

Frequency inverter, 230 V AC, 3-phase, 30 A, 7.5 kW, IP20/NEMA 0,
Radio interference suppression filter, Brake chopper, Additional PCB
protection, OLED display, FS4



Part no. DA1-32030FB-B20C
197488

| General specifications | | |
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| Product name | | Eaton DA1 Variable frequency drive |
| Part no. | | DA1-32030FB-B20C |
| EAN | | 4015081940639 |
| Product Length/Depth | | 241 millimetre |
| Product height | | 419 millimetre |
| Product width | | 173 millimetre |
| Product weight | | 9.2 kilogram |
| Certifications | | Certified by UL for use in Canada UL Category Control No.: NMMS, NMMS7 IEC/EN61800-5 IEC/EN 61800-2 UkrSEPRO UL report applies to both US and Canada IEC/EN61800-3 UL RoHS, ISO 9001 UL 508C IEC/EN 61800-3 RCM UL File No.: E172143 Safety: EN 61800-5-1: 2003 CE EAC CUL |
| Product Tradename | | DA1 |
| Product Type | | Variable frequency drive |
| Product Sub Type | | None |
| Catalog Notes | | The brake resistors are assigned based on the maximum rated power of the variable frequency drive. Additional brake resistors and designs (e.g. different duty cycles) are available upon request. |
| General information | | |
| Cable length | | 100 m, screened, maximum permissible cable length 150 m, unscreened, maximum permissible cable length C3 ≤ 25 m, maximum motor cable length 200 m, unscreened, with motor choke, maximum permissible cable length C2 ≤ 5 m, maximum motor cable length 200 m, screened, with motor choke, maximum permissible cable length |
| Communication interface | | EtherCAT, optional SmartWire-DT, optional Modbus-TCP, optional Modbus RTU PROFIBUS, optional PROFINET, optional OP-Bus (RS485) CANopen® DeviceNet, optional Ethernet IP, optional |
| Connection to SmartWire-DT | | Yes In conjunction with DX-NET-SWD1 SmartWire DT module |
| Degree of protection | | IP20 NEMA Other |
| Electromagnetic compatibility | | 1st and 2nd environments (according to EN 61800-3) |
| Fitted with: | | PC connection Control unit Radio interference suppression filter IGBT inverter OLED display Additional PCB protection Internal DC link Breaking resistance Brake chopper |
| Frame size | | FS4 |
| Functions | | 4-quadrant operation possible |

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| Mounting position | | Vertical |
| Product Category | | Variable frequency drives |
| Protection | | Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4) |
| Protocol | | CAN Other bus systems TCP/IP MODBUS PROFIBUS PROFINET IO EtherNet/IP DeviceNet |
| Safety function/level | | STO (Safe Torque Off, SIL2, PLc Cat 2) |
| Suitable for | | Branch circuits, (UL/CSA) |
| Radio interference class | | Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary. |
| Climatic environmental conditions | | |
| Ambient operating temperature - min | | -10 °C |
| Altitude | | Max. 1000 m Above 1000 m with 1 % derating per 100 m Max. 4000 m |
| Ambient operating temperature - max | | 50 °C |
| Ambient operating temperature at 150% overload - min | | -10 °C |
| Ambient operating temperature at 150% overload - max | | 50 °C |
| Ambient storage temperature - min | | -40 °C |
| Ambient storage temperature - max | | 60 °C |
| Climatic proofing | | < 95 average relative humidity (RH), no condensation, no corrosion |
| Main circuit | | |
| Efficiency | | 96.1 % (η) |
| Heat dissipation at current/speed | | 127 W at 25% current and 0% speed 130 W at 25% current and 50% speed 160 W at 50% current and 0% speed 171 W at 50% current and 50% speed 214 W at 50% current and 90% speed 284 W at 100% current and 0% speed 337 W at 100% current and 50% speed 410 W at 100% current and 90% speed |
| Input current ILN at 150% overload | | 36.4 A |
| Leakage current at ground IPE - max | | 1.42 mA |
| Mains switch-on frequency | | Maximum of one time every 30 seconds |
| Mains voltage - min | | 200 V |
| Mains voltage - max | | 240 V |
| Operating mode | | Speed control with slip compensation Sensorless vector control (SLV) U/f control Optional: Vector control with feedback (CLV) |
| Output frequency - min | | 0 Hz |
| Output frequency - max | | 500 Hz |
| Output voltage (U2) | | 240 V AC, 3-phase 230 V AC, 3-phase |
| Overload current IL at 150% overload | | 45 A |
| Rated control supply voltage | | 10 V DC (Us, max. 10 mA) |
| Rated frequency - min | | 48 Hz |
| Rated frequency - max | | 62 Hz |
| Rated operational current (Ie) at 150% overload | | 30 A |
| Rated operational power at 220/230 V, 50 Hz, 1-phase | | 7.5 kW |
| Rated operational voltage | | 240 V AC, 3-phase 230 V AC, 3-phase |
| Resolution | | 0.1 Hz (Frequency resolution, setpoint value) |
| Short-circuit protection rating | | 50 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring |
| Starting current - max | | 200 %, IH, max. starting current (High Overload), for 4 seconds every 40 seconds, Power section |
| Supply frequency | | 50/60 Hz |

