



Short form catalogue

Motor protection and control Softstarters and pilot devices

Motor rated operational powers and currents

The currents given below concern standard three-phase four-pole cage motors (1500 r.p.m. at 50 Hz 1800 r.p.m. at 60 Hz). These values are given for guidance and may vary according to the motor manufacturer and depending on the number of poles.

IEC	Motor nominal current: standardized values in blue colour (according to IEC 60947-4-1 Annex G)									
Motor power kW	220 V A	230 V A	240 V A	380 V A	400 V A	415 V A	440 V A	500 V A	660 V A	690 V A
0.06	0.37	0.35	0.34	0.21	0.2	0.19	0.18	0.16	0.13	0.12
0.09	0.54	0.52	0.50	0.32	0.3	0.29	0.26	0.24	0.18	0.17
0.12	0.73	0.7	0.67	0.46	0.44	0.42	0.39	0.32	0.24	0.23
0.18	1	1	1	0.63	0.6	0.58	0.53	0.48	0.37	0.35
0.25	1.6	1.5	1.4	0.9	0.85	0.82	0.74	0.68	0.51	0.49
0.37	2.0	1.9	1.8	1.2	1.1	1.1	1	0.88	0.67	0.64
0.55	2.7	2.6	2.5	1.6	1.5	1.4	1.3	1.2	0.91	0.87
0.75	3.5	3.3	3.2	2.0	1.9	1.8	1.7	1.5	1.15	1.1
1.1	4.9	4.7	4.5	2.8	2.7	2.6	2.4	2.2	1.7	1.6
1.5	6.6	6.3	6	3.8	3.6	3.5	3.2	2.9	2.2	2.1
2.2	8.9	8.5	8.1	5.2	4.9	4.7	4.3	3.9	2.9	2.8
3	11.8	11.3	10.8	6.8	6.5	6.3	5.7	5.2	4	3.8
4	15.7	15	14.4	8.9	8.5	8.2	7.4	6.8	5.1	4.9
5.5	20.9	20	19.2	12.1	11.5	11.1	10.1	9.2	7	6.7
7.5	28.2	27	25.9	16.3	15.5	14.9	13.6	12.4	9.3	8.9
11	39.7	38	36.4	23.2	22	21.2	19.3	17.6	13.4	12.8
15	53.3	51	48.9	30.5	29	28	25.4	23	17.8	17
18.5	63.8	61	58.5	36.8	35	33.7	30.7	28	22	21
22	75.3	72	69	43.2	41	39.5	35.9	33	25.1	24
30	100	96	92	57.9	55	53	48.2	44	33.5	32
37	120	115	110	69	66	64	58	53	40.8	39
45	146	140	134	84	80	77	70	64	49.1	47
55	177	169	162	102	97	93	85	78	59.6	57
75	240	230	220	139	132	127	116	106	81	77
90	291	278	266	168	160	154	140	128	97	93
110	355	340	326	205	195	188	171	156	118	113
132	418	400	383	242	230	222	202	184	140	134
160	509	487	467	295	280	270	245	224	169	162
200	637	609	584	368	350	337	307	280	212	203
250	782	748	717	453	430	414	377	344	261	250
315	983	940	901	568	540	520	473	432	327	313
355	1109	1061	1017	642	610	588	535	488	370	354
400	1255	1200	1150	726	690	665	605	552	418	400
500	1545	1478	1416	895	850	819	745	680	515	493
560	1727	1652	1583	1000	950	916	832	760	576	551
630	1928	1844	1767	1116	1060	1022	929	848	643	615
710	2164	2070	1984	1253	1190	1147	1043	952	721	690
800	2446	2340	2243	1417	1346	1297	1179	1076	815	780
900	2760	2640	2530	1598	1518	1463	1330	1214	920	880
1000	3042	2910	2789	1761	1673	1613	1466	1339	1014	970

UL / CSA	Motor nominal current: standardized values (according to IEC 60947-4-1 Annex G and UL 508)				
Motor power hp	208 V A	220-240 V A	380-415 V A	440-480 V A	550-600 V A
1/2	2.4	2.2	1.3	1.1	0.9
3/4	3.5	3.2	1.8	1.6	1.3
1	4.6	4.2	2.3	2.1	1.7
1-1/2	6.6	6	3.3	3	2.4
2	7.5	6.8	4.3	3.4	2.7
3	10.6	9.6	6.1	4.8	3.9
5	16.7	15.2	9.7	7.6	6.1
7-1/2	24.2	22	14	11	9
10	30.8	28	18	14	11
15	46.2	42	27	21	17
20	59.4	54	34	27	22
25	74.8	68	44	34	27
30	88	80	51	40	32
40	114	104	66	52	41
50	143	130	83	65	52
60	169	154	103	77	62
75	211	192	128	96	77
100	273	248	165	124	99
125	343	312	208	156	125
150	396	360	240	180	144
200	528	480	320	240	192
250	—	604	403	302	242
300	—	722	482	361	289
350	—	828	560	414	336
400	—	954	636	477	382
450	—	1030	—	515	412
500	—	1180	786	590	472

Motor protection and control Index



Softstarters

Softstarters “the complete range”	4
PSR the compact range	5
PSE the efficient range	8
PSTX & PSTB the advanced range	12

Pilot devices

Pushbuttons overview	16
The compact 22mm range	18
The modular 22mm range	25

Softstarters

The complete range

ABB offers four different ranges of softstarters to cover every customer need for solutions with motor sizes up to 1800 A. This page describes the main characteristics of the different softstarter ranges.

PSR – The compact range

The PSR softstarter is the most compact of all the softstarter ranges. A compact softstarter also allows for the design of compact starting equipment. A PSR together with a MMS (manual motor starter) makes up a far more compact starting solution than a Star-Delta starter, for instance.

By including a built-in by-pass the energy losses inside the softstarter are reduced. And with only three potentiometers, the setup of the PSR could not be easier. Still, the optimized ramping characteristics will ensure a very smooth start and stop for all applications.

The PSR Range is also now available with the option of a 24V AC / DC supply in addition to the standard 100-250V Supply Version

PSE – The efficient range

The PSE softstarter is the world's first compact softstarter with both built in electronic overload for motor protection and torque control for excellent control of pumps. A compact design, packed with functionality, makes the PSE a very efficient starting solution. An illuminated, language neutral display and a four button keypad makes it easy to take advantage of all the advanced features of the PSE softstarter. The display provides all the necessary information both during ramping and continuous operation.

PSTX – The Advanced Range

The new PSTX Softstarter is the latest advancement in the range. Taking the functionality of the successful PST range and adding to it. Some of the key benefits of the range are as follows:-

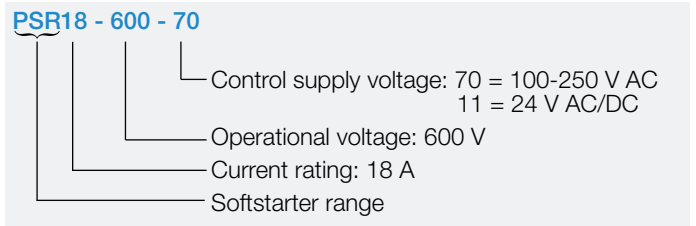
Built in bypass on all sizes, Saving energy and reducing heat build up in the softstarter and saving time and space during installation.

User friendly graphic display to simplify set up and operation, fully detachable if door mounted keypad is required

Advanced motor protection to handle both load and network irregularities. Also PT-100, earth Fault and underload protection have been added to improve the protection of the motor.

Jog function has been improved to offer three speed options as well as being able to run Forward or Reverse.

For sizes from 470A upwards the PSTB range is still available, these will be superseded by PSTX versions during 2015.



Increase application productivity				Improve installation efficiency				Secure motor reliability			
Softstart	PSR	PSE	PSTX	Softstart	PSR	PSE	PSTX	Softstart	PSR	PSE	PSTX
Soft stop	●	●	●	Built in bypass	●	●	●	Soft start	●	●	●
Torque control	-	●	●	Inside-delta connection	-	-	●	Current limit	-	●	●
Limp mode	-	-	●	Coated PCBA	-	●	●	Electronic overload protection (EOL)	-	●	●
Jog with slow speed	-	-	●	Graphical display and keyboard	-	●	●	Underload protection	-	●	●
Motor heating	-	-	●	Detachable keyboard	-	○	●	Locked rotor protection	-	●	●
Motor brake	-	-	●	Programmable warning	-	-	●	Current ramp	-	-	●
Sequence start	-	-	●	Diagnostics	-	-	●	Dual current limit	-	-	●
Full voltage start	-	-	●	Analogue output	-	●	●	Current imbalance protection	-	-	●
Kick start	-	●	●	Field bus communication	○	○	●	Phase reversal protection	-	-	●
Stand still brake	-	-	●	Event log	-	○	●	Customer defined protection	-	-	●
MAnnual pump cleaning	-	-	●					PTC and PT100 input for motor protection	-	-	●
								Oversvoltage protection	-	-	●
								Undervoltage protection	-	-	●
								Earth fault protection	-	-	●
								Motor runtime measurement	-	-	●

PSR - The compact range

Overview



	PSR3 ... PSR16					PSR25 ... PSR30		PSR37... PSR45		PSR60 ... PSR105											
	Softstarter, type																				
Normal start In-line connected	PSR3	PSR6	PSR9	PSR12	PSR16	PSR25	PSR30	PSR37	PSR45	PSR60	PSR72	PSR85	PSR105								
	(400 V) kW	1.5	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55							
	IEC, max. A	3.9	6.8	9	12	16	25	30	37	45	60	72	85	105							
	(440-480 V) hp	2	3	5	7.5	10	15	20	25	30	40	50	60	75							
UL, max FLA	3.4	6.1	9	11	15.2	24.2	28	34	46.2	59.4	68	80	104								
	400 V, 40 °C																				
Using manual motor starters type 1 coordination will be achieved	Manual motor starter (50 kA) type																				
	MS116			MS132				MS450		MS495		—									
Using gG fuses type 1 coordination will be achieved	Fuse protection (50 kA) gG Fuse																				
	10 A	16 A	25 A	32 A	50 A	63 A	100 A	125 A	200 A	250 A											
Suitable switch fuse for the above gG fuses	Switch fuse, type																				
	OS32GD					OS125GD			OS250D												
Overload protection is used to protect the motor from over heating	Thermal overload relay																				
	TF42							TF65		TF96		TF140DU									
The line contactor is not required for the softstarter itself but often used to open if OL trips	Line contactor, type																				
	AF9		AF12		AF16		AF26		AF30		AF38		AF52		AF65		AF80		AF96		AF116
Using by-pass will reduce the power loss and allow more starts per hour	By-pass contacts																				
	Built-in																				

PSR - The compact range

Features



Product description

- Wide rated operational voltage 208–600 V
- Rated control supply voltage 24 V AC/DC or 100–240 V AC
- Rated operational current 3–105 A
- Wide ambient temperature range, -25 to +60 °C
- Built-in by-pass on all sizes, saving energy and reducing installation time
- Potentiometer settings
- Run signal relay on all devices
- TOR signal relay on PSR25 ... PSR105
- Optional fieldbus communication using Profibus, Modbus, Devicenet or CANopen
- DIN rail mounting on PSR3 ... PSR45
- Screw mounting on all sizes
- Connection kits for easy connection with ABB's manual motor starters
- Sophisticated algorithm eliminating the DC-component and thereby providing excellent starting performance

The PSR range is the most compact of all ABB's softstarter ranges. The compact PSR range makes it possible to fit many devices into the same enclosure. A PSR together with a MMS (manual motor starter) makes up a far more compact starting solution than a Star-Delta starter, for instance.

