

Accessories for MCCBs Ex9M



- Accessories for Ex9M line devices
- Auxiliary contacts synchronous with main contacts
- Signal contacts active on electrical tripping of the circuit breaker (tripping signal contacts)
- Shunt trip and undervoltage releases
- Remote operators
- Rotary handles
- Connection terminals and covers
- Mounting depth spacers and adaptors

Accessories suitable for Moulded Case Circuit Breakers Ex9M. It is possible to supplement or modify functions of a basic circuit breaker by the installation of suitable accessories.

Circuit breakers can be equipped with auxiliary contacts AX21M (up to 2 units even for M1 frame size) and one unit of signal contact AL21M. AX21M and AL21M are mounted into different positions, a use of one type of the contact does not limit a number of the second type. AX21M and AL21M can be used regardless the frame size of the circuit breaker.

One unit of undervoltage release UVT2*i* or one unit of shunt trip relase SHT2*i* can be installed in the breaker. Different versions for different frame sizes allow to optimize power consumption of these units.

The circuit breakers can also be equipped with different accesories for operation of the toggle. There are available direct rotary handle, rotary handle with extended shaft e.g. for door coupling and a motor operator.

Mounting of the device onto plate can be done directly with the screws which are included in the scope of delivery. Or in case of M1 and M2 devices there is possibility to use adaptors DRA for mounting onto DIN-rail 35 mm. If it is requested to place devices of different frame size side by side, it is possible to use for compensation of differences in height mounting depth spacers WG which assure the same position of front panel towards front plate.

For connection of conductors there are available various types of box and tunnel terminals MC.

Accessories for MCCBs Ex9M

Auxiliary and signal contact units

- Contact units for auxiliary and signal contact functions are suitable for all frame sizes
- Auxiliary contacts synchronous with main contacts of the circuit breaker
- Signal contacts active on electrical tripping of the circuit breaker (tripping signal contacts)
- It is possible to use 1 unit AL21L plus up to four units of AX21M in one MCCBs (depends on frame size)



Function	Frame size	Contacts	Article No.	Type	Packing
Auxiliary	all	1 CO	852508	AX21M	1/24
Signal	all	1 CO	852509	AL21M	1/24

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Shunt trip releases

- It is possible to use one unit of shunt trip release SHT2*i* or one unit of undervoltage release UVT2*i*



Aux. cont.	Frame size	Operating Voltage	Part No.	Type	Packing
-	M1	48V AC	20288	SHT21 AC48V	1/24
-	M1	110V AC	20289	SHT21 AC110V	1/24
-	M1	220-240V AC	20290	SHT21 AC220-240V	1/24
-	M1	380-415V AC	20291	SHT21 AC380-415V	1/24
-	M1	24V DC	20292	SHT21 DC24V	1/24
-	M1	220V DC	20296	SHT21 DC220V	1/24
-	M2, M3	48V AC	23175	SHT22 AC48V	1/24
-	M2, M3	110V AC	23176	SHT22 AC110V	1/24
-	M2, M3	220-240V AC	23177	SHT22 AC220-240V	1/24
-	M2, M3	380-415V AC	23178	SHT22 AC380-415V	1/24
-	M2, M3	24V DC	23179	SHT22 DC24V	1/24
-	M2, M3	220V DC	23183	SHT22 DC220V	1/24

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Undervoltage releases

- It is possible to use one unit of undervoltage release UVT2*i* or one unit of shunt trip release SHT2*i*



Aux. cont.	Frame size	Operating Voltage	Part No.	Model	Packing
-	M1	220-240V AC	20229	UVT21 220-240V AC	1/24
-	M1	380-415V AC	20300	UVT21 380-415V AC	1/24
-	M2, M3	220-240V AC	23195	UVT22 220-240V AC	1/24
-	M2, M3	380-415V AC	23186	UVT22 380-415V AC	1/24

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Remote operators

- Motor drives for electrical and remote control of MCCBs
- Available up to M5 frame size



Frame size	Operating Voltage	Part No.	Model	Packing
M1	230 V AC	20283	MOD 21 AC230V	1/8
M1	110 V AC	20284	MOD 21 AC110V	1/8
M1	24 V DC	20287	MOD 21 DC24V	1/8
M2	230 V AC	23170	MOD 22 AC230V	1/8
M2	110 V AC	23171	MOD 22 AC110V	1/8
M2	24 V DC	23174	MOD 22 DC24V	1/8
M3	230 V AC	25114	MOD 23 AC230V	1/4
M3	110 V AC	25115	MOD 23 AC110V	1/4
M3	24 V DC	25118	MOD 23 DC24V	1/4
M4, M5	230 V AC	26913	MOD 24 AC240V	1/2
M4, M5	110 V AC	26916	MOD 24 AC110V	1/2
M4, M5	24 V DC	103747	MOD 24 DC24V	1/2

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Direct rotary handles

- Rotary handle for direct mounting onto breaker
- Scope of delivery: mechanism block, rotary handle
- Indication of connected breaker status ON-OFF-TRIP
- Degree of protection IP40, IK07
- Can be locked in ON and OFF position with up to three padlocks (not in a scope of delivery)



