




DOL starter, 24 V DC, 0,18 - 3 A, Push in terminals, Controlled stop, PTB 19 ATEX 3000



Part no. EMS2-DOS-T-3-24VDC
Catalog No. 192393
Alternate Catalog No. EMS2-DOS-T-3-24VDC
EL-Nummer (Norway) 4100378

Delivery program

| | | | |
|--|----------------|----------------|---|
| Product range | | | Electronic motor starter |
| Basic function | | | DOL starters (complete devices) |
| Description | | | DOL starting Motor protection Emergency-stop actuator Circuit design: safety output stage with bypass, three-phase disconnect. |
| Conformity, Approval | | | |
| Explosion protection (according to ATEX 94/9/EC) | | | II (2) G [Ex db] [Ex eb] [Ex pxb] II (2) D [Ex tb] [Ex pb] |
| EC-prototype test certification | | | PTB 19 ATEX 3000 |
| Motor ratings | | | |
| Max. rating for three-phase motors, 50 - 60 Hz | | | |
| AC-53a | | | |
| 380 V 400 V 415 V | P | kW | 0.06 - 1.1 |
| Setting range of overload releases | I _r | A _x | 0,18 - 3 |
|  | | | |
| Actuating voltage | | | 24 V DC |
| Connection technique | | | Push in terminals |
| Stop Function | | | Controlled stop |
| Connection to SmartWire-DT | | | no |

Technical data

| | | | |
|--|----------------|-----------------|---|
| General | | | |
| Standards | | | IEC/EN 60947-4-2 IEC 61508 ISO 13849 UL508 |
| Ambient temperature | | | |
| Storage | | °C | |
| Min. ambient temperature, storage | | °C | - 40 |
| Ambient temperature, storage max. | | °C | + 80 |
| Open | | °C | |
| Operating ambient temperature min. | | °C | -25 |
| Operating ambient temperature max. | | °C | + 70 |
| Weight | | kg | 0.22 |
| 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 |
| Terminal capacity | | | |
| Push-in terminals | | | |
| | | mm ² | 0.2 - 2.5 |
| | | AWG | 24 - 14 |
| Main conducting paths | | | |
| Rated operational voltage | U _e | V AC | 500 |
| Operational voltage range | | V | |

| | | | |
|------------------------------------|-------|-------|--|
| Operating voltage range min. | | V | 42 |
| Operating voltage range max. | | V | 550 |
| Rated operational current | | | |
| AC-51 | I_e | A | 3 |
| AC-53a | I_e | A | 3 |
| | | | AC-53a: Please note possible derating. |
| Setting range of overload releases | I_r | A_x | 0,18 - 3 |
| Release class | | CLASS | 10 |
| Heat dissipation | P_V | W | 0.1 - 2.5 |

Control section

| | | | |
|--------------------------------------|-------|------|----------------|
| Rated control voltage | U_s | V DC | 24 |
| Control voltage range | | V | 19,2 - 30 V DC |
| Residual ripple on the input voltage | | % | ≤ 5 |
| Rated control current | I_s | mA | 40 |
| Actuating circuit (ON, L, R) | | | |
| Rated actuation voltage | U_c | V | 24 |
| Switching level "Low" | | V | -3 - +9.6 V DC |
| Switching level "confirm Off" | | V | < 5 V DC |
| Switching level "High" | | V | 19.2 - 30 V DC |
| Rated actuating current | I_c | mA | 10 |
| Relay outputs | | | |
| Contacts | | | |
| CO = changeover | | | 1 CO |
| Rated operational current | | | |
| AC-15 | | | |
| 230 V | I_e | A | 2 |
| DC-13 | | | |
| 24 V | I_e | A | 2 |

Electromagnetic compatibility (EMC)

| | | | |
|--------------------------------|--|--|--|
| Radio interference suppression | | | EN 55011 EN 61000-6-3, Class A (emitted interference, radiated) |
|--------------------------------|--|--|--|

Technical safety parameters:

| | | | |
|------------------------------------|-------|----|---|
| Notes | | | Safe switch off. motor protection |
| Ambient temperature | | °C | 60 |
| Values according to EN ISO 13849-1 | | | |
| MTTF _d | Years | | 70 (Sicheres Abschalten) / 60 (Motorschutz) |
| Performance level | PL | | e (Sicheres Abschalten) |
| Category | | | 3 (Sicheres Abschalten) |
| Values according to IEC 62061 | | | |
| | | | Abschaltzeit [ms]: 200 (Sicheres Abschalten) / Class 10 (Motorschutz) λ_{sd} [FIT]: 0 λ_{su} [FIT]: 2884 (Sicheres Abschalten) / 2683 (Motorschutz) λ_{dd} [FIT]: 1628 (Sicheres Abschalten) / 1876 (Motorschutz) λ_{du} [FIT]: 13,8 (Sicheres Abschalten) / 17,7 (Motorschutz) SFF [%]: 99,7 (Sicheres Abschalten) / 99,6 (Motorschutz) DC [%]: 99,2 (Sicheres Abschalten) / 99,1 (Motorschutz) PFH _d [FIT]: 13,8 (Sicheres Abschalten) SIL 3 (Sicheres Abschalten) / SIL 2 (Motorschutz) |

