** · Small dimensions · Manufactured in plastic · Flushing membrane. ø102 mm. Nitrílic · Output: Micro-switch SPDT 5A / 250V · Operating pressure: >8 g · Temperature: -10..+60 ºC · Protection: IP50	Nitrile	
		Viton	
	**CNM 20** · General application · Manufactured in reinforced plastic · Flushing membrane. ø155 mm. Nitrílic · Output: Micro-switch SPDT 10A / 250V · Operating pressure: >60 g · Temperature: -20..+80 ºC · Protection: IP53	Nitrile	
		Viton	
		Stainless steel	
	**CNM 20 EX** · General application · Manufactured in reinforced plastic · Flushing membrane. ø155 mm. Nitrílic · Output: Micro-switch SPDT 10A / 250V · Operating pressure: >60 g · Temperature: -20..+80 ºC · Protection: IP53 · ATEX Group II, Category 1/2 D (dust), Zones 20, 21 and 22	Stainless steel	
	**CNM 30** · Anticondensation design · Manufactured in reinforced plastic · Outcropping membrane. ø155 mm. Nitrílic · Output: Micro-switch SPDT 10A / 250V · Operating pressure: >60 g · Temperature: -20..+80 ºC · Protection: IP53	Nitrile	
		Viton	
		Stainless steel	
	**CNM 30 EX** · Anticondensation design · Manufactured in reinforced plastic · Outcropping membrane. ø155 mm. Nitrílic · Output: Micro-switch SPDT 10A / 250V · Operating pressure: >60 g · Temperature: -20..+80 ºC · Protection: IP53 · ATEX Group II, Category 1/2 D (dust), Zones 20, 21 and 22	Nitrile	
	**CNM 40** · Large detection surface · Manufactured in reinforced plastic · Flushing membrane. ø214 mm. Nitrílic · Output: Micro-switch SPDT 15A / 250V · Operating pressure: 60..200 g · Temperature: -20..+80 ºC · Protection: IP53	Nitrile	
		Viton	
		Stainless steel	

Application

· Level control for solids in bulk.
· When the product reaches the paddle, it finds resistance to its rotation and a motor-reducer rotates on its axis by activating two micro-switches: one of them stops the engine and the other one operates on the mechanisms of control, stopping or starting the engine, signalization systems, conveyors, elevators, feeders, etc.
When the paddles are free of product, motor-reducer connects again inversing the control signal.

Common data

· Synchronous moto-reducer of slow speed
· Delay on disconnection: 2 s
· Types of paddles: Different depending on the application
· Material of paddles: SS AISI303

Image	*Reference / Description*	*Voltage*	*Price*
	**CNPR-N** · For products in bulk with a maximum grain of 15 mm. Small silos · Manufactured in reinforced ABS · Process connection: Thread 1"1/4 G · Paddle "L", 100x110 mm (other on request) · Output: Micro-switch SPDT 2 A/250 VAC · Temperature: -20..+60 ºC · Pressure: 0,5 bar · Protection: IP65	24 VDC 24 VAC 230 VAC	
	**CNPR-D** · For products in bulk with several grain sizes. All kind of silos · Process connection: Thread 1"1/4G (oher on request) · Electrical connection: Housing. Aluminium · Paddle "L", 130x130 mm (oher on request) · Output: Micro-switch SPDT 1mA/4V..2A/250 VAC · Temperature: -25..+80 ºC · Pressure: 5 bar · Protection: IP66	24 VDC 24 VAC 230 VAC	
	**CNPR-D EX** · For products in bulk with several grain sizes. All kind of silos · Process connection: Flange/Thread 1"1/4"G. SS AISI303 (1.4305) · Electrical connection: Housing. Aluminium · Different paddles according to the application · Output: Micro-switch SPDT 1mA/4V..2A/250 VAC · Temperature: -25..+80 ºC · Pressure: 5 bar · Protection: IP66 · ATEX Group II, Category 1/2 D (dust)	230 VAC 24 VAC 24 VDC	

Application

· Suitable for high level control in products producing slope during loading of the silo.
· They also control flows and blockages in pipes, conveyors endless, chain conveyors, etc.
· The sensor probe should be exposed to the material to be detected. The thrust exerted by the material requires the sensor to operate a switch that must be connected to the control systems to make the on/off of signaling and transport mechanisms.

Common data

· Electrical connection: Housing. Aluminium
· Output: Micro-switch SPDT 10 A/250 VAC
· Temperature: -20..+100 ºC
· Density: >0,150 kg/m³
· Protection: IP65

Image	*Reference / Description*	*Price*
	**CNP-C** · Installation on the roof of the silo · Process connection: Flange ø142 mm · Length: 300..2000 mm	
	**CNP-C EX** · Installation on the roof of the silo · Process connection: Flange ø142 mm · ATEX Group II, Category 1/2 D (dust) · Length: 300..2000 mm	
	**CNP-H** · Installation on concrete floor · Process connection: Flange ◊140 mm · Length: 300..2000 mm	

Application · Suitable for level detection in solid, granular or powder.

Common data
· Made with SS AISI304
· Output: Relay SPDT 5A / 250VAC
· Adjustable sensitivity
· Temperature (housing): -20..+60ºC
· Pressure: 10 bar
· Protection: IP66

Image	*Reference / Description*	*Price*
	**CNV 100** · For products of medium density (> 50 g/l) and with low humidity · Process connection: Top screw 1"G · Electrical connection: Connector DIN 43650 · Power supply: 24 VAC/DC · Temperature: -20..+70 ºC	
	**CNV 110** · For products of medium density (> 50 g/l) · Process connection : Top screw 1"G · Electrical connection: Connection housing. Aluminium · Power supply: 20..250 VAC/DC · Temperature: -20..+70 ºC	
	**CNV 110 EX** · For products of medium density (> 50 g/l) · Process connection : Top screw 1" G · Electrical connection: Connection housing. Aluminium · Power supply: 20..250 VAC/DC · Temperature: -20..+70 ºC · ATEX Group II, Category 1/2 D (dust), Zones 20, 21 and 22	
	**CNV 120** · For extremely lightweight products · Process connection: Top screw 1"1/2 G. NPT · Electrical connection: Connection housing. Aluminum · Power supply: 20..250 VAC/DC · Temperature: -20..+780 ºC	
	**CNV 120 EX** · For extremely lightweight products · Process connection: Top screw 1"1/2 G. NPT · Electrical connection: Connection housing. Aluminum · Power supply: 20..250 VAC/DC · Temperature: -20..+780 ºC · ATEX Group II, Category 1/2 D (dust), Zones 20, 21 and 22	
	**CNV 150** · For extremely lightweight products · Extending up to 20 m · Process connection: Top screw 1"1/2G. NPT · Electrical connection: Connection housing. Aluminum · Power supply: 20..250 VAC/DC · Temperature: -20..+80 ºC	
	**CNV 150 EX** · For extremely lightweight products · Extending up to 20 m · Process connection: Top screw 1"½ G. NPT · Electrical connection: Connection housing. Aluminum · Power supply: 20..250 VAC/DC · Temperature: -20..+80 ºC · ATEX Group II, Category 1/2 D (dust), Zones 20, 21 and 22	

Application · They are used to control a maximum or minimum level.

Common data
· Made in SS AISI316 (1.4401)
· Electrical connection: Silicone cable, 1 meter
· Temperature: -40..+125 ºC
· Protection: IP65
· The length of the guide tube is fixed.
· They have a single contact for maneuver.
· By reversing the position of the float, it also reverses the state of the contact.

Image	*Reference / Description*	*Connection*	*1 C*
	**IMN 40 INOX** · Process connection: Nipple. 1/8" G. SS AISI316 (14401) · Length: 40 mm · Float: Cylindrical ø29x32 mm · Contacts: (NO) 40W/VA-2A/230VAC/DC · Density: 0,8 g/cm³ · Pressure: 20 kg/cm²	1/8´´	
	**IMN 40 A INOX** · For installation at the tank side · Process connection: Nipple. 1/8" G. SS AISI316 (14401) · Length: 40 mm · Float: Cylindrical ø29x32 mm · Contacts: (NO) 40W/VA-2A/230VAC/DC · Density: 0,8 g/cm³ · Pressure: 20 kg/cm²	1/8´´	
	**IMN 70 INOX** · Process connection: Nipple. 1/4" G. SS AISI316 (1.4401) · Length: 70 mm · Float: Spherical ø52 mm · Contacts: (NO) 120W/VA-3A/250VCA/CC · Density: 0,7 g/cm³ · Pressure: 30 kg/cm²	1/4´´	
	**IMN 70 A INOX** · For installation in the tank side · Process connection: Nipple. 1/4" G. SS AISI316 (1.4401) · Length: 70 mm · Float: Spherical ø52 mm · Contacts: (NO) 120W/VA-3A/250VAC/DC · Density: 0,7 g/cm³ · Pressure: 30 kg/cm²	1/4´´	

Accessories	*Price*
Silicone cable, 1 m	
Screw nut SS 1/8' 'G	
Screw nut SS 1/4' 'G	

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application · They are used to control a maximum or minimum level.

Common data
· The length of the guide tube is fixed.
· They have a single contact for maneuver.
· By reversing the position of the float, it also reverses the state of the contact.

Image	*Reference / Description*	*Cable (m)*	*1 C*
	**IMN 70 LATON** · Process connection: Nipple. 1/4" G. Brass · Electrical connection: PVC cable, 1 meter · Length: 70 mm · Float: Cylindrical ø29x50 mm · Contacts: (NO) 40W/VA-2A/230VAC/DC · Density: 0,6 g/cm³ · Temperature: -30..+60 ºC · Protection: IP65	1	
	**IMNC 70 PVC** · Process connection: hanging by cable · Electrical connection: PVC cable, different lengths · Length: 1350 mm · Float: Cylindrical ø29x50 mm, PP · Contacts: (NO) 40W/VA-2A/230VAC/DC · Density: 0,6 g/cm³ · Temperature: -30..+60 ºC · Protection: IP65	1	
		2	
		5	
		10	

Accessories	*Price*
PVC cable, 1 m	

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

MAGNETIC SWITCHES: USEFUL INFORMATION

Application area

Magnetic Level Switches are used to visualize and control the level of liquids in tanks, tanks, boilers, etc. There are innumerable and diverse applications where a Magnetic Level Switch is required, which are manufactured under the exclusive specifications of each client.
Liquids should not contain suspended solids, nor present a tendency to crystallization. The density and viscosity of the liquid are factors to take into account to favor the correct displacement of the float along the tube.
It is essential to ensure that the materials with which the instrument is constructed have sufficient chemical resistance to withstand the liquid to be controlled, as well as that the working pressure and temperature conditions cannot cause mechanical deformations that affect it.
Important: These instruments should not be installed in the vicinity of strong magnetic fields since they could prevent their proper functioning.

Application · They are used to control a maximum or minimum level.

Common data
· Reduced dimensions.
· The length of the guide tube is fixed.
· They have a single contact for maneuver.
· By reversing the position of the float, it also reverses the state of the contact.

Image	*Reference / Description*	*Cable (m)*	*1 C*
	**IMN 50 NY V** · Process connection: Nipple. Nylon. M16x2 · Electrical connection: PVC cable · Length: 55 mm · Float: Cylindrical ø21x30 mm. Nylon 6.6 o PP · Contacts: (NO) 15W/VA-0,3A/250VAC · Density: 0,7 g/cm³ · Temperature: -30..+80 ºC · Protection: IP65	0,5	

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application · They are used to control a maximum or minimum level.

Common data
· Made in PP
· Electrical connection: PVC cable
· Pressure: Atm
· Protection: IP65
· The length of the guide tube is fixed.
· They have a single contact for maneuver.
· By reversing the position of the float, it also reverses the state of the contact.

Image	*Reference / Description*	*Cable (m)*	*1 C*
	**IMN 20 PP** · Process connection: Nipple. M8. PP · Length: 43 mm · Float: Cylindrical ø19X16 mm. Foam · Contacts: (NO) 20W/VA/250VAC-1A · Density: 0,75 g/cm³ · Temperature: -20..+60 ºC	0,3	
	**IMN 50 PP V** · Process connection: Nipple. M16x2. PP · Length: 55 mm · Float: Cylindrical ø21x30 mm · Contacts: (NA) 15W/VA-0,3/250VAC · Density: 0,7 g/cm³ · Temperature: -30..+60 ºC	0,5	

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

MAGNETIC SWITCHES: USEFUL INFORMATION

Operating principle

The Magnetic Level Switches are provided inside the tube with one or several reed hermetic contacts.
The float that travels along the tube contains a magnet whose magnetic field drives the contacts when it is at the same height. The contacts can be of type NO, NC or NONC.
The contacts are placed in the tube at the distances requested by the customer and its position cannot be modified. The float is the only moving element in a Magnetic Level Switch.

Application · They are generally used to control a maximum level.

Common data
· Manufacted in SS AISI304
· Float: Cylindrical ø17x47 mm
· Density: 0,7 g/cm³
· Temperature: -40..+125 ºC
· Pressure: 5 kg/cm²
· Protection: IP67
· They have a single contact for maneuver.
· Contact: (NO) 50W/VA-0,5A/230VAC
· By reversing the position of the float, it also reverses the state of the contact.

Image	*Reference / Description*	*Cable (m)*	*1 C*
	**IMN 50 INOX H** · Assembly from inside the tank · Process connection: Nipple. 1/8" G · Electrical connection: 2 PVC cables, 300 mm · Length: 94 mm	0,3	
	**IMN 52 INOX H** · Assembly from outside the tank · Process connection: Nipple. 1/2" NPT · Electrical connection: 2 PVC cables, 300 mm · Longitud: 109 mm	0,3	
	**IMN 52 TC INOX** · Assembly from outside the tank · Process connection: Nipple. 1/2" NPT · Electrical connection: Connector Mini DIN43650 · Length: 109 mm	-	
	**IMN 52 TCM12 INOX** · Assembly from outside the tank · Process connection: Nipple. 1/2" NPT · Electrical connection: Connector M12 (IP67) · Length: 109 mm	-	

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application · For installation on the side of the tank.

Common data
· They have a single contact for maneuver.
· Contact: (NO) 15W/VA-0,3A/250VAC
· By reversing the position of the float, it also reverses the state of the contact.

Image	*Reference / Description*	*Cable (m)*	*1 C*
	**IMN 50 NY H** · Process connection: Nipple M16x2 mm. Nylon · Electrical connection: PVC cable · Length: 58 mm · Float: Cylindrical ø17x47 mm · Density: 0,9 g/cm³ · Temperature: -30..+80 ºC · Protection: IP65	0,5	

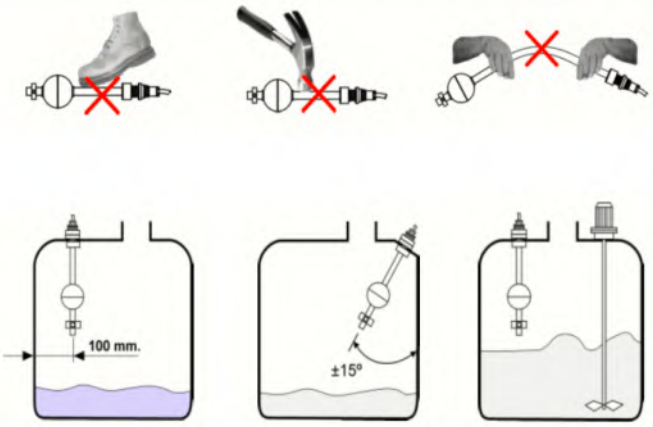
Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

MAGNETIC SWITCHES: USEFUL INFORMATION

Handling

The Magnetic Level Switch tube must not be bent or exposed to impacts since the reed contacts could be seriously damaged.
The mechanical stops that may exist along the tube must not be readjusted since the correct operability of the contacts could be lost.
Depending on the type of electrical connection, the use of the seals supplied and the adequacy of the diameter of the electrical cable to the cable glands must be ensured in order to prevent moisture penetration.
If due to the conditions of the installation it is foreseeable that frequent temperature changes can occur with the consequent condensation inside the instrument, request that it be manufactured with one of the sealing versions.

When carrying out the installation, it is necessary to check that the float can move freely along the tube and ensuring sufficient distance with the tank wall. The inclination of the instrument must not exceed ± 15º from the vertical.



Application · For installation at the side of the tank.

