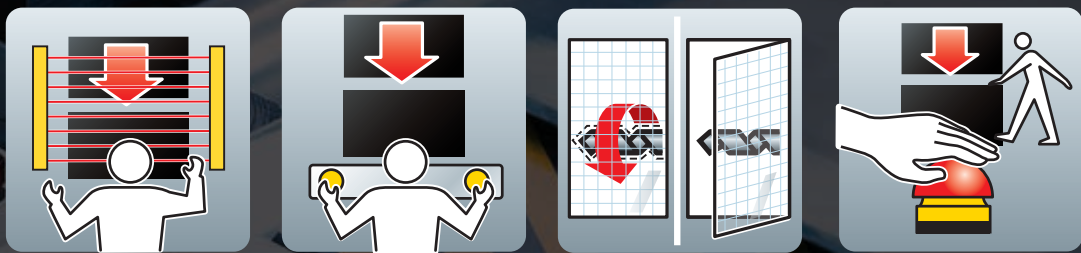


Safe Switching with Safe Contactors

DILMS / XTSE Safety Contactors

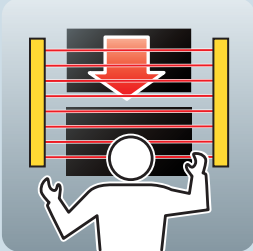


EATON

Powering Business Worldwide

The DILMS / XTSE Safety Contactor is Safe, Proven and Stands out

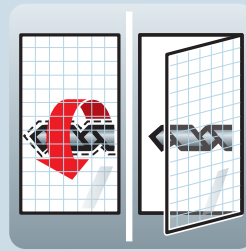
The auxiliary contact blocks of Eaton's DILMS / XTSE safety contactor are now permanently front-mounted. Their conspicuous yellow color make them highly visible and easily identifiable.



Monitoring of open hazardous areas through light curtains



Safe operation with two-hand control



Monitoring of movable guards via guard monitoring without interlock/guard locking



Emergency-stop circuits

Safety first!

Eaton's DILMS / XTSE safety contactor is the reliable choice for safety-relevant applications. In these applications, user safety is always the most important aspect.

By combining a proven technology with the most up-to-date safety standards, the DILMS / XTSE safety contactor is the right choice for any installation.

Features

All versions of the DILMS / XTSE safety contactor are equipped with a top-mounted auxiliary contact that is non-detachable. The integrated mirror contacts and interlocked opposing contacts make this contactor even safer.

The contactor's yellow cover allows for quick and easy identification. The built-in inspection window directly above the switch-position indicator makes it possible to monitor the operating status at any point in time. This reliably prevents the contactor from being activated manually.

Comprehensive & Targeted

The DILMS / XTSE range of contactors comprises four different sizes and covers the power range between 7 and 150 A. The DILAS / XTSRE safety relay, available in three different coil voltages, rounds out Eaton's product range in this area.

The following drive options are available:

1. 110V 50Hz, 120V 60Hz
2. 24VDC (RDC24)

The safety contactors have been approved and certified for global use (including CE, UL, CSA, and SUVA certification).

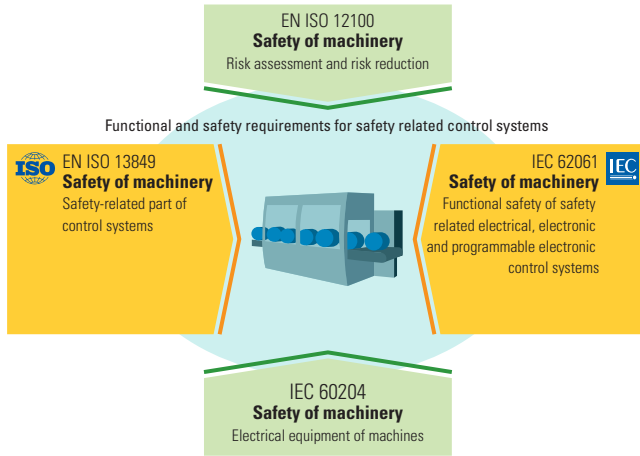


At a Glance

- Safe status monitoring of the contactor (inspection window) manual activation is not possible
- Eligible to be used for Emergency-stop application with controlled start (category 4)
- Reliable and self-monitoring machine-control circuits
- Interlocking opposing contacts, in line with IEC 60947-5-1, Annex L
- Mirror contacts in line with IEC 60947-4-1, Annex F
- Highlighted in yellow (RAL1004)
- Reliable screw terminals
- Top-mounted and non-detachable auxiliary contact (at the front)
- SUVA - Certified

Safety Applications

Example Applications and safety related characteristics



Functional safety

During its entire life cycle a machine poses danger to man, machine and environment. It is therefore necessary to identify these dangers already when the machine is designed and reduce them by means of suitable measures.

