



PRODUCT GUIDE

www.celduc-relais.com

SOLID STATE RELAYS



MAGNETIC SENSORS



REED RELAYS & SWITCHES



MADE IN
FRANCE

DEAR CUSTOMERS AND READERS,

It is with a great feeling of pride that we are presenting today the sixth version of our "selection guide" to you. We are proud of the number and the great variety of new customers we were able to convince to join us in the last years, and also proud of the several innovating products designed and developed by our R&D teams, always eager to answer your needs.



Record financial results, extension works, investments in IT, production machines upgrading, opening of our subsidiary in China... : 2017 and 2018 have been years of exceptional enterprise for celduc® relais, which is continuing on an already great course.

We greatly care for the trust you have put in us and will always strive to continue answering your needs and requirements.

celduc® relais has gained a thorough knowledge of the market for over 50 years and controls its products entire manufacturing process, from studies to sales. It is nowadays an unquestionable expert in its 3 strategic activity fields, which are:

S=Solid State Relays & Contactors

P=Magnetic Proximity Sensors

R=Reed Relays & Switches

Don't miss out on our new relays and 3-phase solid-state relays "cel3pac" and "sightpac", but also on our autonomous smart sensors IoT and our autonomous magnetic safety sensors with built in security module...

It is clear that communication and safety are the great challenges of today and those of tomorrow even more.

This "**selection guide**" is available in 7 languages, which proves if needed, how dynamic we are on export markets. Indeed, over 70% of our production is being exported in the world, under our celduc® brand or through our OEM contracts. celduc® relais is thus present in over 60 countries.

We also would like to invite you to discover our new internet website: www.e-catalogue.celduc-relais.com, where you can download all our technical data sheets and sales brochures, but also make good use of our search filters to find the product (s) which will fully meet your requirements.

We wish you a happy discovery of this selection guide.
Looking forward to talking to you soon.

Charles PERROT
CEO celduc®

OUR STRENGTHS



**MORE THAN 50 YEARS OF
HIGH QUALITY LEVEL OF
PRODUCTION IN FRANCE.**



**ANALYSIS OF CUSTOMERS'
REQUIREMENTS**

celduc®relais is the indisputable global expert and preferred choice of companies all over the world.



**CONSTANT PRODUCT
DEVELOPMENT**

our experienced R & D engineers constantly work on developing 10 to 15% of new products each year.



**CONTROL OF THE
COMPLETE CHAIN**

design, development, production, testing and marketing.



**A WORLDWIDE PRESENCE
IN MORE THAN 60
COUNTRIES**

for a better understanding of customer's needs and offering of solutions which fully meet their requirements.



**IN COMPLIANCE WITH THE
MAJOR INTERNATIONAL
STANDARDS**

our products are designed, tested and manufactured in accordance with the strictest international standards.





celduc® relais' PRODUCTS

SOLID STATE RELAYS



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Commonly known as SSR, it represents 70% of the production of celduc® relais. These innovative and highly efficient components are used to control all types of loads in many industries. The three major application areas are industrial heating and temperature control, lighting control, and motor control. The advantages Solid State Relays (SSR) have compared to Electro Mechanical Relays (EMR) are well-known (see page 6). celduc® relay the sole solid state relay technology made in France for more than 50 years !

MAGNETIC PROXIMITY SENSORS



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Used for monitoring or controlling level, clearance, movement, position and rpm recording, the sky is the limit for these versatile sensors. These sensors are used everywhere in consumer goods or industrial sectors like automotive, aircraft or telecommunications. They are also extensively used in many automation applications in the manufacturing sector.

"REED" RELAYS & SWITCHES



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Our Reed switches are used in our own magnetic proximity sensors & reed relays . They have proved to last for more than 50 years. The range meets the demands of an increasing number of new applications thanks to their ease of operation, compact size and reliability.

SOLID STATE RELAYS

MAIN APPLICATIONS

EVERY DAY NEW APPLICATIONS CALLING FOR RELIABILITY, SILENT SWITCHING AND LONG LIFE TIME UTILIZE OUR HIGHLY INNOVATIVE SOLID STATE RELAYS.

HERE ARE SOME EXAMPLES :

HEATING

Plastic injection molding, Furnaces, Power supply distribution systems, Air conditioning, Textile, Home heating, Infrared heating, Drying, Thermoforming, Etc.



MOTOR STARTING

Pumps, Compressors, Plastic injection molding, Conveyors, Fans, Etc.



LIGHTING

Public lighting, Cinema, Theatre lamps, Airport runway lamps, Road lighting, Etc.



CONTROL

PLC interface, Heating element control, Solenoid valves, Contactor Coils, Optocoupling of sensors



MISCELLANEOUS

Transformer starting, Power factor corrector, Uninterrupted power supplies, Energy source switching, Capacitors control



IN COMPLIANCE WITH THE STANDARDS SPECIFIC TO EACH INDUSTRY

IN MANY AREAS, THE COMPONENTS USED IN THE EQUIPMENT MUST MEET VERY STRICT REQUIREMENTS THAT ARE SPECIFIC TO EACH INDUSTRY.



All of our relays okpac® SO (as well as SC relays), celpac® 2G SU/ SA (including the current sense module ESUC) but also the 2-phase SOB and 3-phase SGT comply with the European standard **EN 61373** for railways : shocks and vibrations tests on relay.

Regarding the standards about Fire behavior and fumes NF F16-101, NF F16-102 and **EN 45545** calling for the EN 60695-2-10/11/12 (Glow Wire tests (GWFI –

GWIT), blue and black plastic covers and encapsulating resin of SO and SU/SA relays are classified. Our products are also compliant with the **EN 50155** standard which applies to all electronic equipment for control, regulation, protection and power supply used on rolling stock.



Some of our products fulfil the requirements according to **EN 60601-1** (VDE 0750) for medical applications

SOLID STATE RELAYS

STANDARDS

QUALITY IS OF PARAMOUNT IMPORTANCE AND MAINTAINED AT ALL TIMES, AIDED BY OUR OWN SPECIALLY DEVELOPED IN HOUSE TESTING EQUIPMENT. OUR PRODUCTS ARE MANUFACTURED IN ACCORDANCE WITH THE MAJOR INTERNATIONAL STANDARDS

- The solid state relays and contactors made by celduc® relais are manufactured in compliance with major international standards :
 - IEC/EN60947-4-3 for the other loads
 - IEC/EN60947-4-2 for motor control
 - IEC 62314
 - American and Canadian (UL, cUL, CSA)
 - IEC/EN 60950 – VDE0805
 - IEC60335-1 – VDE0700-1
 Our products also meet the major European directive regarding the CE marking.
- In the UL508A standard, the estimated short-circuit current is called the SCCR: Short Circuit Current Rating. Since 1 April 2015, our solid state relays have successfully obtained the UL SCCR 100kA approval. In fact, some customers request a supplement to the approval with a SCCR higher than 5kA according to a UL 508A appendix called "supplement SB".
- Some of our products fulfil the requirements for KOSHA (S-MARK) and for EAC (Russia-CIS).
- The manufacturing process of our relays complies with the ISO9001 requirements version 2008. We incorporate highly reliable components with a very high electromagnetic interference level which give to our products the highest life-time one can find one the market.



celduc® relais and **SPECIAL CUSTOMER PRODUCTS**

CELDUC® RELAIS DESIGN SPECIFIC PRODUCTS ACCORDING TO THE CUSTOMERS SPECIFICATIONS AND ADAPT PRODUCTS TO THE CUSTOMERS NEEDS.



Special development composed of SU SSRs and ESUC modules to control 9 heating elements with partial load break detection. This system includes all protections.



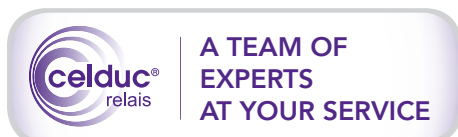
Motor reverser with 2 electronic cards included 5 SSRs.



Solid state contactor for 3 phase motor.
Dry contact control Spring terminals.



Solid State Relays with IO-Link communication
Because communication is a one of the great challenges of today, and an even bigger challenge of tomorrow!



SELECTION CRITERIA

Function	ON/OFF RELAY										DIAGNOSIS / TEMP. REGULATOR	
No. of poles	1 pole - Single Phase			1 pole EMC optimised	2 poles Two Phase		3 poles - Three Phase			4 poles	1 pole - Single Phase	
Assembly type	Printed circuit board	DIN rail	Screw-in	Screw-in	DIN rail	Screw-in	Printed circuit board	DIN rail	Screw-in	Screw-in	DIN rail	Screw-in
HEATING ELEMENTS: No inrush current												
AC-51	SLA/SPA/STA SKA/SKB SKL/SKH	XKA SAL9/SAM9 SUL9/SUM9	SO9/SOL9 SA9/SU9	SCFL SON	XKM	SOB9	SHT	SMT SGT	SMT SGT	SCQ	SILD SUL+ESUC SUL+ ECOM	SU+ ESUC SU+ ECOM
DC-1			SOM/SCM/ SCI/SDI									
INCANDESCENT LAMPS - INFRARED LIGHTS - INDICATOR LIGHTS: strong inrush currents												
AC-55b	SKA SKL/SKH	XKA SAL8/SAM8 SUL8/SUM8	SO8 SA8/SU8	SCFL SON		SOB8		SMT SGT	SMT SGT			
DC-6	SLD/SPD/STD SKD	SLD/SPD/STD XKD	SCM/SCI/SDI SOM									
DISCHARGE LAMPS: strong inrush currents, overvoltages at the turn off												
AC-55a	SKA/SKL/SKH	XKA/SAx8/ SUx8	SO8/SA8/SU8			SOB8						
MOTORS: strong start currents												
AC-53	SLA/SPA/STA SKL/SKH	XKL/XKH SAx8/SUx8/ SUx7	SO8/SA8/SU8 SO7/SU7	SCFL SON		SOB7 SOB8		SMT8 SGT8	SMT8 SGT8			
DC-3/ DC-5												
CONTACTORS - SOLENOID VALVES - ELECTROMAGNETS: high inductive loads												
AC-14 <72VA	SLA/SPA/STA SKA	SLA/SPA/STA XKA	SO8/SA8/SU8 SO7/SU7 ; SF									
AC-15 >72VA	SLA/SPA/STA SKA/SKL	SLA/SPA/STA XKA/XKL	SO8/SA8/SU8 SO7/SU7 ; SF									
DC-13	SLD/SPD/STD SKD	SLD/SPD/STD XKD	SCC SCM/SOM									
DC-14	SLD/SPD/STD SKD	SLD/SPD/STD XKD	SCC SCM/SOM									
PLC INPUTS/OUTPUTS: interfaces, low current												
AC input												
DC input												
AC output	SLA/SPA/STA SKA	SLA/SPA/STA XKA	SF		XKM			XKM				
DC output	SLD/SPD/STD SKD	SLD/SPD/STD XKD										
TRANSFORMERS: very strong magnetising currents, overvoltages												
AC-56a	SKL/SKH	XKL/XKH	SO7/SOP									
CAPACITY (Power factor corrections, Power supplies): strong inrush current												
AC-56b	SKL/SKH	XKL/XKH	SO8 ; SA8/ SU8						SMT8 SGT8			

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CONTROLLER		REVERSING SWITCH		SOFT STARTERS			
1 pole		3 poles		2 poles Three Phase		3 poles Three Phase	
DIN rail	Screw-in	Screw-in	DIN rail	Screw-in	Screw-in	DIN rail	Screw-in
SIL4	SO4/SO3 SG4/SG5	SGTA					
SIL4	SG4 SO4	SGTA SVTA			SO4	SMCW	SMCV
	SG4	SVTA	XKR	SMR SG9/SV9	SO4	SMCW	SMCV
			XKRD	SGRD			
			XKR				
	SG4	SVTA				SMCW	SMCV

Do not hesitate to consult us on the choice of relay

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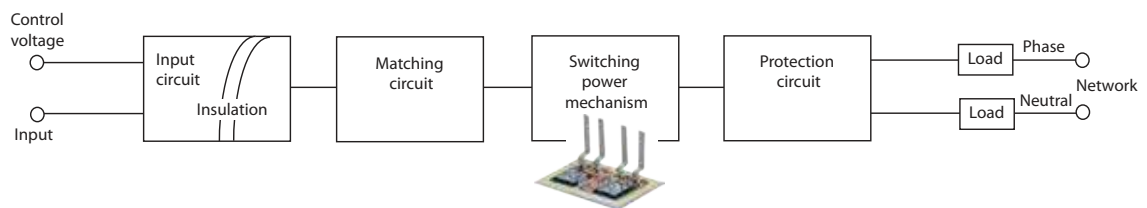
SOLID STATE RELAYS

WHAT IS A SOLID STATE RELAY / CONTACTOR?

Solid state relays are switching devices made with electronic components. We use the word "relays" by analogy with electromechanical relays which have galvanic isolation of the control circuit and the switched circuit. "Solid state" refers to the fact that these devices do not have moving parts.

A solid state relay switches a power (AC or DC) to a load and provides electrical insulation between the control circuit and the load circuit. This technology is in competition with or in addition to electromechanical relays and other switching technologies such as mercury switches and relays.

Composition of a solid state relay:



ADVANTAGES OF SOLID STATE SWITCHING



LONG LIFE : solid state relays do not have moving mechanical parts subject to wear and tear or deformation. When used well, a solid state relay has a lifespan 200 times longer than that of an electromechanical relay (EMR).



VERY LOW ENERGY CONSUMPTION: a low drive power will allow solid state contactors and relays to switch strong power loads.



SILENT OPERATION: this technology does not generate acoustic noise while the outputs are changing state. This is a very important advantage for domestic and medical uses.



SHOCK AND VIBRATION RESISTANCE: No risk of accidental switching with solid state technology.

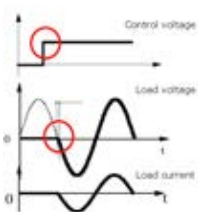


VERY HIGH SWITCHING FREQUENCY. allowing a very high degree of accuracy for regulation (temperature, etc.)



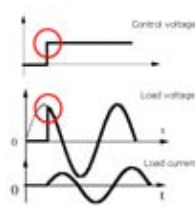
OTHER TYPES OF CONTROLS (precise choice of the moment of switching) and possible diagnostic functions.

ZERO-CROSS RELAY OR RANDOM RELAY?



In the case of a **ZERO VOLTAGE CONTROL (OR ZERO-CROSS RELAY)**, power switching takes place only at the beginning of the alternation after the control has been applied. In fact, switching the power component is only permitted in the area around the zero crossing.

In the case of resistive or capacitive loads, it is preferable to use zero-cross relays which in this way limit the di/dt, disturbances on the network and increase the lifetime of the load and the relay.



In the case of an **INSTANTANEOUS CONTROL (OR RANDOM RELAY)**, power switching takes place as soon as the control voltage has been applied (turn on time less than 100µs). This type of control is more suited to all high INDUCTIVE loads because of the phase difference between current and voltage.

It is also suited to systems requiring an immediate switching.

REMINDERS : Zero-cross all loads: SO8, SA8, SMT8,
Zero-cross resistive loads: SO9, SUL9, SGT9,
Random: SO7, SUL7, SGT7,

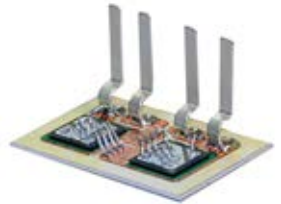
SOLID STATE RELAYS

THYRISTOR RATING VS SWITCHING CURRENT

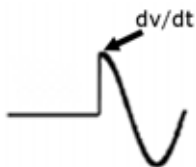
The switching components of solid state relays for alternating currents are thyristors. The ratings of our power components are specified in this catalogue. However, solid state relays must be mounted on heatsinks in order to obtain nominal performance. "Thyristor rating", which is an indication of the size of the power component, must not be confused with "switchable current" which depends on the construction and use of the relay or contactor. To match the switchable current by the relay and your application, you must refer to the tables and

thermal curves in our technical datasheets for products that are not equipped as standard with heatsinks.

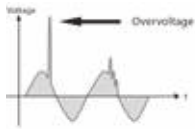
Our solid state relays are fitted with back-to-back thyristors and use 4th generation TMS² technology with a very high life expectancy compared to the majority of products on the market (application note on request).



VOLTAGE PROTECTION



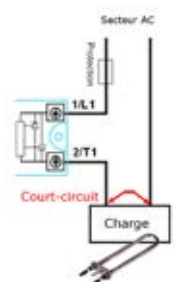
Strong dv/dt s may appear at the solid state relay terminals. These can also be generated by mains interference or by the zero-cross current turn-off on inductive load. In relays adapted to most loads, celduc® relay uses high immunity components and sometimes an RC protection network.



Overvoltages can also occur in the mains and cause the turn on of the solid state relay, even in the absence of control. To solve this problem, celduc® uses 1200 V or even 1600 V components, and, in certain ranges, includes a overvoltage limiter called a varistor or a VDR (Voltage Dependent Resistor), placed at the solid state relay terminals on the socket side. For relays suited to resistive loads, celduc relay® also offers an active limiter (TVS diodes on triggers) which closes the relay on an overvoltage to protect it.

CURRENT PROTECTION

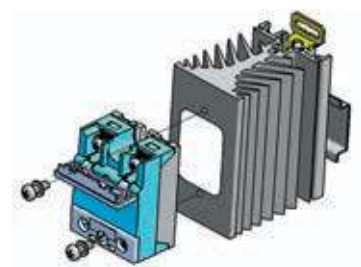
→ **BY FUSE:** fuses, notably ultra-fast fuses for smaller ratings, must be used to protect solid state relays against short-circuits of the load. The I^2t value of the fuse must be less than half of the I^2t value of the relay.
 → **BY CIRCUIT BREAKER:** this method of protection can be adapted to solid state relays with a I^2t value $> 5000 \text{ A}^2\text{s}$.
 (technical note on request).



RELAY COOLING / HEATSINK

Solid state relays have some energy losses in the form of heat. This heat must be dissipated so that the junction temperature (at the core of the power element) does not exceed the specified values : 125°C or 150°C (value dependent on the power components).

Heatsink must be selected so that the junction temperature isn't exceeded at the design current and ambient temperature. The determination of the heatsink can be done either by calculation or directly from the graphs provided by celduc® relay on the technical data sheets available on the website www.e-catalogue.celduc-relais.com



INTERFACE RELAYS

100% compatible with
electromechanical
relays

SLIM

→ Miniature

The SLA / SLD solid state relays are 100% compatible with 5 mm pitch electromechanical relays. They can be soldered direct to PCBs or plugged into all din rail mountable bases. Every type of loads can be switched and those relays can withstand high current peaks that can be produced by loads such as electro valves, engines, coils, indicator, etc. The switching power is 2A/280VAC for SLA and 2.5A/60VDC or 4A/24VDC for SLD relays.

	Product reference	Switching current	Switching voltage	Control voltage	Protec. / Specifications
AC	SLA03220	2A	12-280VAC	18-32VDC	RC
	SLA03220L	2A	12-280VAC	18-32VDC	RC Very low leakage current model
DC	SLD01205	4A	0-32VDC	3-10VDC	Transil
	SLD01210	2.5A	0-60VDC	3-10VDC	
	SLD02205	4A	0-32VDC	7-20VDC	
	SLD03205	4A	0-32VDC	18-32VDC	
	SLD03210	2.5A	0-60VDC	18-32VDC	

Other miniature solid state relay options are available on request.

SLA / SLD



- Dim. 28 x 5 x 15 mm



ACCESSORY

Product reference	Specifications
ESD01000	SLA/SLD base for PCB for one relay

SP-ST

→ Standard

AC and DC from 1 to 5A, protection by VDR or built in Transil, available in 15,7 mm (ST Series) and 25,4 mm (SP Series).

