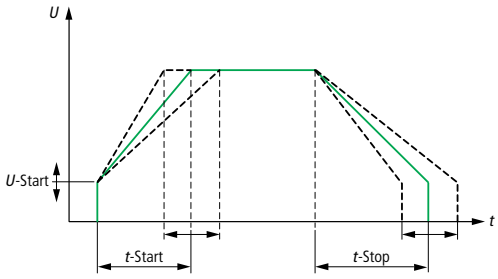
EtherNet/IP
Modbus

DS7

S811+

DS7 and S811+ soft starters
Soft starting for any application



Soft starters enable the drive to be optimally adapted to the application in question, and stop functions and the starting voltage can also be configured.

Soft starting is the modern alternative to star-delta starters. Electronic soft starters meet customer requirements for smooth torque increases and targeted current reduction during the start-up phase. During the start-up phase, they control the power supply of a three-phase motor in such a way that it adapts to the load behavior of the machine. As a result, the mechanical equipment is accelerated gently, which has positive effects on the operating characteristics and work processes while avoiding any negative impact.

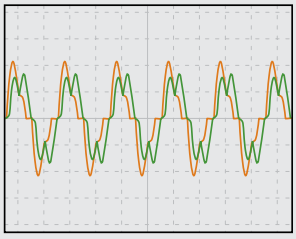
With the DS7 up to 200 A and the S811+ up to 850 A, we offer two separate soft starter series. The DS7 is the ideal choice for standard applications, while the S811+ series offers maximum functionality.

Eaton.com/softstarter

Application examples

- Three-phase inductive loads
- Silent and smooth motor start in transportation and conveyor systems
- Smooth pump start reduces the load on the entire system (water hammer)
- Contactless switching of pumps in the harsh environments of chemical and tank facilities
- In fan drive applications, soft starting reduces wear on the V belts

Current flow during the uncontrolled phase



Standard control options:

Symmetrical control with high DC components

New process from Eaton:

Asymmetrical control without any DC components

DS7 soft starter – soft start, strong torque

Soft starters have now become a viable alternative to star-delta starters.The DS7 replaces the mechanical contactor and also adds a soft start function. Our patented technology ensures exceptionally smooth motor run-ups at higher torques than alternative solutions are able to deliver. Extended maintenance intervals and reduced operating costs are welcome side effects of this technology. The compact DS7 soft starter has been conceived for standard applications such as pumps, fans and small conveyor belts.

S811+ soft starter – a powerful yet compact device

Thanks to the combination of three-phase control, internal bypass and comprehensive monitoring and protection features, the S811+ ensures smooth starts and safe continuous operation of three-phase motors, even in applications with high load torques. The devices can be connected by means of both in-line and delta connections. Using a digital operating and display unit, the soft starters of the S811+ series can be adapted to both simple and more demanding applications.
Consisting of only five sizes with rated currents from 37 A to 850 A and mains voltages from 200 V to 690 V, the S811+ is one of the world's smallest, most compact soft starters.