Flexible mounting

PSR softstarters from 3 to 45 A are possible to mount on a DIN-rail, ensuring quick and easy mounting. Naturally, all sizes can be screw mounted.

Few settings

The setup of the PSR is easily done and confirmed using the three clearly marked potentiometers on the front.

Built-in by-pass for energy saving

The built-in by-pass on all sizes does not only save energy; it will also ensure the most compact ABB's softstarter design and reduce the installation time. Thanks to the reduced heat generation, the softstarter can be mounted inside high IP class enclosures.

Suitable for stopping pumps

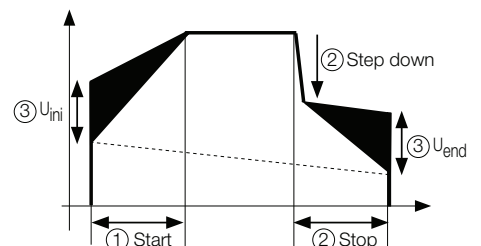
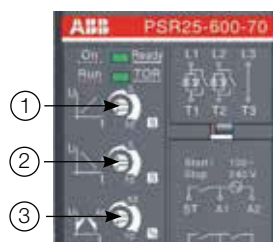
Even without using torque control, the PSR range is designed to reduce water hammering. Compared to the direct stops of a Star-Delta starter or a DOL starter the PSR is superior. See the stop ramp with step-down voltage below.

System concept with manual motor starters

All PSR softstarter sizes can easily be connected to the corresponding manual motor starters from ABB by using the special designed connection kits. This makes both the mounting and the connection easier and will provide a very compact starting solution containing short circuit and thermal protection, isolation function and soft starter - everything that you need.

Settings

- ① Start = 1 ... 20 sec
Stop = 0 ... 20 sec - including the step down voltage.
- ② Step down = 2% reduction for each second increased stop ramp
Stop ramp 10 sec -> step down 80% (20% reduction)
- ③ U_{ini} = 40 ... 70% results in end voltage = 30 ... 60%



PSR - The compact range

Selection

PSR3 ... PSR105 - The Compact Range

100-240V Supply



PSR3 ... PSR16



PSR25 ... PSR30



PSR37 ... PSR45



PSR60 ... PSR105

Description	Part No.	Product Hierarchy 1600002 Order Code
Basic Softstarter 3A	PSR3-600-70	1SFA896103R7000
Basic Softstarter 6A	PSR6-600-70	1SFA896104R7000
Basic Softstarter 9A	PSR9-600-70	1SFA896105R7000
Basic Softstarter 12A	PSR12-600-70	1SFA896106R7000
Basic Softstarter 16A	PSR16-600-70	1SFA896107R7000
Basic Softstarter 25A	PSR25-600-70	1SFA896108R7000
Basic Softstarter 30A	PSR30-600-70	1SFA896109R7000
Basic Softstarter 37A	PSR37-600-70	1SFA896110R7000
Basic Softstarter 45A	PSR45-600-70	1SFA896111R7000
Basic Softstarter 60A	PSR60-600-70	1SFA896112R7000
Basic Softstarter 72A	PSR72-600-70	1SFA896113R7000
Basic Softstarter 85A	PSR85-600-70	1SFA896114R7000
Basic Softstarter 105A	PSR105-600-70	1SFA896115R7000

24V AC/DC Supply

Basic Softstarter 3A	PSR3-600-11	1SFA896103R1100
Basic Softstarter 6A	PSR6-600-11	1SFA896104R1100
Basic Softstarter 9A	PSR9-600-11	1SFA896105R1100
Basic Softstarter 12A	PSR12-600-11	1SFA896106R1100
Basic Softstarter 16A	PSR16-600-11	1SFA896107R1100
Basic Softstarter 25A	PSR25-600-11	1SFA896108R1100
Basic Softstarter 30A	PSR30-600-11	1SFA896109R1100
Basic Softstarter 37A	PSR37-600-11	1SFA896110R1100
Basic Softstarter 45A	PSR45-600-11	1SFA896111R1100
Basic Softstarter 60A	PSR60-600-11	1SFA896112R1100
Basic Softstarter 72A	PSR72-600-11	1SFA896113R1100
Basic Softstarter 85A	PSR85-600-11	1SFA896114R1100
Basic Softstarter 105A	PSR105-600-11	1SFA896115R1100

Connection kit PSR3-16 with MS116 or MS132	PSR16-MS116	1SFA896211R1001
Connection kit PSR25-30 with MS132	PSR30-MS132	1SFA896212R1001
Connection kit PSR37-45 with MS450	PSR45-MS450	1SFA896213R1001
Connection kit PSR60-105 with MS495	PSR105-MS495	1SAM501903R1001
Fan for PSR3 to PSR45	PSR-FAN3-45A	1SFA896311R1001
Fan for PSR60 to PSR105	PSR-FAN60-105A	1SFA896313R1001

PSE - The efficient range

Overview



PSE18 ... PSE105

	Softstarter, type								
	PSE18	PSE25	PSE30	PSE37	PSE45	PSE60	PSE72	PSE85	PSE105
Normal start In-line connected (400 V) kW IEC, max. A (440-480 V) hp UL, max FLA	7.5	11	15	18.5	22	30	37	45	55
	18	25	30	37	45	60	72	85	106
	10	15	20	25	30	40	50	60	75
	18	25	28	34	42	60	68	80	104
	400 V, 40 °C								
Using MCCB only, type 1 coordination will be achieved	MCCB (35 kA), type								
	T2N160							T3N250	
	MCCB (50 kA), type								
	T2S160							T3S250	
To achieve type 2 coordina- tion, semi-conductor fuses must be used	Fuse protection (85 kA), Semiconductor fuses, Bussmann, type								
	170M1563	170M1564	170M1566	170M1567	170M1568	170M1569	170M1571	170M1572	170M3819
Suitable switch fuse for re- commended semi-conductor fuses	Switch fuse, type								
	OS32GD03P			OS63GD03P			OS125GD03P		OS250D03P
The line contactor is not required for the softstarter itself but often used to open if OL trips	Line contactor, type								
	AF26	AF30	AF38	AF52	AF65	AF80	AF96	AF116	
Overload protection is used to protect the motor from over heating	Electronic overload relay, type								
	Built-in								
The by-pass will reduce the power loss of the softstarter.	By-pass, type								
	Built-in								

The table above is an overview of possible combinations of devices.
Complete coordination tables are available at www.abb.com/lowvoltage

PSE - The efficient range

Overview



PSE142 ... PSE170

PSE210 ... PSE370

Normal start
In-line connected

(400 V) kW
IEC, max. A
(440-480 V) hp
UL, max FLA

Softstarter, type

PSE142	PSE170	PSE210	PSE250	PSE300	PSE370
75	90	110	132	160	200
143	171	210	250	300	370
100	125	150	200	250	300
130	169	192	248	302	361

400 V, 40 °C

Using MCCB only, type 1 coordination will be achieved

MCCB (35 kA), type

T3N250	T4N320	T5N400	T5N630
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MCCB (50 kA), type

T3S250	T4S320	T5S400	T5S630
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To achieve type 2 coordination, semi-conductor fuses must be used

Fuse protection (85kA), Semiconductor fuses, Bussmann, type

170M5809	170M5810	170M5812	170M5813	170M6812	170M6813
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Suitable switch fuse for recommended semi-conductor fuses

Switch fuse, type

OS400D03P	OS630D03P
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The line contactor is not required for the softstarter itself but often used to open if OL trips

Line contactor, type

AF140	AF190	AF205	AF265	AF305	AF370
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Overload protection is used to protect the motor from over heating

Electronic overload relay, type

Built-in

The by-pass will reduce the power loss of the softstarter.

By-pass, type

Built-in

How to select the correct size

By using the guide here, you can quickly select a suitable softstarter for the most common applications.

If a more precise selection is required, you can use the softstarter selection tool available at www.abb.com/lowvoltage

Quick guide for selection

Normal start class 10

Heavy-duty start class 30

Ordering - see page 30

Ordering - see page 31

Typical applications

- Bow thruster
- Centrifugal pump
- Centrifugal fan
- Conveyor belt (long)
- Compressor
- Conveyor belt (short)
- Crusher
- Mill
- Elevator
- Escalator
- Mixer
- Stirrer

If more than 10 starts/h

! Select one size larger than the standard selection

PSE - The efficient range

Features



Product description

- Wide rated operational voltage 208–600 V AC
- Wide rated control supply voltage 100–250 V, 50/60 Hz
- Rated operational current 18 to 370 A
- Wide ambient temperature range, -25 to +60 °C
- Coated circuit boards for reliable operation in harsh environment
- Built-in by-pass on all sizes, saving energy and reducing installation time
- User friendly HMI with illuminated language neutral display and four button keypad
- Optional external keypad, IP66
- Torque control for excellent control of pumps
- Current limit, adjustable between $1.5-7 \times I_e$
- Motor overload protection with classes 10A, 10, 20 and 30
- Motor underload protection to detect pumps running dry
- Locked rotor protection, detecting jammed pumps
- Kick start to start jammed pumps or conveyor belts
- Analog output showing operational current, 4–20 mA
- Optional fieldbus communication using Profibus, Modbus, Devicenet or CANopen
- Sophisticated algorithm eliminating the DC-component and thereby providing excellent starting performance

The PSE softstarter range is the world's first compact softstarter range with torque control. This makes the PSE range an ideal choice for pumping applications where water hammering normally is a big problem. The compactness and advanced functionality of the PSE means that it is also a very efficient solution for other applications such as compressors and fans.

