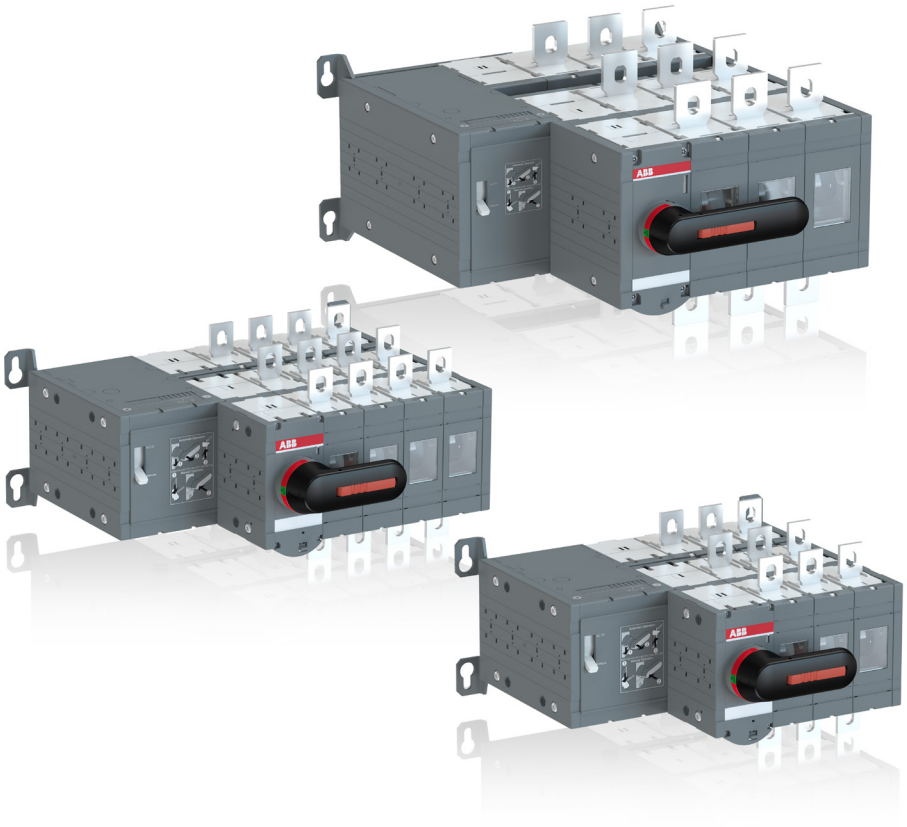
Motorized bypass switches
Space saving solution



Our new range of motorized bypass switches from 160 to 800 Amperes is the best solution for an optimized and efficient panel design, for safe maintenance of critical components.

Innovative and compact design

The traditional way to create a bypass solution is to use three switches or similar devices, with a mechanical interlock. Instead of that, our motorized bypass switches combine all of these elements into one single 66% more compact product. This enables our customers to create more compact panels, with a more optimized design.

Safe operation and maintenance

ABB's bypass switches fulfill isolating requirements according to standard IEC 60947-3, so there is no need for additional isolating devices. The equipment can be safely maintained while the load is being supplied directly from the source.

Technical data
Motorized bypass switches
OTM160...800_Y_

Motorized bypass switches

Data according to IEC 60947-3

Rated insulation voltage and rated operational voltage AC20/DC20[1] Dielectric strength Rated impulse withstand voltage[3]		Pollution degree 3[2] 50 Hz 1min.	V kV kV
Rated thermal current and rated operational current AC20/DC20 ..with minimum conductor cross section	/ ambient 40°C / ambient 40°C	In open air In enclosure Cu	A A mm^2
Rated operational current, AC-21A		up to 500 V 690 V	A A
Rated operational current, AC-22A		up to 500 V 690 V	A A
Rated operational current, AC-23A		up to 415 V 440 V 500 V 690 V	A A A A
Rated operational current / poles in series, DC-21A[13]		≤ 110 V 220 V 440 V 660 V	A A A A
Rated operational power, AC-23A[5] The kW-ratings are accurate for 3-phase 1500 R.P.M. standard asychronous motors		230 V 400 V 415 V 500 V 690 V	kW kW kW kW kW
Rated breaking capacity in category AC-23		up to 415 V 500 V 690 V	A A A
Rated conditional short-circuit current I_p (r.m.s.) and cut-off current $\hat{i}_c$ (peak) value. The cut-off current $\hat{i}_c$ refers to values listed by fuse manufacturers (single phase test acc. to IEC60269).	I_p (r.m.s.) 80 kA, 415 V Max. OFA_ fuse size	$\hat{i}_c$ (peak) gG/aM	kA A/A
	I_p (r.m.s.) 100 kA, 500 V Max. OFA_ fuse size	$\hat{i}_c$ (peak) gG/aM	kA A
	I_p (r.m.s.) 80 kA, 690 V Max. OFA_ fuse size	$\hat{i}_c$ (peak) gG/aM	kA A
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.15s 690 V 0.25s 690 V 1s	kA kA kA
Rated short-time making capacity[6] Power loss / pole	I_{cm} (peak) With rated current	690 V	kA W
Mechanical endurance	Number of oper. cycles		Cycles
Terminal bolt size Terminal tightening torque	Metric thread diameter x length Counter torque required		mm Nm
Operating torque	Typical for 3-pole bypass switches		Nm

