# Eaton EP-400066

Eaton DA1 Variable frequency drive, 500 V AC, 3-phase, 12 A, 7.5 kW, IP66/NEMA 4X, OLED display, Local controls, UV resistant

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| **PRODUCT NAME** | Eaton DA1 Variable frequency drive |
| **CATALOG NUMBER** | EP-400066 |
| **PRODUCT LENGTH/DEPTH** | 225.5 mm |
| **PRODUCT HEIGHT** | 310 mm |
| **PRODUCT WIDTH** | 210.5 mm |
| **PRODUCT WEIGHT** | 6.6 kg |
| **CERTIFICATIONS** | CE<br>Certified by UL for use in Canada<br>CSA-C22.2 No. 14<br>CUL<br>EAC<br>IEC/EN 61800-3<br>IEC/EN61800-3<br>IEC/EN61800-5<br>RCM<br>RoHS, ISO 9001<br>Safety: EN 61800-5-1: 2003<br><br>Specification for general requirements: IEC/EN 61800-2<br>UkrSEPRO<br>UL<br>UL 508C<br>UL Category Control No.: NMMS, NMMS7<br>UL File No.: E172143<br>UL report applies to both US and Canada |
| **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 |

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| | available upon request. |

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| **PRODUCT CATEGORY** | Variable frequency drives |
| **FEATURES** | Parameterization: drivesConnect<br>Parameterization: drivesConnect mobile (App)<br>Parameterization: Fieldbus<br><br>Parameterization: Keypad |
| **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. |
| **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. |

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| **INSTALLATION VIDEOS** | Video PowerXL DA1 |
| | eaton-powerxl-variable-frequency-drives-dc1-da1-brochure-br040001en-en-us.pdf |

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| **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. |
| **FITTED WITH:** | PC connection<br>Control unit<br>Breaking resistance<br>Additional PCB protection<br>Brake chopper<br>IGBT inverter<br>Internal DC link<br>OLED display<br>Local controls |
| **CLIMATIC PROOFING** | < 95 average relative humidity (RH), no condensation, no corrosion |
| **CONNECTION TO SMARTWIRE-DT** | No |
| **OPERATING MODE** | Optional: Vector control with feedback (CLV)<br>Sensorless vector control (SLV)<br>Speed control with slip compensation<br>U/f control |

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| **FRAME SIZE** | FS2 |
| **ALTITUDE** | Max. 1000 m<br>Above 1000 m with 1 % derating per 100 m<br>Max. 4000 m |
| **ENVIRONMENTAL CLASS** | 3C2, 3S2 (Air quality) |
| **APPLICATION IN DOMESTIC AND COMMERCIAL AREA PERMITTED** | Yes |
| **MAINS SWITCH-ON FREQUENCY** | Maximum of one time every 30 seconds |
| **APPLICATION IN INDUSTRIAL AREA PERMITTED** | Yes |
| **AMBIENT OPERATING TEMPERATURE - MAX** | 40 °C |
| **AMBIENT OPERATING TEMPERATURE - MIN** | -10 °C |
| **AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MAX** | 40 °C |
| **AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MIN** | -10 °C |
| **AMBIENT STORAGE TEMPERATURE - MAX** | 60 °C |
| **AMBIENT STORAGE TEMPERATURE - MIN** | -40 °C |
| **APPARENT POWER AT 600 V** | 12.47 kVA |
| **MOUNTING POSITION** | Vertical |
| **RELATIVE SYMMETRIC NET FREQUENCY TOLERANCE** | 10 % |
| **RELATIVE SYMMETRIC NET VOLTAGE TOLERANCE** | 10 % |
| **PROTECTION** | Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4) |
| **HEAT DISSIPATION DETAILS** | Operation (with 150 % overload) |
| **RATED OPERATIONAL POWER AT 525 V, 50 HZ, 3-PHASE** | 7.5 kW |
| **RESOLUTION** | 0.1 Hz (Frequency resolution, setpoint value) |

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| **STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS** | 0 W |
| **SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR** | 975 VDC |
| **VOLTAGE RATING - MAX** | 600 VAC |
| **COMMUNICATION INTERFACE** | CANopen®, built in<br>EtherCAT, optional<br>Ethernet IP, optional<br>Modbus RTU, built in<br>Modbus-TCP, optional<br>OP-Bus (RS485), built in<br>PROFIBUS, optional<br>PROFINET, optional<br>BACnet/IP, optional |
| **CONVERTER TYPE** | U converter |
| **DEGREE OF PROTECTION** | IP66<br>NEMA 4X |
| **PROTOCOL** | CAN<br>EtherNet/IP<br>MODBUS<br>Other bus systems<br>PROFIBUS<br>PROFINET IO<br>TCP/IP<br>BACnet/IP |
| **ASSIGNED MOTOR CURRENT IM AT 500 V, 50 HZ, 150% OVERLOAD** | 12 A |
| **ASSIGNED MOTOR CURRENT IM AT 525 V, 50 HZ, 150% OVERLOAD** | 11.6 A |
| **ASSIGNED MOTOR CURRENT IM AT 550 - 600 V, 60 HZ, 150% OVERLOAD** | 11 A |
| **SYSTEM CONFIGURATION TYPE** | AC supply systems with earthed center point |
| **ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE** | 10 HP |
| **BRAKING RESISTANCE** | 80 Ω |
| **EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID** | 225 W |
| **HEAT DISSIPATION CAPACITY PDISS** | 0 W |
| **HEAT DISSIPATION PER** | 0 W |