	Product reference	Switching current	Switching voltage	Control voltage	Protec.
AC	SPA01420	4A	12-275VAC	4-16VDC	VDR
	SPA07420	4A	12-275VAC	12-30VDC / 15-30VAC	
	STA07220	2A	12-275VAC	12-30VDC / 15-30VAC	
DC	SPD03505	5A	0-30VDC	12-30VDC	Transil
	SPD07505	5A	0-30VDC	12-30VDC / 15-30VAC	
	STD03205	2.5A	0-30VDC	12-30VDC	
	STD03505	5A	0-30VDC	12-30VDC	
	STD03510	5A	0-68VDC	12-30VDC	
	STD07205	2.5A	0-30VDC	12-30VDC / 15-30VAC	

Our STD and SPD modules can be modified, on request, with an output voltage of 100VDC. Other control voltages are available on request.

SPA / SPD



- Dim. 29 x 12.7 x 25.4 mm

STA / STD



- Dim. 29 x 12.7 x 15.7 mm

ACCESSORY

Product reference	Specifications
ESD05000	SP/ST base for DIN rail for one relay



INTERFACE RELAYS

XK

→ DIN-rail mounting

Interface relays to control loads such as resistors, indicators, solenoids, transformers, motors, power contactor coils. These DIN-rail mounted products are available with AC and DC output options. They can also be supplied as dedicated motor control variants such as 2 and 3 phase switching and motor rotation reversal. All are fitted with LED indicators.

	Product reference	Switching current	Switching voltage	Control voltage	Protec.	Specifications
AC	XKA20420	5A	12-275VAC	6-30VDC	VDR	1 pole AC zero-cross output
	XKA20420D	5A	12-275VAC	6-30VDC	VDR	
	XKA20420R	5A	12-275VAC	6-30VDC	VDR	
	XKA70420	5A	12-275VAC	15-30VAC/DC	VDR	
	XKA70440	5A	12-440VAC	12-30VAC/8.5DC	VDR	
	XKA90440	5A	12-440VAC	150-240VAC/DC	VDR	
	XKH20120	10A	12-280VAC	10-32VDC	VDR	1 pole AC random output
XKA20421	5A	12-275VAC	5-30VDC	VDR		
DC	XKD10120	1A	2-220VDC	5-30VDC	diode	1 pole DC output
	XKD10306	3A	2-60VDC	5-30VDC	diode	
	XKD11306D	3A	2-60VDC	5-30VDC	diode	
	XKD70306	3A	2-60VDC	10-30VAC/DC	diode	
	XKD90306	3A	2-60VDC	90-240VAC	diode	
	XKLD31006	10A	12-36VDC	10-30VDC	diode	DC output - MOSFET technology

▲
Suffix D: removable terminals.
Suffix R: removable spring terminals.

XKLD0020 has all protections included and is designed for inductive loads with high switching frequency :

- Diagnostic status output (potential free)
- Control visualization by green LED
- Output DC visualization by red LED
- Built-in clamping voltage
- Built-in free wheel diode
- This product also includes a fuse on board to protect the installation.

	Product reference	Switching current	Switching voltage	Control voltage	Protec.	Specifications
DC	XKLD0020	4A	24-96VDC	18-32VDC	VDR+diode	1 pole DC output Diag. Output 1-32VDC 100mA

MOTOR CONTROL

	Product reference	Switching current	Switching voltage	Control voltage	Protec.	Specifications
	XKM22440	5AC-51 / 2.5AC-53	24-460VAC	15-40VDC	VDR	2 poles motor switching control
	XKR24440	5AC-51 / 2.5AC-53	24-460VAC	15-40VDC	VDR	AC motor change-over control
	XKRD30506	5A-DC	12-24VDC	7-30VDC	diode	DC motor change-over control

▲
The ready to use module XKRD30506 for Din-Rail mounting comprises 4 Solid State relays wired as a reverser to be used to change the direction of a DC motor (100W @ 24Vdc).



XKA/XKD

- Dim. 12.2 x 76.4 x 53 mm or
- Dim. 17.2 x 76.4 x 53 mm depending on models



XKH

- Dim. 25 x 76.4 x 65 mm with integrated heatsink



- Dim. 36 x 78 x 61 mm



XKM

- Dim. 25.2 x 76.4 x 53 mm



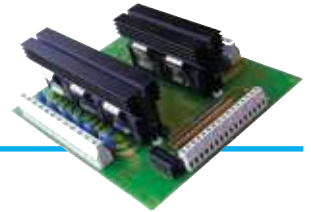
XKR/XKRD

- Dim. 58.2 x 76.4 x 53 mm

PCB RELAYS

SKA SKB

The SK range for PCB mounting is available in different models :
SKA/SKB (AC output) or SKD/SKLD (DC output).
→ SKA up to 5A 230 or 400VAC with built-in voltage protection, ideal for solenoid or motor control.
→ SKB up to 5A 230 or 400VAC for resistive loads.



Product reference	Current	Switching voltage	Control voltage	LED	I ² t	Protec.	Specifications
SK541101	2.5A	24-280VAC	3-30VDC	no	50A ² s	-	AC zero-cross output / normally closed
SKA10420	5A	12-275VAC	2.5-10VDC	no	50A ² s	VDR	AC zero-cross output / most types of loads
SKA20420	5A	12-275VAC	4-30VDC	no	50A ² s	VDR	
SKA10440	5A	12-460VAC	2.5-10VDC	no	50A ² s	VDR	
SKA11440	5A	12-460VAC	3-10VDC	yes	50A ² s	VDR	
SKA20440	5A	12-460VAC	4-30VDC	no	50A ² s	VDR	
SKA20460	5A	24-600VAC	5-30VDC	no	72A ² s	-	
SKA20421	5A	12-275VAC	3-30VDC	no	50A ² s	VDR	AC random output / most types of loads
SKA20441	5A	12-460VAC	3-30VDC	no	50A ² s	VDR	
SKA21441	5A	12-460VAC	7-30VDC	yes	50A ² s	VDR	
SKB10420	5A	12-280VAC	3-10VDC	no	50A ² s	-	AC zero-cross output / resistive loads
SKB10440	5A	24-600VAC	3.7-10VDC	no	72A ² s	-	
SKB20420	5A	12-280VAC	8-30VDC	no	50A ² s	-	



• Dim. 43.2 x 10.2 x 25.4 mm

SKL

SKL for AC output with a ceramic substrate that can be mounted on a heatsink. The SKL is available with current ratings from 16A to 75A.

For the power element, our SKL use TMS² technology reducing thermal stress and considerably improving life expectancy. Ideal for motor or lamps control (I²t up to 5000 A²s) with high inrush current as well as heating applications. Easy to protect against short circuit with micro circuit breakers.

Product reference	Max. current with WF032000	Thyristor rating	Switching voltage	Control voltage	I ² t	Specifications
SKL10120	16A	16A	12-280VAC	4-14VDC	128A ² s	AC zero-cross output
SKL10220	21A	25A	12-280VAC	4-14VDC	312A ² s	
SKL10240	22A	25A	24-600VAC	4-14VDC	450A ² s	
SKL10260	22A	25A	24-690VAC	4-14VDC	1 150A ² s	
SKL10540	27A	50A	24-600VAC	4-14VDC	1 800A ² s	
SKL10560	27A	50A	24-690VAC	4-14VDC	1 800A ² s	
SKL20120	16A	16A	12-280VAC	8-32VDC	128A ² s	
SKL20220	21A	25A	12-280VAC	8-32VDC	312A ² s	
SKL20240	22A	25A	24-600VAC	8-32VDC	450A ² s	
SKL20740	30A	75A	24-600VAC	8-32VDC	5 000A ² s	
SKL10521	27A	50A	12-280VAC	3-14VDC	2 450A ² s	AC random output
SKL20241	22A	25A	24-600VAC	8-32VDC	450A ² s	



• Dim. 43,4 x 6,3 x 24,5 mm

See DC output models pages 36-37

PCB RELAYS

SKH

The SKH range is a "ready to use" range with integrated heatsink.

Product reference	Output current	Output current with ventilation	Switching voltage	Control voltage	I ² t
SKH10120	10A @ 20°C	16A	12-280VAC	4-14VDC	128A ² s
SKH10240	10A @ 25°C	25A	24-600VAC	4-14VDC	450A ² s
SKH20120	10A @ 20°C	16A	12-280VAC	8-32VDC	128A ² s
SKH20240	10A @ 25°C	25A	24-600VAC	8-32VDC	450A ² s

Other references available – please contact us.



• Dim. 43.6 x 22 x 35.7 mm

SN8

This relay is designed for PCB applications and when fitted with suitable heatsink, can control heavy loads in an ultra-miniature, physically compact package.

Product reference	Current	Switching voltage	Control voltage	I ² t
SN842100	25A	24-280VAC	3.5-15VDC	260A ² s

Other references available : please contact us.



• Dim. 35.05 x 12.7 x 28.32 mm

SHT

Three-phase solid state relay in a single low profile package.

This relay is designed for PCB applications in order to provide control of medium power in three-phase environments.

Product reference	Current	Switching voltage	Control voltage	I ² t
SHT842300	3x25A	24-280VAC	10-30VDC	260A ² s

Other references available : please contact us.



• Dim. 81.28 x 8.26 x 27.69 mm

APPLICATIONS



Electromagnets , Lamps,
Contactors Starting current
I_d = 1.4xI_n

SKA



Heaters

I_d = 1.4xI_n

SKB / SKL



Infrared lamps
or lighting lamps
I_d = 10xI_n

SKL / SKH



Motors

I_d = 8xI_n

SKL / SKH

SINGLE PHASE SOLID STATE RELAYS

All our solid state relays fitted with back to back thyristors (power products : single phase, two phase, three phase) now use TMS² technology with a very high life expectancy compared to the majority of products on the market (application note on request).



okpac[®] Innovation Performances et Design !

- Versatile, easy and quick connections
- Removable IP20
- Same screwdriver for outputs and inputs
- Tightening on metal baseplate not on plastic
- Removable control terminals
- SSR, mains and load status.
- Output voltage from 24 to 690 VAC (600V-1200V-1600V peak)
- Very low zero-crossing level
- Large and regulated AC and DC input voltage
- Control status LED
- EMC compatible for industrial environment
- UL/cUL, VDE (EN60950), IEC/EN60947-4-3, CE marking
- I_{tsm} up to 2 000A and I²t > 20 000A²s
- Protection against circuit breaker.

VERSATILE, EASY AND QUICK CONNECTIONS

POWER WIRING



Direct connection by wire or tip
2 x 6 mm² (AWG10) fine strand i.e. 32A
2 x 10 mm² (AWG8) solid i.e. 50A



With tips with contained palm
Up to 50mm² (AWG1) with or without special adaptations i.e. 150A



Screw with brake washers
Better behaviour with shocks and vibrations

CONTROL WIRING



Screws connection
(SO7 / SO8 / SO9 / SOL)



Removable spring terminals
(SOR)

REMINDER

- SO7** RANDOM
- SO8** ZERO-CROSS ALL KINDS OF LOADS
- SO9** ZERO-CROSS RESISTIVE LOADS

SINGLE PHASE SOLID STATE RELAYS

okpac®



celduc® offers
"ready to use"
solutions with
integrated heatsink.

SO7

→ Random

Typical applications : Motors (AC-53), inductive loads and phase angle control applications.
- Random or instant switching
- Voltage protection on input (transil) and output (RC and VDR) depending on models.

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I _t	Protec.
SO745090	50A	12-275VAC	600V	3-32VDC	2 800A ² s	RC-VDR
SO763090	35A	24-510VAC	1200V	3.5-32VDC	1 250A ² s	RC-VDR
SO765090	50A	24-510VAC	1200V	3.5-32VDC	2 800A ² s	RC-VDR
SO767090	75A	24-510VAC	1200V	3.5-32VDC	7 200A ² s	RC-VDR
SO768090	95A	24-510VAC	1200V	3.5-32VDC	16 200A ² s	RC-VDR
SO769090	125A	24-510VAC	1200V	3.5-32VDC	24 000A ² s	RC-VDR
SO789060	125A	24-690VAC	1600V	3.5-32VDC	22 000A ² s	-



• Dim. 45 x 58.5 x 30 mm

These products should be mounted on heatsinks in order to reach nominal current.

SO8

→ Zero-cross for
most types of loads

SO8 range designed for most types of loads
→ Zero cross with low zero-crossing level (<12V)
→ Voltage protection on input (transil) with very high immunity according to IEC/EN61000-4-4 depending on models
→ Control current < 13mA for all the voltage range at any operating temperature.

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I _t	Protec.
SO842074	25A	12-275VAC	600V	3-32VDC	600A ² s	VDR
SO842974	25A	12-275VAC	600V	20-265VAC/DC	600A ² s	VDR
SO843070	35A	12-275VAC	600V	3-32VDC	1 250A ² s	VDR
SO843970	35A	12-275VAC	600V	20-265VAC/DC	1 250A ² s	VDR
SO845070	50A	12-275VAC	600V	3-32VDC	2 800A ² s	VDR
SO845970	50A	12-275VAC	600V	20-265VAC/DC	2 800A ² s	VDR
SO848070	95A	12-275VAC	600V	3-32VDC	16 200A ² s	VDR
SO849070	125A	12-275VAC	600V	3-32VDC	22 000A ² s	VDR
SO863070	35A	24-510VAC	1200V	3.5-32VDC	1 250A ² s	VDR
SO863970	35A	24-510VAC	1200V	20-265VAC/DC	1 250A ² s	VDR
SO865070	50A	24-510VAC	1200V	3.5-32VDC	2 800A ² s	VDR
SO865970	50A	24-510VAC	1200V	20-265VAC/DC	2 800A ² s	VDR
SO867070	75A	24-510VAC	1200V	3.5-32VDC	7 200A ² s	VDR
SO867970	75A	24-510VAC	1200V	20-265VAC/DC	7 200A ² s	VDR
SO868070	95A	24-510VAC	1200V	3.5-32VDC	16 200A ² s	VDR
SO868970	95A	24-510VAC	1200V	20-265VAC/DC	16 200A ² s	VDR
SO869070	125A	24-510VAC	1200V	3.5-32VDC	22 000A ² s	VDR
SO869970	125A	24-510VAC	1200V	20-265VAC/DC	22 000A ² s	VDR



• Dim. 45 x 58.5 x 30 mm

HIGH VOLTAGE RELAY	Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I _t	Protec.
	SO885060	50A	24-690VAC	1600V	3.5-32VDC	2 800A ² s	-
	SO885960	50A	24-690VAC	1600V	20-265VAC/DC	2 800A ² s	-
	SO887060	75A	24-690VAC	1600V	3.5-32VDC	7 200A ² s	-
	SO888060	95A	24-690VAC	1600V	3.5-32VDC	16 200A ² s	-
	SO889060	125A	24-690VAC	1600V	3.5-32VDC	22 000A ² s	-

These products should be mounted on heatsinks in order to reach nominal current.

SINGLE PHASE SOLID STATE RELAYS

SO9

→ Zero-cross Resistive loads (AC-51)



• Dim. 45 x 58.5 x 30 mm

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I _t	Regulated control current	Specifications
SO941460	12A	12-280VAC	600V	3-32VDC	128A ² s	yes	Control current <13mA
SO942460	25A	12-280VAC	600V	3-32VDC	600A ² s	yes	Control current <13mA
SO942470	25A	12-280VAC	600V	3-32VDC	600A ² s	yes	VDR
SO942860	25A	12-280VAC	600V	15-32VAC/10-30VDC	600A ² s	no	with simplified input
SO942960	25A	12-280VAC	600V	185-265VAC/DC	600A ² s	no	with simplified input
SO943460	40A	12-280VAC	600V	3-32VDC	1 250A ² s	yes	Control current <13mA
SO945460	60A	12-280VAC	600V	3-32VDC	2 800A ² s	yes	Control current <13mA
SO96346H	35A	24-600VAC	1200V	3.5-32VDC	882A ² s	yes	Control current <13mA
SO96386H	35A	24-600VAC	1200V	15-32VAC	882A ² s	yes	Control current <13mA
SO963460	40A	24-600VAC	1200V	3.5-32VDC	1 250A ² s	yes	Control current <13mA
SO96546H	50A	24-600VAC	1200V	3.5-32VDC	1 680A ² s	yes	Control current <13mA
SO96546T	50A	24-600VAC	1200V	3.5-32VDC	2 800A ² s	yes	Thermal Pad mounted
SO965460	60A	24-600VAC	1200V	3.5-32VDC	2 800A ² s	yes	Control current <13mA
SO967460	90A	24-600VAC	1200V	3.5-32VDC	7 200A ² s	yes	Control current <13mA
SO967860	90A	24-600VAC	1200V	15-32VAC	7 200A ² s	no	with simplified input
SO967960	90A	24-600VAC	1200V	20-265VAC/DC	7 200A ² s	yes	Control current <13mA
SO968470	95A	24-510VAC	950V	3.5-32VDC	11 250A ² s	yes	Control current <13mA
SO96846T	95A	24-600VAC	1200V	3.5-32VDC	11 250A ² s	yes	Thermal Pad mounted

These products should be mounted on heatsinks in order to reach nominal current.

SOL flatpac®

→ Low profile (h=16,3mm)

Flatpac® SSRs are mainly designed for applications where a PCB is used on the input, possibly on the output side. Wiring will be facilitated as this relay also allows input or output cables to go any direction.

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I _t
SOL942460	25A	12-280VAC	600V	3-32VDC	600A ² s
SOL942960	25A	12-280VAC	600V	185-265VAC/DC	600A ² s
SOL965460	50A	24-600VAC	1200V	3.5-32VDC	2 800A ² s

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 45 x 58.5 x 16.3 mm

SON

NEW

→ EMC optimised
(low electromagnetic emission – low RFI)

These relays are designed for use in applications where low electromagnetic emission is essential : household and electrical appliances, information technology and medical equipments. In compliance with EN 50081-1 (Generic Emission Standards for Residential).

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I _t
SON845040	50A	40-260VAC	600V	6-32VDC	2 800A ² s
SON865040	50A	50-480VAC	1200V	6-32VDC	2 800A ² s
SON867040	75A	50-480VAC	1200V	6-32VDC	7 200A ² s

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 45 x 58.5 x 30 mm

SINGLE PHASE SOLID STATE RELAYS

SOP

→ Starting transformer

NEW

The SOP relays are studied for the operation of transformer primaries and of all saturable inductive loads, avoiding the magnetising current points (application note on request).

Product reference	Thyristor rating	Switching current AC-56a	Switching voltage	Peak voltage	Control voltage	I ² t	Specifications
SOP65070	50A	9A	100-480VAC	1200V	5-32VDC	2 800A ² s	peak starting
SOP69070	125A	32A	100-480VAC	1200V	5-32VDC	20 000A ² s	

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 45 x 58.5 x 30 mm

SOR

→ With removable input connector

With removable input connector - Spring terminals. Designed for most types of loads.

