DATASHEET - S811+N66P3S



Soft starter, 66 A, 200 - 600 V AC, Us= 24 V DC, with control unit and pump algorithm, Frame size N $\,$



Part no. S811+N66P3S Catalog No. 168979

Alternate Catalog

S811PLUSN66P3S

No.

EL-Nummer 4137463

(Norway)

Delivery program

Function Mains supply voltage (50/60 Hz) Supply voltage Us Us 24 V DC Control voltage Assigned motor rating (Standard connection, In-Line) at 400 V, 50 Hz at 460 V, 60 Hz AC-53 AC-53, In-Delta AC-53 AC-53, In-Delta AC-53 AC-53, In-Delta Ue AC-53 AC-53, In-Delta Ue AC-53 AC-53, In-Delta AC-53 AC-53, In-Delta AC-53 AC-53, In-Delta Ue AC-53 AC-53, In-Delta AC-53 AC-53 AC-53, In-Delta AC-53 AC-53, In-Delta AC-53	Delivery program			
Mains supply voltage (50/60 Hz) Supply voltage Control voltage Assigned motor rating (Standard connection, In-Line) at 400 V, 50 Hz at 460 V, 60 Hz AC-53, In-Delta AC-53, In-Delta Startup class CLASS 10 (star-delta replacement) CLASS 20 (heavy starting duty 3 x I ₆ for 45 s) CLASS 30 (6 x I ₆ for 30 s) CONNection to SmartWire-DT CONNection to SmartWire-DT	Description			With internal bypass contacts
Supply voltage Control voltage Assigned motor rating (Standard connection, In-Line) at 400 V, 50 Hz at 460 V, 60 Hz Rated operational current AC-53 AC-53, In-Delta AC-53, In-Delta Le AC-53, In-Delta Ue CLASS 10 (star-delta replacement) CLASS 20 (heavy starting duty 3 x le for 45 s) CLASS 30 (6 x le for 30 s) CLASS 30 V 400 V 480 V 600 V Connection to SmartWire-DT AV DC 24 V DC 24 V DC 24 V DC 24 V DC CLASS 30 (6 x le for 30 s) CLASS 30 (6 x le for 30 s) AC-53, In-Delta AC-53, In-Delta Le AC-53, In-Delt	Function			Soft starter for three-phase loads, with control unit and pump algorithm
Control voltage Assigned motor rating (Standard connection, In-Line) at 400 V, 50 Hz at 460 V, 60 Hz Rated operational current AC-53 AC-53, In-Delta Startup class CLASS 20 (heavy starting duty 3 x I _e for 45 s) CLASS 30 (6 x I _e for 30 s) Rated operational voltage Connection to SmartWire-DT Connection to SmartWire-DT AC-50 CLASS 10 (star-delta replacement) CLASS 20 (heavy starting duty 3 x I _e for 45 s) CLASS 30 (6 x I _e for 30 s) Connection to SmartWire-DT	Mains supply voltage (50/60 Hz)	U_{LN}	V AC	200 - 600
Assigned motor rating (Standard connection, In-Line) at 400 V, 50 Hz at 460 V, 60 Hz P HP 50 Rated operational current AC-53 AC-53, In-Delta Startup class CLASS 10 (star-delta replacement) CLASS 20 (heavy starting duty 3 x I _e for 45 s) CLASS 30 (6 x I _e for 30 s) Rated operational voltage U U 0 Connection to SmartWire-DT CD D D RW 30 AC-50 AC-50 AC-53 I B AC-63 AC-63 AC-63, In-Delta I B AC-64 AC-65 AC-66 AC-66	Supply voltage	Us		24 V DC
at 460 V, 50 Hz at 460 V, 60 Hz Rated operational current AC-53 AC-53, In-Delta AC-53, In-Delta Startup class Ue AC-53 (leavy starting duty 3 x le for 45 s) CLASS 20 (heavy starting duty 3 x le for 45 s) CLASS 30 (6 x le for 30 s) Rated operational voltage Ue Connection to SmartWire-DT AC-53 (leavy starting duty 3 x le for 45 s) CLASS 30 (6 x le for 30 s) Rough CLASS 30 (6 x le for 30 s) Le class 30 (6 x le for 30 s) Rough CLASS 30 (6 x le for 30 s) Le class 30 (6 x le for 30 s) Le class 30 (6 x le for 30 s) Le class 30 (6 x le for 30 s) Le class 30 (6 x le for 30 s) Le class 30 (6 x le for 30 s) Le class 30 (6 x le for 30 s) Le class 30 (6 x le for 30 s) Le class 30 (6 x le for 45 s) CLASS 30 (Control voltage	U _C		24 V DC
Rated operational current AC-53 AC-53, In-Delta Startup class Rated operational voltage Ue Ue Connection to SmartWire-DT AC-50 I HP 50 CLASS 10 CLASS 10 CLASS 10 (star-delta replacement) CLASS 20 (heavy starting duty 3 x Ie for 45 s) CLASS 30 (6 x Ie for 30 s) ROUVE 100 100 100 100 100 100 100 10	Assigned motor rating (Standard connection, In-Line)			
Rated operational current AC-53	at 400 V, 50 Hz	P	kW	30
AC-53 In-Delta Ie A 114 Startup class CLASS 10 (star-delta replacement) CLASS 20 (heavy starting duty 3 x Ie for 45 s) CLASS 30 (6 x Ie for 30 s) Rated operational voltage Ue 200 V 230 V 400 V 480 V 600 V Connection to SmartWire-DT no	at 460 V, 60 Hz	P	HP	50
AC-53, In-Delta Ie A 114 CLASS 10 (star-delta replacement) CLASS 20 (heavy starting duty 3 x I _e for 45 s) CLASS 30 (6 x I _e for 30 s) Rated operational voltage Ue 200 V 230 V 400 V 480 V 600 V Connection to SmartWire-DT no	Rated operational current			
Startup class CLASS 10 (star-delta replacement) CLASS 20 (heavy starting duty 3 x l _e for 45 s) CLASS 30 (6 x l _e for 30 s) Rated operational voltage U _e 200 V 230 V 400 V 480 V 600 V Connection to SmartWire-DT no	AC-53	le	Α	66
Rated operational voltage Ue 200 V 230 V 400 V 480 V 600 V Connection to SmartWire-DT CLASS 20 (heavy starting duty 3 x I _e for 45 s) CLASS 30 (6 x I _e for 30 s) The starting duty 3 x I _e for 45 s) CLASS 30 (6 x I _e for 30 s) 200 V 230 V 480 V 600 V no	AC-53, In-Delta	l _e	Α	114
230 V 400 V 480 V 600 V Connection to SmartWire-DT no	Startup class			CLASS 20 (heavy starting duty 3 x I _e for 45 s)
	Rated operational voltage	U _e		230 V 400 V 480 V
Frame size N	Connection to SmartWire-DT			no
	Frame size			N

