



Overload relay, Direct mounting, Earth-fault protection: none,  $I_r = 4 - 20$  A, 1 N/O, 1 N/C

**EATON**  
Powering Business Worldwide™

Part no. **ZEB12-20**  
Catalog No. **136482**  
Alternate Catalog No. **XTOE020BCS**  
EL-Nummer (Norway) **4137351**

## 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 with heavy starting duty (Class 10A-30)		
Mounting type	Direct mounting		
<b>Earth-fault protection</b>	none		
<b>Setting range</b>			
Overload releases	$I_r$	A	4 - 20
Contact sequence			
<b>Auxiliary contacts</b>			
N/O = Normally open	1 N/O		
N/C = Normally closed	1 N/C		
For use with	DILM7 DILM9 DILM12 DILM15 DIULM7 DIULM9 DIULM12 SDAINLM12 SDAINLM16 SDAINLM22		

## Technical data

<b>General</b>					
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				
<b>Main conducting paths</b>					
Rated impulse withstand voltage	$U_{imp}$	V AC	6000		
Overvoltage category/pollution degree			III/3		

Rated insulation voltage	U <sub>i</sub>	V AC	690
Rated operational voltage	U <sub>e</sub>	V AC	690
Rated frequency	f	Hz	50/60
Safe isolation to EN 61140			
Between auxiliary contacts and main contacts		V AC	600
Between main circuits		V AC	600
Terminal capacities		mm <sup>2</sup>	
Solid		mm <sup>2</sup>	1 x 1.5 - 16
ein- oder mehrdrähtig		AWG	1 x 14 - 4
Stripping length		mm	13

### Auxiliary and control circuits

Rated impulse withstand voltage	U <sub>imp</sub>	V	6000
Overvoltage category/pollution degree			III/3
Terminal capacities		mm <sup>2</sup>	
Solid		mm <sup>2</sup>	2 x (0.75 - 4)
Flexible with ferrule		mm <sup>2</sup>	2 x (0.75 - 2.5)
Solid or stranded		AWG	2 x (18 - 12)
Terminal screw			M3.5
Tightening torque		Nm	0.8 - 1.2
Tightening torque		lb-in	7
Stripping length		mm	8
Tools			
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	1 x 6
Rated insulation voltage	U <sub>i</sub>	V AC	500
Rated operational voltage	U <sub>e</sub>	V AC	500
Safe isolation to EN 61140			
between the auxiliary contacts		V AC	240
Conventional thermal current	I <sub>th</sub>	A	5
Rated operational current	I <sub>e</sub>	A	
AC-15			
Make contact			
120 V	I <sub>e</sub>	A	1.5
220 V 230 V 240 V	I <sub>e</sub>	A	1.5
380 V 400 V 415 V	I <sub>e</sub>	A	0.5
500 V	I <sub>e</sub>	A	0.5
Break contact			
120 V	I <sub>e</sub>	A	1.5
220 V 230 V 240 V	I <sub>e</sub>	A	1.5
380 V 400 V 415 V	I <sub>e</sub>	A	0.9
500 V	I <sub>e</sub>	A	0.8
DC L/R $\leq$ 15 ms			Switch-on and switch-off conditions based on DC-13, time constant as specified.
24 V	I <sub>e</sub>	A	0.9
60 V	I <sub>e</sub>	A	0.75
110 V	I <sub>e</sub>	A	0.4
220 V	I <sub>e</sub>	A	0.2
Short-circuit rating without welding			
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	A	30 Class J

## Design verification as per IEC/EN 61439

Technical data for design verification		
Rated operational current for specified heat dissipation	I <sub>n</sub>	A 20
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W 0.77
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W 2.31
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W 0
Heat dissipation capacity	P <sub>diss</sub>	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