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I ² t
SOR842074	25A	12-275VAC	600V	3-32VDC	600A ² s
SOR863070	35A	24-510VAC	1200V	3.5-32VDC	1 250A ² s
SOR865070	50A	24-510VAC	1200V	3.5-32VDC	2 800A ² s
SOR867070	75A	24-510VAC	1200V	3.5-32VDC	7 200A ² s

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 45 x 58.5 x 30 mm

SC

→ Previous generation

See also our okpac® range (pages 12 to 14)

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I ² t	Specifications
SC741110	12A	12-280VAC	600V	3-30VDC	72A ² s	Random
SC762110	25A	24-520VAC	1200V	4-30VDC	2 65A ² s	
SC764110	50A	24-520VAC	1200V	4-30VDC	1 500A ² s	
SC769110	125A	24-520VAC	1200V	4-30VDC	20 000A ² s	
SC841110	12A	12-280VAC	600V	4-30VDC	72A ² s	Zero-cross / most types of loads
SC841910	12A	12-280VAC	600V	90-240VAC/DC	72A ² s	
SC842110	25A	12-280VAC	600V	4-30VDC	312A ² s	
SC844110	40A	12-280VAC	600V	4-30VDC	612A ² s	
SC862110	25A	24-520VAC	1200V	5-30VDC	265A ² s	
SC864110	50A	24-520VAC	1200V	5-30VDC	1 500A ² s	
SC864810	50A	24-520VAC	1200V	17-80VAC/DC	1 500A ² s	
SC864910	50A	24-520VAC	1200V	90-240VAC/DC	1 500A ² s	
SC867110	75A	24-520VAC	1200V	5-30VDC	5 000A ² s	
SC869110	125A	24-520VAC	1200V	5-30VDC	20 000A ² s	
SC942110	25A	12-280VAC	600V	4-30VDC	312A ² s	Zero-cross / resistive loads AC-51
SC965160	50A	24-600VAC	1200V	5-30VDC	1 500A ² s	
SC967100	75A	24-600VAC	1200V	5-30VDC	5 000A ² s	

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 44.5 x 58.2 x 27 mm

SINGLE PHASE SOLID STATE RELAYS

celpac[®] 2G The 22,5mm pitch SSR solution

Performances & reliability

- Fixing screws compatible with all hockey puck style relays (celduc SO and SC range),
- Maximum voltage up to 1600V (690VRMS), 600VAC and 1200VAC as standard,
- Thyristor rating up to 75A,
- Large input range : 3-32VDC with regulated current models,
- AC input control available,
- Input status yellow LED,
- Over-voltage protection on input,
- New generation of TMS² technology for thyristors for a longer life expectancy,
- Quick and easy connections,
- Designed according to European standards EN60947-4-3 (IEC947-4-3) and EN60950 (VDE0805 reinforced insulation) IEC62314-UL-cUL,
- IP20 protection with removable flaps (SU range) or cover (SA range),
- Other protection devices available as an option : RC snubber, VDR, self turn-on.

Price-effective and compact solution

- The 22,5 mm pitch of our Solid State contactors reduces space to the minimum,
- Reduced assembling time, easy cabling,
- Reduced maintenance thanks to a very long life expectancy,
- One single screw driver for input and output.




REMINDER

- SA/SU **8** ZERO-CROSS ALL KINDS OF LOADS
 SA/SU **9** ZERO-CROSS RESISTIVE LOADS
 SA/SU **7** RANDOM

"READY TO USE" VERSIONS

- SA/SU **L** 22,5MM HEATISNK- 3K/W
 SA/SU **M** 45MM HEATSINK - 2,2K/W


VERSATILE, EASY AND QUICK CONNECTIONS

	Gamme SA	Gamme SU
POWER WIRING	 <p>Direct connection by wire or tip</p>	
CONTROL WIRING	 <p>with screw connection on inputs</p>	 <p>with pluggable connector on inputs</p>


AS AN OPTION

Two modules are available directly pluggable on our SSR type SU and SUL
SAVE ROOM
SAVE COSTS
ADD MORE FUNCTIONS

→ Current monitoring module



→ Temperature controller PID, current monitor and communication interface in one unit



SINGLE PHASE SOLID STATE RELAYS

celpac[®] 2G

The 22,5mm pitch SSR solution

Our SA range has a connection on the power side and the control side by screws. Our parts include a transparent protective cover and some models are "ready to use" with integrated heatsinks (SAL and SAM versions).



SA range with screw connection on inputs

SA

→ For mounting on your heatsink or panel mount

SA8 : designed for most types of loads / integrated VDR protection

SA9 : designed for resistive loads AC-51

Product reference	Thyristor rating	Switching voltage	Peak voltage	Switching current	I ² t
SA842070	25A	12-275VAC	600V	3-32VDC	600A ² s
SA941460	12A	12-280VAC	600V	3-32VDC	128A ² s
SA942460	25A	12-280VAC	600V	3-32VDC	450A ² s
SA963460	35A	24-600VAC	1200V	3.5-32VDC	882A ² s
SA965460	50A	24-600VAC	1200V	3.5-32VDC	1 680A ² s

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 22.5 x 90 x 42 mm

SAL/SAM

→ "Ready to use" on heatsink

SAX9 : designed for resistive loads AC-51



• Dim. 22.5 x 90 x 112 mm

• Dim. 45 x 90 x 112 mm

Product reference	Thyristor rating	Max. switching current at 25°C	Switching voltage	Peak voltage	Switching current	I ² t	Regulated control current	Specifications
SAL941460	12A	12A	12-280VAC	600V	3-32VDC	128A ² s	no	with simplified input
SAL942460	25A	23A	12-280VAC	600V	3-32VDC	450A ² s	no	with simplified input
SAL961360	15A	15A	24-600VAC	1200V	6-32VDC	882A ² s	yes	Control current <10mA
SAL962360	25A	23A	24-600VAC	1200V	6-32VDC	882A ² s	yes	Control current <10mA
SAL963460	35A	30A	24-600VAC	1200V	3.5-32VDC	882A ² s	non	with simplified input
SAL965460	50A	32A	24-600VAC	1200V	3.5-32VDC	1 680A ² s	non	with simplified input
SAM943460	35A	32A	12-280VAC	600V	3-32VDC	882A ² s	non	with simplified input
SAM963360	35A	32A	24-600VAC	1200V	6-32VDC	882A ² s	yes	Control current <10mA
SAM965360	50A	45A	24-600VAC	1200V	6-32VDC	1 680A ² s	yes	Control current <10mA

SINGLE PHASE SOLID STATE RELAYS

celpac® 2G

The 22,5mm pitch SSR solution

Our SU range comes with plug-in connectors. Our parts include removable protective components and some models are "ready to use" with integrated heatsinks (SUL and SUM versions).



SU range with pluggable connector on inputs

SU

→ For mounting on your heatsink or panel mount

SU7 : designed for motors AC-53 and inductive loads.

Also use in phase angle control systems

SU8 : designed for most types of loads / integrated VDR protection

SU9 : designed for resistive loads AC-51

Product reference	Thyristor rating	Switching voltage	Peak voltage	Switching current	I ^t
SU765070	50A	24-510VAC	1 200V	3.5-32VDC	1 680A ² s
SU842070	25A	12-275VAC	600V	3-32VDC	600A ² s
SU842770	25A	12-275VAC	600V	18-30VAC/DC	600A ² s
SU842970	25A	12-275VAC	600V	160-240VAC	600A ² s
SU865070	50A	24-510VAC	1 200V	3.5-32VDC	1 680A ² s
SU865770	50A	24-510VAC	1 200V	18-30VAC/DC	1 680A ² s
SU865970	50A	24-510VAC	1 200V	160-240VAC	1 680A ² s
SU867070	75A	24-510VAC	1 200V	3.5-32VDC	7 200A ² s
SU942460	25A	12-280VAC	600V	3-32VDC	600A ² s
SU963460	35A	24-600VAC	1 200V	3.5-32VDC	882A ² s
SU965460	50A	24-600VAC	1 200V	3.5-32VDC	1 680A ² s
SU967460	75A	24-600VAC	1 200V	3.5-32VDC	7 200A ² s

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 22.5 x 90 x 42 mm

SUL/SUM

→ "Ready to use" on heatsink

SULx7 : designed for motors AC-53 and inductive loads

Also use in phase angle control systems

SULx8 : designed for most types of loads / integrated VDR protection

SULx9 : designed for resistive loads AC-51

Product reference	Thyristor rating	Max. switching current at 25°C	Switching voltage	Peak voltage	Switching current	I ^t
SUL765070	50A	32A	24-510VAC	1 200V	3.5-32VDC	1 680A ² s
SUL842070	25A	23A	12-275VAC	600V	3-32VDC	600A ² s
SUL842770	25A	23A	12-275VAC	600V	18-30VAC/DC	600A ² s
SUL842970	25A	23A	12-275VAC	600V	160-240VAC	600A ² s
SUL865070	50A	32A	24-510VAC	1 200V	3.5-32VDC	1 680A ² s
SUL865770	50A	32A	24-510VAC	1 200V	18-30VAC/DC	1 680A ² s
SUL865970	50A	32A	24-510VAC	1 200V	160-240VAC	1 680A ² s
SUL867070	75A	35A	24-510VAC	1 200V	3.5-32VDC	7 200A ² s
SUL942460	25A	23A	12-280VAC	600V	3-32VDC	600A ² s
SUL963460	35A	30A	24-600VAC	1 200V	3.5-32VDC	882A ² s
SUL965460	50A	32A	24-600VAC	1 200V	3.5-32VDC	1 680A ² s
SUL967460	75A	35A	24-600VAC	1 200V	3.5-32VDC	7 200A ² s
SUM865070	50A	45A	24-510VAC	1 200V	3.5-32VDC	1 680A ² s
SUM867070	75A	45A	24-510VAC	1 200V	3.5-32VDC	7 200A ² s



SUL

• Dim. 22.5 x 90 x 112 mm

SUM



• Dim. 45 x 90 x 112 mm

SINGLE PHASE SOLID STATE RELAYS

celpac® 2G

The 22.5mm pitch SSR solution

Two modules are available directly pluggable on our SSR type SU and SUL



SAVE ROOM / SAVE COSTS / ADD MORE FUNCTIONS

CURRENT MONITORING MODULE

ESUC

Combined with our SU/SUL

ADD TO YOUR SSR

Diagnostic information for up to 5 heaters in parallel with :

- Permanent load current monitoring,
- Current teaching function,
- 2 alarm thresholds (+/-16%),
- Partial load break detection,
- Open load detection,
- Detection of short-circuited SSR.



Référence produit	Plage de courant	Commande
ESUC0450	2-40A	8-30VDC
ESUC0480	2-40A	24-45VDC
ESUC0150	1-10A	8-30VDC

WHY CHOOSING THIS FUNCTION ?

- Quick fault detections (instantaneous alarm)
- Maintenance
- To detect when a heater is broken which brings problems and is difficult to locate
- To maintain good quality production for plastic/rubber machines (specially thermosetting machines).
- 22.5mm wide with integrated heatsink and DIN rail adaptor
- Reduction of quantity, cost and time of wiring.

TEMPERATURE CONTROLLER PID, CURRENT MONITOR AND COMMUNICATION INTERFACE IN ONE UNIT

ECOM0010

Combined with our SU/SUL



ADD TO YOUR SSR

- Temperature controller with :
 - PID with automatic or manual settings,
 - Insulated inputs for J, K, T, E thermocouples, PT100 to come
 - Auxiliary output for heating, cooling, alarm or to control a 3 phase Solid State Relay,
 - Loop and heater break alarms.
- Current monitoring and alarms up to 50A.
- RS485 communication interface / Modbus RTU (others on request)
- Power supply : 24Vdc +/- 10%

WHY CHOOSING THIS FUNCTION ?

- The ECOM is the most compact solution available on the market that incorporates the latest measuring and control technology.
- This solution can answer the needs of cost reduction of electrical cabinets (smaller), PLC (less analogue and digital I/O's) and wiring (bus communication).

POWER SSRs WITH DIAGNOSTICS

celduc® relais offers different relay diagnosis solutions. These relays inform the user of the load status (resistive load), the output of the relay and the network.

WHICH SOLUTION TO CHOOSE?

Here are a few examples of the needs of our customers

NEED

- 1 RELAY for 1 heating element + 1 detection element
- 1 RELAY for 1 heating element + 1 rapid detection element + compact solution and ready to use solution

SOLUTIONS

- SOD
- SILD

ADVANTAGES

(for both SOD and SILD)

- These relays inform the user of the load status (connected or not), the relay output (closed or not) and the network (state of the fuse or circuit breaker) in the power circuit, thanks to an NC (Normally Closed) diagnostic contact.
- Potential free
- A single input PLC and can be placed in a series
- Simple use
- The diagnostic function does not require an external power supply
- Short reaction time < 100 ms



NEED

Connection or disconnection of the heat zones

This is the case of thermoforming machines, for example, where it is necessary to adapt the heating surface to the size of the plastic sheets to be preheated. Solid state relays with standard diagnosis display an error if a heat zone is disconnected, which requires a particular or even complex management of diagnosis signals.

SOLUTIONS

- SOI

AVANTAGES

- The SOI range allows for the switching of the load current and provides simply the information of the presence (or lack thereof) of the output current which must then be interpreted by the user or the system.



NEED

Reading of the current and alarms via a communication interface

SOLUTIONS

- Combined ECOM module with our SU / SUL solid state relays

ADVANTAGES

- This product, which has been designed for temperature regulation (built-in PID), can also be used for:
 - Measuring the load current
 - Measuring the room temperature, the process or even the relay or its heatsink (built-in thermocouple input J, K, T, E)
 - Creating alarms (current, temperature, relay status)
 - Chrono-proportional control to adjust the power on the load
- It communicates via a RS485 link and the MODBUS RTU protocol.
- In order to view the states locally, it incorporates 3 LEDs and a configurable output.



NEED

1 relay for several loads + need for a compact and ready to use solution

SOLUTIONS

- ESUC current detection module combined with our SU/SUL solid state relays

ADVANTAGES

- Detection of partial load break or current surge (works up to 5 identical loads)
- Three-phase or possible multizone use
- Space-saving with a 22.5 mm width only



POWER SSRs WITH DIAGNOSTICS

DIAGNOSTIC RELAY

Our range of diagnosis relay comes in celpac housing (ready to use) with our SILD and okpac® range (to mount on heatsinks) with our SOD and SOI.

These relays inform the user of the load status (resistive load), the output of the relay and the network through an NC (Normally Closed) diagnostic contact. The diagnostic function does not require an external power supply (celduc® patent) The contacts of various relays

can be placed in a series. It is possible to use these relays for a diagnosis in a three-phase system, star wiring without neutral.

Our SOI range includes a current transformer (CT) as well as a contact for signalling and therefore enables the switching of the load current by giving only the information of the presence of the output current which must then be interpreted by the user or the system.

SILD

The SILD range of diagnosis relay is in celpac housing (ready to use).

Product reference	Thyristor rating	Max. switching current at 25°C	Switching voltage	Peak voltage	Switching current	I ² t
SILD845160	50A	32A	70-280VAC	600V	3-32VDC	1 500A ² s
SILD865170	50A	32A	150-510VAC	1 200V	3.5-32VDC	1 500A ² s
SILD867170	75A	35A	150-510VAC	1 200V	3.5-32VDC	5 000A ² s



• Dim. 22.5 x 80 x 116 mm

SOD

Product reference	Thyristor rating	Switching voltage	Peak voltage	Switching current	I ² t
SOD843180	35A	50-265VAC	600V	7-30VDC	1 250A ² s
SOD845180	50A	50-265VAC	600V	7-30VDC	2 800A ² s
SOD849180	125A	50-265VAC	600V	7-30VDC	22 000A ² s
SOD865180	50A	150-510VAC	1 200V	7-30VDC	2 800A ² s
SOD867180	75A	150-510VAC	600V	7-30VDC	7 200A ² s

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 45 x 58.5 x 33.6 mm

SOI

NEW

OPERATION: By applying or removing a voltage on the control input, the SOI relay switches or interrupts the current in the load. If the value of the load current is greater than the threshold that was preset in the factory, the current transformer included in the SOI will close the contact for signalling. It therefore indicates that a current is flowing into the load and leaves the user or the system to interpret this status.

ADVANTAGES

- Reduction of quantity, cost and time of wiring
- Elimination of the need to pass the power cables through a current transformer
- Elimination of costly analogue inputs on the PLC



Product reference	Thyristor rating	Switching voltage	Peak voltage	Switching current	I ² t
SOI885070	50A	24-625VAC	1 600V	3.5-32VDC	2 800A ² s

These products should be mounted on heatsinks in order to reach nominal current.

SINGLE PHASE SOLID STATE RELAYS

SSR with FASTON terminals

Solid State Relays with "FASTON" terminals are appropriate mainly for the food industry and for switching current < 20A.

celduc® relays offers a wide range of single phase SSR with "FASTON" terminals, but also two-phase SSR (see page 24) and four-legs SSR (see SCQ range page 23).

SF

Miniature relays available with "FASTON" or PCB terminals.



• Dim. 21 x 35.5 x 15 mm

Product reference	Thyristor rating	Switching voltage	Control voltage	Specifications
SF541310	10A	12-280VAC	4-30VDC	Zero-cross, "FASTON" terminals
SF542310	10A	12-280VAC	4-30VDC	Zero-cross, PCB terminals
SF546310	25A	12-280VAC	4-30VDC	Zero-cross, "FASTON" terminals

These products should be mounted on heatsinks in order to reach nominal current.

SCF

To control resistive loads. "FASTON" terminals.



• Dim. 44.5 x 58 x 33 mm

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	LED	I _t	Protec.
SCF42160	25A	12-280VAC	600V	4-30VDC	yes	312A ² s	-
SCF42324	25A	12-280VAC	600V	12-30VDC	no	312A ² s	VDR
SCF62160	25A	24-600VAC	1 200V	5-30VDC	yes	265A ² s	-

These products should be mounted on heatsinks in order to reach nominal current.

E option "large Entraxe" and L option "Faston" 4,8mm on request.

SCFL

→ EMC optimised
(low electromagnetic emission – low RFI)

These relays are designed for use in applications where low electromagnetic emission is essential : household and electrical appliances, information technology and medical equipments. In compliance with EN 50081-1 Generic Emission Standards for Residential.

See also our SON range page 14.



• Dim. 44.5 x 58.2 x 32 mm

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I _t
SCFL42100	25A	12-280VAC	600V	4-30VDC	312A ² s
SCFL62100	25A	24-440VAC	1 200V	5-30VDC	312A ² s

These products should be mounted on heatsinks in order to reach nominal current.

SINGLE PHASE SOLID STATE RELAYS

- For a quick connection !

SP7/SP8

This new range extends the products available with FASTON terminals. In a full plastic case, these relays can nevertheless switch up to 12 A AC51. These relays are appropriate for any type of loads (such as heating or single-phase random motor) thanks to high immunity components and an integrated overvoltage protection combined with 800 Upeak power components. This range is well adapted to the food industry.

Product reference	Thyristor rating	Switching current AC-51	Switching voltage	Peak voltage	Control voltage	I ² t	Specifications
SP752120	25A	12A	12-280VAC	800V	3-32VDC	340A ² s	Random
SP852120	25A	12A	12-280VAC	800V	4-32VDC	340A ² s	Zero-cross

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 38 x 66.8 x 22 mm

SCQ

→ Four-Leg Solid State Relays

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I ² t	Led	Specifications
SCQ842060	4x25A	12-280VAC	600V	3-32VDC	288A ² s	oui	Common +VDC Common 0VDC + polarized connector
SCQ842160	4x25A	12-280VAC	600V	3-32VDC	288A ² s	oui	

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 44.5 x 58.2 x 27 mm

FLASHING RELAYS

The ST6 blinking relays are 12A 12-50VAC or 25A 180-280VAC solid state flashing devices with 6,3mm quick release type connectors. As soon as the unit is powered, it switches loads at a frequency of 1hz or 2hz. An external switch selects the required frequency (1 or 2hz).

ST6

Product reference	Switching current	Switching voltage	Peak voltage	Flashing frequency
ST645000	10A	180-280VAC	600V	1/2Hz
ST647000	25A	180-280VAC	600V	1/2Hz

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 67 x 38 x 37.5 mm

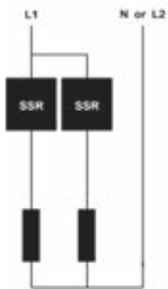
TWO-PHASE SOLID STATE RELAYS

Our two-phase range provides two solid state relays in a compact standard 45 mm enclosure. They are perfectly adapted to three phase applications with breaking of two phases only.



