DATASHEET - EMS2-DOS-Z-3-24VDC



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



Part no. Catalog No. Alternate Catalog No.

EMS2-DOS-Z-3-24VDC 197162 Ilog EMS2-DOS-Z-3-24VDC

Delivery program

| Basic function DL starting Motor protection generative protection circuit design: safety output stage with bypass, three-phase disconnect. Conformity, Approval DL starting Motor protection circuit design: safety output stage with bypass, three-phase disconnect. Explosion protection (according to ATEX 94/9/EC) II (2) 6 [Ex db] [Ex bb] [Ex bb] Explosion protection (according to ATEX 94/9/EC) II (2) 6 [Ex db] [Ex bb] [Ex bb] Motor ratings II (2) 6 [Ex db] [Ex bb] [Ex bb] Max. rating for three-phase motors, 50 - 60 Hz II (2) 6 [Ex db] [Ex bb] [Ex bb] Act-Sa II (2) 6 [Ex db] [Ex bb] 380 V 400 V 415 V P Sating range of overload releases P V 0.66 - 1.1 Actuating voltage Ax Connection technique Ax Sating range of overload releases Y V 0.66 - 1.1 Connection technique Y Actuating voltage Ax Connection technique Y Sato Function Y Sato Function Y Connection technique Y Sato Function Y Connection technique Y Sato Function Y Sato Function Y Sato Function Y Sato Function Conne | Product range | | | Electronic motor starter |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------|-----|---------------------------------------------|
| Conformity, Approval Max generation safety output stage with bypass, three-phase disconnect. Explosion protection (according to ATEX 94/9EC) Image and the stage with bypass, three-phase disconnect. EC-prototype test certification Image and the stage with bypass, three-phase disconnect. Motor ratings Image and the stage with bypass, three-phase disconnect. Max rating for three-phase motors, 50 - 60 Hz Image and the stage and the | Basic function | | | DOL starters (complete devices) |
| Explosion protection (according to ATEX 94/9/EC) Image: Construction (according to ATEX 94/9/EC) EC-prototype test certification FTB 19 ATEX 3000 Motor ratings FTB 19 ATEX 3000 Max. rating for three-phase motors, 50 - 60 Hz FTB 19 ATEX 3000 AC-53a FTB 19 ATEX 3000 380 V 400 V 415 V P MW Sting range of overload releases P MW Actuating voltage Image: Consection technique P Stop Function FTM XUDC Stop Function FTM Section technique | Description | | | Motor protection Emergency-stop actuator |
| EC-prototype test certification II (2) D [Ex tb] [Ex pb] Motor ratings PTB 19 ATEX 3000 Max. rating for three-phase motors, 50 - 60 Hz | Conformity, Approval | | | |
| Motor ratings Max. rating for three-phase motors, 50 - 60 Hz Max. rating for three-phase motors, 50 - 60 Hz AC - 53a Notor ratings Notor rating for three-phase motors, 50 - 60 Hz 380 V 400 V 415 V P KV Setting range of overload releases I Notor A_x Actuating voltage I A_x Connection technique E 24 V DC Stop Function I Controlled stop | Explosion protection (according to ATEX 94/9/EC) | | | |
| Max. rating for three-phase motors, 50 - 60 Hz Image: Figure State | EC-prototype test certification | | | PTB 19 ATEX 3000 |
| AC-53a P KW 0.66 - 1.1 380 V 400 V 415 V P KW 0.66 - 1.1 Setting range of overload releases Ir A_x 0.8 - 3 Actuating voltage Ir Z Z Connection technique Ir Z Z Stop Function Ir Screw terminals | Motor ratings | | | |
| 380 V 400 V 415 V P KW 0.66 - 1.1 Setting range of overload releases Ir A_xa 0.88 - 3 Actuating voltage Ir Ir Ir Connection technique Ir Ir Ir Stop Function Ir Ir Screw terminals | Max. rating for three-phase motors, 50 - 60 Hz | | | |
| Setting range of overload releases Ir A_x 0.18 - 3 Actuating voltage Actuating voltage 24 V DC Connection technique Screw terminals Screw terminals Stop Function Ontrolled stop | AC-53a | | | |
| Actuating voltage 24 V DC Connection technique Screw terminals Stop Function Controlled stop | 380 V 400 V 415 V | Ρ | kW | 0.06 - 1.1 |
| Connection technique Screw terminals Stop Function Controlled stop | Setting range of overload releases | I _r | A_x | 0,18 - 3 |
| Stop Function Controlled stop | Actuating voltage | | | 24 V DC |
| | Connection technique | | | Screw terminals |
| Connection to SmartWire-DT no | Stop Function | | | Controlled stop |
| | Connection to SmartWire-DT | | | no |

