

Reversing starter 9A

Part no. EMS-RO-T-9-24VDC Article no. 170102 Catalog No. EMS-RO-T-9-24VDC



Delivery program

- control / programm			
Product range			Electronic motor starter
Basic function			Reversing starters (complete devices)
Description			DOL starting Reversing start Motor protection Circuit design: safety output stage with bypass, three-phase disconnect.
Conformity, Approval			
Explosion protection (according to ATEX 94/9/EC)			II (2) G [Ex e] [Ex d] [Ex px] II (2) D [Ex t] [Ex p]
EC-prototype test certification			PTB 13 ATEX 3003
Motor ratings			
Max. rating for three-phase motors, 50 - 60 Hz			
AC-53a			
380 V 400 V 415 V	P	kW	0.55 - 3
Setting range of overload releases	I _r	A_x	1,5 - 6,5 (AC-53a) 9 (AC-51)
Actuating voltage			24 V DC
Connection technique			Push in terminals
Connection to SmartWire-DT			no

Technical data

General			
Standards			IEC/EN 60947-4-2 UL508
Dimensions			
Width		mm	30
Height		mm	157
Depth		mm	123.5
Weight		kg	0.3
Mounting			Top-hat rail IEC/EN 60715, 35 mm
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20
Mounting position			Vertical Motor feeder at bottom
Lifespan, electrical	Operations		3 x 10 ⁷
Max. switching frequency		Operation h	n 3 /200 (pulse pause time 50:50)
Terminal capacity			
Solid		mm ²	1 x (0.75 - 2.5) 1 x AWG20 - 14
flexible, with ferrule		mm ²	2 x (0,75 - 2,5) 1 x AWG20 - 14
Notes			Minimum length 10 mm.
flexible, with twin ferrule		mm ²	2 x (0,75 - 1,5) 2 x AWG20 - 16
Notes			Minimum length 10 mm.
Climatic environmental conditions			

Operating ambient temperature	°C	-25 - +60, in accordance with IEC 60068-2-1
-------------------------------	----	---

