#### **DATASHEET - DA1-356D5NB-B6SC**



Variable frequency drive, 500 V AC, 3-phase, 6.5 A, 4 kW, IP66/NEMA 4X, OLED display, Local controls



Part no. DA1-356D5NB-B6SC Catalog No. 177015 Alternate Catalog DA1-356D5NB-B6SC

No.

Delivery program			
Product range			Variable frequency drives
Part group reference (e.g. DIL)			DA1
Rated operational voltage	U <sub>e</sub>		500 V AC, 3-phase 600 V AC, 3-phase
Output voltage with $V_{\rm e}$	$U_2$		500 V AC, 3-phase 600 V AC, 3-phase
Mains voltage (50/60Hz)	$U_{LN}$	V	500 (-10%) - 600 (+10%)
Rated operational current			
At 150% overload	I <sub>e</sub>	Α	6.5
Note			Rated operational current at a switching frequency of 8 kHz and an ambient air temperature of +40 °C
Assigned motor rating			
Note			for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm <sup>-1</sup> at 50 Hz or 1800 min <sup>-1</sup> at 60 Hz
Note			Overload cycle for 60 s every 600 s
Note			at 500 V, 50 Hz
150 % Overload	P	kW	4
150 % Overload	I <sub>M</sub>	Α	6.5
Note			at 525 V, 50 Hz
150 % Overload	P	kW	4
150 % Overload	I <sub>M</sub>	Α	6.5
Note			at 550 - 600 V, 60 Hz
150 % Overload	P	HP	5
150 % Overload	I <sub>M</sub>	Α	6.1
Degree of Protection			IP66/NEMA 4X
Interface/field bus (built-in)			OP-Bus (RS485)/Modbus RTU, CANopen <sup>®</sup>
Fieldbus connection (optional)			Ethernet IP DeviceNet PROFIBUS PROFINET Modbus-TCP EtherCAT
Fitted with			Brake chopper OLED display Local controls Additional PCB protection
Parameterization			Keypad Fieldbus drivesConnect drivesConnect mobile (App)
Frame size			FS2
Connection to SmartWire-DT			no

## Technical data

General			
Standards			Specification for general requirements: IEC/EN 61800-2 EMC requirements: IEC/EN 61800-3 Safety requirements: IEC/EN 61800-5-1
Certifications			CE, UL, cUL, RCM, UkrSEPRO, EAC
Production quality			RoHS, ISO 9001
Climatic proofing	$\rho_{\text{W}}$	%	< 95%, average relative humidity (RH), non-condensing, non-corrosive