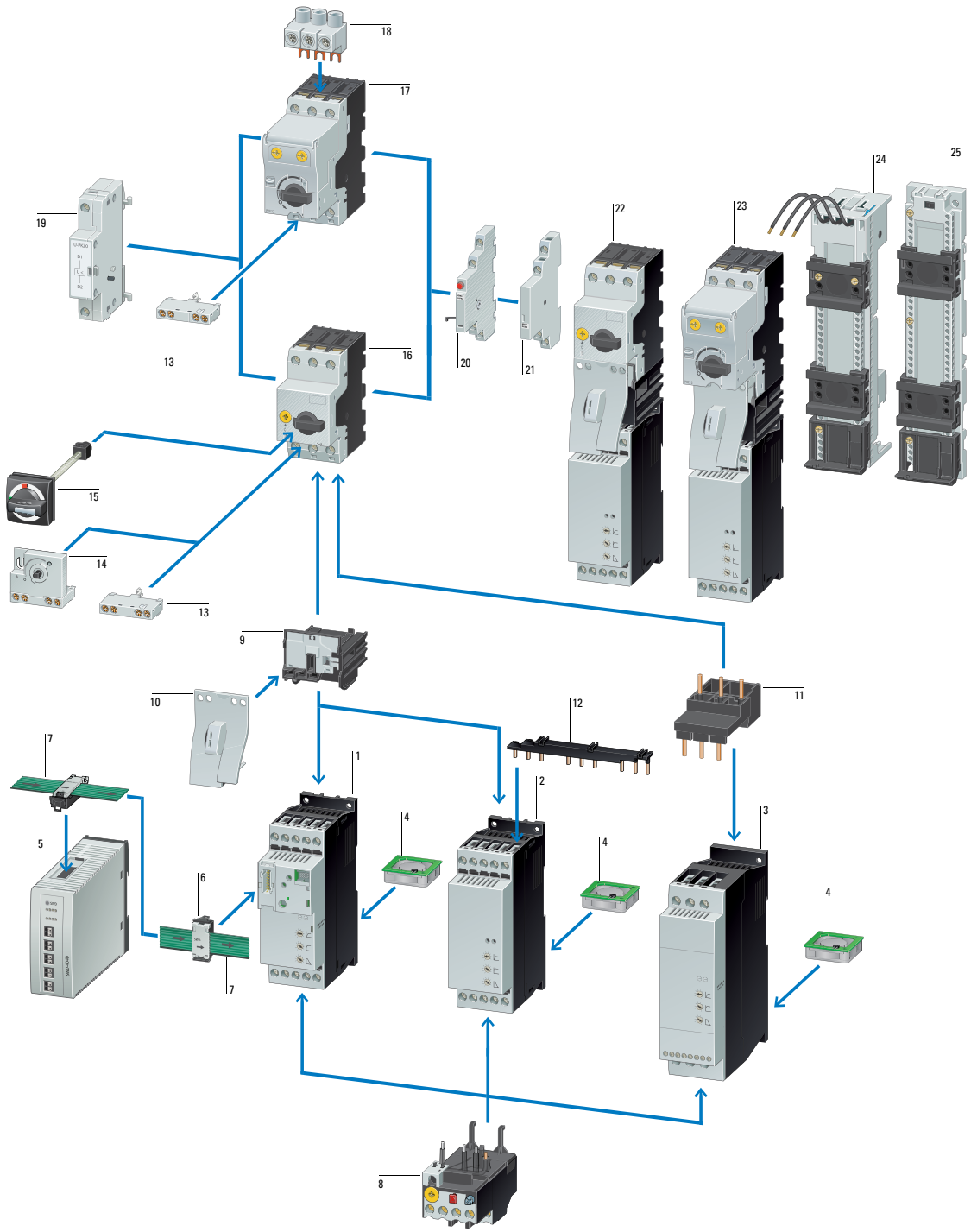
Asymmetrical control: it doesn't get any smoother than this

The special control mode (asymmetrical ignition control) of the soft start function avoids the DC components that normally occur when using two-phase soft starters (technology patented by Eaton). This suppresses the formation of an elliptical rotating field, which would lead to irregular acceleration of the motor and unnecessarily prolong the ramp-up time. The true running characteristics of the DS7 are thus comparable with those of a three-phase soft starter.

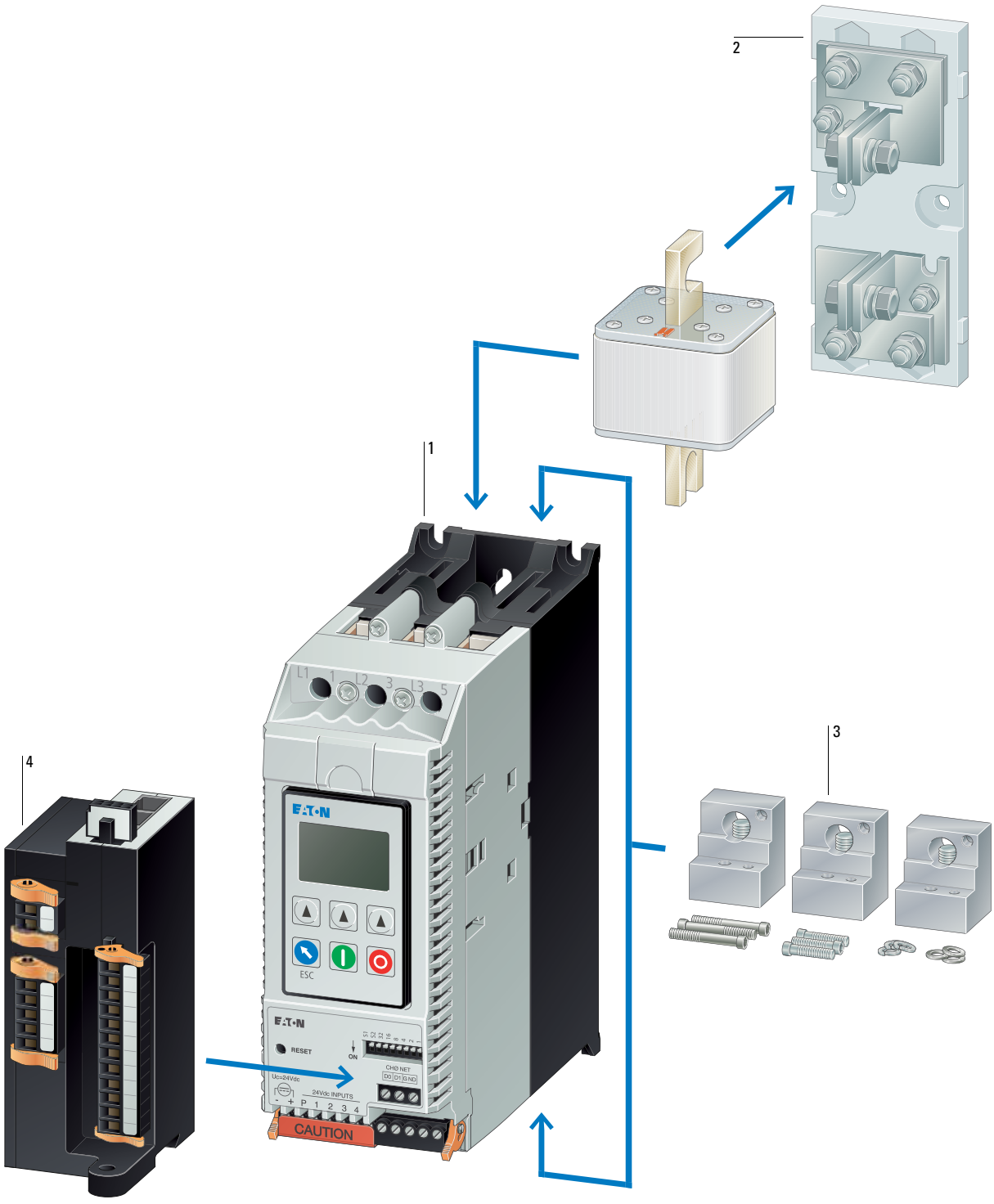
DS7 soft starters with SmartWire-DT – direct access to all parameters