Strange	Take appropriate measures to prevent condensation			ondensation
Manifer conducting paths		С	9	
Name of unsprovipolation degrages Name of unsprovipolation de		•		-
Deventings estegon/pollution degree	U _{imp} V AC 6000	/ AC	U _{imp}	
Rated operational voltage Rated operational current AC-511 AC-5132 Lg. A. 120 - 9 AC-5134 Heat dissipation, ron-current-dependent Bean installation (DECP-W3907-1 Bean installation (DECP-W39				· · · · · · · · · · · · · · · · · · ·
Retrot operational current		/	U _o	
AC-51			-6	
No. 5-San I.	1 0 0		1	
Heat classipation Py W 3.3 -14.5 Static heat dissipation, non-current-dependent Py W 1 Basic installation to EUCE/800947-1 Between supply, corrorul, and swelching voltages V AC 500 between feedback signal output and switch voltage V AC 500 State sealation to EUCE/800947-1 Between supply, control, and swelching voltages V AC 500 between feedback signal output and switch voltage V AC 500 State sealation to EUCE/800947-1 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, and swelching voltages V AC 500 Between supply, control, dependent voltage V AC 500 Between supply, control, de				
Static head dissipation, non-current-dependent Bease instalation to ECC-NINOSA-1 Between supply, control, and switching voltages between supply, control, and switching voltages Safe isolation to ECC-NINOSA-7 Between supply, control, and switching voltages Between supply, control, and switching voltages Between supply, control, and switching voltages between feedback signal output and switch voltage Safe isolation to EN STO78 Between supply, control, and switching voltages between problem of the spiral output and switch voltage Safe isolation to EN STO78 Safe isolation to EN		4		
Between supply, control, and switching voltages between feedback signal output and switch voltage Safe isolation to EN 50178 Between supply, control, and switching voltages Between supply, control, and switching volta	P _V W 3.3 - 14.6	V	P_V	eat dissipation
Between supply, control, and switching voltages between feedback signal output and switch voltage Safe isolation to ECCENDISS-7-1 Between supply, control, and switching voltages between feedback signal output and switch voltage Safe isolation to EN SD178 Between supply, control, and switching voltages Safe isolation to EN SD178 Between supply, control, and switching voltages Setting range of overfoad releases Release class CLASS Balance monitoring Magnitude l _{max} × l _{minul} (l _{max} · l _{minul} l _{max}) Magnitude l _{max} × l _{minul} (l _{max} · l _{minul} l _{max}) Magnitude l _{max} × l _{minul} l _{max} · l _{minul} l _{max} l _{minul} l	P_{vs} W 1	٧	P_{vs}	atic heat dissipation, non-current-dependent
Set is lead and cut put and switch voltage V AC Substitution to EICE/RESSIPAT-1				asic insulation to IEC/EN60947-1
Safe isolation to IEC/EN0897-1 Safe isolation to EC/EN0897-1 Between supply, control, and switching voltages VAC ≤ 300 Safe isolation to EN 50178 VAC ≤ 300 Between supply, control, and switching voltages between feedback signal output and switch voltage VAC 500 between feedback signal output and switch voltage VAC 500 Current measurement VAC 500 Eating range of overload releases LAS 15 - 65 AC-53a) Release class LAS 10 (L- ≤ 4A) Recovery time Iw min 2 (LAS) Balance monitoring Warrent measurement Warrent measurement Magnitude I _{max} > I _{rated} (I(Imax - I _{min})II _{max}) Swall protection Swall protection (Fr. Ausprochael 120 s boil ≤ 67, Ausproc	V AC 500	/ AC		Between supply, control, and switching voltages
Between supply, control, and switching voltages between feedback signal output and switch voltage Safe isolation to EN 50178 Between supply, control, and switching voltages V AC 500 Current measurement Setting range of overload releases Release class Ir Ax 1.5 - 6.5 (AC-53a)	V AC 500	/ AC		between feedback signal output and switch voltage
between feedback signal output and switch voltage Safe isolation to EN 50178 Between supply, control, and switching voltages Setting range of overload releases Release class Recovery time Magnitude l _{max} < l _{trated} (l/m _{max} - l _{min})/l _{max} dual may be a supply wortage Residual ripple on the input voltage Switching level "Low" by Color of 3-19.66 V V DC 3-19.66 Switching level "Low" color file of the supply "V DC 3-19.66 Switching level "Low" color file of the supply "V DC 3-19.66 Switching level "Low" color file of the supply "V DC 3-19.66 Switching level "Low" color file of the supply "V DC 3-19.66 Switching level "Low" color file of the supply "V DC 3-19.66 Switching level "Low" color file of the supply "V DC 3-19.6				afe isolation to IEC/EN60947-1
Debtween feedback signal output and switch voltage	V AC ≦ 300	/ AC		Between supply, control, and switching voltages
Set is isolation to EN 50178 Between supply, control, and switching voltages between feedback signal output and switch voltage Current measurement Setting range of overload releases Release class Release class Release class Release class Regresery time Magnitude Imax - Imain Imax of Manual Imax of Imain Imax of Imax of Imain Imax of Imain Imax of Imain Imax of Imain Imax of		/ AC		between feedback signal output and switch voltage
Between supply, control, and switching voltages VAC VAC				afe isolation to EN 50178
Detiveen feedback signal output and switch voltage VAC	V AC 500	/ AC		
Current measurement Ir A.x 15-6.5 (AC-53a) Release class Ir A.x 15-6.5 (AC-53a) Release class CLASS 10 (Ir≤ 4 A) Recovery time Iv min. 2 (manual startup) Belance monitoring ** bei ≤ 33. Ansprechzeit 120 s Magnitude Imax - Imini/Imaxi bei ≤ 67. Ansprechzeit 120 s Magnitude Imax - Imini/Imaxi bei ≤ 67. Ansprechzeit 1,8 s Stall protection ** bei ≤ 67. Ansprechzeit 1,8 s Stall protection S 2 Pick-up time I (1) or I (13) A 4 Pick-up time I (2) or I (13) A 4 Short-circuit rating S 2 Type "1" coordination Short-circuit protective device S0 kA, 500 V AC: Fuse 16 A gG/gL 50 kA, 415 V AC: PKM0-4 15 kA, 4				
Setting range of overload releases Release class CLASS 10 (Ir ≤ 4A) 100 (Ir > 4A) Recovery time Magnitude Imax > Instal (Imax - Imini) Imax) Magnitude Imax < Instal (Imax - Imini) Imax) Stall protection Pick-up time I (II) or I (I.3) Pick-up time I (I.1) or I (I.3) Short-circuit rating Type "1" coordination Short-circuit protective device Control section Input data Supply voltage Residual ripple on the input voltage Residual ripple on the input voltage Input current Note on input current Actueting circuit (ON, I, R) Switching level 'Low' Switching 'Lax AA) Ind (Imax AA) Sanana (Imax AA) Sanana (Imax AA) Sanan	. 7.0			
