



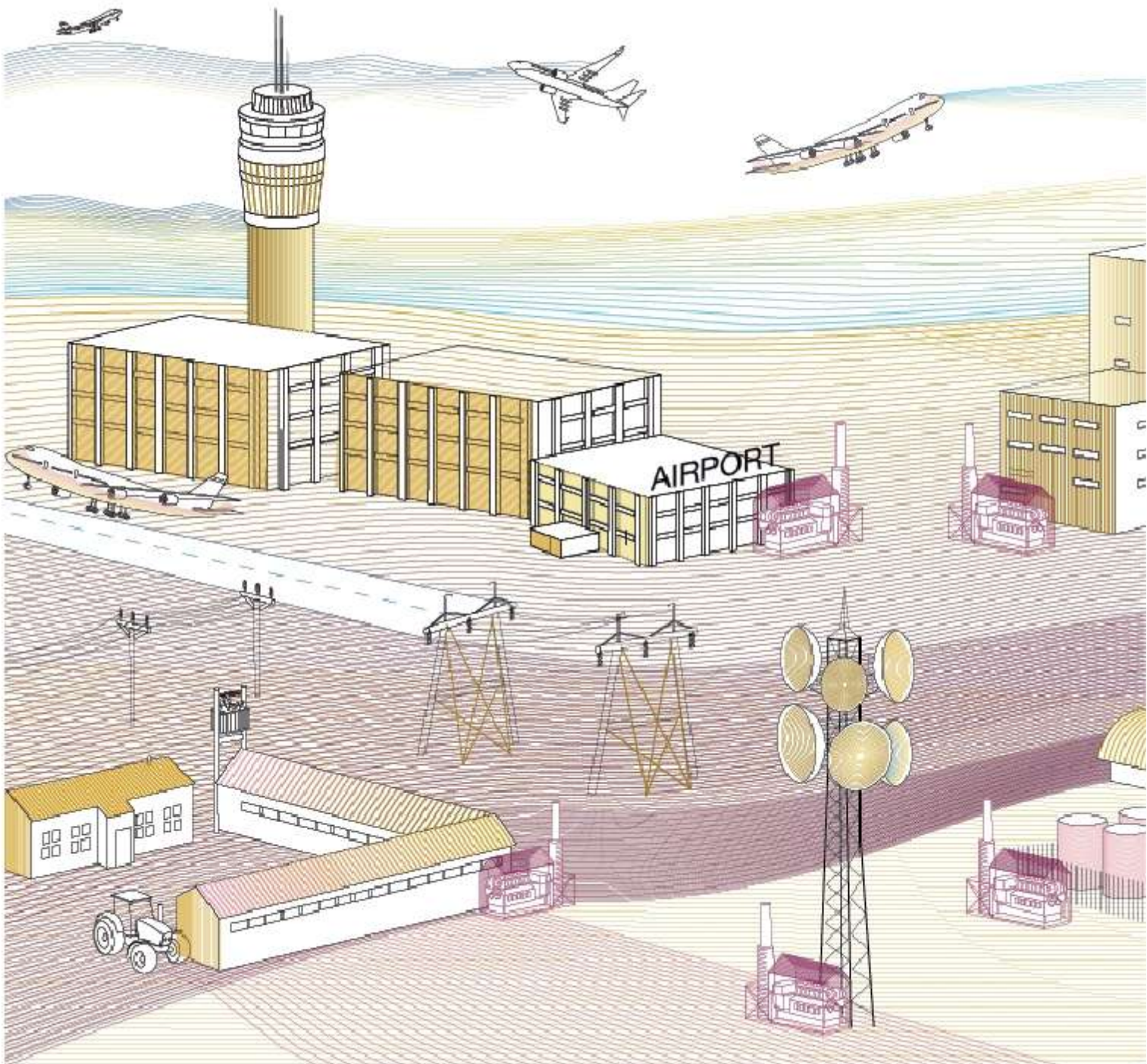
Low Voltage Products

Switches Automatic Transfer Switches

Growing importance of a secure power supply

Standby power is an integral part of many industrial and domestic electrical systems. High energy prices, energy demand increase and aging power systems have been the prime movers for the growth of standby power sources.

Every load that is connected to the grid and backed up by a generator set needs a transfer device for commutating the power sources when needed.