[1] Utilization category B
[2] These values are given for guidance and may vary acc. to the motor manufacturer
[3] Short circuit duration > 50ms, without fuse protection
[4] Max. distance from switch frame to nearest busbar / cable support 150 mm
[5] Operating cycle: O - I - O - II - O
[6] Category AC-21B, up to 415V

	Switch size , OT_, OTM_						
	OT_160_	**OT_200_**	**OT_250_**	**OT_315_**	**OT_400_**	**OT_630_**	**OT_800_**
	1000	1000	1000	1000	1000	1000	1000
	10	10	10	10	10	10	10
	12	12	12	12	12	12	12
	160	200	250	315	400	630	800
	160	200	250	315	400	630	800
	70	95	120	185	240	2x185	2x240
	160	200	250	315	400	630	800
	160	200	250	315	400	630	800
	160	200	250	315	400	630	800
	160	200	250	315	400	630	800
	160	200	250	315	400	630	800
	160	200	250	315	400	630	800
	160	200	250	315	400	630	800
	160	200	250	315	400	630	800
	160/2	200/2	250/2	315/1[4)]	400/1[4)]	630/1	800/1
	160/2	200/2	250/2	315/2[4)]	400/2[4)]	630/1	800/1
	160/3	200/3	230/3	315/3	360/3	630/2	720/2
	160/4	200/4	200/4	315/4	315/4	630/4[4)]	630/4[4)]
	45	60	75	100	132	200	250
	90	110	140	160	220	355	450
	90	110	145	180	230	355	450
	110	132	170	220	280	400	560
	160	200	250	315	400	630	800
	1 280	1 600	2 000	2 520	3 200	5 040	6 400
	1 280	1 600	2 000	2 520	3 200	5 040	6 400
	1 280	1 600	2 000	2 520	3 200	5 040	6 400
	40.5	40.5	40.5	59	59	83.5	83.5
	355/315	355/315	355/315	500/500	500/500	800/1 000	800/1 000
	40.5	40.5	40.5	61.5	61.5	90	90
	315/315	315/315	315/315	500/450	500/450	800/800	800/800
	40.5	40.5	40.5	59	59	83.5	83.5
	355/315	355/315	355/315	500/500	500/500	800/1 000	800/1 000
	15	15	15	31	31	38	38
	15	15	15	24	24	36	36
	8	8	8	15	15	20	20
	30	30	30	65	65	80	80
	2.4	4	6.5	6.5	10	25	40
	8 000	8 000	8 000	8 000	8 000	5 000	5 000
	M8x25	M8x25	M8x25	M10x30	M10x30	M12x40	M12x40
	15-22	15-22	15-22	30-44	30-44	50-75	50-75
	14	14	14	32	32	54	54

