DATASHEET - ZEB32-45-GF



Overload relay, Direct mounting, Earth-fault protection: with, Ir= 9 - 45 A, 1 N/O, 1 N/C



Part no. ZEB32-45-GF Catalog No. 136493 Alternate Catalog XTOE045CGS

No.

EL-Nummer 0004137362

(Norway)

Delivery program

Delivery program			
Product range			Electronic overload relays ZEB
Phase-failure sensitivity			IEC/EN 60947, VDE 0660 Part 102
Description			Test/off button Reset pushbutton Manual/auto reset selectable Protection in the case of starting under load (class 10 to class 20)
Mounting type			Direct mounting
Earth-fault protection			
Earth-fault protection			with
Trip at approx.			$> 0.5 \times I_r \text{ in } 2 \text{ s}$ > $1.5 \times I_r \text{ in } 1 \text{ s}$
Setting range			
Overload releases	I _r	Α	9 - 45
Contact sequence			97 95
Auxiliary contacts			
N/O = Normally open			1 N/O
N/C = Normally closed			1 N/C
For use with			DILM17 DILM25 DILM32 DILM38 DIULM17 DIULM25 DIULM32 SDAINLM30 SDAINLM45 SDAINLM55

Technical data

General

General		
Standards		IEC/EN 60947, VDE 0660, UL, CSA
Climatic proofing		Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature		
Open	°C	-25 - +65
Ambient temperature open max.	°C	65
Enclosed	°C	
Ambient temperature enclosed max.	°C	65
Mechanical shock resistance	g	15 Shock duration 10 ms according to IEC 60068-2-27
Degree of Protection		IP20
Protection against direct contact when actuated from front (EN 50274)		Finger and back-of-hand proof
Altitude	m	Max. 2000

