Motor protective circuit breakers Ex9SN25B

- **Manual motor protective circuit breakers**
- **Meet requirements of EN 60947-2 and EN 60947-4-1**
- **Rated current I_e up to 25 A at 415 V AC-3**
- **Rated operating voltage U_e up to 400/415 V**
- **Short-circuit protection**
- **Disconnect function**
  - **Overload protection**
  - **Loss-phase protection**
- **Suitable for three and single-phase applications**
- **Wide range of accessories**

Manual motor starters are electromechanical protection devices for the main circuit. They are used mainly to switch motors manually ON/OFF and protect them fuseless against short circuit and loss-phase.

Fuseless protection with a manual motor starter saves costs, space and ensures a quick reaction under short-circuit condition, by switching off the motor within milliseconds.

Manual motor starter combinations are setup together with contactors and overload relays.

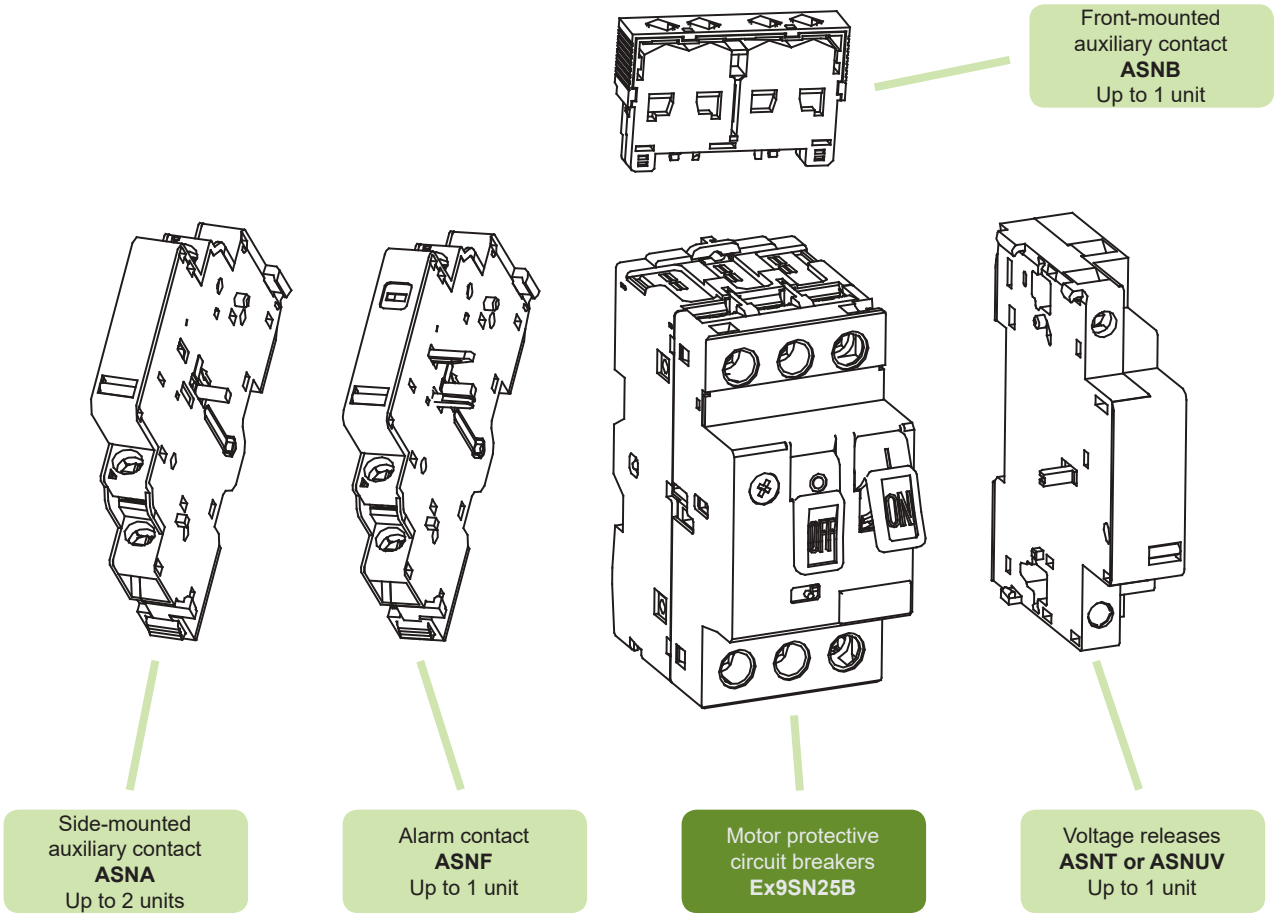
Type Key

Ex9	SN	25	B	10A
Product family	Product	Frame size	Operation type	Rated current
Ex9	SN: motor protective circuit breaker	25: up to 25A	B: push button	0.16A – 25A