Technical data

General

| 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 | | |
| Screw terminals | | |
| Terminal capacity main cable | | |
| | mm ² | 0.2 - 2.5 |
| | AWG | 24 - 14 |
| Terminal capacity control circuit cables | | |
| | | |

| | | 0 | 244.05 |
|-----------------------------------------------------|----------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | mm ² | 0.14 - 2.5 |
| | | AWG | 26 - 14 |
| tightening torque | | N/m | 0.5 - 0.6 |
| 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 | А | 3 |
| AC-53a | le | А | 3 |
| | | | AC-53a: Please note possible derating. |
| Setting range of overload releases | l _r | A_x | 0,18 - 3 |
| Release class | | CLASS | 10 |
| Heat dissipation | P _V | W | 0.1 - 2.5 |
| Control section | | | |
| Rated control voltage | Us | 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 "Low" Switching level "confirm Off" | | v | <5 V DC |
| Switching level "High" | | V | 19.2 - 30 V DC |
| Rated actuating current | 1 | mA | 10 |
| - | l _c | IIIA | |
| Relay outputs | | | |
| Contacts | | | 1.20 |
| CO = changeover | | | 1 CO |
| Rated operational current | | | |
| AC-15 | | | |
| 230 V | le | A | 2 |
| DC-13 | | | |
| 24 V | le | A | 2 |
| Electromagnetic compatibility (EMC) | | | 711 - 244 |
| 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) Asd [FIT]: 0 Asu [FIT]: 2884 (Sicheres Abschalten) / 2683 (Motorschutz) Add [FIT]: 1628 (Sicheres Abschalten) / 1876 (Motorschutz) Adu [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 | In | А | 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])