Air quality			3C3, 3S3
Ambient temperature			
Operating ambient temperature min.		°C	-10
Operating ambient temperature max.		°C	+ 40
			operation (with 150 % overload)
Storage	9	°C	-40 - +60
Mounting position			Vertical
Altitude		m	0 - 1000 m above sea level Above 1000 m: 1% derating for every 100 m max. 4000 m
Degree of Protection			IP66/NEMA 4X
Protection against direct contact			BGV A3 (VBG4, finger- and back-of-hand proof)
Main circuit			
Supply			
Rated operational voltage	U <sub>e</sub>		500 V AC, 3-phase 600 V AC, 3-phase
Mains voltage (50/60Hz)	U <sub>LN</sub>	V	500 (-10%) - 600 (+10%)
Input current (150% overload)	I <sub>LN</sub>	А	8.6
System configuration	2.,		AC supply systems with earthed center point
Supply frequency	f <sub>LN</sub>	Hz	50/60
Frequency range	f <sub>LN</sub>	Hz	48 - 62
Mains switch-on frequency	'LN	112	Maximum of one time every 30 seconds
			Maximum of one time every 50 Seconds
Power section Function			Variable frequency drive with internal DC link and IGBT inverter
Overload current (150% overload)	L	٨	9.75
	l <sub>L</sub>	Α	
max. starting current (High Overload)	IH	%	200
Note about max. starting current			for 4 seconds every 40 seconds
Output voltage with V <sub>e</sub>	U <sub>2</sub>		500 V AC, 3-phase 600 V AC, 3-phase
Output Frequency	f <sub>2</sub>	Hz	0 - 50/60 (max. 500)
Switching frequency	f <sub>PWM</sub>	kHz	8 adjustable 4 - 24 (audible)
Operation Mode			U/f control Speed control with slip compensation sensorless vector control (SLV) optional: Vector control with feedback (CLV)
Frequency resolution (setpoint value)	Δf	Hz	0.1
Rated operational current			
At 150% overload	I <sub>e</sub>	Α	6.5
Note			Rated operational current at a switching frequency of 8 kHz and an ambient air temperature of +40 $^{\circ}\text{C}$
Power loss			
Heat dissipation at rated operational current $\rm I_{\it e}$ =150 $\%$	$P_V$	W	120
Efficiency	η	%	97
Maximum leakage current to ground (PE) without motor	I <sub>PE</sub>	mA	6.5
Fitted with			Brake chopper OLED display Local controls Additional PCB protection
Safety function			STO (Safe Torque Off, SIL2, PLd Cat 3)
Frame size			FS2
Motor feeder			
Note			for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm <sup>-1</sup> at 50 Hz or 1800 min <sup>-1</sup> at 60 Hz
Note			Overload cycle for 60 s every 600 s
Note			at 500 V, 50 Hz
150 % Overload	P	kW	4
Note			at 525 V, 50 Hz
150 % Overload	P	kW	4
Note			at 550 - 600 V, 60 Hz

150 % Overload	P	HP	5
maximum permissible cable length	ı	m	screened: 100 screened, with motor choke: 200 unscreened: 150 unscreened, with motor choke: 300
Apparent power			
Apparent power at rated operation 600 V	S	kVA	6.75
Braking function			
Standard braking torque			max. 30 % M <sub>N</sub>
DC braking torque			max. 100% of rated operational current l <sub>e,</sub> variable
Braking torque with external braking resistance			Max. 100% of rated operational current I <sub>e</sub> with external braking resistor
minimum external braking resistance	R <sub>min</sub>	Ω	150
Switch-on threshold for the braking transistor	U <sub>DC</sub>	V	975 V DC
Control section			
External control voltage	U <sub>c</sub>	V	24 V DC (max. 100 mA)
Reference voltage	$U_s$	V	10 V DC (max. 10 mA)
Analog inputs			2, parameterizable, 0 - 10 V DC, 0/4 - 20 mA
Analog outputs			2, parameterizable, 0 - 10 V, 0/4 - 20 mA
Digital inputs			3, parameterizable, max. 30 VDC, max. 5 for non-parameterized analog inputs
Digital outputs			2, parameterizable, 24 V DC
Relay outputs			2, parameterizable, 1 N/O and 1 changeover contact, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)
nterface/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 %			10NHG000B
Notes			NH fuse used together with TB00-D fuse base
UL (Class CC or J)		Α	15
Notes			LPJ fuse used together with J60060-3 fuse base
UL (Class CC or J)		Α	LPJ-10SP
Mains contactor			
150 % overload (CT/I <sub>H</sub> , at 50 °C)			DILM7
Main choke			
150 % overload (CT/I <sub>H</sub> , at 50 °C)			DX-LN3-010
DC link connection			
Braking resistance			
10 % duty factor (DF)			DX-BR150-0K5
20 % duty factor (DF)			DX-BR150-1K1
40 % duty factor (DF)			R:2 x DX-BR075-5K1
Notes concerning braking resistances:			R:m = "m" resistors connected in series  The brake resistors are assigned based on the maximum rated power of the variable frequency drive. Additional brake resistors and designs (e.g. different droycles) are available upon request.
Motor feeder			
Sine filter			

# Design verification as per IEC/EN 61439

150 % overload (CT/I<sub>H</sub>, at 50 °C)

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	6.5
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	120
Static heat dissipation, non-current-dependent	$P_{vs}$	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-10
Operating ambient temperature max.		°C	40