Common data
· They have a single contact for maneuver.
· Contact: (NO) 15W/VA-0,3A/250VAC
· By reversing the position of the float, it also reverses the state of the contact.

Image	*Reference / Description*	*Cable (m)*	*1 C*
	**IMN 50 PP H** · Process connection: Nipple M16x2. PP · Electrical connection: PVC cable · Length: 58 mm · Float: Cylindrical ø17x47 mm · Density: 0,7 g/cm³ · Temperature: -30..+60 ºC · Protection: IP65	0,5	
	**IMN 60 PP H** · Process connection: Nipple M16x2. PP · Electrical connection: PVC cable · Length: 60 mm · Float: Cylindrical ø17,5x51 mm · Density: 0,7 g/cm³ · Temperature: -10..+85 ºC · Protection: IP65	0,3	

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Because of its small size is ideal for tanks with limited space.
· Custom fabrication to suit the installation conditions.

Common data
· Made in SS AISI316 (1.4401)
· Process connection: Nipple 1/8" G
· Electrical connection: Silicone cable
· Float: Cylindrical ø29x32 mm
· Contacts: (NO) 40W/VA-2A/230VAC/DC
· Contacts: (NC and NONC) 20W/VA-1A/150VAC/DC
· Density: 0,71 g/cm³
· Temperature: -40..+125ºC
· Pressure: 15 kg/cm²
· Protection IP65

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*
	**IMN RPM INOX** · Vertical installation · Length: 50..3500 mm	1/8´´			
		1/4´´			
		1/2´´			
	**IMN RPMA INOX** · For installation in the tank side · Length: 50..1000 mm	1/8´´			

Accessories	*Price*
Silicone cable, 1 m	
Screw nut SS 1/8' 'G	
Screw nut SS 1/4' 'G	

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

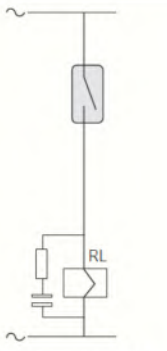
MAGNETIC SWITCHES: USEFUL INFORMATION

Electrical connection

The manufacturing sheet that accompanies each instrument unequivocally details the maximum permitted values of voltage and intensity, which should not be exceeded even for short periods of time.

Work values refer to resistive loads. When inductances are connected (relay or contactor coils, solenoid valves, etc.), the appropriate means must be used to protect the contacts of the overvoltage peaks they produce (RC filters, diodes, etc.). No special attention is required if the contacts are connected to a PLC.

The electrical connection must be made in accordance with the scheme that appears on the manufacturing sheet, unique and specific to the instrument it accompanies.



Coil protection in AC

Coil protection in DC

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Because of its small size is ideal for tanks with limited space.
· Custom fabrication to suit the installation conditions.

Common data
· Made in SS AISI316 (1.4401)
· Process connection: Top screw. 1"-1"1/4 G
· Float: Cylindrical ø29x32 mm
· Contacts: (NO) 40W/VA-2A/230VAC/DC
· Contacts: (NC and NONC) 20W/VA-1A/150VAC/DC
· Density: 0,71 g/cm³
· Temperature: -40..+125ºC
· Pressure: 20 kg/cm²

Image	Reference / Description	Connection	1 C	2 C	3 C	4 C
	**IMN TPM INOX** · Electrical connection: Silicone cable · Length: 50..3500 mm · Protection: IP65	1´´				
		1´´1/4				
	**IMN TPMA INOX** · For installation on the side of the tank · Electrical connection: Silicone cable · Length: 50..1000 mm · Bent elbow: 90º · Protection: IP65	1´´				
		1´´1/4				
	**IMN TCM INOX** · Electrical connection: Connector DIN43650 · Length: 100..3500 mm · Protection: IP65	1´´				
		1´´1/4				
	**IMN TCMA INOX** · For instalation in the tank side · Electrical connection: Connector DIN43650 · Length: 50..1000 mm · Bent in elbow 90º · Protection: IP65	1´´				
		1´´1/4				
	**IMN TCM12 INOX** · Electrical connection: Miniature connector M12. The female connector is not supplied · Length: 100..3500 mm · Protection: IP67	1´´				
		1´´1/4				
	**IMN TCMA12 INOX** · For installation on the side of the tank · Connecting power: Miniature connector M12. The female connector is not supplied · Length: 100..1000 mm · Bent in elbow 90º · Protection: IP67	1´´				
		1´´1/4				
	**IMN TBM INOX** · Process connection: Top screw. 1"-1"1/4 G · Electrical connection: Connection housing. PBT · Length: 100..3500 mm · Protection: IP67	1´´				
		1´´1/4				

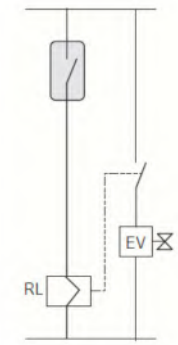
Image	Reference / Description	Connection	1 C	2 C	3 C	4 C
	**IMN TBMA INOX** · For installation on the side of the tank · Electrical connection: Connection housing. PBT · Length: 50..1000 mm · Bent elbow 90º · Protection: IP67	1´´				
		1´´1/4				
	**IMNR TBM INOX** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Electrical connection: Connection housing. PBT · Length: 100..3500 mm · Protection: IP67	1´´				
		1´´1/4				

Accessories IMN - Miniature	Price
Tube SS Ø8 mm (1m)	
Silicone cable, 1 m	
Float SS Ø29 + stopping ring	
Protected version	
Filled with epoxy resine	
Female connector M8	
Female connector M12	
KNT8: Module for RS485 Modbus RTU communication	
Screw nut SS 1/8' 'G	
Screw nut SS 1' 'G	
Screw nut SS 1' '1/4G	

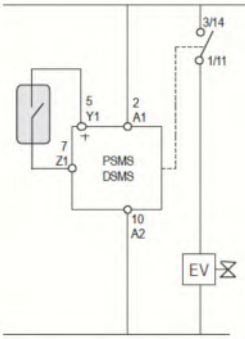
Products related with MAGNETIC SWITCHES	Page
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

MAGNETIC SWITCHES: USEFUL INFORMATION

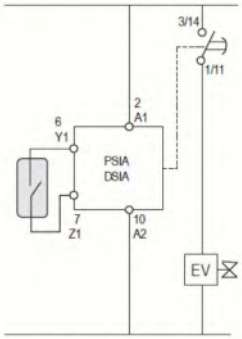
Connection examples



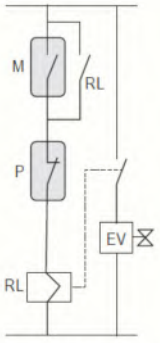
Using an auxiliary relay



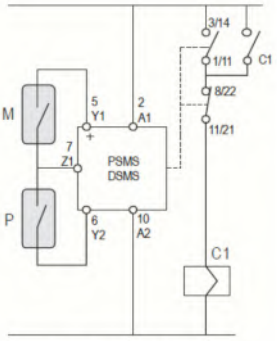
Usando a relay PSMS/DSMS



Timed detection (anti-waves)



Start-Stop with 2 contacts and 1 auxiliary relay



Start-Stop with 2 contacts and 1 relay PSMS/DSMS

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Because of its small size is ideal for tanks with limited space.
· Custom fabrication to suit the installation conditions.

Common data
· Made in SS AISI316 (1.4401)
· Length: 50..3500 mm
· Float: Cylindrical ø29x32 mm
· Contacts: (NO) 40W/VA-2A/230VAC/DC
· Contacts:(NC and NO/NC) 20W/VA-1A/150VAC/DC
· Density: 0,71 g/cm³
· Temperature: -40..+125ºC
· Pressure: 15 kg/cm²

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*	*4 C*
	**IMN BCM INOX** · Process connection: BR52 flange · Electrical connection: DIN43650 connector · Protection: IP65	Ø52 mm				
	**IMN CPM INOX** · Process connection: Clamp flange. 1" and 1"1/2 · Electrical connection: PVC / Silicone cable · Protection: IP65	1´´				
		1´´1/2				
		2´´				
		2´´1/2				
	**IMN CCM INOX** · Process connection: Clamp flange. 1" and 1"1/2 · Electrical connection: Connector DIN43650 · Protection: IP65	1´´				
		1´´1/2				
		2´´				
		2´´1/2				
	**IMN CBM INOX** · Process connection: Clamp flange. 1" and 1"1/2 · Electrical connection: Connection housing. PBT · Protection: IP67	1´´				
		1´´1/2				
		2´´				
		2´´1/2				
	**IMNR CBM INOX** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Process connection: Clamp flange. 1"..1"1/2 · Electrical connection: Connection housing. PBT · Protection: IP67	1´´				
		1´´1/2				
		2´´				
		2´´1/2				

Accessories IMN - Miniature	*Price*
Tube SS Ø8 mm (1m)	
Silicone cable, 1 m	
Float SS Ø29 + stopping ring	
Protected version	
Filled with epoxy resine	
KNT8: Module for RS485 Modbus RTU communication	

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Custom fabrication to suit the installation conditions.

Common data
· Made in SS AISI316 (1.4401)
· Process connection: Nipple. 3/8"-1/2" G (depending the model).
· Float: Spherical ø52 mm
· Contacts: (NO) 120W/VA-3A/250VAC/DC
· Contacts: (NC - NO/NC) 60W/VA-1A/230VAC/DC
· Density: 0,7 g/cm³
· Pressure: 30 kg/cm²

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*	*4 C*	*5 C*
	**IMN RP INOX** · Length: 90..3500 mm · Electrical connection: PVC/Silicone cable · Temperature: -40..+125ºC · Protection: IP65	3/8´´					
		1/2´´					
		3/4´´					
	**IMN RPA INOX** · For installation in the tank side · Length: 90..1000 mm · Electrical connection: PVC/Silicone cable · Temperature: -40..+125ºC · Protection: IP65	3/8´´					
		1/2´´					
		3/4´´					
	**IMN RC INOX** · Length: 90..3500 mm · Electrical connection: Miniature connector M8/M12 · Temperature: -40..+90ºC · Protection: IP67	1/2´´					
		3/8´´					
	**IMN RCA INOX** · For installation on the side of the tank · Length: 90..1000 mm · Connecting power: Miniature connector M8/M12 · Temperature: -40..+90ºC · Protection: IP67	1/2´´					
		3/8´´					

Accessories IMN - Standard, stainless steel	*Price*
Tube SS Ø12 mm (1m)	
Silicone cable, 1 m	
SS float Ø52 + stopping ring	
SS float Ø44x63 + stopping ring	
SS float Ø95 + stopping ring	
Bistable reed contact (Add bistable float)	
SS bistable float Ø52 + stopping ring (Add bistable contacts)	
Protected version	
Filled with epoxy resine	
Female connector M8	
Female connector M12	
PT100 temperature sensor, housed in the level switch.	
Clixon thermostat, 75ºC, housed in the level switch.	
Screw nut SS 3/8' 'G	
Screw nut SS 1/2' 'G	
Screw nut SS 3/4' 'G	

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Custom fabrication to suit the installation conditions.

Common data
· Manufactured in SS AISI316 (1.4401)
· Process connection: Top screw. 1"1/2"-2" G
· Float: Spherical ø52 mm
· Contact: (NO) 120W/VA-3A/250VAC/DC
· Contact: (NC - NO/NC) 60W/VA-1A/230VAC/DC
· Density: 0,7 g/cm³
· Temperature: -40..+125 ºC
· Pressure: 30 kg/cm²

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*	*4 C*	*5 C*
	**IMN TP INOX** · Electrical connection: Cable Silicone · Length: 90..3500 mm · Protection IP65	1´´1/2					
		2´´					
	**IMN TPA INOX** · For the installation at the tank side · Electrical connection: Silicone cable · Length: 90..1000 mm · Protection IP65	1´´1/2					
		2´´					
	**IMN TC INOX** · Electrical connection: Connector DIN43650 · Length: 90..3500 mm · Protection IP65	1´´1/2					
		2´´					
	**IMN TCA INOX** · For the installation at the tank side · Electrical connection: Connector DIN43650 · Length: 90..1000 mm · Protection IP65	1´´1/2					
		2´´					
	**IMN TC12 INOX** · Electrical connection: Miniature connector M12 · Length: 90..3500 mm · Protection IP67	1´´1/2					
		2´´					
	**IMN TCA12 INOX** · For the installation at the tank side · Electrical connection: Miniature connector M12 · Length: 90..1000 mm · Protection IP67	1´´1/2					
		2´´					
	**IMN TB INOX** · Electrical connection: Connection housing. PBT · Length: 90..3500 mm · Protection: IP67	1´´1/2					
		2´´					

Image	Reference / Description	Connection	1 C	2 C	3 C	4 C	5 C
	**IMN TBA INOX** · For the installation at the tank side · Electrical connection: Connection housing. PBT · Length: 90..1000 mm · Protection: IP67	1´´1/2					
		2´´					
	**IMNR TB INOX** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Electrical connection: Connection housing. PBT · Length: 90..3500 mm · Protection IP67	1´´1/2					
		2´´					

Accessories IMN - Standard, stainless steel	Price
Tube SS Ø12 mm (1m)	
Silicone cable, 1 m	
SS float Ø52 + stopping ring	
SS float Ø44x63 + stopping ring	
SS float Ø95 + stopping ring	
Bistable reed contact (Add bistable float)	
SS bistable float Ø52 + stopping ring (Add bistable contacts)	
Protected version	
Filled with epoxy resine	
Female connector M8	
Female connector M12	
PT100 temperature sensor, housed in the level switch.	
Clixon thermostat, 75ºC, housed in the level switch.	
KNT8: Module for RS485 Modbus RTU communication	
Temperature sensor housed in the level switch (only for KNT8).	

Products related with MAGNETIC SWITCHES	Page
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Custom fabrication to suit the installation conditions.

Common data
· Manufactured in SS AISI316 (1.4401)
· Float: Spherical ø52 mm. SS AISI316
· Contact: (NO) 120W/VA-3A/250VAC/DC
· Contact: (NC - NO/NC) 60W/VA-1A/230VAC/DC
· Density: 0,7 g/cm³
· Temperature: -40..+125ºC
· Pressure: 30 kg/cm²

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*	*4 C*	*5 C*
	**IMN BP INOX** · Process connection: Flange ø80 mm. SS AISI316 (1.4401) · Electrical connection: Silicone cable · Length: 90..3500 mm · Protection: IP65	Ø80 mm					
	**IMN BC INOX** · Process connection: Flange ø80 mm. SS AISI316 (1.4401) · Electrical connection: Connector DIN43650 · Length: 90..3500 mm · Protection: IP65	Ø80 mm					
	**IMN BB INOX** · Process connection: Flange ø120 mm. PVC · Electrical connection: Connection housing. PBT · Length: 90..3500 mm · Protection: IP67	Ø120 mm					
	**IMNR BB INOX** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Process connection: Flange ø120 mm. PVC · Electrical connection: Connection housing. PBT · Length: 1000..3500 mm · Protection: IP67	Ø120 mm					
	**IMN DP INOX** · Process connection: Flange DIN. DN25..DN100. SS AISI316 (1.4401) · Electrical connection: Silicone cable · Length: 90..3500 mm · Protection: IP65	DN25					
		DN32					
		DN40					
		DN50					
		DN100					
	**IMN DC INOX** · Process connection: Flange DIN. DN25..DN100. SS AISI316 (1.4401) · Electrical connection: Connector DIN43650 · Length: 90..3500 mm · Protection: IP65	DN25					
		DN32					
		DN40					
		DN50					
		DN100					

Image	Reference / Description	Connection	1 C	2 C	3 C	4 C	5 C
	**IMN DB INOX** · Process connection: Flange DIN. DN25..DN100. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Length: 90..3500 mm · Protection: IP67	DN25					
		DN32					
		DN40					
		DN50					
		DN100					
	**IMNR DB INOX** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Process connection: Flange DIN. DN25..DN100. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Length: 90..3500 mm · Protection: IP67	DN25					
		DN32					
		DN40					
		DN50					
		DN100					
	**IMN DBA INOX** · For the installation at the tank side · Process connection: Flange DIN. DN25..DN100. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Length: 90..1000 mm · Protection: IP67	DN25					
		DN32					
		DN40					
		DN50					
		DN100					
	**IMNR DBA INOX** · For installation in the tank side · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Process connection: Flange DIN. DN25..DN100. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Length: 90..1000 mm · Protection: IP67	DN25					
		DN32					
		DN40					
		DN50					
		DN100					
	**IMN DBL INOX** · Process connection: Flange DIN. DN25..DN100. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Float: Spherical ø95x95 mm. SS AISI316L (1.4404) · Density: 0,36 o 0,45 g/cm³, according to float · Length: 90..3500 mm · Protection: IP67	DN25					
		DN32					
		DN40					
		DN50					
		DN100					
	**IMNR DBL INOX** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Process connection: Flange DIN. DN25..DN100. SS AISI316 · Electrical connection: Connection housing. PBT · Float: Spherical ø95x95 mm · Density: 0,36 o 0,45 g/cm³, according to float · Length: 90..3500 mm · Protection: IP67	DN25					
		DN32					
		DN40					
		DN50					
		DN100					

Image	Reference / Description	Connection	1 C	2 C	3 C	4 C	5 C
	**IMN CP INOX** · Process connection: Brida Clamp. 2"1/2-3"-4". SS AISI316 (1.4401) · Electrical connection: Silicone cable · Length: 90..3500 mm · Protection: IP65	2´´1/2					
		3´´					
		4´´					
	**IMN CC INOX** · Process connection: Flange Clamp. 2"1/2-3"-4". SS AISI316 (1.4401) · Electrical connection: Connector DIN43650 · Length: 90..3500 mm · Protection: IP65	2´´1/2					
		3´´					
		4´´					
	**IMN CB INOX** · Process connection: Flange Clamp. 2"1/2-3"-4". SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Length: 90..3500 mm · Protection: IP67	2´´1/2					
		3´´					
		4´´					
	**IMNR CB INOX** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Process connection: Flange Clamp. 2"1/2-3"-4". SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Length: 90..3500 mm · Protection: IP67	2´´1/2					
		3´´					
		4´´					

Accessories IMN - Standard, stainless steel	Price
Tube SS Ø12 mm (1m)	
Silicone cable, 1 m	
SS float Ø52 + stopping ring	
SS float Ø44x63 + stopping ring	
SS float Ø95 + stopping ring	
Bistable reed contact (Add bistable float)	
SS bistable float Ø52 + stopping ring (Add bistable contacts)	
Protected version	
Filled with epoxy resine	
Female connector M8	
Female connector M12	
PT100 temperature sensor, housed in the level switch.	
Clixon thermostat, 75ºC, housed in the level switch.	
KNT8: Module for RS485 Modbus RTU communication	
Temperature sensor housed in the level switch (only for KNT8).	