Torque control

The most important function when stopping pumps is torque control. Since the PSE softstarter is optimized for controlling pumps, this feature is a must.

Built-in by-pass for energy saving

Using by-pass after reaching full voltage will greatly reduce the power loss and thereby save energy. In the PSE softstarter range, the by-pass is built-in on all sizes which will give the most compact starting solution and reduce the need for wiring during installation.

Coated circuit boards

All circuit boards in the new PSE softstarter have a protective coating to ensure a reliable operation even in tough environments like wastewater plants, where corrosive gases and acids may exist.

Motor protection

The PSE softstarter is equipped with built-in electronic overload protection, preventing the motor from overheating. Since no additional overload device is needed, our efficient design saves both space, installation time, and ultimately money.

Analog output

The analog output terminals can be connected to an analog current meter to show the current during operation. This eliminates the need of an additional current transformer. The analog output signal can also be used as an analog input to a PLC.

Display and keypad

The setup of the PSE softstarter is done using the four button keypad and the illuminated display, providing a quick and easy setup. While operating, the display will also provide important status information such as current and voltage.

External keypad

As an option the PSE softstarter can be equipped with an external keypad for easy setup and monitoring of the unit without opening the enclosure door. The keypad can also be used to copy parameters between different softstarters.

PSE - The efficient range

Selection



PSE18 ... PSE105



PSE142 ... PSE170

PSE18 ... PSE370 - The Efficient Range

Description	Part No.	Product Hierarchy 1600002 Order Code
Basic Softstarter with Overload 18A	PSE18-600-70	1SFA897101R7000
Basic Softstarter with Overload 25A	PSE25-600-70	1SFA897102R7000
Basic Softstarter with Overload 30A	PSE30-600-70	1SFA897103R7000
Basic Softstarter with Overload 37A	PSE37-600-70	1SFA897104R7000
Basic Softstarter with Overload 45A	PSE45-600-70	1SFA897105R7000
Basic Softstarter with Overload 60A	PSE60-600-70	1SFA897106R7000
Basic Softstarter with Overload 72A	PSE72-600-70	1SFA897107R7000
Basic Softstarter with Overload 85A	PSE85-600-70	1SFA897108R7000
Basic Softstarter with Overload 105A	PSE105-600-70	1SFA897109R7000
Basic Softstarter with Overload 142A	PSE142-600-70	1SFA897110R7000
Basic Softstarter with Overload 170A	PSE170-600-70	1SFA897111R7000
Basic Softstarter with Overload 210A	PSE210-600-70	1SFA897112R7000
Basic Softstarter with Overload 250A	PSE250-600-70	1SFA897113R7000
Basic Softstarter with Overload 300A	PSE300-600-70	1SFA897114R7000
Basic Softstarter with Overload 370A	PSE370-600-70	1SFA897115R7000
External Keypad for PSE Softstarter	PSE-EK	1SFA897100R1001

PSTX, PSTB The advanced range

Overview



PSTX30 ... PSTX105



PSTX142 ... PSTX170

		Softstarter, type								
		PSTX30	PSTX37	PSTX45	PSTX60	PSTX72	PSTX85	PSTX105	PSTX142	PSTX170
Normal start In-line connected	(400 V) kW	15	18.5	22	30	37	45	55	75	90
	IEC, max. A	30	37	45	60	72	85	106	143	171
	(440-480 V) hp	20	25	30	40	50	60	75	100	125
	UL, max FLA	28	34	42	60	68	80	104	130	169
400 V, 40 °C										
Using MCCB only, type 1 coordination will be achieved.	MCCB (50 kA), type	T2S160					T3S250		T4S250	
To achieve a type 2 coordination, semi-conductor fuses must be used.	Fuse protection (65 kA), Semiconductor fuses, Bussmann, type	170M1567	170M1568	170M1569		170M1571	170M1572	170M3819	170M5810	170M5812
Suitable switch fuse for recommended semi-conductor fuses.	Switch fuse, type	OS32GD03P	OS63GD03P			OS125GD03P		OS250D03P	OS400D03P	
The line contactor is not required for the softstarter itself but is often used to open if OL trips	Line contactor, type	AF30	AF38	AF52	AF65	AF80	AF96	AF116	AF140	AF190
Overload protection is used to protect the motor from over heating	Electronic overload relay	Built-in								
The bypass component will reduce the power loss of the softstarter at full speed.	Bypass component, type	Built-in								

The table above is an overview of possible combinations of devices.
Complete coordination tables are available at www.abb.com/lowvoltage



PSTX210 ... PSTX370



PSTB470



PSTB570 ... PSTB1050

Softstarter, type

Normal start In-line connected	PSTX210	PSTX250	PSTX300	PSTX370	PSTB470	PSTB570	PSTB720	PSTB840	PSTB1050
(400 V) kW	110	132	160	200	250	315	400	450	560
IEC, max. A	210	250	300	370	470	570	720	840	1050
(440-480 V) hp	150	200	250	300	400	500	600	700	900
UL, max FLA	192	248	302	361	480	590	720	840	1062

400 V, 40 °C

Using MCCB only, type 1 coordination will be achieved.	MCCB (50 kA), type							
	T4S250	T5S400	T5S630	T6S630	T6S800	T7S1250	T7S1600	

To achieve a type 2 coordination, semi-conductor fuses must be used.	Fuse protection (65 kA), Semiconductor fuses, Bussmann, type							
	170M5812	170M5813	170M6812	170M6813	170M8554	170M6018	170M6020 ²⁾	

Suitable switch fuse for recommended semi-conductor fuses.	Switch fuse, type			
	OS400D03P	OS630D03P	OS800D03P	¹⁾

The line contactor is not required for the softstarter itself but is often used to open if OL trips	Line contactor, type								
	AF205	AF265	AF305	AF370	AF460	AF580	AF750	AF1350	AF1650

Overload protection is used to protect the motor from over heating	Electronic overload relay, type
	Built-in

The bypass component will reduce the power loss of the softstarter at full speed.	Bypass component, type
	Built-in

¹⁾ Switch fuse not available. Use Bussmann fuse base 170H3004
²⁾ PSTB1050-690-70 has 170M6019

PSTX range

Features



The PSTX combines many years of research and product development with extensive knowledge of application specific requirements and needs. It is our latest advancement in motor control and protection and adds new functionality and increased reliability.

- Three-phase controlled
- Operational voltage: 208 – 690 VAC
- Wide rated control supply voltage: 100 – 250 V, 50/60 Hz
- PSTX rated operational current: 30 to 370 A (inside-delta: 640 A)
- Both in-line and inside-delta connection
- Coated circuit boards protecting from dust, moist and corrosive atmosphere
- Detachable keypad rated IP66 (Type 1, 4X,12)
- Graphical display with 14 languages for easy setup and operation
- Built-in bypass for energy saving and easy installation
- Built-in Modbus RTU for monitoring and control
- Support for all major communication protocols
- Analog output for measurement of current, voltage, power factor etc.

Secure motor

Reliability

Complete motor protection

The PSTX offers complete motor protection in only one unit and is able to handle both load and network irregularities. PT-100, earth fault protection and over/under voltage protection along with many other functions keep your motor safer than ever.

Three types of current limit

PSTX offers three types of current limit standard, dual and ramp. This gives you full control of your motor during start. It also allows you to use your motor in weaker networks.

Improve installation

Efficiency

Built-in bypass saves time and energy

When reaching full speed, the PSTX will activate its bypass. This saves energy while reducing the softstarter's heat generation. On the PSTX, the bypass is built in and verified by ABB, saving you time during installation and space in your panel.

Easy-to-use and detachable keypad

A user-friendly and clear display saves you time and resources during both setup and operation. The detachable keypad is standard on all PSTX softstarters.

Increase application

Productivity

Complete control of pumps

Time to use your processes to their full potential. The PSTX features many application enhancing features, including torque control: the most efficient way to start and stop pumps. The pump cleaning feature can reverse pump flow and clean out pipes, securing uptime of your pump system.

Jog with slow speed

The slow speed forward and backward jog feature will make you more flexible when operating e.g. conveyor belts and cranes. The PSTX provides positioning capabilities letting you take control of your process.

PSTB range

Features

Description

- Wide rated operational voltage 208–690 V AC
- Wide rated control supply voltage 100–250 V, 50/60 Hz
- Rated operational current 30 to 1050 A (Up to 1810 A inside delta)
- Both in line and inside delta connection
- Coated circuit boards available, for reliable operation even in harsh environments
- Full text display in 14 languages and 4 button keypad for easy setup and operation
- Optional external keypad, IP66
- Built-in by-pass contactor on PSTB (from 370 A) for energy saving and easy installation
- Prepared for external by-pass on PST (30–300 A)
- Torque control for excellent control of pumps
- Current limit, adjustable between $1.5-7 \times I_g$
- Fieldbus communication using Profibus, Modbus, Devicenet or CANopen
- Dual motor overload protection with classes 10A, 10, 20 and 30
- Adaptable motor underload protection to detect pumps running dry
- Adaptable locked rotor protection to detect jammed pumps
- PTC protection to protect the motor from overheating
- Adjustable kick start to start jammed pumps
- Programmable output signal relays
- Programmable pre-warning functions
- Event log with time stamp
- Analog output showing current, voltage, power factor etc. 0–10 V, 0–20 mA, 4–20 mA

