DATASHEET - DC1-342D2FN-A660E1



Variable frequency drive, 400 V AC, 3-phase, 2.2 A, 0.75 kW, IP66/NEMA 4X, Radio interference suppression filter, 7-digital display assembly, Additional PCB protection, UV resistant, FS1



Part no. DC1-342D2FN-A660E1 Catalog No. 199429

De	HIV	ery	pro	gr	am
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Delivery program			
Product range			Variable frequency drives
Part group reference (e.g. DIL)			DC1
Rated operational voltage	U _e		400 V AC, 3-phase 480 V AC, 3-phase
Output voltage with V_e	U ₂		400 V AC, 3-phase 480 V AC, 3-phase
Mains voltage (50/60Hz)	U_{LN}	V	380 (-10%) - 480 (+10%)
Rated operational current			
At 150% overload	I _e	Α	2.2
Note			Rated operational current at an operating frequency of 6 kHz and an ambient air temperature of +40 $^{\circ}\text{C}$
Assigned motor rating			
Note			For normal internally and externally ventilated four-pole three-phase asynchronous motors with 1500 rpm at 50 Hz and 1800 rpm at 60 Hz
Note			Overload cycle for 60 s every 600 s
Note			at 400 V, 50 Hz
150 % Overload	P	kW	0.75
150 % Overload	I _M	Α	1.9
Note			at 440 - 480 V, 60 Hz
150 % Overload	Р	HP	1
150 % Overload	I _M	Α	2.1
Degree of Protection			IP66/NEMA 4X
Interface/field bus (built-in)			OP-Bus (RS485)/Modbus RTU, CANopen®
Fieldbus connection (optional)			SmartWire-DT
Fitted with			Radio interference suppression filter 7-digital display assembly Additional PCB protection UV resistant
Parameterization			Keypad Fieldbus drivesConnect drivesConnect mobile (App)
Frame size			FS1
Connection to SmartWire-DT			no

Technical data General

Standards			General requirements: IEC/EN 61800-2 EMV requirements: IEC/EN 61800-3 Safety requirements: IEC/EN 61800-5-1
Certifications			CE, UL, cUL, RCM, Ukr SEPRO, EAC
Production quality			RoHS, ISO 9001
Climatic proofing	ρ_{W}	%	< 95%, average relative humidity (RH), non-condensing, non-corrosive
Air quality			3C3, 3S3
Ambient temperature			
Operating ambient temperature min.		°C	-20
Operating ambient temperature max.		°C	+ 40
			operation (with 150 % overload)
Storage	9	°C	-40 - +60
Radio interference level			

