

### **Soft starter, 3p, 420A, Ue= 200-600VAC**

 Part no.
 \$811+V42P3\$

 Article no.
 168997

 Catalog No.
 \$811PLUSV42P3\$



**Delivery program** 

zomor, 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)	$U_{LN}$	V AC	200 - 600
Supply voltage	$U_s$		24 V DC
Control voltage	U <sub>C</sub>		24 V DC
Assigned motor rating (Standard connection, In-Line)			
at 400 V, 50 Hz	P	kW	200
at 460 V, 60 Hz	P	HP	350
Rated operational current			
AC-53	I <sub>e</sub>	Α	420
AC-53, In-Delta	I <sub>e</sub>	Α	727
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 <sub>e</sub>		200 V 230 V 400 V 480 V 600 V
Connection to SmartWire-DT			no
Frame size			V
Ordering information			Terminal blocks for the terminals are required for frame sizes T, U, and V -> $\mbox{\sc Accessories}$

## **Technical data**

General

delieral			
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	θ	°C	-30 - +50
Storage	θ	°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 <sub>vs</sub>	W	25
Weight		kg	41.4

#### Main conducting paths

Main conducting paths			
Rated operating voltage	U <sub>e</sub>	V AC	200 - 600
Supply frequency	$f_{LN}$	Hz	50/60
Rated operational current	le	Α	
AC-53, In-Delta	I <sub>e</sub>	Α	727
AC-53	I <sub>e</sub>	Α	420
Assigned motor rating (Standard connection, In-Line)			
at 230 V, 50 Hz	P	kW	132
at 400 V, 50 Hz	P	kW	200
at 500 V, 50 Hz	Р	kW	250
at 200 V, 60 Hz	P	НР	150
at 230 V, 60 Hz	P	НР	150
at 460 V, 60 Hz	P	НР	350
at 600 V, 60 Hz	P	НР	450
Assigned motor rating (delta connection)			
at 230 V, 50 Hz	P	kW	200
at 400 V, 50 Hz	P	kW	400
at 500 V, 50 Hz	P	kW	450
at 230 V, 60 Hz		НР	300
at 480 V, 60 Hz		HP	600
at 600 V, 60 Hz	P	НР	750
Overload cycle to IEC/EN 60947-4-2	·		
AC-53a			420 A: AC-53a: 4.0 - 32: 99 - 3
Internal bypass contacts			
internal bypass contacts			<b>/</b>
Short-circuit rating			
Type "1" coordination			NZMN3-S500
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	31 x (12 - 14) 2 x (12 - 14)
Tightening torque		Nm	0.4
Screwdriver Control circuit		mm	0,6 x 3,5
Digital inputs			
Control voltage			
DC-operated		V DC	24 V DC +10 %/- 10 %
Current consumption 24 V		mA	
External 24 V			150
		mΔ	
		mA mΔ	
External 24 V (no-load)		mA	100