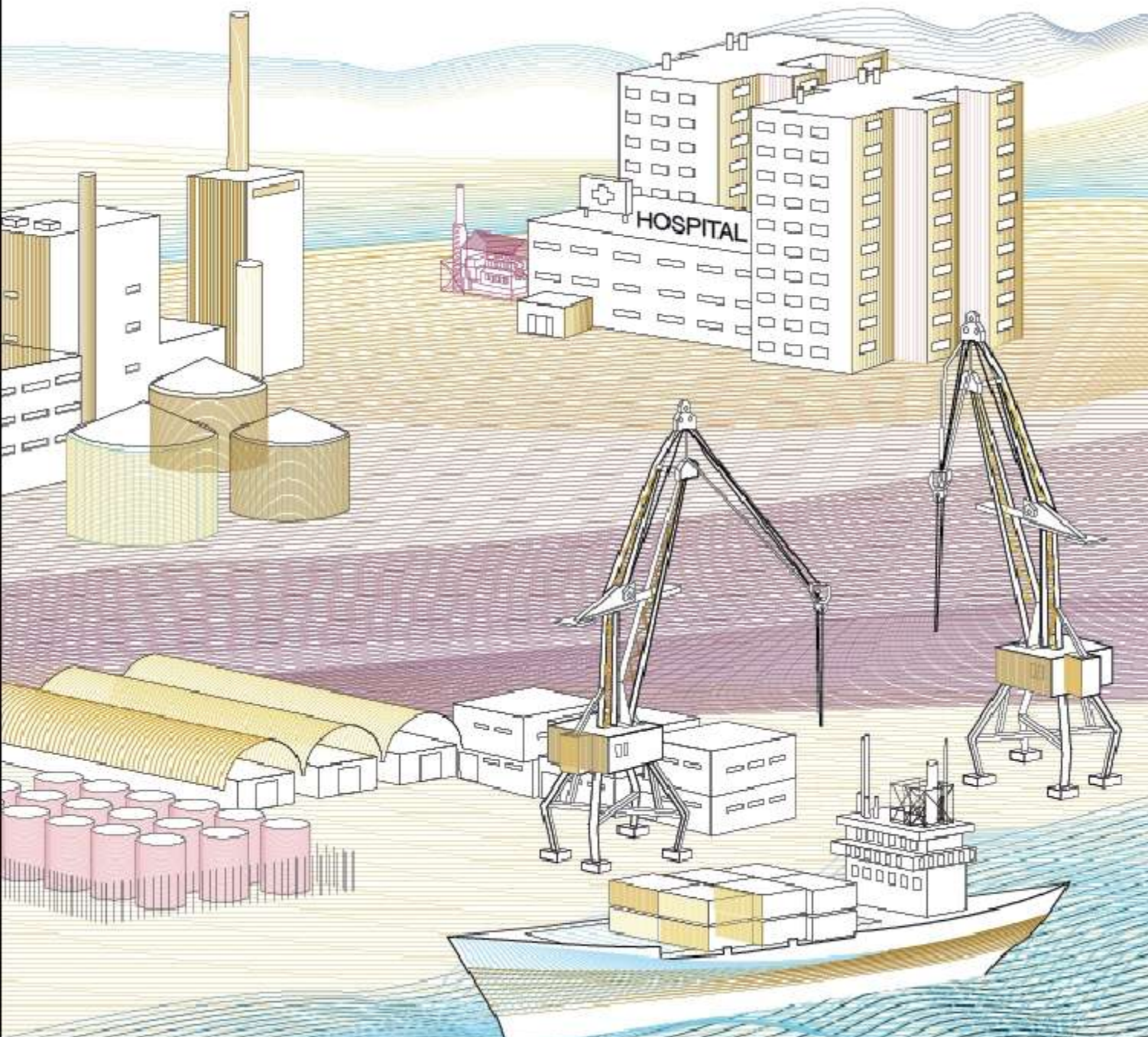


The World is full of potential applications

There are many different applications where transferring equipment is needed. The more critical the load is, the

more reliable must the ATSE (automatic transfer switching equipment) be. Only to mention a few applications which are secured with back-up power:

- Industrial plants
- Docks
- Telecommunication
- Farming
- Airports



Fully automatic solution

Our ATS range between 160 A and 1600 A includes sophisticated features in extremely compact footprint area without neglecting features that makes assembly easy and safe, every time.

Safe and reliable

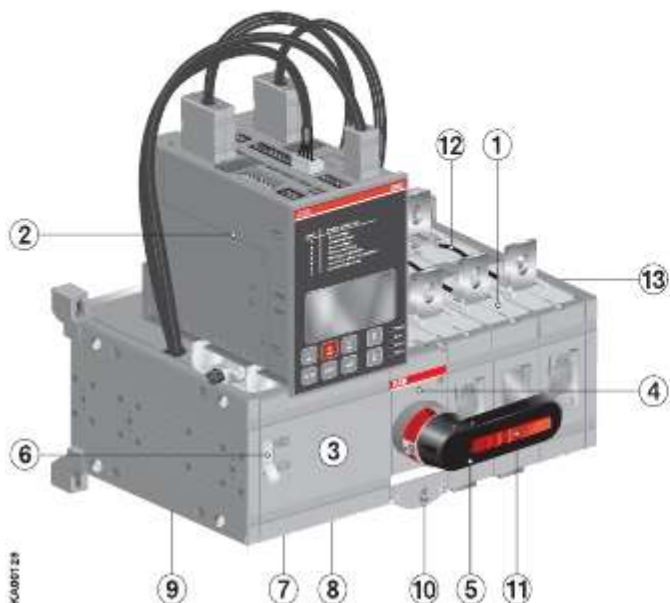
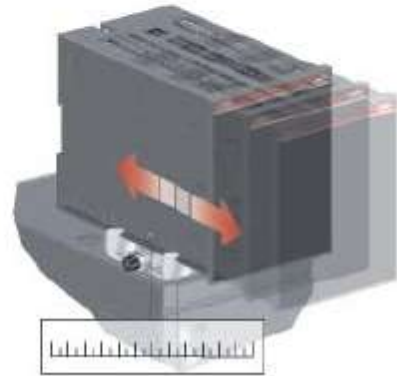
ABB automatic transfer switches ensure service continuity with a number of built-in, integrated safety features. The change-over mechanism, for example, offers three stable positions which ensure isolation of the two asynchronous power supplies. This eliminates any risk of short-circuit between them, even in the presence of transient voltages. The automatic transfer switch is equipped with handle for manual operation in case of emergency

Easy installation

The design of ABB automatic transfer switch is advanced and compact, allowing installation in confined spaces at considerable savings. They are very easy to install: The automatic control unit OMD_ can be adjusted according to the mounting depth of the panel. Voltage sensing kit is installed at the factory thus reducing the expensive and time-consuming installation work.

No more expensive repair work

The motor operator of the ATS is protected by a fuse. If the operation frequency is exceeded, the fuse protects the motor, thus saving it from expensive repair work.



- 1 Change-over switch
- 2 Automatic control unit (three types; OMD200, OMD300, OMD800)
- 3 Motor operator
- 4 Switch panel, the operating mechanism
- 5 Handle for manual operation
- 6 Motor/Manual selection
- 7 Terminals for motor operator voltage supply
- 8 Terminals for locking state information
- 9 Fuse of motor operator
- 10 Locking latch for releasing the handle and locking electrical control
- 11 Locking clip for locking manual operation
- 12 Voltage sensing wires
- 13 Place for auxiliary contact blocks

Automatic transfer switches 160 A to 1600 A, OTM_C_D



	OTM_C_2D	OTM_C_3D	OTM_C_8D
OTM_C_D products overview			
Manual operation with handle	X	X	X
Local operation with front panel keypad	X	X	X
Automatic transfer switching equipment (ATSE)	X	X	X
Dual power source for the motor operator ¹⁾	O	X	O
Measurement			
Three phase voltage measurement on LINE 1	X	X	X
Single phase voltage measurement on LINE 1	X	X	X
Three phase voltage measurement on LINE 2	X	X	X
Single phase voltage measurement on LINE 2	X	X	X
Frequency on LINE 1	X	X	X
Frequency on LINE 2	X	X	X
Possibility to check the measurements via LCD			X
Configuration ²⁾			
By DIP switches	X	X	
By rotary switches	X	X	
By keypad and LCD			X
Voltage threshold setting	X	X	X
Frequency threshold setting			X
Time delays			
Switching delay	X ³⁾	X ³⁾	X
Dead band time I-II			X
Back-switching delay	X ³⁾	X ³⁾	X
Dead band time II-I			X
Generator stop delay	X ⁴⁾	X ⁴⁾	X
Line priority			X
Features			
Generator start and stop	X	X	X
Off-load test sequence	X	X	X
On-load test sequence	X	X	X
Source status via front panel	X	X	X
Switch position via front panel	X	X	X
LCD ⁵⁾			X
Fieldbus interface ⁶⁾			X
Secondary load control			X
Alarm log			X
Counter for number of operations			X
Auxiliary voltage supply ⁷⁾			X
Applications			
Transfer between two utilities	X	X	X
Transfer between an utility and a genset	X	X	X

¹⁾ Dual power source allows the motor operator to be supplied by two separate voltage supplies.

This way the motor operator is always energized from the available line.

²⁾ Consult us for more detailed information

³⁾ OTM_C_2D and OTM_C_3D, the duration of Switching and Back-switching delays is the same, i.e. the time delay is same for I - II and II - I.

⁴⁾ OTM_C_2D and OTM_C_3D, Generator stop delay has two values; the same as Switching delay or 5 min.

⁵⁾ Menus available in six languages; English, French, German, Italian, Spanish and Finnish.