Technical data, motor operators
Motorized bypass switches OTM160...800_Y_

Motor operator

Data according to IEC 60947				Switch size 160…250	315...400	630…800
Rated operational voltage U_e	Pollution degree 3	50/60 Hz	V AC		220 - 240	
Operating voltage range					0,85 - 1,1 x U_e	
Operating time[1]	90° I-0, 0-I, 0-II, II-0	220-240VAC	s	0.4-1.0	0.4-1.0	0.4-1.0
Operating transfer time[1]	180° I-0-II, II-0-I	220-240VAC	s	1.0-2.0	0.9-2.0	0.9-2.0
OFF -time when operating I-II or II-I[1]	180° I-II, II-I	220-240VAC	s	0.4-1.0	0.4-1.0	0.4-1.0
Nominal current I_n[1]		220-240VAC	A	0.2	0.5	0.7
Current inrush[1]		220-240VAC	A	1.3	2.1	2.8
Overload fuse	Type / I_n / Capacity	220-240VAC	mA	T/315/H	T/500/H	T/1000/H
Operating rate	Cycle 0-I-0-II-0,	220-240VAC	cycles/min	1	1	1
Overvoltage category					III	
Rated impulse withstand voltage U_{imp}			kV		4	
Dielectric strength		50 Hz 1 min.	kV		1.5	
Impulse command		Min. impulse duration	ms		100	
Terminals						
Voltage supply wiring for U_e					PE - N - L	
Cross section		solid/stranded	mm^2		1.5 - 2.5	
Short-circuit protection device		max. MCB	A		C16	
Control terminal (no SELV)					C - II - I - O	
Cross section		solid/stranded	mm^2		1.5 - 2.5	
Maximum cable length			m		100	
State information of locking (no SELV)						
Handle attached or motor operator locked		11-12-14 (C/O)			5A/250V/cosφ=1	
Locking motor operator		23-24 (NO)			5A/250V/cosφ=1	
Short-circuit protection device		Max. MCB	A		C2	
Protection degree					IP20	
Operating temperature			°C		-25…+55	
Transportation and storage temperature			°C		-40…+70	
Max. altitude			m		2000	

[1] Under nominal conditions

Explanation of the types OTM160...2500_C

Option:	OTM250	E	3	Y	M	230	C
Position:	1	2	3	4	5	6	

1	Brand and Switch size / Ampere rating
2	IEC
3	Number of poles
2:	2-poles
3:	3-poles
4:	4-poles
4	Bypass switch
5	Motorized bypass switch
6	Voltage for motor operator
230	220...240 V AC

Ordering information
Motorized bypass switches and accessories

OTM160...250E3YM230C

OTM315...400E3YM230C

OTM315...400E4YM230C

OTM630-800E3YM230C

OTM630-800E4YM230C

Motorized bypass switches

Included a manual direct handle, bolt set for the cable connection and storage clip for handle and spare fuses. Handle padlockable in the 0-position.

No. of poles	Rated current and power AC-21A...AC-22A ≤ 415V I[A]	400V S[kVA]	AC-23A 400...415V I[A] / P[kW]	Type	Order number	Weight/ unit [kg]
Types -W: with wide phase distance.						
3	160	110	160/90	OTM160E3YM230C	1SCA141435R1001	-
4	160	110	160/90	OTM160E4YM230C	1SCA141436R1001	8,1
3	200	135	200/110	OTM200E3YM230C	1SCA141437R1001	
4	200	135	200/110	OTM200E4YM230C	1SCA141438R1001	8,1
3	250	170	250/140	OTM250E3YM230C	1SCA141439R1001	-
4	250	170	250/140	OTM250E4YM230C	1SCA140870R1001	8,1
3	315	215	315/160	OTM315E3YM230C	1SCA141440R1001	-
4	315	215	315/160	OTM315E4YM230C	1SCA141441R1001	14
3	400	275	400/220	OTM400E3YM230C	1SCA136735R1001	-
4	400	275	400/220	OTM400E4YM230C	1SCA136677R1001	14
3	630	435	630/355	OTM630E3YM230C	1SCA136615R1001	-
4	630	435	630/355	OTM630E4YM230C	1SCA136613R1001	28,5
3	800	550	800/450	OTM800E3YM230C	1SCA136616R1001	-
4	800	550	800/450	OTM800E4YM230C	1SCA136614R1001	28,5

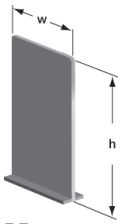
Bridging bars

The bridging bars provide a connection link either on the incoming or outcoming side of the switch.

OTZC13...34

Suitable for switches	No. of poles	Type	Order number	Units/ type [pcs]	Weight/ unit [kg]
OT_160…250_C, _Y	3	OTZC13	1SCA022767R6910	3	0.6
OT_160…250_C, _Y	4	OTZC14	1SCA022767R7040	4	0.8
OT_315…400_C, _Y	3	OTZC23	1SCA022767R7120	3	0.6
OT_315…400_C, _Y	4	OTZC24	1SCA022767R7210	4	0.8
OT_600_C…800E_C, _Y	3	OTZC33	1SCA022785R7020	3	1.0
OT_600_C…800E_C, _Y	4	OTZC34	1SCA022785R7110	4	1.3