Direct control access to all parameters of SmartWire-DT equipped soft starters for maximum ease of operation. Users are able to read and overwrite the potentiometer settings and to directly retrieve status, error and diagnostic messages, which ensures maximum data transparency. And thanks to the plug-in technology, which also includes the power supply, connecting the soft starter is fast and error-free.

The benefits at a glance:
- Reduction of the I/O level
- Plug-in control wiring avoids wiring errors
- Integrated solution that doesn't require any additional options



1	Soft starter DS7 with SmartWire-DT
2	DS7 soft starter in frame size 1 for assigned motor currents up to 12 A
3	DS7 soft starter in frame size 2 for assigned motor currents up to 32 A
4	Device fan (DS7-FAN-32)
5	SmartWire-DT gateway
6	SmartWire-DT device plug
7	SmartWire-DT ribbon cable
8	Motor-protection relays
9, 10	Wiring set PKZM0-XDM, with combination plug-in technology
11	PKZM0-XM wiring set
12	Three-phase busbar link
13	Standard auxiliary contacts
14	Early-make auxiliary contacts
15	Door-coupling handle
16	PKZM0 motor-protective circuit breakers
17	PKE motor-protective circuit breaker
18	Incoming terminal
19	Voltage release
20	Trip indicators
21	Standard auxiliary contacts
22	Motor-starter combination with PKZ
23	Motor-starter combination with PKE
24	Busbar adapter
25	DIN-rail adapter