⁶⁾ Bus communication protocol is Modbus

⁷⁾ In case of source failure, the OMD controller unit can be supplied with an external auxiliary supply with 24...110 V DC.

x = included as standard

o = as an accessory

Automatic transfer switches

Technical data

Automatic transfer switches

Data according to IEC 60947-3

		Switch size		OTM160	OTM200
Rated insulation voltage and rated operational voltage AC20/DC20		Pollution degree 3	V	1000	1000
Dielectric strength		50 Hz 1min.	kV	10	10
Rated impulse withstand voltage			kV	12	12
Rated thermal current and rated operational current AC20/DC20 / ambient 40°C		In open air	A	160	200
/ ambient 40°C		In enclosure	A	160	200
..with minimum conductor cross section		Cu	²	70	95
Rated operational current, AC-21A		up to 415 V	A	160	200
Rated operational current, AC-22A		up to 415 V	A	160	200
Rated operational current, AC-23A		up to 415 V	A	160	200
Rated breaking capacity in category AC-23		up to 415 V	A	1 280	1 600
Rated conditional short-circuit current I_b (r.m.s.) and cut-off current \hat{i}_c (peak) value ²⁾		I_b (r.m.s.) 80 kA, 415 V Max. OFA_ fuse size	\hat{i}_c (peak) gG/aM	kA A/A	40.5 355/315
Rated short-time withstand current		I_{cw} (r.m.s)	415 V 1s	kA	8
Rated short-time making capacity ³⁾		I_{cm} (peak) ⁴⁾	415 V	kA	30
Mechanical endurance		Number of oper. cycles ¹⁾	Cycles	8 000	8 000
Mechanical endurance / switch		Number of operations	Oper.	16 000	16 000
Terminal tightening torque		Counter torque required	Nm	15-22	15-22
Operating torque		Typical for 3-pole switches	Nm	7	7
Weight without accessories		3-pole switch	kg	7.1	7.1
		4-pole switch	kg	7.7	7.7

Data according to IEC 60947-6-1

Class of equipment				PC	PC	
Rated short-time withstand current		I_{cw} (r.m.s.)	415 V 0.1s	kA	15	15
Rated operational current, AC-31B			up to 415 V	A	160	200
Rated operational current, AC-33B			up to 415 V	A	160	200

¹⁾ Operating cycle: O - I - O - II - O

²⁾ The cut-off current \hat{i}_c refers to the values listed by fuse manufacturers (single phase test acc. to IEC 60269)

³⁾ Short circuit duration >50ms, without fuse protection

⁴⁾ Max. distance from switch frame to nearest busbar / cable support 150 mm

Automatic transfer switches

Technical data

OTM250	OTM315	OTM400	OTM630	OTM800	OTM1000	OTM1250	OTM1600
1000	1000	1000	1000	1000	1000	1000	1000
10	10	10	10	10	10	10	10
12	12	12	12	12	12	12	12
250	315	400	630	800	1000	1000	1000
250	315	400	630	800			
120	185	240	2 x 185	2x240	2x300	2x300	2x600
250	315	400	630	800	1000	1250	1600
250	315	400	630	800	1000	1250	1600
250	315	400	630	800	1000	1250	1250
2 000	2 520	3 200	5 040	6 400	10 000	10 000	10 000
40.5	59	59	83.5	83.5	100	100	100
355/315	500/500	500/500	800/1 000	800/1 000	1250/1250	1250/1250	1250/1250
8	15	15	20	20	50	50	50
30	65	65	80	80	92	92	92
8 000	8 000	8 000	5 000	5 000	3 000	3 000	3 000
16 000	16 000	16 000	10 000	10 000	6 000	6 000	6 000
15-22	30-44	30-44	50-75	50-75	50-75	50-75	50-75
7	16	16	27	27	80	80	80
7.1	10.3	10.3	19.1	19.1	43.5	43.5	45.6
7.7	11.5	11.5	21.7	21.7	51.5	51.5	53.6
PC	PC	PC	PC	PC	PC	PC	PC
15	25	25	38	38	50	50	50
250	315	400	650	720	1000	1250	1600
250	315	400	650	650	1000	1000	1000

Automatic transfer switches

Technical data

Automatic transfer switch OTM_C_D, power circuit

Automatic transfer switch, main circuit	Value
OTM_C2D_ (OMD200)	
Rated operational voltage U_e	208 - 415 V AC +/- 20 % + N
Phase - neutral	120 - 240 V AC +/- 20 %
Rated frequency	50 / 60 Hz +/- 10 %
Rated impulse withstand voltage U_{imp}	6 kV
OTM_C3D_ (OMD300)	
Rated operational voltage U_e	208 - 415 V AC +/- 20 % + N
Phase - neutral	120 - 240 V AC +/- 20 %
Rated frequency	50 / 60 Hz +/- 10 %
Rated impulse withstand voltage U_{imp}	6 kV
OTM_C8D_ (OMD800)	
Rated operational voltage U_e	100 - 415 V AC +/- 20 %
Phase - neutral	57.7 - 240 V AC +/- 20 %
Rated frequency	50 / 60 Hz +/- 10 %
Rated impulse withstand voltage U_{imp}	6 kV
AUX voltage, if voltage 57.7 - 109 V AC	24 V DC - 110 V DC (-10 to 15 %)
Operating temperature	-5 ... +40°C
Transportation and storage temperature	-40 ... +70°C
Altitude	Max.2000m

Automatic transfer switches

Technical data

Motor operator, control circuit

Motor operator, control circuit			OTM160...250	OTM315...400	OTM630...800	OTM1000...1600
Rated operational voltage U [V]	Pollution degree 3	50/60 Hz	220 - 240 V AC			
Operating voltage range						0,8...1,2 x U _e
Operating times						See the table below
Nominal current I _n ^{a)}	A		0.2	0.5	0.7	1.8
Current Inrush ^{a)}	A		1.3	2.1	2.8	7.7
Overload fuse	Type / In / Capacity mA		T / 315 / H	T / 500 / H	T / 1000 / H	T / 2000 / H
	Size		5x20	5x20	5x20	5x20
Operating rate	Cycle 0 - I - 0 - II - 0					
	Max. continuous	cycles / min	1	1	1	1
	Max. short-time	cycles / min	10	10	10	10
	≤ 10 cycles	min				
Overvoltage category						III
Rated impulse withstand voltage	e U _{imp}	kV	4			
Dielectric strength	50 Hz 1 min.	kV	1.5			
Terminals						
Voltage supply wiring for U						PE - N - L
Cross section	solid/stranded	mm ²	1.5 - 2.5			
Short-circuit protection device max.fuse size	A		16			
State information of locking						no SELV
Cross section	solid/stranded	mm ²	1.5 - 2.5			
Handle attached or motor operator locked	11-12-14 (C/O)		5A/250V/cos ϕ =1			
Locking motor operator	23-24 (NO)		5A/250V/cos ϕ =1			
Short-circuit protection device						C/2A