(Connectors to be ordered separately.)

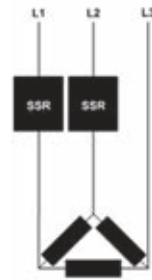
WIRING EXAMPLES



2 load control wiring
Single phase



Two-phase SSR SOB to control heaters
connected in star
(for balanced low voltage loads without
neutral connection)



Two-phase SSR SOB to control heaters
connected in delta
(for high voltage, balanced or
unbalanced loads)

SOB5

→ zero-cross

- Power and control connections by FASTON terminals (Fig.1)
- Double input with connector CE100F ITWPANCON type or similar + Power connection by FASTON 6.3mm terminals with IP20 protection (Fig.2)

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I _t	Specifications	Fig.
SOB542460	2x25A	12-280VAC	600V	3-32VDC	265A ² s	zero-cross / 2 controls	1
SOB562460	2x25A	24-600VAC	1 200V	3.5-32VDC	265A ² s	zero-cross / 2 controls	1
SOB544330	2x40A	12-275VAC	600V	8-30VDC	882A ² s	zero-cross / 2 controls	2
SOB564330	2x40A	24-510VAC	1 200V	8-30VDC	882A ² s	zero-cross / 2 controls	2

These products should be mounted on heatsinks in order to reach nominal current.



SOB6

→ zero-cross

Double input with connector CE100F ITWPANCON type or similar.

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I _t	Specifications	Fig.
SOB665300	2x50A	24-600VAC	1 200V	10-30VDC	1 680A ² s	2 controls	3

These products should be mounted on heatsinks in order to reach nominal current.



SOB7

→ Random or instant switching

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I _t	Specifications	Fig.
SOB763670	2x35A	24-510VAC	1 200V	8-30VDC	1 250A ² s	2 controls	4
SOB765670	2x50A	24-510VAC	1 200V	8-30VDC	2 500A ² s	2 controls	
SOB767670	2x75A	24-510VAC	1 200V	8-30VDC	7 200A ² s	2 controls	



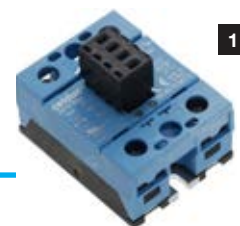
• Dim. 45 x 58.5 x 27 mm

TWO-PHASE SOLID STATE RELAYS

SOB8

SOB8 : zero-cross – designed for most types of loads.

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I ² t	Specifications	Fig.
SOB863860	2x35A	24-600VAC	1200V	17-30VAC/DC	882A ² s	2 controls	1
SOB865660	2x50A	24-600VAC	1200V	8-30VDC	2 500A ² s	2 controls	1
SOB867640	2x75A	24-510VAC	1200V	8-30VDC	7 200A ² s	2 controls / Transil	1



1

SOB9

SOB9 : zero-cross – resistive loads AC-51.

Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I ² t	Specifications	Fig.
SOB942360	2x25A	12-280VAC	600V	10-30VDC	600A ² s	1 control	1
SOB942660	2x25A	12-280VAC	600V	10-30VDC	600A ² s	2 controls	1
SOB943360	2x35A	12-280VAC	600V	10-30VDC	1 250A ² s	1 control	1
SOB945360	2x50A	12-280VAC	600V	10-30VDC	2 800A ² s	1 control	1
SOB962060	2x25A	24-600VAC	600V	3,5-32VDC	380A ² s	2 controls	1
SOB963660	2x35A	24-600VAC	1200V	10-30VDC	1 250A ² s	2 controls	1
SOB965060	2x50A	24-600VAC	1200V	4-32VDC	1 680A ² s	2 controls	1
SOB965160	2x50A	24-600VAC	1200V	6-16VDC	1 680A ² s	1 control	1
SOB965660	2x50A	24-600VAC	1200V	10-30VDC	2 500A ² s	2 controls	1
SOB967660	2x75A	24-600VAC	1200V	10-30VDC	7 200A ² s	2 controls	1

• Dim. 45 x 58.5 x 27 mm

(Connectors to be ordered separately.)



2

Product reference	Switching current AC-51 (40°C)	Switching voltage	Peak voltage	Control voltage	I ² t	Specifications	Fig.
SOB96366WF	2x15A	24-600VAC	1200V	10-30VDC	1250A ² s	2 controls Ready to use product mounted on heatsink	2

SOBR

NEW

SOBR range with "push-in" style spring power connectors.

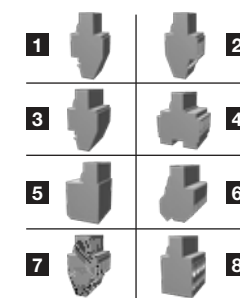
Product reference	Thyristor rating	Switching voltage	Peak voltage	Control voltage	I ² t	Specifications
SOBR965560	2x24A	24-600VAC	1200V	10-30VDC	1 680A ² s	2 controls + 1 commun internal connection on input
SOBR965660	2x24A	24-600VAC	1200V	10-30VDC	1 680A ² s	2 controls



• Dim. 45 x 58.5 x 27 mm

ACCESSORIES FOR SOB → Connectors

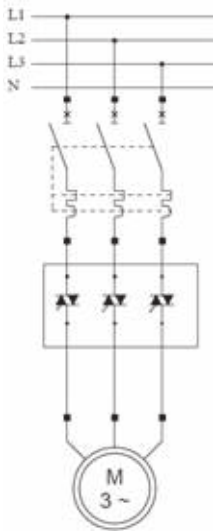
Product reference	Specifications	Relay type	Fig.
1Y020915	2 pole screw connector	SOB7 / SOB8 / SOB9 - 1 control	1
1Y022715	2 pole screw connector 270°	SOB7 / SOB8 / SOB9 - 1 control	2
1Y040915	4 pole screw connector 90° for SOB	SOB7 / SOB8 / SOB9 - 2 controls	3
1Y041660	4 pole screw connector 90° & 270° for SOB	SOB7 / SOB8 / SOB9 - 2 controls	4
1Y041817	4 pole spring connector 180° for SOB	SOB7 / SOB8 / SOB9 - 2 controls	5
1Y042217	4 pole screw connector 45° for SOB	SOB7 / SOB8 / SOB9 - 2 controls	6
1Y042715	4 pole screw connector 270° for SOB	SOB7 / SOB8 / SOB9 - 2 controls	7
1Y042716	4 pole spring connector 270° for SOB	SOB7 / SOB8 / SOB9 - 2 controls	8
1Y044604	4 pole spring connector 180°+ locking	SOB7 / SOB8 / SOB9 - 2 controls	



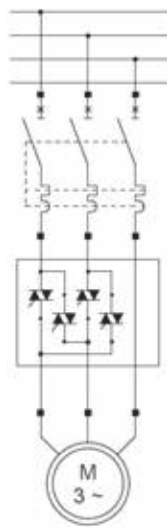
THREE-PHASE SOLID STATE RELAYS

celduc® relays offers further ranges of solid-state relays for controlling three-phase loads. Various models are available, with ratings up to 125 amps per phase, with either AC or DC input, random or zero-cross output.

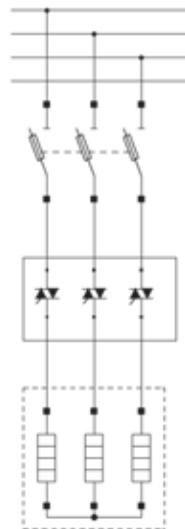
WIRING EXAMPLES



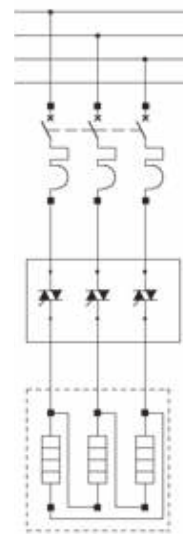
Three-phase SSR SMT8/SGT8 controlling a three-phase motor with a thermal - magnetic protection.



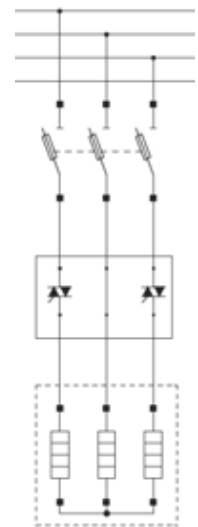
Motor reverser SV9 for three-phase asynchronous motor.



Three-phase SSR SMT/SGT to control heaters connected in star with fuses protection.



Three-phase SSR SMT/SGT to control heaters connected in delta with circuit-breaker.



2 legs three-phase SSR SMB/SGB to control heaters connected in star with fuses protection.

QUICK AND EASY CONNECTIONS

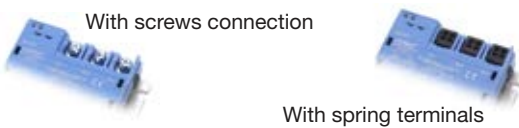
cel3pac®

- 100mm version,
- Low profile : Height 34.7mm,
- Better performance terminals to reach higher thermal current limits,
- Large power connections : up to 50mm² (AWG1)

sightpac®

- Compact 45mm version,
- Fixing screws compatible with okpac® and celpac® ranges,
- A visionary range with open future for optional modules.

POWER WIRING



CONTROL WIRING



THREE-PHASE SOLID STATE RELAYS

sightpac®

NEW

REMINDER

SMB7/SMT7 RANDOM OR INSTANT SWITCHING.

SMB8/SMT8 ZERO CROSS FOR MOST TYPES OF LOADS.

SMB9/SMT9 ZERO CROSS FOR RESISTIVE LOADS AC-51

SMB

→ 2 leg three-phase SSRs

This range is designed for controlling three phase loads connected in delta or, if balanced, connected in star without the neutral connection. Two of the three phases are switched by the SSR, the third being directly connected.

Product reference	Thyristor rating	Switching current AC-51 (40°C)	Switching current AC-53 (40°C)	Switching voltage	Peak voltage	Control voltage	I ² t	Protec.
SMB8650510	3x50A	3x30A	3x12A	24-520VAC	1600V	4-30VDC	2 800A ² s	RC - VDR
SMB8850210	3x50A	3x30A	3x12A	24-640VAC	1600V	4-30VDC	2 800A ² s	VDR
SMB8670910	3x75A	3x35A	3x16A	150-520VAC	1600V	4-30VDC	7 200A ² s	RC - VDR + auxiliary contact

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 45 x 100 x 48 mm

SMT

→ Three-phase SSRs with Input connector and spring power terminals

Product reference	Thyristor rating	Switching current AC-51 (40°C)	Switching current AC-53 (40°C)	Switching voltage	Peak voltage	Control voltage	I ² t	Protec.
SMT8620520	3x25A	3x20A	3x5A	24-520VAC	1200V	4-30VDC	380A ² s	RC - VDR
SMT8628520	3x25A	3x20A	3x5A	24-520VAC	1200V	24-255VAC/DC	380A ² s	RC - VDR

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 45 x 100 x 48 mm

→ "Ready to use" version with integrated heatsink

Product reference	Thyristor rating	Switching current AC-51 (40°C)	Switching current AC-53 (40°C)	Switching voltage	Peak voltage	Control voltage	I ² t	Protec.
SMT8628521	3x25A	3x17A	3x5A	24-520VAC	1200V	24-255VAC/DC	380A ² s	RC - VDR



SGB 2G

→ 2 leg three-phase SSRs

Product reference	Thyristor rating	Switching current AC-51 (40°C)	Switching current AC-53 (40°C)	Switching voltage	Peak voltage	Control voltage	I ² t	Protec.
SGB8850200	3x50A	3x50A	3x12A	24-640VAC	1600V	4-30VDC	2 800A ² s	VDR
SGB8890200	3x125A	3x85A	3x32A	24-640VAC	1600V	4-30VDC	22 000A ² s	VDR

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 100 x 76.5 x 35.5 mm

THREE PHASE SOLID STATE RELAYS

cel3pac®

NEW

REMINDER

SGB7 / SGT7 RANDOM OR INSTANT SWITCHING

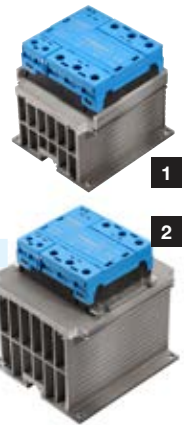
SGB8 / SGT8 ZERO CROSS FOR MOST TYPES OF LOADS

SGB9 / SGT9 ZERO CROSS FOR RESISTIVE LOADS AC-51

SGB 2G

→ 2 leg three-phase SSRs

Product reference	Thyristor rating	Switching current AC-51 (40°C)	Switching current AC-53 (40°C)	Switching voltage	Peak voltage	Control voltage	I ² t	Protec.	Fig.
SGB8630305	3x35A	3x23,5A	3x7A	24-600VAC	1600V	4-32VDC	1 250A ² s	TVS	1
SGB8650306	3x50A	3x41A	3x12A	24-600VAC	1600V	4-32VDC	2 800A ² s	TVS	2



SGT 2G

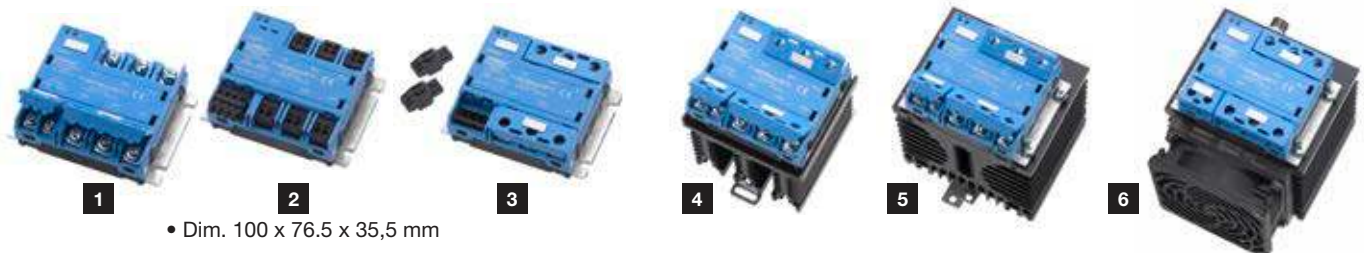
→ Three-phase SSRs

Product reference	Thyristor rating	Switching current AC-51 (40°C)	Switching current AC-53 (40°C)	Switching voltage	Peak voltage	Control voltage	I ² t	Protec.	Fig.
SGT7650500	3x50A	3x42A	3x12A	24-520VAC	1600V	4-30VDC	2 800A ² s	RC - VDR	1
SGT7690500	3x125A	3x64A	3x32A	24-520VAC	1600V	4-30VDC	22 000A ² s	RC - VDR	1
SGT8638500	3x35A	3x35A	3x7A	24-520VAC	1600V	24-255VAC/DC	1 250A ² s	RC - VDR	1
SGT8650810	3x50A	3x42A	3x12A	24-520VAC	1600V	4-30VDC	2 800A ² s	RC - VDR + Temperature alarm	3
SGT8658500	3x50A	3x42A	3x12A	24-520VAC	1600V	24-255VAC/DC	2 800A ² s	RC - VDR	1
SGT8670500	3x75A	3x54A	3x16A	24-520VAC	1600V	4-30VDC	7 200A ² s	RC - VDR	1
SGT8678500	3x75A	3x54A	3x16A	24-520VAC	1600V	24-255VAC/DC	7 200A ² s	RC - VDR	1
SGT8690500	3x125A	3x64A	3x32A	24-520VAC	1600V	4-30VDC	22 000A ² s	RC - VDR	1
SGT8698500	3x125A	3x64A	3x32A	24-520VAC	1600V	24-255VAC/DC	22 000A ² s	RC - VDR	1
SGT8850200	3x50A	3x42A	3x12A	24-640VAC	1600V	4-30VDC	2 800A ² s	VDR	1
SGT8858200	3x50A	3x42A	3x12A	24-640VAC	1600V	24-255VAC/DC	2 800A ² s	VDR	1
SGT8859200	3x50A	3x42A	3x12A	24-640VAC	1600V	90-280VAC/DC	2 800A ² s	VDR	1
SGT8879200	3x75A	3x54A	3x16A	24-640VAC	1600V	90-280VAC/DC	7 200A ² s	VDR	1
SGT9834300	3x35A	3x30A	-	24-640VAC	1600V	4-30VDC	1 250A ² s	TVS	1
SGT9854300	3x50A	3x42A	-	24-640VAC	1600V	4-30VDC	2 800A ² s	TVS	1
SGT9854320	3x50A	3x42A	-	24-640VAC	1600V	4-30VDC	2 800A ² s	TVS	2
SGT9874300	3x75A	3x54A	-	24-520VAC	1600V	4-30VDC	7 200A ² s	TVS	1

These products should be mounted on heatsinks in order to reach nominal current.

→ "Ready to use" version with integrated heatsink

SGT8658502	3x50A	3x24A	3x12A	24-520VAC	1600V	24-255VAC/DC	2 800A ² s	RC - VDR	4
SGT8698503	3x125A	3x48A	3x32A	24-520VAC	1600V	24-255VAC/DC	22 000A ² s	RC - VDR	5
SGT8698504	3x125A	3x64A	3x32A	24-520VAC	1600V	24-255VAC/DC	22 000A ² s	RC - VDR	6



• Dim. 100 x 76,5 x 35,5 mm

• For dimensions, please see technical data-sheet.

MOTOR CONTROL

SMR

→ AC Reversing switches

Product reference	Switching current AC-53 (40°C)	Switching voltage	Control voltage	I ² t	Protec.	Specifications
SMR8621520	3x5A	24-520VAC	10-30VDC	380A ² s	RC - VDR reversing + time delay	2 phase switching

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 45 x 100 x 48 mm

SG9 SV9 SW9

→ AC Reversing switches

These relays are used to reverse the rotational direction of a motor. The SV9 range is with IP20 housing. The SW9 range is ready to use with heatsink and DIN rail mounting integrated. They are all supplied with LED indicators and protection against simultaneous controls (interlocking). Available in 40 or 47,6mm housing.

Product reference	Switching current AC-53 (40°C)	Switching voltage	Control voltage	I ² t	Protec.	Specifications	Fig.
SG969100	3x6.6A	24-520VAC	10-30VDC	612A ² s	reversing + time delay	3 phase switching	1
SG969300E	3x8.5A	3x16A	12-30VDC	1 500A ² s		2 phase switching	1
SV969300E	3x8.5A	24-520VAC	12-30VDC	1 500A ² s		2 phase switching	2
SV969500E	3x16A	24-550VAC	12-30VDC	5 000A ² s		2 phase switching	2
SW960330	3x4.5A	24-550VAC	12-30VDC	1 500A ² s		2 phase switching	3
SW961230	3x8.5A	24-520VAC	12-30VDC	1 500A ² s		2 phase switching	4



• Dim. 100 x 73.5 x 39.5 mm



• Dim. 100 x 76 x 56.5 mm



• Dim. 100 x 76 x 72 mm



• Dim. 83 x 90 x 155.5 mm

XKRD SGRD

→ DC Reversing switches

Our SGRD reversing unit for DC motor control offers all the necessary built-in control protections including protection against wiring errors or short circuit on the input. This version includes the interlocking function to avoid control of the two directions at the same time. The ready to use module XKRD30506 for Din-Rail mounting comprises 4 Solid State relays wired as a reverser to be used to change the direction of a DC motor (100W @ 24Vdc).

Product reference	Switching current	Switching voltage	Peak voltage	Control voltage	Protec.	Fig.
SGRD01006	10A	8-36VDC	60V	8-36VDC	Voltage and current VDR	1
XKRD30506	5A	7-36VDC	60V	7-30VDC		2



• Dim. 100 x 73.5 x 50.9 mm



• Dim. 58.2 x 76.4 x 53 mm

MOTOR CONTROL

SYMC

→ To limit peak energy demand!