Technical data

General

delicial			
Standards			IEC/EN 60947-4-2 UL 508 CSA22.2-14-1995 GB14048
Approvals			CE
Approvals			UL CSA C-Tick CCC
Climatic proofing			Damp heat, constant, to IEC 60068-2-3 Damp heat, cyclic, to IEC 60068-2-10
Ambient temperature			
Operation	9	°C	-30 - +50
Storage	9	°C	-50 - +70
Altitude		m	0 - 2000 m, above that each 100 m 0.5% Derating
Mounting position			As required
Degree of protection			
Degree of Protection			IP20 (terminals IP00)
Integrated			Protection type IP40 can be achieved on all sides with covers SS-IP20-N.
Protection against direct contact			Finger- and back-of-hand proof
Overvoltage category/pollution degree			11/3
Shock resistance			15 g
Radio interference level (IEC/EN 55011)			A
Static heat dissipation, non-current-dependent	P_{vs}	W	33
Weight		kg	2.6

Main conducting paths

Main conducting paths			
Rated operating voltage	U _e	V AC	200 - 600
Supply frequency	f_{LN}	Hz	50/60
Rated operational current	le	Α	
AC-53, In-Delta	l _e	Α	114
AC-53	I _e	Α	66
Assigned motor rating (Standard connection, In-Line)			
at 230 V, 50 Hz	Р	kW	18.5
at 400 V, 50 Hz	Р	kW	30
at 500 V, 50 Hz	P	kW	45
at 200 V, 60 Hz	P	НР	20
at 230 V, 60 Hz	Р	HP	20
at 460 V, 60 Hz	P	HP	50
at 600 V, 60 Hz	P	HP	60
Assigned motor rating (delta connection)			
at 230 V, 50 Hz	P	kW	30
at 400 V, 50 Hz	Р	kW	55
at 500 V, 50 Hz	Р	kW	75
at 230 V, 60 Hz		HP	40
at 480 V, 60 Hz		HP	75
at 600 V, 60 Hz	Р	HP	100
Overload cycle to IEC/EN 60947-4-2			
AC-53a			66 A: AC-53a: 4.0 - 32: 99 - 3
Internal bypass contacts			/
Short-circuit rating			
Type "1" coordination			NZMN1-S80
Terminal capacities Cable lengths			
Solid		2	1 x (2.5 - 35)
		mm ²	
Flexible with ferrule		mm ²	1 x (2.5 - 35)
Stranded		mm ²	1 x (2.5 - 35)
Solid or stranded		AWG	1 x (14 - 2)
Tightening torque		Nm	4 (≤ 6 mm²); 4.5 (≤ 10 mm²); 5 (≤ 25 mm²); 5.6 (> 25 mm²)
Screwdriver (PZ: Pozidriv)		mm	1,5 x 6 mm
Control cables			
Solid		mm ²	1 x (2.5 - 4) 2 x (1.0 - 2.5)
Flexible with ferrule		mm ²	1 x (2.5 - 4) 2 x (1.0 - 2.5)
Stranded		mm ²	1 x (2.5 - 4) 2 x (1.0 - 2.5)
Solid or stranded		AWG	4 x (12 - 14) 2 x (12 - 14)
Tightening torque		Nm	0.4
Screwdriver		mm	0,6 x 3,5
Control circuit			
Digital inputs			
Control voltage			
DC-operated		V DC	24 V DC +10 %/- 10 %
Current consumption 24 V		mA	
External 24 V		mA	150
External 24 V (no-load)		mA	100
Pick-up voltage		x U _s	
DC-operated		V DC	21.6 - 26.4
Drop-out voltage	x U _s		
DC operated		V DC	

Drop-out voltage, DC-operated, max.		V DC	3
Pick-up time		V DC	3
,			100
DC operated		ms	100
Drop-out time			400
DC operated		ms	100
Regulator supply			
Voltage	Us	V	24 V DC +10 %/- 10 %
Current consumption	l _e	mA	1000
Current consumption at peak performance (close bypass) at 24 V DC	I _{Peak}	A/ms	10/150
Notes			External supply voltage
Analog inputs			
Number of current inputs			1
Current input		mA	4 - 20
Relay outputs			
Number			2
of which programmable			2
Voltage range		V AC	120 V AC/DC
AC-11 current range		Α	3 A, AC-11
Soft start function			
Ramp times			
Acceleration		S	
Ramp time, max.		S	360
Deceleration		S	0 - 120
Start voltage (= turn-off voltage)		%	
Start voltage, max.		%	85
Start pedestal		%	
Start voltage, max.		%	85
Kickstart			
Voltage		%	
Kickstart voltage, max.		%	100
Duration			
50 Hz		ms	
Kickstart Duration 50 Hz max.		ms	2000
60 Hz		ms	
Kickstart Duration 60 Hz max.		ms	2000
Fields of application			
Fields of application			Soft starting of three-phase asynchronous motors
3-phase motors			✓
Functions			
Fast switching (semiconductor contactor)			- (minimum ramp time 1s)
Soft start function			✓
Reversing starter			External solution required (reversing contactor)
Suppression of closing transients			/
Current limitation			/
Overload monitoring			✓
Underload monitoring			✓
Fault memory		Faults	10
Suppression of DC components for motors			✓
Potential isolation between power and control sections			/
Communication Interfaces			Modbus RTU