OC questioned         V COL           Post-sky prime or contange, IC-operated, max.         V COL         3           De operated or contange o	Drop-out voltage	x U <sub>s</sub>		
Decy out vallage, DC operated, max		X U <sub>S</sub>	V DC	
Polity of part of the Component of the Component of the Component of the Component of Componen				2
Occ generated Orgonacion (and transport)         ms         100           Regulator supply         ms         100           Current consumption         IL,         V         200 (C ± 10 ½/± 10 ½)           Current consumption         IL,         VA         2400 (C ± 10 ½/± 10 ½)           Current consumption at peak performance (class laypassal at 29 U DC)         Impair (and trapp)         14790 (C ± 10 ½/± 10 ½)           Availage for current impaid         Impair (and trapp)         2400 (C ± 10 ½/± 10 ½			V DC	5
Comparation			me	100
Disputation supply			1113	100
Regulation supply   Ua			me	100
Voltage			1113	100
Current consumption         I, with A 1400         1400           Current consumption at peak performance Iclose bypack) of 24 V DC Notes         Paik A 15150         16150           Amalog injusts         Feat and 15050 V Permit supply voltage         1           Current injust         Paik A 20         1           Billy outputs         Paik A 20         2           Billy outputs         Paik A 20         2           Number of voltage range         V A 20         120 V ACROC           AC-10 current range         A 3 A AC-11           SNET staff function         S 3         150 Permit supply voltage           Acceleration         S 3         150 Permit supply voltage           Start voltage, max.         S 3         150 Permit supply voltage           Start voltage, max.         S 4         150 Permit supply voltage           Districts Duration 50 He max.         S 100 Permit supply voltage         150 Perm		П	V	24 V DC ±10 %/- 10 %
Contract consumption at peaks performance   clases bytamed at 24 V DC   Value   Centernal supply voltage:   Cent				
Notices         Learned supply wittage           Anatholity rights         Amounted of current inquals         InA.         4.20           Bully controlled         InA.         4.20           Bully controlled         InA.         4.20           Bully controlled         Ina.         2.2           Number of of which programmable         VAC         120 VAC/DC           ACL controlled from the function         A.2.         3.4. A.2. II           State function         S.2.         3.6. In The function           Brapp times         Ina.         3.0. In The function           State function         Ina.         3.0. In The function           State voltage   current voltage)         Ina.         3.0. In The function           State voltage   current voltage)         Ina.         3.0. In The function           State voltage   current voltage)         Ina.         3.0. In The function           State voltage   current voltage)         Ina.         3.0. In The function           State voltage   current voltage, max.         In In The function         In In The function           Workpass         In In The function         In In The function         In In In The function           Bridge of application         In In The function         In In The function of these phase asynchronou				
Analog injust  Number of current ingust  Current logus  Relay outputs  Votings range  Voting range  Voting range  Accil current range		Peak	A/IIIS	
Number of current inputs  Current input  Relay entputs  Number  Relay entputs  Number  A 2  2  2  2  2  2  2  2  2  2  2  2  2				External supply voltage
Edward injust  Relay outputs  Number of which programmable VAC 129 AC-11 current range AC-11 current range AC-11 current range AC-11 current range AC-12 current range AC-13 current range AC-13 current range AC-13 current range AC-14 current range AC-15 current rang				
Number	Number of current inputs			
Number	Corrections		A	4.20
Number         2           of which programmable         2           VAC         120 V AC/DC           AC-11 current range         A         3A, AC-11           SRIST start function         8         4           Ramp times         Acceleration         \$           Ramp time, max.         \$         380           Deceleration         \$         4-120           Start voltage (+ turn-off voltage)         %           Start voltage (+ turn-off voltage)         %           Start voltage, max.         %         85           Start voltage, max.         %         85           Kickstart         *         100           Ouration         %         100           Kickstart Ouration 50 Hz max.         ms         2000           60 Hz         ms         2000           Kickstart Ouration 50 Hz max.         ms         2000           60 Hz         ms         2000           Fields of application         ms         2000           Briefleds of application         ms         2000           Fields of application         ms         2000           Briefleds of application (semiconductor contactor)         ms         1000			IIIA	4 - 20
of which programmable         VAC         120 V AC/IDC           Voltage range         A         3 A, AC-11           AC-11 current range         SA         3 A, AC-11           Soft start function           Ramp times         Image: Control of the programmable of				2
Votage range         VAC         120 V AC/DC           AC 11 Current range         3 A, AC-11           Soft start function         Image: Control of Soft Sate of Soft Soft Soft Soft Soft Soft Soft S				
AC-11 current range         A         3 A, AC-11           Soft start function         Soft start function           Accoloration         S         380           Ramp time, max.         S         380           Deceleration         \$         0-120           Start voltage, letur-off voltage)         %         85           Start voltage, max.         %         85           Start voltage, max.         %         85           Start voltage, max.         %         95           Violtage, max.         %         95           Mickstart         %         95           Mickstart voltage, max.         %         95           Duration         %         100           Violtage, max.         ms         200           Kickstart Duration 50 Hz max.         ms         2000           Kickstart Duration 50 Hz max.         ms         2000           Fields of application         Soft starting of three-phase asynchronous motors           Fields of application         Soft starting of three-phase asynchronous motors           Fields of application         (minimum ramp time 1s)           Soft start function         (minimum ramp time 1s)           Soft start function         (minimum ramp t			V AC	
Soft start function   Ramp times				
Ramp times         s			А	3 A, AC-11
Acceleration         s         380           Ramp time, max.         s         300           Deceleration         s         0-120           Start voltage, featur-off voltage)         %         5           Start voltage, max.         %         85           Start voltage, max.         %         85           Voltage         %         100           Kickstart voltage, max.         ms         2000           Kickstart voltage, max.         ms         2000           Kickstart Duration 50 Hz max.         ms         2000           Kickstart Duration 50 Hz max.         ms         2000           Fields of application         Soft starting of three-phase asynchronous motors         3-phase motors           Fields of application         Soft start function         Soft start function           Fast switching (semiconductor contactor)         Soft start function         Soft start function required (reversing contactor)           Soft start function         Soft start function required (reversing c				
Ramp time, max  Deceleration  Start voltage (- turn-off voltage)  Start voltage, max  Kickstart  Voltage  Kickstart voltage, max  Nickstart voltag			s	