Mounting paston	Radio interference class (EMC)			C2, C3, depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.
Mounting position	Environment (EMC)			1st and 2nd environments as per EN 61800-3
According to protection Pro	maximum motor cable length	I	m	
Degree of Protection Degree of Protection against direct context Maintaneous Control Supply Flore of Protection against direct context Maintaneous Control Supply Flore of Protection against direct context Maintaneous Control System configuration System configuration System configuration System configuration System configuration System configuration Maintaneous Control Maintaneous Control Frequency response Maintaneous Control Frequency Control Maintaneous Control Frequency Control Maintaneous Control Maintaneous Control Frequency Control Maintaneous Control Maintan	Mounting position			Vertical
Protection against direct contact Main circuit	Altitude		m	Above 1000 m: 1% derating for every 100 m
Mains circuit Supuly Rated operational violage System configuration Supuly frequency Is u Mains work-on frequency Frequency range Is u Mains work-on frequency Variable frequency white internal OC link and ISST inverter Variable frequency white internal Variable white wh	Degree of Protection			IP66/NEMA 4X
Rated operational voltage Ue	Protection against direct contact			BGV A3 (VBG4, finger- and back-of-hand proof)
Retail of potentiannal voltage (\$0.000 into \$1.000 into \$1.0000 into \$1.000 into \$1.000 into \$1.0000 into \$1.0000 into \$1.00	Main circuit			
Mains voltage (0880ht) U _L N	Supply			
Input current (190% overload) Systems configuration Supply frequency fig. 1 Hz 5060 Mains switch-on frequency Mains switch-on frequency Power section Finction Overload current (190% overload) Max. 4 3 3 max. starting current (190% overload) Max. 5 106 Output frequency with V ₂ Switching frequency Finction Output frequency Switching frequency Finction Output frequency Finction Finction Output frequency Finction Output frequency Finction Finction Finction Finction A 12 A 22 A 24 A 25 A 25 A 25 A 27 A 36 A 27 A 37 A 37 A 38 A 27 A 38 A	Rated operational voltage	U _e		
System configuration Supply frequency 1s Hz 5000 Frequency range 4s Hz 48 - 62 Mains world-how frequency Power section Function Overload current (190% overload) 0 tyl 0 usput Frequency with y 0 usput Frequency 1s Hz 500 Output voltage with V _o 0 usput Frequency 1s Hz 6000 VAC, 2-phase 480 VAC, 2-phas	Mains voltage (50/60Hz)	U_{LN}	V	380 (-10%) - 480 (+10%)
Supply frequency Figure	Input current (150% overload)	I _{LN}	Α	3.5
Frequency range Mains switch on frequency Power saction Function Overload current (150% overload) Max. starting current (160% overload) Max. starting current (160% overload) Max. starting current (160% overload) Output voltage with Ve Note Note Note Note Note Note Note Output voltage with Ve output vol	System configuration			AC supply systems with earthed center point
Maximum of one time every 30 seconds Power section Power section Variable frequency drive with internal DC link and IGBT inverter Variable frequency drive with internal DC link and IGBT inverter Variable frequency drive with internal DC link and IGBT inverter Variable frequency drive with internal DC link and IGBT inverter Variable frequency drive with internal DC link and IGBT inverter Variable frequency Variable Variable frequency Variable f	Supply frequency	f _{LN}	Hz	50/60
Maximum of one time every 30 seconds Power section Power section Variable frequency drive with internal DC link and IGBT inverter Variable frequency drive with internal DC link and IGBT inverter Variable frequency drive with internal DC link and IGBT inverter Variable frequency drive with internal DC link and IGBT inverter Variable frequency drive with internal DC link and IGBT inverter Variable frequency Variable Variable frequency Variable f	Frequency range	f _{LN}	Hz	48 - 62
Forumer section Function Overload current (150% overload) Output rollage with V ₀ Output rollage with V ₀ Output rollage with V ₀ Output requency 5 Hz 0 - 50/60 (max. 500) Switching frequency Switching frequency Switching frequency Operation Mode Operation Mode Operation Mode Operation Mode Operation Mode Operation Mode Frequency resolution (suppoint value) At Hz 0 Hz				Maximum of one time every 30 seconds
Function Declared current (150% overload) max. starting current (150% overload) ht % 175 Output voltage with Vg Output voltage with Vg Output rollage with Vg Output Frequency 5 ht 0 - 5080 (max. 500) Switching frequency Frequency Frequency Operation Mode Declared ontrol with slip compensation sensoriess vector control (SLV) PM montars Speed control with slip compensation sensoriess vector control (SLV) PM montars Speed control with slip compensation sensoriess vector control (SLV) PM montars Frequency resolution (setpoint volue) Act 150% overload Note Heat dissipation at rated operational current Ig = 150 % Efficiency Power loss Heat dissipation at rated operational current Ig = 150 % Efficiency Maximum leakage current to ground (PE) without motor Frame size Note	, ,			
Deverload current (190% overload)				Variable frequency drive with internal DC link and IGRT invertor
max. starting current (High Dverload) Output voltage with V _e Output Frequency 2 Hz 0-50(6) (max. 50) Switching frequency fPVM Switching frequency fPVM Switching frequency fPVM Speed control with sip compensation sensories vector control (SLVI) PM motors Synchronous reluctance motors BLDC motors Frequency resolution (setpoint value) At 150% overload At 150% overload Note Power loss Heat dissipation at rated operational current I _e = 150 % Heat dissipation at rated operational current I _e = 150 % Fitted with Fitted with Note		l.	Δ	
Output voltage with V _e Output Frequency fewm kHz 8 adjustable 4 - 32 (audible) Operation Mode Operation				
Output Frequency 1			70	
Switching frequency Operation Mode Operation Operation Mode				480 V AC, 3-phase
adjustable 4 - 32 (audible) Ulf control Ulf control Prequency resolution (setpoint value) At 150% overload At 150% overload Heat dissipation at rated operational current le = 150 % Heat dissipation at rated operational current le pround (PE) without motor Friede with Frame size Note	Output Frequency	f ₂	Hz	0 - 50/60 (max. 500)