Operating times

Type	Operating transfer time ^{a)}	Total transfer time ^{a) b)}	OFF-time when operating ^{a)}
	I - II, II - I [s]	I - II, II - I [s]	I - II, II - I [s]
OTM160...250_C_2D230C	2.0 - 4.0	2.0 - 35.0	0.4 - 1.0
OTM160...250_C_3D230C	2.0 - 4.0	2.0 - 35.0	0.4 - 1.0
OTM160...250_C_8D230C	1.5 - 3.0	1.5 - 35.0	0.4 - 1.0
OTM315...400_C_2D230C	2.0 - 5.0	2.0 - 35.0	0.4 - 1.0
OTM315...400_C_3D230C	2.0 - 5.0	2.0 - 35.0	0.4 - 1.0
OTM315...400_C_8D230C	1.5 - 3.0	1.5 - 35.0	0.4 - 1.0
OTM630...800_C_2D230C	2.0 - 5.0	2.0 - 35.0	0.4 - 1.0
OTM630...800_C_3D230C	2.0 - 5.0	2.0 - 35.0	0.4 - 1.0
OTM630...800_C_8D230C	1.5 - 3.0	1.5 - 35.0	0.4 - 1.0
OTM1000...1600_C_2D230C	3.0 - 6.0	3.0 - 36.0	0.6 - 1.5
OTM1000...1600_C_3D230C	3.0 - 6.0	3.0 - 36.0	0.6 - 1.5
OTM1000...1600_C_8D230C	2.5 - 4.0	2.5 - 35.0	0.6 - 1.5

^{a)} Under nominal conditions

^{b)} Ts (switching delay) 0s (Min) - Ts 30s (Max)

Automatic transfer switches

Ordering information



OTM400E4C3D230C



OTM800E4C2D230C



OTM1250E4C3D230C

Automatic transfer switches, I - O - II operation, open transition

Including a handle for manual operation, PCB connectors, bolt kit with nuts and washers for all terminals.

Types OTM160...1600_C_D_, including a voltage sensing kit on the top of the switch.

Consult us for types where the voltage sensing kit is on the bottom of the switch.

Types OTM160...250_WC_D_ are equipped with extended phase distance.

Number of poles	Rated current ¹⁾ AC-21A... AC-22A Up to 415 V I [A]	Rated power 400V S[kVA]	Rated current AC-31B / AC-33B Up to 415V I [A]	Type	Order number	Weight [kg]
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Automatic operation, equipped with OMD200 controller unit

Motor operator voltage U_e = 220-240 V AC ¹⁾

4	160	110	160/160	OTM160E4C2D230C	1SCA106230R1001	11
4	160	110	160/160	OTM160E4WC2D230C	1SCA101033R1001	11
4	200	135	200/200	OTM200E4C2D230C	1SCA106671R1001	11
4	200	135	200/200	OTM200E4WC2D230C	1SCA101034R1001	11
4	250	170	250/250	OTM250E4C2D230C	1SCA101016R1001	11
4	250	170	250/250	OTM250E4WC2D230C	1SCA101035R1001	11
4	315	215	315/315	OTM315E4C2D230C	1SCA101059R1001	15
4	400	275	400/400	OTM400E4C2D230C	1SCA101060R1001	15
4	630	435	650/650	OTM630E4C2D230C	1SCA108434R1001	37
4	800	550	720/650	OTM800E4C2D230C	1SCA108439R1001	37
4	1000	680	1000/1000	OTM1000E4C2D230C	1SCA112858R1001	66
4	1250	850	1250/1000	OTM1250E4C2D230C	1SCA112857R1001	66
4	1600	1000	1600/1000	OTM1600E4C2D230C	1SCA112854R1001	70

Automatic operation, equipped with OMD300 controller unit

Including dual power source for the motor operator.

Motor operator voltage U_e = 220-240 V AC ¹⁾

4	160	110	160/160	OTM160E4C3D230C	1SCA106305R1001	11
4	160	110	160/160	OTM160E4WC3D230C	1SCA106306R1001	11
4	200	135	200/200	OTM200E4C3D230C	1SCA106309R1001	11
4	200	135	200/200	OTM200E4WC3D230C	1SCA106310R1001	11
4	250	170	250/250	OTM250E4C3D230C	1SCA106313R1001	11
4	250	170	250/250	OTM250E4WC3D230C	1SCA106314R1001	11
4	315	215	315/315	OTM315E4C3D230C	1SCA106317R1001	15
4	400	275	400/400	OTM400E4C3D230C	1SCA106318R1001	15
4	630	435	650/650	OTM630E4C3D230C	1SCA108726R1001	37
4	800	550	720/650	OTM800E4C3D230C	1SCA108728R1001	37
4	1000	680	1000/1000	OTM1000E4C3D230C	1SCA112852R1001	66
4	1250	850	1250/1000	OTM1250E4C3D230C	1SCA112851R1001	66
4	1600	1000	1600/1000	OTM1600E4C3D230C	1SCA112848R1001	70

¹⁾ Under nominal conditions

Automatic transfer switches

Ordering information



OTM250E3C8D230C



OTM400E4C8D230C



OTM1600E3C8D230C

Automatic transfer switches, I - O - II operation, open transition

Including a handle for manual operation, PCB connectors, bolt kit with nuts and washers for all terminals.

Types OTM160...1600_C_D_, including a voltage sensing kit on the top of the switch.

Consult us for types where the voltage sensing kit is on the bottom of the switch.

Types OTM160...250_WC_D_ are equipped with extended phase distance.

Number of poles	Rated current ¹⁾ AC-21A... AC-22A Up to 415 V I [A]	Rated power 400V S[kVA]	Rated current AC-31B / AC-33B Up to 415V I [A]	Type	Order number	Weight [kg]
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Automatic operation, equipped with OMD800 controller unit