Release class CLASS CLASS 10 (ir = 4 A)	Δ γ 15.65 (ΛΩ-53ο)	۱ ۷	1	
Recovery time tw min. 2 (manual startup) 20 (automatic restart) Magnitude I _{max} > I _{rated} (I(I _{max} - I _{min})I/I _{max}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{max}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I/I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I _{rated}) Magnitude I _{max} < I _{rated} (I(I _{max} - I _{min})I _{rated}) Magnitude I _{max} < I _{rated} (I _{max} - I _{min})I _{rated} Magnitude I _{max} < I _{rated} (I _{max} - I _{min})I _{rated} Magnitude I _{max} < I _{rated} (I _{max} - I _{min})I _{rated} Magnitude I _{max} < I _{rated} (I _{max} - I _{min})I _{rated} Magnitude I _{max} < I _{rated} (I _{max} - I _{min})I _{rated} Magnitude I _{max} < I _{rated} (I _{ma}	9 (AC-51)		'r	
Balance monitoring Magnitude Imax > Irated (Imax - Imin/Nated) Magnitude Imax < Irated (Imax - Imin/Nated) M		LASS		Helease class
Magnitude I _{max} > I _{rated} ((I _{max} - I _{min})/I _{max}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Mei ⊆ 33, Ansprechzeit 120 s bei ⊆ 67, Ansprechzeit 120 s bei ⊆ 67, Ansprechzeit 1,8 s Stall protection Pick-up time I (L1) or I (L3) Pick-up time System or I' coordination Short-circuit protective device System or I' coordination Short-circuit protective device System or I' coordination Short-circuit protective device UAUX VDC A1 - A2: 24 (-20 - +25 %) A1 - A2: 24 (-20 - +25 %) Magnitude I _{max} < I _{min} I _m		nin.	t _W	
Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated} ((I _{max} - I _{min}				<u> </u>
Magnitude I _{max} < I _{rated} ((I _{max} - I _{min})/I _{rated}) Stall protection Pick-up time I (L1) or I (L3) Pick-up time S S 2 Short-circuit rating Type "1" coordination Short-circuit protective device So KA, 500 V AC: Fuse 16 A gG/gL 50 KA, 415 V AC: PKM0-4 15 KA, 415 V AC: PKM0-6,3 Control section Input data Supply voltage UAUX V DC Residual ripple on the input voltage Input current Note on input current Note on input current Note on input current Actuating circuit (ON, L, R) Switching level "Low" Switching level "confirm Off" W DC -3 - +9.6 Switching level "confirm Off"	bei — 33, Ansprechzeit 120 s	6		Magnitude $I_{max} > I_{rated}$ (($I_{max} - I_{min}$)/ I_{max})
Stall protection Pick-up time I (L1) or I (L3) Pick-up time S 2 Short-circuit rating Type "1" coordination Short-circuit protective device So kA, 500 V AC: Fuse 16 A gG/gL 50 kA, 415 V AC: PKM0-4 15 kA, 415 V AC: PKM0-6,3 Control section Input data Supply voltage Residual ripple on the input voltage Input current Note on input current Actuating circuit (ON, L, R) Switching level "Low" Switching level "confirm Off" V DC <3 - +9.6 Switching level "confirm Off" V DC <5	% bei = 33, Ansprechzeit 120 s	6		$Magnitude I_{max} < I_{rated} ((I_{max} - I_{min})/I_{rated})$
Pick-up time I (L1) or I (L3) Pick-up time S 2 Short-circuit rating Type "1" coordination Short-circuit protective device So kA, 500 V AC: Fuse 16 A gG/gL 50 kA, 415 V AC: PKM0-4 15 kA, 415 V AC: PKM0-6,3 Control section Input data Supply voltage Supply voltage Residual ripple on the input voltage Input current Note on input current Actuating circuit (ON, L, R) Switching level "Low" Switching level "confirm Off" A 45 45 45 45 45 45 46 47 40 40 40 40 40 40 40 40 40				tall protection
Pick-up time Short-circuit rating Type "1" coordination Short-circuit protective device So kA, 500 V AC: Fuse 16 A gG/gL 50 kA, 415 V AC: PKM0-4 15 kA, 415 V AC: PKM0-6,3 Control section Input data Supply voltage UAUX V DC A1 - A2: 24 (-20 - +25 %) A1 - A2: 24 (-20 - +25 %) Fesidual ripple on the input voltage Input current Note on input current Note on input current Actuating circuit (ON, L, R) Switching level "Low" V DC -3 - +9.6 Switching level "confirm Off"	A 45	1		
Short-circuit rating Type "1" coordination Short-circuit protective device Short-circuit protect				
Type "1" coordination Short-circuit protective device Short-circuit protective device has 50 kA, 500 V AC: Fuse 16 A g6/gL Short-circuit protective device has 50 kA, 500 V AC: Fuse 16 A g6/gL Short-circuit protective device has 50 kA, 415 V AC: PKM0-4 Short-circuit protective device has 415 V AC: PKM0-4 Short-circuit protective device Short-circuit protective device Short-circuit protective device Short-circuit protective device has 415 V AC: PKM0-4 Short-circuit protective device has 415 V AC: PKM0-4 Short-circuit protective has 415 V AC: PKM0-4 Short-circuit protection has 415 V AC: PKM0-4 Short-circu				·
Short-circuit protective device 50 kA, 500 V AC: Fuse 16 A gG/gL 50 kA, 415 V AC: PKM0-4 15 kA, 415 V AC: PKM0-6,3 Control section Input data Supply voltage UAUX V DC A1 - A2: 24 (-20 - +25 %) Residual ripple on the input voltage % \$\frac{1}{5}\$ Input current Note on input current Note on input current Actuating circuit (ON, L, R) Switching level "Low" V DC -3 - +9.6 Switching level "confirm Off" V DC <5				
Control section Input data Supply voltage Residual ripple on the input voltage Input current Note on input current Actuating circuit (ON, L, R) Switching level "Low" Switching level "confirm Off" V DC A1 - A2: 24 (-20 - +25 %) MA	50 kA, 415 V AC: PKM0-4			
Supply voltage Residual ripple on the input voltage W Sesidual ripple on the input v				ontrol section
Residual ripple on the input voltage % ≤ 5 Input current MA 40 Note on input current Actuating circuit (ON, L, R) Switching level "Low" V DC -3 - +9.6 Switching level "confirm Off" V DC <5				put data
Input current Note on input current Actuating circuit (ON, L, R) Switching level "Low" Switching level "confirm Off" WA 40 without feedback signal V DC -3 - +9.6 V DC <5	U _{AUX} V DC A1 - A2: 24 (-20 - +25 %)	/ DC	U _{AUX}	Supply voltage
Note on input current Actuating circuit (ON, L, R) Switching level "Low" V DC -3 - +9.6 Switching level "confirm Off" V DC <5	% ≤ ₅	6		Residual ripple on the input voltage
Actuating circuit (ON, L, R) V DC -3 - +9.6 Switching level "confirm Off" V DC < 5	mA 40	nA		Input current
Switching level "Low" V DC -3 - +9.6 Switching level "confirm Off" V DC <5	without feedback signal			Note on input current
Switching level "confirm Off" V DC < 5				ctuating circuit (ON, L, R)
	V DC -3 - +9.6	/ DC		Switching level "Low"
Switching level "High" V DC 19.2 - 30	V DC < 5	/ DC		Switching level "confirm Off"
	V DC 19.2 - 30	/ DC		Switching level "High"
Input current mA 5	mA 5	nA		
Feedback outputs				
Notes Contacts 95, 96 or 98	Contacts 95. 96 or 98			
Contacts	55.114515 55, 55 51 53			
CO = changeover 1 CO	1 00			