Speed control with silp compensation sends and speed or control (SLV) PM motors synchronous reluctance motors BLDC motors Frequency resolution (setpoint value) At 150% overload At 150% overload At 150% overload Note Power loss Heat dissipation at rated operational current I _e = 150 % Pv W 22.5 Efficiency At 150% overload Efficiency At 150% overload (PE) without motor IPE MAXimum leakage current to ground (PE) without motor Frame size Note Note Note Note Note Note Note P W O75 For normal internally and externally ventilated four-pole three-phase asynchron motors with 1500 rpm at 50 Hz and 1800 rpm at 60 Hz Overload cycle for 60 s every 600 s at 400 V, 50 Hz 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	Switching frequency	f _{PWM}	kHz	
Rated operational current At 150% overload Note Rated operational current at an operating frequency of 6 kHz and an ambient ai temperature of +40 °C Power loss Heat dissipation at rated operational current I _e =150 % P _V W 22.5 Efficiency n % 97 Maximum leakage current to ground (PE) without motor I _{PE} mA 13 Fitted with Fitted with Frame size Motor feeder Note Note Note Note Note Note Note Note 150 % Overload P kW 0.75 at 440 - 480 V, 60 Hz 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	Operation Mode			Speed control with slip compensation sensorless vector control (SLV) PM motors Synchronous reluctance motors
At 150% overload Ie A 2.2 Note Rated operational current at an operating frequency of 6 kHz and an ambient ai temperature of +40 °C Power loss Feat dissipation at rated operational current I _e =150 % Pv W 22.5 Efficiency η % 97 Maximum leakage current to ground (PE) without motor IPE mA 13 Fitted with Radio interference suppression filter 7-digital display assembly Additional PCB protection UV resistant FS1 Motor feeder FS1 For normal internally and externally ventilated four-pole three-phase asynchron motors with 1500 rpm at 50 Hz and 1800 rpm at 60 Hz Note Overload cycle for 60 s every 600 s at 440 V, 50 Hz 150 % Overload P kW 0.75 Note at 440 - 480 V, 60 Hz 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	Frequency resolution (setpoint value)	Δf	Hz	0.1
Note Power loss Heat dissipation at rated operational current I e = 150 % Py W 22.5 Efficiency n % 97 Maximum leakage current to ground (PE) without motor lpE mA 13 Fitted with Radio interference suppression filter 7-digital display assembly Additional PCB protection UV resistant Frame size FS1 Motor feeder Note For normal internally and externally ventilated four-pole three-phase asynchron motors with 1500 rpm at 50 Hz and 1800 rpm at 60 Hz Note Overload cycle for 60 s every 600 s at 400 V, 50 Hz Note 150 % Overload P kW 0.75 Note 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	Rated operational current			
Power loss Heat dissipation at rated operational current I ₀ =150 % P _V W 22.5 Efficiency η % 97 Maximum leakage current to ground (PE) without motor I _{PE} mA 13 Fitted with Radio interference suppression filter 7-digital display assembly Additional PCB protection UV resistant Frame size FS1 Motor feeder Note For normal internally and externally ventilated four-pole three-phase asynchron motors with 1500 rpm at 50 Hz and 1800 rpm at 60 Hz Note Overload cycle for 60 s every 600 s Note 150 % Overload P kW 0.75 Note 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	At 150% overload	I _e	Α	2.2
Heat dissipation at rated operational current I _e =150 % P _V W 22.5 Efficiency η % 97 Maximum leakage current to ground (PE) without motor I _{PE} mA 13 Fitted with Radio interference suppression filter 7-digital display assembly Additional PCB protection UV resistant Frame size FS1 Motor feeder Note For normal internally and externally ventilated four-pole three-phase asynchron motors with 1500 rpm at 50 Hz and 1800 rpm at 60 Hz Note Overload cycle for 60 s every 600 s at 400 V, 50 Hz 150 % Overload P KW 0.75 Note 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	Note			Rated operational current at an operating frequency of 6 kHz and an ambient air temperature of +40 $^{\circ}\text{C}$
Efficiency Maximum leakage current to ground (PE) without motor IPE MA Radio interference suppression filter 7-digital display assembly Additional PCB protection UV resistant Frame size Motor feeder Note	Power loss			
Maximum leakage current to ground (PE) without motor Fitted with Fitted with Frame size Motor feeder Note No	Heat dissipation at rated operational current $\rm I_{e}$ =150 $\%$	P_V	W	22.5
Fitted with Fitted with Frame size Motor feeder Note No	Efficiency	η	%	97
7-digital display assembly Additional PCB protection UV resistant Frame size Motor feeder Note Note For normal internally and externally ventilated four-pole three-phase asynchron motors with 1500 rpm at 50 Hz and 1800 rpm at 60 Hz Overload cycle for 60 s every 600 s Note 150 % Overload P kW 0.75 at 440 - 480 V, 50 Hz 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	Maximum leakage current to ground (PE) without motor	I _{PE}	mA	13
Motor feeder Note For normal internally and externally ventilated four-pole three-phase asynchron motors with 1500 rpm at 50 Hz and 1800 rpm at 60 Hz Note Overload cycle for 60 s every 600 s at 400 V, 50 Hz 150 % Overload P kW 0.75 Note 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	Fitted with			7-digital display assembly Additional PCB protection
Note For normal internally and externally ventilated four-pole three-phase asynchron motors with 1500 rpm at 50 Hz and 1800 rpm at 60 Hz Note Overload cycle for 60 s every 600 s at 400 V, 50 Hz 150 % Overload P kW 0.75 Note 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	Frame size			FS1
Note Doerload cycle for 60 s every 600 s Note at 400 V, 50 Hz 150 % Overload P kW 0.75 Note at 440 - 480 V, 60 Hz 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	Motor feeder			
Note at 400 V, 50 Hz 150 % Overload P kW 0.75 Note at 440 - 480 V, 60 Hz 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	Note			For normal internally and externally ventilated four-pole three-phase asynchronous motors with 1500 rpm at 50 Hz and 1800 rpm at 60 Hz
150 % Overload P kW 0.75 Note at 440 - 480 V, 60 Hz 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	Note			Overload cycle for 60 s every 600 s
Note at 440 - 480 V, 60 Hz 150 % Overload P HP 1 maximum permissible cable length I m screened: 50	Note			at 400 V, 50 Hz
150 % Overload P HP 1 maximum permissible cable length I m screened: 50	150 % Overload	Р	kW	0.75
maximum permissible cable length I m screened: 50	Note			at 440 - 480 V, 60 Hz
	150 % Overload	P	НР	1
unscreened: 75 unscreened, with motor choke: 150	maximum permissible cable length	ı	m	screened, with motor choke: 100 unscreened: 75