Motor operator voltage $U_o = 220-240$ V AC¹⁾

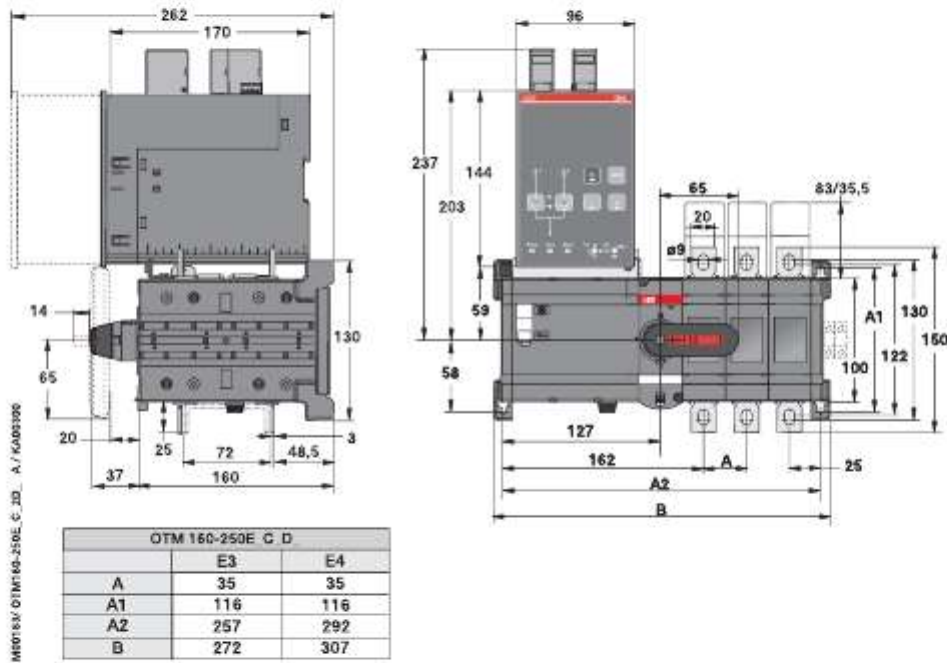
3	160	110	160/160	OTM160E3C8D230C	1SCA101017R1001	10
3	160	110	160/160	OTM160E3WC8D230C	1SCA101036R1001	10
4	160	110	160/160	OTM160E4C8D230C	1SCA101020R1001	11
4	160	110	160/160	OTM160E4WC8D230C	1SCA101039R1001	11
3	200	135	200/200	OTM200E3C8D230C	1SCA101018R1001	10
3	200	135	200/200	OTM200E3WC8D230C	1SCA101037R1001	10
4	200	135	200/200	OTM200E4C8D230C	1SCA101021R1001	11
4	200	135	200/200	OTM200E4WC8D230C	1SCA101040R1001	11
3	250	170	250/250	OTM250E3C8D230C	1SCA101019R1001	10
3	250	170	250/250	OTM250E3WC8D230C	1SCA101038R1001	10
4	250	170	250/250	OTM250E4C8D230C	1SCA101022R1001	11
4	250	170	250/250	OTM250E4WC8D230C	1SCA101041R1001	11
3	315	215	315/315	OTM315E3C8D230C	1SCA101062R1001	14
4	315	215	315/315	OTM315E4C8D230C	1SCA101063R1001	15
3	400	275	400/400	OTM400E3C8D230C	1SCA101061R1001	14
4	400	275	400/400	OTM400E4C8D230C	1SCA101064R1001	15
3	630	435	650/650	OTM630E3C8D230C	1SCA108452R1001	34
4	630	435	650/650	OTM630E4C8D230C	1SCA108453R1001	37
3	800	550	720/650	OTM800E3C8D230C	1SCA108454R1001	34
4	800	550	720/650	OTM800E4C8D230C	1SCA108455R1001	37
3	1000	680	1000/1000	OTM1000E3C8D230C	1SCA112868R1001	57
4	1000	680	1000/1000	OTM1000E4C8D230C	1SCA112861R1001	66
3	1250	850	1250/1000	OTM1250E3C8D230C	1SCA112862R1001	57
4	1250	850	1250/1000	OTM1250E4C8D230C	1SCA112864R1001	66
3	1600	1000	1600/1000	OTM1600E3C8D230C	1SCA112866R1001	60
4	1600	1000	1600/1000	OTM1600E4C8D230C	1SCA112867R1001	70

