

Variable frequency drive, 400 V AC, 3-phase, 30 A, 15 kW, IP20/NEMA 0,
Brake chopper, braking transistor, FS4



Part no. **DC1-34030FB-A20CE1**
185780

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| Product name | Eaton DC1 Variable frequency drive |
| Part no. | DC1-34030FB-A20CE1 |
| EAN | 4015081812790 |
| Product Length/Depth | 211 millimetre |
| Product height | 418.5 millimetre |
| Product width | 173 millimetre |
| Product weight | 8.4 kilogram |
| Certifications | EAC UL 508C UL report applies to both US and Canada CUL RoHS, ISO 9001 Certified by UL for use in Canada UL Category Control No.: NMMS, NMMS7 Specification for general requirements: IEC/EN 61800-2 RCM IEC/EN61800-5 CE IEC/EN61800-3 UkrSEPRO UL Safety requirements: IEC/EN 61800-5-1 CSA-C22.2 No. 14 UL File No.: E172143 IEC/EN 61800-3 |
| Product Tradename | DC1 |
| Product Type | Variable frequency drive |
| Product Sub Type | None |
| Catalog Notes | Environmental class: 3C2, 3S2 Overload cycle for 60 s every 600 s |
| Features | Parameterization: drivesConnect Parameterization: drivesConnect mobile (App) Parameterization: Fieldbus Parameterization: Keypad |
| Fitted with: | IGBT inverter 7-digital display assembly Internal DC link PC connection Control unit Brake chopper Breaking resistance Additional PCB protection Radio interference suppression filter |
| Functions | 4-quadrant operation possible |
| Cable length | 100 m, screened, maximum permissible, Motor feeder C2 ≤ 5 m, Radio interference level, maximum motor cable length 300 m, unscreened, with motor choke, maximum permissible, Motor feeder 200 m, screened, with motor choke, maximum permissible, Motor feeder 150 m, unscreened, maximum permissible, Motor feeder C3 ≤ 25 m, Radio interference level, maximum motor cable length |
| Communication interface | OP-Bus (RS485), built in SmartWire-DT, optional CANopen®, built in Modbus RTU, built in |
| Connection to SmartWire-DT | Yes In conjunction with DX-NET-SWD3 SmartWire DT module |
| Degree of protection | IP20 NEMA Other |
| Electromagnetic compatibility | 1st and 2nd environments (according to EN 61800-3) |
| Frame size | FS4 |
| Mounting position | Vertical |

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| Product category | | Variable frequency drives |
| Protection | | Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4) |
| Protocol | | MODBUS EtherNet/IP Other bus systems CAN |
| Radio interference class | | C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary. Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments |
| Suitable for | | Branch circuits, (UL/CSA) |
| Altitude | | Above 1000 m with 1 % derating per 100 m Max. 4000 m |
| Ambient operating temperature - min | | -10 °C |
| 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 |
| Heat dissipation at current/speed | | 122 W at 25% current and 0% speed 139 W at 25% current and 50% speed 149 W at 50% current and 0% speed 181 W at 50% current and 50% speed 186 W at 50% current and 90% speed 259 W at 100% current and 0% speed 310 W at 100% current and 50% speed 348 W at 100% current and 90% speed |
| Input current ILN at 150% overload | | 34.2 A |
| Leakage current at ground IPE - max | | 12.9 mA |
| Mains switch-on frequency | | Maximum of one time every 30 seconds |
| Mains voltage - min | | 380 V |
| Mains voltage - max | | 480 V |
| Operating mode | | Speed control with slip compensation Sensorless vector control (SLV) U/f control BLDC motors PM motors Synchronous reluctance motors |
| Output frequency - min | | 0 Hz |
| Output frequency - max | | 500 Hz |
| Output voltage (U2) | | 400 V AC, 3-phase 480 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) | | 30 A at 150% overload (at an operating frequency of 16 kHz and an ambient air temperature of +50 °C) |
| Rated operational power at 380/400 V, 50 Hz, 3-phase | | 15 kW |
| Rated operational voltage | | 480 V AC, 3-phase 400 V AC, 3-phase |
| Resolution | | 0.1 Hz (Frequency resolution, setpoint value) |
| Short-circuit protection rating | | 45 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring |
| Starting current - max | | 175 %, IH, max. starting current (High Overload), For 2.5 seconds every 600 seconds, Power section |
| Supply frequency | | 50/60 Hz |
| 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 |
| Assigned motor current IM at 110/120 V, 60 Hz, 150% overload | | 30 A |