Certification marks

Motor protective circuit breakers Ex9SN25B

Accessories



Auxiliary contacts ASNA

Auxiliary contacts ASNB

Alarm contact ASNF

Shunt trip release ASNT

Undervoltage release ASNUV

Isolated boxes for surface mounting ASNE

Motor protective circuit breakers Ex9SN25B

Motor protective circuit breakers, 3-pole

- Adjustable overload protection I_r
- Fixed instantaneous short-circuit current protection I_i (ca. 11 – 14 x I_e)
- Temperature compensation function to reduce the impact of ambient temperature

Rated current I_e	Tripping current setting range I_r	Short-circuit current I_i	Article No.	Type	Packing
0.16 A	0.10 – 0.16 A	1.5 A	108940	Ex9SN25B 0.16A	1/64
0.25 A	0.16 – 0.25 A	2.4 A	108941	Ex9SN25B 0.25A	1/64
0.40 A	0.25 – 0.40 A	5 A	108942	Ex9SN25B 0.4A	1/64
0.63 A	0.40 – 0.63 A	8 A	108943	Ex9SN25B 0.63A	1/64
1.0 A	0.63 – 1.00 A	13 A.	108944	Ex9SN25B 1A	1/64
1.6 A	1.0 – 1.6 A	22.5 A	108945	Ex9SN25B 1.6A	1/64
2.5 A	1.6 – 2.5 A	33.5 A	108946	Ex9SN25B 2.5A	1/64
4.0 A	2.5 – 4.0 A	51 A	108947	Ex9SN25B 4A	1/64
6.3 A	4.0 – 6.3 A	78 A	108948	Ex9SN25B 6.3A	1/64
10 A	6.0 – 10 A	138 A	108949	Ex9SN25B 10A	1/64
14 A	9.0 – 14 A	170 A	108950	Ex9SN25B 14A	1/64
18 A	13 – 18 A	223 A	108951	Ex9SN25B 18A	1/64
23 A	17 – 23 A	327 A	108952	Ex9SN25B 23A	1/64
25 A	20 – 25 A	327 A	108953	Ex9SN25B 25A	1/64

Technical Data Ex9SN25B

Motor protective circuit breakers

General parameters

For protection of various motor applications		
Provide overload, short-circuit and phase-failure protection		
Can replace the circuit breaker and thermal relay to reduce costs and space		
Temperature compensation function to reduce the impact of ambient temperature		
Accessories		
Front-mounted auxiliary contacts	ASNB	108954, 108955
Side-mounted auxiliary contacts	ASNA	108956, 108957
Alarm contacts	ASNF	108964, 108965, 108966, 108967
Undervoltage releases	ASNUV	108958, 108959, 108960
Shunt trip releases	ASNT	108961, 108962, 108963
Isolated boxes for surface mounting	ASNE	108968, 108969
Max. number of installed accessories are 2 pcs of contact or signal units (2 pcs ASNA or 1 pc of ASNA + 1 pc of ASNF) or 1 pc of front-mounted contact unit (ASNB) and 1 pc of voltage release (ASNT, ASNUV)		