The EU Machinery Directive 2006/42/EC stipulates that a machine should not pose any danger. However, as there is no 100% safety in engineering, the aim is to reduce these dangers to a tolerable level or residual risk by means of risk reduction measures.

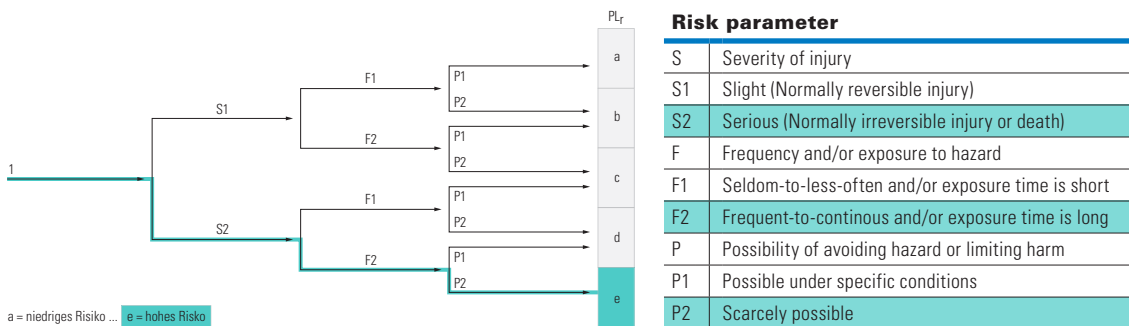
- The overall safety of a machine defines the state in which it can be considered as being free of unwarranted risks to persons or as free of danger
- The functional safety is part of the overall safety of a system which depends on the correct functioning of the safety related systems, other technology and external risk reduction facilities

3 Stages to reduce the risk of a machine

Risk parameters to determine the required PL are the severity of injury, the frequency and/or exposure to hazard and the possibility of avoiding hazard or limiting harm in accordance to EN ISO 13849-1.

The SIL performance is driven by the frequency and duration, the probability of hazard and the avoidance resulting in the risk class CL.

Performance Level ISO EN 13849-1



Safety Integrity Level IEC 62061

Frequency and duration, Fr		Probability of hzd. event, Pr		Avoidance, AV		Class CL
≤1 hour	5	Very high	5			
> 1h - ≤2 days	5	Likely	4	Impossible	5	
> 2 days - ≤2 weeks	4	Possible	3	Possible	3	
> 2 weeks - ≤1 year	3	Rarely	2	Likely	1	
> 1 year	2	Negligible	1			

The result in the example is SIL 3:

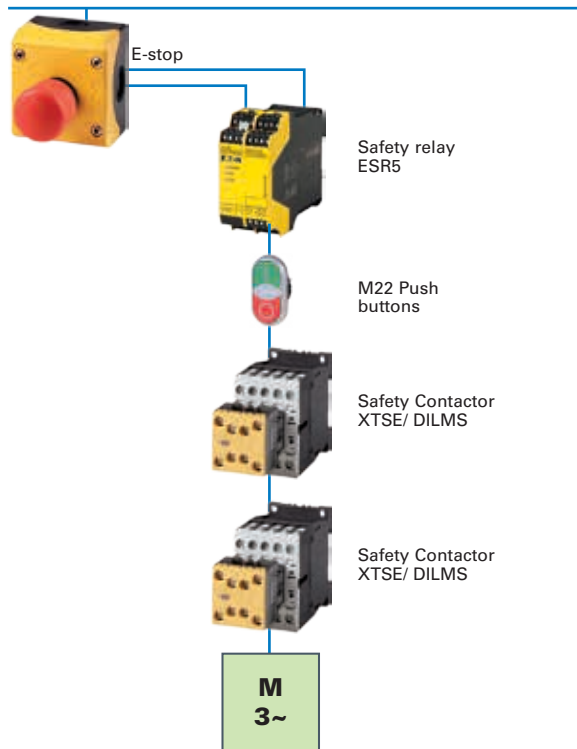
Consequences	Severity	Class Cl				
		3-4	5-7	8-10	11-13	14-15
Death, losing an eye or arm	4	SIL2	SIL2	SIL2	SIL3	SIL3
Permanent, losing fingers	3		AM	SIL1	SIL2	SIL3
Reversible, medical attention	2			AM	SIL1	SIL2
Reversible, first aid	1				AM	SIL1