Rated operational voltage	U _e	V AC/DC	250
Rated operational current			
AC-15			
230 V	l _e	Α	3
DC-13			
24 V	le	Α	2
Electromagnetic compatibility (EMC)			
Electrostatic discharge (ESD)			
applied standard			IEC EN 61000-4-2, Level 3
Air discharge		kV	8
Contact discharge		kV	6
Electromagnetic fields (RFI)			
applied standard			IEC/EN 61000-4-3
		V/m	800 - 1000 MHz: 10 1.4 - 2 GHz: 10 2.0 - 2.7 GHz: 3
Radio interference suppression			EN 55011, Class A (emitted interference, line-conducted) EN 61000-6-3, Class A (emitted interference, radiated)
Note on use			This product is designed for operation in industrial environments (environment 2). The use in residential environments (environment 1) could cause electrical interference so that addition suppression must be planned.
Burst		kV	2 IEC/EN 61000-4-4, level 3
power pulses (Surge)			1 kV (symmetrical) 2 kV (asymmetrical) according to IEC/EN 61000-4-5
Immunity to line-conducted interference to (IEC/EN 61000-4-6)		V	10
Technical safety parameters:			
Notes			motor protection
Ambient temperature		°C	40
Values according to EN ISO 13849-1			
MTTF _d	Years		316
Values according to IEC 62061			
			λsd [FIT]: 0 λsu [FIT]: 1731 λdd [FIT]: 314 λdu [FIT]: 47,2 SFF [%]: 97,7 DC [%]: 86,9 SIL: 2

