




Tel +31(0)85-27 36 750
 Fax +31(0)85-27 36 760
 Web www.inrato.com

EMERGENCY STOP
 Suitable for monitoring emergency stop buttons. Duelco has a wide range of relays for 1-channel operation, 2-channel operation and 2-channel operation with short-circuit monitoring respectively.










DOOR MONITORING
 Suitable for monitoring door contacts. Opening or closing of the door activates a forced contact, which provides a stop signal via the Duelco safety module.

LIGHT CURTAIN
 Suitable for monitoring safety light curtains or light barriers, both for safety category 2 and 4. Duelco has modules in both 22,5 and 45 mm housing width with different reset types.

SAFETY MAT / SAFETY EDGE
 Suitable for monitoring safety mats and safety edges. As long as the switch is held down by the operator, the machine cannot start. When released, the signal to the safety module is cut off.

NON-CONTACT SWITCHES
 Suitable for monitoring non-contact switches for doors and gates. When the door opens or is removed, the magnetic contact is activated, which provides a stop signal via the Duelco safety-module.

TWO HAND CONTROL
 Two hand control module suitable for push buttons such as the Duelco TST-4 hand sensor actuator or mechanical buttons. Two hand operations forces the operator to activate the machine with both hands.

	EMERGENCY STOP RELAYS AND EXTENSION MODULES						TWO-HAND MODULE	HAND SENSOR ACTUATOR	TWO HAND PANEL	STANDSTILL MONITORING
	NST-3.2	NST-2004	NST-2007	NST-2008	NST-2009	EU-2001	HR-2007	TST-4	PCB3	SSO-2010
APPLICATIONS										
 Emergency stop	•	•	•	•	•	•				Option:  Duelco stand PRB05 for PCB3 panels.
 Door monitoring		•	•	•	•	•				
 Safety mat/edge										
 Light curtain		•				•				
 Non-contact switches		•		•	•	•				
 Two hand control							•			
SAFETY CATEGORY										
PL, EN ISO 13849-1	d	e	e	e	e	e	e	e		e
Category, EN ISO 13849-1	3	4	4	4	4	4	4	IIIC, EN 574		4
DIMENSIONS										
width (mm)	22,5	22,5	22,5	22,5	35	22,5	22,5	Built-in = Ø 50mm; Touch = Ø 59,5mm	480 x 161 x 172	45
RESET TYPES AND TEST										
Automatic/manual	•	•	•	•	•	•				
Monitored						•				
Manual monitored		•								
NUMBER OF OUTPUTS										
 Safety outputs NO	3	3	3	3	2	4 (EU-2001)	2	2		2
 Delayed safety outputs NO						2				
 Signal output NC	1	1 (option)	1	1	1		1	1		1
 Transistor (signal)		1 (option)					1	1		
 Current limited power outlet		< 70 mA / 420 mA		< 100 mA						
LOAD										
Max. load, output	6A AC / 6A DC	6A AC / 6A DC	6A AC / 6A DC	6A AC / 6A DC	5A AC / 5A DC	6A AC / 6A DC	6A AC / 6A DC	TST-4: 0,1ADC		10A AC / 5A DC
ORDER INFORMATION										
12 V DC	42042228									42800005 (inclusive push buttons and emergency stop button)
24 V DC		42010204 (F) 42011204 (D)		42080010 (F)	42080021 (D)	42022001		42000010		42800007 (inclusive push buttons and emergency stop button + 4 holes)
24 V AC/DC	42042248						42080030			42800010 (stand for PCB3 panel)
8-36 V DC	42042237	42010205 (F)								42800011 (stand with base plate for foot control units)
230 V AC		42012301 (F)	42080003				42080031			

F = Fixed terminals
 D = Detachable terminals



duelco
SAFETY solutions

Safety relays



The standard in safety technology

IT PAYS TO USE SAFETY TECHNOLOGY

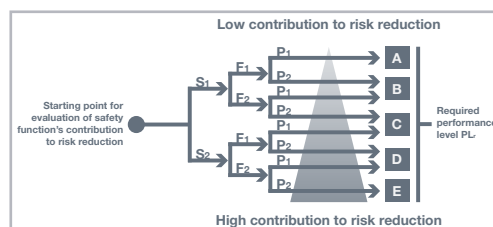
The protection of man and machine through the targeted control of hazardous movements, cost savings thanks to fewer accidents, reduced downtimes and fewer production losses – these are some of the real benefits that you can enjoy when you use Duelco safety components.