SIN-0008-6-0-P

	Operation (with 150 % overload)
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.
10.2.3.3 Verification 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 7.0

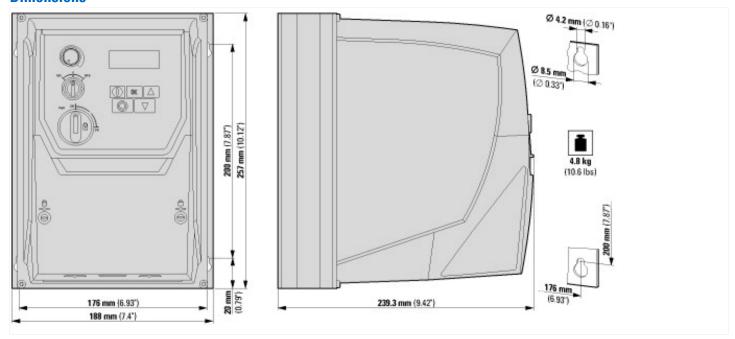
Technical data ETIM 7.0				
Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV $$	(EC001857)			
Electric engineering, automation, process control engineering / Electrical drive / Static frequency converter / Static frequency converter = < 1 kV (ecl@ss10.0.1-27-02-31-01 [AKE177014])				
Mains voltage		V	540 - 660	
Mains frequency			50/60 Hz	
Number of phases input			3	
Number of phases output			3	
Max. output frequency		Hz	500	
Max. output voltage		V	600	
Nominal output current I2N		Α	6.5	
Max. output at quadratic load at rated output voltage		kW	4	
Max. output at linear load at rated output voltage		kW	4	
Relative symmetric net frequency tolerance		%	10	
Relative symmetric net voltage tolerance		%	10	
Number of analogue outputs			2	
Number of analogue inputs			2	
Number of digital outputs			2	
Number of digital inputs			5	
With control unit			Yes	
Application in industrial area permitted			Yes	
Application in domestic- and commercial area permitted			No	
Supporting protocol for TCP/IP			Yes	
Supporting protocol for PROFIBUS			Yes	
Supporting protocol for CAN			Yes	
Supporting protocol for INTERBUS			No	
Supporting protocol for ASI			No	