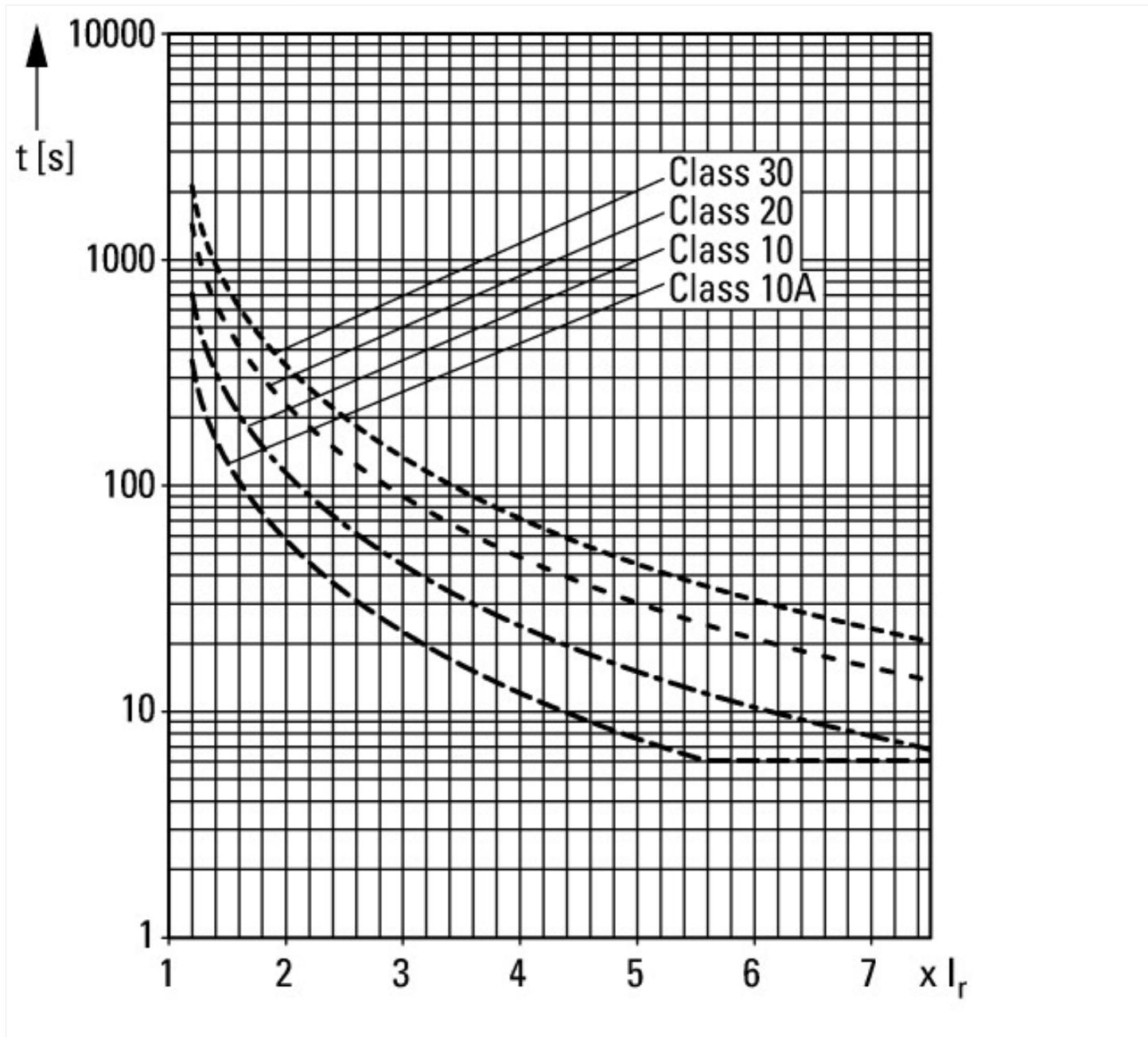
Low-voltage industrial components (EG000017) / Electronic overload relay (EC001080)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Overload protection device / Electronic overload relay (ecl@ss10.0.1-27-37-15-02 [AKF076014])		
Adjustable current range	A	4 - 20
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