Design verification as per IEC/EN 61439

| | | | |
|--|------------|----|-----|
| Technical data for design verification | | | |
| Rated operational current for specified heat dissipation | I_n | A | 3 |
| Heat dissipation per pole, current-dependent | P_{vid} | W | 0 |
| Equipment heat dissipation, current-dependent | P_{vid} | W | 2.5 |
| Static heat dissipation, non-current-dependent | P_{vs} | W | 2 |
| Heat dissipation capacity | P_{diss} | W | 0 |
| Operating ambient temperature min. | | °C | -25 |
| Operating ambient temperature max. | | °C | 70 |

| | | |
|--|--|--|
| | | Please observe > 55 °C derating |
| 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) / Motor starter/Motor starter combination (EC001037)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Motor starter combination (ecl@ss10.0.1-27-37-09-05 [AJZ718013])

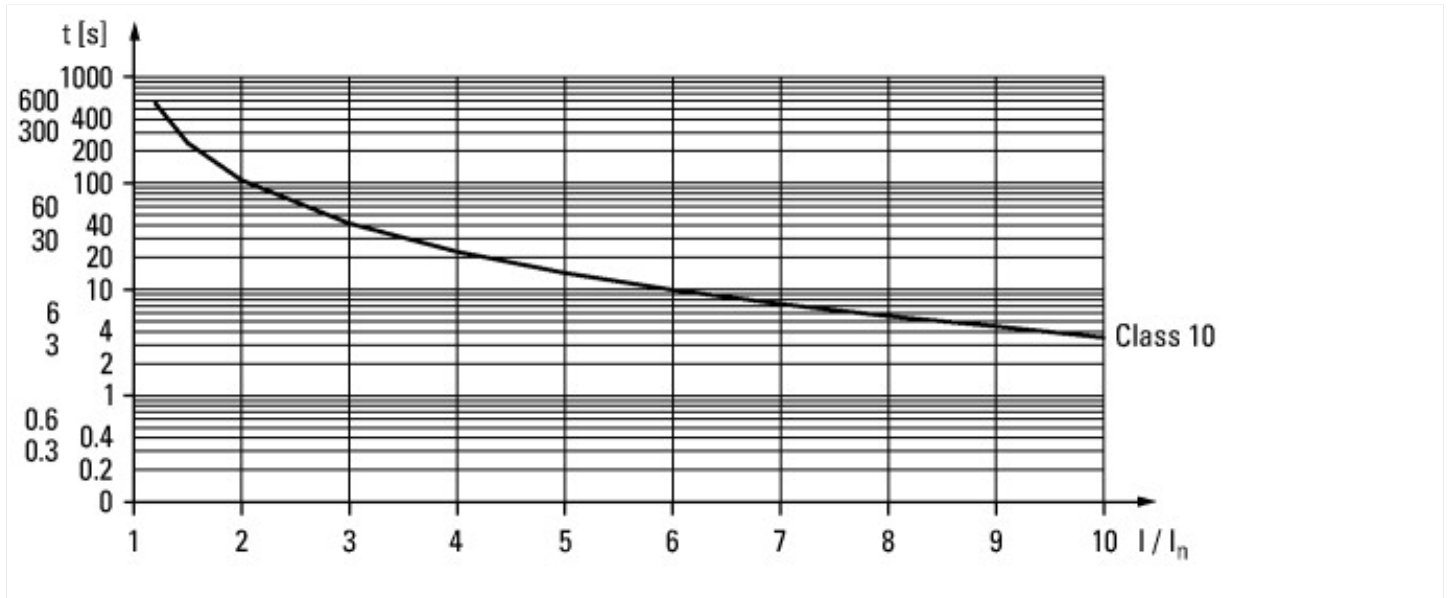
| | | |
|--|----|-------------------------|
| Kind of motor starter | | Direct starter |
| With short-circuit release | | No |
| Rated control supply voltage U_s at AC 50HZ | V | 0 - 0 |
| Rated control supply voltage U_s at AC 60HZ | V | 0 - 0 |
| Rated control supply voltage U_s at DC | V | 24 - 24 |
| Voltage type for actuating | | DC |
| Rated operation power at AC-3, 230 V, 3-phase | kW | 0.55 |
| Rated operation power at AC-3, 400 V | kW | 1.1 |
| Rated power, 460 V, 60 Hz, 3-phase | kW | 0 |
| Rated power, 575 V, 60 Hz, 3-phase | kW | 0 |
| Rated operation current I_e | A | 3 |
| Rated operation current at AC-3, 400 V | A | 3 |
| Overload release current setting | A | 0.18 - 3 |
| Rated conditional short-circuit current, type 1, 480 V/277 V | A | 0 |
| Rated conditional short-circuit current, type 1, 600 V/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 open contact | | 1 |
| Number of auxiliary contacts as normally closed contact | | 1 |
| Ambient temperature, upper operating limit | °C | 60 |
| 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 |
| With transformer | | | No |
| Number of command positions | | | |
| Suitable for emergency stop | | | Yes |
| Coordination class according to IEC 60947-4-3 | | | |
| Number of indicator lights | | | 3 |
| External reset possible | | | Yes |
| With fuse | | | No |
| Degree of protection (IP) | | | IP20 |
| Degree of protection (NEMA) | | | Other |
| Supporting protocol for TCP/IP | | | No |
| Supporting protocol for PROFIBUS | | | No |
| Supporting protocol for CAN | | | No |
| Supporting protocol for INTERBUS | | | No |
| Supporting protocol for ASI | | | No |
| Supporting protocol for MODBUS | | | 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 |
| Width | | mm | 22.5 |
| Height | | mm | 110.8 |
| Depth | | mm | 113.6 |

Approvals

| | | | |
|--------------------------------------|--|--|--|
| Product Standards | | | UL 60947-4-1; CSA C22.2 No. 60947-4-1-14; CE marking |
| UL File No. | | | E338590 |
| 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 characteristic curve
CLASS 10

Dimensions