Products related with MAGNETIC SWITCHES	Page
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Custom fabrication to suit the installation conditions.

Common data
· Manufactured in PP
· Process connection: Nipple. 3/8"-1/2" G
· Floats: Cylindrical ø29x50 mm. and ø38x63 mm. PP
· Contact: (NO) 120W/VA-3A/250VAC/DC
· Contact: (NC - NO/NC) 60W/VA-1A/230VAC/DC
· Density: 0,7 g/cm³
· Temperature: -10..+60ºC
· Pressure: 3 kg/cm²

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*	*4 C*	*5 C*
	**IMN RP PP** · Process connection: Nipple. 3/8"-1/2" G. PP · Electrical connection: PVC cable · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection IP65	3/8´´-1/2´´					
	**IMN RPA PP** · For the installation at the tank side · Length: 100..1000 mm tube Ø12 · Electrical connection: PVC/Silicone cable · Protection: IP65	3/8´´-1/2´´					
	**IMN RC PP** · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Electrical connection: Miniature connector M8/M12 · Protection: IP67	1/2´´ 3/8´´					
	**IMN RCA PP** · For the installation at the tank side · Length: 100..1000 mm · Electrical connection: Miniature connector M8/M12 · Protection: IP67	1/2´´ 3/8´´					

Accessories IMN - Standard, PP · Racor	*Price*
Tube PP Ø12 mm.(1m)	
Tube PP Ø16 mm.(1m)	
PVC cable, 1 m	
PP Float Ø29 mm + stopper	
PP float Ø38 mm + stopper	
Bistable reed contact (Add bistable float)	
PP bistable float Ø38 mm + stopper (Add bistable contacts)	
Protected version	
Filled with epoxy resine	
PT100 temperature sensor, housed in the level switch.	
Clixon thermostat, 75ºC, housed in the level switch.	
Female connector M8	
Female connector M12	

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Custom fabrication to suit the installation conditions.

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*	*4 C*	*5 C*
	**IMN RP PVDF** · Process connection: Nipple. 1/2" G. PVDF · Electrical connection: Teflon cable. Optional Silicone · Length: 100..3500 mm · Float: Cylindrical ø38x60 mm · Contact: (NO) 120W/VA-3A/250VAC/DC · Contact: (NC - NO/NC) 60W/VA-1A/230VAC/DC · Density: 0,56 g/cm³ · Temperature: -30..+125 ºC · Pressure: 3 kg/cm² · Protection: IP65	1/2´´					

Accessories IMN - Standard, PVDF	*Price*
Tube PVDF Ø16 mm (1m)	
PVDF float Ø38 mm + stopper	
PTFE cable, 1 m	
Protected version	
Filled with epoxy resine	
PT100 temperature sensor, housed in the level switch.	
Clixon thermostat, 75ºC, housed in the level switch.	

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Custom fabrication to suit the installation conditions.

Common data
· Made in PP
· Process connection: Nipple. 1"-1"1/4-1"1/2-2" G.
· Length: 100..3500 mm
· Temperature: -30..+125ºC
· Pressure: 2 kg/cm²
· Protection IP67

Image	Reference / Description	Connection	1 C	2 C	3 C	4 C	5 C
	**IMN TP PP** · Electrical connection: PVC cable ·· Length: 100..1000 mm. Tubo Ø12 mm ·· Length: 100..3500 mm. Tubo Ø16 mm · Protection IP65	1´´					
		1´´1/4-1´´1/2-2´´					
	**IMN TPA PP** · For the installation at the tank side · Electrical connection: PVC cable · Length: 100..1000 mm · Protection: IP65	1´´					
		1´´1/4-1´´1/2-2´´					
	**IMN TC PP** · Electrical connection: Connector DIN43650 · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection IP65	1´´					
		1´´1/4-1´´1/2-2´´					
	**IMN TCA PP** · For the installation at the tank side · Electrical connection: Connector DIN43650 · Length: 100..1000 mm · Protection IP65	1´´					
		1´´1/4-1´´1/2-2´´					
	**IMN TC12 PP** · Electrical connection: Connector miniature M12 · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection IP67	1´´					
		1´´1/4-1´´1/2-2´´					
	**IMN TCA12 PP** · For the installation at the tank side · Electrical connection: Connector miniature M12 · Length: 100..1000 mm · Protection IP67	1´´					
		1´´1/4-1´´1/2-2´´					

Image	Reference / Description	Connection	1 C	2 C	3 C	4 C	5 C
	**IMN TB PP** · Electrical connection: Connection housing. PBT · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection IP67	1´´					
		1´´1/4-1´´1/2-2´´					
	**IMN TBA PP** · For the installation at the tank side · Electrical connection: Connection housing. PBT · Length: 100..1000 mm · Protection IP67	1´´					
		1´´1/4-1´´1/2-2´´					
	**IMNR TB PP** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Electrical connection: Connection housing. PBT · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection IP67	1´´					
		1´´1/4-1´´1/2-2´´					

Accessories IMN · Standard, PP	Price
Tube PP Ø12 mm.(1m)	
Tube PP Ø16 mm.(1m)	
PVC cable, 1 m	
PP Float Ø29 mm + stopper	
PP float Ø38 mm + stopper	
Bistable reed contact (Add bistable float)	
PP bistable float Ø38 mm + stopper (Add bistable contacts)	
Protected version	
Filled with epoxy resine	
PT100 temperature sensor, housed in the level switch.	
Clixon thermostat, 75ºC, housed in the level switch.	
KNT8: Module for RS485 Modbus RTU communication	
Temperature sensor housed in the level switch (only for KNT8).	
Female connector M8	
Female connector M12	

Application
· They have a single contact for maneuver.
· By reversing the position of the float, it also reverses the state of the contact.

Common data
· Process connection: Nipple. 3/4" G
· Electrical connection: Connector DIN43650
· Contact: (NO) 15W/VA-0,3A/250VAC
· Body: PVC
· Length: 150..1000 mm
· Protection: IP65

Image	*Reference / Description*	*Connection*	*1 C*
	**IMN 50 TC NY V** · Vertical installation · Float: Cylindrical ø21x30 mm. Nylon · Temperature: -30..+60ºC · Density: 0,9 g/cm³	3/4´´-1´´	
	**IMN 50 TC NY H** · For instalation in the tank side · Float: Cylindrical ø17x50 mm. Nylon · Temperature: -30..+60ºC · Density: 0,9 g/cm³	1/2´´-3/4´´-1´´	
	**IMN 50 TC PP V** · Vertical installation · Float: Cylindrical ø21x30 mm. PP · Temperature: -30..+60ºC · Density: 0,7 g/cm³	3/4´´-1´´	
	**IMN 50 TC PP H** · For installation in the tank side · Body: PVC · Float: Cylindrical ø17x50 mm. PP · Temperature: -30..+60ºC · Density: 0,7 g/cm³	1/2´´-3/4´´-1´´	

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Custom fabrication to suit the installation conditions.

Common data
· Made in PVDF
· Process connection: Nipple. 1"1/4-1"1/2-2" G.
· Electrical connection: Connection housing. PBT
· Length: 100..3500 mm
· Float: Cylindrical ø38x60 mm
· Density: 0,56 g/cm³
· Temperature: -30..+125ºC
· Pressure: 2 kg/cm²
· Protection IP67

Image	Reference / Description	Connection	1 C	2 C	3 C	4 C	5 C
	**IMN TB PVDF**	2´´					
	**IMNR TB PVDF** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA	2´´					

Accessories IMN - Standard, PVDF	Price
Tube PVDF Ø16 mm (1m)	
PVDF float Ø38 mm + stopper	
PTFE cable, 1 m	
Protected version	
Filled with epoxy resine	
PT100 temperature sensor, housed in the level switch.	
Clixon thermostat, 75ºC, housed in the level switch.	
KNT8: Module for RS485 Modbus RTU communication	
Temperature sensor housed in the level switch (only for KNT8).	

Products related with MAGNETIC SWITCHES	Page
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Custom fabrication to suit the installation conditions.

Common data
· Made in PP
· Floats: Cylíndrical, ø29x50 or ø38x60 mm
· Temperature: -10..+60ºC

Image	Reference / Description	Connection	1 C	2 C	3 C	4 C	5 C
	**IMN BP PP** · Process connection: Flange. ø68 mm. PP · Electrical connection: PVC cable · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection: IP65	Ø68 mm					
	**IMN BC PP** · Process connection: Flange. ø68 mm. PP · Electrical connection: Connector DIN43650 · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection: IP65	Ø68 mm					
	**IMN BCA PP** · For the installation at the tank side · Process connection: Flange. ø68 mm. PP · Electrical connection: Connector DIN43650 · Length: 100..1000 mm · Protection: IP65	Ø68 mm					
	**IMN BB PP** · Process connection: Flange. ø120 mm. PP · Electrical connection: Connection housing. PBT · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection: IP67	Ø120 mm					
	**IMN DP PP** · Process connection: Flange DIN. DN25..DN100. PP · Electrical connection: PVC cable · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection: IP65	DN25					
		DN32					
		DN40					
		DN50					
		DN80					
		DN100					
	**IMNR BB PP** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Process connection: Flange. ø120 mm. PP · Electrical connection: Connection housing. PBT · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection: IP67	Ø120 mm					

Image	Reference / Description	Connection	1 C	2 C	3 C	4 C	5 C
	**IMN DC PP** · Process connection: Flange DIN. DN25..DN100. PP · Electrical connection: Connector DIN43650 · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection: IP65	DN25					
		DN32					
		DN40					
		DN50					
		DN80					
		DN100					
	**IMN DB PP** · Process connection: Flange DIN. DN25..DN100. PP · Electrical connection: Connection housing. PBT · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection: IP67	DN25					
		DN32					
		DN40					
		DN50					
		DN80					
		DN100					
	**IMN DBA PP** · For the installation at the tank side · Process connection: Flange DIN. DN25..DN100. PP · Electrical connection: Caixa de connexions. PBT · Length: 100..1000 mm · Protection: IP67	DN25					
		DN32					
		DN40					
		DN50					
		DN80					
		DN100					
	**IMNR DB PP** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Process connection: Flange DIN. DN25..DN100. PP · Electrical connection: Connection housing. PBT · Length: 100..1000 mm tube Ø12 · Length: 100..3500 mm tube Ø16 · Protection: IP67	DN25					
		DN32					
		DN40					
		DN50					
		DN80					
		DN100					
	**IMNR DBA PP** · For the installation at the tank side · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Process connection: Flange DIN. DN25..DN100. PP · Electrical connection: Connection housing. PBT · Length: 100..1000 mm · Protection: IP67	DN25					
		DN32					
		DN40					
		DN50					
		DN80					
		DN100					

Accessories IMN · Standard, PP	Price
Tube PP Ø12 mm.(1m)	
Tube PP Ø16 mm.(1m)	
PVC cable, 1 m	
PP Float Ø29 mm + stopper	
PP float Ø38 mm + stopper	
Bistable reed contact (Add bistable float)	
PP bistable float Ø38 mm + stopper (Add bistable contacts)	
Protected version	
Filled with epoxy resine	
PT100 temperature sensor, housed in the level switch.	
Clixon thermostat, 75ºC, housed in the level switch.	
KNT8: Module for RS485 Modbus RTU communication	
Temperature sensor housed in the level switch (only for KNT8).	
Female connector M8	
Female connector M12	

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Custom fabrication to suit the installation conditions.

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*	*4 C*	*5 C*
	**IMN DB PVDF** · Made in PVDF · Process connection: Flange DIN. DN25..DN100, PP · Electrical connection: Connection housing. PBT · Length: 100..3500 mm · Float: Cylindrical ø38x60 mm · Density: 0,56 g/cm³ · Temperature: -30..+125ºC · Pressure: 2 kg/cm² · Protection IP67	DN25					
		DN32					
		DN40					
		DN50					
		DN100					
	**IMNR DB PVDF** · Made in PVDF · Process connection: Flange DIN. DN25..DN100, PP · Electrical connection: Connection housing. PBT · Length: 100..3500 mm · Float: Cylindrical ø38x60 mm · Density: 0,56 g/cm³ · Temperature: -30..+125ºC · Pressure: 2 kg/cm² · Protection IP67 · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA	DN25..DN100					

Accessories IMN - Standard, PVDF	*Price*
Tube PVDF Ø16 mm (1m)	
PVDF float Ø38 mm + stopper	
PTFE cable, 1 m	
Protected version	
Filled with epoxy resine	
PT100 temperature sensor, housed in the level switch.	
Clixon thermostat, 75ºC, housed in the level switch.	
KNT8: Module for RS485 Modbus RTU communication	
Temperature sensor housed in the level switch (only for KNT8).	

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Once installed in the tank, you can adjust the height of the guide tube.
· Custom fabrication to suit the installation conditions.

Common data
· Made in SS AISI316 (1.4401)
· Process connection: Nipple 1"1/2-2" G
· Length: 100..3500 mm
· Float: Spherical ø52 mm and Cylíndrical ø44x62 mm
· Contact: (NO) 120W/VA-3A/250VAC/DC
· Contact: (NC - NO/NC) 60W/VA-1A/230VAC/DC
· Density: 0,7 g/cm³
· Temperature: -40..+125ºC
· Pressure: Atmosphere

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*
	**IMN TAC INOX** · Electrical connection: Connector DIN43650 · Protection: IP65	1´´1/2-2´´			
	**IMN TAB INOX** · Electrical connection: Connection housing. PBT · Protection: IP67	1´´1/2-2´´			
	**IMNR TAB INOX** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Electrical connection: Connection housing. PBT · Protection: IP67	2´´			

Accessories IMN - Standard, stainless steel	*Price*
Tube SS Ø12 mm (1m)	
Silicone cable, 1 m	
SS float Ø52 + stopping ring	
SS float Ø44x63 + stopping ring	
SS float Ø95 + stopping ring	
Bistable reed contact (Add bistable float)	
SS bistable float Ø52 + stopping ring (Add bistable contacts)	
Protected version	
Filled with epoxy resine	
Female connector M8	
Female connector M12	
PT100 temperature sensor, housed in the level switch.	
Clixon thermostat, 75ºC, housed in the level switch.	
KNT8: Module for RS485 Modbus RTU communication	
Temperature sensor housed in the level switch (only for KNT8).	