Ordering information
Motorized bypass switches and accessories



PB_

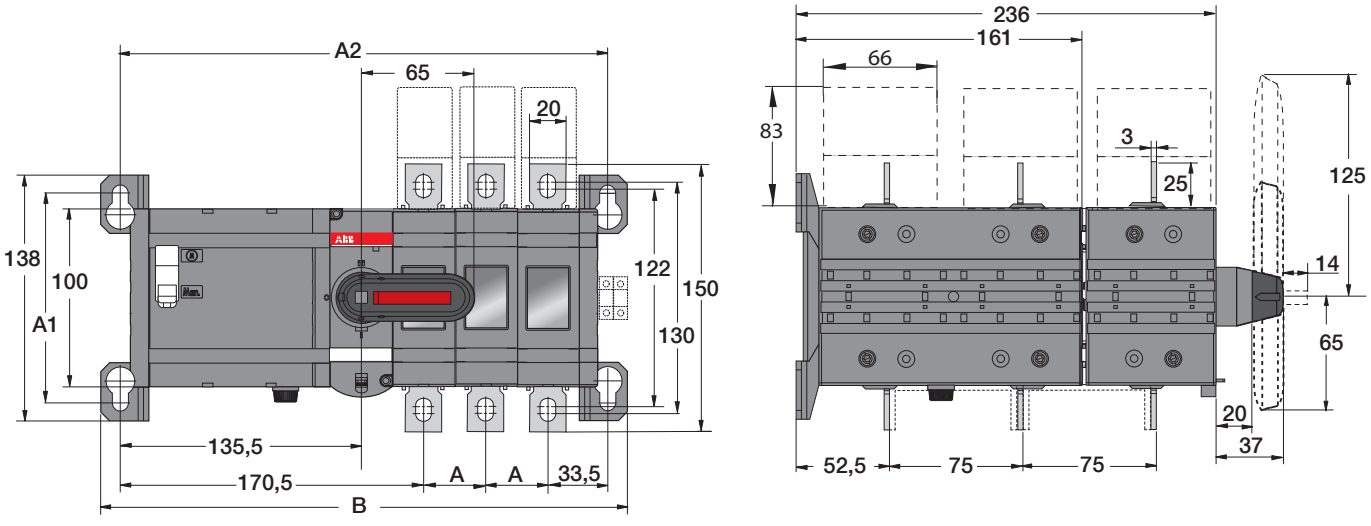
Phase barriers

The phase barriers designed for ABB Tmax T4-T5 MCCB's can also be used for OT_Y160...800 bypass switches. 3-pole bypass need 12 barriers and 4-pole bypass need 16 barriers for full protection.

Suitable for switches	No. of poles	Height h [mm]	Cutting width W of the phase barrier [mm]	Type	Order number	Units/ type [pcs]	Weight/ unit [kg]
OT_160…250E_C	3	100	55	PB100 low	1SDA054970R1	4	
OT_160…250E_C	3	200	55	PB200 high	1SDA054972R1	4	
OT_160…250E_C	4	100	55	PB100 low	1SDA054971R1	6	
OT_160…250E_C	4	200	55	PB200 high	1SDA054973R1	6	
OT_315…400E_C	3	100	67	PB100 low	1SDA054970R1	4	
OT_315…400E_C	3	200	67	PB200 high	1SDA054972R1	4	
OT_600...800E_C	3	100	90	PB100 low	1SDA054970R1	4	
OT_600...800E_C	3	200	90	PB200 high	1SDA054972R1	4	
OT_600...800E_C	4	100	90	PB100 low	1SDA054971R1	6	
OT_600...800E_C	4	200	90	PB200 high	1SDA054973R1	6	