Frame size	Part no.	Model	Packing
M1	20303	RHD21	1/36
M2	23189	RHD22	1/18
M3	25122	RHD23	1/9
M4, M5	26921	RHD24	1/6

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Extended rotary handles

- Rotary handle with extension shaft (extension shaft can be shortened)
- Possibility of longer extension shaft 500 mm (only the shaft as separated item)
- Scope of delivery: mechanism block, extension shaft, rotary handle
- Indication of connected breaker status ON-OFF-TRIP
- Degree of protection IP54, IK08
- Can be locked in ON and OFF position with up to three padlocks (not in a scope of delivery)



Frame size	Length	Part no.	Model	Packing
M1	300 mm	20302	ERH21	1/6
M2	300 mm	23188	ERH22	1/6
M3	300 mm	25121	ERH23	1/6
M4, M5	300 mm	26920	ERH24	1/4

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Accessories for MCCBs Ex9M

Connection terminals

- Connection terminals for MCCBs of all frame sizes
- Box and tunnel terminal versions
- For connecting with Al or Cu wires (box terminals only for Cu wires)
- Packed separately (for 3P connection, it is necessary to order 3pcs of terminal)
- Box terminals newly in the scope of delivery of AC devices M1, M2

Box terminals



Frame size	Version	Terminals	Max. terminal capacity	Article No.	Type	Packing
M1	box	1	4-95 mm ²	103705	MC21	1 pc
M2	box	1	10-120 mm ²	103709	MC22	1 pc
M3	box	1	120-240 mm ²	103715	MC23	1 pc
M3	box	1	120-240 mm ²	103717	MC23 UL	1 pc

Tunnel terminals



Frame size	Version	Terminals	Max. terminal capacity	Article No.	Type	Packing
M1	tunnel	1	16-95 mm ²	103707	MC21 W	1 pc
M2	tunnel	1	35-240 mm ²	103869	MC22 W	1 pc
M2	tunnel	2	35-120 mm ²	103711	MC22 W2	1 pc
M2	tunnel	6	10-35 mm ²	103713	MC22 W6	1 pc
M3	tunnel	2	120-240 mm ²	103719	MC23 W2	1 pc
M3	tunnel	2	120-240 mm ²	103871	MC23 W2 UL	1 pc
M3	tunnel	4	35-95 mm ²	103721	MC23 W4	1 pc
M4, M5	tunnel	2	120-240 mm ²	106314	MC24 W2	1 pc

Screw terminals



Frame size	Version	Terminals	Screw size	Article No.	Type	Packing
M1	screw	1	M6	107873	MCS21	1 pc
M2	screw	1	M8	107874	MCS22	1 pc

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Terminal covers, short

- Terminal covers to increase touch protection of terminals



Frame size	Poles	Part no.	Model	Packing
M1	3P	20304	TCV21 3P	1 pc
M2	3P	23190	TCV22 3P	1 pc
M3	3P	25123	TCV23 3P	1 pc
M1	4P	20305	TCV21 4P	1 pc
M2	4P	23191	TCV22 4P	1 pc
M3	4P	25124	TCV23 4P	1 pc
M4, M5	4P		TCV24 4P	1 pc

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Accessories for MCCBs Ex9M

Terminal covers, long

- Terminal covers to increase touch protection of terminals



Frame size	Poles	Part no.	Part no.	Packing
M1	3P	20306	TCE21 3P	1 pc
M2	3P	23192	TCE22 3P	1 pc
M3	3P	25125	TCE23 3P	1 pc
M4, M5	3P	26904	TCE24 3P	1 pc
M1	4P	20307	TCE21 4P	1 pc
M2	4P	23193	TCE22 4P	1 pc
M3	4P	25126	TCE23 4P	1 pc
M4, M5	4P	852989	TCE24 4P	1 pc

DIN-rail adaptors

- Adaptors for mounting of MCCBs onto DIN-rail 35 mm
- Suitable for all variants of MCCBs and MCCB Switch Disconnectors of given frame size



Frame size	Poles	Article No.	Type	Packing
M1	3P, 4P	20309	DRA21	1
M2	3P, 4P	106320	DRA22	1

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Accessories for Moulded Case Circuit Breakers Ex9M

Auxiliary and signal contact units AX21M, AL21M

General parameters

Contact units for auxiliary and signal contact functions are suitable for all MCCB frame sizes
Auxiliary contacts synchronous with main contacts of the circuit breaker
Signal contacts active on electrical tripping of the circuit breaker (tripping signal contacts)
With connection wires

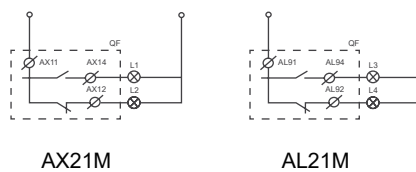
Electrical parameters

	AX21M	AL21M
Contacts	1 changeover (CO)	1 changeover (CO)
Contact function	auxiliary	signal
Tested according to	IEC/EN 60947-1, IEC/EN 60947-5-1	
Rated op. voltage U	240/415 V AC, 110/220 V DC	
Rated frequency	50/60 Hz	
Rated op. current I _e AC	5 A (240 V), 2 A (415 V)	
Rated op. current I _e DC	1 A (110 V), 0.25 A (220 V)	
Rated thermal current I _{th}	5 A	
Rated op. current I _e ut. cat. AC-15	5 A (240 V), 2 A (415 V)	
Rated op. current I _e ut. cat. DC-13	1 A (110 V), 0.25 A (220 V)	
Rated insulation voltage U _i	500 V	

