Variable speed starter, Rated operational voltage 400 V AC, 3-phase, le 2.1 A, 0.75 kW, 1 HP, Radio interference suppression filter



DE1-342D1FN-N20N Part no.

174334

EL Number (Norway)

4110098

(Norway)	
General specifications	
Product name	Eaton DE1 Variable speed starter
Part no.	DE1-342D1FN-N20N
EAN	4015081707966
Product Length/Depth	169 millimetre
Product height	230 millimetre
Product width	45 millimetre
Product weight	1 kilogram
Compliances	Contact Manufacturer
Certifications	IEC/EN61800-3 UL report applies to both US and Canada UL Category Control No.: NMMS, NMMS7 CSA-C22.2 No. 14 CUL RCM UL File No.: E172143 Specification for general requirements: IEC/EN 61800-2 Safety requirements: IEC/EN 61800-5-1 UL 508C IEC/EN 61800-3 Certified by UL for use in Canada UL CE RoHS, ISO 9001 IEC/EN61800-5
Product Tradename	DE1
Product Type	Variable speed starter
Product Sub Type	None
Catalog Notes	Overload cycle for 60 s every 600 s
Features & Functions	
Features	Parameterization: drivesConnect Parameterization: drivesConnect mobile (App) Parameterization: Fieldbus Parameterization: Keypad
Fitted with:	PC connection Radio interference suppression filter
General information	
Cable length	$\text{C3} \leq 25$ m, Radio interference level, maximum motor cable length $\text{C2} \leq 10$ m, Radio interference level, maximum motor cable length
Communication interface	Modbus RTU, built in OP-Bus (RS485), 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	FS1
Product category	Variable speed starter
Protection	Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
Protocol	Other bus systems MODBUS EtherNet/IP
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
Shock resistance	15 g, Mechanical, According to IEC/EN 60068-2-27, 11 ms
Suitable for	Branch circuits, (UL/CSA)

Vibration	Resistance: According to EN 61800-5-1
Climatic environmental conditions	
Altitude	Max. 2000 m Above 1000 m with 1 % derating per 100 m
Ambient operating temperature - min	-10 °C
Ambient operating temperature - max	60 °C
Ambient operating temperature at 150% overload - min	-10 °C
Ambient operating temperature at 150% overload - max	50 °C
Ambient operating temperature details	Derating between 50 °C and 60 °C: None if fPWM \leq 16 kHz None if fPWM \leq 20 kHz up to a max. of 57 °C None if l# \leq 1.6 A
Ambient storage temperature - min	-40 °C
Ambient storage temperature - max	70 °C
Climatic proofing	< 95 average relative humidity (RH), no condensation, no corrosion
Main circuit	
Heat dissipation at current/speed	11.8 W at 50% current and 0% speed 14.3 W at 25% current and 0% speed 14.3 W at 25% current and 50% speed 16.7 W at 50% current and 90% speed 17.2 W at 50% current and 50% speed 25.4 W at 100% current and 0% speed 26.8 W at 100% current and 90% speed 27.9 W at 100% current and 50% speed
Input current ILN at 150% overload	3.1 A
Leakage current at ground IPE - max	< 10 mA (DC-operated) < 3.5 mA (AC-operated)
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 U/f control
Output frequency - min	0 Hz
Output frequency - max Output voltage (U2)	300 Hz 480 V AC, 3-phase
output voitage (02)	400 V AC, 3-phase
Overload current IL at 150% overload	3.15 A
Rated control supply voltage	10 V DC (Us, max. 0.2 mA)
Rated frequency - min	45 Hz
Rated frequency - max	66 Hz
Rated operational current (le)	2.1 A at 150% overload (at an operating frequency of 16 kHz and an ambient air temperature of +50 $^{\circ}\text{C})$
Rated operational power at 380/400 V, 50 Hz, 3-phase	0.75 kW
Rated operational voltage	400 V AC, 3-phase 480 V AC, 3-phase
Resolution	0.025 Hz (Frequency resolution, setpoint value)
Short-circuit protection rating	6 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 1.875 seconds every 600 seconds, Power section
Supply frequency	50/60 Hz
Switching frequency	16 kHz, 4 - 32 kHz adjustable (audible), fPWM, Power section, Main circuit
Voltage rating - max	480 V
Motor rating	
Assigned motor current IM at 220 - 240 V, 60 Hz, 150% overload	2.1 A
Assigned motor current IM at 230 V, 50 Hz, 150% overload	1.9 A
Assigned motor current IM at 400 V, 50 Hz, 150% overload	1.9 A
Assigned motor current IM at 440 - 480 V, 60 Hz, 150% overload	2.1 A
Assigned motor power at 230/240 V, 60 Hz, 1-phase	1 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase	1 HP
Apparent power	

observed.	Apparent power at 480 V	1.75 kV·A
Number of injusts (analog) Number of injusts (analog) Number of injusts (digitat) Number of injusts (digitat) Number of injusts (digitat) Number of outpusts (digitat) Number of outpust (digitat) Number of outpusts (digitat) Number of injusts (digitat) Number of injusts (digitat) Number of outpusts (digitats) Numb	Braking function	
Number of inputs (analog) Number of inputs (dejital) Aumber of outputs (analog) Number of outputs (afglan) Number of outputs (dejital) Number of outputs (dejital) Number of outputs (dejital) Number of outputs (dejital) Number of relay outputs Design verification Equipment heat dissipation, current-dependent Pvid Equipment heat dissipation, current-dependent Pvid Next dissipation capacity Pdiss Next dissipation capacity Pdiss Next dissipation capacity Pdiss Next dissipation or polic, current-dependent Pvid Next dissipation, non-current-dependent Pvid Next dissipation, non-current-dependent Pvid Next dissipation, non-current-dependent Pvid Next dissipation or resistance Next dissipation of resistance or insulating materials to normal heat Next the product standard's requirements. Next the passe builder's responsibility. Next the pr	Braking torque	