PSTX & PSTB ranges

Selection



PSTX30 ... PSTX105



PSTX142 ... PSTX170



PSTB570 ... PSTX1050

PSTX30 ... PSTX370 and PSTB470 ... 1050 - The Advanced Range

Description	Part No.	Product Hierarchy 1600001 Order Code
Advanced Softstarter with Overload 30A	PSTX30-600-70	1SFA898103R7000
Advanced Softstarter with Overload 37A	PSTX37-600-70	1SFA898104R7000
Advanced Softstarter with Overload 45A	PSTX44-600-70	1SFA898105R7000
Advanced Softstarter with Overload 60A	PSTX60-600-70	1SFA898106R7000
Advanced Softstarter with Overload 72A	PSTX72-600-70	1SFA898107R7000
Advanced Softstarter with Overload 85A	PSTX85-600-70	1SFA898108R7000
Advanced Softstarter with Overload 105A	PSTX105-600-70	1SFA898109R7000
Advanced Softstarter with Overload 142A	PSTX142-600-70	1SFA898110R7000
Advanced Softstarter with Overload 175A	PSTX175-600-70	1SFA898111R7000
Advanced Softstarter with Overload 210A	PSTX210-600-70	1SFA898112R7000
Advanced Softstarter with Overload 250A	PSTX250-600-70	1SFA898113R7000
Advanced Softstarter with Overload 300A	PSTX300-600-70	1SFA898114R7000
Advanced Softstarter with Overload 370A	PSTX370-600-70	1SFA898115R7000
Advanced Softstarter with Overload 470A	PSTB470-600-70	1SFA894016R7000
Advanced Softstarter with Overload 570A	PSTB570-600-70	1SFA894017R7000
Advanced Softstarter with Overload 720A	PSTB720-600-70	1SFA894018R7000
Advanced Softstarter with Overload 840A	PSTB840-600-70	1SFA894019R7000
Advanced Softstarter with Overload 1050A	PSTB1050-600-70	1SFA894020R7000
External Keypad for PSTB Softstarter	PST-EK	1SFA899003R1000

690V Versions available - Please contact us for further information

Compact & modular range pilot devices for technical or tough applications

Part of a comprehensive ABB program

ABB Pilot Devices are a part of the comprehensive ABB range of high quality Low Voltage Products and Systems for industrial control applications. ABB has a wide global network of external channel partners, such as distributors, system integrators and panel builders all around the world. Our products also meet all essential national and international products standards making us your perfect global business partner.

In combination of our wide range of Pilot Devices ABB also offers a broad product portfolio of Low Voltage Products such as Contactors, Softstarters, DOL & Y/D starters, Electronic relays, Breakers, Switches, UMC etc.

ABB Pilot Devices

ABB offers a complete range of 22 mm Pushbuttons, Emergency Stops, Selector Switches and Signaling Units. These are complemented with Enclosures and a wide range of Accessories.

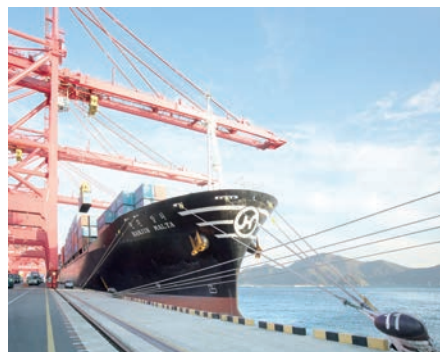
ABB offers high performing, robust and easy to install products, providing cost efficient solutions for our customers. ABB Pilot Devices are suitable for a wide variety of industrial environments, indoor as well as outdoor.

Made for Tough Industrial Environments

Our Pilot Device ranges feature a heavy-duty design, suitable for tough environments, and meet all major global industrial standards and approvals. Our entire Compact Range and selected parts of the Modular range features IP69K protection degree demanded in many industries such as cement and food & beverage. Whatever the application, you can feel confident that ABB Pilot Devices will do the job.

Worldwide Availability

ABB is represented in over 130 countries, giving our products world wide availability.





Pilot Devices Offering

ABB Pilot Devices offers both a Modular and Compact Range of Pushbuttons. Both feature the same front-of-panel design and appear consistent when combined.

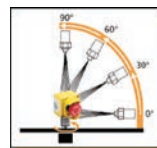
- **The Modular Range** features a wide range of operators that can be combined with high flexibility. The unique snap-on design promotes simple and fast assembly.
- **The Compact Range** features an all-in-one construction and rugged design for added simplicity and ease of installation.

IP67 - IP69K

ABB's entire Compact Range, and selected devices from the Modular Range, are approved IP67 and IP69K. This means that the products are designed to withstand periodic submersion, as well as high pressure, high temperature spraydown.

Wiping Action

The Contact Blocks for both compact and modular devices feature self-cleaning contacts per a built-in wiping action. Upon operation, the moving contact rolls over and slides sideways when touching the fixed contact. This feature ensures a good, clean contact even in applications of seldom or periodic use.



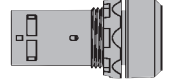
IP69K: High pressure, high temperature spraydown at multiple angles and rotation.



IP67: Submersion to one meter for 30 minutes.

Compact range 22mm Overview

Compact range



The Compact Range is designed to be our most efficient solution when it comes to assembly and cost, suitable for the most demanding environments. It can also be combined with the Modular Range to cover the needs of additional flexibility.

General construction

- "All-in-one design"
- Same front as modular
- 42 mm built in depth
- Up to 2 electrical separated contacts.
- Metal or Black Plastic look.

Product features

- Suitable in the toughest environments IP 66, 67 & 69K.
- Wiping Action gives high performance with low energies.
- UL/NEMA Type 1,3R,4,4X,12,13.

Operators

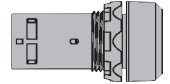
- Pushbuttons (illuminated & non illuminated).
- Emergency Stops (twist, pull & key release).
- Machine Stops (twist, pull & key release).
- Selector Switches (2 & 3 position).
- Mushrooms.

Pilot Lights

- Integrated LED (wide range of voltages).
- BA9s base for Filament Bulb or LED.

Pilot devices - compact 22mm Pushbuttons

Compact range



Pushbuttons BLACK plastic bezel



Type	Contacts		Part Number	Product Hierarchy 1300001 Order Code
	N/O	N/C		
Flush momentary	1	-	CP1-10 ■ -10	1SFA619100R101 □
	2	-	CP1-10 ■ -20	1SFA619100R102 □
	-	1	CP1-10 ■ -01	1SFA619100R104 □
	-	2	CP1-10 ■ -02	1SFA619100R105 □
	1	1	CP1-10 ■ -11	1SFA619100R107 □
Flush maintained	1	-	CP2-10 ■ -10	1SFA619101R101 □
	2	-	CP2-10 ■ -20	1SFA619101R102 □
	-	1	CP2-10 ■ -01	1SFA619101R104 □
	-	2	CP2-10 ■ -02	1SFA619101R105 □
	1	1	CP2-10 ■ -11	1SFA619101R107 □
Extended momentary	1	-	CP3-10 ■ -10	1SFA619102R101 □
	2	-	CP3-10 ■ -20	1SFA619102R102 □
	-	1	CP3-10 ■ -01	1SFA619102R104 □
	-	2	CP3-10 ■ -02	1SFA619102R105 □
	1	1	CP3-10 ■ -11	1SFA619102R107 □
Extended maintained	1	-	CP4-10 ■ -10	1SFA619103R101 □
	2	-	CP4-10 ■ -20	1SFA619103R102 □
	-	1	CP4-10 ■ -01	1SFA619103R104 □
	-	2	CP4-10 ■ -02	1SFA619103R105 □
	1	1	CP4-10 ■ -11	1SFA619103R107 □

Pushbuttons CHROME metal bezel



Type	Contacts		Part Number	Product Hierarchy 1300001 Order Code
	N/O	N/C		
Flush momentary	1	-	CP1-30 ■ -10	1SFA619100R301 □
	2	-	CP1-30 ■ -20	1SFA619100R302 □
	-	1	CP1-30 ■ -01	1SFA619100R304 □
	-	2	CP1-30 ■ -02	1SFA619100R305 □
	1	1	CP1-30 ■ -11	1SFA619100R307 □
Flush maintained	1	-	CP2-30 ■ -30	1SFA619101R301 □
	2	-	CP2-30 ■ -20	1SFA619101R302 □
	-	1	CP2-30 ■ -01	1SFA619101R304 □
	-	2	CP2-30 ■ -02	1SFA619101R305 □
	1	1	CP2-30 ■ -11	1SFA619101R307 □
Extended momentary	1	-	CP3-30 ■ -30	1SFA619102R301 □
	2	-	CP3-30 ■ -20	1SFA619102R302 □
	-	1	CP3-30 ■ -01	1SFA619102R304 □
	-	2	CP3-30 ■ -02	1SFA619102R305 □
	1	1	CP3-30 ■ -11	1SFA619102R307 □
Extended maintained	1	-	CP4-30 ■ -30	1SFA619103R301 □
	2	-	CP4-30 ■ -20	1SFA619103R302 □
	-	1	CP4-30 ■ -01	1SFA619103R304 □
	-	2	CP4-30 ■ -02	1SFA619103R305 □
	1	1	CP4-30 ■ -11	1SFA619103R307 □

Order example:

Ex1: Type CP1-10 ■ -10, to order colour red replace ■ with R: CP1-10 R-10

Ex2: Order code 1SFA619100R101 □

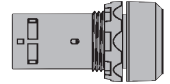
To order red replace □ with 1: 1SFA619100R1011

Colour Codes

	Red	Green	Yellow	Blue	White	Black	Grey	Clear
Type ■	R	G	Y	L	W	B	U	c
Order code □	1	2	3	4	5	6	7	8

Pilot devices - compact 22mm Illuminated pushbuttons

Compact range



Illuminated pushbuttons with integrated LED - BLACK plastic bezel

Type	Voltage	N/O	N/C	Part Number	Product Hierarchy 1300001 Order Code
Flush momentary	24V AC/DC	1	0	CP1-11 ■ -10	1SFA619100R111□
Flush momentary red		0	1	CP1-11 R- 01	1SFA619100R1141
Extended momentary		1	0	CP3-11 ■ -10	1SFA619102R111□
Extended momentary red		0	1	CP3-11 R- 01	1SFA619102R1141
Flush momentary	110-130V AC/DC	1	0	CP1-12 ■ -10	1SFA619100R121□
Flush momentary red		0	1	CP1-12 R- 01	1SFA619100R1241
Extended momentary		1	0	CP3-12 ■ -10	1SFA619102R121□
Extended momentary red		0	1	CP3-12 R- 01	1SFA619102R1241
Flush momentary	220V AC/DC	1	0	CP1-13 ■ -10	1SFA619100R131□
Flush momentary red		0	1	CP1-13 R- 01	1SFA619100R1341
Extended momentary		1	0	CP3-13 ■ -10	1SFA619102R131□
Extended momentary red		0	1	CP3-13 R- 01	1SFA619102R1341
Flush maintained	24V AC/DC	1	0	CP2-11 ■ -10	1SFA619101R111□
Flush maintained red		0	1	CP2-11 R- 01	1SFA619101R1141
Extended maintained		1	0	CP4-11 ■ -10	1SFA619103R111□
Extended maintained red		0	1	CP4-11 R- 01	1SFA619103R1141
Flush maintained	110-130V AC/DC	1	0	CP2-12 ■ -10	1SFA619101R121□
Flush maintained red		0	1	CP2-12 R- 01	1SFA619101R1241
Extended maintained		1	0	CP4-12 ■ -10	1SFA619103R121□
Extended maintained red		0	1	CP4-12 R- 01	1SFA619103R1241
Flush maintained	220V AC/DC	1	0	CP2-13 ■ -10	1SFA619101R131□
Flush maintained red		0	1	CP2-13 R- 01	1SFA619101R1341
Extended maintained		1	0	CP4-13 ■ -10	1SFA619103R131□
Extended maintained red		0	1	CP4-13 R- 01	1SFA619103R1341