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· Once installed in the tank, you can adjust the height of the guide tube.
· Custom fabrication to suit the installation conditions.

Common data
· Made in PP
· Process connection: Nipple 1"1/4-1"1/2-2" G
· Length: 100..1500 mm
· Float: Cylindrical ø29x50 or ø38x60 mm
· Contact: (NO) 120W/VA-3A/250VAC/DC
· Contact: (NC - NO/NC) 60W/VA-1A/230VAC/DC
· Density: 0,65 g/cm³
· Temperature: -10..+60ºC
· Pressure: Air

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*
	**IMN TAC PP** · Electrical connection: Connector DIN43650 · Protection: IP65	1´´			
		1´´1/4-1´´1/2-2´´			
	**IMN TAB PP** · Electrical connection: Connection housing. PBT · Protection: IP67	1´´			
		1´´1/4-1´´1/2-2´´			
	**IMNR TAB PP** · Includes control maneuver with relay output · Output: Relay SPDT 6 A / 250 VCA · Electrical connection: Connection housing. PBT · Protection: IP67	1´´			
		1´´1/4-1´´1/2-2´´			

Accessories IMN - Standard, PP · Racor	*Price*
Tube PP Ø12 mm.(1m)	
Tube PP Ø16 mm.(1m)	
PVC cable, 1 m	
PP Float Ø29 mm + stopper	
PP float Ø38 mm + stopper	
Bistable reed contact (Add bistable float)	
PP bistable float Ø38 mm + stopper (Add bistable contacts)	
Protected version	
Filled with epoxy resine	
PT100 temperature sensor, housed in the level switch.	
Clixon thermostat, 75ºC, housed in the level switch.	
Female connector M8	
Female connector M12	

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overflow alarm, etc.
· Manufacturing tailored to meet the conditions of the installation.

Common data
· Electrical connection: DIN43650 Connector
· Guide Tube: SS AISI316 (1.4401)
· Length: 90..3500 mm

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*	*4 C*	*5 C*
	**IMN TCM PVC INOX PP** · Process connection: Top screw. 3/4" G. PVC · Electrical connection: Connector DIN43650 Mini · Guide Tube: ø8 mm. SS AISI316 (1.4401) · Float: Cylindrical ø25x25 mm. PP · Contact: (NA) 40W/VA-2A/230VCA/CC · Contact: (NC - NO/NC) 20W/VA-1A/150VCA/CC · Density: 0,5 g/cm³ · Temperature: -30..+85 ºC · Pressure: 2 kg/cm²	3/4´´					
	**IMN TCM INOX PP** · Process connection: Top screw. 3/4"G SS · Electrical connection: DIN43650 Connector Mini · Guide Tube: ø8 mm. SS AISI316 (1.4401) · Float: Cylindrical ø25x25 mm. PP · Contact: (NA) 40W/VA-2A/230VCA/CC · Contact: (NC - NO / NC) 40W/VA-2A/230VCA/CC · Density: 0,5 g/cm³ · Temperature: -30..+85 ºC · Pressure: 2 kg/cm²	3/4´´					
	**IMN TC PVC INOX PA** · Process connection: Top screw. 1" G. PVC · Electrical connection: DIN43650 Connector · Guide Tube: ø12 mm. SS AISI316 (1.4401) · Float: Cylindrical ø29x50 mm. PA · Contact: (NA) 120W/VA-3A/250VCA/CC · Contact: (NC - NO / NC) 60W/VA-1A/230VCA/CC · Density: 0,6 g/cm³ · Temperature: -20..+90 ºC · Pressure: 3 kg/cm²	1´´-1/4-1´´1/2-2´´					
	**IMN BCM INOX PA** · Process connection: Flange. ø52 mm. SS · Electrical connection: DIN43650 Connector · Guide Tube: ø12 mm. SS AISI316 (1.4401) · Float: Cylindrical ø29x50 mm. PA · Contact: (NA) 120W/VA-3A/250VCA/CC · Contact: (NC - NO / NC) 60W/VA-1A/230VCA/CC · Density: 0,6 g/cm³ · Temperature: -20..+90 ºC · Pressure: 3 kg/cm²	Ø52 mm					
	**IMN BC PVC INOX PA** · Process connection: Flange. ø68 mm. PVC · Electrical connection: DIN43650 Connector · Guide Tube: ø12 mm. SS AISI316 (1.4401) · Float: Cylindrical ø29x50 mm. PA · Contact: (NA) 120W/VA-3A/250VCA/CC · Contact: (NC - NO/NC) 60W/VA-1A/230VCA/CC · Density: 0,6 g/cm³ · Temperature: -20..+90 ºC · Pressure: 3 kg/cm²	Ø68 mm					
	**IMN TB PVC INOX PA** · Process connection: Top screw. 1"G .. 2"G. PVC · Electrical connection: Housing, PBT · Guide Tube: ø12 mm. SS AISI316 (1.4401) · Float: Cylindrical ø29x50 mm. PA · Contact: (NA) 120W/VA-3A/250VCA/CC · Contact: (NC - NO/NC) 60W/VA-1A/230VCA/CC · Density: 0,6 g/cm³ · Temperature: -20..+90 ºC · Pressure: 3 kg/cm²	1´´-1/4-1´´1/2-2´´					

Accessories IMN · Hybrid models	*Price*
Tube SS Ø8 mm (1m)	
Tube SS Ø12 mm (1m)	
PP float Ø25 mm + SS stopper	
PA Float Ø29 mm + stopper	
Protected version	
Filled with epoxy resine	

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application
· For the detection of one or more level points.
· Used in maneuvers for filling, emptying, overfill alarm, etc.
· <u>Simple Electrical Apparatus</u>: It may be used in areas classified as Intrinsically Safe whenever you connect an associated equipment such as a zener barrier or galvanic isolator.
· Applicable a zones 0, 1, 2, 20, 21 and 22
· Custom fabrication to suit the installation conditions.

Common data
· Electrical connection: Certificate connection housing. Aluminium
· Length: 100..3500 mm
· Float: Spherical ø52 mm and Cylindrical ø44x63 mm
· Contact: (NO) 120W/VA-3A/250VAC/DC
· Contact: (NC - NO/NC) 60W/VA-1A/230VAC/DC
· Density: 0,7 g/cm³
· Temperature: -40..+125ºC
· Pressure: 30 kg/cm²
· Protection IP66

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*
	**IMN TBEX INOX** · Process connection: Top screw. 1"1/2..3". SS AISI316	2´´			
	**IMN DBEX INOX** · Process connection: Flange DIN. DN 25..DN 100. SS AISI316 (1.4401)	DN50			

Accessories IMN - Standard, stainless steel	*Price*
Tube SS Ø12 mm (1m)	
Silicone cable, 1 m	
SS float Ø52 + stopping ring	
SS float Ø44x63 + stopping ring	
SS float Ø95 + stopping ring	
Bistable reed contact (Add bistable float)	
SS bistable float Ø52 + stopping ring (Add bistable contacts)	
Protected version	
Filled with epoxy resine	
Female connector M8	
Female connector M12	
PT100 temperature sensor, housed in the level switch.	
Clixon thermostat, 75ºC, housed in the level switch.	
Screw nut SS 3/8' 'G	
Screw nut SS 1/2' 'G	
Screw nut SS 3/4' 'G	

Products related with Ex MAGNETIC SWITCHES	*Page*
Galvanic isolator for contacts: AG-5202-B	142

Application · Suitable for deep-sea deposits and limited space at the top to introduce a rigid sensor.
· It is composed of rigid pipe sections (includes contact and float) and flexible sections to reach the desired height and shape.

Image	*Reference / Description*	*Connection*	*1 C*	*2 C*	*3 C*	*4 C*
	**IMN FLX TB INOX** · Manufactured in SS AISI316 (1.4401) · Process connection: Nipple 1"-1"1/2-2" G · Electrical connection: Connection housing. PBT · Float: According to the installation conditions · Contact: (NO) 120W/VA-3A/250VAC/DC · Contact: (NC - NO/NC) 60W/VA-1A/230VAC/DC · Length: 250..2500 mm · Temperature: -40..+125ºC · Counterweight: Defined by the size of the whole · Protection IP67	1´´-1´´1/2-2´´				

Products related with MAGNETIC SWITCHES	*Page*
Protective relay of contacts: PSMS/DSMS, PSPS/DSPS	131
Timer anti turbulence: PSIA/DSIA	112
Relays for control of pumps	128

Application

· Modular system for level control, comprising a sensor IMN MPS in which they are installed, according to the function to perform, from 1 to 80 modules MPS05 or MPS80 to send the signal to a controller or SNI SNIA respectively.
· The controllers are responsible for displaying and managing the action of the three relays connected to the pumps, alarms or other devices for level controlling.
· User configurable
· Custom fabrication to suit the installation conditions.

Common data

· Electrical connection: Connection housing. PBT
· Length: 100..2500 mm
· Temperature: -20..+60ºC
· Protection IP67

Image	*Reference / Description*	*Length*	*Price*
	**IMN MPS DB INOX** · Manufactured in SS AISI316 (1.4401) · Process connection: Flange DIN. DN 25..DN 50 · Float: Cylindrical ø52x52 mm · Density: 0,55 g/cm³ · Pressure: 15 kg/cm²	300	
		500	
		1000	
		1500	
		2000	
		2500	
		3000	
	**IMN MPS DB PVC** · Manufactured in PVC/PP · Process connection: Flange DIN. DN 25..DN 50. PVC · Float: Cylindrical ø38x60 mm. PP · Density: 0,40 g/cm³ · Pressure: 3 kg/cm²	300	
		500	
		1000	
		1500	
		2000	
		2500	
		3000	
	**IMN MPS TB INOX** · Manufactured in SS AISI316 (1.4401) · Process connection: Top screw. 1"1/4..2"1/2 G. SS AISI316 (1.4401) · Float: Cylindrical ø52x52 mm · Density: 0,55 g/cm³ · Pressure: 15 kg/cm²	300	
		500	
		1000	
		1500	
		2000	
		2500	
		3000	
	**IMN MPS TB PVC** · Manufactured in PVC/PP · Process connection: Top screw. 1"1/4..2"1/2 G. PVC · Float: Cylindrical ø38x60 mm. PP · Density: 0,40 g/cm³ · Pressure: 3 kg/cm²	300	
		500	
		1000	
		1500	
		2000	
		2500	
		3000	
	**IMN MPS TB PVDF** · Manufactured in PVDF · Process connection: Top screw. 1"1/4..2"1/2 G · Float: Cylindrical ø38x60 mm · Density: 0,56 g/cm³ · Pressure: 2 kg/cm²	300	
		500	
		1000	
		1500	
		2000	
		2500	
		3000	

Accessories IMN MPS	*Price*
MPS 05 - Detection module for SNIA	
MPS 80 - Detection module for SNI9	
MPM - Assembly for each module	

Products related with MULTIPOINT SWITCHES	*Page*
Digital multipoint relay: SNI	103
Analog multipoint relay: SNIA	103

Image	*Reference / Description*	*Cable (m)*	*Price*
	**SICE** · Level control system from outside the tank · Usable with most liquids · M30 capacitive sensor detection (not included) · Quick and easy installation · Fastening with adjustable straps · Velcro fastening (R)	1 2 3	
	**SCET** · Capacitive sensor for level limit detection · Detects through non-conductive walls (8 mm) · Body adapted to installation in tubes	2	
	**SCEP** · Capacitive sensor for level limit detection · Detects through non-conductive walls (8 mm) · Body adapted to installation in plain surfaces	2	

Application

· The by-pass indicators are used to visually and/or electrically control the volume of liquid in the tank.
· They are installed outside the tank as a communicating vessel.
· They can incorporate electrical elements of measurement and control for the automation of the process.
· Custom fabrication to suit the installation conditions.

Image	*Reference / Description*	*Price*
	**BP 100 INOX** · Electric water level control in tanks and visual · Side mounting · Several options for the process connection · Manufactured in SS AISI316 (1.4401)	
	**BP 100 PP** · Electrical and visual level control in tanks · Side mounting · Different posibilities to process connection · Manufactured in Polypropylene	
	**BP 100 PVDF** · Electric water level control in tanks and visual · Side mounting · Options for connection to process · Manufactured in PVDF	
	**BP 200 INOX** · Electric and visual level control in tanks · Top mounting · Options for connection to process · Manufactured in SS AISI316 (1.4401)	
	**BP 300 INOX** · By-pass adapter to switch or magnetic transducer · Manufactured in SS AISI316 (1.4401)	
	**BP 300 PVC** · By-pass level indicator with double process connection · Manufactured in transparent PVC	
	**BP 400 PVC** · By-pass level indicator with single process connection · Manufactured in PVC transparent	
	**BPC EX** · By-pass accessory · Independent level points detection · Ex version · Manufactured in Aluminum	

Application

· Used to visually control the volume of liquid in a tank.
· They are installed on the outside of the deposit itself.
· They can incorporate electrical elements of measurement and control for the automation of the process.
· Custom manufacturing to adjust to the conditions of the installation.

Image	*Reference / Description*	*Price*

IMN OP-EL INOX

· Level switch manufactured in SS AISI316 (1.4401)
· Process connection : Female thread 3/4" G. Aluminium
· Electrical connection: Silicone cable
· Glass: ø66 mm. Pyrex
· Length: 100..2000 mm
· Temperature: -30..+130 ºC
. Protection: IP 65

IMN OP-EL PVC

· Viewfinder and level switch set
· Lower and upper ends: PP
· Glass: ø50 mm, Pyrex
· Glass protector: PVC
· Connection level switch: 1 "G
· Connection process: Thread 3/4 "G, lateral or inferior
· Length: 100..2000 mm
· Temperature: -30 .. + 65 ºC
· Protection: IP65

IBT 32 PVC

· Control optical and/or electrical of the level in tanks at atmospheric pressure
· Compound elbows, counterweight and signaling (for the other pieces, see accessories)
· Process connection: Flange DN25, PVC
· Tube: ø32 mm. PVC Glass
· Temperature: -10..+60 ºC

IBT 63 PVC

· Control optical and/or electrical of the level in tanks at atmospheric pressure
· Compound elbows, counterweight and float (for the other pieces, see accessories)
· Process connection: Flange ø110 mm, PVC
· Tube: ø63 mm. PVC Glass
· Temperature: -10..+60 ºC

BPCB-63

· Detection of the level in pipes or in by-pass sensors
· Assembly on the outside of a tube ø63 mm
· Output: Bistable reed 2A/230VCA
· Contact NO or NC according to the position of all
· Electrical connection: DIN43650 connector

CBBP-63

· Float for BPCB-63 contact
· Manufactured in PP
· Temperature: -10..+80 ºC
· Dimensions: Ø49x130 mm
· Density: 0,7 g/cm3

Image	*Reference / Description*	*Price*
	**BPCBA-50** · Detection of the level in pipes or in by-pass sensors · Assembly on the outside of a tube ø 50 mm · Output: Bistable reed 2A/230VAC · Contact NO or NC according to the position of all · Electrical connection: DIN43650 connector	
	**FCPP06M18** · Float for BPCBA-50 contact · Manufactured in PP · Temperature: -10..+80 ºC · Dimensions: Ø38x60 mm · Density: 0,7 g/cm3	
	**TMN 300 BP INOX** · Magnetic transducer for continuous level reading · Output: Analog 4..20 mA, 10..35VDC · Process connection: Clamp flange SS AISI304 (1.4301) · Measurement distance up to 2500 mm · Electrical connection: Connection housing. PBT · Temperature: -20..+100ºC	

Application
· They are used to obtain a continuous reading of liquid level.
· When the float rises or falls due to the action of the liquid, are activated or deactivated respectively a series of reed switches that generate an output proportional to the height of the level.
· A single model allows the connection of 2, 3 or 4 wire systems.