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| Assigned motor current IM at 115 V, 50 Hz, 150% overload | | 30 A |
| Assigned motor current IM at 220 - 240 V, 60 Hz, 150% overload | | 30 A |
| Assigned motor current IM at 230 V, 50 Hz, 150% overload | | 30 A |
| Assigned motor current IM at 400 V, 50 Hz, 150% overload | | 30 A |
| Assigned motor current IM at 440 - 480 V, 60 Hz, 150% overload | | 30 A |
| Assigned motor power at 115/120 V, 60 Hz, 1-phase | | 20 HP |
| Assigned motor power at 230/240 V, 60 Hz, 1-phase | | 20 HP |
| Assigned motor power at 460/480 V, 60 Hz | | 20 HP |
| Assigned motor power at 460/480 V, 60 Hz, 3-phase | | 20 HP |
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| Apparent power at 400 V | | 12 kV-A |
| Apparent power at 480 V | | 14.4 kV-A |
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| Braking resistance | | 30 Ω |
| Braking torque | | Max. 100 % of rated operational current I _e , variable, DC - Main circuit |
| Switch-on threshold for the braking transistor | | 780 V DC |
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| Number of inputs (analog) | | 2 (parameterizable, 0 - 10 V DC, 0/4 - 20 mA) |
| Number of inputs (digital) | | 4 (parameterizable, 10 - 30 V DC) |
| Number of outputs (analog) | | 1 |
| Number of outputs (digital) | | 1 |
| Number of relay outputs | | 1 (parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)) |
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| Equipment heat dissipation, current-dependent P _{vid} | | 607 W |
| Heat dissipation capacity P _{diss} | | 0 W |
| Heat dissipation per pole, current-dependent P _{vid} | | 0 W |
| Rated operational current for specified heat dissipation (I _n) | | 30 A |
| Static heat dissipation, non-current-dependent P _{vs} | | 0 W |
| Heat dissipation details | | Operation (with 150 % overload) |
| 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 8.0

Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV (EC001857)

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| Mains voltage | V | 380 - 480 |
| Mains frequency | | 50/60 Hz |
| Number of phases input | | 3 |
| Number of phases output | | 3 |
| Max. output frequency | Hz | 500 |
| Max. output voltage | V | 500 |
| Nominal output current I _{2N} | A | 30 |
| Max. output at quadratic load at rated output voltage | kW | 15 |
| Max. output at linear load at rated output voltage | kW | 15 |
| Relative symmetric net frequency tolerance | % | 10 |
| Relative symmetric net voltage tolerance | % | 10 |
| Number of analogue outputs | | 1 |
| Number of analogue inputs | | 2 |
| Number of digital outputs | | 1 |
| Number of digital inputs | | 4 |
| With control element | | Yes |
| Application in industrial area permitted | | Yes |
| Application in domestic- and commercial area permitted | | Yes |
| Supporting protocol for TCP/IP | | No |
| Supporting protocol for PROFIBUS | | No |
| 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 | | 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 | | 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 |

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| Type of converter | | U converter |
| Degree of protection (IP) | | IP20 |
| Degree of protection (NEMA) | | Other |
| Height | mm | 418.5 |
| Width | mm | 173 |
| Depth | mm | 211 |