Illuminated pushbuttons with integrated LED - CHROME metal bezel

Type	Voltage	N/O	N/C	Part Number	Product Hierarchy 1300001 Order Code
Flush momentary	24V AC/DC	1	0	CP1-31 ■ -10	1SFA619100R311□
Flush momentary red		0	1	CP1-31R-01	1SFA619100R3141
Extended momentary		1	0	CP3-31 ■ -10	1SFA619102R311□
Extended momentary red		0	1	CP3-31R-01	1SFA619102R3141
Flush momentary	110-130V AC/DC	1	0	CP1-32 ■ -10	1SFA619100R321□
Flush momentary red		0	1	CP1-32R-01	1SFA619100R3241
Extended momentary		1	0	CP3-32 ■ -10	1SFA619102R321□
Extended momentary red		0	1	CP3-32R-01	1SFA619102R3241
Flush momentary	220V AC/DC	1	0	CP1-33 ■ -10	1SFA619100R331□
Flush momentary red		0	1	CP1-33R-01	1SFA619100R3341
Extended momentary		1	0	CP3-33 ■ -10	1SFA619102R331□
Extended momentary red		0	1	CP3-33R-01	1SFA619102R3341
Flush maintained	24V AC/DC	1	0	CP2-31 ■ -10	1SFA619101R311□
Flush maintained red		0	1	CP2-31R-01	1SFA619101R3141
Extended maintained		1	0	CP4-31 ■ -10	1SFA619103R311□
Extended maintained red		0	1	CP4-31R-01	1SFA619103R3141
Flush maintained	110-130V AC/DC	1	0	CP2-32 ■ -10	1SFA619101R321□
Flush maintained red		0	1	CP2-32R-01	1SFA619101R3241
Extended maintained		1	0	CP4-3 ■ -10	1SFA619103R321□
Extended maintained red		0	1	CP4-32R-01	1SFA619103R3241
Flush maintained	220V AC/DC	1	0	CP2-33 ■ -10	1SFA619101R331□
Flush maintained red		0	1	CP2-33R-01	1SFA619101R3341
Extended maintained		1	0	CP4-33 ■ -10	1SFA619103R331□
Extended maintained red		0	1	CP4-33R-01	1SFA619103R3341



Order example:
 Ex1: Type CP1-10■-10, to order colour red replace ■ with R: CP1-10 R-10
 Ex2: Order code 1SFA619100R101□
 To order red replace □ with 1: 1SFA619100R1011

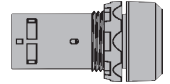
Colour Codes

	Red	Green	Yellow
Type ■	R	G	Y
Order code □	1	2	3

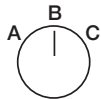
Pilot devices - compact 22mm

Selector switches

Compact range

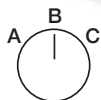


Selector switches 2 position BLACK plastic bezel



Type	Contacts		Part Number	Product Hierarchy 1300001 Order Code
	N/O	N/C		
Stay Put -BC	1	0	C2SS1-10 ■-10	1SFA619200R101 □
	2	0	C2SS1-10 ■-20	1SFA619200R102 □
	0	1	C2SS1-10 ■-01	1SFA619200R104 □
	0	2	C2SS1-10 ■-02	1SFA619200R105 □
	1	1	C2SS1-10 ■-11	1SFA619200R107 □
Stay Put -AC	1	0	C2SS2-10 ■-10	1SFA619201R101 □
	2	0	C2SS2-10 ■-20	1SFA619201R102 □
	0	1	C2SS2-10 ■-01	1SFA619201R104 □
	0	2	C2SS2-10 ■-02	1SFA619201R105 □
	1	1	C2SS2-10 ■-11	1SFA619201R107 □
Spring Return -BC	1	0	C2SS3-10 ■-10	1SFA619202R101 □
	2	0	C2SS3-10 ■-20	1SFA619202R102 □
	0	1	C2SS3-10 ■-01	1SFA619201R104 □
	0	2	C2SS3-10 ■-02	1SFA619202R105 □
	1	1	C2SS3-10 ■-11	1SFA619202R107 □

Selector switches 3 position BLACK plastic bezel



Stay Put -ABC	2	0	C3SS1-10 ■-20	1SFA619210R102 □
	0	2	C3SS1-10 ■-02	1SFA619210R105 □
	1	1	C3SS1-10 ■-11	1SFA619210R107 □
Spring return -ABC	2	0	C3SS2-10 ■-20	1SFA619211R102 □
	0	2	C3SS2-10 ■-02	1SFA619211R105 □
	1	1	C3SS2-10 ■-11	1SFA619211R107 □
Spring return -CB stay put A	2	0	C3SS3-10 ■-20	1SFA619212R102 □
	0	2	C3SS3-10 ■-02	1SFA619212R105 □
	1	1	C3SS2-10 ■-11	1SFA619212R107 □
Spring return -AB stay put C	2	0	C3SS7-10 ■-20	1SFA619216R102 □
	0	2	C3SS7-10 ■-02	1SFA619216R105 □
	1	1	C3SS7-10 ■-11	1SFA619216R107 □

Order example:

Ex1: Type CP1-10 ■-10, to order colour red replace ■ with R: CP1-10 R-10

Ex2: Order code 1SFA619100R101□

To order red replace □ with 1: 1SFA619100R1011

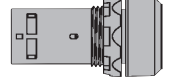
Colour Codes

	Red	Black	Grey
Type ■	R	B	U
Order code □	1	6	7

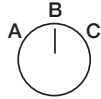
Pilot devices - compact 22mm

Selector switches

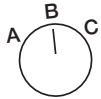
Compact range



Selector switches 2 position CHROME metal bezel



Type	Contacts		Part Number	Product Hierarchy 1300001 Order Code
	N/O	N/C		
Stay Put -BC	1	0	C2SS1-30 ■-10	1SFA619200R301□
	2	0	C2SS1-30 ■-20	1SFA619200R302□
	0	1	C2SS1-30 ■-01	1SFA619200R304□
	0	2	C2SS1-30 ■-02	1SFA619200R305□
	1	1	C2SS1-30 ■-11	1SFA619200R307□
Stay Put -AC	1	0	C2SS2-30 ■-10	1SFA619201R301□
	2	0	C2SS2-30 ■-20	1SFA619201R302□
	0	1	C2SS2-30 ■-01	1SFA619201R304□
	0	2	C2SS2-30 ■-02	1SFA619201R305□
	1	1	C2SS2-30 ■-11	1SFA619201R307□
Spring Return -BC	1	0	C2SS3-30 ■-10	1SFA619202R301□
	2	0	C2SS3-30 ■-20	1SFA619202R302□
	0	1	C2SS3-30 ■-01	1SFA619201R304□
	0	2	C2SS3-30 ■-02	1SFA619202R305□
	1	1	C2SS3-30 ■-11	1SFA619202R307□



Selector switches 3 position CHROME plastic bezel

Stay Put -ABC	2	0	C3SS1-30 ■-20	1SFA619210R302 □
	0	2	C3SS1-30 ■-02	1SFA619210R305 □
	1	1	C3SS1-30 ■-11	1SFA619210R307 □
Spring return -ABC	2	0	C3SS2-30 ■-20	1SFA619211R302 □
	0	2	C3SS2-30 ■-02	1SFA619211R305 □
	1	1	C3SS2-30 ■-11	1SFA619211R307 □
Spring return -CB stay put A	2	0	C3SS3-30 ■-20	1SFA619212R302 □
	0	2	C3SS3-30 ■-02	1SFA619212R305 □
	1	1	C3SS2-30 ■-11	1SFA619212R307 □
Spring return -AB stay put C	2	0	C3SS7-30 ■-20	1SFA619216R302 □
	0	2	C3SS7-30 ■-02	1SFA619216R305 □
	1	1	C3SS7-30 ■-11	1SFA619216R307 □

Order example:

Ex1: Type CP1-10 ■-10, to order colour red replace ■ with R: CP1-10 R-10

Ex2: Order code 1SFA619100R101□

To order red replace □ with 1: 1SFA619100R1011

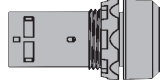
Colour Codes

	Red	Black	Grey
Type ■	R	B	U
Order code □	1	6	7

Pilot devices - compact 22mm

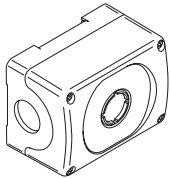
Emergency stops, enclosures heavy duty pushbuttons

Compact range



Emergency stop buttons

Type	Contacts		Part Number	Product Hierarchy 1300001 Order Code
	N/O	N/C		
30mm Twist Release Red	0	1	CE3T-10R-01	1SFA619500R1041
	0	2	CE3T-10R-02	1SFA619500R1051
	1	1	CE3T-10R-11	1SFA619500R1071
40mm Twist Release Red	0	1	CE4T-10R-01	1SFA619550R1041
	0	2	CE4T-10R-02	1SFA619550R1051
	1	1	CE4T-10R-11	1SFA619550R1071
40mm Key Release Red	0	2	CE4K-10R-02	1SFA619552R1051
	1	1	CE4K-10R-11	1SFA619552R1071



