

# Speed starters, single-phase power supply connection, three-phase motor connection at 230 V, 2, 3 A and 0, 37 kW / 0, 5 HP, with integrated EMC filter

Powering Business Worldwide

| | |
|---|---|
| **Part no.** | **DE11-122D3FN-N20N** |
| **Catalog No.** | **180651** |
| **Eaton Catalog No.** | **DE11-122D3FN-N20N** |

## Delivery program

| | | | |
|---|---|---|---|
| Product range | | | Variable speed starter |
| Part group reference (e.g. DIL) | | | DE11 |
| Rated operational voltage | $U_e$ | | 230 V AC, 1-phase<br>240 V AC, single-phase |
| Output voltage with $V_e$ | $U_2$ | | 230 V AC, 3-phase<br>240 V AC, 3-phase |
| Mains voltage (50/60Hz) | $U_{LN}$ | V | 200 (-10%) - 240 (+10%) |
| **Rated operational current** | | | |
| At 150% overload | $I_e$ | A | 2.3 |
| Note | | | Rated operational current at an operating frequency of 16 kHz and an ambient air temperature of +50 °C |
| Note | | | Overload cycle for 60 s every 600 s |
| **Assigned motor rating** | | | |
| Note | | | for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 $rpm^{-1}$ at 50 Hz or 1800 $min^{-1}$ at 60 Hz |
| Note | | | Overload cycle for 60 s every 600 s |
| Note | | | at 230 V, 50 Hz |
| 150 % Overload | P | kW | 0.37 |
| 150 % Overload | $I_M$ | A | 2 |
| Note | | | at 220 - 240 V, 60 Hz |
| 150 % Overload | P | HP | 0.5 |
| 150 % Overload | $I_M$ | A | 2.2 |
| Degree of Protection | | | IP20/NEMA 0 |
| Interface/field bus (built-in) | | | OP-Bus (RS485)/Modbus RTU, CANopen® |
| Fitted with | | | Radio interference suppression filter |
| Frame size | | | FS1 |
| Connection to SmartWire-DT | | | with SmartWire-DT module DX-NET-SWD3 |

## Technical data

### General

| | | | |
|---|---|---|---|
| Standards | | | Specification for general requirements: IEC/EN 61800-2<br>EMC requirements: IEC/EN 61800-3<br>Safety requirements: IEC/EN 61800-5-1 |
| Certifications | | | CE, UL, cUL, RCM |
| Production quality | | | RoHS, ISO 9001 |
| Climatic proofing | $\rho_w$ | % | < 95%, average relative humidity (RH), non-condensing, non-corrosive |
| Ambient temperature | | | |
| operation (150 % overload) | $\vartheta$ | °C | -10 - +60 |
| Storage | $\vartheta$ | °C | -40 - +70 |
| Radio interference level | | | |
| Radio interference class (EMC) | | | C1 (for conducted emissions only), C2, C3, depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary. |
| Environment (EMC) | | | 1st and 2nd environments as per EN 61800-3 |
| maximum motor cable length | l | m | C1 ≤ 5 m<br>C2 ≤ 10 m |

| | | | |
|---|---|---|---|
| | | | C3 ≤ 25 m |
| Mechanical shock resistance | | g | 15 (11 m/s, EN 60068-2-27) |
| Vibration | | | EN 61800-5-1 |
| Altitude | | m | 0 - 1000 m above sea level<br>Above 1000 m: 1% derating for every 100 m<br>max. 2000 m |
| Degree of Protection | | | IP20/NEMA 0 |
| Protection against direct contact | | | BGV A3 (VBG4, finger- and back-of-hand proof) |