Number of injusts (digital) Number of voluptus (digital) Number of outputs (digital) Number of voluptus (digital) Number o	Control circuit	
Number of outputs (adjetal) Number of outputs (digital) O Number of roley outputs Design verification Equipment heat dissipation, current-dependent Pvid Heat dissipation capacity Pdiss De W Heat dissipation per pole, current-dependent Pvid Rated operational current for specified heat dissipation (In) Static heat dissipation, non-current-dependent Pvid O V 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 10.2.3.3 Resist of insul. mat. to abnormal heat/fire by internal elect. effects 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Inscriptions Meets the product standard's requirements. 10.2.5 Inscriptions 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 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 10.7 Inscriptions So not apply, since the entire switchgear needs to be evaluated. 10.8 Connections for external conductors Is the panel builder's responsibility. 10.9 Des not apply, since the entire switchgear needs to be evaluated. 10.8 Incorporation of switching devices and components Does not apply, since the entire switchgear needs to be evaluated. 10.9 Frotection against electric incripatances Meets the product standard's requirements. Does not apply, since the entire switchgear needs to be evaluated. 10.8 Incorporation of switching devices and components 10.9 Foreign external conductors Is the panel builder's responsibility. 10.9 Demonstrating external better is responsibility. 10.9 Temperature rise The panel builder's responsibi	Number of inputs (analog)	1 (parameterizable, 0 - 10 V DC, 0/4 - 20 mA)
Number of outputs (digital) Number of rolay outputs 1 (parameterizable, N/O, 8 A (250 V, AC-1) / 5 A (30 V, DC-1)) Equipment heat dissipation, current-dependent Pvid Equipment heat dissipation, current-dependent Pvid Heat dissipation per pole, current-dependent Pvid Aste doperational current for specified heat dissipation (In) Static heat dissipation, non-current-dependent Pvs OW 10.22 Corrosion resistance 10.23.1 Verification of thermal stability of enclosures Meets the product standard's requirements. 10.23.2 Verification of resistance of insulating materials to normal heat 10.23.3 Resist of insul. mat. to abnormal heat/fire by internal elect offects 10.24.2 Resistance to ultra-violat (UV) radiation 10.25.Eltriag Deson ot apply, since the entire switchgear needs to be evaluated. 10.27. Inscriptions Meets the product standard's requirements. 10.28 Degree of protection of assemblies 10.3 Degree of protection of assemblies 10.4 Clearances and creepage distances 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 10.7 Inscriptions 10.8 Connections for external conductors 10.9 Protection against electric shock Does not apply, since the entire switchgear needs to be evaluated. 10.6 Incorporation of switching devices and components 10.7 Inscriptions 10.8 Connections for external conductors 10.9 Inscriptions 10.9 Representative that in the panel builder's responsibility. 10.9 Protection against electric strength 10.9 Inscriptions 10.1 Short-circuit rating 10.1 Short-circuit rating 10.2 Power-fraquency electric strength 10.3 Inscriptions 10.4 Degree of protection of external conductors 10.5 Inscriptions 10.6 Inscriptions 10.7 Inscriptions 10.8 Lepanel builder's responsibility. 10.9 Inscriptions 10.9 Inscriptions 10.1 Short-circuit rating 10.2 Power-fraquency electric strength 10.3 Lepanel builder's responsibility. 10.4 Degree of protection of the temperature ris	Number of inputs (digital)	4 (parameterizable, 10 - 30 V DC)
Design verification	Number of outputs (analog)	0
Design verification Equipment heat dissipation, current-dependent Pvid 28 W Heat dissipation capacity Pdiss 0W Heat dissipation capacity Pdiss 0W Rated operational current for specified heat dissipation (In) 2.1 A Straic heat dissipation, non-current-dependent Pvid 0W 10.22 Corrosion resistance 0Wests the product standard's requirements. 10.23.1 Verification of thermal stability of enclosures Meets the product standard's requirements. 10.23.2 Verification of resistance of insulating materials to normal heat Meets the product standard's requirements. 10.23.3 Resist of insul. mat. to abnormal heat/fire by internal elect. effects Meets the product standard's requirements. 10.24.4 Resistance to ultra-violet (UV) radiation Meets the product standard's requirements. 10.25. Lifting 0Does not apply, since the entire switchgear needs to be evaluated. 10.27 Inscriptions Meets the product standard's requirements. 10.30 Bogree 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 Connections for external connections Desertions Inscriptions Inscription	Number of outputs (digital)	0