Design verification as per IEC/EN 61439

Technical data for design verification

Rated operational current for specified heat dissipation	In	Α	66
Heat dissipation per pole, current-dependent	P_{vid}	W	0
Equipment heat dissipation, current-dependent	P _{vid}	W	33
Static heat dissipation, non-current-dependent	P _{vs}	W	33
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	-30
Operating ambient temperature max.		°C	50
IEC/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 switch gear must be observed. $\label{eq:constraint}$
10.12 Electromagnetic compatibility			Is the panel builder's responsibility. The specifications for the switch gear must be observed. $\label{eq:constraint}$
10.13 Mechanical function			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 7.0

Low-voltage industrial components (EG000017) / Soft starter (EC000640)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Semiconductor motor controller or soft starter (ecl@ss10.01-27-37-09-07 (AC0300011))

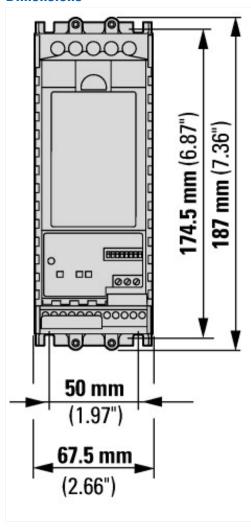
Rated operating voltage Ue Rated operating voltage Ue Rated power three-phase motor, inline, at 230 V Rated power three-phase motor, inline, at 400 V Rated power three-phase motor, inside delta, at 230 V Rated power three-phase motor, inside delta, at 230 V Rated power three-phase motor, inside delta, at 230 V Rated power three-phase motor, inside delta, at 230 V Rated power three-phase motor, inside delta, at 230 V Rated power three-phase motor, inside delta, at 400 V Rated power three-phase motor, inside delta, at 400 V Roteina Service of the service of	(ecl@ss10.0.1-27-37-09-07 [AC0300011])		
Rated power three-phase motor, inline, at 230 V kW 30 Rated power three-phase motor, inside delta, at 230 V kW 30 Rated power three-phase motor, inside delta, at 230 V kW 30 Rated power three-phase motor, inside delta, at 400 V kW 55 Function Single direction Internal bypass Yes With display Yes Torque control Rated surrounding temperature without derating °C 50 Rated control supply voltage Us at AC 50HZ V 0 - 0 Rated control supply voltage Us at AC 60HZ V 0 - 0 Rated control supply voltage Us at DC V 24 - 24 Voltage type for actuating C C 50 KW 18.5 KW 30 KW 42 KW 55 KW 30 KW	Rated operation current le at 40 °C Tu	А	66
Rated power three-phase motor, inline, at 400 V Rated power three-phase motor, inside delta, at 230 V Rated power three-phase motor, inside delta, at 400 V Rated power three-phase motor, inside delta, at 400 V RW 55 Function Internal bypass With display Yes With display Torque control Rated surrounding temperature without derating Rated control supply voltage Us at AC 50HZ V 0 - 0 Rated control supply voltage Us at AC 60HZ V 0 - 0 Rated control supply voltage Us at DC V 0 - 0 V 24 - 24 Voltage type for actuating D C	Rated operating voltage Ue	V	200 - 600