## Main circuit

| | | | |
|---|---|---|---|
| Supply | | | |
| Rated operational voltage | $U_e$ | | 230 V AC, 1-phase<br>240 V AC, single-phase |
| Mains voltage (50/60Hz) | $U_{LN}$ | V | 200 (-10%) - 240 (+10%) |
| Input current (150% overload) | $I_{LN}$ | A | 6.2 |
| Supply frequency | $f_{LN}$ | Hz | 50/60 |
| Frequency range | $f_{LN}$ | Hz | 45 - 66 |
| Mains switch-on frequency | | | Maximum of one time every 30 seconds |
| Power section | | | |
| Overload current (150% overload) | $I_L$ | A | 3.45 |
| max. starting current (High Overload) | $I_H$ | % | 200 |
| Note about max. starting current | | | for 1.875 seconds every 600 seconds |
| Output voltage with $V_e$ | $U_2$ | | 230 V AC, 3-phase<br>240 V AC, 3-phase |
| Output Frequency | $f_2$ | Hz | 0 - 50/60 (max. 300) |
| Switching frequency | $f_{PWM}$ | kHz | 16<br>adjustable 4 - 32 (audible) |
| Operation Mode | | | U/f control<br>Speed control with slip compensation |
| Frequency resolution (setpoint value) | Δf | Hz | 0.03 |
| Rated operational current | | | |
| At 150% overload | $I_e$ | A | 2.3 |
| Note | | | Rated operational current at an operating frequency of 16 kHz and an ambient air temperature of +50 °C |
| Maximum leakage current to ground (PE) without motor | $I_{PE}$ | mA | < 3.5 AC, < 10 DC |
| Fitted with | | | Radio interference suppression filter |
| Frame size | | | FS1 |
| Motor feeder | | | |
| Note | | | for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 $rpm^{-1}$ at 50 Hz or 1800 $min^{-1}$ at 60 Hz |
| Note | | | Overload cycle for 60 s every 600 s |
| Note | | | at 230 V, 50 Hz |
| 150 % Overload | P | kW | 0.37 |
| Note | | | at 220 - 240 V, 60 Hz |
| 150 % Overload | P | HP | 0.5 |
| Apparent power | | | |
| Apparent power at rated operation 230 V | S | kVA | 0.92 |
| Apparent power at rated operation 240 V | S | kVA | 0.96 |
| Braking function | | | |
| Standard braking torque | | | max. 30 % $M_N$ |
| DC braking torque | | | adjustable to 100 % |

## Control section

| | | | |
|---|---|---|---|
| Reference voltage | $U_s$ | V | 10 V DC (max. 0.2 mA) |
| Analog inputs | | | 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA |
| Digital inputs | | | 4, parameterizable, 10 - 30 V DC |
| Relay outputs | | | 1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) |
| Interface/field bus (built-in) | | | OP-Bus (RS485)/Modbus RTU, CANopen® |

## Assigned switching and protective elements

| | | | |
|---|---|---|---|
| Power Wiring | | | |

| | | |
|---|---|---|
| Safety device (fuse or miniature circuit-breaker) | | |
| IEC (Type B, gG), 150 % | | FAZ-B10/1N |
| UL (Class CC or J) | A | 10 |
| Mains contactor | | |
| 150 % overload (CT/$I_H$, at 50 °C) | | DILEM-… + P1DILEM |
| 110 % overload (VT/$I_L$, at 40 °C) | | DILM7-… + DILM12-XP1 |
| Main choke | | |
| 150 % overload (CT/$I_H$, at 50 °C) | | DX-LN1-006 |
| Motor feeder | | |
| motor choke | | |
| 150 % overload (CT/$I_H$, at 50 °C) | | DX-LM3-005 |

## Design verification as per IEC/EN 61439

| | | |
|---|---|---|
| Technical data for design verification | | |
| Operating ambient temperature max. | °C | -10 |
| Operating ambient temperature max. | °C | 50 |