Design verification as per IEC/EN 61439

boorgii voriiioadion do por ibo, bit or ibo			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	6.5
Heat dissipation per pole, current-dependent	P_{vid}	W	2.1
Equipment heat dissipation, current-dependent	P _{vid}	W	6.3
Static heat dissipation, non-current-dependent	P_{vs}	W	1
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
EC/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 6.0

Low-voltage industrial components (EG000017) / Motor starter/Motor starter combination (EC001037)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Motor starter combination (ecl@ss8.1-27-37-09-05 [AJZ718010])

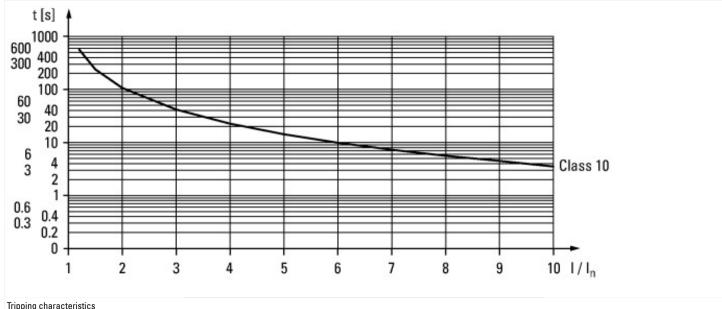
With short-circuit release No Rated control supply voltage Us at AC 50HZ V 0 - 0 Rated control supply voltage Us at AC 50HZ V 0 - 0 Rated control supply voltage Us at AC 50HZ V 2 - 4 - 4 Voltage type for actualing DC Rated operation power at AC-3, 230 V, 3-phase kW 1.5 Rated operation power at AC-3, 400 V kW 3 Rated power, 575 V, 60 Hz, 3-phase kW 2.2 Rated power, 575 V, 60 Hz, 3-phase kW 0 Rated power, 476 V, 60 Hz, 3-phase kW 0 Rated power, 575 V, 60 Hz, 3-phase kW 0 Rated power, 476 V, 60 Hz, 3-phase kW 0 Rated power, 575 V, 60 Hz, 3-phase kW 0 Rated power, 575 V, 60 Hz, 3-phase kW 0 Rated power, 575 V, 60 Hz, 3-phase kW 0 Rated operation current at AC-3, 400 V A 0 Voverload relases current at exting kW 0 Rated conditional short-circuit current, type 2, 280 V A 0 Rated conditional sh	· · · · · · · · · · · · · · · · · · ·		
Rated control supply voltage Us at AC 80HZ V 0 Rated control supply voltage Us at CC 80HZ V 0 Voltage type for a clusted Ing V 24 - 24 Rated operation power at AC-3, 230 V.3-phase kW 15 Rated operation power at AC-3, 400 V kW 2 Rated operation current at AC-3, 400 V kW 2 Rated operation current at AC-3, 400 V A 9 Rated operation current at AC-3, 400 V A 9 Rated operation current at AC-3, 400 V A 55-9 Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 1, 500 Y/347 V A 0 Rated conditional short-circuit current, type 2, 230 V A 0 Rated conditional short-circuit current, type 2, 230 V A 0 Rated conditional short-circuit current, type 2, 230 V A 0 Rated conditional short-circuit current, type 2, 230 V A 0 Rated conditional short-circuit current, type 2, 400 V A 0 Rated conditional short-circuit current, type 2, 400 V A<	Kind of motor starter		Reversing starter
Rated control supply voltage Us at DC V 2 - 24 Voltage Upper for actuating DC Rated control supply voltage Us at DC VW 24 - 24 Voltage Upper for actuating RW 15 Rated operation power at AC-3, 200 V, 3-phase RW 3 Rated operation power at AC-3, 400 V RW 2 Rated operation current le Rated Operation current et AC-3, 400 V A 5 Rated operation current at AC-3, 400 V A 55 - 9 Rated operation current setting A 15 - 9 Rated conditional short-circuit current, type 1, 480 V/277 V A 0 Rated conditional short-circuit current, type 1, 200 V, 340 V A 0 Rated conditional short-circuit current, type 1, 200 V, 340 V A 0 Rated conditional short-circuit current, type 2, 200 V A 0 Rated conditional short-circuit current, type 2, 200 V A 0 Rated conditional short-circuit current, type 2, 200 V A 0 Rated conditional short-circuit current, type 2, 400 V A 0 Rated conditional short-circuit current, type 2, 200 V A<	With short-circuit release		No
Act of control supply voltage Us at DC	Rated control supply voltage Us at AC 50HZ	V	0 - 0
Voltage type for actuating Rated operation power at AC-3, 230 V, 3-phase Rated operation power at AC-3, 230 V, 3-phase Rated power, 460 V, 60 Hz, 3-phase Rated power, 460 V, 60 Hz, 3-phase Rated power, 575 V, 60 Hz, 3-phase Rated power, 575 V, 60 Hz, 3-phase Rated power, 575 V, 60 Hz, 3-phase Rated operation current to Rated operation current at AC-3, 400 V A	Rated control supply voltage Us at AC 60HZ	V	0 - 0
Rated operation power at AC-3, 230 V, 3-phase kW 1.5 Rated operation power at AC-3, 400 V kW 2.2 Rated power, 575 V, 60 Hz, 3-phase kW 0 Rated operation current at AC-3, 400 V A 6.5 Rated operation current at AC-3, 400 V A 6.5 Overload release current setting A 1.5 - 9 Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 2, 400 V/347 V A 0 Rated conditional short-circuit current, type 2, 400 V A 0 Rated conditional short-circuit current, type 2, 400 V A 0 Number of auxiliary contacts as normally open contact 1 1 Number of auxiliary contacts as normally closed contact Yes CLASS 10 Release class CLASS 10 Spring clamp connection Type of electrical connection of main circuit Spring clamp connection Type of electrical connection of main circuit Spring clamp connection Supporting protocol for PROFIBUS No Supporting protocol for PROFIBUS No <	Rated control supply voltage Us at DC	V	24 - 24
Rated operation power at AC-3, 400 V kW 2.2 Rated power, 480 V, 60 Hz, 3-phase kW 0 Rated operation current la AC-3, 400 V A 9 Deverage activation current at AC-3, 400 V A 6.5 Overload release current setting A 1.5 - 9 Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 2, 230 V A 0 Rated conditional short-circuit current, type 2, 240 V A 0 Rated acconditional short-circuit current, type 2, 400 V A 0 Number of auxiliary contacts as normally closed contact 1 1 Number of auxiliary contacts as normally closed contact C 40 Tomperature compensated overload protection Yes CLASS 10 Release class CLASS 10 Spring clamp connection Type of electrical connection of main circuit Yes Spring clamp connection Poes electrical connection of main circuit Poes Poes Supporting protocol for PCP/IP No No Supporting protocol for PCP/IP No<	Voltage type for actuating		DC
