

Amplifier module, for separate mounting

Part no. ETS4-VS3
 Catalog No. 083094

Delivery program

Rated operational current				
AC-15				
240 V	I_e	A		2
415 V	I_e	A		2
DC				
Notes				Switch-on and switch-off conditions based on DC-13, time constant as specified.
DC-13 L/R - 300 ms				
220 V				
220 V	I_e	A		0.03
Actuating voltage	U_s	V DC		24
Actuating current	I	mA		25
Contact sequence				
For use with				DILM... DILMP... DILL... DILK... DILMF... As required
Description				Input with built-in suppressor circuit for overvoltage limitation

Instructions Contactor coils with rated operational current > 2 A must be actuated via the DILER-G mini contactor relay.

Technical data

General				
Standards				IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical				
DC operated	Operations	$\times 10^6$		30
Maximum operating frequency			Ops./h	
DC operated	Operations	$\times 10^6$		72000
Climatic proofing				Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature				
Open		°C		-25 - +60
Enclosed		°C		- 25 - 45
Mounting position				As required
Mechanical shock resistance (IEC/EN 60068-2-27)				
Half-sinusoidal shock, 20 ms		g		
N/O contact		g		10
Degree of Protection				IP20
Protection against direct contact when actuated from front (EN 50274)				Finger and back-of-hand proof
Weight		kg		0.09
Terminal capacities		mm^2		
Notes				Only use equal cross-sections.
Solid		mm^2		1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Flexible with ferrule		mm^2		1 x (0.75 - 2.5) 2 x (0.75 - 1.5)

Solid or stranded		AWG	16 - 14
Terminal screw			M3.5
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	0.8 x 5.5 1 x 6
Max. tightening torque		Nm	1.2

Contacts

Rated impulse withstand voltage	U_{imp}	V AC	6000
Overvoltage category/pollution degree			III/2
Rated insulation voltage	U_i	V AC	440
Rated operational voltage	U_e	V	440 AC
Rated operational current	I_e	A	
AC-15			
220 V 230 V 240 V	I_e	A	2
380 V 400 V 415 V	I_e	A	2
DC-13			
DC-13 L/R - 15 ms			
Contacts in series:		A	
1	24 V	A	2.6
1	60 V	A	1
1	110 V	A	0.6
1	220 V	A	0.2
DC L/R \leq 50 ms			
Contacts in series:		A	
1	24 V	A	2
1	60 V	A	0.6
1	110 V	A	0.08
1	220 V	A	0.08
DC-13 L/R - 300 ms			
Contacts in series:		A	
1	24 V	A	0.6
1	60 V	A	0.2
1	110 V	A	0.08
1	220 V	A	0.03
Control circuit reliability	Failure rate	λ	$<10^{-8}$, < one failure at 100 million operations (at $U_e = 24$ V DC, $U_{min} = 17$ V, $I_{min} = 5.4$ mA)
Conventional thermal current	I_{th}	A	6
Component lifespan			
AC-15			
230 V, $I_e = 0.1$ A	Operations	$\times 10^6$	7
230 V, $I_e = 1.2$ A	Operations	$\times 10^6$	1
Short-circuit rating without welding			
Short-circuit protection maximum fuse			
500 V		A fast	4

Magnet systems

Voltage tolerance			
Pick-up voltage		$\times U_s$	
DC operated	Pick-up	$\times U_c$	
	Pick-up	$\times U_c$	0.85 - 1.2
Power consumption			
DC operated	Pull-in = sealing	W	0.6
duty factor		% DF	100
Changeover time at 100 % U_S (recommended value)			
DC operated closing delay		ms	

Switching times, DC operated, max. closing delay	ms	7
DC operated, opening delay	ms	3

Notes

Notes For rated operational current: Making and breaking conditions to DC-13, L/R constant as stated
 Max. fuses for short-circuit protection: Transparent overlay "Fuses" for time/current characteristics (please enquire)
 For pick-up voltage, DC operated: Pure DC, AC bridge rectifier or smoothed double-wave rectification.
 For connection cross section: only use equal cross-sections

Rating data for approved types

Auxiliary contacts		
Pilot Duty		
AC operated		B300

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	0
Heat dissipation per pole, current-dependent	P_{vid}	W	0
Equipment heat dissipation, current-dependent	P_{vid}	W	0
Static heat dissipation, non-current-dependent	P_{vs}	W	0.47
Heat dissipation capacity	P_{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
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 8.0