Sapporting protocol for NANOBUS         No           Sapporting protocol for Deta-Highway         1         96         10			
Supporting protected for DeviewNet         Me           Supporting protected for DeviewNet         Me           Supporting protected for DeviewNet         Me           Supporting protected for LUCONET         Me           Supporting protected for LUC         Me           Supporting protected for PROFINET ICA         Me           Supporting protected for PROFINET CEA         Me           Supporting protected for FROMENT CEA         Me           Supporting protected for Foundation Fieldbus         Me           Supporting protected for Fundation Fieldbus         Me           Supporting protected for Fundation Fieldbus         Me           Supporting protected for Fundation Fieldbus         Me           Supporting protected for AS-Interface Safety & Work         Me           Supporting protected for AS-Interface Safety & Work         Me           Supporting protected for FARCHART         Me           Supporting protected for FARCHART         Me           Supporting protected for AS-Interface Safety BUS Pa         Me           Number of HW-interfaces RS-12E         Me           Number of HW-interfaces other	Supporting protocol for KNX		No
Supporting protect for DeviceNet         194         No           Supporting protect for SUCONET         No         No           Supporting protect for PROFINET IO         194         No           Supporting protect for PROFINET CBA         No         No           Supporting protect for SEROS         No         No           Supporting protect for Foundation Fieldbus         No         No           Supporting protect for February         194         No           Supporting protect for February         194         No           Supporting protect for Ebenhate/P         96         No           Supporting protect for February         97         No           Supporting protect for Devision February         90         No           Supporting protect for Profits and         90         No           Supporting protect for Profits and         90         No           Supporting protect for Profits and         90         No           Supporting protect for Safety BUS p         No         No           Supporting protect for Safety BUS p         No         No           Supporting protect for Safety BUS p         No         No           Number of HW-interfaces PROFINET         90         No           Number of HW-interfaces RS-	Supporting protocol for MODBUS		Yes
Supporting protected for LON         6           Supporting protected for LON         6           Supporting protected for PROFINET CBA         7           Supporting protected for PROFINET CBA         7           Supporting protected for PROFINET CBA         7           Supporting protected for Foundation Fieldhus         7           Supporting protected for Foundation Fieldhus         8           Supporting protected for Febraker         8           Supporting protected for Schaffed Safety at Work         8           Supporting protected for Subseptions Safety         9	Supporting protocol for Data-Highway		No
Supporting protocol for PROFINET IO         ( )	Supporting protocol for DeviceNet		Yes
Supporting protocol for PROFINET IOS         ***         No.           Supporting protocol for SERCOS         ***         No.           Supporting protocol for SERCOS         ***         No.           Supporting protocol for Foundation Fieldbus         ***         No.           Supporting protocol for Foundation Fieldbus         ***         No.           Supporting protocol for EtherNavIP         ***         No.           Supporting protocol for Selevibus Safety         ***         No.           Supporting protocol for INTERBUS-Safety         ***         No.           Supporting protocol for Selevibus Safety         ***         No.           Number of HW-interfaces industrial Ethernet         ***         No.           Number of HW-interfaces RS-422         ***         No.           Number of HW-interfaces SS-435         ***         No.           Number of HW-interfaces other	Supporting protocol for SUCONET		No
Supporting protocol for PROFINET CBA         No           Supporting protocol for FROEGOS         No           Supporting protocol for Foundation Fieldbus         No           Supporting protocol for EtherNet/IP         No           Supporting protocol for EtherNet/IP         No           Supporting protocol for EtherNet/IP         No           Supporting protocol for INTERBUS-Safety         No           Supporting protocol for INTERBUS-Safety         No           Supporting protocol for FROEASH         No           Supporting protocol for SafetyBUSP         No           Sup	Supporting protocol for LON		No
Supporting protect for SERCOS         No           Supporting protect for Foundation Fieldbus         60         10           Supporting protect for Foundation Fieldbus         60         10           Supporting protect for Foundation Fieldbus         60         10           Supporting protect of Pack-Interface Safety at Work         60         10           Supporting protect of Perceival Safety         70         10           Supporting protect for SafetyBUS p         80         10           Supporting protect for SafetyBUS p         80         10           Supporting protect for SafetyBUS p         9         10           Number of HW-interfaces Profits from the supporting protect for Safety BUS p         10         10           Number of HW-interfaces Safety BUS p         10         10         10           Number of HW-interfaces parallel         10<	Supporting protocol for PROFINET IO		Yes