Mechanical parameters

	AX21M	AL21M
Suitable for	M1, M2, M3, M4, M5	M1, M2, M3, M4, M5
Connection	equipped with connection wires	

Wiring diagrams



Technical Data Ex9M Accessories

Accessories for Moulded Case Circuit Breakers Ex9M

Early-make auxiliary contacts EC 2i

General parameters

Early-make auxiliary contacts

Contact unit EC 21 is installed in the special place in the MCCB (M1, M2 frame size), unit EC 23 as two connected contact units. One in special place and second in AL place (limit use of AL in M3, M4, M5)

Does not limit using of voltage releases and motor operator

Equipped with connection wires

Compatible with MCCB devices produced from 3/2014 only!

Please, note the requirement for early-make contact function in the order of MCCB!

Electrical parameters

	EC 21	EC 23
Contacts	1 NO	1 NO
Contact function	early-make auxiliary	
Tested according to	IEC/EN 60947-1, IEC/EN 60947-5-1	
Rated op. voltage U	240/415 V AC, 110/220 V DC	
Rated frequency	50/60 Hz	
Rated op. current I _e AC	5 A (240 V), 2 A (415 V)	
Rated op. current I _e DC	1 A (110 V), 0.25 A (220 V)	
Rated thermal current I _{th}	5 A	
Rated op. current I _e , ut. cat. AC-15	5 A (240 V), 2 A (415 V)	
Rated op. current I _e , ut. cat. DC-13	1 A (110 V), 0.25 A (220 V)	
Rated insulation voltage U _i	500 V	
Early make function	M1, ON -> OFF: 10 ms M1, OFF -> ON: 15 ms M2, ON -> OFF: 16 ms M2, OFF -> ON: 18 ms	M3, ON -> OFF: 68 ms M3, OFF -> ON: 75 ms M4/M5, ON -> OFF: 82 ms M4/M5, OFF -> ON: 90 ms

Mechanical parameters

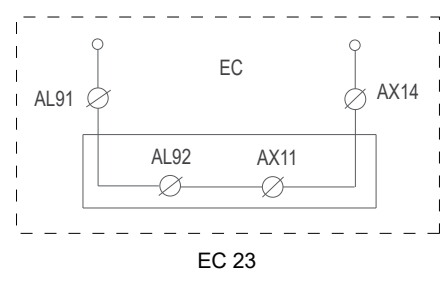
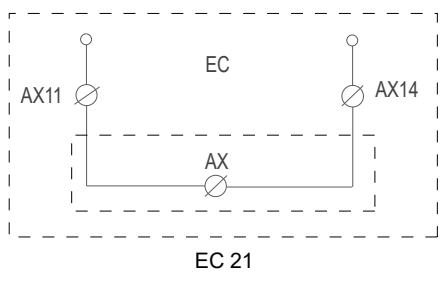
	EC 21	EC 23
Suitable for	M1, M2	M3, M4, M5
Connection	equipped with connection wires	

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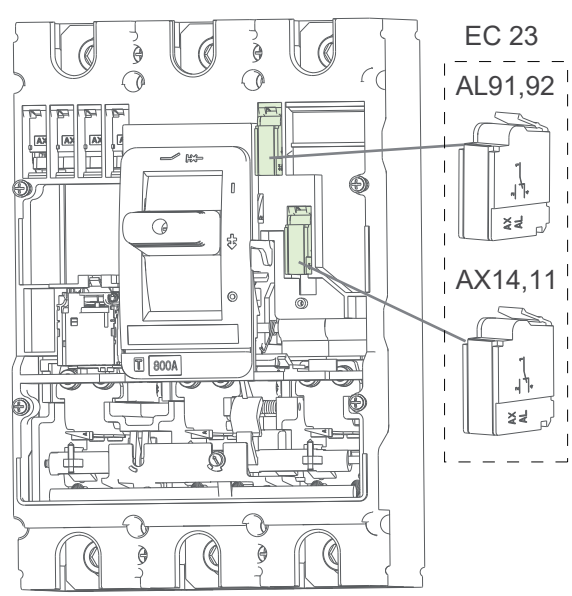
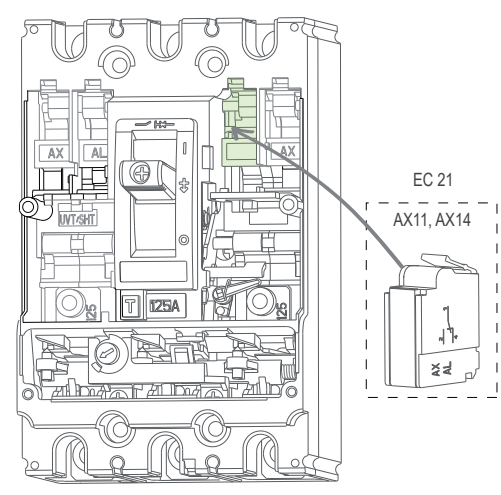
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Early-make auxiliary contacts EC 2i

Wiring diagrams



Mounting position



Matching order of the contact units and respective chambers has to be kept!

