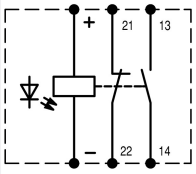
# DATASHEET - ETS4-VS3

**Amplifier module, for separate mounting**

**Part no.** ETS4-VS3
**Catalog No.** 083094

Powering Business Worldwide

## 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...<br>DILMP...<br>DILL...<br>DILK...<br>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 | x $10^6$ | 30 |
| Maximum operating frequency | | Ops./h | |
| DC operated | Operations | x $10^6$ | 72000 |
| Climatic proofing | | | Damp heat, constant, to IEC 60068-2-78<br>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)<br>2 x (0.75 - 2.5) |
| Flexible with ferrule | | $mm^2$ | 1 x (0.75 - 2.5)<br>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<br>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 ≦ 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<br>(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 | x $10^6$ | 7 |
| 230 V, $I_e$ = 1.2 A | Operations | x $10^6$ | 1 |
| Short-circuit rating without welding | | | |
| Short-circuit protection maximum fuse | | | |
| 500 V | | A fast | 4 |

## Magnet systems

| | | | |
|---|---|---|---|
| Voltage tolerance | | | |
| Pick-up voltage | | x $U_s$ | |
| DC operated | Pick-up | x $U_c$ | |
| | Pick-up | x $U_c$ | 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 7.0

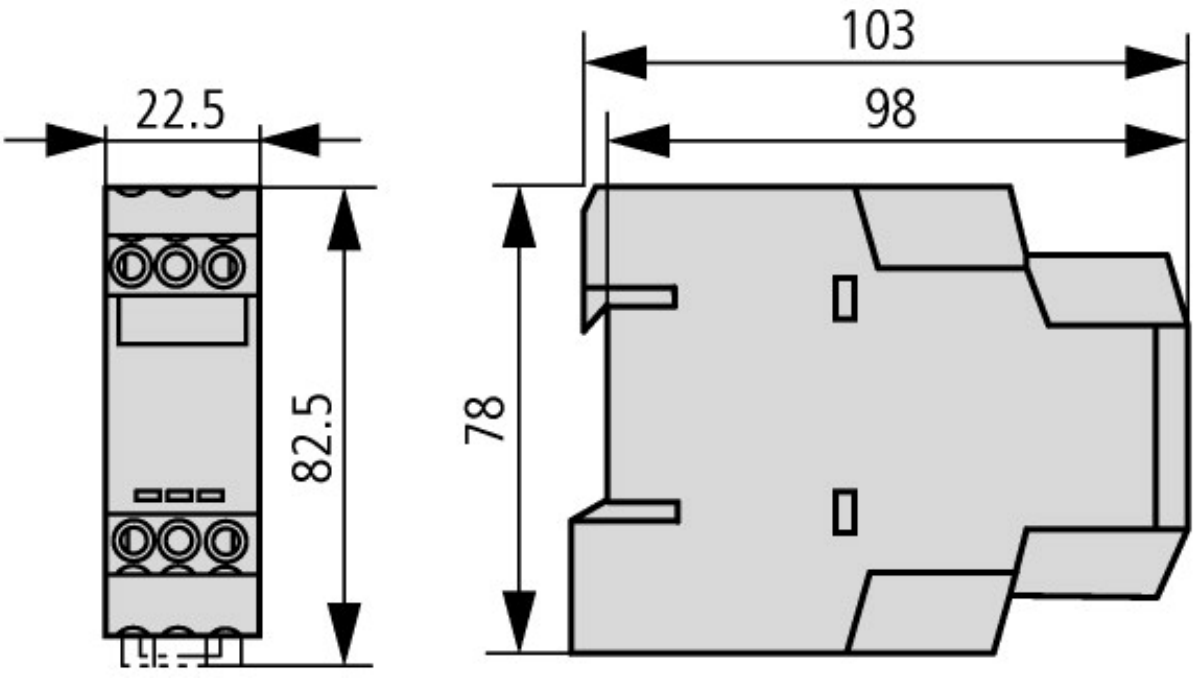
| | | | |
|---|---|---|---|
| Low-voltage industrial components (EG000017) / Contactor relay (EC000196) | | | |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Contactor relay (ecl@ss10.0.1-27-37-10-01 [AAB716014]) | | | |
| Rated control supply voltage 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 | 24 - 24 |
| Voltage type for actuating | | DC |
| Rated operation current Ie, 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 |
| With LED indication | | Yes |
| Number of auxiliary contacts as change-over contact | | 0 |
| Manual operation possible | | 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 Cabel 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 |

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|---|---|
| Busbar Component Adapters for modern Industrial control panels | http://www.moeller.net/binary/ver_techpapers/ver960en.pdf |