This new AC single phase softstarter is engineered to the highest quality and is designed especially for single phase motors 32A/230Vac with starting capacitor (e.g. compressor for heat pumps or refrigerating chambers).

This device is designed in compliance with EN60947-4-2.



• Dim. 100 x 76 x 58.5 mm

- Starting current limited to 45A (NFC15-100)
- Over-load motor protection
- Diagnostic information

Product reference	Pmax motors 230VAC	Max. Current AC53a	Specifications
SYMC0001	5500W	32A	Internal ByPass Ready to use

ACCESSORY	
Product reference	Specification
3D03000P	Condensator 220µF 275V

SO4

→ Single phase softstarters

This range of single-phase softstarters is designed for universal motors or lamps.



2 = 1 with integrated heatsink

• Dim. 45 x 58.2 x 27 mm

Product reference	Switching voltage	Switching current	Control voltage	Fig n°
SO400200	200-260VAC	35A	Soft-starter	1
SO400300	200-260VAC	40A*		2

*Value given at 20°C ambient

SMCV SMCW

→ Three-phase AC softstarters

MOTOR CONTROL :

→ Efficient reduction of torque and starting current.

INCANDESCENT OR INFRARED LAMP STARTING :

- Reduction of in rush current
- Increase in life expectancy

TRANSFORMER CONTROL (LOADED) :

- Elimination of saturation current
- Improved control and protection

WHATEVER YOUR APPLICATION :

- Diagnostic monitoring of line, load & supply as well as normal operational status
- Better balance of and less interference on starters (full control of the 3 phases!)
- Simple use easing implementation and adjustments
- As compact as an electronic contactor



Product reference	Pmax motor 400VAC		Pmax motor 230VAC		Max. Current AC53a		Specifications	Dimensions mm
	Y*	D*	Y*	D*	Max.	EN60947-4-2		
SMCV6080	7,5kW	13kW	4,3kW	7,5kW	16A	11.5A	Heatsink not provided	100 x 76 x 58.5
SMCV6110	11kW	19kW	6,4kW	11kW	25A	15.5A		
SMCV6150	15kW	26kW	8,6kW	15kW	30A	22.5A		
SMCW6020	2,5kW	4,3kW	1,4kW	2,5kW	5,6A	4A	Supplied with built-in heatsink	83 x 110 x 74
SMCW6080	7,5kW	13kW	4,3kW	7,5kW	16A	11.5A		83 x 110 x 155
SMCW6110	11kW	19kW	6,4kW	11kW	25A	15.5A		110 x 110 x 180
SMCW6150	15kW	26kW	8,6kW	15kW	30A	22.5A		110 x 141 x 180
SMCW6151	15kW	26kW	8,6kW	15kW	30A (AC53b)	22.5A (AC53b)		Ext. Bypass required

Common characteristics	Range of voltage and network frequency	Control	Diagnostic output	Operating temperature	Insulation
Values given at 40°C ambient	200-480VAC 40-65Hz	10-24VDC or contact	0-24V 1A AC/DC	-40°C +100°C	4kV

*The star assembly (Y) corresponds to in-line wired starter. The delta assembly (D) corresponds to the starter wired in the triangle coupling of the motor. Each channel is wired in series with a winding of the motor.

ANALOGUE CONTROL RELAYS

celduc® relais offers a wide range of controllers with different control modes and input types.

Types of input control:

0-10VDC, 4-20mA , potentiometer or PWM (Pulse Width Modulation).



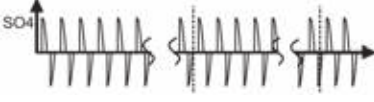
3 control modes are available:

- Burst control mode controllers
- Full wave pulse controllers
- Phase angle controllers

A technology for every application!

WHICH MODE TO CHOOSE?

→ Comparison of the 3 control modes - setting to 50%

	Working principles	Advantages	Typical applications
<p>BURST CONTROL MODE</p> <p>SO3 RANGE (page 33)</p> 	<p>In the time of a given cycle (here 1 or 2 seconds), the variation of the load power is done by eliminating whole alternations. The distribution of eliminations is carried out according to a complex rule. Thus, in the example shown, the load is only powered to 50% because of the elimination of an alternation out of two.</p>	<p>This type of control allows the power to be finely modulated according to the analogue control, while limiting disturbances.</p>	<p>For the control of resistive loads at low thermal inertia such as the short-wave infrared transmitters (infrared tubes)</p>
<p>FULL WAVE PULSE CONTROLLERS</p> <p>SG5 RANGE (page 34)</p> 	<p>In the time of a given cycle (variable depending on the models), the variation of the load power is done by eliminating whole alternations. The elimination is done linearly following the cyclic Ton/Tcycle report requested by the control input. Thus, in the example opposite, the load is only powered 50% of the time of the cycle (Ton/Tcycle=0.5).</p>	<p>This type of control presents the advantage of not generating interference since start-up is near 0 voltage.</p>	<p>Adapted to loads with high inertia (industrial furnaces).</p>
<p>PHASE ANGLE CONTROLLERS</p> <p>SINGLE PHASE SG4 - SO4 - SIL4 - SIM4 RANGES (pages 32-33)</p> <p>THREE-PHASE SGTA AND SVTA RANGE (page 35)</p> 	<p>On the principle of the light dimmer, this control mode allows a very fine control of the load power by removing a part of the the mains voltage sinusoid in accordance with the control input. The proportional response between the input control and the output power depends on the controller model and can be linear in angle, U^2 or in Urms. Thus, in the example below, the load is only powered to 50% because of the elimination of the half of the half-alternations of the mains voltage.</p>	<p>This control mode allows the load power to be finely adjusted, for example, when the refinement of the temperature regulation takes precedence over the electromagnetic disturbances generated by this type of solution (a filter is recommended).</p>	<p>Mainly for loads that react quickly when faced with voltage variation (lamps, motors). Also for DC loads behind a rectifier bridge (heated wires, Peltier effect modules).</p>

ANALOGUE CONTROL RELAYS

SG4

→ Single phase angle controllers

This relay is designed to proportionally vary the switching point on a sinusoidal mains supply via an isolated analogue control signal thereby varying the RMS voltage at the terminals of the load. Applications : light dimmer, heating regulation, single phase variable speed control (vibrating feeders,etc). Model with LED and RC and VDR network.

Product reference	Thyristor rating	Switching voltage	Control voltage	I ² t	External power supply required ?
SG444020	40A	115-265VAC	0-10VDC	1 500A ² s	no
SG464020	40A	200-460VAC	0-10VDC	1 500A ² s	
SG468020	70A	200-460VAC	0-10VDC	5 000A ² s	
SG469020	110A	200-460VAC	0-10VDC	20 000A ² s	
SG444120	40A	115-265VAC	Potentiometer	1 500A ² s	
SG464120	40A	200-460VAC	Potentiometer	1 500A ² s	
SG469120	110A	200-460VAC	Potentiometer	20 000A ² s	
SG444420	40A	115-265VAC	4-20mA	1 500A ² s	
SG464420	40A	200-460VAC	4-20mA	1 500A ² s	
SG468420	70A	200-460VAC	4-20mA	5 000A ² s	
SG469420	110A	200-460VAC	4-20mA	20 000A ² s	

These products should be mounted on heatsinks in order to reach nominal current.



• Dim. 100 x 73,5 x 39,5 mm

SO4

→ Single phase angle controllers

The SO4 are our phase angle controllers in okpac® housing (to mount on heatsinks). The microcontroller controlling these controllers can adapt the function to your application. This range is primarily suited to resistive loads.

Product reference	Thyristor rating	Switching voltage	Control voltage	External power supply required ?	Fig.
SO445020	50A	100-280VAC	0-10V	yes	1
SO465020	50A	200-480VAC	0-10V	yes	1
SO468020	95A	200-480VAC	0-10V	yes	1
SO469020	125A	200-480VAC	0-10V	yes	1
SO468120	95A	200-480VAC	0-5V	yes	1
SO467501	75A	160-450VAC	1-5V	no	3
SO445320	50A	100-280VAC	Potentiometer	yes	1
SO465320	50A	200-480VAC	Potentiometer	yes	1
SO445420	50A	90-265VAC	4-20mA	no	2
SO465420	50A	200-480VAC	4-20mA	no	2
SO467420	75A	200-480VAC	4-20mA	no	2
SO468420	95A	200-480VAC	4-20mA	no	2
SO469420	125A	200-480VAC	4-20mA	no	2
SO465620	50A	200-480VAC	PWM	yes	1



• Dim. 45 x 58,2 x 27 mm



Other functions possible : phase angle control, full wave pulse control, fast burst control Soft- Starter, timers and flashing relay, ... - please consult us.

ANALOGUE CONTROL RELAYS

SIL4 / SIM4

→ Single phase angle controllers

Our Sil4 range is in celpac® housing (ready to use).
This range is designed for resistive loads.

Product reference	Switching current at 25°C	Switching voltage	Control voltage	External power supply required ?	Fig.
SIL465000	32A	160-450VAC	0-10V	no	1
SIM465000	40A	160-450VAC	0-10V	no	2



1



2

• Dim. 22,5 x 80 x 116 mm

• Dim. 45 x 80 x 116 mm

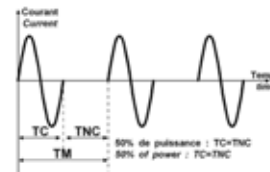
SO3

→ Burst control mode
(μ P based unit)

This control mode is particularly suitable for resistive loads having a low thermal inertia like short wave Infra Red sources (IR lamps). It allows a very fine control of power according to the analogue input signal while reducing noise emission level (EMC conducted emissions). This control mode consists in switching streams of full sine waves equally distributed along a fixed modulation period (TM) function of the analogue input signal. The μ P constantly computes the number of full sine waves to be switched along the TM period.

Product reference	Thyristor rating	Switching voltage	Control voltage	External power supply required ?
SO367001	75A	400VAC	0-10VDC	no

Other power rating and / or control on request



• Dim. 45 x 58,2 x 27 mm

MULTIZONES POWER CONTROLLER

NEW

Taking into account the identified needs of the market, celduc® relais has developed infrared lamp temperature control boxes. The technology used, based on solid state relays for power connected to a complex electronic, helps to ensure power control up to 12 lamps in a precise and efficient way. A program allows the PLC to be informed of the operating state and possible faults in the manufacturing process.

Characteristics of the control boxes:

- Heat box for a maximum of 12 IR channels (4kW max. per channel and 36kW max. per box)
- U² type mains variations compensation (syncopated)
- Detections: broken lamp < 250 ms; over/undervoltage; overheating; broken fuse
- Built-in protection
- Control by Profi bus DP



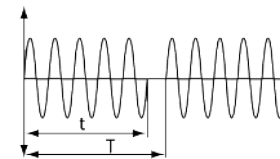
ANALOGUE CONTROL RELAYS

SG5

→ Full wave pulse controllers

This relay has an analog input isolated from the mains to proportionally vary the cyclic operating ratio of a load (t/T). Control and mains are synchronous and output only has full periods. Models supplied with LED indicators together with RC & VDR network protection.

Product reference	Thyristor rating	Switching voltage	Control voltage	I^2t	External power supply required ?
SG541020	10A	230VAC	0-10VDC	72A ² s	no
SG544020	40A	230VAC	0-10VDC	610A ² s	
SG564020	40A	400VAC	0-10VDC	610A ² s	
SG544120	40A	230VAC	Potentiometer	610A ² s	
SG564120	40A	400VAC	Potentiometer	610A ² s	
SG541420	10A	230VAC	4-20mA	72A ² s	
SG564420	40A	400VAC	4-20mA	610A ² s	



• Dim. 100 x 73,5 x 39,5 mm

For higher power ratings and three phase applications, ask for our application notes. These products should be mounted on heatsink in order to reach nominal current.

SWG5

→ Single phase power controllers

This range is based on the SG5 controllers. The SWG5 are fitted with heatsinks and DIN rail adapters. Application : single phase heaters.

Product reference	Switching power	Switching voltage	Control voltage	External power supply required ?	Fig.
SWG50210	2kW	230VAC	0-10VDC	no	1
SWG50810	8kW	230VAC	0-10VDC		2

Control voltage 0-5V or potentiometer on request.



• Dim. 100 x 74 x 56 mm



• Dim. 100 x 110 x 96 mm

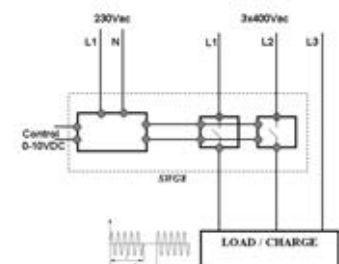
SWG8

→ Three-phase power controllers

The SWG8 controllers consist of a control unit (0 to 10 VDC input) and a power unit adapted to three phase load. The control unit has got an analogue input, isolated from the mains, that can proportionally alter the power to the load. Application : three-phase heaters.

Product reference	Switching power	Switching voltage	Control voltage
SWG81510	20kW	400VAC	0-10VDC
SWG82710	27kW		
SWG83610	36kW		
SWG84210	42kW		
SWG84810	48kW		
SWG86010	60kW		
SWG88010	80kW		

• For dimensions, please see our data-sheet



THREE-PHASE PROPORTIONAL CONTROLLERS

SVTA

- Allows control of any type of loads (except capacitive) 3 or 4 wires (neutral), delta or star wiring :
 - Resistive loads for temperature control (infrared lamps, kilns, resistors,...)
 - Resistive loads for light control (bulbs, halogen, UV, scenes,...)
 - Loads including a transformer, a coil or a rectifier for voltage control (power supplies, high voltage generators,...)
 - Motors for voltage speed control (Possibility to reduce the speed depending on the type of motor and machine, motor fans,...)

- Six thyristor proportional phase angle controller (Three phase positive and negative cycle control) : Balanced currents, less harmonics, ...
- Softstart and softstop ramps (increases the lifetime expectancy of the assembly)
- Diagnostic functions
- Compact housing.

Product reference	Max. current AC-51	Max. current AC-53a	Control	External power supply required ?
SVTA4650E	50A	16A	0-10V	no
SVTA4651E	50A	16A	Potentiometer	
SVTA4684E	95A (*)	25A	4-20mA	
SVTA4690E	125A (*)	30A	0-10V	
SVTA4691E	125A (*)	30A	Potentiometer	
SVTA4694E	125A (*)	30A	4-20mA	

* Max. wire size = 10mm² : double wires or use special adaptors for current > 50A.
Please refer to the mounting instructions.



• Dim. 100 x 76 x 58.5 mm

SGTA

• MAIN CHARACTERISTICS •

- Small housing
- Wide mains frequency variation (40-65Hz)
- Built-in overvoltage protection
- High I²t power elements
- Fully optoisolated full cycle three phase phase angle controller (balanced currents, less harmonics, ...)
- The minimum voltage applied on the load is the lowest in the market (3% RMS on the nominal voltage against 40% RMS offered by our competitors !)
- Lots of possible options on request
- Manufactured in compliance with major international standards EMC, LVD, UL, VDE.

• TYPICAL APPLICATIONS •

- Resistive loads for temperature control (infrared lamps, kilns, resistors, ...)
- Resistive loads for light control (bulbs, halogen, scenes, ...)

Product reference	Max. current AC-51	Switching voltage	Control	External power supply required ?
SGTA4650	50A	300-510VAC	0-10V	8-32V external power supply required
SGTA4651	50A	300-510VAC	0-5V	
SGTA4653	50A	300-510VAC	Potentiometer	
SGTA4654	50A	300-510VAC	4-20mA	

Other rating on request.

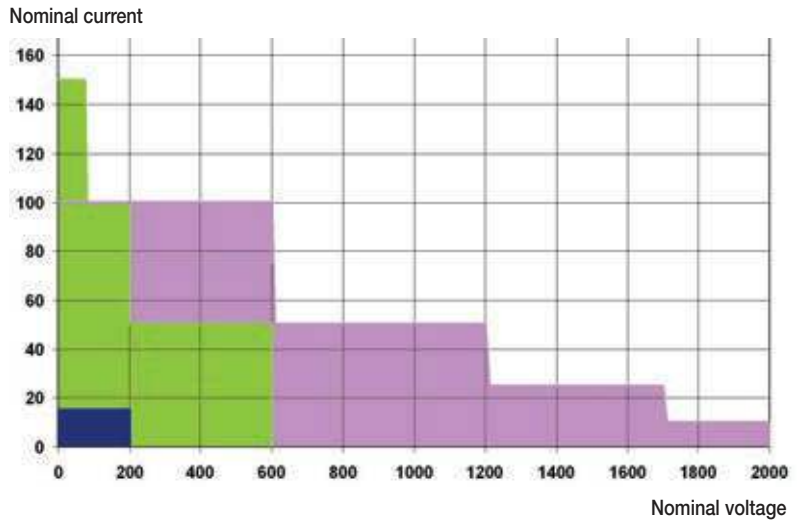


• Dim. 75.15 x 100 x 46 mm

DC SOLID STATE RELAYS

These relays are designed to switch DC loads e.g solenoid valves, brakes, indicators, motors (possibly on AC mains under specific conditions). All possible technologies can be available :

- **MOSFET**
For applications where overcurrent capability and low dissipated power are needed.
- **BIPOLARE**
For applications where low control current is needed.
- **IGBT**
For high voltage applications (> 600 VDC).



FOR EACH APPLICATION THE CORRESPONDING TECHNOLOGY !
STANDARD RANGE UP TO 1200VDC, 150A.