Deceleration         s         0 - 120           Start voltage (= turn-off voltage)         %         5           Start voltage, max.         %         85           Start voltage, max.         %         8           Kickstart         "         "           Voltage         %         100           Kickstart voltage, max.         %         100           Duration         ms         2000           Kickstart Duration 50 Hz max.         ms         2000           60 Hz         ms         2000           Kickstart Duration 50 Hz max.         ms         2000           Fields of application         s         50ft starting of three-phase asynchronous motors           Fields of application         s         50ft starting of three-phase asynchronous motors           Fructions           Fructions           Fast switching (semiconductor contactor)         √         (minimum remp time 1s)           Soft start function         √         (minimum remp time 1s)           Soft start function         √         (minimum remp time 1s)           Soft start function         √         (minimum remp time 1s)           Current limitation         <				360
Start voltage, max.  Start voltage, max.  Start voltage, max.  Voltage  Kickstart  Voltage  Kickstart voltage, max.  By 100  Uuration  50 Hz  Kickstart Duration 50 Hz max.  By 2000  Kickstart Duration 60 Hz max.  By 2000  Fields of application  Soft start function  Fourtions  Faut witching (semiconductor contactor)  Soft start function  Soft start function  Current limitation  Ourfload monitoring  Underload monitoring  Fault memory  Suppression of DC components for motors  Wickstart Duration 60 Hz max.  Fields of application  Fields of applicati				
Start voltage, max.  Start voltage, max.  Start voltage, max.  Voltage  Kickstart  Voltage  Kickstart voltage, max.  By 100  Uuration  50 Hz  Kickstart Duration 50 Hz max.  By 2000  Kickstart Duration 60 Hz max.  By 2000  Fields of application  Soft start function  Fourtions  Faut witching (semiconductor contactor)  Soft start function  Soft start function  Current limitation  Ourfload monitoring  Underload monitoring  Fault memory  Suppression of DC components for motors  Wickstart Duration 60 Hz max.  Fields of application  Fields of applicati				
Start voltage, max.  Kickstart  Voltage			%	85
Start voltage, max.  Kickstart  Voltage  Kickstart voltage, max.  Kickstart voltage, max.  Buration  50 Hz  Kickstart Duration 50 Hz max.  Kickstart Duration 50 Hz max.  Kickstart Duration 50 Hz max.  Miss  Kickstart Duration 60 Hz max.  Miss  Kickstart Duration 60 Hz max.  Miss  Kickstart Duration 60 Hz max.  Miss  Miss  Soft starting of three-phase asynchronous motors  3-phase motors  Fields of application  Fast switching (semiconductor contactor)  Soft start function  Reversing starter  Suppression of closing transients  Current limitation  Overload monitoring  Underload monitoring  Limit memory  Fault memory  Suppression of DC components for motors  Wickstart Duration 10 Components f			%	
Voltage Kickstart voltage, max.  Duration 50 Hz Kickstart Duration 50 Hz max. 60 Hz Kickstart Duration 60 Hz max. 60 Hz Kickstart Duration 60 Hz max. 7			%	85
Kickstart voltage, max.  Duration  50 Hz  Kickstart Duration 50 Hz max.  60 Hz  Kickstart Duration 60 Hz max.  60 Hz  Kickstart Duration 60 Hz max.  Fields of application  Fields of application  3-phase motors  Fourtions  Fast switching (semiconductor contactor)  Soft start function  Reversing starter  Suppression of closing transients  Current limitation  Overload monitoring  Foults memory  Suppression of DC components for motors   **Outpression of DC components for motors  **Jenature  **Jena	Kickstart			
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SO Hz	Kickstart voltage, max.		%	100
Kickstart Duration 50 Hz max. 60 Hz Kickstart Duration 60 Hz max. Fields of application Fields of application 3-phase motors Formations Fast switching (semiconductor contactor) Soft start function Reversing starter Suppression of closing transients Current limitation Underload monitoring Faults memory Suppression of DC components for motors  ms 2000  ms 2000  ms 2000  Total Components for motors Soft starting of three-phase asynchronous motors Soft starting of three-phase asynchronous motors	Duration			
Kickstart Duration 60 Hz max.  Fields of application Fields of application Fields of application  Fields of starting of three-phase asynchronous motors  Fields of	50 Hz		ms	
Kickstart Duration 60 Hz max.  Fields of application Fields of application 3-phase motors  Founctions Fast switching (semiconductor contactor) Soft start function  Reversing starter Suppression of closing transients  Current limitation Overload monitoring Underload monitoring Faults Suppression of DC components for motors  m m m m m m m m m m m m m m m m m m m	Kickstart Duration 50 Hz max.		ms	2000
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Functions Fast switching (semiconductor contactor)  Soft start function  Reversing starter Suppression of closing transients  Current limitation  Overload monitoring  Underload monitoring  Fault memory Suppression of DC components for motors  I make the starter the contactor of the starter than	Fields of application			
Functions Fast switching (semiconductor contactor)  Soft start function  Reversing starter Suppression of closing transients  Current limitation Overload monitoring Underload monitoring  Fault memory Suppression of DC components for motors  When the transients for motors  Faults Figure 4. (minimum ramp time 1s)  External solution required (reversing contactor)  External solution required (reversing contactor)  Faults  Faults  1. (minimum ramp time 1s)  Faults  Faults  1. (minimum ramp time 1s)  Faults  Figure 4. (minimum ramp time 1s)  Figure 4. (minimum ramp time 1s)  Figure 5. (minimum ramp time 1s)  Figure 4. (minimum ramp time 1s)  Figure 4. (minimum ramp time 1s)  Figure 5. (minimum ramp time 1s)  Figure 6. (minimum ramp time 1s)  Figure 7. (minimum ramp time 1s)  Figure 8. (minimum ramp time 1s)  Figure 8	Fields of application			Soft starting of three-phase asynchronous motors
Fast switching (semiconductor contactor)  Soft start function  Reversing starter Suppression of closing transients  Current limitation  Overload monitoring  Underload monitoring  Faults memory Suppression of DC components for motors  - (minimum ramp time 1s)  - (minimum ramp ti	3-phase motors			1
Fast switching (semiconductor contactor)  Soft start function  Reversing starter Suppression of closing transients  Current limitation  Overload monitoring  Underload monitoring  Faults memory Suppression of DC components for motors  - (minimum ramp time 1s)  - (minimum ramp ti	Functions			
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Suppression of closing transients  Current limitation  Overload monitoring  Underload monitoring  Fault memory  Suppression of DC components for motors  I Suppression of Closing transients  I Supp	Soft start function			
Suppression of closing transients  Current limitation  Overload monitoring  Underload monitoring  Fault memory  Suppression of DC components for motors  I Suppression of Closing transients  I Supp	Reversing starter			External solution required (reversing contactor)
Overload monitoring Underload monitoring  Fault memory Suppression of DC components for motors  Overload monitoring  Faults To  Faul	Suppression of closing transients			
Underload monitoring  Fault memory  Suppression of DC components for motors  Faults	Current limitation			✓
Fault memory  Faults 10  Suppression of DC components for motors  Taults 10	Overload monitoring			✓
Suppression of DC components for motors	Underload monitoring			1
	Fault memory		Faults	10
Potential isolation between power and control sections	Suppression of DC components for motors			✓
Y Y	Potential isolation between power and control sections			✓