Equipment heat dissipation, current-dependent Pvid Heat dissipation capacity Pdiss OW Rated operational current for specified heat dissipation (In) Static heat dissipation, non-current-dependent Pvid Rated operational current for specified heat dissipation (In) 10.22 Corrosion resistance Meets the product standard's requirements. 10.23.1 Verification of thermal stability of enclosures Meets the product standard's requirements. 10.23.2 Verification of resistance of insulating materials to normal heat 10.23.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects Meets the product standard's requirements. 10.24.2 Resistance to ultra-violet (UV) radiation Meets the product standard's requirements. 10.25 Lifting Does not apply, since the entire switchgear needs to be evaluated. 10.27 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. 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise The panel builder's responsibility. 10.11 Short-circuit rating Step panel builder's responsibility. 10.12 Electromagnetic compatibility 10.13 Mechanical function The device meets the requirements, provided the information in the instruction The device meets the requirements, provided the information in the instruction	Number of relay outputs	1 (parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1))
Heat dissipation capacity Pdiss Heat dissipation per pole, current-dependent Pvid Rated operational current for specified heat dissipation (In) Static heat dissipation, non-current-dependent Pvs OW Meets the product standard's requirements. 10.2.3 I Verification of thermal stability of enclosures Meets the product standard's requirements. Meets the product standard's requirements. 10.2.3 I Verification of resistance of insulating materials to normal heat 10.2.3 Resists of insul. mat. to abnormal heat/lire by internal elect. effects 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. 10.2.7 Interciptions Meets the product standard's requirements. 10.2.8 Mechanical impact Does not apply, since the entire switchgear needs to be evaluated. 10.2.7 Interciptions 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. 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise The panel builder's responsibility. 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility Is the panel builder's responsibility. The specifications for the switchgear must be observed. 10.13 Mechanical function The devices The devices meets the requirements, provided the information in the instruction	Design verification	
Heat dissipation per pole, current-dependent Pvid Rated operational current for specified heat dissipation (In) Static heat dissipation, non-current-dependent Pvs 0 W 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 10.2.3.2 Verification of resistance of insulating materials to normal heat 10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects 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. 10.2.7 Inscriptions Meets the product standard's requirements. 10.3 Degree of protection of assemblies 10.3 Degree of protection of assemblies 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 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9 Power-frequency electric strength 10.9 Power-frequency electric strength 10.9 A Testing of enclosures made of insulating material 10.9 A Testing of enclosures made of insulating material 10.10 Temperature rise The panel builder's responsibility. 10.11 Short-circuit rating 10.12 Electromagnetic compatibility Lis the panel builder's responsibility. 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	Equipment heat dissipation, current-dependent Pvid	28 W
Rated operational current for specified heat dissipation (In) Static heat dissipation, non-current-dependent Pvs 0 W 10.22 Corrosion resistance 10.23.1 Verification of thermal stability of enclosures Meets the product standard's requirements. 10.23.2 Verification of resistance of insulating materials to normal heat 10.23.3 Resists, of insul. mat. to abnormal heat/fire by internal elect. effects Meets the product standard's requirements. 10.24.8 Resistance to ultra-violet (UV) radiation 10.25 Litting Does not apply, since the entire switchgear needs to be evaluated. 10.27 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 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9 Power-frequency electric strength 10.9 Power-frequency electric strength 10.9 Inpulse withstand voltage 10.9 Inpulse withstand voltage 10.9 Insulation of insulating material 10.10 Temparature rise The panel builder's responsibility. 10.10 Temparature rise The panel builder's responsibility. 10.11 Short-circuit rating Is the panel builder's responsibility. 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	Heat dissipation capacity Pdiss	0 W