Rated power three-phase motor, inside delta, at 230 V Rated power three-phase motor, inside delta, at 400 V RW 55 Function Internal bypass With display Torque control Rated surrounding temperature without derating Rated control supply voltage Us at AC 50HZ Voltage type for actuating Rated control supply voltage Us at DC Voltage type for actuating RW Single direction Single direction No Single direction Yes Voltage direction Voltage Us at AC 50HZ Voltage type for actuating RW Single direction Voltage Us at AC 50HZ Voltage Us at AC 50HZ Voltage Us at AC 50HZ Voltage Us at DC Voltage type for actuating RW Single direction Voltage Us at AC 50HZ Voltage Us at AC 50HZ Voltage Us at AC 50HZ Voltage Us at DC Voltage Us at AC 50HZ Voltage Us at DC Voltage Us at AC 50HZ	Rated power three-phase motor, inline, at 230 V	kW	18.5
Rated power three-phase motor, inside delta, at 400 V Function Internal bypass With display Yes With display Torque control Rated surrounding temperature without derating Rated control supply voltage Us at AC 50HZ Rated control supply voltage Us at AC 60HZ Rated control supply voltage Us at DC Voltage type for actuating KW 55 Single direction Yes Vol Vol Vol Vol Vol Vol Vol DC	Rated power three-phase motor, inline, at 400 V	kW	30
Function Internal bypass With display Torque control Rated surrounding temperature without derating Rated control supply voltage Us at AC 50HZ Rated control supply voltage Us at AC 60HZ Rated control supply voltage Us at DC V Voltage type for actuating Single direction Yes Voes Voes No 0 0 0 0 0 0 0 0 0 0 0 0 0	Rated power three-phase motor, inside delta, at 230 V	kW	30
Internal bypass With display Yes Torque control Rated surrounding temperature without derating Rated control supply voltage Us at AC 50HZ Rated control supply voltage Us at AC 60HZ V 0 - 0 Rated control supply voltage Us at DC V 24 - 24 Voltage type for actuating DC	Rated power three-phase motor, inside delta, at 400 V	kW	55
With display Yes Torque control No Rated surrounding temperature without derating °C 50 Rated control supply voltage Us at AC 50HZ V 0 - 0 Rated control supply voltage Us at AC 60HZ V 0 - 0 Rated control supply voltage Us at DC V 24 - 24 Voltage type for actuating DC	Function		Single direction
Torque control Rated surrounding temperature without derating °C 50 Rated control supply voltage Us at AC 50HZ V 0 - 0 Rated control supply voltage Us at AC 60HZ V 0 - 0 Rated control supply voltage Us at DC V 24 - 24 Voltage type for actuating DC	Internal bypass		Yes
Rated surrounding temperature without derating °C 50 Rated control supply voltage Us at AC 50HZ V 0 - 0 Rated control supply voltage Us at AC 60HZ V 0 - 0 Rated control supply voltage Us at DC V 24 - 24 Voltage type for actuating C 50 DC	With display		Yes
Rated control supply voltage Us at AC 50HZ Rated control supply voltage Us at AC 60HZ V 0 - 0 Rated control supply voltage Us at DC V 24 - 24 Voltage type for actuating DC	Torque control		No
Rated control supply voltage Us at AC 60HZ V 0 - 0 Rated control supply voltage Us at DC V 24 - 24 Voltage type for actuating DC	Rated surrounding temperature without derating	°C	50
Rated control supply voltage Us at DC V 24 - 24 Voltage type for actuating DC	Rated control supply voltage Us at AC 50HZ	V	0 - 0
Voltage type for actuating DC	Rated control supply voltage Us at AC 60HZ	V	0 - 0
	Rated control supply voltage Us at DC	V	24 - 24
Integrated motor overload protection Yes	Voltage type for actuating		DC
	Integrated motor overload protection		Yes