Accessories

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Accessories for Moulded Case Circuit Breakers Ex9M

Shunt trip releases SHT2i

General parameters

It is possible to use one unit of shunt trip release SHT2i or one unit of undervoltage release UVT2i

Can be used for remote switch off

SHT21 for MCCBs of frame size M1

SHT22 for MCCBs of frame sizes M2 and M3

SHT24 for MCCBs of frame sizes M4 and M5

With connection wires

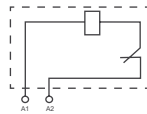
Electrical parameters

	SHT21	SHT22	SHT24
Tested according to	IEC/EN 60947-1, IEC/EN 60947-5-1		
Rated operating voltage U (according to type)	48 V AC 110 V AC 220 — 240 V AC 380 — 415 V AC 24 V DC 48 V DC 110 V DC 220 V DC	48 V AC 110 V AC 220 — 240 V AC 380 — 415 V AC 24 V DC 48 V DC 110 V DC 220 V DC	110 V AC 220 — 240 V AC 380 — 415 V AC 110 — 120 V DC 220 V DC 24 V DC 48 V DC
Rated frequency	50/60 Hz DC		
Rated insulation voltage U	500 V		
Tripping time	< 20 ms	< 20 ms	< 30 ms

Mechanical parameters

	SHT21	SHT22	SHT24
Suitable for	M1	M2, M3	M4, M5
Connection	equipped with connection wires		

Wiring diagrams



SHT2i

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Accessories for Moulded Case Circuit Breakers Ex9M

Undervoltage releases UVT2i

General parameters

It is possible to use one unit of shunt trip release SHT2i or one unit of undervoltage release UVT2i

To switch connected breaker off in case of voltage drop

UVT21 for MCCBs of frame size M1

UVT22 for MCCBs of frame size M2 and M3

UVT24 for MCCBs of frame size M4 and M5

With connection wires

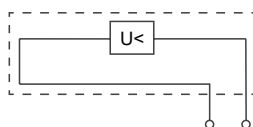
Electrical parameters

	UVT21	UVT22	UVT24
Tested according to	IEC/EN 60947-1, IEC/EN 60947-5-1		
Rated operating voltage U_n	220 — 240 V AC 380 — 415 V AC	220 — 240 V AC 380 — 415 V AC	110 V AC 220 — 240 V AC 380 — 415 V AC 110 — 120 V DC 220 V DC 24 V DC 48 V DC
Rated frequency f	50/60 Hz DC		
Rated insulation voltage U_i	500 V		
Tripping time	< 20 ms	< 20 ms	< 20 ms
Making treshold	85 % U_n	85 % U_n	85 % U_n
Tripping treshold	35 % U_n	35 % U_n	35 % U_n

Mechanical parameters

	UVT21	UVT22	UVT24
Suitable for	M1	M2, M3	M4, M5
Connection	equipped with connection wires		

Wiring diagrams



UVT2i

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Accessories for Moulded Case Circuit Breakers Ex9M

Direct rotary handles RHD2i

General parameters

Rotary handle for direct mounting onto breaker

Scope of delivery: mechanism block, rotary handle

Can be locked in ON and OFF position with up to three padlocks (not in the scope of delivery)