Common data
· Electrical connection: Connection housing. PBT
· Output range: 4..20 mA
· Distance between contacts: 10 mm. Optional 5 mm.
· Supply voltage: VAC, VDC
· Protection: IP67

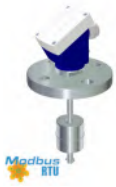
Image	*Reference / Description*	*Length*	*Step 5*	*Step 10*
	**TMN 300 TB INOX** · Process connection: Top screw. 2" G. SS AISI316 (1.4401) · Length: 150..2500 mm · Float: Cylindrical ø52x52 mm. SS AISI316 (1.4401) · Temperature: -20..+100 ºC · Pressure: 30 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMN 300 DB INOX** · Process connection: Flange DIN. DN 50. SS AISI316 (1.4401) · Length: 150..2500 mm · Float: Cylindrical ø52x52 mm. SS AISI316 (1.4401) · Temperature: -20..+100 ºC · Pressure: 30 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMN 300 DBR INOX** · Process connection : Flange DIN. DN 100. SS AISI316 (1.4401) · Length: 2500..5000 mm · Float: Spherical ø95 mm. SS AISI316L (1.4404) · Temperature: -20..+100 ºC · Pressure: 25 kg/cm²	2500		
		3000		
		3500		
		4000		
		4500		
		5000		
	**TMN 300 CB INOX** · Process connection: Flange Clamp. 2"1/2 G. SS AISI316 (1.4401) · Length: 150..2500 mm · Float: Cylindrical ø52x52 mm. SS AISI316 (1.4401) · Temperature: -20..+100 ºC · Pressure: 30 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMN 300 TB PP** · Process connection: Top screw. 2" G. PP · Length: 200..2500 mm · Float: Cylindrical ø38x60 mm. PP · Temperature: -10..+80 ºC · Pressure: 3 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMN 300 TB PVDF** · Process connection: Top screw. 1"1/4..2" G. PVDF · Length: 100..2500 mm · Float: Cylindrical ø38x60 mm. PVDF · Temperature: -10..+100 ºC · Pressure: 3 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		

Image	Reference / Description	Length	Step 5	Step 10
	**TMN 300 DB PP** · Process connection: Flange DIN. DN 25..DN 100. PP · Length: 200..2500 mm · Float: Cylindrical ø38x60 mm. PP · Temperature: -10..+80 ºC · Pressure: 3 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMN 300 DB PVDF** · Process connection: Flange DIN. DN 25..DN 100. PP · Length: 100..2500 mm · Float: Cylindrical ø38x60 mm. PVDF · Temperature: -10..+100 ºC · Pressure: 3 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMN 300 TB PP INOX PA** · Process connection: Top screw. 1" G. PP · Length: 200..2500 mm, tube SS AISI316 · Float: Cylindrical ø29x50 mm. PA · Temperature: -10..+80 ºC · Pressure: 3 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		

Accessories TMN	Price
Output with M12 connector	
KNT8: Module for RS485 Modbus RTU communication	

Products related with MAGNETIC TRANSDUCERS	Page
Current relays for 4-20mA loop: SAJ, SAJA/B, SAKA	124
Protector against atmospheric discharges for 4-20mA loop: PS-4	140
Board instrument of digital display: IPD	142

Application · They are used to obtain a continuous reading of liquid level.
· When the float rises or falls due to the action of the liquid, are activated or deactivated respectively a series of reed switches that generate an output proportional to the height of the level.

Common data · Output type: Resistive. 100 ohms/reading
· Distance between contacts: 10 mm. Optional 5 mm.
· Protection: IP67

Image	*Reference / Description*	*Length*	*Step 5*	*Step 10*
	**TMR TC INOX** · Process connection: Top screw. 2" G. SS AISI316 (1.4401) · Electrical connection: Connector DIN43650 · Length: 150..2500 mm · Float: Cylindrical ø52x52 mm. SS AISI316 (1.4401) · Temperature: -20..+100 ºC · Pressure: 30 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMR TB INOX** · Process connection: Top screw. 2" G. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Length: 150..2500 mm · Float: Cylindrical ø52x52 mm. SS AISI316 (1.4401) · Temperature: -20..+100 ºC · Pressure: 30 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMR TC PP INOX PA** · Process connection: Top screw. 2" G. PP · Electrical connection: Connector DIN43650 · Length: 150..2500 mm, tube SS AISI316 (1.4401) · Float: Cylindrical ø29x50 mm. PA · Temperature: -10..+80 ºC · Pressure: 3 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMR TB PP INOX PA** · Process connection: Top screw. 2" G. PP · Electrical connection: Connection housing. PBT · Length: 150..2500 mm, tube SS AISI316 (1.4401) · Float: Cylindrical ø29x50 mm. PA · Temperature: -10..+80 ºC · Pressure: 3 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMR CC INOX** · Process connection: Flange Clamp. 2"1/2 G. SS AISI316 (1.4401) · Connexion electrical: Connector DIN43650 · Length: 150..2500 mm · Float: Cylindrical ø52x52 mm. SS AISI316 (1.4401) · Temperature: -20..+100 ºC · Pressure: 30 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMR CB INOX** · Process connection: Flange Clamp. 2"1/2 G. SS AISI316 (1.4401) · Electrical connection: Connection housing. PBT · Length: 150..2500 mm · Float: Cylindrical ø52x52 mm. SS AISI316 (1.4401) · Temperature: -20..+100 ºC · Pressure: 30 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		

Image	Reference / Description	Length	Step 5	Step 10
	**TMN TBEX INOX** · Process connection: Top screw. 2" G. SS AISI316 (1.4401) · Electrical connection: Connection housing. EEx d IIC T6. Aluminium · Length: 150..2500 mm · Float: Cylindrical ø52x52 mm. SS AISI316 (1.4401) · Temperature: -20..+100 ºC · Pressure: 30 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMN DBEX INOX** · Process connection: Flange DIN. DN 25..DN 100. SS AISI316 (1.4401) · Electrical connection: Connection housing. EEx d IIC T6. Aluminium · Length: 150..2500 mm · Float: Cylindrical ø52x52 mm. SS AISI316 (1.4401) · Temperature: -20..+100 ºC · Pressure: 30 kg/cm²	150		
		500		
		1000		
		1500		
		2000		
		2500		
	**TMN DBREX INOX** · Process connection: Flange DIN. DN 100. SS AISI316 (1.4401) · Electrical connection: Connection housing. EEx d IIC T6. Aluminium · Length: 150..2500 mm · Float: Spherical ø95 mm. SS AISI316 (1.4401) · Temperature: -20..+100 ºC · Pressure: 30 kg/cm²	2500		
		3000		
		3500		
		4000		
		4500		
		5000		

Products related with Ex MAGNETIC TRANSDUCERS	Page
Galvanic isolator for 4-20mA signals: AG-5104-B	143
Board instrument of digital display: IPDS	142
[Safe Area] Current relays for 4-20 mA loop: SAJ, SAKHA/B, SAKA	124
[Safe Area] Current relays for DC: SAB, PABA/B, DABA/B, SABA/B, PAFA, DAFA, SAFA	122..123
[Safe area] Board instrument of digital display: IPDS	142

Application · Converts wind speed into an electrical signal.
· Works in combination with SHG and SHGA relays.

Image	*Reference / Description*	*Price*
	**SVR 50** · Measuring range: 2..55 m/s · Output/Resolution: 0..210 Hz, 55 m/s / 0.26 m · Electrical connection: cable (3 x 0.5 mm ², 20m) · Contact class: 5..15 VDC, maximum 0,015A · Temperature: -20..+80 ºC · Protection: IP65	

Products related with ANEMOMETERS	*Page*
Relays for anemometers: PHGA, SHG	98

Application · Connected to the appropriate anemometer, they read and control the wind speed
· Some typical applications are: indication and alarm for excess wind in protection of cranes, awnings, public sources, etc.

Image	Description	Model	Interface	Nº relays	Type relay	Comm	Version	Voltage	Range	SHG
	· Special tachometric relay for anemometers · Control and visualization of the wind speed. Control of bursts: are common applications controlling awnings, ornamental fountains.	**SHG**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024** **110** **230** **400** **440** **903** **904**		

Image	Description	Model	Voltage	Range	PHGA
	· Control of wind speed in cranes · Independent relays for 50 and 70 km/h · Detection delay adjustable from 0..30 S · Sensor: Anemometers SVR 50	**PHGA**	**U24** **724** **024** **048** **110** **230** **400**		

Products related with RELAYS FOR ANEMOMETERS	Page
Anemometers for the control of the speed of the wind: SVR	97

LEVEL RELAYS

Application
· They are used to control conductive liquids in all types of reservoirs, wells, ponds, etc.
· The models differ by combinations of the following characteristics:
  · Range of sensitivity.
  · Modality of control.
  · Quantity and type of output contacts.

Common data
· Should be connected to any type of conductive electrode.
· DISIBEINT is not responsible of the behavior of these relays when connected to sensors from other manufacturers.

Image	*Description*	*Model*	*Voltage*	*Range*			
					PNSA	DNSA	SNSA
	· Maximum and/or minimum level control · General application · Sensitivity: 10..100Kohms · Voltage/Current (probes): 24 VAC/4 mA	**PNSA** **DNSA** **SNSA**	**024** **110** **230** **400** **440**	**100**			
					PNFA	DNFA	
	· Combined control of phase failure and maximum and/or minimum level · Sensitivity: 10..100Kohms · Voltage/Current (probes): 24 VAC/4 mA	**PNFA** **DNFA**	**380** **400** **415** **440**	**100**			
					PNCA	PNCB	DNCA	DNCB
	· Supply voltage DC or AC · Double relay contact · Maximum and/or minimum level control · Sensitivity: 8..45 Kohms · Voltage/Current (probes): 6,2 VCA/3,2 mA	**PNCA** **PNCB** **DNCA** **DNCB**	**712** **724** **024** **110** **230** **400** **440**	**45K**				
			901 **902**				
					PNEA	DNEA	
	· For high resistivity liquids: destlled waters, demineralized... · Maximum and/or minimum level · Two sensitivity ranges: 10..100 Kohms / 200 Kohms..4,7 Mohms · Voltage/Current (probes): 24 VAC/4 mA	**PNEA** **DNEA**	**024** **230**	**100** **4M7**			
					PNDA	DNDA	
	· Automatic control for well and tank · Sensitivity: 10..100Kohms · Voltage/Current (probes): 24 VAC/4 mA	**PNDA** **DNDA**	**024** **048** **110** **230** **400**	**100**			
					PNGA	DNGA	
	· Double level control · Two independent level controls · Contacts NO · Maximum and/or minimum level · Sensitivity: 10..100Kohms · Voltage/Current (probes): 24 VAC/4 mA	**PNGA** **DNGA**	**024** **048** **110** **230** **400**	**100**			
					PNHA	DNHA	
	· Double level control · Two independent level controls · Contacts NC · Maximum and/or minimum level · Sensitivity: 10..100Kohms · Voltage/Current (probes): 24 VAC/4 mA	**PNHA** **DNHA**	**024** **048** **110** **230** **400**	**100**			

Image	*Description*	*Model*	*Voltage*	*Range*			SNDA
	· Two independent level controls · Contacts NO/NC · Maximum and/or minimum level · Sensitivity: 10..100Kohms · Voltage/Current (probes): 24 VAC/4 mA	**SNDA**	**024** **048** **110** **230** **400**	**100**			
	· Control of 3 independent levels, belonging to the same tank or not · Several application possibilities · Independent adjustments for each relay · Function Max-Min or Set-Point · Delay at level detection: 0..10s · Sensitivity: 10..100Kohms · Voltage/Current (probes): 5 VCA/4 mA	**SNZA**	**724** **024** **048** **110** **230** **400** **901** **902**	**100**			SNZA
	· Three independent level controls · Contacts NO/NC · Maximum and/or minimum level · Without housing. Directa assembly to DIN rail · Sensitivity: 10..150 Kohms · Voltage/Current (probes): 24 VAC/4 mA	**MNZA**	**024** **048** **110** **230** **400**	**150**		MNZA	

Products related with LEVEL RELAYS FOR CONDUCTIVE LIQUIDS	*Page*
Conductive electrodes, with top screw	20..21
Conductive electrodes, with flange	28..29
Conductive electrodes, other means	30

Application · They are used to control and/or display of five independent level points.

Common data
· Visualization of the status of each level point by means of a column of leds.
· Sensitivity: 10..100 Kohm
· Probe voltage: 6.2 VAC
· Current in probes: 3.2 mA

Image	*Description*	*Model*	*Voltage*	*Range*			
	· Relays for conductive liquids level · Alarm and display · Manual reset · Control 5 independent alarm points · Sensitivity: 10..100 Kohms · Voltage/Current (probes): 6,2 VAC/3,2 mA	**SNNA**	**U24** **724** **024** **048** **110** **230** **400**	**100**			SNNA
	· Level relays for conductive liquids · Alarm and visualization · Without output relay · Sensibility: 10..100 Kohms · Voltage/Current (probes): 6,2 VAC/3,2 mA	**SNNY**	**U24** **724** **024** **048** **110** **230** **400**	**100**			SNNY

Application · The multi-point level relays are responsible for implementing level control operations in accordance with the signal emitted by a sensor IMN MPS in which are installed, according to the function to perform, various detector modules MPS05 or MPS80.

Common data · It is essential to the use of sensors IMN MPS.

Image	*Description*	*Model*	*Interface*	*Nº relays*	*Type relay*	*Comm*	*Version*	*Voltage*	*Range*	SNI
	· Level control with 1..80 set points · Sensor is combined with IMN MPS · Functions configurable by the user · Three independent NO relays · Direct reading in units of capacity or volume · Timing 0,01 S..999,9 H · Three relay outputs · LCD graphic screen	**SNI**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024** **110** **230** **400** **440** **903** **904**	**80N**	

Image	*Description*	*Model*	*Voltage*	*Range*	SNIA
	· Level control with 1..5 set points · It uses the detector module MPS-05 · Functions: Filling, emptying, set-point · Three independent NO relays · Visualization of the level by means of 5 yellow leds · Delay on operate/release. Adjustable 0..30 s	**SNIA**	**U24** **724** **024** **048** **110** **230** **400**	**5N**	

Products related with MULTIPOINT LEVEL RELAYS	*Page*
Multipoint level sensors: IMN MPS	87

Accessories DIGITAL RELAYS	*Price*
*(4) Extension to output 4-20 mA	
*(3) Extension to output RS232	
*(8) Extension to output RS485	

Application · Amplifiers for capacitive sensors.

Common data · They only work with capacitive sensors of the type SCSx or SCRx.
· DISIBEINT is not responsible for the behavior of these relays if they are connected to sensors of other brands.

Image	*Description*	*Model*	*Voltage*	*Range*	PNAS	PNAT	DNAS	DNAT
	· Amplifier relay for capacitive sensors · For sensors with references SCSx or SCRx · Maximum and/or minimum level control · Adjust the sensor sensitivity · Voltage/Current (probes: 24 VDC/15 mA)	**PNAS** **PNAT** **DNAS** **DNAT**	**U24** **724** **024** **048** **110** **230** **400**					
			901 **902**					

Products related with LEVEL RELAYS FOR SOLIDS	*Page*
Capacitive sensors	45

TIMERS

Application · When connecting the power supply the relay remains deactivated and the time circuit starts up. After preset time the relay is activated. It can remain in this state indefinitely.

Image	*Description*	*Model*	*Voltage*	*Range*	PTCA	PTCB	DTCA	DTCB
	· Ranges: 0,03 S..180 M · Supply voltage: VAC, VDC or VAC/DC	**PTCA PTCB DTCA DTCB**	**U24 724 024 110 230 400 440**	**3S 15S 30S 1M 2M 3M 5M 10M 15M 30M 1H 2H 3H**				
	· Adjustable by remote potentiometer · Ranges: 0,03 S..180 M · Supply voltage: VCA, VCC or VCA/CC	**PTCG PTCH DTCG DTCH**	**U24 724 024 110 230 400 440**	**3S 15S 30S 1M 2M 3M 5M 10M 15M 30M 1H 2H 3H**	PTCG	PTCH	DTCG	DTCH

Application · By connecting the supply voltage the relay will be activated immediately. After the preset time has elapsed the relay is deactivated. It can remain in this state indefinitely.

