

Variable frequency drive, 3-/3-phase 230 V, 24 A, 5,5 kW, Brake-Chopper

Powering Business Worldwide*

 Part no.
 DC1-32024NB-A20N

 Article no.
 180458

 Catalog No.
 DC1-32024NB-A20N

Technical data General

Sandards Cartifications Cartifications Cartifications Cartifications Production quality Cartifications Responsibility	General			
Production quality	Standards			EMC requirements: IEC/EN 61800-3
Climatic profing Pure P	Certifications			CE, UL, cUL, c-Tick, UkrSepro, EAC
Ambient temperature	Production quality			RoHS, ISO 9001
Silvange	Climatic proofing	ρ_{W}	%	< 95%, average relative humidity (RH), non-condensing, non-corrosive
Storage	Ambient temperature			
Mounting position	operation (150 % overload)	9	°C	-10 - +50
Additional	Storage	9	°C	-40 - +60
Degree of Protection Image: Protection against direct contact Image: Protection against direct contact against direct contact against direct contact against direct against direct contact against direct contact against direct agai	Mounting position			Vertical
Production against direct contact Maint criteria Supply	Altitude		m	Above 1000 m: 1% derating for every 100 m
Main circuit Supply	Degree of Protection			IP20/NEMA 0
Supply Rated operational voltage Rated operational voltage Mains voltage (50/60Hz) U ₁ V 200 (-10%) - 240 (-10%) Input current (150% overload) I ₁ V 200 (-10%) - 240 (-10%) System configuration I ₁ V 200 (-10%) - 240 (-10%) Supply frequency I ₁ V V 200 (-10%) - 240 (-10%) Supply frequency I ₁ V V V V V Frequency range I ₁ V V V V Mains switch-on frequency I ₁ V V V V Frequency range I ₁ V V V V Mains switch-on frequency V V V V Frequency range I ₁ V V V V Frequency range I ₁ V V V V V Frequency range I ₁ V V V V Frequency range I ₁ V V V V V Frequency range I ₁ V V V V V V V Frequency range I ₁ V V V V V V	Protection against direct contact			BGV A3 (VBG4, finger- and back-of-hand proof)
Rated operational voltage Mains voltage (50/60Hz) ULN V 2001-10%)- 240 (+10%) Input current (150% overload) ILN A 2640 System configuration Supply frequency IN Hz B 50/60 Frequency range IN Hz Hz S0/60 Maximum of one time every 30 seconds Frequency range Frequency range Frequency range IN Hz A 38 max. starting current (159% overload) IN A 38 max. starting current (159% overload) IN Mote about max. starting current Output Prequency In Hz A 38 Output Prequency In Hz A 38 Output Prequency In Hz A 38 Note about max. starting current Output Prequency In Hz A 39 Output Prequenc	Main circuit			
Mains voltage (50/60Hz) Input current (150% overload) Input current (150% overload) Supply frequency Input current (150% overload) Input current (150% overload) Input current (150% overload) Supply frequency Input current (150% overload) Input cu	Supply			
Input current (150% overload) System configuration Supply frequency Frequency range Mains switch-on frequency Power section Function Overload current (150% overload) Mains switch-on frequency Power section Function Overload current (150% overload) Main switch-on frequency Power section Function Overload current (150% overload) Main switch-on frequency Power section Function Overload current (150% overload) Main switch-on frequency inverter with internal DC link and ISBT inverter Power section It A 36 max. starting current (High Overload) Main switch-on frequency It A 36 max. starting current (High Overload) Main switch-on frequency It A 36 max. starting current (High Overload) Main switch-on frequency It A 36 Mote about max. starting current It A 36 Mote about max. starting current It A 36 Mote about max. starting current At 150% overload It A 24 Note Rated operational current at an operating frequency of 16 kHz and an ambient air temperature of +50° °C Fritted with Frame size Motor feeder Note Note Note 1800 min 1 at 60 Hz Fron ormal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm 1 at 50 Hz or 1800 min 1 at 60 Hz	Rated operational voltage	U _e		
System configuration Supply frequency fin Hz 50/60 Frequency range fin Hz 48 - 62 Mains switch-on frequency Power section Function Overload current (150% overload) max. starting current (High Overload) Output roat ge with Va Output roat ge with Va Output Frequency Switching frequency Frequency rosolution (setpoint value) At 150% overload Note Not	Mains voltage (50/60Hz)	U_{LN}	V	200 (-10%) - 240 (+10%)
Supply frequency file	Input current (150% overload)	I _{LN}	Α	26.4
Frequency range Mains switch-on frequency Power section Function Overload current (150% overload) max. starting current (150% overload) Note about max. starting current Output voltage with V _e Output Frequency Output Frequency Frequency Frequency resolution (setpoint value) Frequency resolution (setpoint value) At 150% overload I e At 24 Note Note Note Motor feeder Note N	System configuration			AC supply systems with earthed center point
Mains switch-on frequency Maximum of one time every 30 seconds Power section Frequency inverter with internal DC link and IGBT inverter Function Frequency inverter with internal DC link and IGBT inverter Overload current (High Overload) IL A 36 max. starting current (High Overload) IH % 175 Frequency accords Note about max. starting current U2 230 V AC, 3-phase 240 V AC, 3-phase Output Frequency f2 Hz 0-50/60 (max. 500) Switching frequency f2 Hz 0-50/60 (max. 500) Switching frequency f2 Hz 0 30/10 (max. 500) Operation Mode Uff control Uff control Speed control with slip compensation Frequency resolution (setpoint value) Δf Hz 0.1 Rated operational current At 150% overload I A 24 Note Brake chopper T-digital display assembly FS3 Motor feeder Note Frame size FS3 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	Supply frequency	f_{LN}	Hz	50/60
Power section Frequency inverter with internal DC link and IGBT inverter Function IL A 36 overload current (High Overload) IH % 175 Note about max. starting current for 2 seconds every 20 seconds Output voltage with Ve U2 230 V AC, 3-phase 240 V AC, 3-phase 240 V AC, 3-phase Output Frequency fp Hz 0 - 50/80 (max. 500) Switching frequency fp/WM kHz 8 adjustable 4 - 24 (audible) Operation Mode U/f control Speed control with slip compensation Frequency resolution (setpoint value) Δf Hz 0.1 Rated operational current At 150% overload Ie A 24 Note Brake chopper 7-digital display assembly Frame size Frame size FSake chopper 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	Frequency range	f_{LN}	Hz	48 - 62
