

TeSys IEC Contactors and Overload Relays

Making High-Fault Short-Circuit Current Ratings Simple

Schneider Electric is an industry leader in **IEC contactors and overload relays**, and is recognized as the market leader in quality, durability, and product development.

TeSys K and D Contactors



The latest development in the TeSys™ family of IEC contactors and overload relays is component high-fault short-circuit current ratings (SCCRs).

SCCRs identify the level of fault current that a component or assembly can safely withstand. Without knowing the available fault current and SCCR, it is impossible to determine if components or equipment can be safely installed.

The new high-fault component SCCR's are available for all TeSys K and D contactors and overload relays, including the TeSys D solid-state overload relays. Component ratings provide the flexibility to choose the desired level of protection, up to the rated maximum, and use it without the need for specific tested combinations and confusing tested combination spreadsheets. Component ratings are available when using either fuse or circuit breaker protection.

TeSys K and D Overload Relays



TeSys High-Fault Component Short-Circuit Current Ratings:

- > 65 kA on any system up to 480 Vac and 32 amps protected by a circuit breaker
- > 100 kA on any system up to 480 Vac and greater than 32 amps protected by a circuit breaker
- > 100 kA on any system up to 600 Vac protected by Class CC or J fuses



And the **best part about component ratings?**

You know you have the right SCCR when you see it on the label!

Make the most of your energySM

Schneider
Electric™

TeSys D Overload Relays

Current Setting Range (A)	For Direct Mounting to LC1...	Class 10 with Single-Phase Sensitivity	Class 10 without Single-Phase Sensitivity	Class 20 with Single-Phase Sensitivity	Class 20 without Single-Phase Sensitivity	Maximum Component SCCR (kA) ^[1]	
						Circuit Breakers @ 480 V ^[2]	Fuses @ 600 V ^[3]
						Max. SCCR (kA)	Max. SCCR (kA)
0.10 – 0.16	D09 – D32	LRD01	LR3D01	—	—	65	100
0.16 – 0.25		LRD02	LR3D02	—	—	65	100
0.25 – 0.40		LRD03	LR3D03	—	—	65	100
0.40 – 0.63		LRD04	LR3D04	—	—	65	100
0.63 – 1		LRD05	LR3D05	—	—	65	100
1 – 1.6		LRD06	LR3D06	—	—	65	100
1.6 – 2.5		LRD07	LR3D07	—	—	65	100
2.5 – 4		LRD08	LR3D08	LRD1508	LR3D1508A	65	100
4 – 6		LRD10	LR3D10	LRD1510	LR3D1510A	65	100
5.5 – 8		LRD12	LR3D12	LRD1512	LR3D1512A	65	100
7 – 10		LRD14	LR3D14	LRD1514	LR3D1514A	65	100
9 – 13	D12 – D32	LRD16	LR3D16	LRD1516	LR3D1516A	65	100
12 – 18	D18 – D32	LRD21	LR3D21	LRD1521	LR3D1521A	65	100
16 – 24	D25 – D32	LRD22	LR3D22	—	—	65	100
17 – 25		—	—	LRD1522	LR3D1522A	65	100
23 – 32		LRD32	LR3D32	—	—	65	100
23 – 28		—	—	LRD1530	LR3D1530A	65	100
25 – 32		—	—	LRD1532	LR3D1532A	65	100
30 – 38	D32	LRD35	LR3D35	—	—	65	100
9 – 13	D40A – D65A ^[4]	LRD313	LR3D313	LRD313L	—	100	100
12 – 18		LRD318	LR3D318	LRD318L	—	100	100
16 – 25		LRD325	LR3D325	LRD325L	—	100	100
23 – 32		LRD332	LR3D332	LRD332L	—	100	100
30 – 40		LRD340	LR3D340	LRD340L	—	100	100
37 – 50		LRD350	LR3D350	LRD350L	—	100	100
48 – 65	D50A – D65A ^[4]	LRD365	LR3D365	LRD365L	—	100	100
17 – 25	D40 – D80 ^[5]	LRD3322	LR3D3322	LR2D3522	LR3D3522	100	100
23 – 32		LRD3353	LR3D3353	LR2D3553	LR3D3553	100	100
30 – 40		LRD3355	LR3D3355	LR2D3555	LR3D3555	100	100
37 – 50	D50 – D80 ^[5]	LRD3357	LR3D3357	LR2D3557	LR3D3557	100	100
48 – 65		LRD3359	LR3D3359	LR2D3559	LR3D3559	100	100
55 – 70	D65 – D80 ^[5]	LRD3361	LR3D3361	LR2D3561	LR3D3561	100	100
63 – 80		LRD3363	LR3D3363	LR2D3563	LR3D3563	100	100
80 – 104	D80	LRD3365	—	—	—	100	100
80 – 104	D115 – D150	LRD4365	—	—	—	100	100
95 – 120		LRD4367	—	—	—	—	100



^[1] Ratings apply to circuits with voltages no greater than those listed and are subject to maximum breaker and fuse ampacities. See data bulletin 8536DB0901 for ampacity limitations.