Image	*Description*	*Model*	*Voltage*	*Range*	PTIA	PTIB	DTIA	DTIB
	· Ranges: 0,03 S..180 M · Supply voltage: VAC, VDC, VAC/DC	**PTIA PTIB DTIA DTIB**	**U24 724 024 110 230 400 440**	**3S 15S 30S 1M 2M 3M 5M 10M 15M 30M 1H 2H 3H**				
	· Adjustable by potentiometer remote · Ranges: 0,03 S..180 M · Supply voltage: VAC, VDC, VAC/DC	**PTIG PTIH DTIG DTIH**	**U24 724 024 110 230 400 440**	**3S 15S 30S 1M 2M 3M 5M 10M 15M 30M 1H 2H 3H**	PTIG	PTIH	DTIG	DTIH
	· Control by external contact, sensor NPN or PNP · Multirange: 0,01 S..100 H · Supply voltage: VAC, VDC, VAC/CC	**PTEA PTEB DTEA DTEB**	**U24 724 024 110 230 400 440 901 902**	**100**	PTEA	PTEB	DTEA	DTEB

Application · The relay switches cyclically according to time adjusted, in identical intervals both for the OFF time and for the ON one. Starter can be programmed OFF-ON or ON-OFF. The cycle is repeated continuously until power supply is disconnected.

Common data · Multi-range: From 0,01 S up to 100 H selectable 8-position rotary switch.

Image	*Description*	*Model*	*Voltage*	*Range*	PTWA	PTWB	DTWA	DTWB
	· Equal adjustment OFF/ON · Top cycle through OFF or ON · Multirange: 0,01 S..100 H · Supply voltage: VAC or VDC	**PTWA PTWB DTWA DTWB**	**U24 724 024 110 230 400 440**	**100**				
			901 902					

Application · The relay switches cyclically according to time adjusted in the two separate time circuits, one for OFF and one for ON. Starter can be programmed OFF-ON or ON-OFF. The cycle is repeated continuously until power supply is disconnected.

Image	*Description*	*Model*	*Voltage*	*Range*	PTAA	PTAB	DTAA	DTAB
	· Times independent adjustment OFF/ON · Top cycle through OFF or ON · Multirange: 0,01 S..100 H · Supply voltage: VAC or VDC	**PTAA PTAB DTAA DTAB**	**U24 724 024 110 230 400 440**	**100**				
			901 902					

Image	*Description*	*Model*	*Voltage*	*Range*	PTJA	PTJB	DTJA	DTJB
	· Times independent adjustment OFF/ON · Top cycle through OFF or ON · Multigama: 0.01 S..100 H · Multivoltage: 24..240 VAC/DC	**PTJA PTJB DTJA DTJB**	**U40**	**100**				

Image	*Description*	*Model*	*Voltage*	*Range*	PTSA	DTSA
	· Times independent adjustment OFF/ON · Top cycle through OFF or ON · Multirange: 0,01 S..100 H · Start-up by external input	**PTSA DTSA**	**U24 724 024 110 230 400 440**	**100**		
			901 902			

Image	*Description*	*Model*	*Voltage*	*Range*	PTAG	DTAG
	· Adjustment with remote potentiometer · Multirange: 0,01 S..100 H · Multivoltage: 24..240 VAC/DC	**PTAG DTAG**	**U24 724 024 110 230 400 440**	**100**		
			901 902			

Image	*Description*	*Model*	*Voltage*	*Range*	PTUA	PTUB	DTUA	DTUB
	· Proportional asymmetrical timer · Proportional adjustment of the time · Multirange: 0,1 S..192 H · Multivoltage: 24..240 VAC/DC	**PTUA PTUB DTUA DTUB**	**U40**	**192**				

Application

· 10 or 12 functions selectable by rotary switch, according to model:
- Delay on operate
- Interval on operate
- Delay on operate with time storage, without memory
- Delay on operate by external input, when activate
- Delay on operate by external input, when deactivate
- Delay on operate by external input, when activate or deactivate
- Delay on operate with time storage, with memory
- Interval on operate by external input, when activate
- Interval on operate by external input, when deactivate
- Interval on operate by external input, when activate or deactivate

Common data

Multi-range:
· [100]: From 0,01 S up to 100 H selectable by 8-position rotary switch.

Image	*Description*	*Model*	*Voltage*	*Range*					
					PTMA	PTMB	DTMA	DTMB	
	· Multifunction: Delay on operate, Interval on operate,Clutch. · Start by external input, sensor NPN or PNP · Multirange: 0,01 S..100 H · Supply voltage: VAC, VDC, VAC/DC	**PTMA PTMB DTMA DTMB**	**U24 724 024 110 230 400 440**	**100**					
			901 902						
					PTMG		DTMG		
	· Multifunction: Connection, Interval, Clutch, · Start by external contact, sensor NPN or PNP · Adjustable by remote potentiometer · Multirange: 0,01 S..100 H · Supply voltage: VAC, VDC, VAC/DC	**PTMG DTMG**	**U24 724 024 110 230 400 440**	**100**					
			901 902						
					PTZA	PTZB	DTZA	DTZB	
	· Multifunction: Connection, Interval, Clutch · Manual starter by external contact · Multirange: 0,01 S..100 H · Multivoltage: 24..240 VAC/DC	**PTZA PTZB DTZA DTZB**	**U40**	**100**					
					PTNA	PTNB	DTNA	DTNB	
	· Multifunction: Connection, Interval, Clutch · Start by external contact, sensor NPN or PNP · Instant activation relay · Multirange: 0.01 S..100 H · Supply voltage: VAC, VDC, VAC/DC	**PTNA PTNB DTNA DTNB**	**U24 724 024 110 230 400 440**	**100**					
			901 902						

Application · By connecting the supply voltage, the relay is activated. When disconnecting the supply voltage while the circuit is started and after the preset time the relay is deactivated.
If the supply voltage is applied again before the time has elapsed, the circuit resets time and the relay remains activated.

Image	*Description*	*Model*	*Voltage*	*Range*	PTRA	PTRB	DTRA	DTRB	STRA	STRB
	· Delay off voltage · Ranges: 0,15 S..30 M · Supply voltage: VAC, VDC, VAC/DC	**PTRA PTRB DTRA DTRB STRA STRB**	**U24 724 024 110 230 400 440**	**16M**						
				8H						
			901	**16M**						
			902	**8H**						

Application · See the specific description of each model.
· For further information, see "Operating Principle" in the technical documentation of the selected model.

Image	*Description*	*Model*	*Voltage*	*Range*	PTHA	DTHA
	· Star-delta · Ranges: 0,1..60 S · Supply voltage: VAC, VDC, VAC/DC	**PTHA** **DTHA**	**U24** **724** **024** **110** **230** **400** **440**	**1M**		
			901 **902**			

Image	*Description*	*Model*	*Voltage*	*Range*	PTGA
	· Starting-up generators · Multirange: 0,1 S..192 H · Supply voltage: 12 or 24 VDC	**PTGA**	**712** **724**	**192**	

Image	*Description*	*Model*	*Voltage*	*Range*	PTPA	DTPA
	· Delay on operate and on release · Operated by external contact · Multirange : 0,1 S..192 H · Supply voltage: VAC, VDC, VAC/DC	**PTPA** **DTPA**	**U24** **724** **024** **110** **230** **400** **440**	**192**		
			901 **902**			

Image	*Description*	*Model*	*Voltage*	*Range*	PTTA	DTTA
	· Cyclical timer with intermediate pause · Multirange: 0,01 S..100 H · Supply voltage: VAC, VDC, VAC/DC	**PTTA** **DTTA**	**U24** **724** **024** **110** **230** **400** **440**	**100**		
			901 **902**			

Image	*Description*	*Model*	*Voltage*	*Range*	PTFS	PTFT	DTFS	DTFT
	· One shot relay or pulse relay · Three operating modes: Delay on operate, on release or both · Fixed time: 0,5 S · Supply voltage: VAC, VDC, VAC/DC	**PTFS** **PTFT** **DTFS** **DTFT**	**U24** **724** **024** **110** **230** **400** **440**					
			901 **902**					

CONTROL RELAYS

Application · They control a voltage range in AC voltage between the adjusted margins. When conditions are right, the relay remains activated and it deactivates when the current is shifted out of these margins.
· The models are distinguished by combinations of the following characteristics:
- Control of the own supply voltage or a secondary voltage
- Control 1, 2 or 3 set points
- Fixed or adjustable hysteresis
- Timing detection fixed or adjustable
- Display of measured values

Image	Description	Model	Interface	Nº relays	Type relay	Comm	Version	Voltage	Range	
	· Controller of AC single-phase voltage · Measures its own supply voltage · Regulation: ±18% of the nominal value · Frequency control: 43..70 Hz · DC component control: 0..3 VDC · Timing 0,01 S..999,9 H · Several configurable parameters · Three configurable output relays · LCD graphic screen	**SVA**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024** **110** **230** **400** **440** **903** **904**		SVA

Image	Description	Model	Voltage	Range	PVHA	PVHB	DVHA	DVHB	SVHA	SVHB
	· It controls a secundary voltage · Relay for maximum or minimum voltage · Rank: 0,4..500 VAC in 5 ranges · Regulation: According to the ajdusted value · Hysteresis: 3..30% · Timing: 0..30 s	**PVHA** **PVHB** **DVHA** **DVHB** **SVHA** **SVHB**	**U24** **110** **230** **400** **440** **901** **902**	**4V** **20V** **50V** **200** **500**						

Image	Description	Model	Voltage	Range	PVBA	PVBB	DVBA	DVBB	SVBA	SVBB
	· Relay for maximum, minimum or threshold voltage · Controls a secondary voltage · Rank: 16,8..520 VCA in 4 ranges · Regulation: ±30% on the nominal voltage · Hysteresis: 1%, fix · Timing: 0..30 s	**PVBA** **PVBB** **DVBA** **DVBB** **SVBA** **SVBB**	**U24** **110** **230** **400** **440** **901** **902**	**24V** **110** **230** **400**						

Image	Description	Model	Voltage	Range	PVJA	DVJA	SVJA
	· It controls a secundary voltage · Two independent set points · Rank: 0,4..500 VAC in 5 ranges · Regulation: According to the ajdusted value · Hysteresis: 10%, fix	**PVJA** **DVJA** **SVJA**	**U24** **110** **230** **400** **440** **901** **902**	**4V** **20V** **50V** **200** **500**			

Image	Description	Model	Voltage	PVAA	PVAB	DVAA	DVAB	SVAA	SVAB
	· Relay for maximum, minimum or threshold voltage · Controls the own supply voltage · Regulation: ±18% on the nominal voltage · Hysteresis: 1%, fix · Timing: 0..30 s	**PVAA** **PVAB** **DVAA** **DVAB** **SVAA** **SVAB**	**024** **110** **230** **400**						

Image	*Description*	*Model*	*Voltage*	*Range*	PVLA	DVLA	SVLA
	· Two independent set points · Controls the own supply voltage · Regulation: ±18% on the nominal voltage · Hysteresis: 1%, fix	**PVLA** **DVLA** **SVLA**	**024** **110** **230** **400**				

Image	*Description*	*Model*	*Voltage*	PVSS	PVST	DVSS	DVST
	· Threshold voltage relay · Fixed set points: minimum 172VAC, maximum 260VAC · Delay on detection, fixed of 3 s	**PVSS** **PVST** **DVSS** **DVST**	**230**				

Image	*Description*	*Model*	*Voltage*	*Range*	PVZS
	· Automatic voltage · Discriminator voltage for portable equipments · Trip point, 286 V · Delay on detection, fixed of 1 s	**PVZS**	**230**	**400**	

Accessories DIGITAL RELAYS	*Price*
*(4) Extension to output 4-20 mA	
*(3) Extension to output RS232	
*(8) Extension to output RS485	

Application · They control a voltage range in DC between the adjusted margins. When conditions are right, the relay remains activated and it deactivates when the current is shifted out of these margins.
· The models are distinguished by combinations of the following characteristics:
- Control of the own supply voltage or a secondary voltage
- Control 1, 2 or 3 set points
- Fixed or adjustable hysteresis
- Timing detection fixed or adjustable
- Display of measured values

Image	Description	Model	Interface	Nº relays	Type relay	Comm	Version	Voltage	Range	SVC
	· Controlador de tensión monofásica en CC · Measures on own supply voltage · Regulation: ±25% on nominal value · Range: 9..156 VAC to 5 ranges · Timing 0,01 S..999,9 H · Multiple configurable parameters · Three configurable output relays · LCD graphic screen	**SVC**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**712** **903** **903** **904** **904**	**12V** **24V** **48V** **110** **125**	

Image	Description	Model	Voltage	Range	PVIA	PVIB	DVIA	DVIB	SVIA	SVIB
	· Relay for maximum or minimum voltage · It controls a secundary voltage · Rank: 0,4..500 VDC en 5 ranges · Regulation: According to the adjusted value · Hysteresis: 3..30% · Timing: 0..30 s	**PVIA** **PVIB** **DVIA** **DVIB** **SVIA** **SVIB**	**024** **110** **230** **400** **440** **901** **902**	**4V** **20V** **50V** **200** **500**						

Image	Description	Model	Voltage	Range	PVDA	PVDB	DVDA	DVDB	SVDA	SVDB
	· Relay for maximum, minimum or threshold voltage · It controls a secundary voltage · Rank: 8,4..162,5 VDC in 5 ranges · Hysteresis: Fixed to 1% · Regulation: ±30% on nominal value · Timing: 0..30 S	**PVDA** **PVDB** **DVDA** **DVDB** **SVDA** **SVDB**	**024** **110** **230** **400** **440** **901** **902**	**12V** **24V** **48V** **110** **125**						

Image	Description	Model	Voltage	Range	PVKA	DVKA	SVKA
	· Two independient set points · It controls a secundary voltage · Rank: 0,4..500 VDC en 5 ranges · Regulation: According to the adjusted value · Hysteresis: 10% fixed	**PVKA** **DVKA** **SVKA**	**024** **110** **230** **400** **440** **901** **902**	**4V** **20V** **50V** **200** **500**			

Image	Description	Model	Voltage	Range	PVCA	PVCB	DVCA	DVCB	SVCA	SVCB
	· Voltage relay for maximum, minimum or threshold · It controls its own supply voltage · Rank: 9..156,5 VDC in 5 ranges · Regulation: ±25% of the nominal value · Hysteresis: 1% fixed · Timing: 0..30 s	**PVCA** **PVCB** **DVCA** **DVCB** **SVCA** **SVCB**	**712** **724** **748** **901** **902**	**12V** **24V** **48V** **110** **125**						

Image	*Description*	*Model*	*Voltage*	*Range*	PVMA		DVMA		SVMA	
	· Two independent set points · It controls its own supply voltage · Rank: 9..156,5 VDC in 5 ranges · Regulation: ±25% of the nominal value · Hysteresis: 1% fixed	**PVMA** **DVMA** **SVMA**	**712**	**12V**						
			724	**24V**						
			748	**48V**						
			901	**110**						
			902	**125**						

Accessories DIGITAL RELAYS	*Price*
*(4) Extension to output 4-20 mA	
*(3) Extension to output RS232	
*(8) Extension to output RS485	

Application · Control of a three-phase voltage range between tight margins. When conditions are right, the relay is activated and deactivated when the voltage is shifted out of these margins.
· The models are distinguished by combinations of the following characteristics:
- Control of the own supply voltage or a secondary voltage
- Control lines with or without neutral
- Fixed or adjustable hysteresis
- Timing detection, fixed or adjustable
- Display of measured values

Image	Description	Model	Interface	Nº relays	Type relay	Comm	Version	Voltage	Range	SVO
	· Control of three phase lines without neutral · Measure its own power supply or a secondary voltage · Range: 110..690 VAC in 6 ranges · Voltage control, phase/phase ±18% · Control of phase sequence · Phase unbalance control, phase/phase · Frequency control: 43..70 Hz · Timing 0,01 S..999,9 H · All input parameters are configurable · Three configurable output relays · LCD graphic screen	**SVO**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024** **110** **230** **400** **440** **903** **904**	**110** **230** **400** **440** **500** **690**	

Image	Description	Model	Interface	Nº relays	Type relay	Comm	Version	Voltage	Range	SVP
	· Control of three-phase lines with neutral · Measure its own power supply or a secondary voltage · Range: 110..690 VAC in 6 ranges · Voltage control, ph/ph and ph/n · Phase unbalance control, ph/ph and ph/n · Frequency control: 43..70 Hz · Timing 0,01 S..999,9 H · All input parameters are configurable · Three configurable output relays · LCD graphic screen	**SVP**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024** **110** **230** **400** **440** **903** **904**	**110** **230** **400** **440** **500** **690**	

Image	Description	Model	Voltage	Range	PVEA	PVEB	DVEA	DVEB
	· Relay for max., min. or threshold voltage · Three-phase lines without neutral · It controls its own power supply · Rank: 90..542 VAC in 5 ranges · Regulation: ±18% on the nominal voltage, phase-phase · Hysteresis: 1%, fix · Timing: 0..30 s	**PVEA** **PVEB** **DVEA** **DVEB**	**110** **230** **400** **415** **440**					

Image	Description	Model	Voltage	Range	PVFA	PVFB	DVFA	DVFB
	· Relay for max., min. or threshold voltage · Three-phase lines with neutral · It controls its own power supply · Rank: 52..300 VAC in 5 ranges · Regulation: ±18% on the nominal voltage, phase-phase and phase-neutral · Hysteresis: 1%, fix · Timing: 0..30 s	**PVFA** **PVFB** **DVFA** **DVFB**	**110** **230** **400** **415** **440**					

Image	Description	Model	Voltage	Range	PVOA	PVOB	DVOA	DVOB
	· Relay for max., min. or threshold voltage · Three-phase lines without neutral · It controls a secondary voltage · Rank: 90..542 VAC in 8 ranges · Regulation: ±18% on the nominal voltage, phase-phase · Hysteresis: 1%, fix · Timing: 0..30 s	**PVOA** **PVOB** **DVOA** **DVOB**	**024** **110** **230** **400** **440** **901** **902**	**110** **220** **230** **380** **400** **415** **440** **460**				

Image	*Description*	*Model*	*Voltage*	*Range*	PVPA	DVPA	
	· Relay for max., min. or threshold voltage · Three-phase lines with neutral · It controls a secondary voltage · Rank: 52..300 VAC in 5 ranges · Regulation: ±18% on the nominal voltage, phase-phase and phase-neutral · Hysteresis: 1%, fix · Timing: 0..30 s	**PVPA** **DVPA**	**024** **110** **230** **400** **440**	**110** **220** **400** **415**			
			901 **902**	**440**			

Accessories DIGITAL RELAYS	*Price*
*(4) Extension to output 4-20 mA	
*(3) Extension to output RS232	
*(8) Extension to output RS485	

Application · They control a range of single-phase AC current between the adjusted margins. When conditions are right, the relay remains activated and it deactivates when the current is shifted out of these margins.
· The models are diferencied by combinations of the following characteristics:
- Control 1, 2 or 3 set points.
- Fixed or adjustable hysteresis.
- Timing detection fixed or adjustable.
- Display of measured values.