| With short-circuit release No Rated control supply voltage Us at AC 50HZ V 0 Rated control supply voltage Us at AC 60HZ V 0 Rated control supply voltage Us at AC 60HZ V 0 Rated control supply voltage Us at AC 60HZ V 0 Voltage type for actuating V 24 - 24 Voltage type for actuating V 0 Rated operation power at AC-3, 230 V, 3-phase KW 0 Rated operation power at AC-3, 400 V KW 1 Rated power, 460 V, 60 Hz, 3-phase KW 0 Rated operation current le KW 0 Rated operation current at AC-3, 400 V KW 0 Rated operation current at AC-3, 400 V KW 0 Rated operation current at AC-3, 400 V KW 0 Rated operation current at AC-3, 400 V KW 0 Rated operation current at AC-3, 400 V A 0 Rated operation current at AC-3, 400 V A 0 Rated operation current at AC-3, 400 V A 0 Rated operation current | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|----|----------------|
| Rated control supply voltage Us at AC 50HZ v 0 Rated control supply voltage Us at AC 60HZ v 0 Rated control supply voltage Us at AC 60HZ v 0 Rated control supply voltage Us at AC 60HZ v 0 Voltage type for actuating V 24-24 Voltage type for actuating v 0 Rated operation power at AC-3,230 V,3-phase KW 0 Rated operation power at AC-3,400 V KW 1.1 Rated power, 460 V, 60 Hz, 3-phase KW 0 Rated operation current le A N Rated operation current setting A N Rated operation current setting A A Rated conditional short-circuit current, type 1, 480 Y/277 V A A A A A A | Kind of motor starter | | Direct starter |
| Rated control supply voltage Us at AC 60HZV0 - 0Rated control supply voltage Us at DCV24 - 24Voltage type for actuatingDCDCRated operation power at AC-3, 230 V, 3-phaseKW0.55Rated operation power at AC-3, 400 VKW1.1Rated power, 460 V, 60 Hz, 3-phaseKW0Rated power, 575 V, 60 Hz, 3-phaseKW0Rated operation current IeA3Rated operation current at AC-3, 400 VA3Rated operation current settingA1.1Rated operation current settingA3Rated operation current settingA0.18 - 3Rated conditional short-circuit current, type 1, 600 V/347 VA0.1 | With short-circuit release | | No |
| Rated control supply voltage Us at DCV24 - 24Voltage type for actuatingDCRated operation power at AC-3, 230 V, 3-phaseKW0.55Rated operation power at AC-3, 400 VKW1.1Rated operation power at AC-3, 400 VKW0Rated operation power at AC-3, 400 VKW0Rated operation current leKW0Rated operation current leA3Rated operation current settingA0.18 - 3Overload release current, type 1, 480 Y/277 VA0.18 - 3Rated conditional short-circuit current, type 1, 600 Y/347 VA0.14 | Rated control supply voltage Us at AC 50HZ | V | 0 - 0 |
| Voltage type for actuatingDCRated operation power at AC-3, 230 V, 3-phaseKW0.55Rated operation power at AC-3, 400 VKW1.1Rated power, 460 V, 60 Hz, 3-phaseKW0Rated power, 575 V, 60 Hz, 3-phaseKW0Rated operation current leKW0Rated operation current at AC-3, 400 VA3Overload release current settingAA0.18-3Rated conditional short-circuit current, type 1, 480 Y/277 VAA0.18-3Rated conditional short-circuit current, type 1, 600 Y/347 VAA0.16 | Rated control supply voltage Us at AC 60HZ | V | 0 - 0 |
| Rated operation power at AC-3, 230 V, 3-phaseKW0.55Rated operation power at AC-3, 400 VKW1.1Rated power, 460 V, 60 Hz, 3-phaseKW0Rated power, 575 V, 60 Hz, 3-phaseKW0Rated operation current leKW0Rated operation current at AC-3, 400 VA3Rated operation current settingA3Rated conditional short-circuit current, type 1, 480 Y/277 VA0Rated conditional short-circuit current, type 1, 600 Y/347 VA0 | Rated control supply voltage Us at DC | V | 24 - 24 |
| Rated operation power at AC-3, 400 VKW1.1Rated power, 460 V, 60 Hz, 3-phaseKW0Rated power, 575 V, 60 Hz, 3-phaseKW0Rated operation current leA3Rated operation current at AC-3, 400 VA3Overload release current settingAARated conditional short-circuit current, type 1, 600 Y/347 VA0 | Voltage type for actuating | | DC |
| Rated power, 460 V, 60 Hz, 3-phaseKW0Rated power, 575 V, 60 Hz, 3-phaseKW0Rated operation current leA3Rated operation current at AC-3, 400 VA3Overload release current settingA3Rated conditional short-circuit current, type 1, 480 Y/277 VA0Rated conditional short-circuit current, type 1, 600 Y/347 VA0 | Rated operation power at AC-3, 230 V, 3-phase | kW | 0.55 |
| Rated power, 575 V, 60 Hz, 3-phaseKW0Rated operation current leA3Rated operation current at AC-3, 400 VA3Overload release current settingA0.18 - 3Rated conditional short-circuit current, type 1, 600 Y/347 VA0 | Rated operation power at AC-3, 400 V | kW | 1.1 |
| Rated operation current le 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 Y/277 V A 0 Rated conditional short-circuit current, type 1, 600 Y/347 V A 0 | Rated power, 460 V, 60 Hz, 3-phase | kW | 0 |
| 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 Y/277 V A 0 Rated conditional short-circuit current, type 1, 600 Y/347 V A 0 | Rated power, 575 V, 60 Hz, 3-phase | kW | 0 |
| Overload release current setting A 0.18 - 3 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 operation current le | А | 3 |
| Rated conditional short-circuit current, type 1, 480 Y/277 V A Rated conditional short-circuit current, type 1, 600 Y/347 V A | Rated operation current at AC-3, 400 V | А | 3 |
| Rated conditional short-circuit current, type 1, 600 Y/347 V A O | Overload release current setting | А | 0.18 - 3 |
| | Rated conditional short-circuit current, type 1, 480 Y/277 V | А | 0 |
| Rated conditional short-circuit current, type 2, 230 V A 0 | Rated conditional short-circuit current, type 1, 600 Y/347 V | А | 0 |
| | Rated conditional short-circuit current, type 2, 230 V | А | 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 | | Screw connection |
| Type of electrical connection for auxiliary- and control current circuit | | Screw 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 Data-fightway Supporting protocol for DeviceNet | | No |
| Supporting protocol for SUCONET | | No |
| | | No |
| Supporting protocol for LON Supporting protocol for PROFINET IO | | No |
| Supporting protocol for PROFINET CBA | | No |
| Supporting protocol for SERCOS | | |
| Supporting protocol for Foundation Fieldbus | | No No |
| | | |
| Supporting protocol for EtherNet/IP | | No |
| Supporting protocol for AS-Interface Safety at Work Supporting protocol for DeviceNet Safety | | No |
| | | 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 | 106.8 |
| Depth | mm | 113.6 |

Approvals

| , approvato | |
|--------------------------------------|------------------------------------------------------|
| 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 |