• Dim. 28 x 5 x 15 mm



• Dim. 29 x 12.7 x 15.7 mm

MOSFET TECHNOLOGY

Product reference	Switching current	Switching voltage	Peak voltage	Control voltage	Protection	Fig.
SLD01210	2,5A	0-60VDC	60V	3-10VDC	Transil	1
SLD03210	2,5A	0-60VDC	60V	18-32VDC		
SLD01205	4A	0-32VDC	60V	3-10VDC		
SLD02205	4A	0-32VDC	60V	7-20VDC		
SLD03205	4A	0-32VDC	60V	18-32VDC		
STD03205	2,5A	0-30VDC	60V	12-30VDC	Transil	2
STD03505	5A	0-30VDC	60V	12-30VDC		
STD03510	5A	0-68VDC	60V	12-30VDC		
STD07205	2,5A	0-30VDC	60V	12-30VDC 15-30VAC		
SPD03505	5A	0-30VDC	60V	12-30VDC		
SPD07505	5A	0-30VDC	60V	12-30VDC 15-30VAC	3	
SKLD11006	10A	7-36VDC	60V	3-10VDC	Transil	4
SKLD31006	10A	7-36VDC	60V	7-30VDC		
SCM030200	30A	0-200VDC	200V	4.5-32VDC	-	5
SCM040600	40A	0-600VDC	600V	4.5-32VDC		
SCM0100200	100A	0-200VDC	200V	4.5-32VDC		
SCM0150100	150A	0-100VDC	100V	4.5-32VDC		
SOM02060	20A	5-40VDC	60V	3.5-32VDC	Transil	6
SOM020100	20A	5-60VDC	100V	3.5-32VDC		
SOM020200	20A	5-110VDC	200V	3.5-32VDC		
SOM04060	40A	5-40VDC	50V	3.5-32VDC		
SOM040100	40A	5-60VDC	100V	3.5-32VDC		
SOM040200	40A	5-110VDC	200V	3.5-32VDC		
SOM06075	60A	5-40VDC	75V	3.5-32VDC		
ESO01000	0-80A	0-130VDC	200V	Protection against line inductance (C1, D2) : option for SOM range	Diode + capacitor	6



• Dim. 29 x 12.7 x 25.4 mm



• Dim. 43.6 x 6.3 x 24.5 mm



• Dim. 44.5 x 58.2 x 27 mm

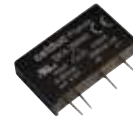


• Dim. 45 x 58.5 x 30 mm

DC SOLID STATE RELAYS

BIPOLAR TECHNOLOGY

Product reference	Switching current	Switching voltage	Peak voltage	Control voltage	Protection
SKD10306	3A	2-60VDC	60V	3-30VDC	Diode
XKD10120	1A	2-220VDC	220V	5-30VDC	Diode
XKD10306	3A	2-60VDC	60V	5-30VDC	
XKD11306D	3A	2-60VDC	60V	3-30VDC	
XKD70306	3A	2-60VDC	60V	10-30VAC/DC	
XKD90306	3A	2-60VDC	60V	90-240VAC/DC	
SCC10506	5A	2-60VDC	60V	3-16VDC	Diode
SCC20506	5A	2-60VDC	60V	10-32VDC	
SCC21506	15A	2-60VDC	60V	10-32VDC	



• Dim. 43.2 x 10.2 x 25.4 mm



• Dim. 44.5 x 58.2 x 27 mm



• Dim. 12.2 x 76.4 x 53 mm

IGBT TECHNOLOGY

Product reference	Switching current	Switching voltage	Peak voltage	Control voltage	Protection
SCI0251700	25A	0-1700VDC	1700V	4.5-32VDC	Reverse diode
SCI0501200	50A	0-1200VDC	1200V	4.5-32VDC	Reverse diode
SCI0100600	100A	0-600VDC	600V	4.5-32VDC	Reverse diode
SDI0501700	50A	24-940VDC	1700V	24-48VDC	Depending on models : → Over-voltage protection → Load short circuit protection → Over-load temperature protection
SDI0501710	50A	24-940VDC	1700V	72-110VDC	
SDI1001700	100A	24-940VDC	1700V	24-48VDC	



• Dim. 44.5 x 58.2 x 27 mm

Products without integrated over-voltage protection (transil or VDR) or having only a Freewheel diode, must be fitted with an external overvoltage protection. The maximum operating voltage is then often reduced to the half of the specified maximum operating voltage.

**With celduc® relais,
DC power switching
under control !**



• Dim. 157 x 68 x 83 mm



On request : "ready to use" products i.e. products including integrated voltage protection, proportional controllers, DC motor reversers ... Please consult us !"

APPLICATIONS

DC power supplies (converters like choppers, inverters, ...)

Signal switching (testing equipment, ...)

Electro-magnets (induction motor braking, ...)

Heaters (air conditioning in trains, tramways, ...)

Batteries (ships, solar systems, ...)

DC Motors (travelling cranes, cranes, vehicles, ...)

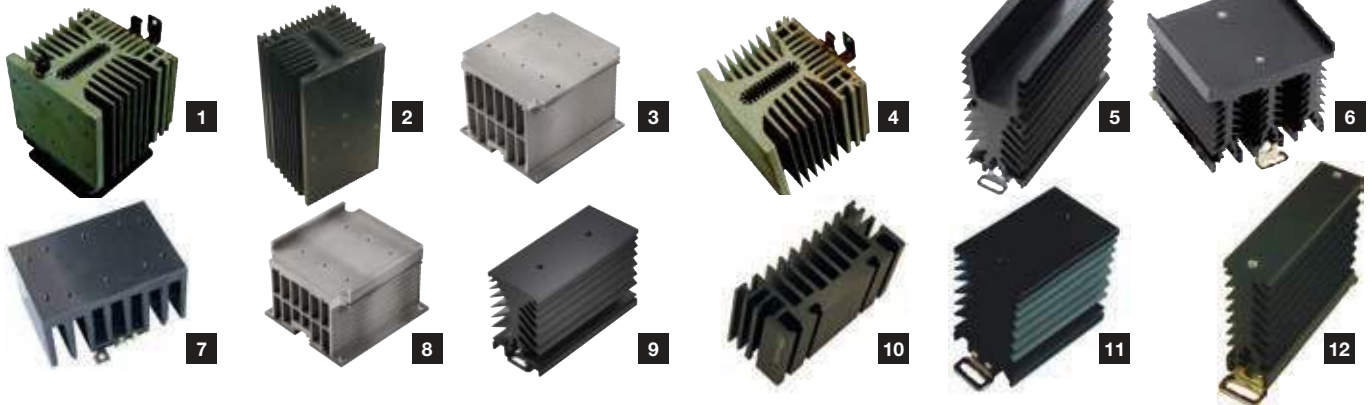


ACCESSORIES

HEATSINKS

Product reference	Thermal characteristics	Specifications	Dimensions mm	Relay type	Fig n°
WF031100	0.3K/W	ventiled for DIN rail or screw - fan supply 230Vac	110 x 120 x 145	SO, SC, SG, SG, SV	1
WF031200	0.3K/W	ventiled for DIN rail or screw - fan supply 24Vdc	110 x 120 x 145	SO, SC, SG, SG, SV	1
WF050000	0.55K/W	DIN rail adaptor as option	110 x 100 x 200	SO, SC, SG, SG, SV	2
WF071000	0.7K/W	DIN rail adaptor as option	110 x 89.5 x 120	SO, SC, SA, SU, SM, SG	3
WF115100	0.9K/W	for DIN rail or screw	110 x 100 x 90	SO, SC, SG, SV	4
WF112100	1K/W	for DIN rail or screw	49.5 x 117.5 x 120	SA, SU	5
WF108110	1.1K/W	for DIN rail or screw	89.8 x 81 x 98.02	SO, SC	6
WF121000	1.2K/W	for DIN rail or screw	100 x 40 x 100	SO, SC, SG, SV	7
WF124000	1.2K/W	DIN rail adaptor as option	90 x 100 x 69	SO, SC, SA, SU, SM	8
WF114200	1.75K/W	for DIN rail or screw	45 x 73 x 100	SO, SA, SU, SM	9
WF210000	2.1K/W	DIN rail adaptor as option	96 x 41 x 55	SO, SC	10
WF151200	2.2K/W	for DIN rail or screw	45 x 73 x 80	SO, SC, SA, SU	11
WF311100	3K/W	for DIN rail or screw	22.5 x 73 x 80	SA, SU	12

The Rth values are given for a temperature of 50°C in calm air. Other dimensions available on request.



ACCESSORIES

PROTECTION COVERS / FLAPS

1K199000	Protection cover for SGT/SG9
1K460000	Protection cover for SC range (except SCB and 125A rating SC)
1K470000	Protection cover for all SC/SCB range
1K522000	Protection cover for SA-SAL
1K523000	Removable protection flaps for SU-SUL



MARKING LABELS

1MZ09000	marking labels to be mounted on protection flaps or covers for SA SU
----------	--



MOUNTING KITS

1L386100	6.3 mm angled Faston 45° for SO
1L382300	4.8mm angled Faston 45° for SO
1LK00100	mounting SC-SO-SF-SM-SU on heatsink or SC-SO on 1LD12020
1LK00200	mounting SG-SVT-SV9 on heatsink or 1LD00500
1LK00300	mounting heatsinks on 1LD00400 or SC-SO on 1LD00000
1LK00700	special kit for high current (okpac range)

DIN RAIL ADAPTORS

1LD00400	DIN rail adaptor for WF21/07/05
1LD00500	DIN rail adaptor for SG/SVT/SV969300
1LD12020	DIN rail adaptor for SC/SO vertical mounting



THERMAL SEALS RELAY/HEATSINK

5TH15000	thermal grease for 30 relays SG/SVT ou 60 relays SC/SO
5TH21000	thermal precut film for SC/SO
5TH23000	adhesive thermal pads for SC/SO
5TH24000	adhesive thermal pads for SA/SU



1LWP2300	Assembling costs 5TH23000 on SC/SO + 5TH23000
1LWP2400	Assembling costs 5TH24000 on SA/SU + 5TH24000



MOUNTING+HEATSINK+DIN ADAPTOR OPTION

1LWD1202	mounting of SC/SO sur 1LD12020 + 1LD12020
----------	---

MOUNTING OPTION ONLY

IF QUANTITY > 10 (screw kit included)

1LW00000	mounting of relays on heatsink
1LWD0000	mounting of heatsink on DIN rail adaptor

MAGNETIC SENSORS

MAGNETIC PROXIMITY SENSORS

We are the experts

If you are looking for position, presence, level or speed detection, then we will be able to offer a solution from our range of magnetic sensors. We can even design a specific product for your applications !

At celduc® relais, we are eager to offer the best products for your application, thanks to our 45-year experience in the key technologies that we use in our products :

- Reed switch, a dry contact in a sealed glass bulb providing insulation at the same time : a simple, reliable and low cost solution.
- Electronic cell, based on either magneto-resistance or Hall effect, necessary for higher performance, particularly in high frequency operation."

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PLEASE CONSULT US TO HAVE OUR EXPERTISE

SCOPE

INDUSTRY

Counting
Cylinder positions
Machine safety
Advertising panel
Actuator position
Liquide level
Speed control

HOME

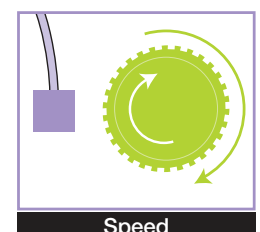
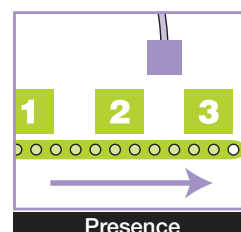
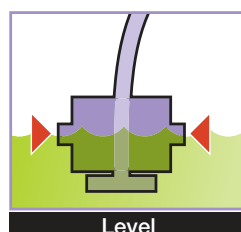
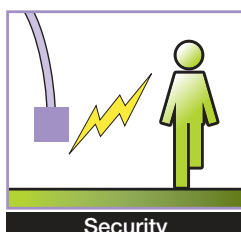
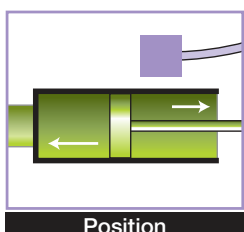
Burglar alarm
Camera shutter control window position (blinds)
Lifts
Alarms
Big and small household goods
Swimming-pools

AIRCRAFT, SPACE AND ARMY

Level of fuel and petroleum products
Level of oil and water
Sensors and actuators for Airbus
Camera shutter control

SPECIFIC APPLICATIONS

ATEX
(explosive atmospheres)



MAGNETIC SENSORS

WHAT IS A MAGNETIC PROXIMITY SENSOR?

The sensitive element of the magnetic sensor may be a Hall cell, a magnetoresistive cell or a Reed switch detecting the presence of a magnetic field, in general a permanent magnet. It detects the position of the magnet without contact and transmits an on/off or analogue electric signal, according to the models.

REED SWITCH SENSORS

The REED switch or Flexible Blade Switch is composed of two or three ferromagnetic blades sealed in a glass tube filled with an inert gas, which will come into contact under the influence of a magnetic field.

THERE ARE DIFFERENT CONTACT TYPES

- NO / A Form > Normally Open
- NF / B Form > Normally Closed
- BISTABLE NO / L Form
- CHANGE-OVER / C Form



THE MAIN ADVANTAGES ARE:

- No power supply necessary,
- Operates in harsh environments,
- The sensing ranges can be very large (depending on the magnetic sensitivity of the bulb, the power of the magnet as well as the magnetic environment),
- Economic solution.

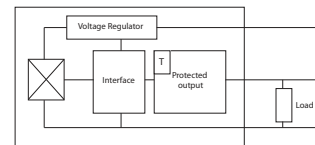
REMINDER : Reed switches and magnetic sensors using reed switches can switch AC or DC current. In our technical datasheets the values given for current and voltage are the maximum values. It means that in DC applications it corresponds to the max. switching current and voltage. In AC applications these values are the peak values, to obtain the nominal value you should divide by 1,414.

ELECTRONIC SENSORS

Their principle of detection is based on the occurrence of a voltage proportional to the magnetic field on the Hall sensors and on a change in resistance also proportional to the magnetic field on the sensors fitted with magnetoresistance. The variations of these signals are processed in the sensor to release an On/Off signal or analogue signal to the user according to the client's needs. These sensors need a power supply.

THE MAIN ADVANTAGES ARE:

- Operates at high frequency: >20 kHz.
- Not sensitive to shocks and vibrations.
- Long lifespan



CONTROL MAGNETS

To control Reed switch or HALL effect cell magnetic sensors, a magnet must be used. Go to page 54 to consult our complete range of coated and uncoated magnets.

CHOICE OF THE SENSOR/MAGNET PAIR MUST BE MADE ACCORDING TO THE TERMS OF USE

- Activation distance sought (action and release),
- Temperature of use,
- Operating mode (Perpendicular or parallel movement? Nose-to-nose activation?),
- Geometry,
- Corrosion resistance desired

REMINDER: The guaranteed activation distance depends on the sensitivity of the sensor and of the power of the magnet. As a guideline, in this selection guide, we clarify the guaranteed distance of activation with a given magnet but celduc® remains at your service to offer the best magnet/sensor pair according to your needs.

MAGNETIC SENSORS

SPECIAL CUSTOMERS PRODUCTS

MORE THAN 50% OF THE SENSORS ARE MADE ACCORDING TO CUSTOMER SPECIFICATIONS. HERE ARE A FEW EXAMPLES:

AIRCRAFT INDUSTRY



Serving this industry is proof of reliability. celduc® relais has developed special sensors to detect the opening/closing of the doors as for example push-buttons used to detect open/closed doors in Airbus A380 ; sensors to detect tank refueling in Mirage Rafale and Saab Jas 39 fighters ; level sensors for AIRBUS humidifiers, ...



NUCLEAR POWER



celduc® relais has designed and made sensors used for nuclear reactor regulation. These sensors are part of the system's highest security level. The qualification phase has therefore been very important in this project and our sensors have been tested in extreme situations. This development of sensors for nuclear reactors demonstrates yet again celduc® relais ability to create specific solutions in fields where reliability is essential.



AGRICULTURE



In agriculture, there are many ways in which our magnetic sensors can be applied. celduc® has developed a magnetic proximity sensor for metal detection. No more need for magnets!

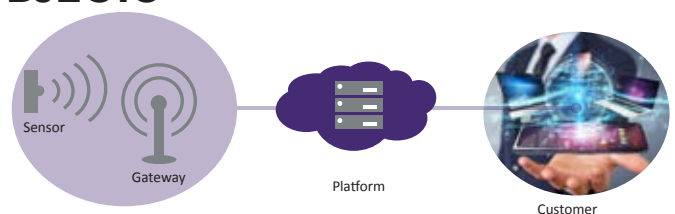


**A TEAM OF
EXPERTS
AT YOUR SERVICE**

SENSORS AND CONNECTED OBJECTS

Connect our sensors thanks to our energy efficient mobile communication solutions! Using networks made for the internet of things, our energy efficient wireless connection modules can connect all types of detection needs. Thanks to our professional expertise in the field of magnetic detection and the combination of reed technology and LPWAN networks (low-power wide-area network), our sensors are:

- **autonomous:** up to 10 years of uninterrupted use without changing or recharging the batteries,
- **connected:** directly access the status of your position and level sensor from your mobile or computer and be alerted of any changes,



→ **simple to use:** no SIM card or complex parameters, manage your sensors directly from our web platform and connect anywhere in the world with the same model,

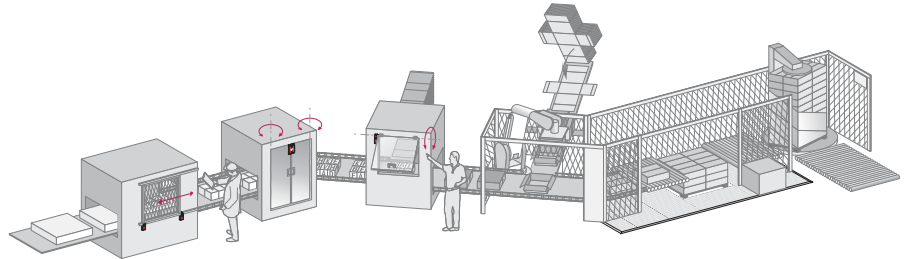
→ **economical:** much more affordable than traditional mobile networks, LPWAN solutions are particularly well suited to connected sensors and now cover more than 90% of world territory.

SAFETY MAGNETIC SENSORS

These products are designed to protect the operators OF machines when opening doors, casings or covers, by stopping dangerous movements of the machine.



A SOLUTION FOR ALL LEVELS OF SAFETY REQUIRED!



3 SAFETY LEVELS ACCORDING TO STANDARDS EN/ISO 13849-1 / EN/ISO 62061:

The latest safety standards are based on concepts such as the security level (SIL) or the performance level (performance level = PL).

**SIL 1
PL = C**



**SIL 1 / 2 / 3
PL = C / D / E**



+SAFETY MODULE ADAPTED

**SIL 2 / 3
PL = D / E**



ADVANTAGE: Autonomous system not needing a safety module

P3S / P4S

- These compact products are very easy to incorporate onto the machines
- Fully electronic with a high level of encryption (inviolability),
- High resistance to shocks and vibrations
- Self-protected solid state outputs (short-circuit of the load and temperature)
- Virtually unlimited sensor life (very high MTTFd)
- For industrial machines with one or several doors or imprecise guidance casings.

Product reference	P3S79119	P3S79129	P3S79159	P3S791M9	P4S80119	P4S80129	P4S80159	P4S801M9
Contact status	2 solid state PNP outputs				2 solid state PNP outputs EDM function (External Devices monitoring) + 1 alarm output			
Max. switching voltage	2 solid state 24VDC outputs							
Max. switching current	1,5A							
Alarm output	No output				24VDC 0.5A solid state PNP output			
Cable length	Cable 10m	Cable 2m	Cable 5m	Connecteur M12	Cable 10m	Cable 2m	Cable 5m	Connecteur M12
Activation distance	10mm							
Associated magnet	Magnet provided (ref.: P5000309)							
LED option	Yes							
Working temperature	-25 to +70°C							

SAFETY MAGNETIC SENSORS



PXS / PSS

The PXS or PSS type products are designed to control the opening of protective devices, machine casings and access doors.