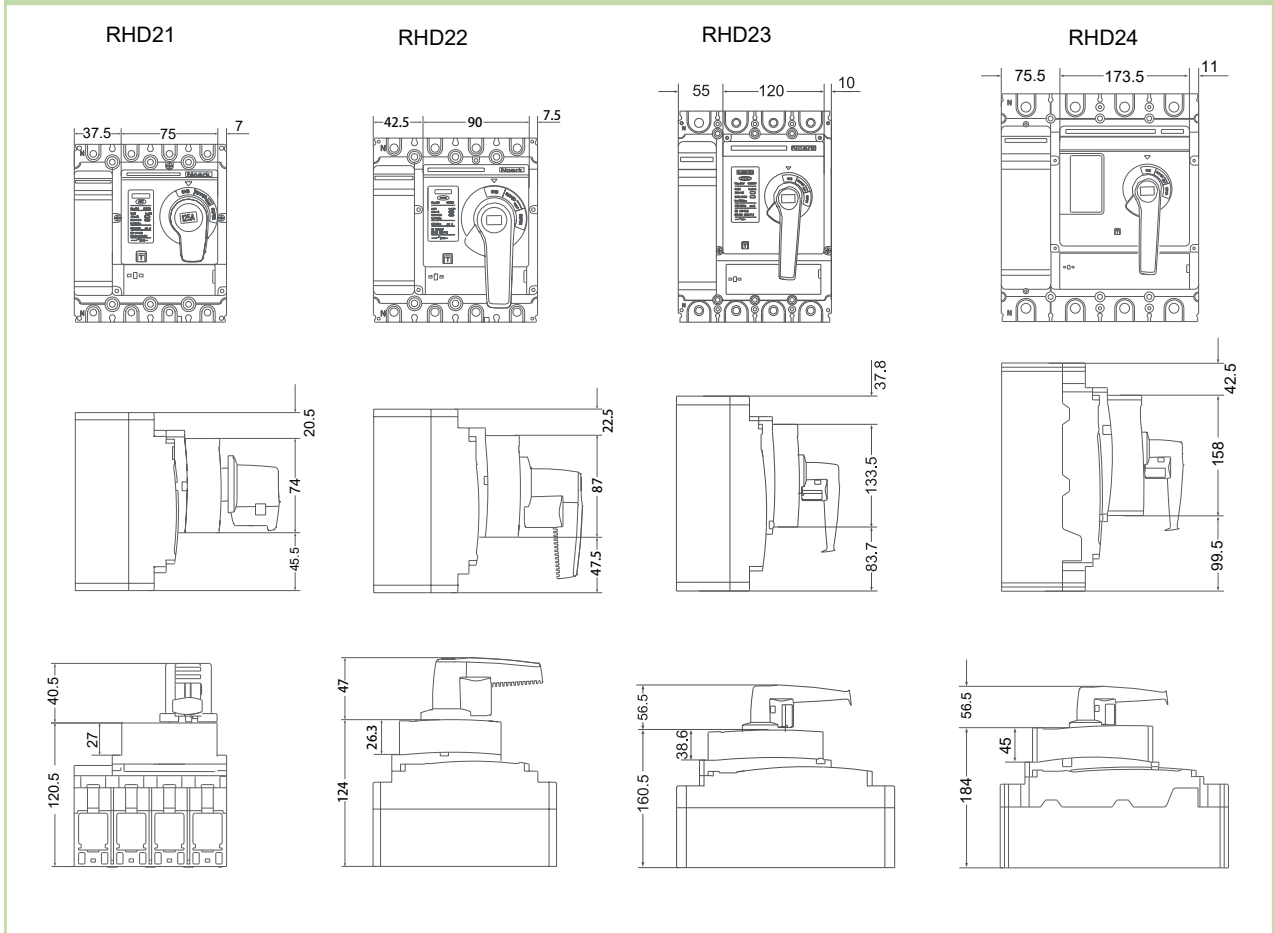
Electrical parameters

	RHD21	RHD22	RHD23	RHD24
Tested according to	IEC/EN 60947-3			
Degree of protection	IP40			

Mechanical parameters

	RHD21	RHD22	RHD23	RHD24
Suitable for	M1	M2	M3	M4, M5
Mechanical shock resistance	IK07			
Indication	connected breaker status ON-OFF-TRIP			
Mounting	directly onto breaker			
Toggle colour	grey			

Dimensions



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Accessories for Moulded Case Circuit Breakers Ex9M

Extended rotary handles ERH2i

General parameters

Rotary handle with extension shaft
Scope of delivery: mechanism block, extension shaft, rotary handle
Can be locked in ON and OFF position with up to three padlocks (not in the scope of delivery)
Extension shaft can be shortened
Possibility of longer extension shaft 500 mm (only the shaft as separated item)