Rated power, 460 V, 60 Hz, 3-phase Rated power, 575 V, 60 Hz, 3-phase Rated operation current le Rated operation current at AC-3,400 V Overload release current setting Rated conditional short-circuit current, type 1,480 Y/277 V Rated conditional short-circuit current, type 1,600 Y/347 V Rated conditional short-circuit current, type 2,200 V Rated conditional short-circuit current, type 2,200 V Rated conditional short-circuit current, type 2,200 V Rated conditional short-circuit current, type 2,400 V Rated conditional short-circuit current, type 2,500 V Rated conditional short-circuit current, type 2,600 V Rated conditional short-circui	Rated operation power at AC-3, 230 V, 3-phase	kW	1.5
Rated power, 575 V, 60 Hz, 2-phase Rated operation current le Rated operation current at AC-3, 400 V Overload release current setting Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 240 V Rated conditional short-circuit current, type 2, 400 V Rated conditional short-circuit current, type	Rated operation power at AC-3, 400 V	kW	3
Rated operation current la A 9 Rated operation current at AC-3, 400 V A 1.5 - 9 Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 1, 690 Y/347 V A 0 Rated conditional short-circuit current, type 1, 690 Y/347 V A 0 Rated conditional short-circuit current, type 2, 230 V A 0 Rated conditional short-circuit current, type 2, 240 V A 0 Rated conditional short-circuit current, type 2, 400 V A 0 Rumber of auxiliary contacts as normally open contact I 1 Rumber of auxiliary contacts as normally closed contact I 1 Reperature compensated overload protection Yes Release class Type of electrical connection of main circuit Temperature compensated overload protection Felexia connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rall mounting possible Degree of protection (IP) Supporting protocol for PROFIBUS Supporting protocol for PROFIBUS Supporting protocol for CAAN Supporting protocol for CAAN Supporting protocol for CASI Supporting protocol for ASI Supporting protocol for Data-Highway Supporting protocol for Data-Highway Supporting protocol for Data-Highway	Rated power, 460 V, 60 Hz, 3-phase	kW	2.2
Rated operation current at AC-3, 400 V Overload release current setting Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 1, 600 Y/347 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 400 V Number of auxiliary contacts as normally open contact Number of auxiliary contacts as normally closed contact Release class Release c	Rated power, 575 V, 60 Hz, 3-phase	kW	0
Overload release current setting Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 1, 600 Y/347 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 400 V Rated conditional short-circuit current type 3, 400 V Rated conditional short-circuit current type 2, 400 V Rated conditional short-circuit current type 3, 400 V Rated conditional short-circuit current type 2, 400 V Rated conditional short-circuit current type 2	Rated operation current le	Α	9
Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 1, 600 Y/347 V A 0 Rated conditional short-circuit current, type 2, 230 V A 0 Rated conditional short-circuit current, type 2, 230 V A 0 Rated conditional short-circuit current, type 2, 2400 V A 0 Rumber of auxiliary contacts as normally open contact 1 1 Rumber of auxiliary contacts as normally closed contact 1 1	Rated operation current at AC-3, 400 V	Α	6.5
Rated conditional short-circuit current, type 1,600 Y/347 V A 0 Rated conditional short-circuit current, type 2,230 V A 0 Rated conditional short-circuit current, type 2,400 V A 0 Number of auxiliary contacts as normally closed contact 1 Ambient temperature, upper operating limit °C 40 Temperature compensated overload protection Yes CLASS 10 Type of electrical connection of main circuit Spring clamp connection Spring clamp connection Type of electrical connection for auxiliary- and control current circuit Spring clamp connection Yes Buggree of protection (IP) Yes IP20 Supporting protocol for TCP/IP No No Supporting protocol for PROFIBUS No No Supporting protocol for INTERBUS No No Supporting protocol for ASI No No Supporting protocol for MODBUS No No Supporting protocol for Data-Highway No No Supporting protocol for Data-Highway No No	Overload release current setting	Α	1.5 - 9
Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 400 V Number of auxiliary contacts as normally open contact Number of auxiliary contacts as normally closed contacts Number of auxiliary contacts as n	Rated conditional short-circuit current, type 1, 480 Y/277 V	Α	0
Rated conditional short-circuit current, type 2, 400 V Number of auxiliary contacts as normally open contact Number of auxiliary contacts as normally closed contact 1 Auxiliary contacts as normally closed contact 1 4 4 4 4 4 4 4 4 4 4 4 4	Rated conditional short-circuit current, type 1, 600 Y/347 V	Α	0
Number of auxiliary contacts as normally open contact Number of auxiliary contacts as normally closed contact Ambient temperature, upper operating limit C 40 Temperature compensated overload protection Release class Release class CLASS 10 Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible Degree of protection (IP) Supporting protocol for TCP/IP Supporting protocol for TCP/IP Supporting protocol for CAN Supporting protocol for CAN Supporting protocol for ASI Supporting protocol for MODBUS Supporting protocol for MODBUS Supporting protocol for Data-Highway No Supporting protocol for Data-Highway	Rated conditional short-circuit current, type 2, 230 V	Α	0