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| Switching frequency | | 8 kHz, 4 - 24 kHz adjustable (audible), fPWM, Power section, Main circuit |
| System configuration type | | AC supply systems with earthed center point |
| Voltage rating - max | | 240 V AC |
| Motor rating | | |
| Assigned motor current IM at 220 - 240 V, 60 Hz, 150% overload | | 28 A |
| Assigned motor current IM at 230 V, 50 Hz, 150% overload | | 30 A |
| Assigned motor power at 230/240 V, 60 Hz, 1-phase | | 10 HP |
| Apparent power | | |
| Apparent power at 230 V | | 11.95 kV-A |
| Apparent power at 240 V | | 12.47 kV-A |
| Braking function | | |
| Braking resistance | | 22 Ω |
| Braking torque | | Max. 30 % MN, Standard - Main circuit Max. 100 % of rated operational current Ie with external braking resistor - Main circuit Adjustable to 100 % (DC) |
| Switch-on threshold for the braking transistor | | 390 V DC |
| Control circuit | | |
| Number of inputs (analog) | | 2 |
| Number of inputs (digital) | | 5 |
| Number of outputs (analog) | | 2 |
| Number of outputs (digital) | | 2 |
| Number of relay outputs | | 2 (parameterizable, 1 N/O and 1 changeover contact, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)) |
| Rated control voltage (Uc) | | 24 V DC (external, max. 100 mA) |
| Design verification | | |
| 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 Resist. of insul. mat. to abnormal heat/fire by internal elect. 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. |
| 10.9.2 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 9.0

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| Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV (EC001857) | | |
| Electric engineering, automation, process control engineering / Electrical drive / Static frequency converter / Static frequency / Servo converter = < 1 kV (ecl@ss13-27-02-31-01 [AKE177019]) | | |
| Mains voltage | V | 200 - 240 |
| Mains frequency | | 50/60 Hz |
| Number of phases input | | 3 |

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| Number of phases output | | 3 |
| Max. output frequency | Hz | 500 |
| Max. output voltage | V | 250 |
| Nominal output current I2N | A | 30 |
| Max. output at quadratic load at rated output voltage | kW | 7.5 |
| Max. output at linear load at rated output voltage | kW | 7.5 |
| Power consumption | W | 187.5 |
| Relative symmetric net frequency tolerance | % | 10 |
| Relative symmetric net voltage tolerance | % | 10 |
| Number of analogue outputs | | 2 |
| Number of analogue inputs | | 2 |
| Number of digital outputs | | 2 |
| Number of digital inputs | | 5 |
| With control element | | Yes |
| Application in industrial area permitted | | Yes |
| Application in domestic- and commercial area permitted | | Yes |
| Supporting protocol for TCP/IP | | Yes |
| Supporting protocol for PROFIBUS | | Yes |
| Supporting protocol for CAN | | Yes |
| Supporting protocol for INTERBUS | | No |
| Supporting protocol for ASI | | No |
| Supporting protocol for KNX | | No |
| Supporting protocol for Modbus | | Yes |
| Supporting protocol for Data-Highway | | No |
| Supporting protocol for DeviceNet | | Yes |
| Supporting protocol for SUCONET | | No |
| Supporting protocol for LON | | No |
| Supporting protocol for PROFINET IO | | Yes |
| Supporting protocol for PROFINET CBA | | No |
| Supporting protocol for SERCOS | | No |
| Supporting protocol for Foundation Fieldbus | | No |
| Supporting protocol for EtherNet/IP | | Yes |
| 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 BACnet | | No |
| Supporting protocol for other bus systems | | Yes |
| Number of HW-interfaces industrial Ethernet | | 0 |
| Number of interfaces PROFINET | | 0 |
| Number of HW-interfaces RS-232 | | 0 |
| Number of HW-interfaces RS-422 | | 0 |
| Number of HW-interfaces RS-485 | | 1 |
| Number of HW-interfaces serial TTY | | 0 |
| Number of HW-interfaces USB | | 0 |
| Number of HW-interfaces parallel | | 0 |
| Number of HW-interfaces other | | 0 |
| With optical interface | | No |
| With PC connection | | Yes |
| Integrated breaking resistance | | Yes |
| 4-quadrant operation possible | | Yes |
| Type of converter | | U converter |
| Degree of protection (IP) | | IP20 |
| Degree of protection (NEMA) | | Other |

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| Height | mm | 419 |
| Width | mm | 173 |
| Depth | mm | 241 |