^[2] When protected by any circuit breaker, including thermal-magnetic and magnetic-only.

^[3] When protected by any Class J or CC time-delay fuse (Class CC applicable up to 30 A only).

^[4] Overload relays with Everlink™ termination — direct mount to D40A to D65A only.

^[5] Direct mount to old D2 style D40 to D65 (no Everlink terminations) and to D80 only.

Note: This table lists the maximum SCCR of the component when protected by any circuit breaker or fuse. If the maximum component SCCR is 100 kA and a 25 kA rated circuit breaker is used, then the system will be 25 kA as the circuit breaker becomes the weakest link.

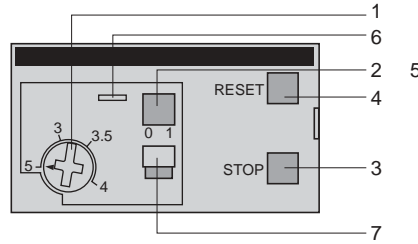
TeSys™ D-Line Contactors and Starters

LR2 and LR3D 3-pole Bimetallic Overload Relays

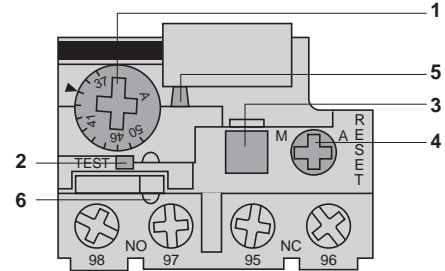
Description

D-Line 3-pole thermal overload relays are designed to protect ac circuits and motors against overloads, phase failure, long starting times and prolonged stalling of the motor.

LRD01 to 35



LRD3322 to 4369, LR2D



- 1 Adjustment dial I_r
- 2 Test button
Operation of the Test button allows:
- checking of control circuit wiring,
- simulation of relay tripping (actuates both the N.O. and N.C. contacts).
- 3 Stop button. Actuates the N.C. contact; does not affect the N.O. contact.
- 4 Reset button
- 5 Trip indicator
- 6 Setting locked by sealing the cover.
- 7 Selector for manual or automatic reset. Relays LRD01 to LRD35 are supplied with the selector in the manual position, protected by a cover. Deliberate action is required to move it to the automatic position.

Environment

Conforming to standards			IEC 60947-1, IEC 60947-4-1, NF C 63-650, VDE 0660, BS 4941
Product certifications			CSA, UL, Sichere Trennung, PTB except LAD4: UL, CSA.
Degree of protection	Conforming to VDE 0106		Protection against direct finger contact IP 2X
Protective treatment	Conforming to IEC 60068		"TH"
Ambient air temperature around the device	Storage	°C	- 60 to + 70 (- 140 to + 158 °F)
	Normal operation, without derating (IEC 60947-4-1)	°C	- 20 to + 60 (- 68 to + 140 °F)
	Minimum and maximum operating temperatures (with derating)	°C	- 40 to + 70 (- 104 to + 158 °F)
Operating positions without derating	In relation to normal, vertical mounting plane		Any position
Shock resistance	Permissible acceleration conforming to IEC 60068-2-7		15 gn - 11 ms
Vibration resistance	Permissible acceleration conforming to IEC 60068-2-6		6 gn
Dielectric strength at 50 Hz	Conforming to IEC 60255-5	kV	6
Impulse withstand voltage	Conforming to IEC 60801-5	kV	6

Auxiliary Contact Characteristics

Conventional rated thermal current		A	5 Amps AC; 1 Amp DC					
Maximum consumption of operating coils of controlled contactors (Occasional operating cycles of contact 95-96)	ac supply	V	24	48	110	220	380	600
		VA	100	200	400	600	600	600
	dc supply	V	24	48	110	220	440	-
		W	100	100	50	45	25	-
Short-circuit protection ●	By gG, BS or Class CC fuse. Max. rating or by GB2 circuit-breaker	A	5 maximum					
Connection to screw clamp terminals			Min - max c.s.a.					
Flexible cable with cable end	One or two conductors	AWG (mm ²)	18 - 14 (1 - 2.5)					
Solid cable without cable end	One or two conductors	AWG (mm ²)	18 - 14 (1 - 2.5)					
Flexible cable without cable end	One or two conductors	AWG (mm ²)	18 - 14 (1 - 2.5)					
Solid cable without cable end	One or two conductors	AWG (mm ²)	18 - 14 (1 - 2.5)					
Tightening torque		lb-in (N.m)	15 (1.7)					

- Select short circuit protection to meet the National Electrical Code or other local codes and standards.