Number of auxiliary contacts as normally closed contact Ambient temperature, upper operating limit CC 40 Temperature compensated overload protection Release class CLASS 10 Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible Degree of protection (IP) Supporting protocol for TCP/IP Supporting protocol for PROFIBUS Supporting protocol for CAN Supporting protocol for CAN Supporting protocol for ASI Supporting protocol for ASI Supporting protocol for MODBUS Supporting protocol for Data-Highway I auxiliary and control current circuit SPring clamp connection Fyes Pes IP20 No No No No Supporting protocol for PROFIBUS No No Supporting protocol for CAN No Supporting protocol for CAN No Supporting protocol for ASI No No Supporting protocol for ASI No No Supporting protocol for MODBUS No No No No No No No No No N	Rated conditional short-circuit current, type 2, 400 V	Α	0
Ambient temperature, , upper operating limit °C 40 Temperature compensated overload protection Yes Release class CLASS 10 Type of electrical connection of main circuit Spring clamp connection Type of electrical connection for auxiliary- and control current circuit Spring clamp connection Rail mounting possible Yes Degree of protection (IP) IP20 Supporting protocol for TCP/IP No Supporting protocol for TCP/IP No Supporting protocol for PROFIBUS Supporting protocol for CAN No Supporting protocol for CAN No Supporting protocol for INTERBUS Supporting protocol for INTERBUS Supporting protocol for ASI Supporting protocol for MODBUS Supporting protocol for Data-Highway No Supporting protocol for Data-Highway	Number of auxiliary contacts as normally open contact		1
Temperature compensated overload protection Release class CLASS 10 Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible Degree of protection (IP) Supporting protocol for TCP/IP Supporting protocol for PROFIBUS No Supporting protocol for CAN Supporting protocol for CAN Supporting protocol for INTERBUS No Supporting protocol for INTERBUS No Supporting protocol for ASI Supporting protocol for MODBUS No Supporting protocol for MODBUS No Supporting protocol for Data-Highway No Supporting protocol for Data-Highway	Number of auxiliary contacts as normally closed contact		1
Release class Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible Pegree of protection (IP) Supporting protocol for TCP/IP Supporting protocol for PROFIBUS No Supporting protocol for CAN Supporting protocol for INTERBUS No Supporting protocol for INTERBUS No Supporting protocol for ASI Supporting protocol for MODBUS No Supporting protocol for Data-Highway No	Ambient temperature, , upper operating limit	°C	40
Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible Pegree of protection (IP) Supporting protocol for TCP/IP No Supporting protocol for PROFIBUS No Supporting protocol for CAN Supporting protocol for INTERBUS No Supporting protocol for ASI Supporting protocol for MODBUS Supporting protocol for MODBUS No Supporting protocol for Data-Highway No Supporting protocol for Data-Highway	Temperature compensated overload protection		Yes
Type of electrical connection for auxiliary- and control current circuit Rail mounting possible Yes Degree of protection (IP) Supporting protocol for TCP/IP No Supporting protocol for PROFIBUS No Supporting protocol for CAN Supporting protocol for INTERBUS No Supporting protocol for ASI No Supporting protocol for ASI No Supporting protocol for MODBUS Supporting protocol for Data-Highway No No No No No No No No No N	Release class		CLASS 10
Rail mounting possible Degree of protection (IP) Supporting protocol for TCP/IP Supporting protocol for PROFIBUS Supporting protocol for CAN Supporting protocol for INTERBUS Supporting protocol for INTERBUS Supporting protocol for ASI Supporting protocol for MODBUS Supporting protocol for MODBUS Supporting protocol for Data-Highway No	Type of electrical connection of main circuit		Spring clamp connection
Degree of protection (IP) Supporting protocol for TCP/IP No Supporting protocol for PROFIBUS No Supporting protocol for CAN Supporting protocol for INTERBUS No Supporting protocol for ASI Supporting protocol for MODBUS Supporting protocol for Data-Highway No Supporting protocol for Data-Highway	Type of electrical connection for auxiliary- and control current circuit		Spring clamp connection
Supporting protocol for TCP/IP Supporting protocol for PROFIBUS No Supporting protocol for CAN Supporting protocol for INTERBUS No Supporting protocol for ASI Supporting protocol for MODBUS Supporting protocol for Data-Highway No	Rail mounting possible		Yes
Supporting protocol for PROFIBUS Supporting protocol for CAN Supporting protocol for INTERBUS No Supporting protocol for ASI Supporting protocol for MODBUS Supporting protocol for Data-Highway No	Degree of protection (IP)		IP20
Supporting protocol for CAN Supporting protocol for INTERBUS No Supporting protocol for ASI No Supporting protocol for MODBUS Supporting protocol for Data-Highway No	Supporting protocol for TCP/IP		No
Supporting protocol for INTERBUS Supporting protocol for ASI Supporting protocol for MODBUS Supporting protocol for Data-Highway No	Supporting protocol for PROFIBUS		No
Supporting protocol for ASI Supporting protocol for MODBUS Supporting protocol for Data-Highway No	Supporting protocol for CAN		No
Supporting protocol for MODBUS Supporting protocol for Data-Highway No	Supporting protocol for INTERBUS		No
Supporting protocol for Data-Highway No	Supporting protocol for ASI		No
	Supporting protocol for MODBUS		No
Supporting protocol for DeviceNet No	Supporting protocol for Data-Highway		No
	Supporting protocol for DeviceNet		No