Static heat dissipation, non-current-dependent Pvs 10.2.2 Corrosion resistance 10.2.3.1 Verification of thermal stability of enclosures 10.2.3.2 Verification of resistance of insulating materials to normal heat 10.2.3.3 Resists. of insul. mat. to abnormal heat/fire by internal elect. effects 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.5 Lifting 10.2.5 Lifting 10.2.6 Meets the product standard's requirements. 10.2.1 Inscriptions 10.2.1 Inscriptions 10.3 Degree of protection of assemblies 10.3 Degree of protection of assemblies 10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9.2 Power-frequency electric strength 10.9.3 Impulse withstand voltage 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function The device meets the requirements, provided the information in the instruction The device meets the requirements. 10.13 Meets the product standard's requirements. 10.4 Meets the product standard's requirements. 10.5 Protection against electric shock 10.6 Does not apply, since the entire switchgear needs to be evaluated. 10.7 Internal electrical circuits and connections 10.8 Legal Shape and connections 10.9 Expose the entire switchgear needs to be evaluated. 10.9 Internal electrical circuits and connections 10.9 Internal electrical circuits and connections 10.10 Temperature rise and connections 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function The device meets the requirements, provided the information in the instruction	Heat dissipation per pole, current-dependent Pvid	0 W
10.2.2 Corrosion resistance 10.2.3.1 Verification of thermal stability of enclosures 10.2.3.2 Verification of thermal stability of enclosures 10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.5 Lifting 10.2.6 Mechanical impact 10.2.7 Inscriptions 10.3 Degree of protection of assemblies 10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9.4 Testing of enclosures made of insulating material 10.9.1 Temperature rise 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function Meets the product standard's requirements. Meets the product standard's requirements. Meets the product standard's requirements. Meets the product standard's requirements. Does not apply, since the entire switchgear needs to be evaluated. Meets the product standard's requirements. Does not apply, since the entire switchgear needs to be evaluated. Meets the product standard's requirements. Does not apply, since the entire switchgear needs to be evaluated. In the panel builder's responsibility. In the panel builder's responsibility. The specifications for the switchgear must be observed. In the panel builder's responsibility. The specifications for the switchgear must be observed. In the device meets the requirements, provided the information in the instruction	Rated operational current for specified heat dissipation (In)	2.1 A
10.2.3.1 Verification of thermal stability of enclosures 10.2.3.2 Verification of resistance of insulating materials to normal heat 10.2.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.6 Mechanical impact 10.2.7 Inscriptions 10.3 Does not apply, since the entire switchgear needs to be evaluated. 10.2.7 Inscriptions 10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9 Power-frequency electric strength 10.9.2 Power-frequency electric strength 10.9.3 Impulse withstand voltage 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function Meets the product standard's requirements. Meets the product standard's requirements. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. Is the panel builder's responsibility. Is the panel builder's responsibility. Is the panel builder's responsibility. It have panel builder's responsibility. It have panel builder's responsibility. The specifications for the switchgear must be observed. It is the panel builder's responsibility. The specifications for the switchgear must be observed. In the device meets the requirements, provided the information in the instruction	Static heat dissipation, non-current-dependent Pvs	0 W
10.2.3 Verification of resistance of insulating materials to normal heat 10.2.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.6 Mechanical impact 10.2.6 Mechanical impact 10.2.7 Inscriptions 10.3 Degree of protection of assemblies 10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9 Power-frequency electric strength 10.9.1 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function Meets the product standard's requirements. Meets the product standard's requirements. Does not apply, since the entire switchgear needs to be evaluated. Meets the product standard's requirements. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. 10.7 Internal electrical circuits and connections 1 sthe panel builder's responsibility. 10.9.2 Power-frequency electric strength 1 sthe panel builder's responsibility. 10.9.4 Testing of enclosures made of insulating material 1 sthe panel builder's responsibility. 10.10 Temperature rise 1 sthe panel builder's responsibility. 1 sthe panel builder's responsibility. 1 sthe panel builder's responsibility. The specifications for the switchgear must be observed. 10.12 Electromagnetic compatibility 1 sthe panel builder's responsibility. The specifications for the switchgear must be observed. 10.13 Mechanical function	10.2.2 Corrosion resistance	Meets the product standard's requirements.