Apparent power			
Apparent power at rated operation 400 V	S	kVA	1.52
Apparent power at rated operation 480 V	S	kVA	1.83
Braking function			
Standard braking torque			max. 30 % MN
DC braking torque			Max. 100% of rated operational current le, variable
Control section			
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			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			
Safety device (fuse or miniature circuit-breaker)			
IEC (Type B, gG), 150 %			FAZ-B6/3
UL (Class CC or J)		Α	6
Mains contactor			
150 % overload (CT/I _H , at 50 °C)			DILM7 DILEM-10
Main choke			
150 % overload (CT/I _H , at 50 °C)			DX-LN3-004
Radio interference suppression filter (external, 150 %)			DX-EMC34-008
Radio interference suppression filter, low leakage currents (external, 150 %)			DX-EMC34-008-L
Note regarding radio interference suppression filter			Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments
Motor feeder			
motor choke			
150 % overload (CT/I _H , at 50 °C)			DX-LM3-008
Sine filter			

Design verification as per IEC/EN 61439

Technical data for design verification		
Operating ambient temperature min.	°C	-20
Operating ambient temperature max.	°C	40

DX-SIN3-004

Technical data ETIM 7.0

150 % overload (CT/I_H, at 50 °C)

reclinical data ETHV 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	380 - 480			
Mains frequency		50/60 Hz			
Number of phases input		3			
Number of phases output		3			
Max. output frequency	Hz	500			
Max. output voltage	V	500			
Nominal output current I2N	Α	2.2			
Max. output at quadratic load at rated output voltage	kW	0.75			
Max. output at linear load at rated output voltage	kW	0.75			
Relative symmetric net frequency tolerance	%	10			
Relative symmetric net voltage tolerance	%	10			
Number of analogue outputs		1			
Number of analogue inputs		2			
Number of digital outputs		1			

Number of digital inputs		4
With 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 No
Supporting protocol for ASI		No
Supporting protocol for KNX		No
Supporting protocol for MODBUS		Yes
Supporting protocol for Data-Highway		No No
Supporting protocol for DeviceNet		
Supporting protocol for SUCONET		No No
Supporting protocol for LON		No
Supporting protocol for PROFINET IO		No
Supporting protocol for PROFINET 10 Supporting protocol for PROFINET CBA		No
Supporting protocol for SERCOS		No No
Supporting protocol for Foundation Fieldbus Supporting protocol for EtherNet/IP		
Supporting protocol for EtherNet/IP Supporting protocol for AS-Interface Safety at Work		Yes No
Supporting protocol for DeviceNet Safety		No
The state of the s		No
Supporting protocol for INTERBUS-Safety		
Supporting protocol for PROFIsafe		No No
Supporting protocol for SafetyBUS p Supporting protocol for BACnet		No
		Yes
Supporting protocol for other bus systems Number of HW-interfaces industrial Ethernet		
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		
Number of HW-interfaces 163-463		0
Number of HW-interfaces USB		0
Number of HW-interfaces odd		0
Number of HW-interfaces parallel Number of HW-interfaces other		0
With optical interface		No
With PC connection		Yes
Integrated breaking resistance		No No
4-quadrant operation possible		No
Type of converter		U converter
Degree of protection (IP)		IP66
Degree of protection (NEMA)		4X
Height	mm	232
Width	mm	161
Depth	mm	147
Tr.		

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

Dimensions