Product reference	PXS79150	PXS59150	PXS10350	PXS70150	PSS79050	PSS79150	PSS59050	PSS59150	PSA60010	PSA60020
Contact status	2O	O+F	2O + 1F	2O + 1F	2O	2O	O+F	O+F	1O solid state	1O solid state
Current limiting resistor	10Ω	10Ω	-	10Ω	10Ω	10Ω	10Ω	10Ω	-	-
Max. switching power	3VA	3VA	3VA	3VA	3VA	3VA	3VA	3VA	500VA	500VA
Max. switching current	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	24- 440VAC	6-440VAC
Max. switching current	100mA	100mA	100mA	100mA	100mA	100mA	100mA	100mA	3A	3A
Cable length	Cable 5m	Cable 5m	Cable 5m	Cable 5m	Cable 5m	Cable 5m	Cable 5m	Cable 5m	2 wires 350mm	2 wires 3m
Activation distance	8mm	8mm	8mm	8mm	5mm	5mm	5mm	5mm	12mm	12mm
Associated magnet	P2000100	P2000100	P2000100	P2000100	P3000100	P3000100	P3000100	P3000100	P6250000	P6250000
LED option	yes	yes	no	yes	no	yes	no	yes	no	no
Working temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C	-40 to +85°C	-40 to +85°C



UL PRODUCTS

ASSOCIATED CODED MAGNETS



P2000100



P3000100



P6250000



Terminals version on request
M8 or M12 depends on the model : see data sheet

REED MAGNETIC SENSORS

SCREW POSITION SENSORS

General use screw sensors for industry and household use :

- Rabbit sensors
- Doors opening
- Protection cover presence
- Household appliances

IoT Solutions

Connect our Reed sensors to a communication system so that they are autonomous and connected. (see page 41)



Product reference	PAA10060	PAA11202	PAB10020	PLA10100	PLA10160	PLA11208	PLA12430
Contact status	NO	NO	NC	NO	NO	NO	NO
Connection type	2 wires / FASTON	2 wires	2 wires + HE14 connector	cable	2 wires	cable	cable
Cable length	680mm	275mm	160mm	10m	360mm	800mm	3m
Max. switching power	12VA	12VA	3VA	12VA	12VA	12VA	12VA
Max. switching voltage	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	110VAC 200VDC	48VAC 100VDC	110VAC 250VDC	110VAC 250VDC
Max. switching current	0.4A	0.4A	0.25A	0.5A	0.4A	0.4A	0.4A
Activation distance	15mm with P6250000	15mm with P6250000	18mm with P6250000	10mm with P6250000	15mm with P6250000	16mm with P6250000	12mm with P6250000
Working temperature	-40 to +85°C	-40 to +100°C	-40 to +100°C	-40 to +85°C	-40 to +85°C	-40 to +100°C	-40 to +100°C
Dimensions in mm	23x14x6	23x14x6	23x14x6	32x15x6.8	32x15x6.8	32x15x6.8	32x15x6.8
Fixing screws distance	14mm	14mm	14mm	17,5mm	17,5mm	17,5mm	17,5mm



Product reference	PLA13701	PLA13730	PLA13750	PLA43403	PLB10060	PLB16701	PLC10040	PLC13701
Contact status	NO	NO	NO	NO	NC	NC	Change-over	Change-over
Connection type	cable	cable	cable	cable	cable	cable	cable	3 wires
Cable length	100mm	3m	5m	300mm	3m	100mm	1.5m	100mm
Max. switching power	12VA	12VA	12VA	100VA	12VA	12VA	NF : 3VA NO : 8VA	NF : 3VA NO : 8VA
Max. switching voltage	110VAC 200VDC	110VAC 200VDC	110VAC 200VDC	230VAC 350VDC	110VAC 200VDC	110VAC 200VDC	48VAC 100VDC	48VAC 100VDC
Max. switching current	0.4A	0.4A	0.4A	1A	0.4A	0.4A	0.25A	0.25A
Activation distance	10mm with P6250000	10mm with P6250000	10mm with P6250000	12mm with P6250000	4<d<12mm (with gel. Magnet)	4mm (with gel. Magnet)	14mm with P6250000	10mm with P6250000
Working temperature	-40 to +100°C	-40 to +100°C	-40 to +100°C	-40 to +100°C	-40 to +100°C	-40 to +100°C	-40 to +100°C	-40 to +100°C
Dimensions in mm	32x15x6.8	32x15x6.8	32x15x6.8	32x15x6.8	32x15x6.8	32x15x6.8	32x15x6.8	32x15x6.8
Fixing screws distance	17.5mm	17.5mm	17.5mm	17.5mm	17.5mm	17.5mm	17.5mm	17.5mm

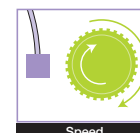
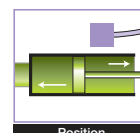
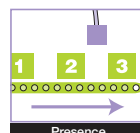


UL PRODUCTS AVAILABLE, see page 45

REED MAGNETIC SENSORS

IoT Solutions

Connect our Reed sensors to a communication system so that they are autonomous and connected. (see page 41)



Product reference	PB195T00	PB367G00	PB390G00	PBA13725	PBA13780	PSL40010	PS2A0020	PSC41000	PSC42000
Contact status	NO	NC	NO	NO	NO	NO	2NO	Change-over	Change-over
Connection type	2 wires	2 wires	2 wires	Cable	Cable	2 wires	Cable	Cable	Cable
Cable length	80mm	80mm	80mm	2,5m	8m	550mm	2m	400mm	2,5m
Max. switching power	50VA	16VA	16VA	12VA	12VA	10VA	100VA	100VA	100VA
Max. switching voltage	250VAC	110VAC 250VDC	110VAC 250VDC	110VAC 250VDC	110VAC 250VDC	230VAC 350VDC	48VAC 100VDC	230VAC 350VDC	230VAC 350VDC
Max. switching current	1A	0,5A	0,5A	0,4A	0,4A	0,5A	1A	3A	3A
Activation distance	7mm with P4160000	4mm with P4159000	13mm with P4160000	13mm with P4160000	13mm with P4160000	12mm with P6250000	15mm with P6250000	8mm with UR608000	8mm with UR608000
Working temperature	-40 to +100°C					-40 to 85°C		-25 to +85°C	
Dimensions in mm	86x8.5x12.5	51x8.5x11.5				51x16x7	51x16x7	51x16x7	51x16x7
Fixing screws distance	75mm	40mm	40mm	40mm	40mm	16mm	16mm	16mm	16mm

Sensor with metal housing



Product reference	PLMA0100
Contact status	NO
Connection type	1 shielded cable
Cable length	2m
Max. switching power	10W
Max. switching voltage	110VAC 200VDC
Max. switching current	0.5A
Activation distance	30mm (magnet provided)
Working temperature	-40 to +85°C
Dimensions in mm	88x38x12
Fixing screws distance	69mm

Screw sensors with safety loop (Alarms)



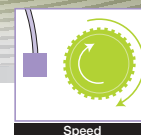
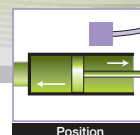
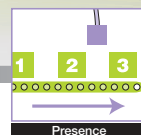
Product reference	PBA10010	PMG12482
Contact status	NO	NO
Connection type	cable + safety loop	cable + safety loop
Cable length	8m	8m
Max. switching power	12VA	12VA
Max. switching voltage	110VAC 200VDC	110VAC 200VDC
Max. switching current	0.4A	0.5A
Activation distance	16mm with P4160000	14mm with P6250000
Working temperature	-40 to +100°C	-25 to +85°C
Dimensions in mm	51x8.5x11.5	33x15x6.8
Fixing screws distance	40mm	17.5mm

UL approved sensors



Product reference	PLA10101U	PLA12435U	PLC12425U
Contact status	NO	NO	Change-over
Connection type	2 wires	2 wires	Cable
Cable length	400mm	350mm	106mm
Max. switching power	10VA	10VA	NF : 3VA NO : 8VA
Max. switching voltage	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC
Max. switching current	0.5A	0.4A	0.5A
Activation distance	10mm with P6250000	12mm with P6250000	10mm with P6250000
Working temperature	-40 to +85°C	-40 to +100°C	-25 to +85°C
Dimensions in mm	32x15x6.8		
Fixing screws distance	17.5mm		

REED MAGNETIC SENSORS



TUBULAR POSITION SENSORS

IoT Solutions

Connect our Reed sensors to a communication system so that they are autonomous and connected. (see page 41)

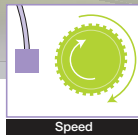
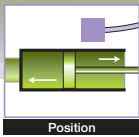
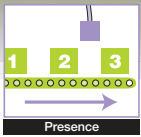
General use tubular sensors for industry and household use :

- Rabbit sensors
- Doors opening
- Protection cover presence
- Household appliances.

Product reference	PTA10440	PTA11235	PTA12401	PTA13730	PTA50010	PTB13702	PTC13730
Contact status	NO	NO	NO	NO	NO	NC	Change-over
Max. switching power	12VA	12VA	12VA	12VA	12VA	3VA	NC : 3VA NO : 8VA
Max. switching voltage	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC
Max. switching current	0.4A	0.4A	0.4A	0.4A	0.4A	0.25A	0.25A
Connection type	2 wires 500mm	Cable 3,5m	2 wires 100mm	2 wires 3m	2 wires 100mm	2 wires 200mm	Cable 3m
Activation distance with P6250000	7mm	15mm	14mm	10mm	18mm	14mm	7mm
Working temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Dimensions in mm	Ø6x30 Plastic	Ø6x30 Plastic	Ø6x30 Plastic	Ø6x30 Plastic	Ø6x25,2 Plastic	Ø6x30 Plastic	Ø6x30 Plastic

Product reference	PTA10490	PTPA0030	PTPA0100	PTPA0110	PTPA0230	PTPB0011
Contact status	NO	1NO	1NO	1NO	1NO	1NC
Max. switching power	10VA	12VA	12VA	12VA	12VA	12VA
Max. switching voltage	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC
Max. switching current	0.4A	0.5A	0.5A	0.5A	0.5A	0.5A
Connection type	2 wires 800mm	2 wires 3m	Connectors	Connectors	2 wires 3m	2 wires 80mm + FASTON
Activation distance	16mm with P6250000	12mm (magnet provided)	12mm (magnet provided)	consult us	30mm (magnet provided)	10mm (magnet provided)
Working temperature	-40 to +120°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Dimensions in mm	Ø6x41 Raw brass	Ø11x28 Plastic	Ø11x28 Plastic	Ø11x28 Plastic	Ø23x27 Plastic	Ø23x28 Plastic

REED MAGNETIC SENSORS



PTI M8 HOUSING

Typical applications :

- Speed sensors,
- Presence, position, clearance sensors.



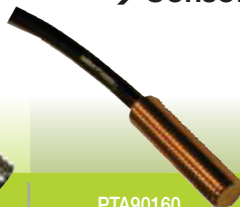
Product reference	PTI40003	PTI40020	PTI40030	PTI50020	PTIC0030	PTI10122	PTI60020	PTI70020
Contact status	1NO / A form	1NO / A form	1NO / A form	1NC / B form	Change-over / C form	1NO / A form	1NO / A form	1NC / B form
Max. switching power	12VA	12VA	12VA	5W	5W	10VA	12VA	5W
Max. switching voltage	110VAC 200VDC	110VAC 200VDC	110VAC 200VDC	110VAC 175VDC	175VDC	48VAC 100VDC	110VAC 200VDC	110VAC 175VDC
Max. switching current	0.5A	0.5A	0.5A	0.25A	0.25A	0.10A	0.5A	0.25A
Connection type	Cable 30cm	Cable 2m	Cable 3m	Cable 2m	Cable 3m	Cable 22m	Cable 2m	Cable 2m
Activation distance	12mm with magnet PT505000	12mm with magnet PT505000	12mm with magnet PT505000	7mm with magnet PT505000	15mm with magnet UR801000	12mm with magnet PT505000	12mm with magnet UR801000	7mm with magnet UR801000
Working temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Dimensions in mm	M8x1 - Lg 31 Plastic	M8x1 - Lg 31 Plastic	M8x1 - Lg 31 Plastic	M8x1 - Lg 31 Plastic	M8x1 - Lg 31 Plastic	M8x1 - Lg 40 Stainless Steel	M8x1 - Lg 40 Stainless Steel	M8x1 - Lg 40 Stainless Steel

PTA / PDC M10 HOUSING

Typical applications :

- Speed sensors,
- Presence, position, clearance sensors.

→ Sensors with M12 housing page 48



Product reference	PTA80020	PTA90160	PDC20030	PDLA2030	PTC10091
Contact status	1NO / A form	1NO / A form	Change-over / C form	Bistable / L form	Change-over / C form
Max. switching power	12VA	12VA	60VA	100VA	NC : 3W, NO : 8 W
Max. switching voltage	110VAC 200VDC	48VAC 100VDC	250VAC	250VAC	48VAC 100VDC
Max. switching current	0.5A	0.4A	1A	1A	0.25A
Connection type	Cable 2m	Cable 1.5m	Cable 3m	Cable 3m	Cable 100mm
Activation distance	25mm with magnet PT810000	12mm with magnet P6250000	20mm with magnet UR144360	30mm with magnet UP802008	20mm avec aimant UR124540
Working temperature	-25 to +70°C	-40 to +125°C	-40 to +75°C	-40 to +75°C	-25 to +85°C
Dimensions in mm	M10x1.5 - Lg 44.5 Stainless Steel	M10x1 - Lg 40 Raw brass	M10x1.5 - Lg 85.5 Plastic	M10x1.5 - Lg 85.5 Plastic	M8x1.25 - Lg 41 Raw brass

SENSORS FOR LIFTS

AND OTHER INDUSTRIAL APPLICATIONS

PC – M12 HOUSING



Typical applications :

- Lifts : sensors with 2 or 3 normally open contacts are used to detect the position of the cabin as well as automatic level reset according to the weight.
- Position / clearance sensors.

Product reference	PCA22330	PCA36720	PCC12320	PCC26720	PCLA3030	PC2A2330	PC3A2330
Contact status	1NO / A form	1NO / A form	Change-over / C form	Change-over / C form	Bistable / L form	2NO / A form	3NO / A form
Max. switching power	70VA	100VA	3VA	60VA	100VA	70VA	70VA
Max. switching voltage	300VAC	250VAC	100VAC	400VAC	250VAC	300VAC	300VAC
Max. switching current	0.5A	3A	0.25A	1A	3A	0.5A	0.5A
Connection type	Cable 3m	Cable 2m	Cable 2m	Cable 2m	Cable 3m	Cable 3m	Cable 3m
Activation distance	20mm with UR144361	15mm with UR144361	25mm with UR144361	18mm with UR144361	30mm with UP081508	20mm with UR144361	20mm with UR144361
Working temperature	-25 to +75°C	-25 to +75°C	-25 to +75°C	-25 to +75°C	-25 to +75°C	-40 to +75°C	-40 to +75°C
Dimensions mm	M12x1 L 80 Plastic housing						

Sensors with M12x1 L50 housing on request

SENSORS FOR LIFTS

- Detection of the lift position
- Doors opening control

celduc® relais offers a wide range of magnetic sensors for elevators with reed switches or "Electronic" magnetic sensors using an Hall effect cell or magneto resistance.

The magnetic field created by the permanent magnet, activates the sensitive part (the reed switch or the Hall effect cell or the magneto resistance). It is important to combine the magnet and sensor with consideration to the correct operating conditions (switching distance, presence of ferro-magnetic parts or non ferro-magnetic parts...).

celduc® relais is at your disposal to help you define the right products.

- Advantages :
- insensitive to the ambient working conditions (heat or cold air, humidity, dust...)
 - high reliability
 - large detection distance
 - good reliability to shocks and vibrations
 - IP67



Product reference	PMG12921	PMG12924	PMG12930S	PMG13051
Contact status	NO	NO	NO bistable	NC
Max. switching power	100VA	120VA	60VA	30VA
Max. switching voltage	230VAC	250VAC	110VAC 230VDC	110VAC 230VDC
Max. switching current	3A	3A	1A	0.5A
Connection type	7m	7m	7.3m	6.5m
Activation distance	27mm with UP302010	27mm with UP302010	7<D<40mm with UP302010	27mm with UP302010
Working temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Dimensions in mm	M14x75	M14x75	80x30x30	M14x75

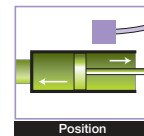
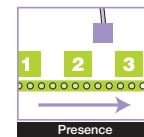
REED MAGNETIC SENSORS / HALL EFFECT

SENSORS FOR LAYOUT ON PCB

Reed switch proximity sensors in plastic housing, for PCB mounting with no risk of damage.



Product reference	PHA01200	PHA11200	PHC13700
Contact status	NO	NO	Change-over
Max. switching power	12VA	12VA	NC : 3VA / NO : 8VA
Max. switching voltage	48VAC 100VDC	48VAC 100VDC	48VAC 100VDC
Max. switching current	0.4A	0.4A	0.4A
Activation distance with U6250000	18mm	17mm	11mm
Working temperature	-40 to +100°C	-40 to +100°C	-40 to +100°C
Dimensions in mm	23x4.2x3.6	23x4.2x3.6	23x4.2x3.6



HALL EFFECT SENSORS

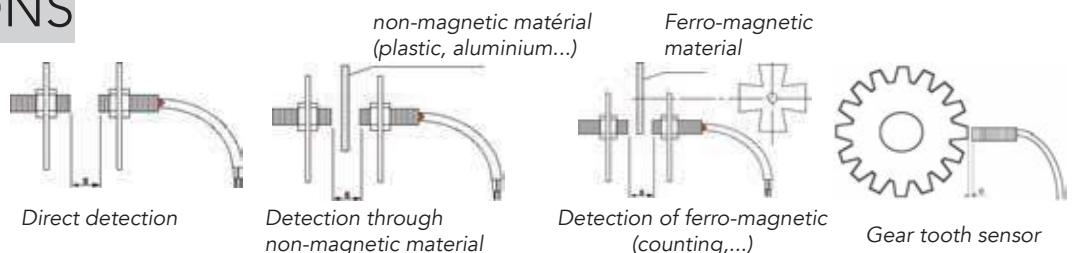
celduc® relais offers two ranges of electronical sensors :
 → Hall effect sensors
 → Gear tooth sensors.



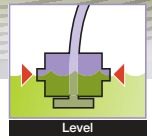
Product reference	PTE11320	PTE11321	PTE21320	PTE21321	PTE31320	PTE31321	PTE41320	PTE41321
Contact status	Hall effect PNP	Hall effect NPN	Gear tooth PNP	Gear tooth NPN	Hall effect PNP	Hall effect NPN	Gear tooth PNP	Gear tooth NPN
Cable length	cable 2m	cable 2m	cable 2m	cable 2m	cable 2m	cable 2m	cable 2m	cable 2m
Activation distance	19mm	19mm	1.5mm	1.5mm	17mm	17mm	1.5mm	1.5mm
Max. switching voltage	6-48VAC	6-48VAC	6-48VAC	6-48VAC	6-48VAC	6-48VAC	6-48VAC	6-48VAC
Max. switching current	0.4A	0.4A	0.4A	0.4A	0.4A	0.4A	0.4A	0.4A
Working temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
Dimensions in mm	Plastic housing M12x33				Raw brass housing M12x33			
Associated coded magnet	PT810000	PT810000			PT810000	PT810000		

APPLICATIONS

- Counting
- Industry
- Lift
- Speed sensors
- Household electrical appliances
- Tractors...



REED MAGNETIC SENSORS



LEVEL & FLOW SENSORS

IoT Solutions

Connect our Reed sensors to a communication system so that they are autonomous and connected. (see page 41)

celduc relais® offers a large range of standard or specific level and flow sensors using Reed switches. Our sensors are available in plastic, brass or stainless steel housing, making it possible to use them with various chemical substances and/or operating temperatures. With some sensors, it is possible to invert function by reversing the float or using the sensor upside down. Please see the data sheets for more details. For specific applications (e.g. potentiometric scale, special level sensors) do not hesitate to contact us : products can be developed on request.