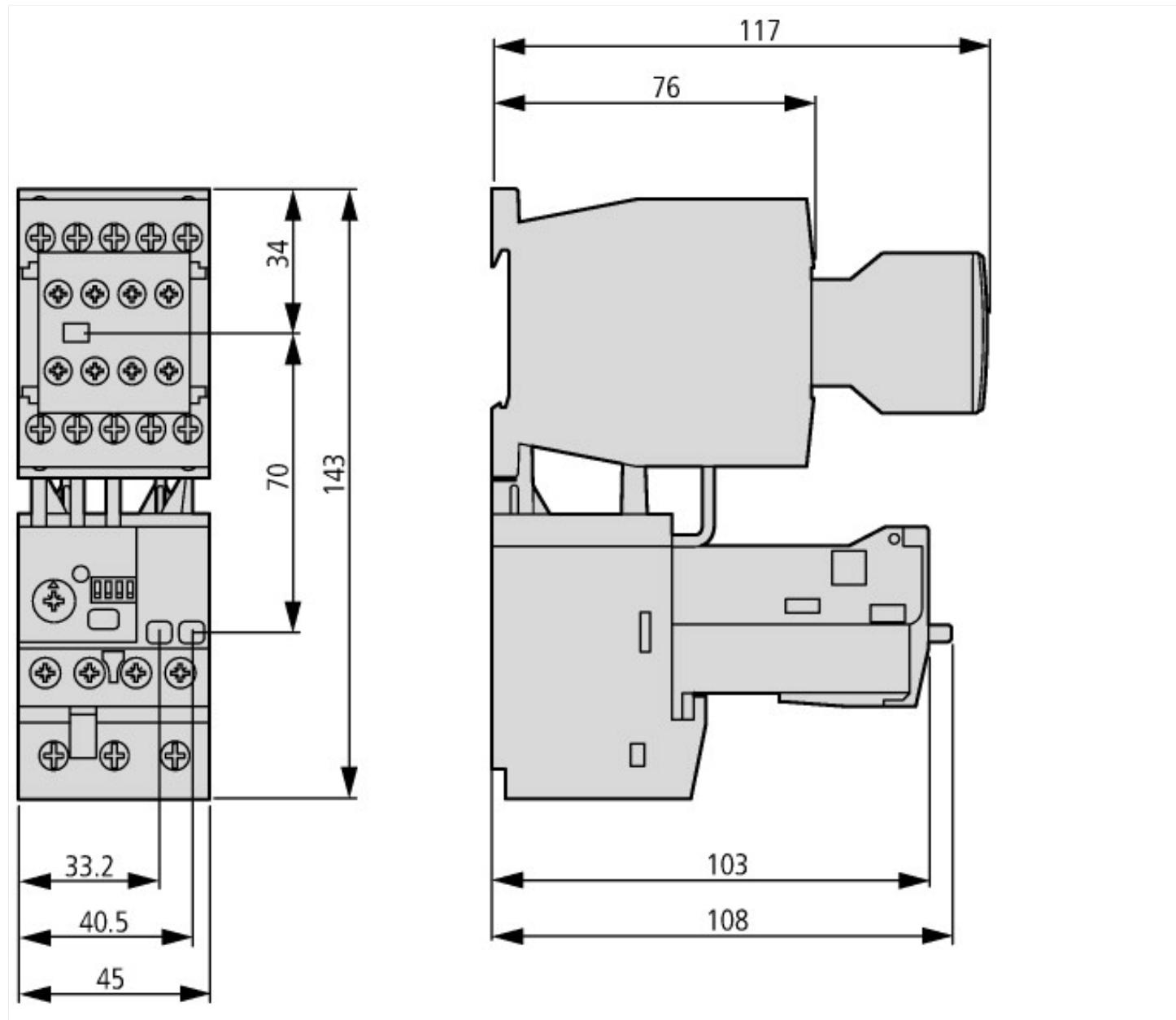
## Approvals

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)

### Instruction Leaflets

IL0421002E2018\_08