## Technical data ETIM 6.0

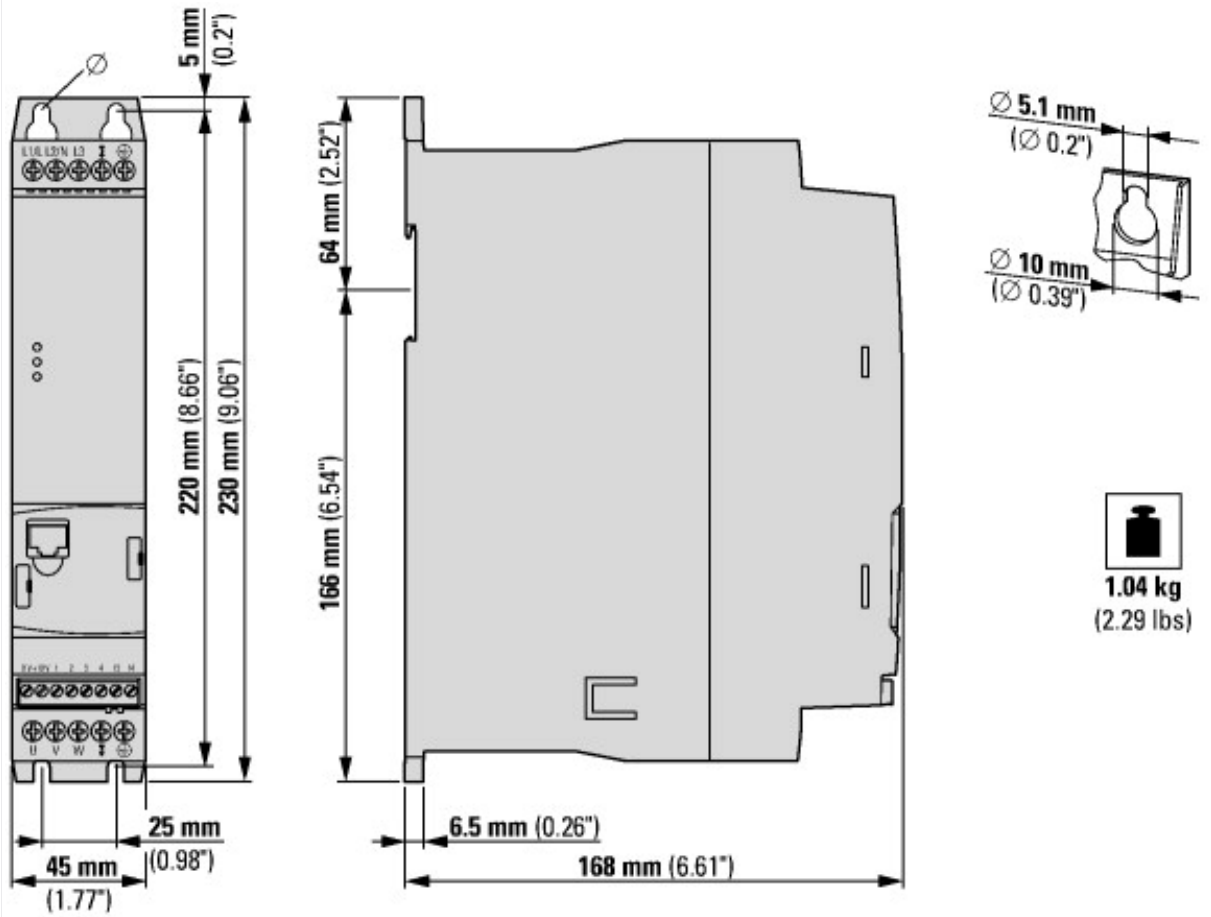
| | | |
|---|---|---|
| Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV (EC001857) | | |
| Electric engineering, automation, process control engineering / Electrical drive / Static frequency converter / Static frequency converter = < 1 kv (ecl@ss8.1-27-02-31-01 [AKE177011]) | | |
| Mains voltage | V | 200 - 240 |
| Mains frequency | | 50/60 Hz |
| Number of phases input | | 1 |
| Number of phases output | | 3 |
| Max. output frequency | Hz | 300 |
| Max. output voltage | V | 250 |
| Rated output current I2N | A | 2.3 |
| Max. output at quadratic load at rated output voltage | kW | 0.5 |
| Max. output at linear load at rated output voltage | kW | 0.5 |
| With control unit | | No |
| 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 | | No |
| 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 other bus systems | | Yes |
| Number of HW-interfaces industrial Ethernet | | 0 |

| | | |
|---|---|---|
| Number of HW-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 | | No |
| Integrated breaking resistance | | No |
| 4-quadrant operation possible | | No |
| Type of converter | | U converter |
| Degree of protection (IP) | | IP20 |
| Height | mm | 230 |
| Width | mm | 45 |
| Depth | mm | 168 |
| Relative symmetric net frequency tolerance | % | 5 |
| Relative symmetric net current tolerance | % | 10 |

## Approvals

| | | |
|---|---|---|
| Product Standards | | UL 508C; CSA-C22.2 No. 14; IEC/EN61800-3; IEC/EN61800-5; CE marking |
| UL File No. | | E172143 |
| UL Category Control No. | | NMMS, NMMS7 |
| 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 |
| Suitable for | | Branch circuits |
| Max. Voltage Rating | | 1~ 240 V AC IEC: TN-S UL/CSA: "Y" (Solidly Grounded Wey) |
| Degree of Protection | | IEC: IP20 |

## Dimensions




## Additional product information (links)

| | |
|---|---|
| **IL040005ZU DE1 variable frequency drive** | |
| IL040005ZU DE1 variable frequency drive | ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL040005ZU2017_11.pdf |
| **MN040011 DE1 Variable speed starter, Manual** | |
| MN040011 Drehzahlstarter DE1, Handbuch - Deutsch | ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN040011_DE.pdf |
| MN040011 DE1 Variable speed starter, Manual - English | ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN040011_EN.pdf |
| MN040011 Démarreur à vitesse variable DE1, manuel d'utilisation - français | ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN040011_FR.pdf |
| MN040011 Avviatore a velocità variabile DE1, Manuale - italiano | ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN040011_IT.pdf |
| MN040011 DE1 Variable speed starter, Manual | ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN040011_NO.pdf |
| MN040011 Rozrusznik silnikowy z regulacją prędkości DE1, podręcznik - polski | ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN040011_PL.pdf |
| MN040011 Устройства пуска с регулировкой скорости DE1, руководство - русский | ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN040011_RU.pdf |
| CA04020001Z-EN Product Range Catalog: Efficient Engineering for Starting and Controlling Motors | http://www.eaton.eu/DE/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_1095238.pdf |


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