Function Overload current (150% overload) IL A 36 max. starting current (High Overload) Note about max. starting current Output voltage with Ve Output voltage with Ve Output Frequency Switching frequency fpWM kHz 8 adjustable 4 - 24 (audible) Operation Mode Operation Mode Operation Mode Frequency resolution (setpoint value) At 150% overload Ie A 24 Note Fitted with Fitted with Frame size Motor feeder Note Frame size France is in the mark of the mark	Mains switch-on frequency			Maximum of one time every 30 seconds
Overload current (150% overload) IL A 36 max. starting current (High Overload) IH % 175 Note about max. starting current ror 2 seconds every 20 seconds Output voltage with Ve U2 230 V AC, 3-phase 240 V AC, 3-phase Output Frequency f2 Hz 0 - 50/60 (max. 500) Switching frequency fPWM kHz 8 adjustable 4 - 24 (audible) Uff control Speed control with slip compensation Frequency resolution (setpoint value) Δf Hz 0.1 Rated operational current In A 24 Note Rated operational current at an operating frequency of 16 kHz and an ambient air temperature of +50° °C Brake chapter Prodigital display assembly Frame size FS3 Motor feeder FS3 Motor swith 1500 rpm¹ at 50 Hz or 1800 min⁻ at 60 Hz	Power section			
max. starting current (High Overload) I _H % 175 Note about max. starting current for 2 seconds every 20 seconds Output voltage with V _e U ₂ 230 V AC, 3-phase 240 V AC, 3-phase Output Frequency f ₂ Hz 0 - 50/60 (max. 500) Switching frequency f _{PWM} kHz 8 adjustable 4 - 24 (audible) Operation Mode U/f control Speed control with slip compensation Frequency resolution (setpoint value) Δf Hz 0.1 Rated operational current I _e A 24 Note Rated operational current at an operating frequency of 16 kHz and an ambient air temperature of +50 °C Brake chopper 7-digital display assembly Frame size FS3 Motor feeder FS3 Motor foeder for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rgm ⁻¹ at 50 Hz or 1800 min ⁻¹ at 60 Hz	Function			Frequency inverter with internal DC link and IGBT inverter
Note about max. starting current Output voltage with Ve U2 230 V AC, 3-phase 240 V AC, 3-phase 240 V AC, 3-phase 240 V AC, 3-phase 240 V AC, 3-phase Output Frequency f2 Hz 0 - 50/60 (max. 500) Switching frequency fpWM KHZ 8 adjustable 4 - 24 (audible) Uf control Speed control with slip compensation Frequency resolution (setpoint value) At 150% overload At 150% overload Note Rated operational current at an operating frequency of 16 kHz and an ambient air temperature of +50 °C Fitted with Frame size Motor feeder Note for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm¹¹ at 50 Hz or 1800 min¹¹ at 60 Hz	Overload current (150% overload)	IL	Α	36
Output voltage with Ve U2 230 V AC, 3-phase 240 V AC, 3-phase 240 V AC, 3-phase Output Frequency f2 Hz 0 - 50/60 (max. 500) Switching frequency fPWM kHz 8 adjustable 4 - 24 (audible) Operation Mode U/f control Speed control with slip compensation Frequency resolution (setpoint value) Δf Hz 0.1 Rated operational current At 150% overload Ie A 24 Note Rated operational current at an operating frequency of 16 kHz and an ambient air temperature of +50 °C Fitted with Brake chopper 7-digital display assembly Frame size FS3 Motor feeder FS3 Motor feeder 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	max. starting current (High Overload)	I _H	%	175
Output Frequency f2 Hz 0 - 50/60 (max. 500) Switching frequency fpWM kHz 8 adjustable 4 - 24 (audible) Operation Mode U/f control Speed control with slip compensation Frequency resolution (setpoint value) At 150% overload Ie A 24 Note Rated operational current At 150% overload Ie A 24 Note Fitted with Frame size Motor feeder Note Note To 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 about max. starting current			for 2 seconds every 20 seconds
Switching frequency formula internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm ⁻¹ at 50 Hz or 1800 min ⁻¹ at 60 Hz Switching frequency 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	Output voltage with V _e	U ₂		
Operation Mode adjustable 4 - 24 (audible) Operation Mode U/f control Speed control with slip compensation Frequency resolution (setpoint value) Δf Hz 0.1 Rated operational current At 150% overload Ie A 24 Note Fitted with Brake dopper ational current at an operating frequency of 16 kHz and an ambient air temperature of +50 °C Fitted with Brake chopper 7-digital display assembly Frame size FS3 Motor feeder FS3 Motor swith 1500 rpm ⁻¹ at 50 Hz or 1800 min ⁻¹ at 60 Hz	Output Frequency	f ₂	Hz	0 - 50/60 (max. 500)
Frequency resolution (setpoint value) Δf Hz 0.1 Rated operational current Ie A 24 Note Rated operational current at an operating frequency of 16 kHz and an ambient air temperature of +50 °C Fitted with Brake chopper 7-digital display assembly Frame size FS3 Motor feeder FS3 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	Switching frequency	f _{PWM}	kHz	
Rated operational current At 150% overload I _e A 24 Note Rated operational current at an operating frequency of 16 kHz and an ambient air temperature of +50 °C Fitted with Frame size Motor feeder Note Note To in 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	Operation Mode			
At 150% overload Ie	Frequency resolution (setpoint value)	Δf	Hz	0.1
Note Rated operational current at an operating frequency of 16 kHz and an ambient air temperature of +50 °C Fitted with Brake chopper 7-digital display assembly Frame size FS3 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	Rated operational current			
temperature of +50 °C Brake chopper 7-digital display assembly Frame size FS3 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	At 150% overload	l _e	Α	24
7-digital display assembly Frame size FS3 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			
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	Fitted with			
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	Frame size			FS3
motors with 1500 rpm ⁻¹ at 50 Hz or 1800 min ⁻¹ at 60 Hz	Motor feeder			
Note Overload cycle for 60 s every 600 s	Note			
	Note			Overload cycle for 60 s every 600 s