Communication Interfaces	Modbus RTU

# Design verification as per IEC/EN 61439

In	Α	420
P <sub>vid</sub>	W	0
P <sub>vid</sub>	W	25
P <sub>vs</sub>	W	25
P <sub>diss</sub>	W	0
	°C	-30
	°C	50
		Meets the product standard's requirements.
		Meets the product standard's requirements.
		Meets the product standard's requirements.
		Meets the product standard's requirements.
		Meets the product standard's requirements.
		Does not apply, since the entire switchgear needs to be evaluated.
		Does not apply, since the entire switchgear needs to be evaluated.
		Meets the product standard's requirements.
		Does not apply, since the entire switchgear needs to be evaluated.
		Meets the product standard's requirements.
		Does not apply, since the entire switchgear needs to be evaluated.
		Does not apply, since the entire switchgear needs to be evaluated.
		Is the panel builder's responsibility.
		Is the panel builder's responsibility.
		Is the panel builder's responsibility.
		Is the panel builder's responsibility.
		Is the panel builder's responsibility.
		The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
		The device meets the requirements, provided the information in the instruction leaflet (IL) is observed. $\label{eq:continuous}$
	P <sub>vid</sub> P <sub>vid</sub> P <sub>vs</sub>	P <sub>vid</sub> W           P <sub>vid</sub> W           P <sub>VS</sub> W           P <sub>diss</sub> W           °C         °C

## **Technical data ETIM 6.0**

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@ss8.1-27-37-09-07 [ACO300008])					
ated operation current le at 40 °C Tu A 420					
Rated operating voltage Ue		V	200 - 600		
Rated power three-phase motor, inline, at 230 V		kW	132		
Rated power three-phase motor, inline, at 400 V		kW	200		
Rated power three-phase motor, inside delta, at 230 V		kW	200		
Rated power three-phase motor, inside delta, at 400 V		kW	400		
Internal bypass			Yes		
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
Integrated motor overload protection		Yes

## **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
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**