¹⁾ Under nominal conditions

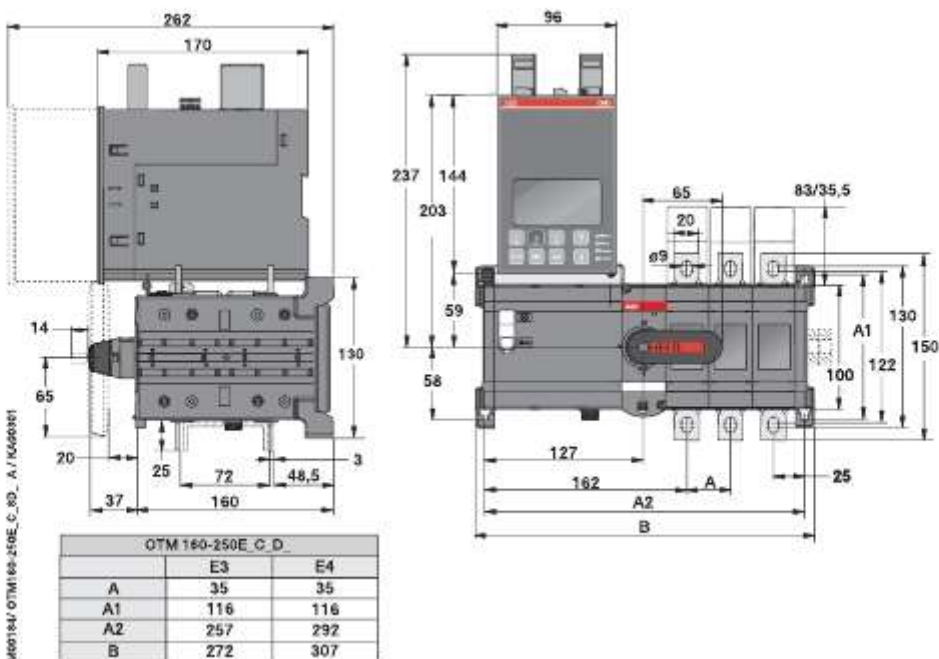
Automatic transfer switches

Dimension drawings

OTM160-250E_C_2D_, OTM160-250E_C_3D_

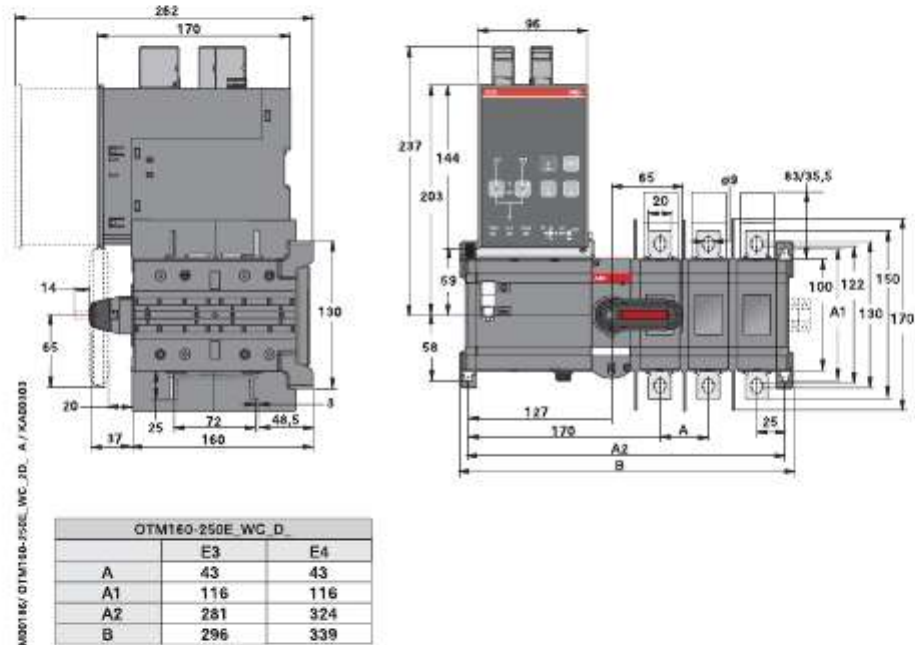


OTM160-250E_C_8D_

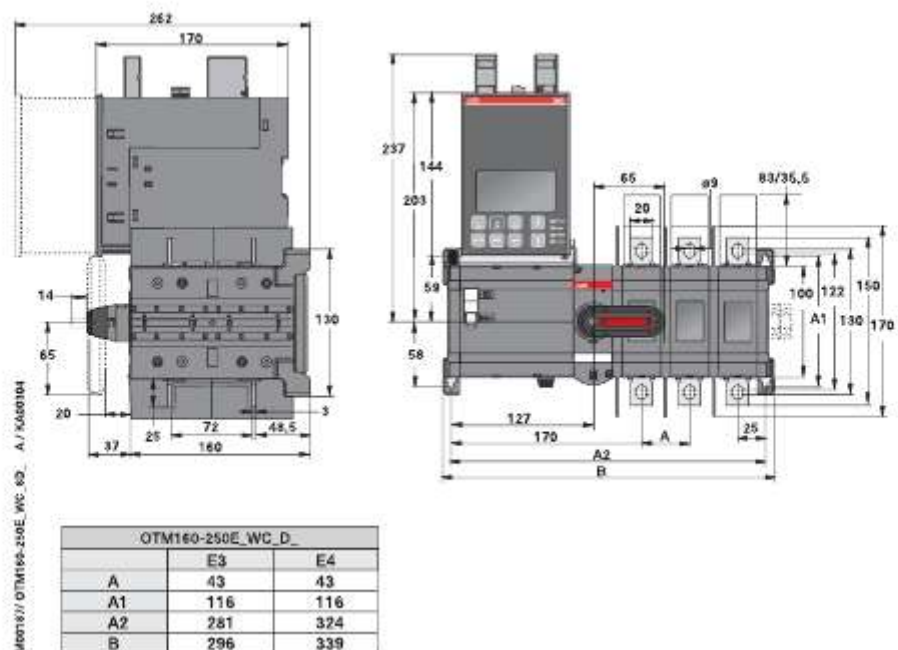


Automatic transfer switches Dimension drawings

OTM160-250E_CW_2D_, OTM160-250E_CW_3D_



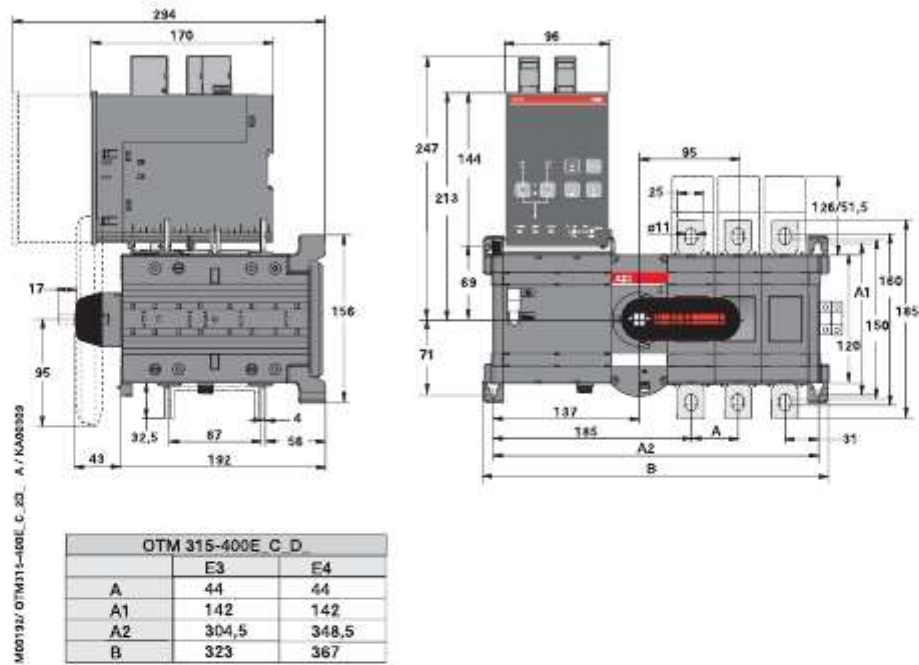
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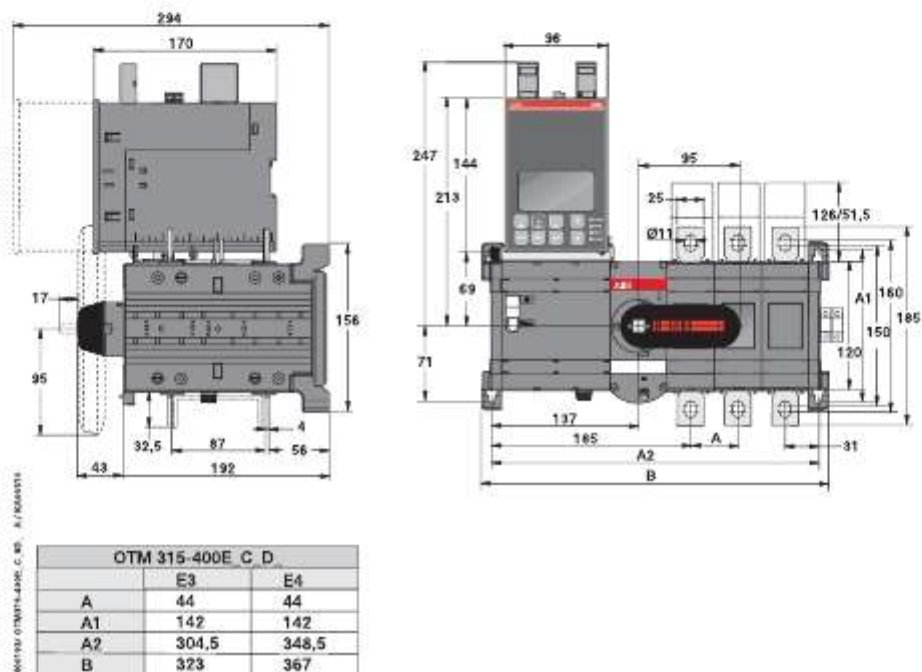
Automatic transfer switches