Main conducting paths

Read of myseles with earthout voltages Var Val	Main conducting paths			
Roard insulation withings U, W AC 69 Roard interplacement f W AC 300 Sale and electron DeVisit 100 W AC 300 Becovers an unifor contracts and man contracts W AC 400 Terminal sequencies W AC 400 Salid or stronded W AC 15-14 Singliand provide and voltage W AC 15-14 Received as unable provide and voltage W AC 15-14 Singliand provide and voltage W AC 15-14 Received as unable provide and voltage W AC 15-14 Received as uniformitic assistance W AC 15-14 Received as uniformitic assistance W AC 15-14 Singliand of stronded W AC 15-14 Solid of stronded W AC 15-14 Solid of stronded W AC 20-12	Rated impulse withstand voltage	U _{imp}	V AC	6000
Rised toperational voltage U _e VAE 680 Rised followings 4 45 580 Sized control to ENITIVO 40 50 Between muchine controls 4 VAE 60 Between muchine controls 4 VAE 60 Solid or standed 4 AMB 1×10-10 Solid or standed 4 AMB 1×10-10 Solid or standed 4 MB 00 Overediting action provision for give 4 MB 00 Tominal capacities 4 ma ⁻² 2×1075-4 4 Recibil question action place steponylycholation degree 4 ma ⁻² 2×1075-4 4 Recibil question action place steponylycholation degree 4 ma ⁻² 2×1075-4 4 Recibil question action place steponylycholation degree 4 MB 5 4 Recibil place steponylycholation degree 4 MB 5 4 4 5 4 5 4 5 4 5 4	Overvoltage category/pollution degree			111/3
Sale incident DN 1914 1915	Rated insulation voltage	Ui	V AC	690
Sale instale in FM 61040 □ Econome analone y contacts an ornan contacts □ Econome analone y contacts and ornan contacts □ Economic trapactics □ Economic trapactics □ Economic analone analo	Rated operational voltage	U _e	V AC	690
Believeen autodiary contacts and main contacts VAC 800 Believeen autodiary contacts and main contacts 4 VAC 400 Child mail 1 × 15 × 16 Saild or shrunded AWD 1 × 15 × 16 Specifying feating of control circuits WAVE 1 × 10 × 10 Description feating of control circuits Very Control circuits Very Control circuits Description feating of control circuits Very Control circuits Very Control circuits Beach inquised widther of control circuits Very Control circuits Very Control circuits Saild or shrunded Very Control circuits Very Control circuits Very Control circuits Saild or shrunded Very Control circuits AWD 2 × 103 × 103 × 103 Femilia store Water Control circuits Water Control circuits Water Control circuits Terminal captaction of store Very Control circuits Water Control circuits Water Control circuits Terminal captaction of store Very Control circuits Water Control circuits Water Control circuits Read of socialization of Store Very Control circuits Water Control circuits	Rated frequency	f	Hz	50/60
Section of transition closes	Safe isolation to EN 61140			
Formula capacities pm. 4 1 × 5 × 16 Solid or stronted 2 × 10 × 12 1 × 15 × 16 Stolid or stronted 2 × 10 × 10 1 × 10 × 10 Permit implies weithord voltage May 5 × 100 200 Permit implies weithord voltage May 6 × 100 200 Permit implies weithord voltage May 6 × 100 200 Solid or stronted 2 × 10 × 100 × 100 2 × 100 × 100 2 × 100 × 100 Solid or stronted 2 × 10 × 100 × 100 2 × 100 ×	Between auxiliary contacts and main contacts		V AC	600