Electrical parameters

Tested according to	EN 60947-4-1 EN 60947-2
Rated operating voltage U_e	230/240, 400/415, 440, 500, 690 V AC
Rated frequency f	50/60 Hz
Rated insulation voltage U_i	690 V
Rated impulse withstand voltage U_{imp}	8 kV
Rated current I_e	0.16 – 25 A
Fixed rated inst. short-circuit current I_i	see table below for exact values
Conventional free air thermal current I_{th}	$I_{th} = I_e$
Rated ultimate short-circuit breaking capacity I_{CU} (EN 60947-2) I_e 0.1 – 18 A at 230/240 V AC I_e 17 – 25 A at 230/240 V AC I_e 0.1 – 10 A at 400/415 V AC I_e 9 – 25 A at 400/415 V AC I_e 0.1 – 1.6 A at 660/690 V AC I_e 1.6 – 25 A at 660/690 V AC	 100 kA 50 kA 100 kA 15 kA 100 kA 3 kA
Rated service short-circuit breaking capacity I_{CS} (EN 60947-2) I_e 0.1 – 18 A at 230/240 V AC I_e 17 – 25 A at 230/240 V AC I_e 0.1 – 6.3 A at 400/415 V AC I_e 6 – 18 A at 400/415 V AC I_e 17 – 25 A at 400/415 V AC I_e 0.1 – 1.6 A at 660/690 V AC I_e 1.6 – 25 A at 660/690 V AC	 100 kA 50 kA 100 kA 7.5 kA 6 kA 100 kA 2.25 kA
Required contactor type I_e 0.1 – 10 A I_e 14 – 25 A	 Ex9CS06/09 or Ex9C12 frame size Ex9C18/25 frame size
Maximum operating frequency	30 operating cycles per hour
Electrical service life	2 000 operating cycles (at 400 V AC-3)
Power loss	9 W

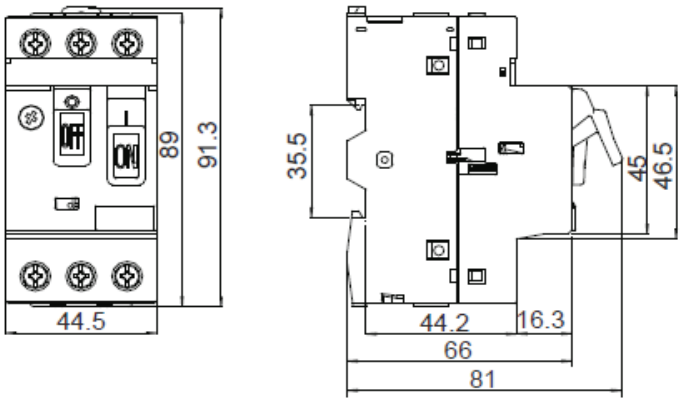
Technical Data Ex9SN25B

Motor protective circuit breakers

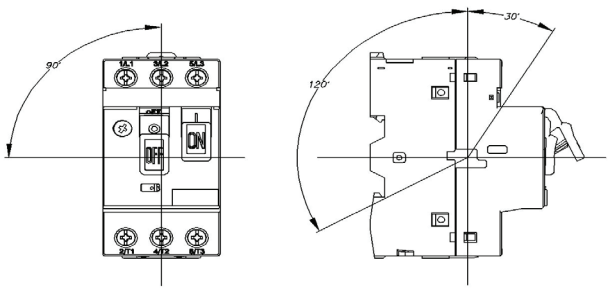
Mechanical parameters

Device width	44.5 mm
Device height	91.3 mm
Device depth	81 mm
Frame size	45 mm
Mounting	easy fastening onto 35 mm device rail (DIN)
Safety arcing distance	40 mm
Degree of protection	IP20
Mechanical service life	10 000 operating cycles
Terminals	lift
Terminal capacity	1 – 6 mm^2
Fastening torque of terminals	1.7 Nm
Ambient temperature	-5 – +40 °C
Altitude	≤ 2 000 m
Relative humidity	≤ 50 %
Resistance to climatic conditions	class 2, according to EN 60068-2-3 and EN 60068-2-30
Resistance to mechanical shock	30 gn (shock duration 11 ms)
Resistance to vibrations	5 gn (5 – 150 Hz)
Pollution degree	3
Overvoltage class	III
Weight	0.33 kg

Dimensions



Mounting positions



Technical Data Ex9SN25B

Motor protective circuit breakers Ex9SN25B

Rated instantaneous short-circuit current I_i

I_e [A]	0.16 A	0.25 A	0.40 A	0.63 A	1 A	1.6 A	2.5 A	4.0 A	6.3 A	10 A	14 A	18 A	23 A	25 A
I_i [A]	1.5	2.4	5	8	13	22.5	33.5	51	78	138	170	223	327	327