Safety Applications

Example Applications and safety related characteristics

Sample Application

Emergency Stop dual channel with safety relay ESR5



Safety related characteristics

Independent of the application, safety related characteristics of the components are necessary to calculate the Performance Level or Safety Integrity Level. Tools like SISTEMA from the Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA) provide assistance in the evaluation of safety-related control components and simplifies risk assessment analysis. Applicable values for safety contactors are B10/ B10d.

The Eaton safety contactors provide up to 1.3/ 1.7 million switching cycles until 10% of tested and worn components have failed.

Cat	B	1	2	3	4
PL	a	b	c	d	e
SIL	1	2	3		

Type	En ISO 13849-1 B10d	EN 62061 B10
DILMS7-12/XTSE007B-012B	1.782.229	1.336.672
DILMS17-32/XTSE018C-032C	966.617	724.963
DILMS40-65/XTSE040D-065D	1.341.161	1.005.871
DILMS80-95/XTSE080F-095F	1.058.707	772.856
DILMS115-150/XTSE115G-150G	1.705.268	1.278.951



Safety Technology

Control the unexpected

Fast and secure detection




Safe monitoring and processing







Reliable shutdown





Safety contactor relay	Conventional thermal current	Rated operational current AC-15 I e [A]			Aux. contacts	Coil voltage 110V 50Hz, 120V 60Hz	Coil voltage 24V DC
	I th [A]	220 - 240V	380 - 415V	500V		Eaton catalog number	Eaton catalog number
	16	4	4	1.5	4NO, 4NC	XTSRE10B44A	XTSRE10B44TD
	16	4	4	1.5	3NO, 3NC + 1NO, 1NC ¹⁾	XTSRE10BE44A	XTSRE10BE44TD

Safety contactor	Horse power rating 3-phase [hp]				Aux. contacts	Coil voltage 110V 50Hz, 120V 60Hz	Coil voltage 24V DC
	200/208V	230/240V	460/480V	575/600V		Eaton catalog number	Eaton catalog number
	1 1/2	2	3	5	2NO, 3NC	XTSE007B23A	XTSE007B23TD
	3	3	5	7 1/2	2NO, 3NC	XTSE009B23A	XTSE009B23TD
	3	3	10	10	2NO, 3NC	XTSE012B23A	XTSE012B23TD
	1 1/2	2	3	5	1NO, 2NC + 1NO, 1NC ¹⁾	XTSE007BE23A	XTSE007BE23TD
	3	3	5	7 1/2	1NO, 2NC + 1NO, 1NC ¹⁾	XTSE009BE23A	XTSE009BE23TD
	3	3	10	10	1NO, 2NC + 1NO, 1NC ¹⁾	XTSE012BE23A	XTSE012BE23TD
	5	7 1/2	10	15	2NO, 3NC	XTSE018C23A	XTSE018C23TD
	7 1/2	7 1/2	15	20	2NO, 3NC	XTSE025C23A	XTSE025C23TD
	10	10	20	25	2NO, 3NC	XTSE032C23A	XTSE032C23TD
	5	7 1/2	10	15	1NO, 2NC + 1NO, 1NC ¹⁾	XTSE018CE23A	XTSE018CE23TD
	7 1/2	7 1/2	15	20	1NO, 2NC + 1NO, 1NC ¹⁾	XTSE025CE23A	XTSE025CE23TD
	10	10	20	25	1NO, 2NC + 1NO, 1NC ¹⁾	XTSE032CE23A	XTSE032CE23TD
	10	15	30	40	2NO, 2NC	XTSE040D22A	XTSE040D22TD
	15	20	40	50	2NO, 2NC	XTSE050D22A	XTSE050D22TD
	20	25	40	60	2NO, 2NC	XTSE065D22A	XTSE065D22TD
	25	30	60	75	2NO, 2NC	XTSE080F22A	XTSE080F22TD
	25	40	75	100	2NO, 2NC	XTSE095F22A	XTSE095F22TD
	40	50	100	125	2NO, 2NC	XTSE115G22A	XTSE115G22TD
	40	60	125	125	2NO, 2NC	XTSE150G22A	XTSE150G22TD

1) 1NO1NC Electronic compatible



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