Solid mm x 1 x 1.0 Solid certanded 400 1x 14.4 Solid certanded 400 1x 14.4 Solid certanded 900 90 Solid certanded 900 90 Overloating existing withstand voltage 100 100 Familial capacities 100 100 Solid or stranded 100 1x 10.75-2.3 Terminal capacities 1x 10.75 1x 10.75-2.3 Terminal capacities of the funder 1x 10.75 1x 10.75-2.3 Terminal capacities 1x 10.75 1x 10.75-2.3 Terminal capacities of the funder 1x 10.75 1x 10.75-2.3 Terminal capacities 1x 10.75 1x 10.75-2.3	Between main circuits		V AC	600
Singland a strained	Terminal capacities		mm^2	
Striction of control circuits mm 13 14	Solid		mm ²	1 x 1.5 - 16
About impulse with stand or longer Ump V 6000 Conveninge enterpolypolution degree Ump V 103 Sold mm² 2 x (0.75 - 4) Fissible with formula mm² 2 x (0.75 - 4) Solid or standed Mm² 2 x (0.75 - 2) Tominal screw MG 2 x (18 - 12) Tightening forque MG 2 x (18 - 12) Tightening forque Bin 7 Tripleting forque Bin 7 Total Bin 1 x (20 x (2	Solid or stranded		AWG	1 x 14 - 4
Rated impulses withstand voltage Umpulse vicing voryfoldulind negree Very 1000 (more of the problem of the proble			mm	13
Overvoltage category/published regree Image: Particular of Particular Category/published regree Image: Particular Category/published regree Image: Particular Category/published regree Image: Particular Category/published regree regr			.,	
Terminal capacities mm² x 8075 - 4 Solid mm² x 8075 - 4 Flexible with ferrule x 8075 - 25 Solid or strander x 8075 - 25 Tormani scrow x 80 - 22 Tightaning torque x 80 - 2 Tightaning torque m 80 - 80 - 12 Robinging land m 90 - 80 - 12 Robinging land m 90 - 80 - 12 Robinging scrowdrom m 90 - 80 - 12 Shandard scrowdrom m 90 - 80 - 12 Shandard scrowdrom m 90 - 90 - 90 - 90 - 90 - 90 - 90 - 90		U _{imp}	V	
Salid mm² 2 x 0.75 - 4) Fiexble with ferule mm² 2 x 0.75 - 2.5) Salid ser tranded AWG 2 x (18 - 12) Terminal screw M3 5 4 m 2 Tightening torque B-1 8 - 2 Topolic B-2 8 - 2 Portified screwdriver B-2 9 - 2 State division or English Up VAC 300 Safe isolesion to English B-2 4 - 2 Action B-2 4 - 2 Safe isolesion to English B-2 4 - 2 Safe isolesion to English B-2 4 - 2 Action B-2 4 - 2 Action to English B-2 4 - 2 Action to English B-2 4 - 2 Action to English				111/3
Floxible with ferrule				
Solid or stranded AWB 2 x 18 - 12) Terminal screw NM 0.8 - 12 Fightening lorque Nm 0.8 - 12 Stripping longth mm 0.8 - 12 Toels v mm 8 Poziatria screwdriver sm 1 x 6 Standard screwdriver mm 1 x 6 Standard screwdriver u 0.0 0.0 State screwdriver u 0.0 0.0 State screwdriver u 0.0 0.0 State screwdriver u 0.0 0.0 Rated operational voltage u 0.0 0.0 State screwdriver u 0.0 0.0 Corventional terment u 0.0 0.0 Act-1 u 0.0 0.0 Act 1 1.0 0.0 0.0 Based contact u 0.0 0.0 Break contact u 0.0 0.0 20 V 220 V 240 V 40 V u 0.0	Solid		mm ²	2 x (0.75 - 4)
Terminal scraw M3. 08-1.2 Tightering lorque 10 No. 08-1.2 Tightering lorque 10 No. 7 Stroping length 10 No. 8 Tools 8 2 Pezidiri scrawdriver 10 No. 1x6 Stated insulation voltage Up. VAC 50 Rated operational voltage Up. VAC 50 Safet isolation to EN 6140 VAC 50 Selected apprational current In. A 5 AC-15 VAC 20 Melec contact Ip. A 15 200 Y 230 Y 240 Y Ip. A 15 200 Y 230 Y 240 Y Ip. A 15 120 Y Ip. A 15 200 Y 230 Y 240 Y Ip. A 15 120 Y Ip. A 15 200 Y 230 Y 240 Y Ip. A 15 300 Y Ip. A	Flexible with ferrule		mm^2	2 x (0.75 - 2.5)
Tighteaning torque Key Move 10-14 7 Trighteaning torque 10-16 7 <t< td=""><td>Solid or stranded</td><td></td><td>AWG</td><td>2 x (18 - 12)</td></t<>	Solid or stranded		AWG	2 x (18 - 12)