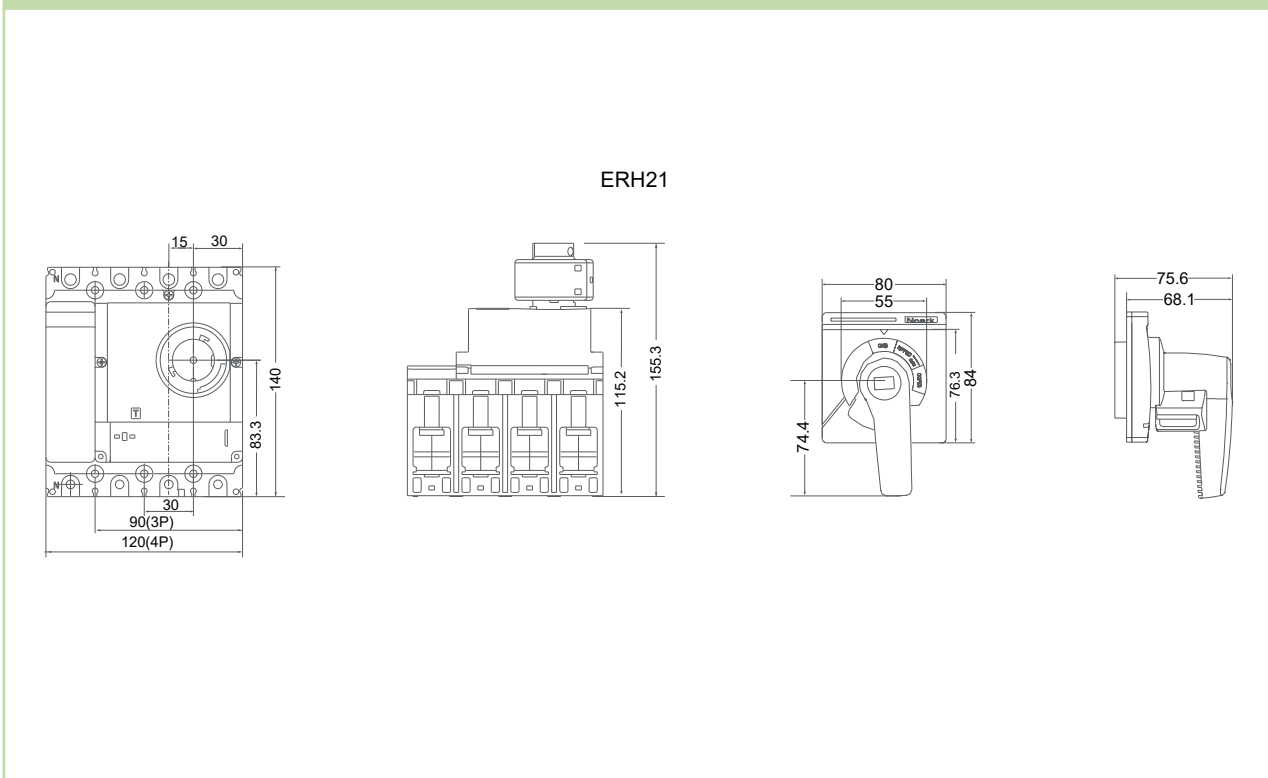
Electrical parameters

	ERH21	ERH22	ERH23	ERH24
Tested according to	IEC/EN 60947-3			
Degree of protection	IP54			

Mechanical parameters

	ERH21	ERH22	ERH23	ERH24
Suitable for	M1	M2	M3	M4, M5
Length of the extension shaft	300 mm	300 mm	300 mm	300 mm
Mechanical shock resistance	IK08			
Indication	connected breaker status ON-OFF-TRIP			
Mounting	directly onto breaker			
Toggle colour	grey			

Dimensions

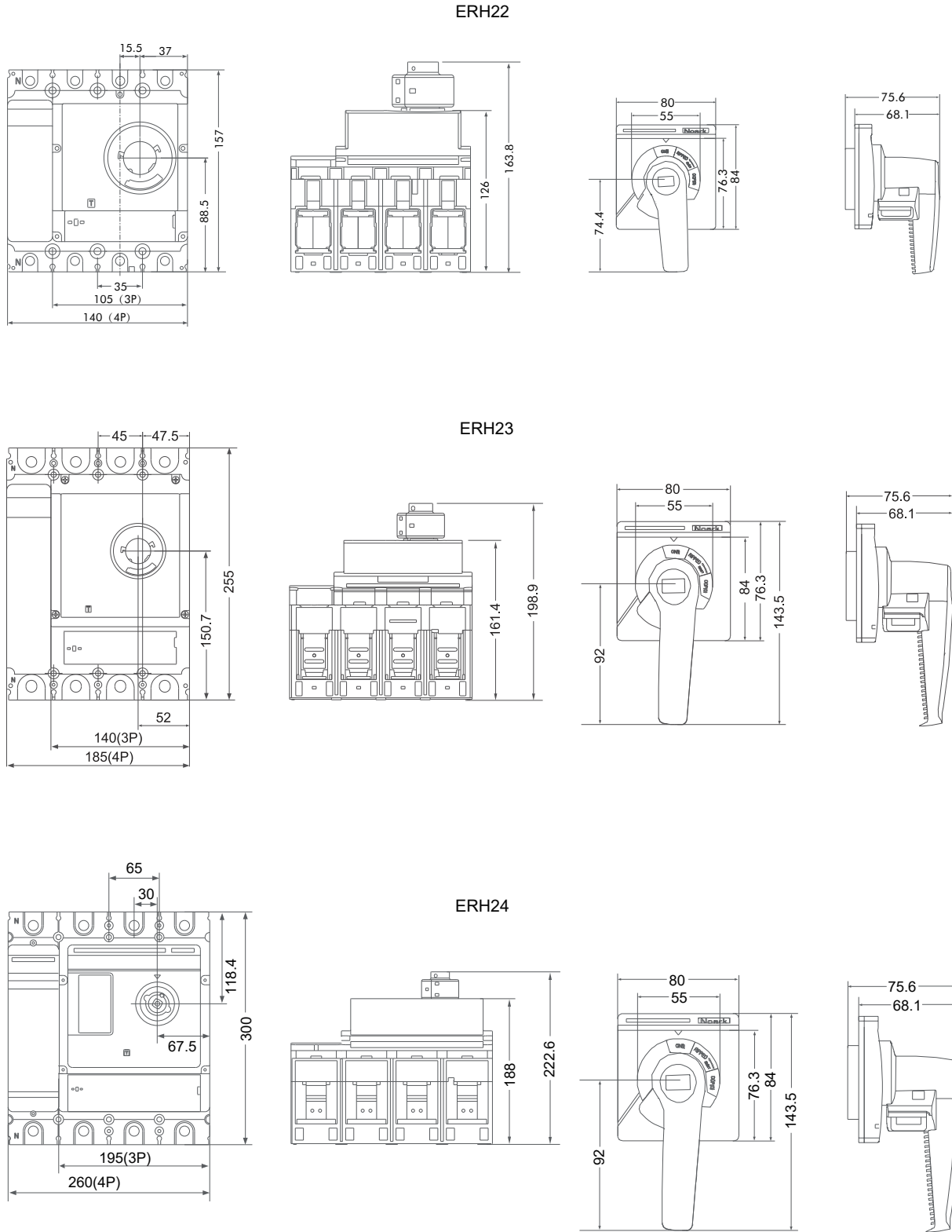


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Accessories for Moulded Case Circuit Breakers Ex9M