Note			at 230 V, 50 Hz
150 % Overload	P	kW	5.5
Note			at 220 - 240 V, 60 Hz
150 % Overload	P	HP	7.5
maximum permissible cable length	I	m	screened: 100 screened, with motor choke: 200 unscreened: 150 unscreened, with motor choke: 300
Apparent power			
Apparent power at rated operation 230 V	S	kVA	5.52
Apparent power at rated operation 240 V	S	kVA	5.76
Braking function			
DC braking torque			max. 100% of rated operational current I _e , variable
Control section			
Reference voltage	Us	V	10 V DC (max. 10 mA)
Analog inputs			2, parameterizable, 0 - 10 V DC, 0/4 - 20 mA
Analog outputs			1, parameterizable, 0 - 10 V
Digital inputs			4, parameterizable, max. 30 V DC
Digital outputs			1, parameterizable, 24 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			
IEC (Type B, gG), 150 %			FAZ-B32/3
UL (Class CC or J)		Α	32
150 % overload (CT/I _H , at 50 °C)			DX-LN3-025
Motor feeder			
150 % overload (CT/I _H , at 50 °C)			DX-LM3-035
150 % overload (CT/I _H , at 50 °C)			DX-SIN3-032

Design verification as per IEC/EN 61439

Jesign verification as per IEG/EN 61439		
Fechnical data for design verification		
Operating ambient temperature min.	°C	-10
Operating ambient temperature max.	°C	50
EC/EN 61439 design verification		
10.2 Strength of materials and parts		
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.
10.2.3.3Verification of resistance of insulating materials to abnormal heat and fire due to internal electric 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 Insulation properties		
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 6.0