Rated power of three-phase motor

I_e [A]	AC-3, 50/60 Hz [W]					
	230/240 V	400 V	415 V	440 V	500 V	690 V
0.16 A	-	-	-	-	-	-
0.25 A	-	-	-	-	-	-
0.40 A	-	-	-	-	-	-
0.63 A	-	-	-	-	-	0.37
1 A	-	-	-	0.37	0.37	0.55
1.6 A	-	0.37	-	0.55	0.75	1.1
2.5 A	0.37	0.75	0.75	1.1	1.1	1.5
4.0 A	0.75	1.5	1.5	1.5	2.2	3.0
6.3 A	1.1	2.2	2.2	3.0	3.7	4.0
10 A	2.2	4.0	4.0	4.0	5.5	7.5
14 A	3.0	5.5	5.5	7.5	7.5	9
18 A	4.0	7.5	9	9	9	11
23 A	5.5	11	11	11	11	15
25 A	5.5	11	11	11	15	18.5

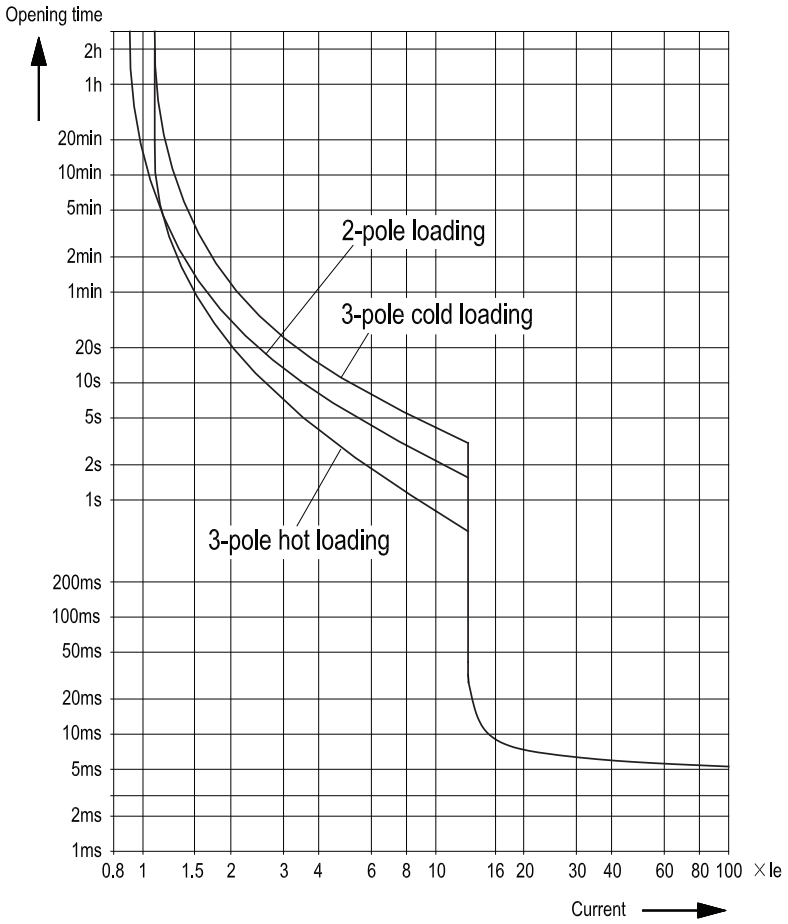
Maximum value of backup fuse for short-circuit protection for $I_{cc}>I_{cu}$

I_e [A]	230/240 V		400/415 V		440 V		500 V		690 V	
	aM A	gL/gG A	aM A	gL/gG A	aM A	gL/gG A	aM A	gL/gG A	aM A	gL/gG A
0.16 A	-	-	-	-	-	-	-	-	-	-
0.25 A	-	-	-	-	-	-	-	-	-	-
0.40 A	-	-	-	-	-	-	-	-	-	-
0.63 A	-	-	-	-	-	-	-	-	-	-
1 A	-	-	-	-	-	-	-	-	-	-
1.6 A	-	-	-	-	-	-	-	-	-	-
2.5 A	-	-	-	-	-	-	-	-	16	20
4.0 A	-	-	-	-	-	-	-	-	25	32
6.3 A	-	-	-	-	50	63	50	63	32	40
10 A	-	-	-	-	50	63	50	63	32	40
14 A	-	-	63	80	50	63	50	63	40	50
18 A	-	-	63	80	50	63	50	63	40	50
23 A	80	100	80	100	63	80	50	63	40	50
25 A	80	100	80	100	63	80	50	63	40	50