Extended rotary handles ERH2i

Dimensions



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Accessories for Moulded Case Circuit Breakers Ex9M

Remote motor operators MOD2i

General parameters

Motor drives for electrical and remote control of MCCBs

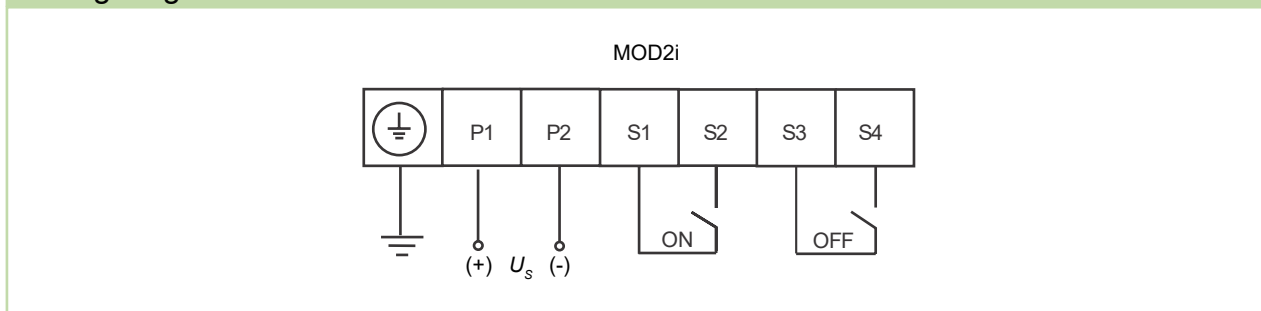
Electrical parameters

	MOD21	MOD22	MOD23	MOD24
Tested according to	IEC/EN 60947-1, IEC/EN 60947-5-1			
Rated operating voltage U_s (according to type)	230 V AC 110 V AC 220 V DC 110 V DC 24 V DC			
Rated frequency	50/60 Hz DC			
Power consumption	150 VA	150 VA	300 VA	300 VA
Total time to switch ON	75 ms	75 ms	1000 ms	1000 ms
Total time to switch OFF	500 ms	500 ms	1000 ms	1000 ms
Min. pulse duration for ON	300 ms	300 ms	300 ms	300 ms
Min. pulse duration for OFF	300 ms	300 ms	300 ms	300 ms
Max. pulse duration	limited by internal contact switch			

Mechanical parameters

	MOD21	MOD22	MOD23	MOD24
Suitable for	M1	M2	M3	M4, M5
Terminals	lift			
Terminal capacity	0.2 — 1.5 mm ²			
Mechanical service life	10 000 operation cycles		8 000 operation cycles	
Maximum frequency of switch. cycles	120 operating cycles per hour			