Dimension drawings

OTM315-400E_C_2D_, OTM315-400E_C_3D



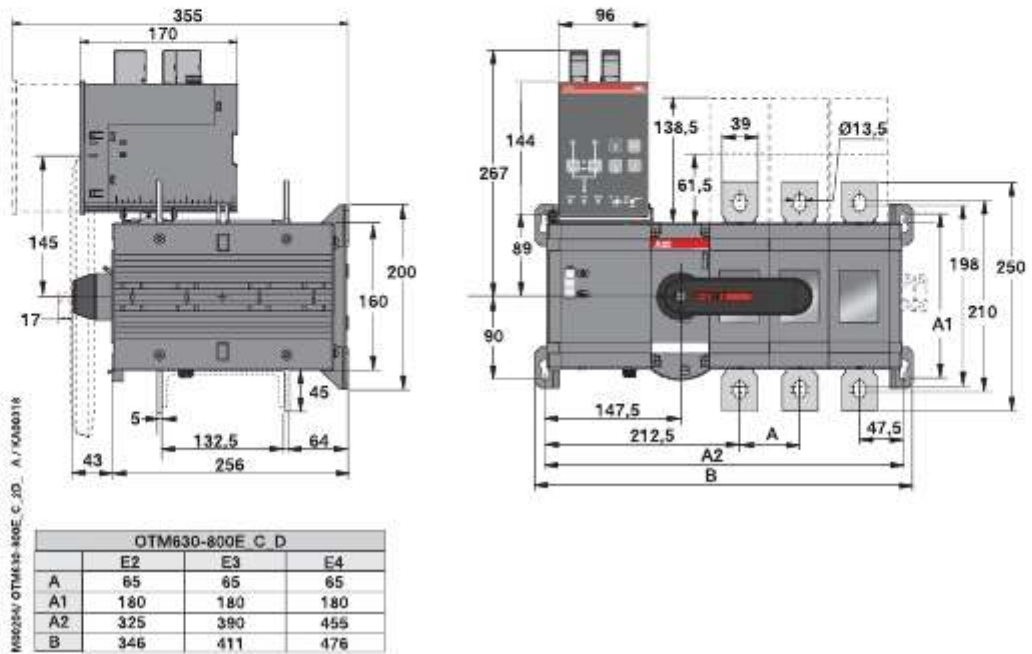
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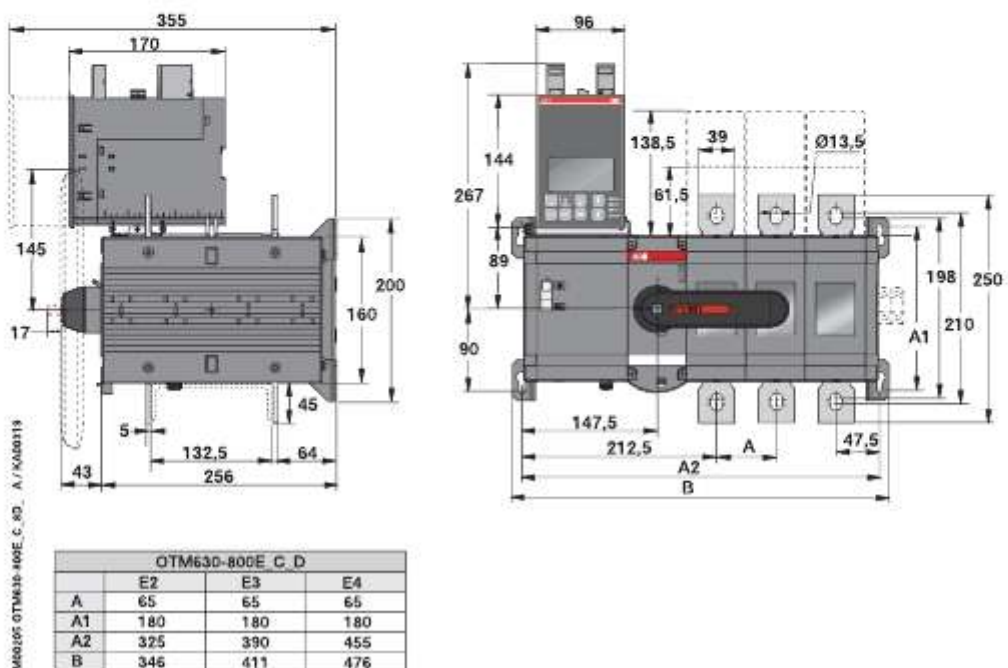
Automatic transfer switches

Dimension drawings

OTM630-800E_C_2D_, OTM630-800E_C_3D_



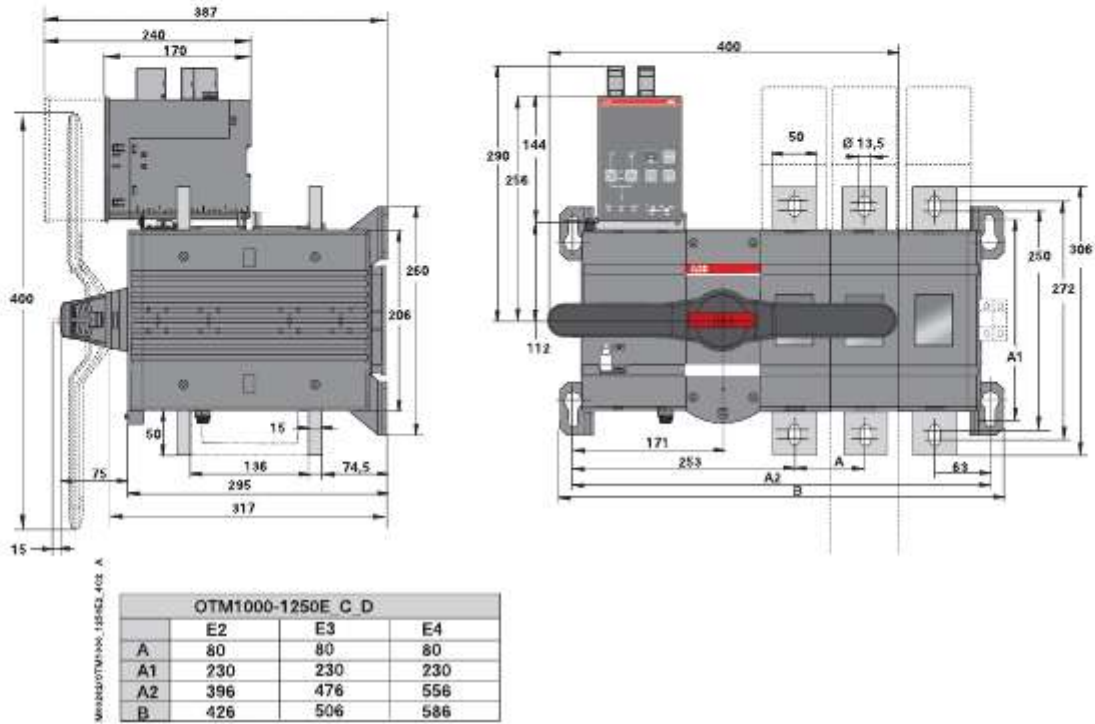
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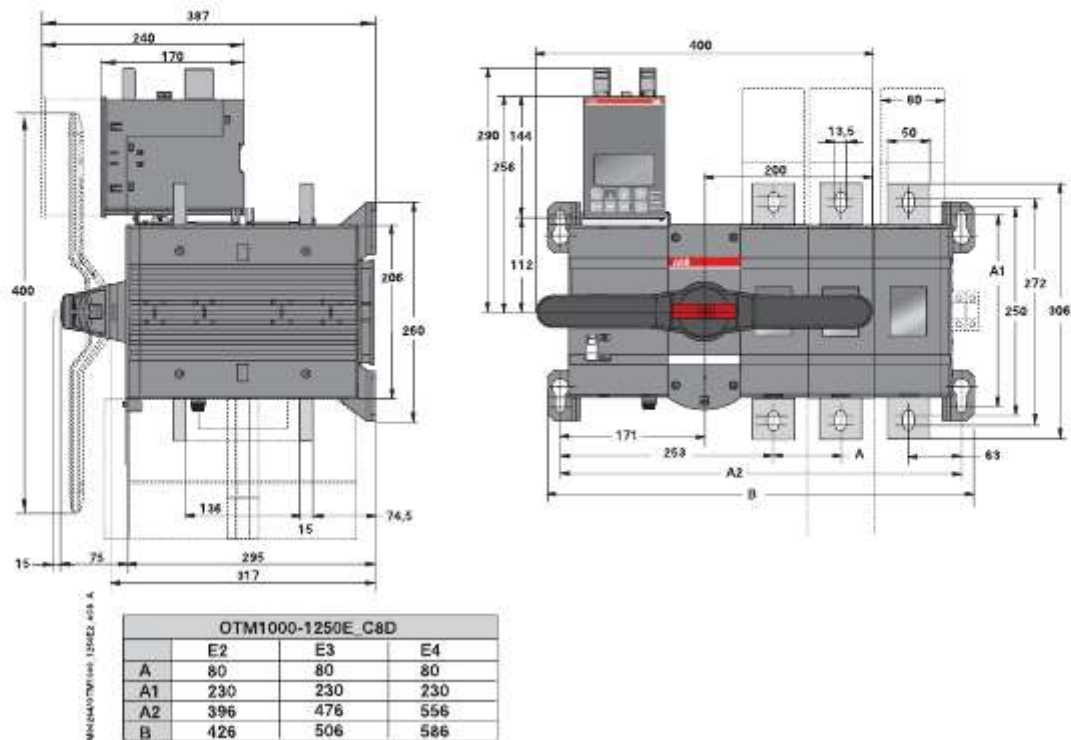
Automatic transfer switches