Trightering torque Ib-in 7 Stripping length mm 8 Tools size 2 Poaldriv screwdriver Size 2 Standard screwdriver mm 1x6 Rated insulation voltage Up VAC 500 Rated perational voltage Up VAC 500 Safe isolation to EN 61140 VAC 40 between the auxiliary contacts VAC 40 Corventional thermal current Ip A 5 Rated operational current Ip A 5 Make contact Ip A 5 220 V 230 V 240 V Ip A 15 380 V 400 V 415 V Ip A 15 380 V 400 V 415 V Ip A 15 220 V 230 V 240 V Ip A 15 380 V 400 V 415 V Ip A 15 380 V 400 V 415 V Ip A 15 380 V 400 V 415 V Ip A	Terminal screw			M3.5
Stripping length mm 8 mm 8 mm 7 100 10	Tightening torque		Nm	0.8 - 1.2
Tools Image: Standard screwdriver Size (a) Standard screwdriver Size (a) Standard screwdriver 1 × 8 Rated or installation voltage U _e (N X X) 30 Safe isolation to EN 61140 V X X 30 Conventional thermal current I _B (N X X) 4 ACM-15 I _B (N X X) 5 Make contact I _B (N X X X) 5 120 V I _B (N X X X X X X X X X X X X X X X X X X	Tightening torque		lb-in	7
Pozidiry screwdriver Size Size 2 Standard screwdriver um 1x 8 Rated insulation voltage U ₁ VAC 500 Rated operational voltage U ₂ VAC 500 Safe isolation to EN 61140 VAC 240 between the auxiliary contacts VAC 240 Conventional thermal current I ₈ A 5 Rated operational current I ₈ A 5 AC-15 V V V V 120 V I ₈ A 1.5 V 220 V 230 V 240 V I ₈ A 1.5 V 380 V 400 V 415 V I ₈ A 1.5 V 120 V I ₈ A 1.5 V 220 V 230 V 240 V I ₈ A 1.5 V 380 V 400 V 415 V I ₈ A 1.5 V V V V V V V V V V V V <	Stripping length		mm	8
Standard screwdriver Vi VAC 500 Rated insulation voltage Ue VAC 500 Safe isolation to R 91140 VAC 500 between the auxiliary contacts VAC 240 Conventional current Ie AC Rated operational current Ie AC AC-15 VAC 1.5 Make contact Ie AC 1.5 220 V 230 V 240 V Ie AC 1.5 380 V 400 V 415 V Ie AC 1.5 Break contact In AC 1.5 120 V Ie AC 1.5 380 V 400 V 415 V Ie AC 1.5 220 V 230 V 240 V Ie AC 1.5 380 V 400 V 415 V Ie AC 1.5 380 V 400 V 415 V Ie AC 1.5 20 V 230 V 240 V Ie AC 1.5 380 V 400 V 415 V Ie AC 1.5 500 V Ie <td< td=""><td>Tools</td><td></td><td></td><td></td></td<>	Tools			
Rated insulation voltage U _I VAC 90 Rated operational voltage U _I VAC 90 Safe isolation to EN 61140 between the auxiliary contacts V _I 24 40 Conventional turrent I _I AC 5 Rated operational current I _I AC 1 AC-15 V V V Make contact I _I A 15 1 20 V I _I A 15 2 20 V 230 V 240 V I _I A 15 8 Peak contact I _I A 15 1 20 V I _I A 15 2 20 V 230 V 240 V I _I A 15 3 30 V 400 V 415 V I _I A 15 3 30 V 400 V 415 V I _I A 15 3 30 V 400 V 415 V I _I A 15 3 30 V 400 V 415 V I _I A 15 3 50 V I _I A 10 A	Pozidriv screwdriver		Size	2
Rated operational voltage U _e VAC 50 Safe isolation to EN 61140 VAC 240 Conventional thermal current I _e AC 25 Rated operational current I _e AC 34 AC-15 V 40 40 Make contact V 120 V I _e AC 15 380 V400 V415 V I _e AC 15 40	Standard screwdriver		mm	1 x 6
Sale is isolation to EN 61140 VAC 240 between the auxiliary contacts Inh A 5 Rated operational current Inh A 5 AC-15 VAC 4 4 Make contact VAC 5 4 120 V Inh A 15 4 220 V 230 V 240 V Inh A 15 4 Break contact Inh A 15 4 4 5 Break contact Inh A 15 4 5 4 15 4	Rated insulation voltage	Ui	V AC	500