Catalog Numbers: pages 134, 135 Dimensions: pages 138 - 140

TeSys™ D-Line Contactors and Starters LR2 and LR3D 3-pole Bimetallic Overload Relays

Electrical Characteristics of Power Circuit

Relay type			LRD 01 to 16 LR3 D01 to D16	LR2 D15••	LRD 21 to 35 LR3 D21 to D35	LR2 D25••	LRD 3322 to 33696 LR3 D3322 to D33696	LR2 D35••	LRD 4365 to 4369
Tripping class	To UL 508, IEC 60947-4-1		10	20	10	20	10	20	10
Rated insulation voltage (Ui)	Conforming to IEC 60947-4-1	V	690		690		1000		1000
	Conforming to UL, CSA	V	600		600		600		600 except LRD4369
Rated impulse withstand voltage (Uimp)		kV	6		6		6		6
Frequency limits	Of the operational current	Hz	0 to 400		0 to 400		0 to 400		0 to 400
Setting range	Depending on model	A	0.1 to 13		12 to 38		17 to 104		80 to 140

Connection to screw clamp terminals

Min - max c.s.a.

		AWG (mm ²)	14 - 8 (1.5 - 10)	14 - 8 (1.5 - 10)	10 - 2 (4 - 35)		10 - 1 (4 - 50)
Flexible cable without cable end	One conductor	AWG (mm ²)	14 - 8 (1.5 - 10)	14 - 8 (1.5 - 10)	10 - 2 (4 - 35)		10 - 1 (4 - 50)
Flexible cable with cable end	One conductor	AWG (mm ²)	16 - 12 (1 - 4)	16 - 10 (1 - 6) except LRD21: 16 - 12 (1 - 4)	10 - 2 (4 - 35)		10 - 2 (4 - 35)
Solid cable without cable end	One conductor	AWG (mm ²)	16 - 10 (1 - 6)	14 - 8 (1.5 - 10) except LRD21: 16 - 10 (1 - 6)	12 - 2 (4 - 35)		10 - 1 (4 - 50)
Tightening torque		lb-in (N.m)	15.0 (1.7)	16.4 (1.85)	22.1 (2.5)	100 lb-in	100 lb-in

Connection to spring terminals

Min - max c.s.a.

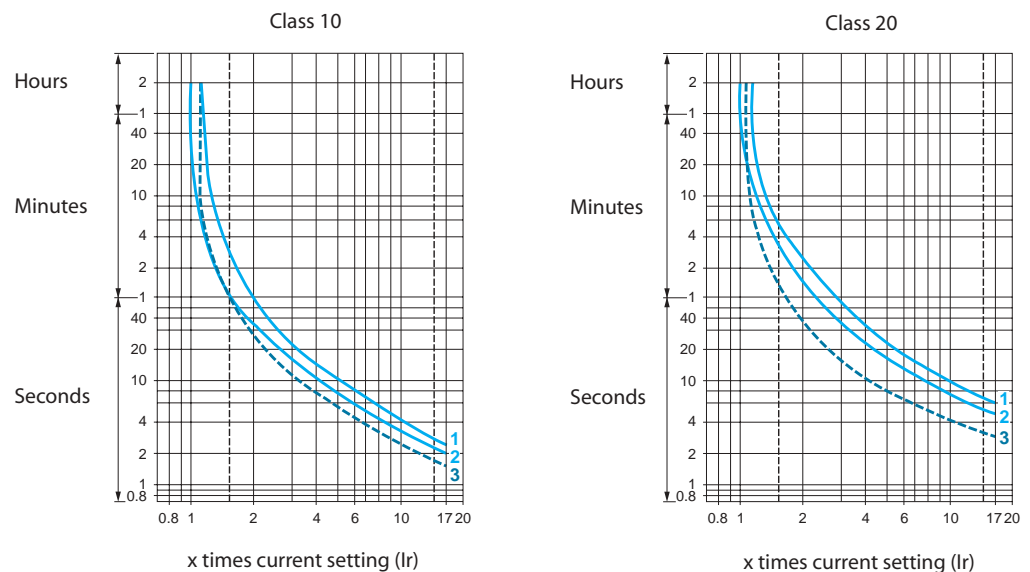
		AWG (mm ²)	14 - 12 (1.5 - 4)	–	14 - 12 (1.5 - 4)	–	–	–
Flexible cable without cable end	One conductor	AWG (mm ²)	14 - 12 (1.5 - 4)	–	14 - 12 (1.5 - 4)	–	–	–
Solid cable without cable end	One conductor	AWG (mm ²)	14 - 12 (1.5 - 4)	–	14 - 12 (1.5 - 4)	–	–	–

Operating Characteristics

Temperature compensation		°C °F	- 20 to + 60 - 68 to + 140	- 30 to + 60 - 86 to + 140	- 30 to + 60 - 86 to + 140	- 20 to + 60 - 68 to + 140
Tripping threshold	Conforming to IEC 60947-4-1	A	1.14 ± 0.06 In			
Sensitivity to phase failure	Conforming to IEC 60947-4-1		Tripping current 30% of In on one phase, the others at In			

Tripping curves

Average operating time related to multiples of the current setting



- 1 Balanced operation, 3-phase, from cold state.
- 2 Balanced operation, 2-phase, from cold state.
- 3 Balanced operation, 3-phase, after a long period at the set current (hot state).

Catalog Numbers: pages 134, 135

Dimensions: pages 138 - 140