Dimension drawings

OTM1000-1250E_C2D_, OTM1000-1250E_C3D_

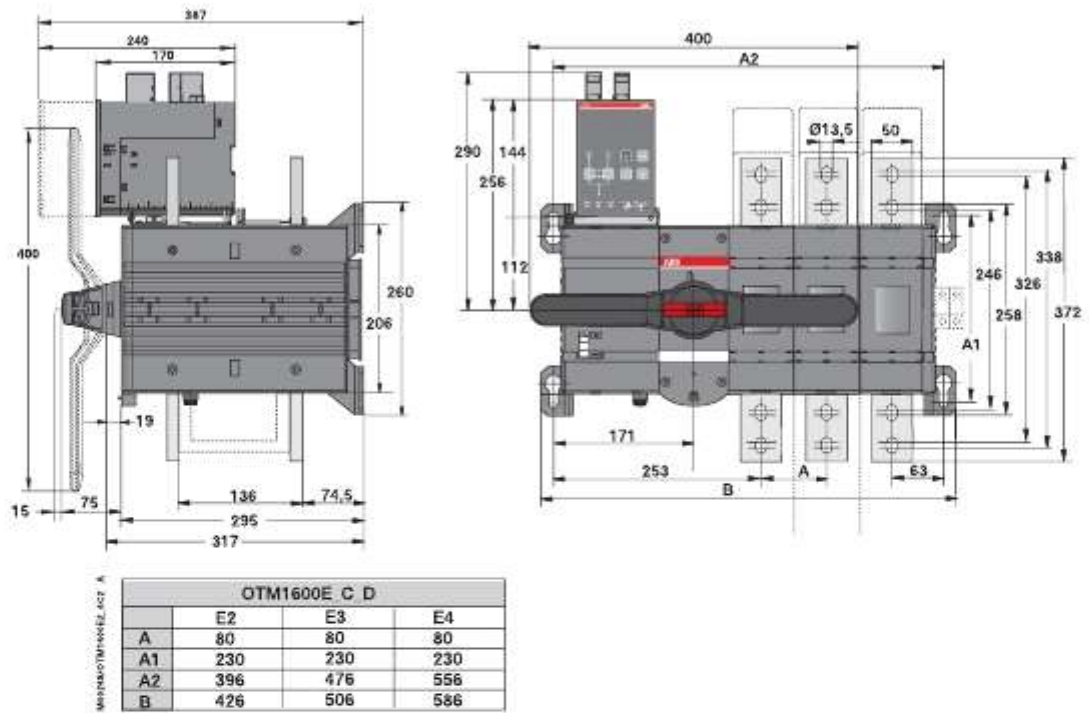


OTM1000-1250E_C_8D

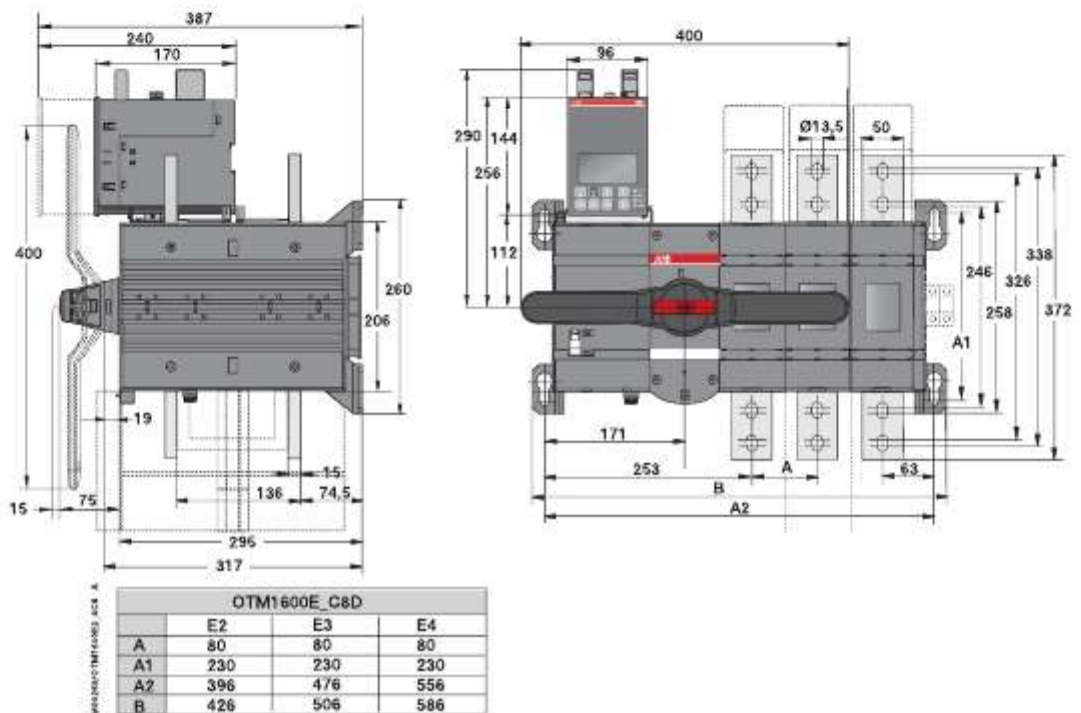


Automatic transfer switches Dimension drawings

OTM1600E_C2D_, OTM1600E_C3D_



OTM1600E_C8D_



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