between the auxiliary contacts VAC 240 Conventional thermal current Inh A 5 Rated operational current Inh A F AC-15 F F F Make contact Inh A 15 220 V 230 V 240 V Inh A 15 380 V 400 V 415 V Inh A 05 Break contact Inh A 15 220 V 230 V 240 V Inh A 15 380 V 400 V 415 V Inh A 15 380 V 400 V 415 V Inh A 15 380 V 400 V 415 V Inh A 15 500 V Inh A 0.9 DC L/R ≤ 15 ms Switch-on and switch-off conditions based on DC-13, time constant as specified. 24 V N 0.9 60 V Inh A 0.9 N 0.9 110 V Inh A 0.9 N 0.9 110 V N 0.9 N <td>Rated operational voltage</td> <td>U_e</td> <td>V AC</td> <td>500</td>	Rated operational voltage	U _e	V AC	500
Conventional thermal current In A S Raced operational current In A A AC-15 Y Y Y Make contact In S In In 120 V In A 15 380 V 400 V 415 V In A 05 Break contact In A 15 120 V In A 15 220 V 230 V 240 V In A 15 380 V 400 V 415 V In A 15 380 V 400 V 415 V In A 15 380 V 400 V 415 V In A 0.9 DC L/R ≤ 15 ms In A 0.8 24 V In A 0.9 60 V In A 0.9 110 V In A <	Safe isolation to EN 61140			
Rated operational current Incompanies A contact Incompanies A contact Incompanies A contact Incompanies Incompan	between the auxiliary contacts		V AC	240
AC-15 Make contact Contact <td>Conventional thermal current</td> <td>I_{th}</td> <td>Α</td> <td>5</td>	Conventional thermal current	I _{th}	Α	5
Make contact I20 V I ₈ A 1.5 220 V 230 V 240 V I ₈ A 1.5 380 V 400 V 415 V I ₈ A 0.5 500 V I ₈ A 0.5 Break contact V V V 1.5 220 V 230 V 240 V I ₈ A 1.5 380 V 400 V 415 V I ₈ A 0.9 500 V I ₈ A 0.8 DC L/R ≤ 15 ms Switch-on and switch-off conditions based on DC-13, time constant as specified. 24 V I ₈ A 0.9 60 V I ₈ A 0.75 110 V I ₈ A 0.75 110 V I ₈ A 0.4 220 V Short-circuit rating without welding L A 0.2	Rated operational current	I _e	Α	
120 V	AC-15			
220 V 230 V 240 V	Make contact			
380 \ \ 400 \ \ \ 415 \ \ \ 1	120 V	I _e	Α	1.5
Short-circuit rating without welding Short Shor	220 V 230 V 240 V	l _e	Α	1.5
S00 V Ie	380 V 400 V 415 V		Α	0.5
Break contact				
120 V Ie A 1.5 220 V 230 V 240 V Ie A 1.5 380 V 400 V 415 V Ie A 0.9 500 V Ie A 0.8 DC L/R ≤ 15 ms Switch-on and switch-off conditions based on DC-13, time constant as specified. 24 V Ie A 0.9 60 V Ie A 0.75 110 V Ie A 0.4 220 V Ie A 0.2 Short-circuit rating without welding Ie A 0.2		ŭ.		
220 V 230 V 240 V I _e A 1.5 380 V 400 V 415 V I _e A 0.9 500 V I _e A 0.8 DC L/R ≤ 15 ms Switch-on and switch-off conditions based on DC-13, time constant as specified. 24 V I _e A 0.9 60 V I _e A 0.75 110 V I _e A 0.4 220 V I _e A 0.2 Short-circuit rating without welding B A 0.2		l _e	Α	1.5
380 V 400 V 415 V I _e A 0.9 500 V I _e A 0.8 DC L/R ≤ 15 ms Switch-on and switch-off conditions based on DC-13, time constant as specified. 24 V I _e A 0.9 60 V I _e A 0.75 110 V I _e A 0.4 220 V I _e A 0.2 Short-circuit rating without welding				
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DC L/R \leq 15 ms Switch-on and switch-off conditions based on DC-13, time constant as specified. 24 V I _e A 0.9 60 V I _e A 0.75 110 V I _e A 0.4 220 V I _e A 0.2 Short-circuit rating without welding				
Switch-on and switch-off conditions based on DC-13, time constant as specified. 24 V		¹e	A	v.u
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	UC L/K ≧ I5 MS			Switch on and writch off conditions bear day DO 10 diagrams.
60 V I _e A 0.75 110 V I _e A 0.4 220 V I _e A 0.2 Short-circuit rating without welding	24.1/		۸	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
220 V I _e A 0.2 Short-circuit rating without welding				
Short-circuit rating without welding				
		l _e	Α	0.2
max. fuse A gG/gL 6				
	max. fuse		A gG/gL	6