Enclosures

Type	Part Number	Product Hierarchy 1300001 Order Code
Enclosure 1 hole - yellow	CEPY1-0	1SFA619821R1000
Enclosed E-Stop (twist release 2NO + 2NC)	CEPY1-1001	1SFA619821R1001
Enclosed E-Stop with shroud (twist release 2NC)	CEPY1-2001	1SFA619821R2001
E-Stop shroud for compact enclosure	CA1-8053	1SFA619920R8053



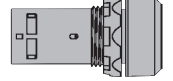
Heavy duty pushbutton

Type	N/O	N/C	Part Number	Product Hierarchy 1300001 Order Code
● Green	2	0	CP6-10G-20	1SFA619105R1022
● Red			CP6-10R-20	1SFA619105R1021
● Black			CP6-10B-20	1SFA619105R1026
● Green	0	2	CP6-10G-02	1SFA619105R1052
● Red			CP6-10R-02	1SFA619105R1051
● Black			CP6-10B-02	1SFA619105R1056
● Green	1	1	CP6-10G-11	1SFA619105R1072
● Red			CP6-10R-11	1SFA619105R1071
● Black			CP6-10B-11	1SFA619105R1076

Pilot devices - compact 22mm

Buzzers and pilot lights

Compact range



Illuminated buzzer

Colour	Supply voltage	Tone	Part Number	Product Hierarchy 1300001 Order Code
● Green	24V AC/DC	Continuous	CB1-600G	1SFA619600R6002
● Red		Pulsating	CB1-610R	1SFA619600R6101
● Yellow		Pulsating	CB1-610Y	1SFA619600R6103
● Green	110-130V AC	Continuous	CB1-601G	1SFA619600R6012
● Red		Pulsating	CB1-611R	1SFA619600R6111
● Yellow		Pulsating	CB1-611Y	1SFA619600R6113
● Green	110-130V DC	Continuous	CB1-602G	1SFA619600R6022
● Red		Pulsating	CB1-612R	1SFA619600R6121
● Yellow		Pulsating	CB1-612Y	1SFA619600R6123
● Green	230V AC	Continuous	CB1-603G	1SFA619600R6032
● Red		Pulsating	CB1-613R	1SFA619600R6131
● Yellow		Pulsating	CB1-613Y	1SFA619600R6133

Non Illuminated buzzer

Colour	Supply voltage	Tone	Part Number	Product Hierarchy 1300001 Order Code
● Black	24V AC/DC	Continuous	CB1-620B	1SFA619600R6206
		Pulsating	CB1-630B	1SFA619600R6306
	110-130V AC	Continuous	CB1-621B	1SFA619600R6216
		Pulsating	CB1-631B	1SFA619600R6316
	110-130V DC	Continuous	CB1-622B	1SFA619600R6226
		Pulsating	CB1-632B	1SFA619600R6326
	230V AC	Continuous	CB1-623B	1SFA619600R6236
		Pulsating	CB1-633B	1SFA619600R6336

Black. Frequency: Approx. 2400 Hz. Loudness: Min 80 dB (A)/10 cm
Rated current: ≤ 8 mA. Service life: >5000 h



Pilot light complete

Type	Part Number	Product Hierarchy 1300001 Order Code
Integrated Led 24V AC/DC	CL502 ■	1SFA619402R502 □
Integrated Led 110-130V AC	CL513 ■	1SFA619402R513 □
Integrated Led 220V DC	CL520 ■	1SFA619402R520 □
Integrated Led 230V AC	CL523 ■	1SFA619402R523 □

Select your colour by placing a digit from the chart below

Order example:
 Ex 1: Type CP1-10■-10, to order color red replace ■ with R: CP1-10 R-10
 Ex 2: Order code 1SFA619100R101 □
 To order color red replace □ with 1: 1SFA619100R1011

Color codes								
	Red	Green	Yellow	Blue	White	Black	Grey	Clear
	●	●	●	●	○	●	●	○
Type ■	R	G	Y	L	W	B	U	C
Order Code □	1	2	3	4	5	6	7	8

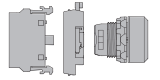
Pilot light lens only

Red	CL-100 R	1SFA619402R1001
Green	CL-100 G	1SFA619402R1002
Yellow	CL-100 Y	1SFA619402R1003
Blue	CL-100 B	1SFA619402R1004
White	CL-100 W	1SFA619402R1005
Clear	CL-100 C	1SFA619402R1008

Modular range 22mm

Overview

Modular range



The Modular Range is our widest range of Operators with solutions for almost every need and with market leading electrical ratings.

General construction

- Unique snap on Contact Blocks.
- Simple mounting without tools.
- One of the widest range of integrated LED Bulbs
- Same front design as Compact Range
- Up to 6 Contact Blocks (8 joystick)

Product features

- Suitable in the toughest environments IP 66, (67 & 69K).
- Wiping action gives high performance with low energies.
- UL/NEMA Type 1,3R,4,4X,12,13
- Unique wide range of integrated LED Bulbs.

Operators

- Pushbuttons (illuminated & non illuminated).
- Emergency Stops (twist, pull & key release).
- Machine Stops (twist, pull & key release).
- Selector Switches (2 & 3 position).
- Key Switches.
- Mushrooms.
- Joysticks.
- Toggle Switches.
- Extreme Duty Pushbuttons.
- Double Pushbuttons.

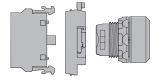
Pilot Lights

- Integrated LED (wide range of voltages).
- BA9s base for Filament Bulb or LED.

Pilot devices - modular 22mm

Standard & double pushbuttons

Modular range



Standard pushbuttons BLACK plastic bezel			Part Number	Product Hierarchy 1300002 Order Code
Flush	Momentary	Non illuminated	MP1-10 ■	1SFA611100R100 □
	Maintained		MP2-10 ■	1SFA611101R100 □
	Momentary	Illuminated	MP1-11 ■	1SFA611100R110 □
	Maintained		MP2-11 ■	1SFA611101R110 □
Extended	Momentary	Non illuminated	MP3-10 ■	1SFA611102R100 □
	Maintained		MP4-10 ■	1SFA611103R100 □
	Momentary	Illuminated	MP3-11 ■	1SFA611102R110 □
	Maintained		MP4-11 ■	1SFA611103R110 □

Standard pushbuttons CHROME plastic bezel			Part Number	Product Hierarchy 1300002 Order Code
Flush	Momentary	Non illuminated	MP1-20 ■	1SFA611100R200 □
	Maintained		MP2-20 ■	1SFA611101R200 □
	Momentary	Illuminated	MP1-21 ■	1SFA611100R210 □
	Maintained		MP2-21 ■	1SFA611101R210 □
Extended	Momentary	Non illuminated	MP3-20 ■	1SFA611102R200 □
	Maintained		MP4-20 ■	1SFA611103R200 □
	Momentary	Illuminated	MP3-21 ■	1SFA611102R210 □
	Maintained		MP4-21 ■	1SFA611103R210 □

Standard pushbuttons CHROME metal bezel			Part Number	Product Hierarchy 1300002 Order Code
Flush	Momentary	Non illuminated	MP1-30 ■	1SFA611100R300 □
	Maintained		MP2-30 ■	1SFA611101R300 □
	Momentary	Illuminated	MP1-31 ■	1SFA611100R310 □
	Maintained		MP2-31 ■	1SFA611101R310 □
Extended	Momentary	Non illuminated	MP3-30 ■	1SFA611102R300 □
	Maintained		MP4-30 ■	1SFA611103R300 □
	Momentary	Illuminated	MP3-31 ■	1SFA611102R310 □
	Maintained		MP4-31 ■	1SFA611103R310 □



How to order standard operators:

- Non- illuminated operator + holder + contact block(s)
- Illuminated operator + holder + contact block(s) + lamp block

Color codes				Contact blocks including holder with 3 blocks		
Description	Type	Order Code	Description	Type	Order Code	
● Red	R	1	1 NO	MCBH-10	1SFA611605R1101	
● Green	G	2	1 NC	MCBH-01	1SFA611605R1110	
● Yellow	Y	3	2 NC	MCBH-02	1SFA611605R1120	
● Blue	L	4	2 NO	MCBH-20	1SFA611605R1102	
○ White	W	5	1 NO+1 NC	MCBH-11	1SFA611605R1111	
● Black	B	6	1 NO+2 NC	MCBH-12	1SFA611605R1121	
● Grey	U	7	Contact blocks			
○ Clear	C	8	1 NO	MCB-10	1SFA611610R1001	
			1 NC	MCB-01	1SFA611610R1010	
			Separate holder for 3 blocks			
			Holder	MCBH-00	1SFA611605R1100	

Ordering example:
 Ex 1: Type CP1-10■-10, to order color red replace ■ with R: CP1-10 R-10
 Ex 2: Order code 1SFA619100R101□, to order color red replace □ with 1: 1SFA619100R1011

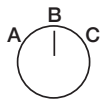
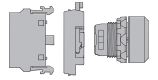


Double pushbuttons BLACK plastic bezel			Part Number	Product Hierarchy 1300002 Order Code
Flush (black)	No text	Non illuminated	MPD1-11B	1SFA611130R1106
	I/O		MPD2-11B	1SFA611131R1106
Extended lower button (black)	No text	Non illuminated	MPD12-11B	1SFA611141R1106
	I/O		MPD13-11B	1SFA611142R1106
Extended lower button (clear)	Start/stop	Illuminated	MPD15-11B	1SFA611144R1106
	No text		MPD12-11C	1SFA611141R1108
Extended lower button (clear)	I/O	Illuminated	MPD13-11C	1SFA611142R1108
	Start/stop		MPD15-11C	1SFA611142R1108

Pilot devices - modular 22mm

Selector switches - black plastic bezel

Modular range

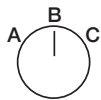
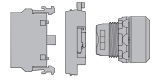