1 S811+ soft starter
2 Fuses and fuse bases
3 Terminals
4 Fieldbus interface

Rated operational current of the device (AC-53)	Assigned motor rating At 400 V, 50 Hz	At 460 V, 60 Hz	Part no.	Article no.	Part no.	Article no.
I_e	P	P				
A	kW	HP	U_C 24 V AC/DC U_s 24 V AC/DC Standard temperature range		U_C 24 V AC/DC U_s 24 V AC/DC Expanded temperature down to -40 °C	
Soft starters						
Soft starters for three-phase loads Mains voltage (50/60 Hz) U_{LN} 200 - 480 V AC						
4	1.5	2	**DS7-340SX004N0-N**	134847	**DS7-340SX004N0-L**	171740
7	3	5	**DS7-340SX007N0-N**	134849	**DS7-340SX007N0-L**	171741
9	4	5	**DS7-340SX009N0-N**	134910	**DS7-340SX009N0-L**	171742
12	5.5	10	**DS7-340SX012N0-N**	134911	**DS7-340SX012N0-L**	171743
16	7.5	10	**DS7-340SX016N0-N**	134912	**DS7-340SX016N0-L**	171744
24	11	15	**DS7-340SX024N0-N**	134913	**DS7-340SX024N0-L**	171745
32	15	25	**DS7-340SX032N0-N**	134914	**DS7-340SX032N0-L**	171746
41	22	30	**DS7-340SX041N0-N**	134916	**DS7-340SX041N0-L**	171747
55	30	40	**DS7-340SX055N0-N**	134917	**DS7-340SX055N0-L**	171748
70	37	50	**DS7-340SX070N0-N**	134918	**DS7-340SX070N0-L**	171749
81	45	60	**DS7-340SX081N0-N**	134919	**DS7-340SX081N0-L**	171750
100	55	75	**DS7-340SX100N0-N**	134920	**DS7-340SX100N0-L**	171751
135	75	100	**DS7-340SX135N0-N**	134921	**DS7-340SX135N0-L**	171752
160	90	125	**DS7-340SX160N0-N**	134922	**DS7-340SX160N0-L**	171753
200	110	150	**DS7-340SX200N0-N**	134923	**DS7-340SX200N0-L**	171754
			U_C 110 - 230 V AC U_s 110 - 230 V AC		U_C 24 V DC U_s 24 V DC	
4	1.5	2	**DS7-342SX004N0-N**	134925	**DS7-34DSX004N0-D**	134943
7	3	5	**DS7-342SX007N0-N**	134927	**DS7-34DSX007N0-D**	134945
9	4	5	**DS7-342SX009N0-N**	134928	**DS7-34DSX009N0-D**	134946
12	5.5	10	**DS7-342SX012N0-N**	134929	**DS7-34DSX012N0-D**	134947
16	7.5	10	**DS7-342SX016N0-N**	134930	**DS7-34DSX016N0-D**	134948
24	11	15	**DS7-342SX024N0-N**	134931	**DS7-34DSX024N0-D**	134949
32	15	25	**DS7-342SX032N0-N**	134932	**DS7-34DSX032N0-D**	134950
41	22	30	**DS7-342SX041N0-N**	134934	**DS7-34DSX041N0-D**	134952
55	30	40	**DS7-342SX055N0-N**	134935	**DS7-34DSX055N0-D**	134953
70	37	50	**DS7-342SX070N0-N**	134936	**DS7-34DSX070N0-D**	134954
81	45	60	**DS7-342SX081N0-N**	134937	**DS7-34DSX081N0-D**	134955
100	55	75	**DS7-342SX100N0-N**	134938	**DS7-34DSX100N0-D**	134956
135	75	100	**DS7-342SX135N0-N**	134939	**DS7-34DSX135N0-D**	134957
160	90	125	**DS7-342SX160N0-N**	134940	**DS7-34DSX160N0-D**	134958
200	110	150	**DS7-342SX200N0-N**	134941	**DS7-34DSX200N0-D**	134959

Notes

DS7 frame sizes

DS7, FS1

DS7, FS2

DS7, FS3

DS7, FS4

	For use with	Part no.	Article no.
Devices fans			
Device fans for increasing the load cycle (more starts per hour/higher or longer starting current)			
Flush-mounted fans 	DS7-34…SX004… DS7-34…SX007… DS7-34…SX009… DS7-34…SX012… DS7-34…SX016… DS7-34…SX024… DS7-34…SX032…	**DS7-FAN-032**	135553
Bottom fan 	DS7-34…SX041… DS7-34…SX055… DS7-34…SX070… DS7-34…SX081… DS7-34…SX100…	**DS7-FAN-100**	169021
	DS7-34…SX135… DS7-34…SX160… DS7-34…SX200…	**DS7-FAN-200**	169022

Frame size	Rated operational current AC-53 I_e A	Assigned motor rating At 230 V, 50 Hz kW	At 230 V, 60 Hz HP	At 400 V, 50 Hz kW	At 460 V, 60 Hz HP	Part no.	Article no.
S811+ soft starter							
Soft starters for three-phase loads with control panel Mains voltage (50/60 Hz) U_{LN}: 200 - 600 V AC In-line/delta configuration Supply voltage U_s: 24 V DC Control voltage U_C: 24 V DC With integrated bypass contacts Terminal blocks are required for connecting the frame sizes T, U , V -> accessories							
N	37	7.5	10	18.5	25	**S811+N37P3S**	168977
	66	18.5	20	30	50	**S811+N66P3S**	168979
R	105	30	40	55	75	**S811+R10P3S**	168981
	135	37	50	75	100	**S811+R13P3S**	168983
T	180	55	60	90	150	**S811+T18P3S**	168985
	240	75	75	132	200	**S811+T24P3S**	168988
	304	90	100	160	250	**S811+T30P3S**	168991
U	361	110	125	200	300	**S811+U36P3S**	169872
	420	132	150	200	350	**S811+U42P3S**	169873
V	361	110	125	200	300	**S811+V36P3S**	168994
	420	132	150	200	350	**S811+V42P3S**	168997
	500	160	200	250	400	**S811+V50P3S**	169000
	650	200	250	315	500	**S811+V65P3S**	169003
	720	250	-	400	600	**S811+V72P3S**	169006
	850	-	-	450	600	**S811+V85P3S**	169009
	1000	-	-	560	750	**S811+V10P3S**	169012

Notes

S811+ frame sizes

S811+, N

S811+, R

S811+, T

S811+, U

S811+, V