SAFETY RELAYS FROM DUELCO

Our safety relays comply with international standards and regulations. Our safety relays mostly have been approved by BG, TÜV or another notified body and offers users considerable benefits. Long service life and high availability ensure it is cost-effective to use.

EN ISO 13849-1

As the successor standard to EN 954-1, EN ISO 13849-1 is based on the familiar categories. Equally, it examines complete safety functions, including all the components involved in their design. EN ISO 13849-1 goes beyond the qualitative approach of EN 954-1 to include a quantitative assessment of the safety functions. A performance level (PL) is used for this, building upon the categories.



Risk analysis in accordance with EN 13849-1

SAFETY ASSESSMENT IN ACCORDANCE WITH EN/IEC 62061

According to the standard EN/IEC 62061, safety requirements in control technology can be divided into safety integrity levels. SIL 3 represents the highest risk reduction and protection level, where the safety function must always be maintained. The risk is estimated through consideration of the severity of injury (Se), the frequency and duration of exposure to the hazard (Fr), probability of occurrence of a hazardous event (Pr) and the possibility of avoiding or limiting the harm (Av).

Consequences	Class CL = Fr + Pr + Av					
	SE	3-4	5-7	8-10	11-13	14-15
Death, losing an eye or arm	4	SIL 2	SIL 2	SIL 2	SIL 3	SIL 3
Permanent, losing fingers	3		OM	SIL 1	SIL 2	SIL 3
Reversible, medical attention	2			OM	SIL 1	SIL 2
Reversible, first aid	1				OM	SIL 1

Risk assessment and definition of the required safety integrity level (SIL)

Made in Denmark



Ever since Duelco A/S started in 1974, our aim has been to provide good service with a high standard of technical know-how, high quality products and top-line supply capability. In other words we want to become an excellent partner for our customers when it comes to competent, innovative and overall economic solutions.

Through more than 30 years Duelco A/S has been working with machine safety. To a great extent this is due to the fact that we still are the only Danish producer of safety relays, which are exported worldwide.

Duelco's strength consists of the comprehensive "know-how" in design philosophy and requirements of standards, which are translated into market conforming products in our development - and design department. Fertile teamwork with customers and distributors has shown us the way to products specifically suited to customer needs. Duelco has specialized itself in easy understandable safety relays

for diverse application. Special low voltage versions are unique and can not be found elsewhere on the market. Duelco's department in Sønderborg provides the foundation for design and development of new safety relays and support for both export customers and distributors as well as our Danish customers.

The testing department has an essential function in the daily development of new relays, not least because the products must contribute to high levels of personal safety. The testing department creates the framework for developing reliable relays of the highest quality by virtue of demanding test procedures and long-term tests. New ideas for future relay designs must be put to the test in the testing department as well. During the production of the relays by sub-suppliers, every single relay goes through a comprehensive function test. All our subcontractors are carefully selected according to the highest quality criteria's in accordance with ISO 9001.