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| **POLE, CURRENT-DEPENDENT PVID** | |
| **INPUT CURRENT ILN AT 150% OVERLOAD** | 15.1 A |
| **BRAKING TORQUE** | Max. 30 % MN, Standard - Main circuit<br>Max. 100 % of rated operational current Ie, variable, DC - Main circuit<br>Max. 100 % of rated operational current Ie with external braking resistor - Main circuit |
| **CABLE LENGTH** | 100 m, screened, maximum permissible, Motor feeder<br>150 m, unscreened, maximum permissible, Motor feeder<br>200 m, screened, with motor choke, maximum permissible, Motor feeder<br>300 m, unscreened, with motor choke, maximum permissible, Motor feeder |
| **FUNCTIONS** | 4-quadrant operation possible |
| **OUTPUT VOLTAGE (U2)** | 600 V AC, 3-phase<br>500 V AC, 3-phase |
| **NUMBER OF INPUTS (ANALOG)** | 2 |
| **NUMBER OF INPUTS (DIGITAL)** | 5 |
| **NUMBER OF OUTPUTS (DIGITAL)** | 2 |
| **STARTING CURRENT - MAX** | 200 %, IH, max. starting current (High Overload), for 4 seconds every 40 seconds, Power section |
| **NUMBER OF PHASES (INPUT)** | 3 |
| **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)) |
| **NUMBER OF PHASES (OUTPUT)** | 3 |
| **POWER CONSUMPTION** | 225 W |
| **RATED CONTROL SUPPLY VOLTAGE** | 10 V DC (Us, max. 10 mA) |

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| **EFFICIENCY** | 97 % (η) |
| **RATED CONTROL VOLTAGE (UC)** | 24 V DC (external, max. 100 mA) |
| **SUPPLY FREQUENCY** | 50/60 Hz |
| **LEAKAGE CURRENT AT GROUND IPE - MAX** | 12 mA |
| **MAINS VOLTAGE - MAX** | 660 V |
| **MAINS VOLTAGE - MIN** | 450 V |
| **NOMINAL OUTPUT CURRENT I2N** | 12 A |
| **NUMBER OF HW-INTERFACES (INDUSTRIAL ETHERNET)** | 0 |
| **NUMBER OF HW-INTERFACES (OTHER)** | 0 |
| **NUMBER OF HW-INTERFACES (PARALLEL)** | 0 |
| **NUMBER OF HW-INTERFACES (RS-232)** | 0 |
| **NUMBER OF HW-INTERFACES (RS-422)** | 0 |
| **NUMBER OF HW-INTERFACES (RS-485)** | 2 |
| **NUMBER OF HW-INTERFACES (SERIAL TTY)** | 0 |
| **NUMBER OF HW-INTERFACES (USB)** | 0 |
| **NUMBER OF INTERFACES (PROFINET)** | 0 |
| **NUMBER OF OUTPUTS (ANALOG)** | 2 |
| **OUTPUT AT LINEAR LOAD AT RATED OUTPUT VOLTAGE - MAX** | 7.5 kW |
| **OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT VOLTAGE - MAX** | 7.5 kW |
| **OUTPUT FREQUENCY - MAX** | 500 Hz |
| **OUTPUT FREQUENCY - MIN** | 0 Hz |
| **OUTPUT VOLTAGE - MAX** | 600 V |
| **OVERLOAD CURRENT IL AT 150% OVERLOAD** | 13.5 A |
| **SUITABLE FOR** | Branch circuits, (UL/CSA) |
| **SWITCHING FREQUENCY** | 8 kHz, 4 - 24 kHz adjustable (audible), |

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| | fPWM, Power section, Main circuit |
| **RATED OPERATIONAL VOLTAGE** | 500 V AC, 3-phase<br>600 V AC, 3-phase |
| **SHORT-CIRCUIT PROTECTION RATING** | 20 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring |
| **RATED FREQUENCY - MAX** | 62 Hz |
| **RATED FREQUENCY - MIN** | 48 Hz |
| **RATED OPERATIONAL POWER AT 500 V, 50 HZ, 3-PHASE** | 5.5 kW |
| **SAFETY FUNCTION/LEVEL** | STO (Safe Torque Off, SIL3, PLe Cat 3) |
| **HEAT DISSIPATION AT CURRENT/SPEED** | 116 W at 100% current and 0% speed<br>134 W at 100% current and 50% speed<br>153 W at 100% current and 90% speed<br>77 W at 50% current and 0% speed<br>95 W at 50% current and 50% speed<br>94 W at 50% current and 90% speed<br>76 W at 25% current and 50% speed<br>76 W at 25% current and 0% speed |

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| **PROJECT NAME:** | |
| **PROJECT NUMBER:** | |
| **PREPARED BY:** | |
| : | |

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