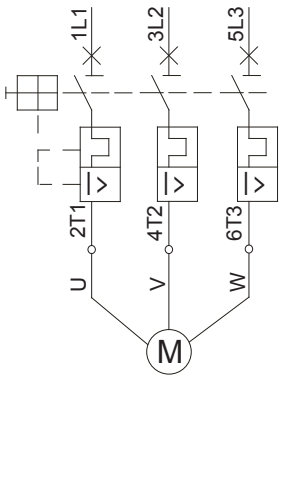
Technical Data Ex9SN25B

Motor protective circuit breakers Ex9SN25B

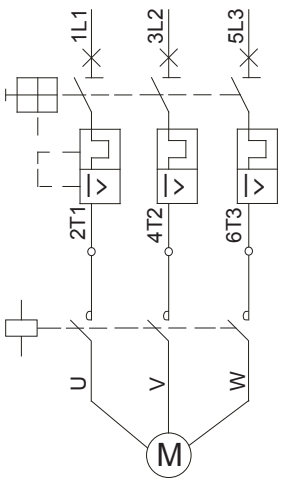
Tripping characteristics



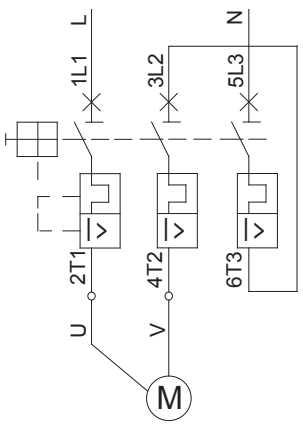
Connection diagram



3-phase motor protection



3-phase motor protection with contactor



1-phase or DC motor protection

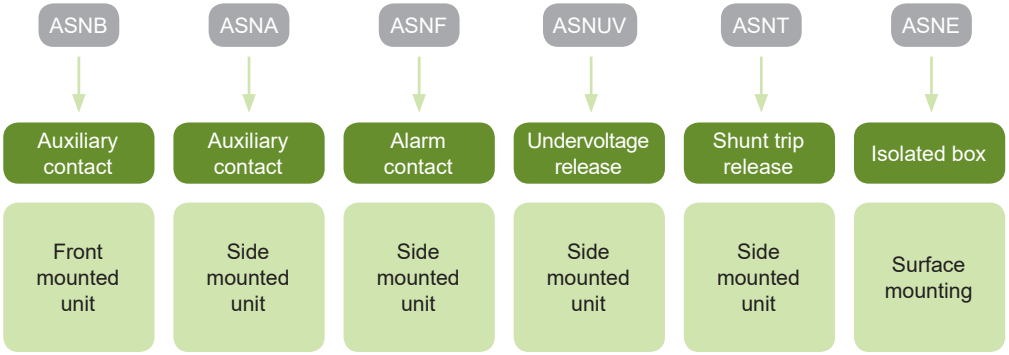
Accessories for Ex9SN25B

- **Accessories for motor protective circuit breakers Ex9SN25B**
- **Front-mounted auxiliary contacts ASNB**
- **Side-mounted auxiliary contacts ASNA**
- **Side-mounted alarm contact ASNF**
- **Undervoltage release ASNUV**
- **Shunt trip release ASNT**
- **Isolated boxes for surface mounting**

Ex9SN25B motor protective circuit breakers can be equipped with various types of additional accessories. All the accessories are designed in the way to be possible to combine different types with one device. There can be used up to three auxiliary or alarm contact units plus one voltage release.

Auxiliary contact units are available with three possible contact combinations. Auxiliary and alarm contact units are mounted from the left to the device. Release units are mounted from the right side. Installation of an auxiliary or alarm contact units does not affect the possibility of installing voltage release.