Supporting protocol for Foundation Fieldbus         Mo           Supporting protocol for AS-Interface Safety at Work         Mo           Supporting protocol for AS-Interface Safety at Work         Mo           Supporting protocol for AS-Interface Safety at Work         Mo           Supporting protocol for INTERBUS-Safety         Mo           Supporting protocol for PROFIssale         Mo           Supporting protocol for SafetyBUS p         Mo           Supporting protocol for SafetyBUS p         Mo           Supporting protocol for Other bus systems         Mo           Supporting protocol for Other bus systems         Mo           Number of HW-interfaces industrial Ethernet         Mo           Number of HW-interfaces SA22         0           Number of HW-interfaces SA23         0           Number of HW-interfaces SA48         1           Number of HW-interfaces SA48         0           Number of HW-interfaces Saral TTY         0           Number of HW-interfaces Saral TY         0           Yes           With optical interface	Supporting protocol for PROFINET CBA		No
Supporting protocol for EtherNet/IP         Kes           Supporting protocol for AS-Interface Safety at Work         Kes           Supporting protocol for DeviceNet Safety         No           Supporting protocol for PROFIsafe         No           Supporting protocol for SafetyBUS p         No           Supporting protocol for SafetyBUS p         No           Supporting protocol for Other bus systems         Yes           Supporting protocol for other bus systems         Yes           Number of HW-interfaces industrial Ethernet         Yes           Number of HW-interfaces RS-232         0           Number of HW-interfaces RS-245         0           Number of HW-interfaces RS-485         1           Number of HW-interfaces RS-485         0           Number of HW-interfaces spallel         0           Number of HW-interfaces	Supporting protocol for SERCOS		No
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 PROFIsafe         No           Supporting protocol for BACheat         Yes           Supporting protocol for ther bus systems         Yes           Number of HW-interfaces industrial Ethernet         0           Number of HW-interfaces RS-232         0           Number of HW-interfaces RS-422         0           Number of HW-interfaces RS-458         1           Number of HW-interfaces RS-458         0           Number of HW-interfaces scrid TTY         0           Number of HW-interfaces scrid TTY         0           With optical interface         Yes           With optical interface         Yes           Yes         Yes           <	Supporting protocol for Foundation Fieldbus		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         Yes           Supporting protocol for other bus systems         Yes           Number of HW-interfaces industrial Ethemet         Yes           Number of HW-interfaces RS-422         0           Number of HW-interfaces RS-423         0           Number of HW-interfaces RS-485         1           Number of HW-interfaces RS-486         Yes           Number of HW-interfaces RS-487         0           Number of HW-interfaces prailel         0           Number of HW-interfaces serial TTY         0           Number of HW-interfaces serial TTY         0           Number of HW-interfaces serial TY         0           Number of HW-interfaces serial TY         Yes           Vith optical interface         Yes           Vith optical interface         Yes           Type of converter         Yes     <	Supporting protocol for EtherNet/IP		Yes
Supporting protocol for PROFIsafe         No           Supporting protocol for SafetyBUS p         No           Supporting protocol for SafetyBUS p         Yes           Supporting protocol for BACnet         Yes           Supporting protocol for ther bus systems         Yes           Number of HW-interfaces industrial Ethernet         Yes           Number of HW-interfaces PROFINET         0           Number of HW-interfaces RS-232         0           Number of HW-interfaces RS-428         1           Number of HW-interfaces RS-485         1           Number of HW-interfaces RS-486         Yes           Number of HW-interfaces sprallel         0           Number of HW-interfaces sprallel         0           Number of HW-interfaces other         0           With PC connection         Yes           Vith PC connection         Yes           Vith PC connection         Yes           Integrated breaking resistance         Yes           4-quadrant operation possible         Yes           Type of converter         Yes           Degree of protection (IPI)         Yes           Degree of protection (IPIMA)         Yes           Degree of protection (NEMA)         Yes	Supporting protocol for AS-Interface Safety at Work		No