Selector switches BLACK plastic bezel			Part Number	Product Hierarchy 1300002 Order Code
Two position BC	Red	Short handle	M2SS1-10R	1SFA611200R1001
	Black		M2SS1-10B	1SFA611200R1006
	Grey		M2SS1-10U	1SFA611200R1007
Two position AC	Red		M2SS2-10R	1SFA611201R1001
	Black		M2SS2-10B	1SFA611201R1006
	Grey		M2SS2-10U	1SFA611201R1007
Two position spring return CB	Red		M2SS3-10R	1SFA611202R1001
	Black		M2SS3-10B	1SFA611202R1006
	Grey		M2SS3-10U	1SFA611202R1007
Two position BC	Red	Long handle	M2SS4-10R	1SFA611203R1001
	Black		M2SS4-10B	1SFA611203R1006
	Grey		M2SS4-10U	1SFA611203R1007
Two position AC	Red		M2SS5-10R	1SFA611204R1001
	Black		M2SS5-10B	1SFA611204R1006
	Grey		M2SS5-10U	1SFA611204R1007
Two position spring return CB	Red		M2SS6-10R	1SFA611205R1001
	Black		M2SS6-10B	1SFA611205R1006
	Grey		M2SS6-10U	1SFA611205R1007
Three position ABC	Red	Short handle	M3SS1-10R	1SFA611210R1001
	Black		M3SS1-10B	1SFA611210R1006
	Grey		M3SS1-10U	1SFA611210R1007
Three position spring return A to B - C to B	Red		M3SS2-10R	1SFA611211R1001
	Black		M3SS2-10B	1SFA611211R1006
	Grey		M3SS2-10U	1SFA611211R1007
Three position stay put A Spring return C to B	Red		M3SS3-10R	1SFA611212R1001
	Black		M3SS3-10B	1SFA611212R1006
	Grey		M3SS3-10U	1SFA611212R1007
Three position stay put C Spring return A to B	Red	M3SS7-10R	1SFA611216R1001	
	Black	M3SS7-10B	1SFA611216R1006	
	Grey	M3SS7-10U	1SFA611216R1007	
Three position ABC	Red	Long handle	M3SS4-10R	1SFA611213R1001
	Black		M3SS4-10B	1SFA611213R1006
	Grey		M3SS4-10U	1SFA611213R1007
Three position spring return A to B - C to B	Red		M3SS5-10R	1SFA611214R1001
	Black		M3SS5-10B	1SFA611214R1006
	Grey		M3SS5-10U	1SFA611214R1007
Three position stay put A Spring return C to B	Red		M3SS6-10R	1SFA611215R1001
	Black		M3SS6-10B	1SFA611215R1006
	Grey		M3SS6-10U	1SFA611215R1007
Three position stay put C Spring return A to B	Red	M3SS8-10R	1SFA611217R1001	
	Black	M3SS8-10B	1SFA611217R1006	
	Grey	M3SS8-10U	1SFA611217R1007	

Pilot devices - modular 22mm

Selector switches - chrome metal bezel

Modular range

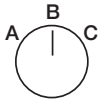
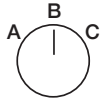
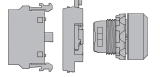


Selector switches CHROME metal bezel			Part Number	Product Hierarchy 1300002 Order Code
Two position BC	Red	Short handle	M2SS1-30R	1SFA611200R3001
	Black		M2SS1-30B	1SFA611200R3006
	Grey		M2SS1-30U	1SFA611200R3007
Two position AC	Red		M2SS2-30R	1SFA611201R3001
	Black		M2SS2-30B	1SFA611201R3006
	Grey		M2SS2-30U	1SFA611201R3007
Two position spring return CB	Red		M2SS3-30R	1SFA611202R3001
	Black		M2SS3-30B	1SFA611202R3006
	Grey		M2SS3-30U	1SFA611202R3007
Two position BC	Red	Long handle	M2SS4-30R	1SFA611203R3001
	Black		M2SS4-30B	1SFA611203R3006
	Grey		M2SS4-30U	1SFA611203R3007
Two position AC	Red		M2SS5-30R	1SFA611204R3001
	Black		M2SS5-30B	1SFA611204R3006
	Grey		M2SS5-30U	1SFA611204R3007
Two position spring return CB	Red		M2SS6-30R	1SFA611205R3001
	Black		M2SS6-30B	1SFA611205R3006
	Grey		M2SS6-30U	1SFA611205R3007
Three position ABC	Red	Short handle	M3SS1-30R	1SFA611210R3001
	Black		M3SS1-30B	1SFA611210R3006
	Grey		M3SS1-30U	1SFA611210R3007
Three position spring return A to B - C to B	Red		M3SS2-30R	1SFA611211R3001
	Black		M3SS2-30B	1SFA611211R3006
	Grey		M3SS2-30U	1SFA611211R3007
Three position stay put A Spring return C to B	Red		M3SS3-30R	1SFA611212R3001
	Black		M3SS3-30B	1SFA611212R3006
	Grey		M3SS3-30U	1SFA611212R3007
Three position stay put C Spring return A to B	Red	M3SS7-30R	1SFA611216R3001	
	Black	M3SS7-30B	1SFA611216R3006	
	Grey	M3SS7-30U	1SFA611216R3007	
Three position ABC	Red	Long handle	M3SS4-30R	1SFA611213R3001
	Black		M3SS4-30B	1SFA611213R3006
	Grey		M3SS4-30U	1SFA611213R3007
Three position spring return A to B - C to B	Red		M3SS5-30R	1SFA611214R3001
	Black		M3SS5-30B	1SFA611214R3006
	Grey		M3SS5-30U	1SFA611214R3007
Three position stay put A Spring return C to B	Red		M3SS6-30R	1SFA611215R3001
	Black		M3SS6-30B	1SFA611215R3006
	Grey		M3SS6-30U	1SFA611215R3007
Three position stay put C Spring return A to B	Red	M3SS8-30R	1SFA611217R3001	
	Black	M3SS8-30B	1SFA611217R3006	
	Grey	M3SS8-30U	1SFA611217R3007	

Pilot devices - modular 22mm

Key switches, pilot lights

Modular range



Key switches BLACK plastic bezel

Type			Part Number	Product Hierarchy 1300002 Order Code
Two position Key release in BC positions	71/Ronis 455	Maintained BC	M2SSK1-101	1SFA611280R1001
	72/Ronis 421		M2SSK1-102	1SFA611280R1002
	73/Ronis 3433-E		M2SSK1-103	1SFA611280R1003
Two position Key release in B positions	71/Ronis 455		M2SSK2-101	1SFA611281R1001
	72/Ronis 421		M2SSK2-102	1SFA611281R1002
	73/Ronis 3433-E		M2SSK2-103	1SFA611281R1003
Two position	71/Ronis 455	Momentary BC	M2SSK3-101	1SFA611282R1001
	72/Ronis 421		M2SSK3-102	1SFA611282R1002
	73/Ronis 3433-E		M2SSK3-103	1SFA611282R1003
Three position	71/Ronis 455	Maintained ABC	M3SSK1-101	1SFA611283R1001
	72/Ronis 421		M3SSK1-102	1SFA611283R1002
	73/Ronis 3433-E		M3SSK1-103	1SFA611283R1003

Key switches CHROME metal bezel

Two position Key release in BC positions	71/Ronis 455	Maintained BC	M2SSK1-301	1SFA611280R3001
	72/Ronis 421		M2SSK1-302	1SFA611280R3002
	73/Ronis 3433-E		M2SSK1-303	1SFA611280R3003
Two position Key release in B positions	71/Ronis 455		M2SSK2-301	1SFA611281R3001
	72/Ronis 421		M2SSK2-302	1SFA611281R3002
	73/Ronis 3433-E		M2SSK2-303	1SFA611281R3003
Two position	71/Ronis 455	Momentary BC	M2SSK3-301	1SFA611282R3001
	72/Ronis 421		M2SSK3-302	1SFA611282R3002
	73/Ronis 3433-E		M2SSK3-303	1SFA611282R3003
Three position	71/Ronis 455	Maintained ABC	M3SSK1-301	1SFA611283R3001
	72/Ronis 421		M3SSK1-302	1SFA611283R3002
	73/Ronis 3433-E		M3SSK1-303	1SFA611283R3003

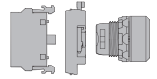
Pilot Lights

Red	ML-100 R	1SFA611400R1001
Green	ML-100 G	1SFA611400R1002
Yellow	ML-100 Y	1SFA611400R1003
Blue	ML-100 B	1SFA611400R1004
White	ML-100 W	1SFA611400R1005
Clear	ML-100 C	1SFA611400R1008
Light diffusing lens	KA1-8005	1SFA616920R8005

Pilot devices - modular 22mm

Joysticks

Modular range



Joystick	Function	Part Number	Product Hierarchy 1300002 Order Code
2 - position	maintained	MJS1-60B	1SFA611701R6006
	momentary	MJS2-60B	1SFA611702R6006
4 - position	maintained	MJS5-60B	1SFA611705R6006
	momentary	MJS6-60B	1SFA611706R6006

Joystick with latching function

2 - position	maintained	MJS7-60B	1SFA611707R6006
	momentary	MJS8-60B	1SFA611708R6006
4 - position	maintained	MJS11-60B	1SFA611711R6006
	momentary	MJS12-60B	1SFA611712R6006

Micro switch blocks

1 NO	MCBL-10	1SFA611612R1010
1 NC	MCBL-01	1SFA611612R1001

Legend plates

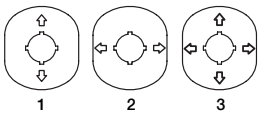
2 - position (1) (up - down)	MA6-1240	1SFA611930R1240
2 - position (2) (right - left)	MA6-1241	1SFA611930R1241
4 - position (3)	MA6-1242	1SFA611930R1242

Legend plate holders

4 - position	MA1-8137	1SFA611930R1240
2 - position	MA1-8138	1SFA611930R1242

Insert with symbol

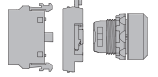
	MA6-1065	1SFA611930R1065
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Pilot devices - modular 22mm

Emergency, machine stops and mushroom pushbuttons

Modular range



Emergency stops

Type		Part Number	Product Hierarchy 1300002 Order Code
30mm Red Non illuminated	Twist release	MPET3-10R	1SFA611520R1001
	Pull release	MPEP3-10R	1SFA611521R1001
	Key release	MPEK3-11R	1SFA611522R1101
40mm Red Non illuminated	Twist release	MPET4-10R	1SFA611523R1001
	Pull release	MPEP4-10R	1SFA611524R1001
	Key release	MPEK4-11R	1SFA611525R1101
40mm Red Illuminated	Twist release	MPMT3-11R	1SFA611510R1101
	Pull release	MPMP3-11R	1SFA611511R1101
60mm Red Illuminated	Twist release	MPMT4-11R	1SFA611513R1101
	Pull release	MPMP4-11R	1SFA611514R1101