(1) Possible to invert the functions by reversing the float
(2) Available in ATEX version (see page 53)



Product reference	PTF01070	PTFA1015	PTFA1103 (1) PTFA1104 (1)	PTFA5001 (1)	PTFA1210	PTFA2115(1)(2) PTFA2115R
Mounting	Vertically	Vertically	Vertically	Vertically	Vertically High and low level	Vertically
Contact status (float down)	1NO	1NO	1NC (PTFA1103) 1NO (PTFA1104)	1NC	1NO+NC	1NO
Connection type	2 wires 70mm	2 wires 1.5m	2 wires 300mm	Cable 2m	Cable (3 wires) 300mm	2 wires 1.5m
Material	Housing Polyamide 6/6 resin with glass fiber content		Polypropylene	Polypropylene	Polyamide	Stainless steel
	Float Polypropylene				Polyurethane	
Liquid compatibility	Water	Water	1	1	2	3
Float travel	10mm	17mm	9mm	10mm	48.5mm	8mm
Max. switching power	10VA	10VA	10VA	50VA	Top : 10VA Bottom : 3VA	50VA
Max. switching voltage	48VAC 100VDC	48VAC 100VDC	230VAC 350VDC	230VAC 350VDC	Top : 200Vdc Bottom : 100Vdc	230VAC 350VDC
Max. switching current	0.5A	0.5A	0.5A	0.5A	Top : 0.5A Bottom : 0.25A	0.5A
Density mini	0.8	0.75	0.7	0.9	0.6	0.75
Working temperature	0 / 70°C	0 / 70°C	-10 / 80°C	-10 / 80°C	-10 / 85°C	0 / 100°C
Thread	M8 x 1.25	3/8" threading UNC 1.588mm (16 per inch)	1/8" GAS (28 per inch)	M8 x 1.25	3/8" threading UNC 1.588mm (16 per inch)	M10 x 1

VERTICAL LEVEL SENSORS

LIQUIDS COMPATIBILITY

- 1** → Compatible with acid : acetic, citric, formic, lactic, nitric diluted, phosphoric, sulphuric diluted ; soda ; alcohols : ethanol, methanol, propanol ; glycol ; mineral oil ; water
→ Not compatible with the following solvents : chloroforme, methylene chloride, trichloroethylene, toluene ; hard acids.
- 2** → Compatible with fuels, engine oil, kerosene, lubricating oil, mineral oil, vegetal oil,
→ Not compatible with almost all acids, methylene chloride
→ Acceptable resistance to water.
- 3** → > Compatible with almost all the liquids except hard acids.

REED MAGNETIC SENSORS

WORKING PRINCIPLE

A float fitted with one or more magnets moves with the liquid and actuates, due to its magnetic field, a hermetically sealed reed contact located in the body of the float.

ADVANTAGES

The below advantages allow a safety use, repetitiveness, precision and minimum maintenance.

- One moving part.
- The Reed contact is actuated by a magnetic field only : no contact so no wear.
- The Reed contact is completely isolated from the liquid so perfectly waterproof.



HORIZONTAL LEVEL SENSORS	Product reference	PTFA0100	PTFA3115	PTFA3315 (2)	PTFA3415
	Mounting	Horizontally External mounting	Horizontally	Horizontally	Horizontally External mounting
	Contact status	1NO	1NO	1NO	1NO
	Connection type	2 wires 175mm + Molex connector	2 wires 1,5m	2 wires 1.5m	Cable 1.5m
	Material	Polyamide 30% glass fiber	Polyamide 30% glass fiber	Polypropylene	Polypropylene
	Liquid compatibility	2	2	1	1
	Float travel	50°	50°	50°	50°
	Max. switching power	10VA	50VA	50VA	50VA
	Max. switching voltage	110VAC 200VDC	230VAC 350VDC	230VAC 350VDC	230VAC 350VDC
	Max. switching current	0.5A	0.5A	0.5A	0.5A
	Density mini	0.6	0.6	0.6	0.6
	Working temperature	0 / 85°C	0 / 85°C	-10 / 100°C (wires/85°C)	-10 / 100°C (wires/85°C)
	Thread	Specific	Specific	M16 x 2	M16 x 2

FLOW SENSORS	Product reference	PTA10535	PTA10595
	Mounting	Horizontally Short paddle (Lg2= 57mm)	Horizontally Long paddle (Lg2= 77mm)
	Contact status	1NO	1NO
	Connection type	Cable 2m	Cable 2m
	Material	PPO (NORYL)	PPO (NORYL)
	Liquid compatibility	Water	Water
	Max. switching power	100VA	100VA
	Max. switching voltage	230VAC 350VDC	230VAC 350VDC
	Max. switching current	1A	1A
	Density mini	-	-
	Working temperature	0 / 80°C	0 / 80°C
	Thread	Specific	Specific

(2) Available in ATEX version (see page 53).

APPLICATIONS

HEATING (air-conditioning, heaters, humidifiers)

→ To detect the water level in the tank.

DOMESTIC EQUIPMENT (electronic flush, solar systems)

→ To detect the water level.

FOOD INDUSTRY (coffee machines, vending machines)

→ Check the level of water left in the tank.

MEDICAL EQUIPMENT (sterilising equipment for medical instruments)

→ Check level of water for steam or liquid detergent level.

WATER TREATMENT (water purifying, desalinating)

→ The sensors enable the reserve water level to be established.

SWIMMING POOLS (water treatment, water heating)

→ Water level and flow.

AUTOMOBILE (radiator liquids level, windscreen washer, engine oil level, brake oil level)

→ Detection of liquids levels.

VARIOUS INDUSTRIES (photo lab equipment, scrubber machines, fuel dispensing systems).



REED MAGNETIC SENSORS

SENSORS FOR WINDOW FRAMES

IoT Solutions

Connect our Reed sensors to a communication system so that they are autonomous and connected. (see page 41)

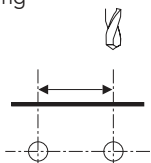
This new range has been developed to detect position of the window : open or closed (supervising of openings). Typical applications are alarm, heating, air-conditioning systems.

Main advantages are :

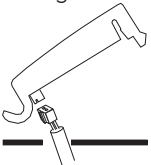
- Save time for mounting and wiring : pluggable connector, product to be clipped (no fixing screws)
- Normally open (NO), normally closed (NC), change-over contact, safety current loop
- Water-proof contact.

MOUNTING & WIRING TIMES MUCH SHORTER !

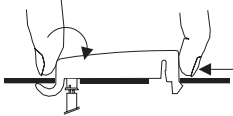
1 Drilling



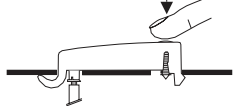
2 Connecting



3 Positioning



4 Locking



Product reference	PWA01501	PWB01501	PWA11500	PWB11500	PWC01500
Type of contact	NO	NC	NO + safety loop	NC + safety loop	Change-over
Contact status	Window open				
	Window open				
Connection type	Cable + PHR2 connector (not included)		Cable + PHR4 connector (not included)		
Cable length	Ref. 2YB20031 : 3m Ref. 2YB20051 : 5m Ref. 2YB20111 : 10m Ref. 2YB20131 : 13m Ref. 2YB20151 : 15m Ref. 2YB20251 : 25m		Ref. 2YB40080 : 8m		
Max. switching power	10VA				
Max. switching voltage	48VAC 100VDC				
Max. switching current					
Activation distance	Depend on the magnet - see technical data-sheet				
Working temperature	-40 to +70°C				
Dimensions (mm)	47.7 x 9.7 x 9.1				



Magnet PW520000
to be clipped



Magnet UR124540
to be screwed



Magnet UZ189538
to be glued



CONTROL MAGNETS

Range of standard permanent magnets used as actuators for our magnetic sensors. Our range of magnetic sensors with reed switches or "Electronic" magnetic sensors using a Hall effect cell should be actuated with the correct magnet. **celduc® relais** offers 3 families of magnets to be chosen according to the application (working temperature, geometry, resistance to corrosion).

Material	Max. operating temperature	Derating according to temperature (recoverable)	Resistance to corrosion		
Alnico	500°C	very low (-0.025% per °C)	Good resistance	generally supplied in bars which should have a length of minimum x4 the diameter	
Ferrite	250°C	high (-0.20% per °C)	Very good resistance	generally supplied in parallelepiped block, disc or ring	
Rare earth	Samarium Cobalt (SmCo)	250°C	low (- 0.04% per °C)	Very good resistance	generally supplied in blocks or granulates
	Neodymium Iron Bore (NdFeBo)	80 to 160°C (see data-sheets)	low (- 0.10% per °C)	Bad resistance (must have tin or nickel coating)	generally supplied in blocks or granulates

celduc® relais is at your disposal to help you define the correct magnet/sensor arrangement according to your needs / operating conditions.

COATED MAGNETS

Product reference	For sensors	Bare magnet dimensions in mm	Dimensions in mm	Fig n°
P0540000	PSC	Ø 5 x 20	51x16x7	1
PA320000	PA	Ø 3 x 20	23x15x6	2
P2000100	PXS	Ø 10 x 10	51x16x7	3
P3000100	PSS	Ø 3 x 4	51x16x7	1
P3150000	PA, PH, PL, PT	Ø 3x15	32x15x6.8	4
P4200000	PA, PH, PL, PT	Ø 4x20	32x15x6.8	4
P6250000	PA, PH, PL, PT	Ø 6x25	32x15x6.8	4
P4159000	PB or PLA	Ø 3x15	51.8x8.5x11.5	5
P4160000	PB or PLA	Ø 5x25	51.8x8.5x11.5	5
PT505000	PTI5 plastic	Ø 5x5	M8x1 Lg 31	6
PT810000	PTE	Ø 8x10	M12x1 Lg 31.2	7
PW520000	PWA, PWB, PWC	Ø 5x20	47.7x9.7x9.1	8



BARE MAGNETS

Product reference	Material	Dimensions in mm	Fig n°
U315P003	Alnico5	Ø 3x15	1
U4200000	Alnico5	Ø 4x20	1
U6250000	Alnico5	Ø 6x25	1
U8300000	Alnico5	Ø 8x30	1
UB105000	Alnico5	Ø 10x50	1
UF207760	Ferrite	20,5x7.7x6	2
UF221105	Ferrite	Ø 22x11x5	3
UF341605	Ferrite	Ø 34x16x5	3
UZ189538	Ferrite	18x9.5x3.8	2
UP051508	Plastoferrite	50x15x8	4
UP071508	Plastoferrite	70x15x8	4
UP102008	Plastoferrite	100x20x8	4
UP301508	Plastoferrite	300x15x8	4
UP302008	Plastoferrite	300x20x8	4
UR101000	NdFeBo	Ø 10x10	6
UR102540	NdFeBo	Ø 10x4x2.5	5
UR124540	NdFeBo	Ø 12x4x4.5	5
UR144361	NdFeBo	Ø 14x6x4.3	5
UR120500	NdFeBo	Ø 12x5	6
UR122000	NdFeBo	Ø 12x20	6
UR304000	NdFeBo	Ø 3x4	6
UR315000	NdFeBo	Ø 3x15	6
UR503000	NdFeBo	Ø 5x3	6
UR604010	NdFeBo	Ø 6x4	6
UR801000	NdFeBo	Ø 8x10	6



REED RELAYS & SWITCHES

Detection : Clearance, position, level, presence
Switching : Telecom, tester, measurement

REED SWITCHES & MERCURY TILT SWITCHES

Detecting a clearance, a position, a level in extrem environments without mechanical link between the moving parts and without maintenance, such is the daily challenge of the Reed contact submitted to a magnetic field in industrial sectors as various as money, space, control, telecom...

Product reference	Contact status	Max. switching voltage	Max. switching current	Max. switching power	Standard sensivity range	Glass length
AB21	1NO	350VDC	1A	100VA	20-35ATf	21mm
AC01		30VDC	0.01A	0.25VA	5-20ATf	6mm
AC03		100VDC	0.5A	12VA	10-35ATf	10mm
AC05		100VDC	0.5A	12VA	10-35ATf	14mm
AJ21		100VDC	0.4A	10VA	10-35ATf	14mm
AV10		750VDC	0.2A	50VA	80-130ATf	53.4mm
AD22		250VAC	1.3A	80VA	40-105ATf	52mm
AD28		250VAC	3A	120W	70-100ATf	50mm
AI44		200VDC	0.75A	30W	15-35ATf	20.5mm
CD30	Change-over switch	500VAC	3A	100VA	60-100ATf	34.3mm
CG21		100VDC	0.25A	NC 3W / NO 8W	15-35ATf	14.5mm
CG21V		100VDC	0.25A	NC 3W / NO 8W	15-35ATf	14.5mm "bent"
CS26		400VAC	1A	60W	55-100ATf	34.3mm



• Sensitivity to be specified in the order.

REED RELAYS IN DIP ENCLOSURE



The most popular and the most industrial of the range. It offers all contact combinations. It is designed to switch inputs of telephony levels or PLC, signals from sensors or safety components.

Internal scheme (top view)	Product reference	Contact status	Characteristics of the switch			Characteristics of the coil		Specifications	Dimensions in mm
			Max. switching voltage	Max. switching current	Max. switching power	Nominal voltage	R. coil at 20°C		
	D31A3100	1NO	100VDC	0.5A	10VA	5VDC	500 Ω	-	19.1x6.6x6.4
	D31A3110		100VDC	0.5A	10VA	5VDC	500 Ω	diode	
	D31A5100		100VDC	0.5A	10VA	12VDC	1 kΩ	-	
	D31A7100		100VDC	0.5A	10VA	24VDC	2150 Ω	-	
	D31A7110		100VDC	0.5A	10VA	24VDC	2150 Ω	diode	
	D31B3100	1NC	100VDC	0.5A	10VA	5VDC	500 Ω	diode	19.1x6.6x6.4
	D31B5100		100VDC	0.5A	10VA	12VDC	500 Ω	diode	
	D31C2100		100VDC	0.25A	3VA	5VDC	200 Ω	-	
	D31C2110		100VDC	0.25A	3VA	5VDC	200 Ω	diode	
	D31C5100		100VDC	0.25A	3VA	12VDC	500 Ω	-	
	D31C5110	Change-over	100VDC	0.25A	3VA	12VDC	500 Ω	diode	19.1x6.6x6.4
	D31C7100		100VDC	0.25A	3VA	24VDC	2150 Ω	-	
	D31C7110		100VDC	0.25A	3VA	24VDC	2150 Ω	diode	
	D32A3100		100VDC	0.5A	10VA	5VDC	200 Ω	-	
	D32A3110		100VDC	0.5A	10VA	5VDC	200 Ω	diode	
	D32A5100	2NO	100VDC	0.5A	10VA	12VDC	500 Ω	-	19.1x6.6x6.4
	D32A5100A		100VDC	0.5A	10VA	12VDC	500 Ω	-	
	D32A7100A		100VDC	0.5A	10VA	24VDC	2150 Ω	-	
	D71A2100		100VDC	0.5A	10VA	5VDC	380 Ω	-	
	D71A2110		100VDC	0.5A	10VA	5VDC	380 Ω	diode	
	D71A5100	1NO	100VDC	0.5A	10VA	12VDC	530 Ω	-	19.1x6.6x5.5

REED RELAYS IN SIP ENCLOSURE

Relays for high density component circuits : alarms, testers, industrial control.



Internal scheme (top view)	Product reference	Contact status	Characteristics of the switch			Characteristics of the coil		Specifications	Dimensions in mm
			Max. switching voltage	Max. switching current	Max. switching power	Nominal voltage	R. coil at 20°C		
	D41A5100L	1 NO	100VDC	0.5A	10VA	12VDC	1 kΩ	diode	19x(5 ou 6)x7.5

REED RELAYS & SWITCHES

The products on this page do not reflect the full expanse of our range and possibilities. Please do not hesitate to contact us if you find that the product does not meet your needs.

HIGH VOLTAGE RELAY

Dielectric strength between contacts > 10KVDC and 14VDC between coil and contact.





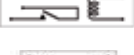
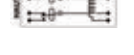



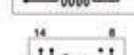
Product reference	Contact status	Max. switching voltage	Max. switching current	Max. switching power	Nominal voltage	R. coil at 20°C	Specifications	Dimensions in mm
R1329L00	1NO	7500VDC	0.2A	50VA	12VDC	300 Ω	without fixing screw	65x15.2x16.9
R1329L87		7500VDC	0.2A	50VA	12VDC	300 Ω		
R1343L00		7500VDC	0.2A	50VA	24VDC	1200 Ω		
R1343L13		5000VDC	0.2A	50VA	24VDC	1200 Ω		

REED F & R RELAY RANGE


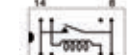
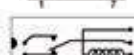
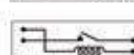






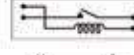


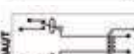

Relays with ferro-magnetic shield in for telecom type applications.



Internal scheme (top view)

Product reference	Contact status	Characteristics of the switch			Characteristics of the coil		Specifications	Dimensions in mm
		Max. switching voltage	Max. switching current	Max. switching power	Nominal voltage	R. coil at 20°C		
 F51A5100	1NO	250VDC	0.4A	14VA	12VDC	2145 Ω	comes in coated version réf. F81Ax100	30x9.5x10
 F81A5500		500VDC	1A	50VA	12VDC	1000 kΩ		
 F81A7500	1NO	500VDC	1A	50VA	24VDC	2300 Ω	Position vertically	30x9.5x10
 F61A2100		250VDC	0.4A	14VA	5VDC	345 Ω		
 F61A7100		250VDC	0.4A	14VA	24VDC	7845 Ω		
 F72C2500		500VDC	1A	50VA	5VDC	75 Ω		
 F72C5500	2 mercury wetted change-over switch	500VDC	1A	50VA	12VDC	350 Ω	Position vertically	30x16.5x11
 F72C7500		500VDC	1A	50VA	24VDC	1350 Ω		



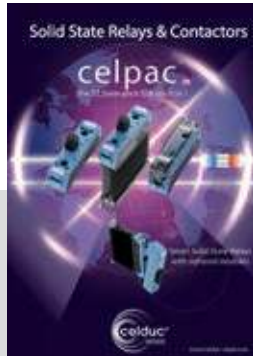
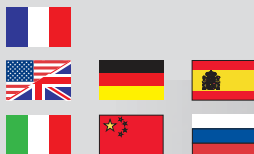
Product reference	Contact status	Characteristics of the switch			Characteristics of the coil		Specifications	Dimensions in mm
		Max. switching voltage	Max. switching current	Max. switching power	Nominal voltage	R. coil at 20°C		
 R0292B00	1NO	100VDC	0.4A	12VA	4VDC	250 Ω	-	23x7.5x6.7
 R0293B08		100VDC	0.4A	12VA	5VDC	450 Ω		
 R0294B08		100VDC	0.4A	12VA	12VDC	1600 Ω		
 R0550B08	1NO	100VDC	0.4A	12VA	4VDC	500 Ω	DIL layout	20.2x10.1x7.2
 R0251W00	change-over	100VDC	0.25A	3VA	6VDC	150 Ω	-	23x7.5x6.7
 R0252W00		100VDC	0.25A	3VA	12VDC	500 Ω		
 R0253W00		100VDC	0.25A	3VA	24VDC	1800 Ω		
 R0115S06	1NO	250Veff	3A	100VA	6VDC	250 Ω	step 5,08	65x15,5x16
 R0116S06		250Veff	3A	100VA	12VDC	1000 kΩ		
 R0117S06		250Veff	3A	100VA	24VDC	4 kΩ		
 R0542B08	1NC	100VDC	0.4A	12VA	4VDC	200 Ω	DIL layout	20.2x10.1x7.2
 R0543B08		100VDC	0.4A	12VA	5VDC	200 Ω		
 R0861P12	mercury wetted change-over switch	500VDC	2A	100VA	5VDC	335 Ω	position vertically	40.8x14.2x10.4
 R0761P00		500VDC	2A	100VA	24VDC	2650 Ω		
 R0866P00	2 mercury wetted change-over switch	500VDC	2A	100VA	5VDC	125 Ω	position vertically possible C.O.T	40.8x19.8x10.4

CATALOGUES AND LEAFLETS AVAILABLE ON REQUEST

CATALOGUES AND GENERAL INFORMATION LEAFLETS



Product Guide



Single-phase solid state relays & contactors celpac range



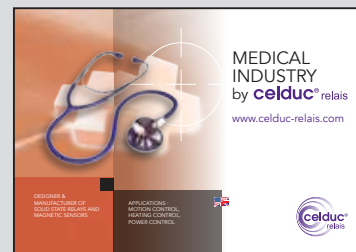
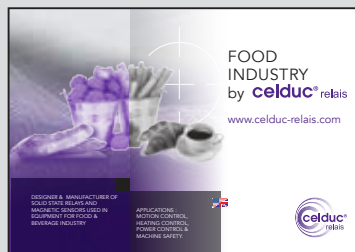
Three-phase solid state relays & contactors cel3pac & sightpac ranges



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