Supporting protocol for PROFIsafe         No           Supporting protocol for SafetyBUS p         No           Supporting protocol for BACnet         Yes           Supporting protocol for other bus systems         Yes           Number of HW-interfaces industrial Ethernet         0           Number of HW-interfaces RS-232         0           Number of HW-interfaces RS-232         0           Number of HW-interfaces RS-455         1           Number of HW-interfaces RS-485         1           Number of HW-interfaces Supporting the wind of HW-interfaces USB         0           Number of HW-interfaces useful TTY         0           Number of HW-interfaces sparallel         0           Number of HW-interfaces useful         0           With optical Interface         Yes           With Optical Interface         Yes           United by Experimental Ethernet         Yes           4-quadrant operation possible         Yes           4-quadrant operation possible         Yes           Degree of protection (IP)         Yes	Supporting protocol for DeviceNet Safety		No
Supporting protocol for BACnet         Yes           Supporting protocol for BACnet         Yes           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-428         1           Number of HW-interfaces RS-485         1           Number of HW-interfaces Sarial TTY         0           Number of HW-interfaces USB         0           Number of HW-interfaces uther         0           Number of HW-interfaces other         0           With optical interfaces other         0           With PC connection         Yes           Integrated breaking resistance         Yes           4-quadrant operation possible         Yes           Type of converter         U converter           Degree of protection (IP)         U converter           Degree of protection (NEMA)         Mm         257           Width         Mm         257	Supporting protocol for INTERBUS-Safety		No
Supporting protocol for BACnet         Yes           Supporting protocol for other bus systems         Yes           Number of HW-interfaces industrial Ethernet         0           Number of interfaces PR0FINET         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 Serial Standard         0           Number of HW-interfaces parallel         0           Number of HW-interfaces other         0           With optical interface         0           With PC connection         Yes           Integrated breaking resistance         Yes           4-quadrant operation possible         Yes           Type of converter         Uconverter           Degree of protection (IP)         IP66           Degree of protection (NEMA)         Mm         257           Writth         Mm         257           Writth         Mm         257           Writth         Mm         257           No         Mm         257           No         Mm         257           No         Mm </td <td>Supporting protocol for PROFIsafe</td> <td></td> <td>No</td>	Supporting protocol for PROFIsafe		No
Supporting protocol for other bus systems         Yes           Number of HW-interfaces industrial Ethernet         6           Number of interfaces PROFINET         6           Number of HW-interfaces RS-232         6           Number of HW-interfaces RS-422         6           Number of HW-interfaces RS-485         1           Number of HW-interfaces serial TTY         6           Number of HW-interfaces uSB         6           Number of HW-interfaces parallel         6           Number of HW-interfaces other         6           With optical interface         6           With PC connection         7           Integrated breaking resistance         7           4-quadrant operation possible         7           Type of converter         7           Degree of protection (IP)         1           Degree of protection (NEMA)         1           Height         Mm         257           Width         1           Width         1         2           No         2         3           No         3         4           Victories         4         4           No         4         4           No         4         <	Supporting protocol for SafetyBUS p		No
Number of HW-interfaces industrial Ethernet         0           Number of interfaces PR0FINET         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 pC connection         No           With PC connection         Yes           Integrated breaking resistance         Yes           4-quadrant operation possible         Yes           Type of converter         U converter           Degree of protection (IP)         He66           Degree of protection (NEMA)         Mm         257           Witth DC (MEMA)         mm         257           Witth DC (MEMA)         mm         257	Supporting protocol for BACnet		Yes
Number of interfaces RR0FINET         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 optical interface         Yes           With optical interface         Yes           Integrated breaking resistance         Yes           4-quadrant operation possible         Yes           Type of converter         Uconverter           Degree of protection (IP)         IP66           Degree of protection (NEMA)         Mm         257           Witth         mm         257           Witth         mm         257           Witth         mm         257	Supporting protocol for other bus systems		Yes
