#### DATASHEET - S811+V10P3S



Soft starter, 1000 A, 200 - 600 V AC, Us= 24 V DC, with control unit and pump algorithm, Frame size V  $\!\!\!$ 



Part no.S811+V10P3SCatalog No.169012Alternate CatalogS811PLUSV10P3SNo.EL-NummerKorway)4137496

#### **Delivery program**

Description			With internal bypass contacts
Function			Soft starter for three-phase loads, with control unit and pump algorithm
Mains supply voltage (50/60 Hz)	U <sub>LN</sub>	V AC	200 - 600
Supply voltage	Us		24 V DC
Control voltage	UC		24 V DC
Assigned motor rating (Standard connection, In-Line)			
at 400 V, 50 Hz	Р	kW	560
at 460 V, 60 Hz	Р	HP	750
Rated operational current			
AC-53	le	А	1000
AC-53, In-Delta	l <sub>e</sub>	А	1732
Startup class			CLASS 10 (star-delta replacement) CLASS 20 (heavy starting duty 3 x I <sub>e</sub> for 45 s) CLASS 30 (6 x I <sub>e</sub> for 30 s)
Rated operational voltage	U <sub>e</sub>		200 V 230 V 400 V 480 V 600 V
Connection to SmartWire-DT			no
Frame size			٧
Ordering information			Terminal blocks for the terminals are required for frame sizes T, U, and V -> Accessories

# **Technical data**

Approvals       C         Approvals       C         Approvals       UL SOB (SA222-14-1995 GB10408         Approvals       UL SACCOMPACIANCE         Approvals       Dam heat, constant, to IEC 60068-2-3 Dem heat, constant,	General			
Approvals Approv	Standards			UL 508 CSA22.2-14-1995
Image: series of protection against direct contact.       SA Crick C	Approvals			CE
Ambient temperature         Damp heat, cyclic, to IEC 60068-2-10           Ambient temperature	Approvals			CSA C-Tick
Operation         9         Call         30 + 50           Storage         50 + 70         50 + 70           Attude         m         0 - 2000 m, above that each 100 m 0.5% Derating           Autudge         m         0 - 2000 m, above that each 100 m 0.5% Derating           Autudge         m         0 - 2000 m, above that each 100 m 0.5% Derating           Autudge         m         No           Autudge         m         Arequired           Autudge         m         Arequired           Autudge         m         Max	Climatic proofing			
Storage     %     %     %       Aktude     m     0.2000 m, above that each 100 m 0.5% Derating       Munting position     m     0.2000 m, above that each 100 m 0.5% Derating       Degree of protection     m     As required       Degree of Protection     m     Protection type IP40 can be achieved on all sides with covers SS-IP20-N.       Protection against direct contact     m     Protection type IP40 can be achieved on all sides with covers SS-IP20-N.       Protection degree     m     m     main type IP40 can be achieved on all sides with covers SS-IP20-N.       Nervoltage category/pollution degree     m     m     m       Shock resistance     m     m     m       As interference level (IEC/EN 5501)     m     m     m	Ambient temperature			
Attude       m       0 - 2000 m, above that each 100 m 0.5% Derating         Mounting position       Mounting position       As required         Degree of protection       Image: Protection       Image: Protection         Integrated       Mounting position degree       From the schieved on all sides with covers SS-IP20-N.         Protection against direct contact       Image: Protection degree       Finger- and back-of-hand proof         Divervoltage category/pollution degree       Image: Protection degree       Image: Protection degree         Shock resistance       Image: Protection degree       Image: Protection degree         Badio interference level (IEC/EN 55011)       Image: Protection degree       Image: Protection degree	Operation	9	°C	-30 - +50
Mounting position       As required         Degree of protection       As required         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       IMA         Overvoltage category/pollution degree       IMA         Shock resistance       IMA         Badio interference level (IEC/EN 55011)       IMA	Storage	θ	°C	-50 - +70
Degree of protection       Poer of Protection       IP20 (terminals IP00)         Integrated       Protection type IP40 can be achieved on all sides with covers SS-IP20-N.         Protection against direct contact       Image: Protection degree         Dvervoltage category/pollution degree       Image: Protection degree         Shock resistance       Image: Protection degree         Radio interference level (IEC/EN 55011)       Image: Protection degree	Altitude		m	0 - 2000 m, above that each 100 m 0.5% Derating
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     IP       Overvoltage category/pollution degree     II/3       Shock resistance     IS       Radio interference level (IEC/EN 55011)     IS	Mounting position			As required
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       Dvervoltage category/pollution degree     II/3       Shock resistance     Is g       Radio interference level (IEC/EN 55011)     Image: Stock resistance	Degree of protection			
Protection against direct contact     Finger- and back-of-hand proof       Dvervoltage category/pollution degree     II/3       Shock resistance     15 g       Radio interference level (IEC/EN 55011)     IM	Degree of Protection			IP20 (terminals IP00)
Overvoltage category/pollution degree     II/3       Shock resistance     15 g       Radio interference level (IEC/EN 55011)     A	Integrated			Protection type IP40 can be achieved on all sides with covers SS-IP20-N.
Shock resistance     15 g       Radio interference level (IEC/EN 55011)     A	Protection against direct contact			Finger- and back-of-hand proof
Radio interference level (IEC/EN 55011)	Overvoltage category/pollution degree			11/3
	Shock resistance			15 g
Static heat dissination non-current-dependent P. W 215	Radio interference level (IEC/EN 55011)			A
	Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	215