Rating data for approved types

Auxiliary contacts		
Pilot Duty		
AC operated		B600
DC operated		R300
Short Circuit Current Rating	SCCR	
600 V High Fault		
SCCR (fuse)	kA	100
max. Fuse	Α	60 Class J

Design verification as per IEC/EN 61439

Design verincation as per illo/liv 01433			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	45
Heat dissipation per pole, current-dependent	P _{vid}	W	1.43
Equipment heat dissipation, current-dependent	P _{vid}	W	4.3
Static heat dissipation, non-current-dependent	P _{vs}	W	0
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	65
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			Meets the product standard's requirements.
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			Meets the product standard's requirements.
10.5 Protection against electric shock			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			Is the panel builder's responsibility.
10.8 Connections for external conductors			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			Is the panel builder's responsibility.
10.10 Temperature rise			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 7.0

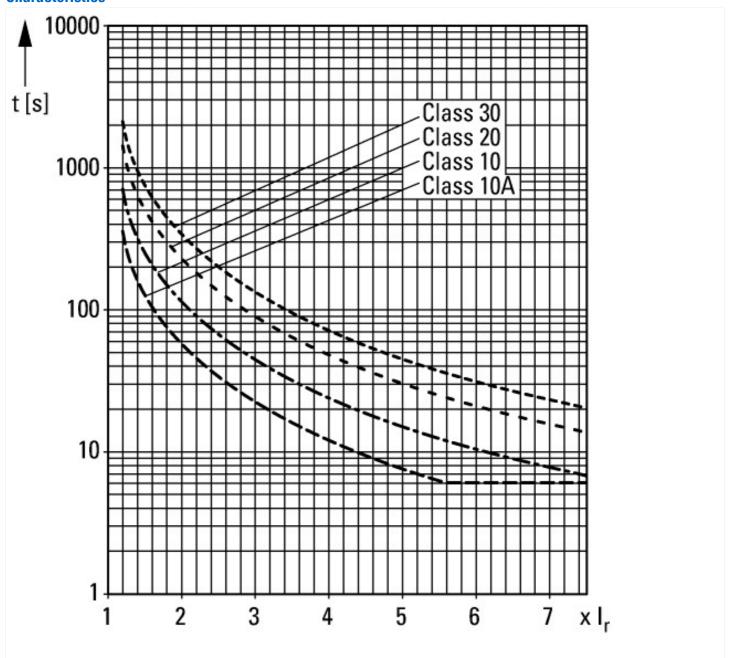
Low-voltage industrial components (EG000017) / Electronic overload relay (EC001080)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Overload protection device / Electronic overload relay (ecl@ss10.0.1-27-37-15-02 [AKF076014])			
Adjustable current range	А	9 - 45	
Mounting method		Direct attachment	
Type of electrical connection of main circuit		Screw connection	
Number of auxiliary contacts as normally closed contact		1	
Number of auxiliary contacts as normally open contact		1	

Number of auxiliary contacts as change-over contact		0
Rated control supply voltage Us at AC 50HZ	V	0 - 0
Rated control supply voltage Us at AC 60HZ	V	0 - 0
Rated control supply voltage Us at DC	V	0 - 0
Release class		Adjustable
Voltage type for actuating		Self powered
Reset function automatic		Yes
Reset function input		No
Reset function push-button		Yes

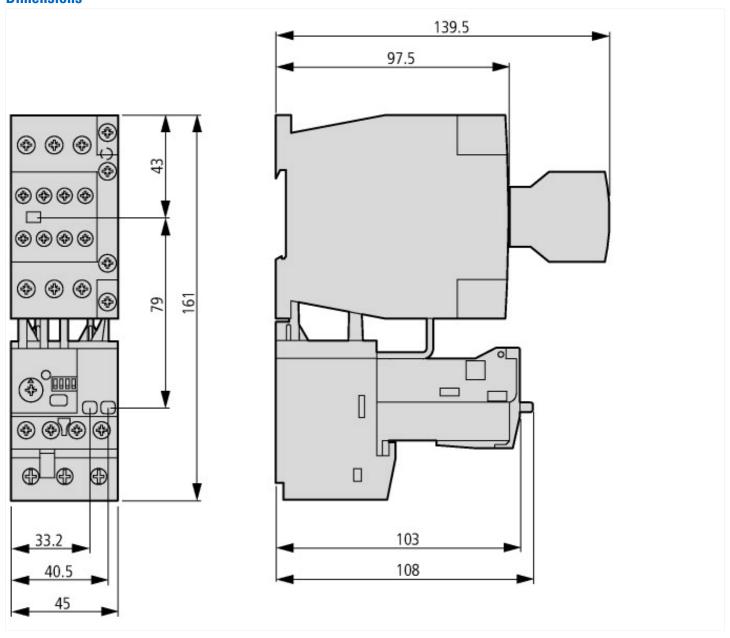
Approvals

Product Standards	UL 508; CSA-C22.2 No. 14; IEC/EN 60947-4-1; CE marking
UL File No.	E1230
UL Category Control No.	NKCR
CSA File No.	2290956
CSA Class No.	3211-03
North America Certification	UL listed, CSA certified
Specially designed for North America	No
Suitable for	Branch circuits
Max. Voltage Rating	600 V AC
Degree of Protection	IEC: IP20, UL/CSA Type: -

Characteristics



Dimensions



Assets (links)

Declaration of CE Conformity

00003052

Instruction Leaflets

IL04210002E2018_08

Additional product information (links)

IL04210002E Solid-state motor protection relay

IL04210002E Solid-state motor protection relay ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL04210002E2018_08.pdf