Number of HW-interfaces RS-232 Number of HW-interfaces RS-422 Number of HW-interfaces RS-485 Number of HW-interfaces RS-485 Number of HW-interfaces serial TTY Number of HW-interfaces uSB Number of HW-interfaces user user user user user user user us	Number of HW-interfaces industrial Ethernet		0
Number of HW-interfaces RS-425 Number of HW-interfaces RS-485 Number of HW-interfaces serial TTY Number of HW-interfaces USB Number of HW-interfaces USB Number of HW-interfaces parallel Number of HW-interfaces other  Number of HW-interfaces other  No With optical interface With optical interface Vith PC connection Integrated breaking resistance 4-quadrant operation possible Type of converter Degree of protection (IP) Degree of protection (IP) Degree of protection (NEMA) Height With HW-interfaces RS-485  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Number of interfaces PROFINET		0
Number of HW-interfaces RS-485  Number of HW-interfaces userial TTY  Number of HW-interfaces parallel  Number of HW-interfaces other  O  With optical interface  With optical interface  With PC connection  With preciping resistance  4-quadrant operation possible  Type of converter  Degree of protection (IP)  Degree of protection (NEMA)  Height  With HW-interfaces userial TTY  O  O  O  O  O  O  O  O  O  O  O  O  O	Number of HW-interfaces RS-232		0
Number of HW-interfaces usb  Number of HW-interfaces usb  Number of HW-interfaces parallel  Number of HW-interfaces other  Number of HW-interfaces other  With optical interface  With Optical interface  With PC connection  Integrated breaking resistance  4-quadrant operation possible  Type of converter  Degree of protection (IP)  Degree of protection (NEMA)  Height  With HW-interfaces usb  O  O  VO  NO  Yes  Yes  Yes  U converter  U converter  IP66  4X  Mmm  257  With Mith Mith Mith Mith Mith Mith Mith M	Number of HW-interfaces RS-422		0
Number of HW-interfaces USB  Number of HW-interfaces parallel  Number of HW-interfaces other  With optical interface  With Optical or PC connection  With PC connection  Integrated breaking resistance  4-quadrant operation possible  Type of converter  Degree of protection (IP)  Degree of protection (NEMA)  Height  Width  Degree of MW-interfaces USB  O  O  VO  NO  Yes  Yes  Yes  U converter  U converter  IP66  HP66  WM  MM  257  Width  MM  188	Number of HW-interfaces RS-485		1
Number of HW-interfaces parallel Number of HW-interfaces other  With optical interface With PC connection With PC connection Integrated breaking resistance 4-quadrant operation possible Type of converter Degree of protection (IP) Degree of protection (NEMA) Height With PC connection No Yes Yes U converter U converter PF66  4X Height Mm 257 With Mith Na N	Number of HW-interfaces serial TTY		0
Number of HW-interfaces other  With optical interface  With PC connection  With PC connection  Ves  Integrated breaking resistance  4-quadrant operation possible  Type of converter  Degree of protection (IP)  Degree of protection (NEMA)  Height  Mmm  Degree of protection (NEMA)  With PC connection  No  Yes  Yes  U converter  U converter  4X  Height  Mmm  Mmm  Mmm  Mmm  Mmm  Mmm  Mmm  M	Number of HW-interfaces USB		0
With optical interface  With PC connection  Integrated breaking resistance 4-quadrant operation possible  Type of converter  Degree of protection (IP)  Degree of protection (NEMA)  Height  Width  Min 257  Width	Number of HW-interfaces parallel		0
With PC connection Integrated breaking resistance 4-quadrant operation possible Type of converter Degree of protection (IP) Degree of protection (NEMA) Height Width Yes U converter IP66  4X Height Mmm U57 Width 188	Number of HW-interfaces other		0
Integrated breaking resistance 4-quadrant operation possible Type of converter Degree of protection (IP) Degree of protection (NEMA) Height Width  Yes  Vu converter  IP66  4X  Width  mm 257  Width	With optical interface		No
4-quadrant operation possible  Type of converter  Degree of protection (IP)  Degree of protection (NEMA)  Height  Mmm  Degree of protection (NEMA)  Midth  Yes  U converter  IP66  4X  Width	With PC connection		Yes
Type of converter  Degree of protection (IP)  Degree of protection (NEMA)  Height  mm  257  Width  U converter  IP66  4X  4X  Beight  mm  257	Integrated breaking resistance		Yes
Degree of protection (IP)         IP66           Degree of protection (NEMA)         4X           Height         mm         257           Width         mm         188	4-quadrant operation possible		Yes
Degree of protection (NEMA)         4X           Height         mm         257           Width         mm         188	Type of converter		U converter
Height mm 257 Width mm 188	Degree of protection (IP)		IP66
Width mm 188	Degree of protection (NEMA)		4X
	Height	mm	257
Depth mm 239.3	Width	mm	188
	Depth	mm	239.3

#### **Approvals**

Approvato	
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~ 600 V AC (+10 %) IEC: TN-S UL/CSA: "Y" (Solidly Grounded Wey)
Degree of Protection	IEC: IP66

## **Dimensions**



## **Additional product information (links)**

CA04020001Z-EN Product Range Catalog: Efficient Engineering for Starting and Controlling Motors

 $http://www.eaton.eu/DE/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct\_1095238.pdf$