10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.6 Mechanical impact 10.2.6 Mechanical impact 10.2.7 Inscriptions 10.3 Degree of protection of assemblies 10.4 Clearances and creepage distances 10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9 Power-frequency electric strength 10.9.3 Impulse withstand voltage 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function Meets the product standard's requirements. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. Is the panel builder's responsibility. The specifications for the switchgear must be observed. In the device meets the requirements, provided the information in the instruction	10.2.3.1 Verification of thermal stability of enclosures	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. 10.2.7 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. 10.9.2 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 10.10 Temperature rise The panel builder's responsibility. 10.11 Short-circuit rating Is the panel builder's responsibility. The specifications for the switchgear must b observed. 10.12 Electromagnetic compatibility Is the panel builder's responsibility. The specifications for the switchgear must b observed. 10.13 Mechanical function The device meets the requirements, provided the information in the instruction	10.2.3.2 Verification of resistance of insulating materials to normal heat	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's responsibility. 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.	10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects	Meets the product standard's requirements.
10.26 Mechanical impact 10.2.7 Inscriptions Meets the product standard's requirements. 10.3 Degree of protection of assemblies 10.4 Clearances and creepage distances Meets the product standard's requirements. 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9.2 Power-frequency electric strength 10.9.3 Impulse withstand voltage 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function 10.13 Mechanical function 10.14 Several conductors 10.15 Power-frequency electric strength 10.16 Internal electrical circuits and connections 10.17 Internal electrical circuits and connections 10.18 the panel builder's responsibility. 10.19 Temperature rise 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function 10.14 Mechanical function The device meets the requirements, provided the information in the instruction	10.2.4 Resistance to ultra-violet (UV) radiation	Meets the product standard's requirements.
10.27 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. Meets the product standard's requirements. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. In the panel builder's responsibility. Does not apply, since the entire switchgear needs to be evaluated. In the panel builder's responsibility. In the pa	10.2.5 Lifting	Does not apply, since the entire switchgear needs to be evaluated.
10.3 Degree of protection of assemblies 10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9.2 Power-frequency electric strength 10.9.3 Impulse withstand voltage 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. Does not apply, since the entire switchgear needs to be evaluated. Is the panel builder's responsibility. The specifications for the switchgear must be observed. Is the panel builder's responsibility. The specifications for the switchgear must be observed. The device meets the requirements, provided the information in the instruction	10.2.6 Mechanical impact	Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9.2 Power-frequency electric strength 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function Meets the product standard's requirements. Does not apply, since the entire switchgear needs to be evaluated. Is the panel builder's responsibility. The panel builder's responsibility. The specifications for the switchgear must be observed. 10.12 Electromagnetic compatibility The device meets the requirements, provided the information in the instruction	10.2.7 Inscriptions	Meets the product standard's requirements.
Does not apply, since the entire switchgear needs to be evaluated. 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9.2 Power-frequency electric strength 10.9.3 Impulse withstand voltage 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function Does not apply, since the entire switchgear needs to be evaluated. Is the panel builder's responsibility. The panel builder is responsibility. Is the panel builder is responsibility. Is the panel builder's responsibility. Is the panel builder's responsibility. 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	10.3 Degree of protection of assemblies	Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 1s the panel builder's responsibility. 10.8 Connections for external conductors 1s the panel builder's responsibility. 10.9.2 Power-frequency electric strength 1s the panel builder's responsibility. 1s the panel builder's responsibility. The specifications for the switchgear must be observed. 1s the panel builder's responsibility. The specifications for the switchgear must be observed. 1s the panel builder's responsibility. The specifications for the switchgear must be observed. 1s the panel builder's responsibility. The specifications for the switchgear must be observed. 1s the panel builder's responsibility. The specifications for the switchgear must be observed. 1s the panel builder's responsibility. The specifications for the switchgear must be observed.	10.4 Clearances and creepage distances	Meets the product standard's requirements.