Supporting protocol for SUCONET	No
Supporting protocol for LON	No
Supporting protocol for PROFINET IO	No
Supporting protocol for PROFINET CBA	No
Supporting protocol for SERCOS	No
Supporting protocol for Foundation Fieldbus	No
Supporting protocol for EtherNet/IP	No
Supporting protocol for AS-Interface Safety at Work	No
Supporting protocol for DeviceNet Safety	No
Supporting protocol for INTERBUS-Safety	No
Supporting protocol for PROFIsafe	No
Supporting protocol for SafetyBUS p	No
Supporting protocol for other bus systems	No

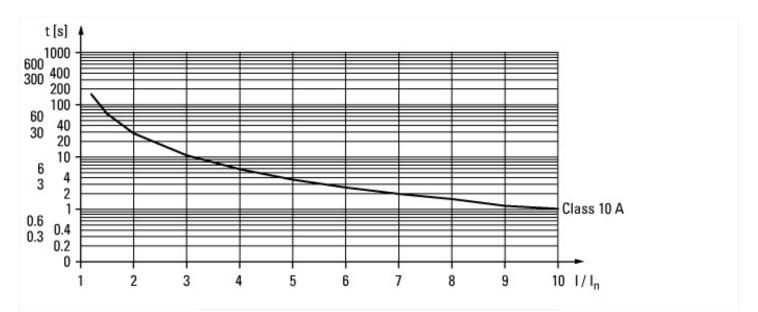
Approvals

Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
UL File No.	E29096
UL Category Control No.	NLDX, NLDX7
CSA File No.	UL report applies to both US and Canada
North America Certification	UL listed, certified by UL for use in Canada
Specially designed for North America	No

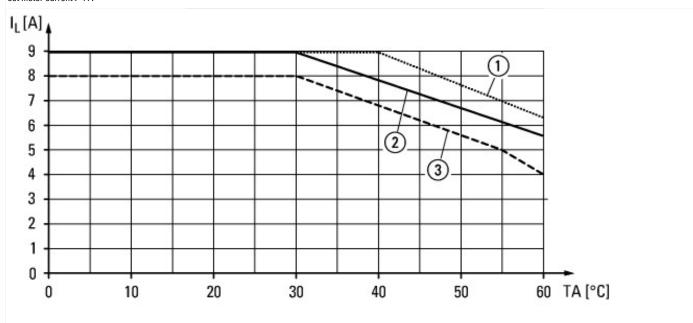
Characteristics



Tripping characteristics
CLASS 10
set motor current = 4 A



Tripping characteristics CLASS 10A set motor current > 4 A



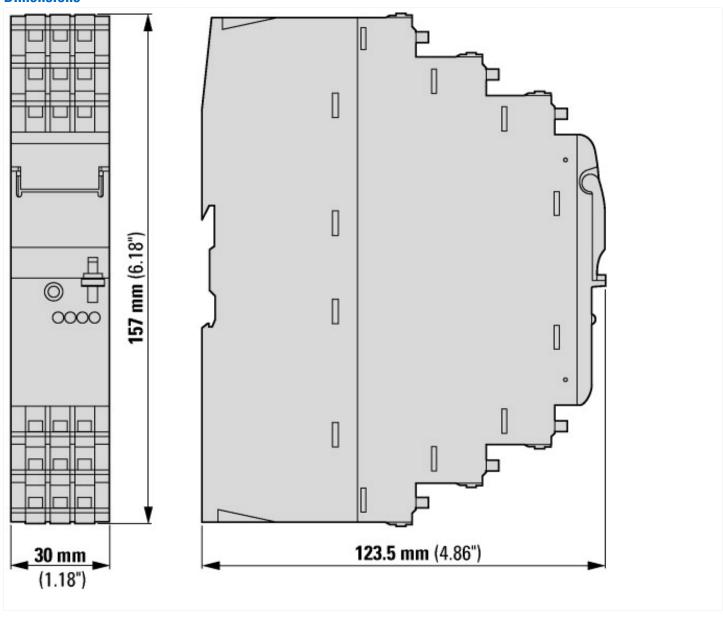
Current derating

(1) Single device

2 connected in series with 30 mm clearance

3 connected in series without clearance

Dimensions



Additional product information (links)

IL03407198Z Electronic motor starter EMS	
IL03407198Z Electronic motor starter EMS	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407198Z2015_03.pdf
MN03407009Z EMS electronic motor starter	
MN03407009Z EMS electronic motor starter - Deutsch / English	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN03407009Z_DE_EN.pdf
Produktinformation EMS, Hinweise zur Projektierung	http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_1040938_de.pdf