- DENMARK**
 Headquarters Duelco A/S
 Systemvej 8 | DK-9200 Aalborg
 Tel. +45 7010 1007 | Fax: +45 7010 1008
 info@duelco.dk | www.duelco.dk
- AUSTRALIA**
 Colterlec Pty. Ltd.
 Unit2, 106 Beaconsfield St. Silverwater NSW 2128
 Tel. (+61) 1300 656 090 | Fax: (+61) 1300 731 331
 E-mail: sales@colterlec.com.au | www.colterlec.com.au
- BELGIUM**
 Inrato International
 Johannes Postweg 4 | NL-8309 PE Tollebeek
 Tel. (+31) 85 27 36 750 | (+31) 85 27 36 760
 E-mail: info@inrato.com | www.inrato.com
- BRASIL**
 Produtos Eletronicos Metalax Ltda
 Rua Jose Rafaele, 221
 São Paulo - SP - Brasil, CEP 04763-280
 Tel. (+55) (11) 5683 5700
 E-mail: metalax@metalax.com.br | www.metalax.com.br
- CHINA**
 OEM Trading (Shanghai) Co., Ltd. Room 1117
 Huailin China Tower | 895 Renmin Road | Shanghai 200010
 Tel. (+86) (021) 3307 0588 EXT 202 | Fax: (+86) (021) 3307 0303
 E-mail: info@oemtrading.com.cn
- CZECH REPUBLIC & SLOVAKIA**
 OEM Automatic spol.s.r.o.
 Pražská 239 | 250 66 Zábřeh
 Tel. (+420) 241 484 940 | Fax: (+420) 241 484 941
 E-mail: info@oem-automatic.cz | www.oem-automatic.cz
- ENGLAND**
 OEM Automatic Ltd
 Whiteacres, Cambridge Road + Wheelstone + Leicester LE8 6ZG
 Tel. (+44) 116 2849900 + Fax: (+44) 116 2841721
 E-mail: information@uk.oem.se + www.oem.co.uk
- ESTONIA**
 OEM EESTI OÜ
 Põlmu mnt. 139d/1 | 11317 Tallin
 Tel. (+372) 6550871 | Fax: (+372) 6550873
 E-mail: info@oem.ee
- FINLAND**
 OEM Finland OY
 Fiskarsinkatu 3 | 20750 Turku
 Tel. (+358) 207499499 | Fax: (+358) 207499456
 E-mail: info@fi.oem.se | www.oem.fi
- FRANCE**
 JLP Automatismes
 Rue de la Télématique | BP-781 | 42951 Saint Etienne cedex 9
 Tel. (+33) 477935858 | Fax: (+33) 477930368
 E-mail: info@jpautomatismes.fr | www.jpautomatismes.fr
- GERMANY**
 HUET Automatisierung & Humedical
 Kaiserstr.161 | D-76133 Karlsruhe
 Tel. (+49) (0) 721-1566533 | Fax: (+49) (0) 721-2039950
 E-mail: info@huet-automatisierung.de | www.elobau.com
- HOLLAND**
 Inrato International
 Johannes Postweg 4 | NL-8309 PE Tollebeek
 Tel. (+31) 85 27 36 750 | (+31) 85 27 36 760
 E-mail: info@inrato.com | www.inrato.com
- HUNGARY**
 Conpart Kft.
 9012 Győr | Zsigmond kir. út 1
 Tel. (+36) 96618790 | Fax: (+36) 96310152
 E-mail: info@conpart.hu | www.conpart.hu
- ICELAND**
 Samey HF
 Lyngás 13 | 210 Gardabær
 Tel. (+354) 510 5200 | Fax: (+354) 510 5201
 E-mail: samey@samey.is | www.samey.is
- INDIA**
 Sartron Systems India
 301-302, Vikas Surya Plaza | Commercial Complex,
 Block-CU | Pitam Pura, Delhi-110034
 Tel. (+91) 9812823833
 E-mail: info@sartronindia.in | www.sartronindia.in
- IRELAND**
 Automation Direct Ltd.
 10 Dunsoghly Park | Rathoath Rd | Dublin 11
 Tel. (+00353) 01 8142974 | Fax: (+00353) 01 8645184
 E-mail: info@switchingdevices.eu | www.switchingdevices.eu