Machine stops

30mm Black	Twist release	MPET3-10B	1SFA611520R1006
	Pull release	MPEP3-10B	1SFA611521R1006
	Key release	MPEK3-11B	1SFA611522R1106
40mm Black	Twist release	MPET4-10B	1SFA611523R1006
	Pull release	MPEP4-10B	1SFA611524R1006
	Key release	MPEK4-11B	1SFA611525R1106

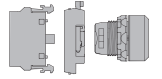
Mushroom pushbuttons

40mm Non illuminated momentary	Red	MPM1-10R	1SFA611124R1001
	Green	MPM1-10G	1SFA611124R1002
	Yellow	MPM1-10Y	1SFA611124R1003
	Black	MPM1-10B	1SFA611124R1006
60mm Non illuminated momentary	Red	MPM2-10R	1SFA611125R1001
	Yellow	MPM2-10Y	1SFA611125R1003
	Black	MPM2-10B	1SFA611125R1006
40mm Illuminated momentary	Red	MPM1-11R	1SFA611124R1001
	Green	MPM1-11G	1SFA611124R1002
	Yellow	MPM1-10Y	1SFA611124R1003
60mm Illuminated momentary	Red	MPM2-11R	1SFA611125R1101
	Yellow	MPM2-11Y	1SFA611125R1103

Modular range 22mm

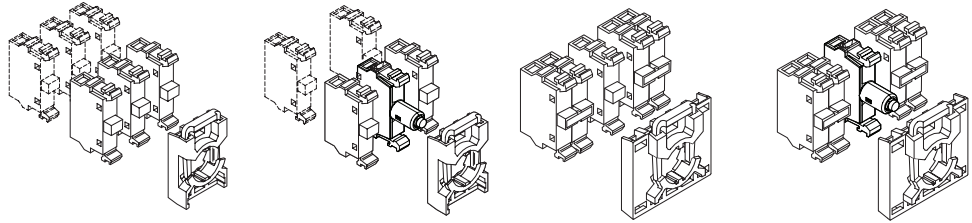
Contact block combinations

Modular range

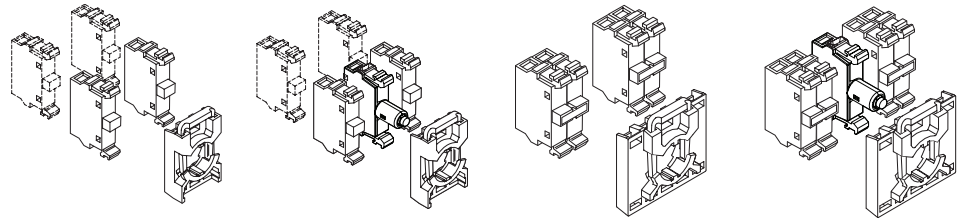


Pushbuttons

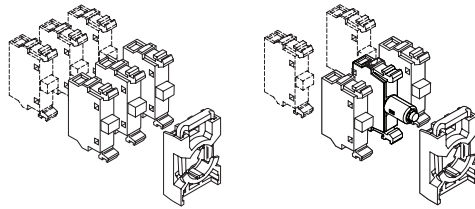
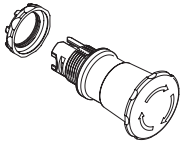
Mushroom pushbuttons



Double pushbuttons

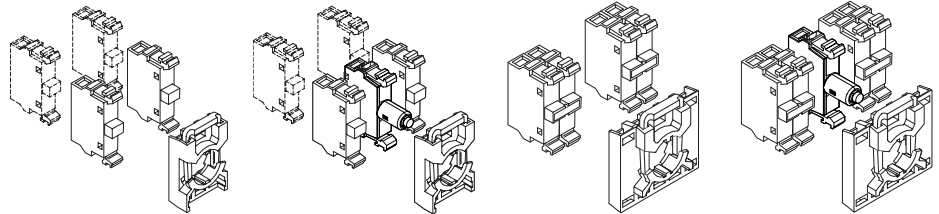
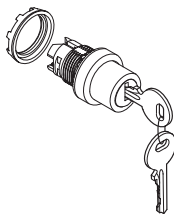
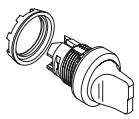


Emergency stop buttons

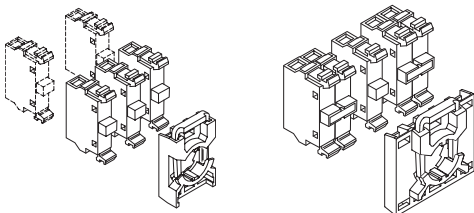
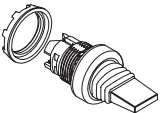


Selector switches

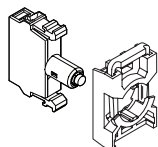
Key switches



Toggle switches



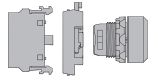
Pilot lights



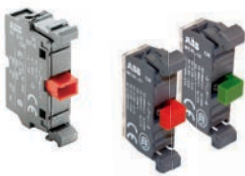
Pilot Devices - modular 22mm

Contacts, lamp blocks and accessories

Modular range



Contact block holders



Single contact blocks



Double contact blocks

Separate holder

	Part Number	Product Hierarchy 1300002 Order Code
Holder for 3 blocks	MCBH-00	1SFA611605R1100
Holder for 5 blocks	MCBH-50	1SFA611601R1100

Contact blocks

1 NO	MCB-10	1SFA611610R1001
1 NC	MCB-01	1SFA611610R1010
2 NO	MCB-20	1SFA611610R1020
2 NC	MCB-02	1SFA611610R1002
1 NO + 1 NC	MCB-11	1SFA611610R1011

Contact blocks with 3-holder included

1 NO	MCBH-10	1SFA611605R1101
1 NC	MCBH-01	1SFA611605R1110
2 NO	MCBH-20	1SFA611605R1102
2 NC	MCBH-02	1SFA611605R1120
1 NO + 1 NC double contacts	MCBH-11	1SFA611605R1111
2 NO + 1 NC double contacts	MCBH-21	1SFA611605R1112

Micro switch blocks

1 NO	MCBL-10	1SFA611612R1010
1 NC	MCBL-01	1SFA611612R1001

Legend plate holders

Holder black	KA1-8120	1SFA616920R8120
Inserts without text	KA1-8121	1SFA616920R8121
Legend plate holder for plastic enclosures	MA6-1060	1SFA611930R1060
Inserts without text for plastic enclosures	MA6-1061	1SFA611930R1061

General accessories

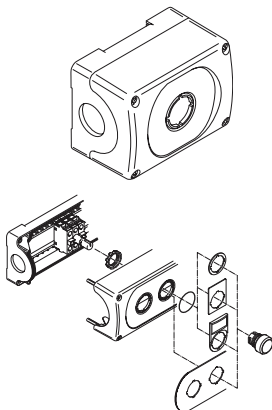
Shroud	MA1-8053	1SFA611920R8053
Mounting tool	MA1-8015	1SFA611920R8015
Membrane of silicone flush button	KA1-8052	1SFA616920R8052
Membrane of silicone extended button	KA1-8002	1SFA611920R8002
Locking nut	MA1-8019	1SFA611920R8019
Light diffusing lens	KA1-8005	1SFA616920R8005
Adaptors 30mm black plastic	KA1-8029	1SFA616920R8029
Protective cover	KA1-8010	1SFA616920R8010
Spacer	-	SK615516-1
Spacer for emergency stop	KA1-8045	1SFA616920R8045

Empty enclosures

Empty Grey Enclosure - 1 Seat		1SFA611811R1000
Empty Grey Enclosure - 2 Seat		1SFA611812R1000
Empty Grey Enclosure - 3 Seat		1SFA611813R1000
Empty Grey Enclosure - 4 Seat		1SFA611814R1000
Empty Yellow Enclosure - 1 Seat		1SFA611821R1000

Contact blocks for enclosures

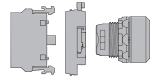
1 NO	MCB-10B	1SFA611811R1000
1 NC	MCB-01B	1SFA611812R1000
2 NO	MCB-20B	1SFA611813R1000
2 NC	MCB-02B	1SFA611814R1000
1 NO + 1 NC	MCB-11B	1SFA611821R1000



Pilot Devices - modular 22mm

Accessories

Modular range



LED block with built in leakage current protector

Lamp blocks with integrated LED	Part Number	Product Hierarchy 1300002 Order Code
12V DC	MLBL-00 ■	1SFA611621R100 □
24V AC/DC	MLBL-01 ■	1SFA611621R101 □
48V AC/DC	MLBL-02 ■	1SFA611621R102 □
60V AC/DC	MLBL-03 ■	1SFA611621R103 □
110-130V AC	MLBL-04 ■	1SFA611621R104 □
110-130V DC	MLBL-05 ■	1SFA611621R105 □
220V DC	MLBL-06 ■	1SFA611621R106 □
230V AC	MLBL-07 ■	1SFA611621R107 □
380V AC	MLBL-08 ■	1SFA611621R108 □
415V AC	MLBL-09 ■	1SFA611621R109 □

LEDs



LED 12V	KA2-201 ■	1SFA616921R201 □
LED 24V AC/DC	KA2-202 ■	1SFA616921R203 □
LED 48V AC/DC	KA2-204 ■	1SFA616921R204 □
LED 60V AC/DC	KA2-205 ■	1SFA616921R205 □
LED 110-130V AC	KA2-213 ■	1SFA616921R213 □
LED 110-130V AC/DC	KA2-214 ■	1SFA616921R214 □
LED 230V AC	KA2-222 ■	1SFA616921R222 □
LED 230V AC/DC	KA2-223 ■	1SFA616921R223 □

Order example:
 Ex1: Type CP1-10 ■-10, to order colour red replace ■ with R: CP1-10 R-10
 Ex2: Order code 1SFA619100R101□
 To order red replace □ with 1: 1SFA619100R1011

Colour Codes

	Red	Green	Yellow	Blue	White	Black	Grey	Clear
Type ■	R	G	Y	L	W	B	U	c
Order code □	1	2	3	4	5	6	7	8

Filaments



6v Filament Bulb	5911086-11	5911086-11
12v Filament Bulb	5911086-12	5911086-12
24v Filament Bulb	5911086-13	5911086-13
30v Filament Bulb	5911086-4	5911086-4
48v Filament Bulb	5911086-5	5911086-5
60v Filament Bulb	5911086-14	5911086-14
110v Filament Bulb	5911086-7	5911086-7
130v Filament Bulb	5911086-15	5911086-15

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