Wiring diagram

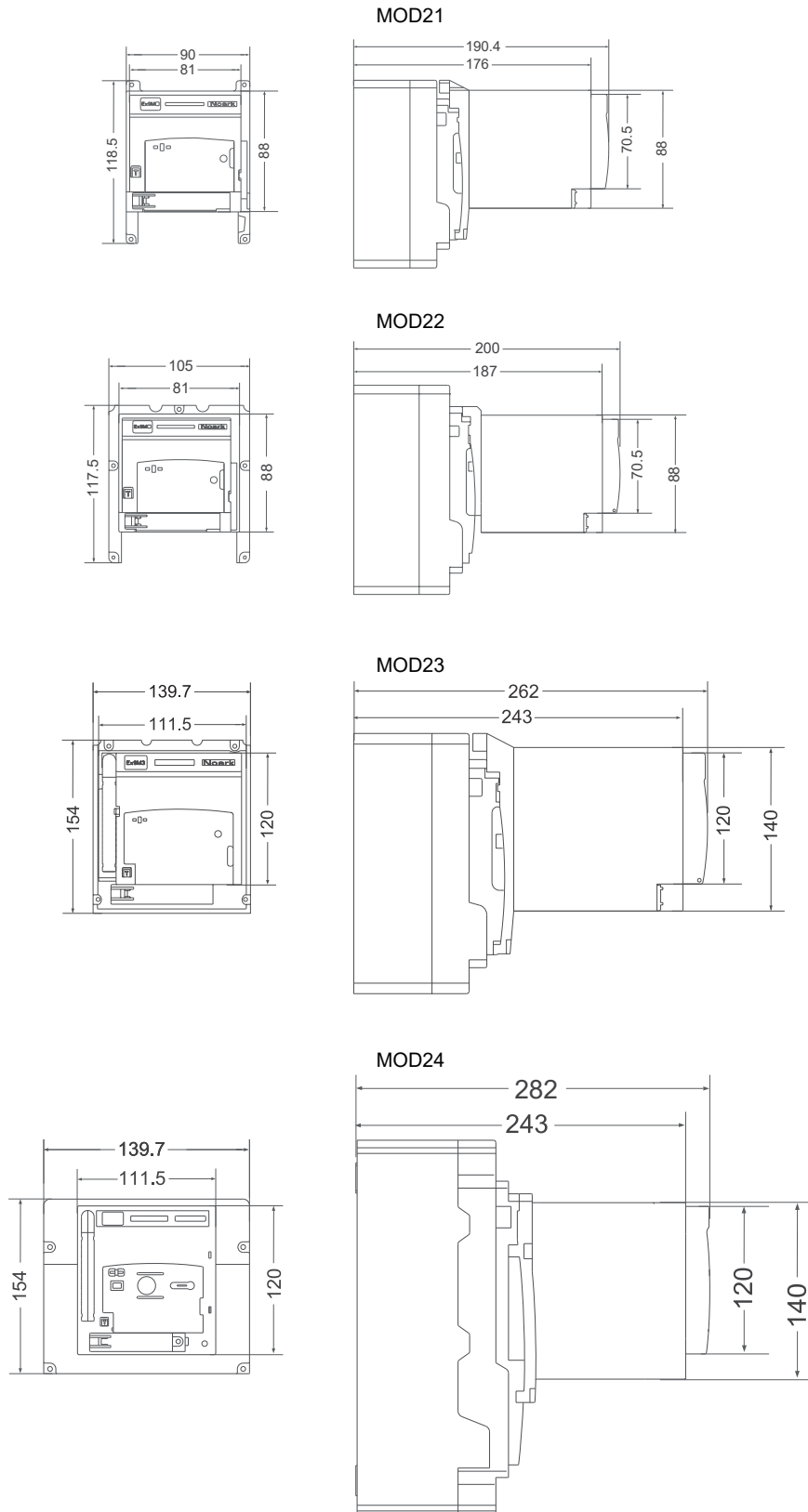


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Accessories for Moulded Case Circuit Breakers Ex9M

Remote motor operators MOD2*i*

Dimensions



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Accessories for Moulded Case Circuit Breakers Ex9M

Connection terminals MC2i

General parameters

Box and tunnel connection terminals for Ex9M MCCBs and MCCB based switch disconnectors

Versions suitable for all frame sizes

Screws in the scope of delivery

Mechanical parameters - box terminals

	MC21	MC22	MC23	MC23 UL
Suitable for	M1	M2	M3	M3
Terminal type	box			
Terminal capacity	4 — 95 mm ²	10 — 120 mm ²	120 — 240 mm ²	120 — 240 mm ²
Fastening torque of terminals	8 Nm	25 Nm	35 Nm	35 Nm

Drawings - box terminals



MC21(22)

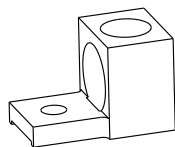


MC23

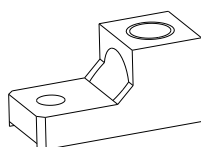
Mechanical parameters - tunnel terminals

	MC21 W	MC22 W	MC22 W2	MC22 W6	MC23 W2	MC23 W4	MC24 W2
Suitable for	M1	M2	M2	M2	M3	M3	M4, M5
Terminal type	tunnel						
Terminal capacity	1x 16 - 95 mm ²	1x 35 - 240 mm ²	2x 35 - 120 mm ²	6x 10 - 35 mm ²	2x 120 - 240 mm ²	4x 35 - 95 mm ²	2x 240 mm ²
Fastening torque of terminals (to MCCB)	10 - 15 Nm	15 Nm	15 Nm	15 Nm	35 Nm	35 Nm	35 Nm
Fastening torque of terminals (wires)	10 Nm	30 Nm	30 Nm	10 Nm	35 Nm	30 Nm	35 Nm

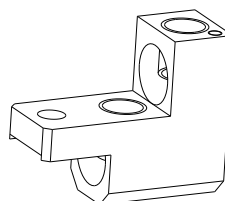
Drawings - tunnel terminals



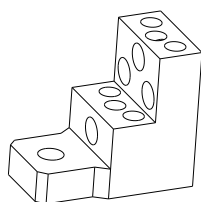
MC21 W



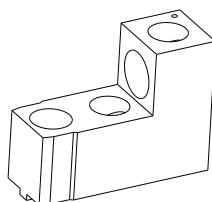
MC22 W



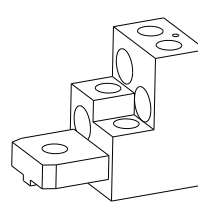
MC22 W2



MC22 W6



MC23 W2



MC23 W4

Technical Data Ex9M Accessories

Accessories for Moulded Case Circuit Breakers Ex9M

DIN-rail adaptors DRA2i

General parameters

Adaptors for mounting of MCCBs and MCCB Switch Disconnectors onto 35 mm device DIN-rail

Suitable for M1 and M2 frame sizes, 3P and 4P versions

Mechanical parameters

	DRA21	DRA22
Suitable for	M1	M2
Mounting	easy mounting onto 35 mm device rail (DIN)	

Drawings and dimensions