- ITALY**
 MasAutomazione S.r.l.
 Via G. Galilei, 20 | 20090 Segrate (MI)
 Tel. (+39) 0226922090 | Fax: (+39) 022135420
 E-mail: info@masautomazione.it | www.masautomazione.it
- MEXICO**
 IAESYESA
 Cerro del Mirador 1302 | 66058 Escobedo, NL
 Tel. (+52) 018189012331 | Fax: (+52) 018147375253
 E-mail: info@iaesyesa.com | http://www.iaesyesa.com
- NEW ZEALAND**
 Electropar Limited
 PO. Box 58623 | 35 Lady Ruby Drive, East Tamaki
 Tel. (+64) 92742000 | Fax: (+64) 92742001
 E-mail: mail@electropar.co.nz | www.electropar.co.nz
- NIGERIA**
 Paasam Technical Services
 NO. 6 KAREEM BANKOLE STREET, OFF CANDOS ROAD
 BARLUMA-IPAJA | LAGOS
 Tel. (+234) 8028424702 | Fax: (+234) 1-6602914
 E-mail: paasamtech@gmail.com | www.paasamtech.com
- NORWAY**
 OEM Automatic AS
 Bjørnsterne Bjørnsternegate 110 | 3044 Drammen
 Tel. (+47) 32210505 | Fax: (+47) 32210501
 E-mail: post@oem.no | www.oem.no
- PAKISTAN**
 A.R. Sultan Ahmed & Co.
 9- Quetta Walla Building | M.A. Jinnah Road | Karachi 74000
 Tel. (+92) 21 3 2410747 | Fax: (+92) 21 3 2418140
 E-mail: dattary18@gmail.com
- POLAND & UKRAINE**
 CONTEC Sp. z o.o.
 ul. Lipowa 7 | 62-052 Komorniki
 Tel. (+48) 618108350 | Fax: (+48) 618108445
 E-mail: contec@contec.net.pl | www.contec.net.pl
- SOUTH AMERICA EXCL. MEXICO**
 Produtos Eletronicos Metalax Ltda
 Rua Jose Rafaele, 221
 São Paulo - SP - Brasil | CEP 04763-280
 Tel. (+55) (11) 5683 5700
 E-mail: metalax@metalax.com.br | www.metalax.com.br
- SPAIN**
 Star Automation S.L.
 C/ Can Ribes nº 6, Pl. Congost
 08520 Les Franqueses del Valles, Barcelona
 Tel. (+34) 938403217 | Fax: (+34) 938464101
 E-mail: info@starautomation.es | www.starautomation.es
- SWEDEN**
 TR Electronic Sweden AB
 Enybergsvägen 10 B | 182 36 DANDERYD
 Tel. (+46) 8 756 72 20 | Fax: (+46) 8 756 76 80
 E-mail: info@trelectronic.se | www.trelectronic.se
- SWITZERLAND**
 Bachofen AG
 Bachofenstrasse 42 | 8610 Uster
 Tel. (+41) 449441111 | Fax: (+41) 449441233
 E-mail: sg@bachofen.ch | www.bachofen.ch
- TAIWAN**
 Chinguan Enterprise Co. Ltd
 8F, No 536, Sec4 Win-Sin | Rd 406 Taichung R.O.C.
 Tel. (+886) 4 22336838 | Fax: (+886) 4 22336836
 E-mail: info@chinguan.com.tw | www.chinguan.com.tw
- TURKEY**
 Boşgem Otomasyon
 Mehmet Akif Mah. Emir Sok. | No:29 D:3 34775
 Ümraniye - İst.
 Tel. (+90) 216 466 14 40 | Fax: (+90) 216 466 14 41
 E-mail: info@bosgem.com | www.bosgem.com
- USA**
 EMS Controls Inc.
 1324 Mineo Drive | Punta Gorda | FL 33950 Florida
 Tel. (001) 9414210238 | Fax: (001) 3054158317
 E-mail: info@switchingdevices.com | www.emscontrols.com

Duelco A/S - Aalborg Systemvej 8 DK-9200 Aalborg SV
 Duelco A/S - Sønderborg Mommarkvej 5 DK-6400 Sønderborg
 Tel. +45 7010 1007
 Fax: +45 7010 1008
 www.duelco.dk
 info@duelco.dk