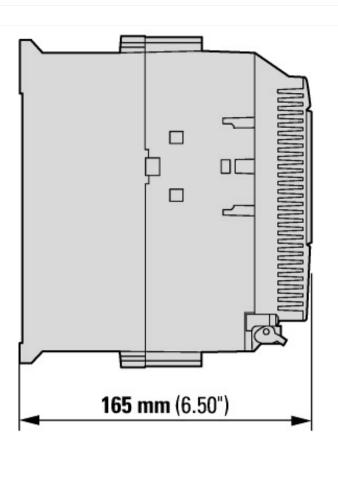
Release class	Adjustable
Degree of protection (IP)	IP00
Degree of protection (NEMA)	Other

Approvals

Product Standards	IEC/EN 60947-4-2; UL 508; CSA C22.2 No. 14; CE marking
UL File No.	E202571
UL Category Control No.	NMFT
CSA File No.	LR 353
CSA Class No.	3211-06, 2411-01
North America Certification	UL listed, CSA certified
Suitable for	Branch Circuits, not as BCPD
Max. Voltage Rating	600 Vac
Degree of Protection	IP20 with kit

Dimensions





Additional product information (links)

Documentation

http://www.eaton.eu/Europe/Electrical/ProductsServices/AutomationControl/SwitchingProtectingDrivingMotors/SoftStarters/S811/index.htm#tabs-4