Weight		kg	41.4
Main conducting paths		ку	41.4
Rated operating voltage	Ue	V AC	200 - 600
Supply frequency	f <sub>LN</sub>	Hz	50/60
Rated operational current	l <sub>e</sub>	A	
AC-53, In-Delta			1732
	l <sub>e</sub>	A	
AC-53	l <sub>e</sub>	A	1000
Assigned motor rating (Standard connection, In-Line)			
at 400 V, 50 Hz	Р	kW	560
at 500 V, 50 Hz	Р	kW	630
at 200 V, 60 Hz	Р	HP	200
at 460 V, 60 Hz	Р	HP	750
at 600 V, 60 Hz	Р	HP	850
Assigned motor rating (delta connection)			
at 230 V, 50 Hz	Р	kW	200
at 400 V, 50 Hz	Ρ	kW	900
at 500 V, 50 Hz	Ρ	kW	900
at 230 V, 60 Hz		HP	500
at 480 V, 60 Hz		HP	1300
at 600 V, 60 Hz	Р	HP	1300
Overload cycle to IEC/EN 60947-4-2			
AC-53a			1000 A: AC-53a: 4.0 - 32: 99 - 3
Internal bypass contacts			1
Short-circuit rating			
Type "1" coordination			NZMN4-ME1400
Terminal capacities			
Cable lengths			
Solid		mm <sup>2</sup>	2 x (120 - 240) 4 x (70 - 240) 6 x (120 - 240)
Flexible with ferrule		mm <sup>2</sup>	2 x (120 - 240) 4 x (70 - 240) 6 x (120 - 240)
Stranded		mm <sup>2</sup>	2 x (120 - 240) 4 x (70 - 240) 6 x (120 - 240)
Solid or stranded		AWG	2 x (4 - 500 kcmil) 4 x (4 - 500 kcmil) 6 x (4 - 500 kcmil)
Control cables			
Solid		mm <sup>2</sup>	1 x (2.5 - 4) 2 x (1.0 - 2.5)
Flexible with ferrule		mm <sup>2</sup>	1 x (2.5 - 4) 2 x (1.0 - 2.5)
Stranded		mm <sup>2</sup>	1 x (2.5 - 4) 2 x (1.0 - 2.5)
Solid or stranded		AWG	46 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		V DC	24 V DC +10 %/- 10 %
DC-operated			24 V DG + IU 70/- IU 70
Current consumption 24 V		mA	150
External 24 V		mA	150
External 24 V (no-load)		mA	100
Pick-up voltage		x U <sub>s</sub>	
DC-operated		V DC	21.6 - 26.4
Drop-out voltage	x U <sub>s</sub>		

DC operated		V DC	
Drop-out voltage, DC-operated, max.		V DC	3
Pick-up time			
DC operated		ms	100
Drop-out time			
DC operated		ms	100
Regulator supply			
Voltage	Us	V	24 V DC +10 %/- 10 %
Current consumption	I <sub>e</sub>	mA	1400
Current consumption at peak performance (close bypass) at 24 V DC	I <sub>Peak</sub>	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		А	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			1
Overload monitoring			1
Underload monitoring			1
Fault memory		Faults	10
Suppression of DC components for motors			1
Potential isolation between power and control sections			1
Communication Interfaces			Modbus RTU

Design verification as per IEC/EN 61439			
Technical data for design verification			
Rated operational current for specified heat dissipation	l <sub>n</sub>	А	1000
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	215
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	215
Heat dissipation capacity	P <sub>diss</sub>	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 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**

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

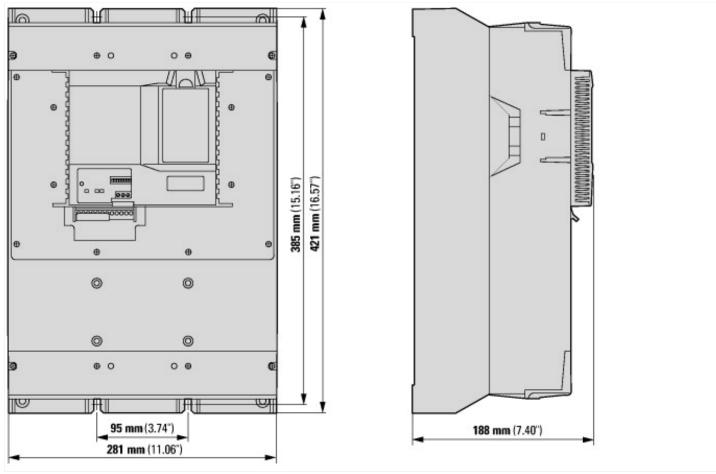
Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Semiconductor motor controller or soft starter (ecl@ss10.0.1-27-37-09-07 [AC0300011])				
Rated operation current le at 40 °C Tu	А	1		
Rated operating voltage Ue	V	2	00 - 600	
Rated power three-phase motor, inline, at 230 V	kW	2	00	
Rated power three-phase motor, inline, at 400 V	kW	5	60	
Rated power three-phase motor, inside delta, at 230 V	kW	2	00	
Rated power three-phase motor, inside delta, at 400 V	kW	9	00	
Function		S	ingle direction	
Internal bypass		Y	es	
With display		Y	es	
Torque control		Ν	lo	
Rated surrounding temperature without derating	°C	5	0	
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	2	4 - 24	

Voltage type for actuating	DC
Integrated motor overload protection	Yes
Release class	Adjustable
Degree of protection (IP)	IPOO
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.	NMFT2
CSA File No.	LR 353
CSA Class No.	3211-06
North America Certification	UL recognized, CSA certified
Conditions of Acceptability	98-115 CFM fan and 4" x 4" vent req'd
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