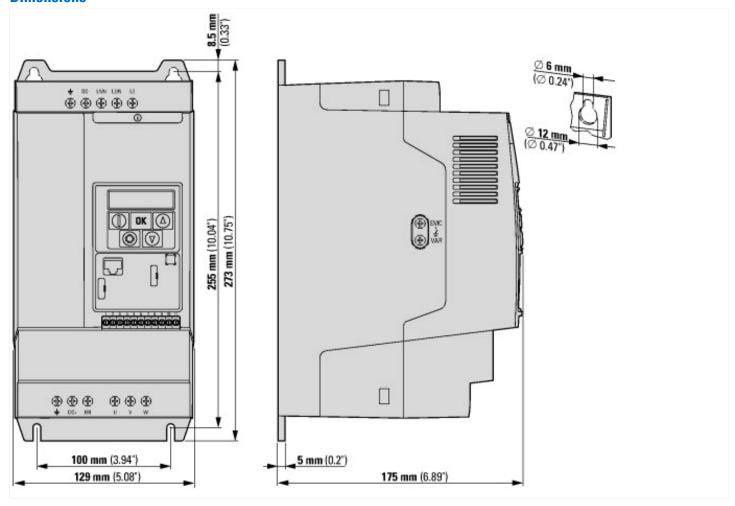
ecililical uala Ettivi 0.0		
ow-voltage industrial components (EG000017) / Frequency converter =< 1 kV	(EC001857)	
Electric engineering, automation, process control engineering / Electrical driv	re / Static frequency convert	er / Static frequency converter = < 1 kv (ecl@ss8.1-27-02-31-01 [AKE177011])
Mains voltage	V	200 - 240
Mains frequency		50/60 Hz
Number of phases input		3
Number of phases output		3
Max. output frequency	Hz	500
Max. output voltage	V	230
Rated output current I2N	Α	24
Max. output at quadratic load at rated output voltage	kW	5.5
Max. output at linear load at rated output voltage	kW	5.5
Vith control unit		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
upporting protocol for ASI		No
supporting protocol for KNX		No
Supporting protocol for MODBUS		Yes
upporting protocol for Data-Highway		No
upporting protocol for DeviceNet		No
upporting protocol for SUCONET		No
Supporting protocol for LON		No
supporting protocol for PROFINET IO		No
supporting protocol for PROFINET CBA		No
upporting protocol for SERCOS		No
supporting protocol for Foundation Fieldbus		No
upporting protocol for EtherNet/IP		No
upporting protocol for AS-Interface Safety at Work		No
upporting protocol for DeviceNet Safety		No
upporting protocol for INTERBUS-Safety		No
supporting protocol for PROFIsafe		No
upporting protocol for SafetyBUS p		No
upporting protocol for other bus systems		No
umber of HW-interfaces industrial Ethernet		0
lumber of HW-interfaces PROFINET		0
lumber of HW-interfaces RS-232		0
lumber of HW-interfaces RS-422		0
umber of HW-interfaces RS-485		1
umber of HW-interfaces serial TTY		0
umber of HW-interfaces USB		1
lumber of HW-interfaces parallel		0
Jumber of HW-interfaces other		0
Vith optical interface		No
Nith PC connection		Yes
ntegrated breaking resistance		Yes

4-quadrant operation possible		No
Type of converter		U converter
Degree of protection (IP)		IP20
Height	mm	273
Width	mm	131
Depth	mm	175
Relative symmetric net frequency tolerance	%	10
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	3~ 240 V AC IEC: TN-S UL/CSA: "Y" (Solidly Grounded Wey)
Degree of Protection	IEC: IP20

Dimensions



Additional product information (links)

MN04020003Z DC1 variable frequency drives,

Installation manual - English

IL040024ZU DC1 variable frequency drives (FS4,IP20)		
IL040024ZU DC1 variable frequency drives (FS4,IP20)	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL040024ZU2016_07.pdf	
MN04020003Z DC1 variable frequency drives, Installation manual		
MN04020003Z DC1 variable frequency drives, Installation manual - Deutsch	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04020003Z_DE.pdf	

ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04020003Z_EN.pdf

MN04020003Z DC1 variable frequency drives, Installation manual - čeština	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04020003Z_CZ.pdf
MN04020003Z DC1 variable frequency drives, Installation manual - italiano	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04020003Z_IT.pdf
MN04020004Z DC1 variable frequency drives, F	Parameters manual
MN04020004Z DC1 variable frequency drives, Parameters manual - Deutsch	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04020004Z_DE.pdf
MN04020004Z DC1 variable frequency drives, Parameters manual - English	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04020004Z_EN.pdf
CA04020001Z-DE Sortimentskatalog: Antriebstechnik effizient gestalten, Motoren starten und steuern	http://www.eaton.eu/DE/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_1095238_de.pdf