Image	Description	Model	Interface	Nº relays	Type relay	Comm	Version	Voltage	Range	SAA
	· Control of maximum and/or minimum current · Rank: 0,04 mA..10 A in 6 ranges · Frequency control: 43..70 Hz · Timing 0,01 S..999,9 H · All input parameters are configurable · Three configurable output relays · LCD graphic screen	**SAA**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024** **110** **230** **400** **440** **903** **904**	**2MA** **A02** **A20** **1A** **5A** **10A**	

Image	Description	Model	Interface	Nº relays	Type relay	Comm	Version	Voltage	Range	SAC
	· Control of the current in AC single-phase lines by means of external shunt · Rank: 10..100 mV · Frequency control: 43..70 Hz · Timing 0,01 S..999,9 H · All input parameters are configurable · Three configurable output relays · LCD graphic screen	**SAC**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024** **110** **230** **400** **440** **903** **904**	**V10**	

Image	Description	Model	Voltage	Range	PAAA	PAAB	DAAA	DAAB	SAAA	SAAB
	· Relay for maximum or minimum current · Rank: 0,1 mA..5 A in 9 ranges · Hysteresis: 3..30% · Timing: 0..30 s	**PAAA** **PAAB** **DAAA** **DAAB** **SAAA** **SAAB**	**024** **110** **230** **400** **440**	**1MA** **5MA** **A02** **A10** **A20** **A50**						
			901 **902**	**1A** **2A** **5A**						

Image	Description	Model	Voltage	Range	PAEA	DAEA	SAEA
	· Two independent set points · Rank: 0,1 mA..5 A in 9 ranges · Hysteresis: 10% fix	**PAEA** **DAEA** **SAEA**	**024** **110** **230** **400** **440**	**1MA** **5MA** **A02** **A10** **A20** **A50**			
			901 **902**	**1A** **2A** **5A**			

Image	Description	Model	Voltage	Range	PACA	PACB	DACA	DACB	SACA	SACB
	· Relay for maximum or minimum current by means of external shunt · Rank: 5..150 mV in 4 ranges · Hysteresis: 3..30% · Timing: 0..30 s	**PACA** **PACB** **DACA** **DACB** **SACA** **SACB**	**024** **110** **230** **400** **440**	**V05** **V06** **V10** **V15**						
			901 **902**							

Image	*Description*	*Model*	*Voltage*	*Range*			
					PAGA	DAGA	SAGA
	· Relay for maximum or minimum current by means of external shunt · Two independent set points · Rank: 5..150 mV in 4 ranges · Hysteresis: 10% fix	**PAGA** **DAGA** **SAGA**	**024** **110** **230** **400** **440**	**V05** **V06** **V10** **V15**			
			901 **902**				

Accessories DIGITAL RELAYS	*Price*
*(4) Extension to output 4-20 mA	
*(3) Extension to output RS232	
*(8) Extension to output RS485	

Application · Control a range of DC current between the adjusted margins. When conditions are right, the relay is activated and it deactivates when the current is shifted out of these margins.
· The models are distinguished by combinations of the following characteristics:
- Control 1, 2 or 3 set points.
- Fixed or adjustable hysteresis.
- Timing detection, fixed or adjustable.
- Display of measured values.

Image	*Description*	*Model*	*Interface*	*Nº relays*	*Type relay*	*Comm*	*Version*	*Voltage*	*Range*	SAB
	· Control of the current in DC lines · Rank: 0,04 mA..10 A in 6 ranges · Timing 0,01 S..999,9 H · All input parameters are configurable · Three configurable output relays · LCD graphic screen	**SAB**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024 110 230 400 440** **903 904**	**2MA A02 A20 1A 5A 10A**	

Image	*Description*	*Model*	*Interface*	*Nº relays*	*Type relay*	*Comm*	*Version*	*Voltage*	*Range*	SAD
	· Control of the current in DC lines by means of external shunt · Rank: 10..100 mV · Timing 0,01 S..999,9 H · All input parameters are configurable · Three configurable output relays · LCD graphic screen	**SAD**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024 110 230 400 440** **903 904**	**V10**	

Image	*Description*	*Model*	*Voltage*	*Range*	PABA	PABB	DABA	DABB	SABA	SABB
	· Relay for maximum or minimum current · Rank: 0,1 mA..5 A in 9 ranges · Hysteresis: 3..30% · Timing: 0..30 s	**PABA PABB DABA DABB SABA SABB**	**024 110 230 400 440**	**1MA 5MA A02 A10 A20 A50**						
			901 902	**1A 2A 5A**						

Image	*Description*	*Model*	*Voltage*	*Range*	PAFA	DAFA	SAFA
	· Two independent set points · Rank: 0,1 mA..5 A in 9 ranges · Hysteresis: 10% fix	**PAFA DAFA SAFA**	**024 110 230 400 440**	**1MA 5MA A02 A10 A20 A50**			
			901 902	**1A 2A 5A**			

Image	*Description*	*Model*	*Voltage*	*Range*	PADA	PADB	DADA	DADB	SADA	SADB
	· Relay for maximum or minimum current by means of external shunt · Rank: 5..150 mV in 4 ranges · Hysteresis: 3..30% · Timing: 0..30 s	**PADA PADB DADA DADB SADA SADB**	**024 110 230 400 440**	**V05 V06 V10 V15**						
			901 902							

Image	*Description*	*Model*	*Voltage*	*Range*			
					PAHA	DAHA	SAHA
	· Relay for maximum or minimum current by means of external shunt · Two independent set points · Rank: 5..150 mV in 4 ranges · Hysteresis: 10% fix	**PAHA** **DAHA** **SAHA**	**024** **110** **230** **400** **440**	**V05** **V06** **V10** **V15**			
			901 **902**				

Accessories DIGITAL RELAYS	*Price*
*(4) Extension to output 4-20 mA	
*(3) Extension to output RS232	
*(8) Extension to output RS485	

Products related with DC CURRENT RELAYS	*Page*
Surface pressure sensors: TPSP	38..41
Submersible pressure sensors: TPSM	42..43
Level magnetic transducers: TMN	93..94

Application · Control a range of current of 4..20 mA DC between the adjusted margins. When conditions are right, the relay is activated and it deactivates when the current is shifted out of these margins.
· The models are distinguished by combinations of the following characteristics:
- Control 1, 2 or 3 set points.
- Fixed or adjustable hysteresis.
- Timing detection, fixed or adjustable.
- Display of measured values.

Image	*Description*	*Model*	*Interface*	*Nº relays*	*Type relay*	*Comm*	*Version*	*Voltage*	*Range*	SAJ
	· Controller of a 4-20 mA loop current with loop supply and visualization · Three independent set-points · Timing 0,01 S..999,9 H · Multiple configurable parameters · Three configurable output relays · LCD graphic screen	**SAJ**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024** **110** **230** **400** **440**	**A02**	
								903 **904**		

Image	*Description*	*Model*	*Voltage*	*Range*	SAJA	SAJB
	· Output to 15 VDC loop power · Range: 2..20 mA · One set point · Hysteresis: 10% · Timing: 0..30 S	**SAJA** **SAJB**	**024** **110** **230** **400** **440**	**A02**		

Image	*Description*	*Model*	*Voltage*	*Range*	SAKA
	· Output to 15 VDC loop power · Range: 2..20 mA · Two independent set points · Hysteresis: 10%	**SAKA**	**024** **110** **230** **400** **440**	**A02**	
			901 **902**		

Accessories DIGITAL RELAYS	*Price*
*(4) Extension to output 4-20 mA	57.86
*(3) Extension to output RS232	56.79
*(8) Extension to output RS485	61.62

Products related with RELAYS TO 4-20 mA LOOP	*Page*
Surface pressure sensors: TPSP	38..41
Submersible pressure sensors: TPSM	42..43
Magnetic level transducers: TMN	93..94

Application
· They are used to monitor the status of phase voltage lines without neutral.
· When conditions are right, the relay remains activated and deactivates at the detection of any fault.
· Depending on model, they can control: order of the phases, failure of any phase, imbalance between phases, rotation angle.

Common data
· They do not need auxiliary power supply since they feed itself from the three-phase line.
· Independent models for lines of 50Hz or 60Hz.

Image	Description	Model	Interface	Nº relays	Type relay	Comm	Version	Voltage	Range	SVO
	· Control of three phase lines without neutral · Measure its own power supply or a secondary voltage · Range: 110..690 VAC in 6 ranges · Voltage control, phase/phase ±18% · Control of phase sequence · Phase unbalance control, phase/phase · Frequency control: 43..70 Hz · Timing 0,01 S..999,9 H · All input parameters are configurable · Three configurable output relays	**SVO**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024** **110** **230** **400** **440** **903** **904**	**110** **230** **400** **440** **500** **690**	

Image	Description	Model	Voltage	Range	PFCS	PFCT	DFCS	DFCT	SFCS	SFCT
	· Control of sequence and phase fault · Fix parameters · Detection by voltage drop: -50% · Timing: 2 s	**PFCS** **PFCT** **DFCS** **DFCT** **SFCS** **SFCT**	**110** **230** **400** **440** **500**	**50** **60**						
	· Control of sequence, phase fault, unbalance and rotation angle · Fix parameters · Detection by voltage drop: -20% · Detection by phases unbalance · Detection by angle variation: ±15% · Timing: 2 s	**PFAS** **PFAT** **DFAS** **DFAT** **SFAS** **SFAT**	**110** **230** **400** **440** **500**	**50** **60**	PFAS	PFAT	DFAS	DFAT	SFAS	SFAT
	· Control of sequence, phase voltage, unbalance and rotation angle · Adjustable parameters · Detection by voltage variation: ±18% · Detection by phases unbalance · Detection by angle variation: ±15% · Timing: 0..30 s	**PFEA** **PFEB** **DFEA** **DFEB**	**110** **230** **400** **440** **500**	**50** **60**	PFEA	PFEB	DFEA	DFEB		
	· Control of phase order, phase voltage, unbalance and rotation angle · Adjustable parameters · Detection by voltage variation: ±18% · Detection by phases unbalance · Detection by angle variation: ±15% · Timing: detec.: 2 s / rel.: 3 s	**PFRS** **PFRT**	**110** **230** **400** **440** **500**	**50** **60**	PFRS	PFRT				

Accessories DIGITAL RELAYS	Price
*(4) Extension to output 4-20 mA	
*(3) Extension to output RS232	
*(8) Extension to output RS485	

Application
· They are used to monitor the status of phase voltage lines with neutral.
· When conditions are right, the relay remains activated and deactivates at the detection of any fault.
· Depending on model, they can control: order of the phases, failure of any phase, imbalance between phases, rotation angle.

Common data
· They do not need auxiliary power supply since they feed itself from the three-phase line.
· Independent models for lines of 50Hz or 60Hz.

Image	*Description*	*Model*	*Interface*	*Nº relays*	*Type relay*	*Comm*	*Version*	*Voltage*	*Range*	SVP
	· Control of three-phase lines with neutral · Measure its own power supply or a secondary voltage · Range: 110..690 VAC in 6 ranges · Voltage control, ph/ph and ph/n · Phase unbalance control, ph/ph and ph/n · Frequency control: 43..70 Hz · Timing 0,01 S..999,9 H · All input parameters are configurable · Three configurable output relays · LCD graphic screen	**SVP**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024** **110** **230** **400** **440** **903** **904**	**110** **230** **400** **440** **500** **690**	

Image	*Description*	*Model*	*Voltage*	*Range*	PFDS	PFDT	DFDS	DFDT	SFDS	SFDT
	· Control of sequence and phase fault · Fix parameters · Detection by voltage drop: -50% · Timing: 2 s	**PFDS** **PFDT** **DFDS** **DFDT** **SFDS** **SFDT**	**110** **230** **400** **440** **500**	**50** **60**						

Image	*Description*	*Model*	*Voltage*	*Range*	PFBS	PFBT	DFBS	DFBT	SFBS	SFBT
	· Control of sequence, phase fault, unbalance and rotation angle · Fix parameters · Detection by voltage drop: -20% · Detection by phases unbalance · Detection by angle variation: ±15% · Timing: 2 s	**PFBS** **PFBT** **DFBS** **DFBT** **SFBS** **SFBT**	**110** **230** **400** **440** **500**	**50** **60**						

Image	*Description*	*Model*	*Voltage*	*Range*	PFFA	PFFB	DFFA	DFFB
	· Control of sequence, phase voltage, unbalance and rotation angle · Adjustable parameters · Detection by voltage variation: ±18% · Detection by phases unbalance · Detection by angle variation: ±15% · Timing: 0..30 s	**PFFA** **PFFB** **DFFA** **DFFB**	**110** **230** **400** **440** **500**	**50** **60**				

Image	*Description*	*Model*	*Voltage*	SFFA
	· Sequence control, phase failure and phases imbalance · Detection by voltage variation: ±18% · Detection due to imbalance between phases · Phase sequence detection · Detection and reset timing, adjustable	**SFFA**	**110** **230** **400** **440** **500**	

Accessories DIGITAL RELAYS	*Price*
*(4) Extension to output 4-20 mA	
*(3) Extension to output RS232	
*(8) Extension to output RS485	

Application · They are applied to control the RPM captured by different types of sensors: inductive, anemometers, etc.
· Some typical applications include: speed control of turbines and engines, speed control for wind protection awnings, public sources, and so on.

Image	*Description*	*Model*	*Interface*	*Nº relays*	*Type relay*	*Comm*	*Version*	*Voltage*	*Range*	SHA
	· Tachometric relay to general application · Control and visualization of the rotation speed to engine axes, turbines, etc., control speed conveyors belts, control of the strike or break transmission chains or endless conveyor	**SHA**	**9** *[Q-U]	**3** *[0-1-2]	**A** *[0-C]	**0** *[4-3-8]	**00**	**024** **110** **230** **400** **440**	**10K**	
								903 **904**		

Image	*Description*	*Model*	*Voltage*	*Range*	PHAA	DHAA
	· Tachometer relay generally applicable · Control RPM engines, turbines, etc. · Detection on or under RPM · Timing: ON delay adjustable from 0..30 S (low-RPM mode) · Sensor NPN, PNP, Namur or potential free contact, 24VCC/10mA	**PHAA** **DHAA**	**712**	**15K**	83,32	92,96
			U24 **724** **024** **110** **230** **400** **440**			
			901 **902**			
	· Control of min. RPM in motors, turbines, etc. · Special for a lowest revolutions · Timing: Adjustable from 0,5 to 10 s, only at supply voltage connecting · Sensor Namur	**PHBA** **DHBA**	**U24** **724** **024** **110** **230**	**3K**	PHBA	DHBA

Products related with RELAYS FOR ANEMOMETERS	*Page*
Anemometers for the control of the speed of the wind: SVR	97

Accessories DIGITAL RELAYS	*Price*
*(4) Extension to output 4-20 mA	
*(3) Extension to output RS232	
*(8) Extension to output RS485	

Application · They are used to alternate control of two or three bombs, according to the model. Prevent abrasion of the pumps by reducing their working time.
· The control is performed, depending on the model, by its own supply voltage, by level sensors or by pressures switches.