10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9.2 Power-frequency electric strength 10.9.3 Impulse withstand voltage 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function 1 Is the panel builder's responsibility. 1 Is the panel builder's responsibility. 1 Is the panel builder is responsibility. The specifications for the switchgear must be observed. 1 Is the panel builder's responsibility. The specifications for the switchgear must be observed. 1 Is the panel builder's responsibility. The specifications for the switchgear must be observed. 1 Is the panel builder's responsibility. The specifications for the switchgear must be observed. 1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.	10.5 Protection against electric shock	Does not apply, since the entire switchgear needs to be evaluated.
10.8 Connections for external conductors 10.9.2 Power-frequency electric strength 10.9.3 Impulse withstand voltage 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function 10.13 Mechanical function Is the panel builder's responsibility. Is the panel builder is responsibility. The panel builder is responsibility. The specifications for the switchgear must be observed. 10.12 Electromagnetic compatibility The device meets the requirements, provided the information in the instruction	10.6 Incorporation of switching devices and components	Does not apply, since the entire switchgear needs to be evaluated.
10.9.2 Power-frequency electric strength 10.9.3 Impulse withstand voltage 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function 1 Is the panel builder's responsibility. 1 Is the panel builder's responsibility. 1 Is the panel builder's responsibility. 1 Is the panel builder's responsibility. The specifications for the switchgear must be observed. 1 Is the panel builder's responsibility. The specifications for the switchgear must be observed. 1 Is the panel builder's responsibility. The specifications for the switchgear must be observed. 1 Is the panel builder's responsibility. The specifications for the switchgear must be observed. 1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.	10.7 Internal electrical circuits and connections	Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function Is the panel builder's responsibility. The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. Is the panel builder's responsibility. The specifications for the switchgear must be observed. Is the panel builder's responsibility. The specifications for the switchgear must be observed. The device meets the requirements, provided the information in the instruction	10.8 Connections for external conductors	Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function 10.13 Mechanical function 10.14 Is the panel builder's responsibility. The specifications for the switchgear must builder's responsibility.	10.9.2 Power-frequency electric strength	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 b observed. 10.12 Electromagnetic compatibility Is the panel builder's responsibility. The specifications for the switchgear must b observed. 10.13 Mechanical function The device meets the requirements, provided the information in the instruction	10.9.3 Impulse withstand voltage	Is the panel builder's responsibility.
provide heat dissipation data for the devices. 10.11 Short-circuit rating Is the panel builder's responsibility. The specifications for the switchgear must b observed. 10.12 Electromagnetic compatibility Is the panel builder's responsibility. The specifications for the switchgear must b observed. 10.13 Mechanical function The device meets the requirements, provided the information in the instruction	10.9.4 Testing of enclosures made of insulating material	Is the panel builder's responsibility.
observed. 10.12 Electromagnetic compatibility Is the panel builder's responsibility. The specifications for the switchgear must b observed. 10.13 Mechanical function The device meets the requirements, provided the information in the instruction	10.10 Temperature rise	
observed. 10.13 Mechanical function The device meets the requirements, provided the information in the instruction	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	

Technical data ETIM 9.0

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	380 - 480
Mains frequency		50/60 Hz
Number of phases input		3
Number of phases output		3
Max. output frequency	Hz	300
Max. output voltage	V	500
Nominal output current I2N	Α	2.1
Max. output at quadratic load at rated output voltage	kW	0.75
Max. output at linear load at rated output voltage	kW	0.75
Power consumption	W	28
Relative symmetric net frequency tolerance	%	10
Relative symmetric net voltage tolerance	%	10

Number of analogue outputs		0
Number of analogue inputs		1
Number of digital outputs		0
Number of digital inputs		4
With control element		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 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		No
4-quadrant operation possible		No
Type of converter		U converter
Degree of protection (IP)		IP20
Degree of protection (NEMA)		Other
	mm	
Height MG445	mm	230
Width	mm	45
Depth	mm	169