Type Key



Accessories for Ex9SN25B

Auxiliary contacts for Ex9SN25B, front-mounted

Contacts	Suitable for	Article No.	Type	Packing
2 NO	Ex9SN25B	108956	ASNB20	20/1280
1 NO + 1 NC	Ex9SN25B	108957	ASNB11	20/1280

Auxiliary contacts for Ex9SN25B, side-mounted

Contacts	Suitable for	Article No.	Type	Packing
2 NO	Ex9SN25B	108954	ASNA20	4/256
1 NO + 1 NC	Ex9SN25B	108955	ASNA11	4/256

Alarm contacts for Ex9SN25B, side-mounted

Contacts	Suitable for	Article No.	Type	Packing
1 NO (Fault) + 1 NC (Aux)	Ex9SN25B	108964	ASNF1001	3/192
1 NC (Fault) + 1 NC (Aux)	Ex9SN25B	108965	ASNF0101	3/192
1 NO (Fault) + 1 NO (Aux)	Ex9SN25B	108966	ASNF1010	3/192
1 NC (Fault) + 1 NO (Aux)	Ex9SN25B	108967	ASNF0110	3/192

Accessories for Ex9SN25B

Undervoltage releases for Ex9SN25B, side-mounted

AC operating voltage	Suitable for	Article No.	Type	Packing
110-115V 50Hz/127V 60Hz	Ex9SN25B	108958	ASNUVA	2/128
220-240V 50Hz	Ex9SN25B	108959	ASNUVB	2/128
380-400V 50Hz/ 440V 60Hz	Ex9SN25B	108960	ASNUVC	2/128

Shunt trip releases for Ex9SN25B, side-mounted

AC operating voltage	Suitable for	Article No.	Type	Packing
110-115V 50Hz/127V 60Hz	Ex9SN25B	108961	ASNTA	2/128
220-240V 50Hz	Ex9SN25B	108962	ASNTB	2/128
380-400V 50Hz/ 440V 60Hz	Ex9SN25B	108963	ASNTC	2/128

Isolated boxes for Ex9SN25B, surface mounting

Description	Suitable for	Article No.	Type	Packing
Actuating diaphragm	Ex9SN25B	108968	ASNEA	1/20
Emergency stop pushbutton	Ex9SN25B	108969	ASNEB	1/12

Technical Data Ex9SN25B Accessories

Accessories for motor protective circuit breakers Ex9SN25B

Front-mounted auxiliary contact unit ASNB

General parameters

For subsequent mounting
Front-mounted version
1 unit can be used with a motor protective circuit breaker

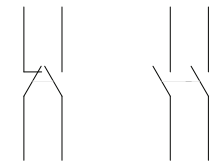
Electrical parameters

	ASNB20	ASNB11
Contacts	2 NO	1 NO + 1 NC
Tested according to	EN 60947-5-1	
Rated operating voltage U_e	240V AC, 415V AC, 220V DC	
Rated frequency	50/60 Hz	
Rated thermal current I_{th}	2.5 A	
Rated op. current I_e, ut. cat. AC-15	0.5 A at 240 V	
Rated op. current I_e, ut. cat. DC-13	0.15 A at 60 V	
Rated impulse withstand voltage U_{imp}	2.5 kV	
Rated insulation voltage U_i	250 V	

Mechanical parameters

	ASNB20	ASNB11
Device width	45 mm	
Device height	9.5 mm	
Device depth	28.7 mm	
Mounting	front	
Degree of protection	IP20	
Terminals	lift	
Terminal capacity	1 – 2.5 mm^2	
Fastening torque of terminals	0.8 Nm	

Wiring diagram



ASNB11 ASNB20

Technical Data Ex9SN25B Accessories

Accessories for motor protective circuit breakers Ex9SN25B

Side-mounted auxiliary contact unit ASNA

General parameters

For subsequent mounting
Side-mounted version, mounting from the left
Up to 2 units can be used with a motor protective circuit breaker

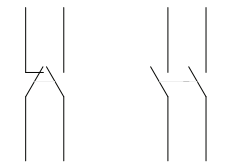
Electrical parameters

	ASNA20	ASNA11
Contacts	2 NO	1 NO + 1 NC
Tested according to	EN 60947-5-1	
Rated operating voltage U_e	240 V AC, 415 V AC, 220 V DC	
Rated frequency f	50/60 Hz	
Rated thermal current I_{th}	6 A	
Rated op. current I_e, ut. cat. AC-15	3.3 A at 240 V, 1.5 A at 415 V	
Rated op. current I_e, ut. cat. DC-13	3 A at 60 V	
Rated impulse withstand voltage U_{imp}	4 kV	
Rated insulation voltage U_i	690 V	