Image	*Description*	*Model*	*Voltage*	*Range*	PTBA	DTBA	
	· Alternative control of 2 pumps · Control by supply voltage · Ranges: 0,15..3 S · Not sensor needed. It must be installed into the pump supply line	**PTBA DTBA**	**U24 724 024 110 230 400 440**	**3S**			
			901 902				

					PTBC	DTBC	
	· Alternative control of 3 pumps · Control by supply voltage · Ranges: 0,15..3 S · Not sensor needed. It must be installed into the pump supply line	**PTBC DTBC**	**U24 724 024 110 230 400 440**	**3S**			
			901 902				

				PNVB		
	· Control of 1 pump · Remote by level sensor · Operating modes: Stop-Automatic-Manual · Sensors with potential free contacts · 2 sensors are needed to realize the maneuver	**PNVB**	**024 048 110 230 400**			

				PNWB		
	· Alternative control of 2 pump · Remote by level sensor · Operating modes: Stop-Automatic-Manual · Sensors with potential free contacts · 3 sensors are needed to realize the maneuver	**PNWB**	**024 048 110 230 400**			

				PMPA		
	· Alternative control of 2 pumps · Remote pressure switch · Operating modes: Stop-Auto-Manual · Minimum pressure switch with volt free contacts · Two sensors are needed to perform the maneuver	**PMPA**	**024 048 110 230 400**			

Products related with PUMPS RELAYS	*Page*
Float switches	20..21
Level magnetic switches: IMN	55..86

Application · They are used to amplify the signal from different types of sensors, depending on model.

Common data · The sensor input terminals are isolated from supply voltage of the relay.

Image	*Description*	*Model*	*Voltage*	*Range*	PSAS	PSAT	DSAS	DSAT
	· Amplification for three-wires sensors · Sensor NPN or PNP, 24 VDC / 10 mA · Maximum cadence: 10 pulse/s · Minimum pulse width: 20 ms	**PSAS PSAT DSAS DSAT**	**U24 724 024 110 230 400 440**					
			901 902					
	· Amplifier for sensors Namur · Namur sensor, 8,2 VDC · Maximum cadence: 10 pulse/s · Minimum pulse width: 20 ms	**PSBS PSBT DSBS DSBT**	**U24 724 024 110 230 400 440**		PSBS	PSBT	DSBS	DSBT
			901 902					
	· Amplifier for PTC sensor · Sensor: Termistor PTC, whichever value · Several PTC can be serial connected while the total does not exceed 1500 ohms	**PSCS PSCT DSCS DSCT**	**U24 724 024 110 230 400 440**		PSCS	PSCT	DSCS	DSCT
			901 902					
	· Two hands relay · Launch of presses and equipment handling risk · Sensor: pontencial free contact, 24 VDC/10 mA	**PSDS PSDT DSDS DSDT**	**U24 724 024 110 230 400 440**		PSDS	PSDT	DSDS	DSDT
			901 902					

Products related with RELAYS FOR SENSORS	*Page*
Capacitive sensors with direct connection	46

Application · They are used to perform logic functions on a relay output from the signal received by the input sensors.

Common data · The input signal can come from potential free contacts. Alternatively, and depending on model, can connect sensors with NPN or PNP output.

Image	*Description*	*Model*	*Voltage*	*Range*			
					PLAS	DLAS	
	· Flip-flop without memory · The relay changes state at each pulse received · Sensor NPN or PNP, 24 VDC / 10 mA · Cadence maximum 10 imp / s · Minimum pulse: 20 ms	**PLAS DLAS**	**U24 724 024 110 230 400 440**				
			901 902				

Application · They are used to amplify smaller capacity contacts on other devices. Depending on model, can be used with level sensors to automate start-stop maneuvers.

Image	*Description*	*Model*	*Voltage*	*Range*	PSPS	DSPS	SSPS
	· Weak contacts protection · To be used in instruments with potential free contacts	**PSPS DSPS SSPS**	**024 110 230 400 440**				

Image	*Description*	*Model*	*Voltage*	*Range*	PSMS	DSMS
	· Contact amplifier with two independent inputs · To be used in devices with potential free contacts	**PSMS DSMS**	**724 024 048 110 230 400**			
			901 902			

Image	*Description*	*Model*	*Voltage*	*Range*	PSIA	DSIA
	· Control for detection of turbulences in liquids · Delay to the level detection · Control differential maximum and minimum levels by timing · To be used in devices with potential free contacts	**PSIA DSIA**	**U24 724 024 048 110 230 400**	**1S 3S 15S 1M**		
			901 902			

Products related with PROTECTION RELAYS OF CONTACTS	*Page*
Float switches	20..21
Level magnetic switches: IMN	55..86


INTERNET
OF THINGS

Image	Reference / Description	Price
	**dePACK** · Modular solution to create IoT devices · Sensor modules: energy analyzer, temperature, humidity, conductive level, variable resistance, etc. · Communication RS232, RS285, Ethernet, GPRS, LoRa, WiFi · Digital and analog inputs 4-20 mA · Digital outputs and relay · Power supply: 12VDC, 24/48 VDC, 85-264 VAC, battery	
	**SBL8 230** · Transparent communication with LoRa (TM) protocol · RS-485 Modbus RTU Communication · External antenna · Supply voltage: 230 VAC · Installation in 1 DIN rail module · LoRa (TM) communication up to 20000 meters outdoors · LoRa (TM) communication up to 1000 meters indoors	
	**SBL8 712** · Transparent communication with LoRa (TM) protocol · RS-485 Modbus RTU Communication · External antenna · Supply voltage: 12 VDC · Wall installation · LoRa (TM) communication up to 20000 meters outdoors · LoRa (TM) communication up to 1000 meters indoors	
	**SBE8 230** · Converter/Adapter TCP-IP to RS485 · Communication with Modbus TCPIP protocol · RS-485 Modbus RTU Communication · Installation in 2 DIN rail modules	
	**SBC8 IO 24** · Converter/Adapter TCP-IP to RS485 · Communication with Modbus TCPIP protocol · RS-485 Modbus RTU Communication · Installation in 2 DIN rail modules	
	**SBC8 IO 40** · Input/output module · RS-485 Modbus RTU Communication · Digital and/or analog inputs · Digital outputs · Installation in 4 DIN rail modules	

Image	Reference / Description	Price
	**SKM8** · Single phase network meter · Monitoring of energy, power, voltage, current, maximum demand active and reactive energy, power factor and cosine of phi · Supply voltage: 85 .. 265 VAC · Input via measurement transformer (250 mA) · RS-485 Modbus RTU communication	
	**SKT8** · Three phase network meter · Monitoring of energy, power, voltage, current, maximum demand active and reactive energy, power factor and cosine of phi · Supply voltage: 85 .. 265 VAC · Input via measurement transformer (250 mA) · RS-485 Modbus RTU communication	
	**TRA1 80A** · Open core measurement transformer · Maximum current: 80A · Power class: 1 · Internal diameter: 10 mm	
	**TRA1 100A** · Open core measurement transformer · Maximum current: 100A · Power class: 1 · Internal diameter: 16 mm	
	**TRC1 100A** · Closed core measurement transformer · Maximum current: 100A · Power class: 0,5 · Internal diameter: 12 mm	
	**TRC1 250A** · Closed core measurement transformer · Maximum current: 250A · Power class: 0,5 · Internal diameter: 19 mm	

Image	Reference / Description	Price
	**deDAT** · IoT Cloud Platform · Customizable for each application · Group data from different facilities · Remote control and alarm actions in real time · Analysis and treatment of data, reports · Available for desktop, mobile and tablet devices	

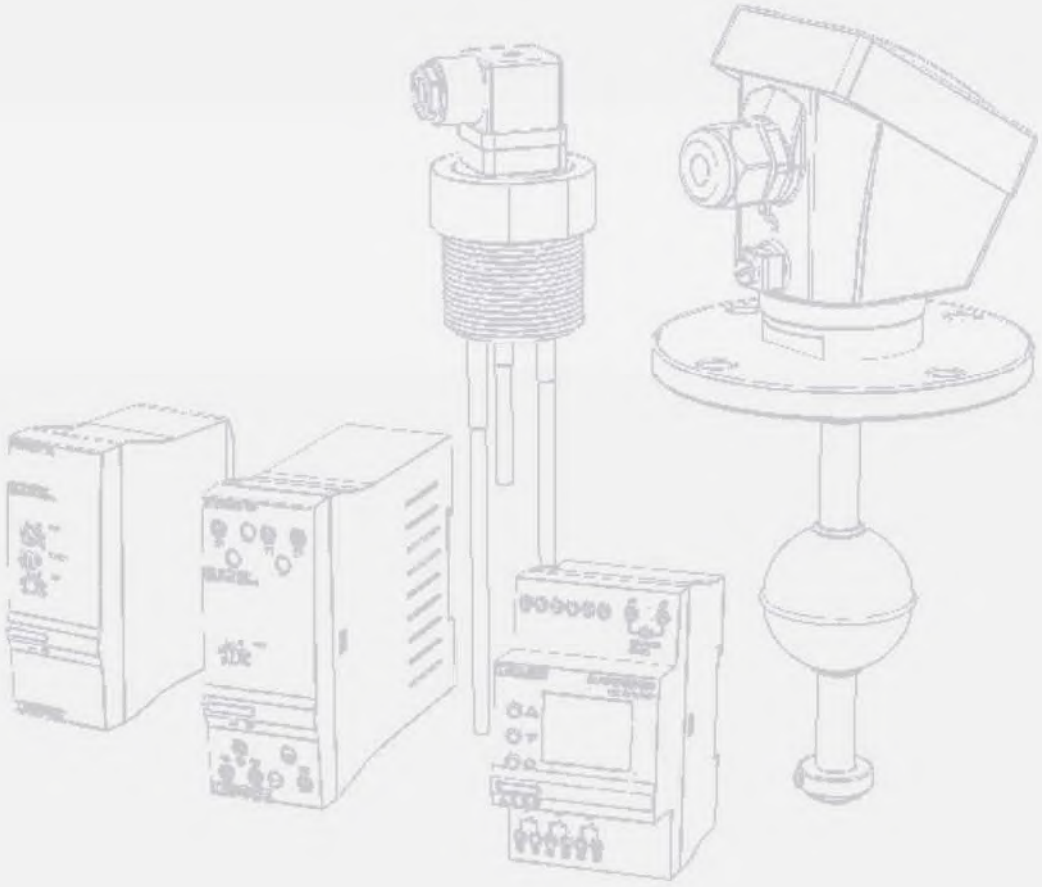
ACCESSORIES

Image	Reference / Description	Price
	**NR.TUE/P 1 1/2** · Locking nut PVC 1"1/2 G · For resistive sensors NR · For capacitive sensors SCR	
	**NR.TUE/T 1 1/2** · Attachment nut PTFE 1"1/2 G · For resistive sensors NRA · For capacitive sensors SCRR 35 T	
	**NR.SEP/P** · Electrodes separator for conductive probes · Manufactured in PVC	
	**NR.SEP/T** · Electrodes separator for resistive probes · Manufactured in PTFE	
	**NB/E1** · Electrode for NB head · SS AISI316. Ø6 mm · Length: 1000 mm	
	**NB/E2** · Electrode for NB head · SS AISI316. Ø6 mm · Length: 2000 mm	
	**S3-B** · 11 poles plug-in socket · Manufactured in Noryl SE100 · Fastening by screw or to DIN rail · Appliable at all the relays of PR series	
	**PS-4** · Protector against atmospheric discharges · Electrical connection by screwed terminal · Mechanical attachment by screws · Suitable for sensors with analog output 4-20 mA · Three protection levels	

Image	Reference / Description	Price
	**PS-3** · Overvoltage protector in the probes line · Electrical connection by screwed terminal · Mechanical attachment by bracket with ø10 mm hole · Appliable at all the resistive relays	
	**MPS 05** · Detector module for sensors IMN MPS · Usable with level relay SNIA · Electrical connection: Rigid wire 1,5 mm² · Length: 40 mm · Temperature: -20..+60 ºC	
	**MPS 80** · Detector module for sensors IMN MPS · Usable with level relay SNI · Electrical connection: Rigid wire 1,5 mm² · Length: 40 mm · Temperature: -20..+60 ºC	
	**MPM** · Assembly in factory of the modules MPS inside the sensors IMN MPS · Distribution in the sensor according to customer specifications	
	**PMD** · Set of potentiometer, front plate and button · Usable in timers with remote control · PMD100K: 100 Kohm, linear · PMD500K: 500 Kohm, linear · PMD1M: 1Mohm, linear	
	**INCR.TP** · Bracket for sensors INCR · Thread PVC 1´´G	
	**PAR** · Cable clamp for float switches · Prevents mechanical damage to the cable · Secure level detection position · Quick and easy installation	
	**PAC** · Cable clamp for TPSM sensors · Prevents mechanical damage · Safe and simple placement · Maximum traction: 500 kg	

Image	*Reference / Description*	*Price*
	**TCD** · Tube dissuasive and/or dielectric · Use only in liquids · Useful as a dielectric for non-metallic tanks · Useful as a deterrent to prevent the waving in tanks with agitator · Usable with capacitive sensors and transducers (SCA, TA)	
	**IPD 1C** · Panel meter for digital indication · 1 input channel · Three set points · Several reading magnitudes · Range: 4-20 mA · Power supply: 60..260 VAC / 22..60 VDC	
	**IPD 2C** · Panel meter for digital indication · 2 input channels · Three set points · Several reading magnitudes · Range: 4-20 mA · Power supply: 60..260 VAC / 22..60 VDC	
	**IPDS** · Panel meter for digital indication · LCD display of 4 digits · Powered by the loop 4-20 mA · ATEX certificated, Ex II 1G [EEx ia] IIC T6	
	**VTP** · Digital visualization tool · Connects to the transmitter itself · Powered through 4-20 mA loop · 4-digit LCD display, configurable · Protection IP65	
	**VSL** · 4-20 mA signal display · Self-powered by the loop itself · Range of -999 .. +9999 · Configurable alarm points · Mounting in 22.5 mm bore	
	**VRS** · RS 485 indicator · Modbus RTU and ASCII protocols · Can be used as master or slave · Supports variables type int, word, float and string · Mounting in 22.5 mm bore	
	**AG-5202-B2** · Galvanic isolator for digital signals · 2 outputs SPDT 2A/250VAC · Power supply: 24..230 VAC / 24..250 VDC · ATEX certificated, Ex II (1) G D [EEx ia] IIC	

Image	*Reference / Description*	*Price*
	**AG-5104-B** · Galvanic isolator for analogical signals. 2 channels. · Range: 0-20 mA · Output: 0-20 mA · Power supply: 24..230 VAC / 24..250 VDC · ATEX certificated, Ex II (1) G D [EEx ia] IIC	
	**CBPZ** · Interface for remote programming from PC · Usable with the standard digital control relays · Connects to your PC via RS232	
	**DPAY** · Power source for small loads · Violtage: 24 VDC · Current: 50 mA	
	**AE01** · Antenna for wall installation · Frequencies: 850 MHz .. 2.4 GHz · Impedance: 50 ohms · Gain: 2.2 dBi, maximum · Cable 2 meters	
	**TRC1 35 50/100/250** · Current transformer · Ø35 mm closed core · Input current: 50A, 100A or 250 A · Output current: 250 mA	



DISIBEINT
level sensors and relays

www.disibeint.com

DISIBEINT ELECTRONIC SL · Segle XX, 91 · 08032 Barcelona (SPAIN) · +34 934 560 995 · disibeint@disibeint.com