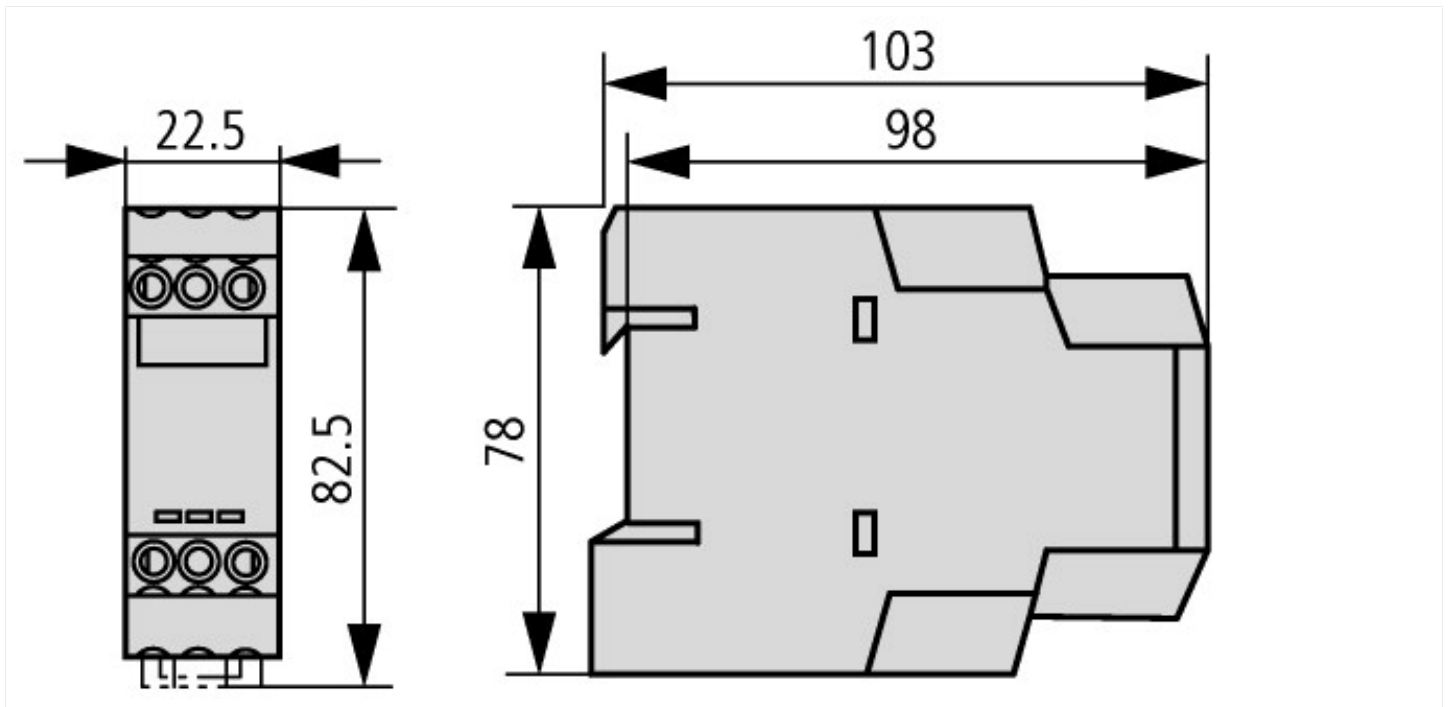
Low-voltage industrial components (EG000017) / Contactor relay (EC000196)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Contactor relay (ecl@ss10.0.1-27-37-10-01 [AAB716014])		
Rated control supply voltage U_s at AC 50HZ	V	0 - 0
Rated control supply voltage U_s at AC 60HZ	V	0 - 0
Rated control supply voltage U_s at DC	V	24 - 24
Voltage type for actuating		DC
Rated operation current I_e , 400 V	A	2

Connection type auxiliary circuit		Screw connection
Mounting method		DIN rail
Interface		No
Number of auxiliary contacts as normally closed contact		1
Number of auxiliary contacts as normally open contact		1
Number of auxiliary contacts as normally closed contact, delayed switching		0
Number of auxiliary contacts as normally open contact, leading		0
Number of auxiliary contacts as change-over contact		0
With LED indication		Yes
Suitable for manual operation		No

Approvals

Product Standards		IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking
UL File No.		E29184
UL Category Control No.		NKCR
CSA File No.		012528
CSA Class No.		2411-03, 3211-04
North America Certification		UL listed, CSA certified
Specially designed for North America		No

Dimensions



Additional product information (links)

Motor starters and "Special Purpose Ratings" for the North American market	http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf
Switchgear of Power Factor Correction Systems	http://www.moeller.net/binary/ver_techpapers/ver934en.pdf
X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely	http://www.moeller.net/binary/ver_techpapers/ver938en.pdf
Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions	http://www.moeller.net/binary/ver_techpapers/ver944en.pdf
Effect of the Cable Capacitance of Long Control Cables on the Actuation of Contactors	http://www.moeller.net/binary/ver_techpapers/ver949en.pdf
Switchgear for Luminaires	http://www.moeller.net/binary/ver_techpapers/ver955en.pdf
Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts	http://www.moeller.net/binary/ver_techpapers/ver956en.pdf
The Interaction of Contactors with PLCs	http://www.moeller.net/binary/ver_techpapers/ver957en.pdf
Busbar Component Adapters for modern Industrial control panels	http://www.moeller.net/binary/ver_techpapers/ver960en.pdf