Mechanical parameters

	ASNA20	ASNA11
Device width	9.5 mm	
Device height	91.3 mm	
Device depth	65.6 mm	
Mounting	left side	
Degree of protection	IP20	
Terminals	lift	
Terminal capacity	1 – 2.5 mm^2	
Fastening torque of terminals	0.8 Nm	

Wiring diagram



ASNA11 ASNA20

Technical Data Ex9SN25B Accessories

Accessories for motor protective circuit breakers Ex9SN25B

Front-mounted auxiliary contact unit ASNF

General parameters

For subsequent mounting
Front-mounted version
1 unit can be used with a motor protective circuit breaker

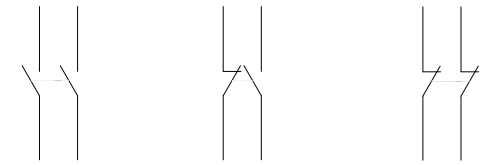
Electrical parameters

	ASNF1001	ASNF0101	ASNF1010	ASNF0110
Contacts	1 NO (Fault) + 1 NC (Aux)	1 NC (Fault) + 1 NC (Aux)	1 NO (Fault) + 1 NO (Aux)	1 NC (Fault) + 1 NO (Aux)
Tested according to	EN 60947-5-1			
Rated operating voltage U_e	Fault: 240 V AC, Auxiliary: 690 V AC			
Rated frequency	50/60 Hz			
Rated thermal current I_{th}	Fault: 2.5 A, Auxiliary: 6 A			
Rated op. current I_e, ut. cat. AC-14	Fault: 0.3 A at 240 V			
Rated op. current I_e, ut. cat. DC-13	Fault: 0.15 A at 60 V			
Rated impulse withstand voltage U_{imp}	4 kV			
Rated insulation voltage U_i	690 V			

Mechanical parameters

	ASNF1001	ASNF0101	ASNF1010	ASNF0110
Device width	9.5 mm			
Device height	91.3 mm			
Device depth	65.5 mm			
Mounting	left side			
Degree of protection	IP20			
Terminals	lift			
Terminal capacity	1 – 2.5 mm^2			
Fastening torque of terminals	0.8 Nm			

Wiring diagram



ASNF1010 | ASNF1001 ASNF0110 | ASNF0101

Technical Data Ex9SN25B Accessories

Accessories for motor protective circuit breakers Ex9SN25B

Shunt trip releases ASNT

General parameters

For subsequent mounting
Side-mounted version, mounting from the right
1 unit can be used with a motor protective circuit breaker or ASNUV unit

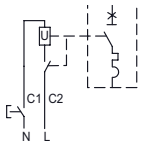
Electrical parameters

	ASNTA	ASNTB	ASNTC
Tested according to	EN 60947-2		
Rated operating voltage U_e	110 – 115 V AC @ 50 Hz 127 V AC @ 60 Hz	220 – 240 V AC @ 50 Hz	380 – 400 V AC @ 50 Hz 440 V AC @ 60 Hz
Oper. voltage tripping tolerance	70 – 110 % U_e		
Rated frequency f	50/60 Hz		
Rated impulse withstand voltage U_{imp}	6 kV		
Rated insulation voltage U_i	690 V		

Mechanical parameters

	ASNTA	ASNTB	ASNTC
Device width	18.5 mm		
Device height	91.3 mm		
Device depth	65.5 mm		
Mounting	right side		
Degree of protection	IP20		
Terminals	lift		
Terminal capacity	1 – 2.5 mm^2		
Fastening torque of terminals	0.8 Nm		

Wiring diagram



Technical Data Ex9SN25B Accessories

Accessories for motor protective circuit breakers Ex9SN25B

Undervoltage releases ASNUV

General parameters

For subsequent mounting
Side-mounted version, mounting from the right
1 unit can be used with a motor protective circuit breaker or ASNT unit

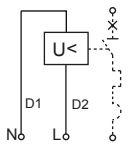
Electrical parameters

	ASNUVA	ASNUVB	ASNUVC
Tested according to	EN 60947-2		
Rated operating voltage U_e	110 – 115 V AC @ 50 Hz 127 V AC @ 60 Hz	220 – 240 V AC @ 50 Hz	380 – 400 V AC @ 50 Hz 440 V AC @ 60 Hz
Oper. voltage tripping tolerance	35 – 70 % U_e		
Rated frequency f	50/60 Hz		
Rated impulse withstand voltage U_{imp}	6 kV		
Rated insulation voltage U_i	690 V		
Tripping time	200 ms		
Making threshold	85 – 110 % U_e		

Mechanical parameters

	ASNUVA	ASNUVB	ASNUVC
Device width	18.5 mm		
Device height	91.3 mm		
Device depth	65.5 mm		
Mounting	right side		
Degree of protection	IP20		
Terminals	lift		
Terminal capacity	1 – 2.5 mm^2		
Fastening torque of terminals	0.8 Nm		

Wiring diagram



Technical Data Ex9SN25B Accessories

Accessories for motor protective circuit breakers Ex9SN25B

Isolated boxes for surface mounting ASNE

General parameters

Plastic IP55 boxes for single Ex9SN25B device.
Insulated boxes for surface mounting.

Electrical parameters

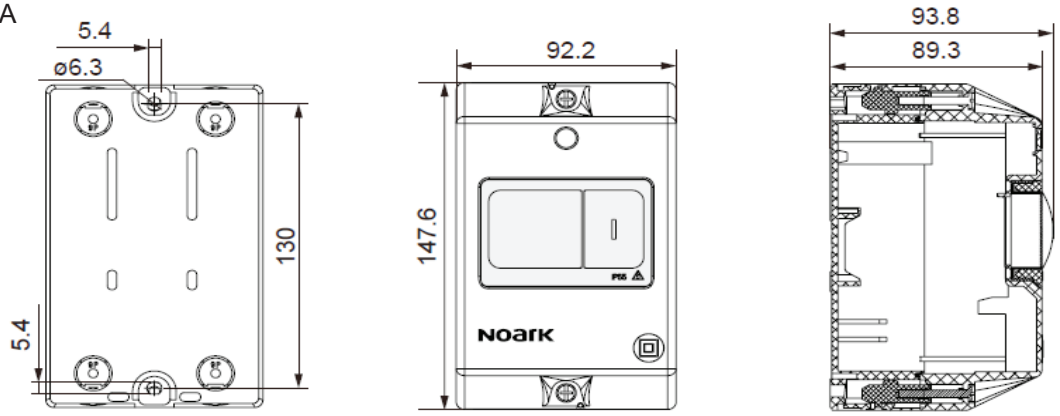
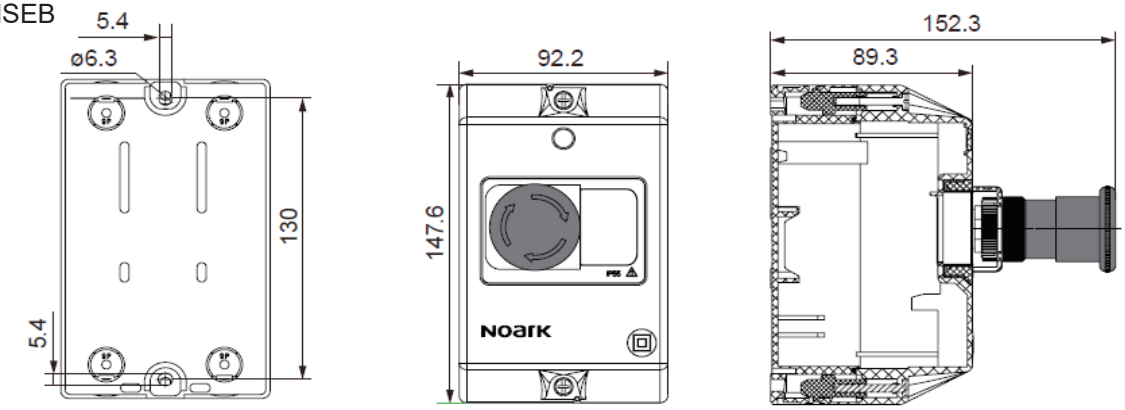
	ASNEA	ASNEB
Tested according to	EN 62208	
Rated operating voltage U_e	400 V AC	
Rated frequency f	50 Hz	

Mechanical parameters

	ASNEA	ASNEB
Device width	93 mm	
Device height	148 mm	
Device depth	94 mm	152 mm
Mounting	surface	
Degree of protection	IP55	

Dimensions

ANSEA



ANSEB