Dimension drawings
OTM160...250E_Y

OTM160...250E03-04Y



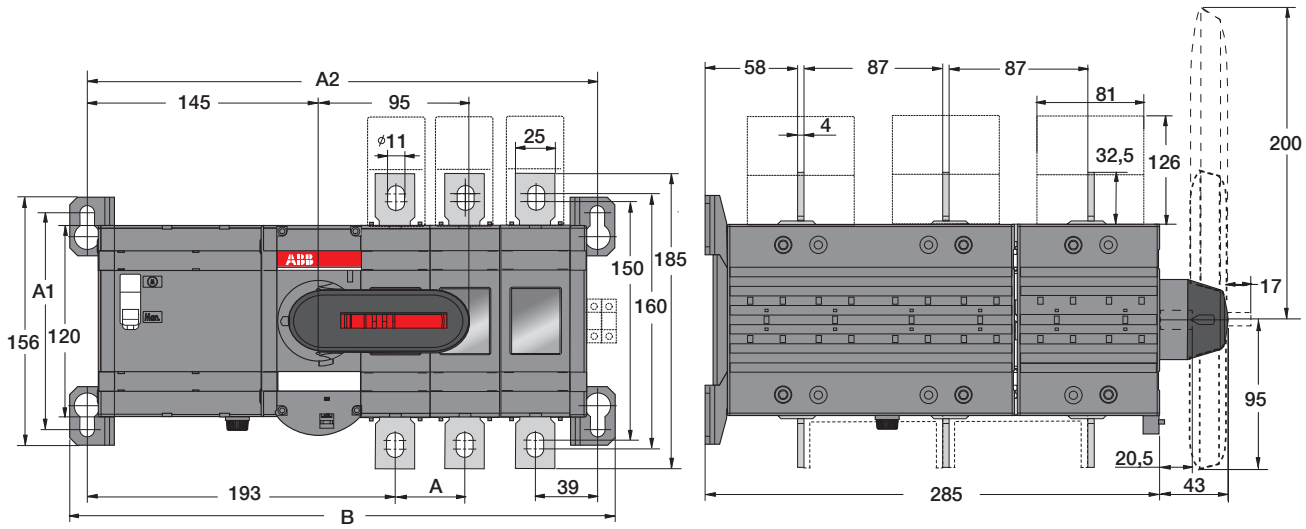
M00399/OTM160-250E2-4Y A

OTM160-250E_Y

[mm/in]	E2	E3	E4
A	35	35	35
A1	118	118	118
A2	239	274	309
B	261	296	331

Dimension drawings
OTM 630...800E_Y

OTM315...400E_Y

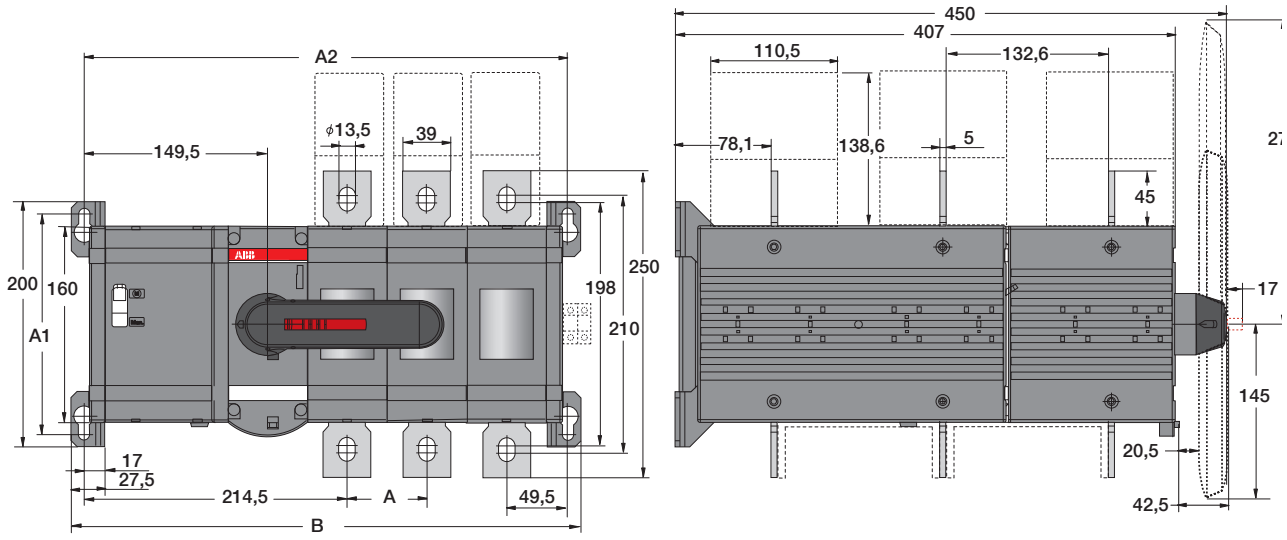


M00401/OTM315-400E_Y A

OTM315-400E_Y

[mm/in]	E2	E3	E4
A	44	44	44
A1	136	136	136
A2	276	320	364
B	298	342	386

OTM630...800E_Y



M00404/OTM630-800E2-4Y A

OTM630-800E_Y

[mm/in]	E2	E3	E4
A	65	65	65
A1	180	180	180
A2	329	394	459
B	350	415	480

Contact us

ABB Oy
Breakers and Switches
P.O. Box 622
FI-65101 Vaasa, Finland
Phone: +358 10 22 11
Fax: +358 10 22 45708
E-Mail: firstname.surname@fi.abb.com

www.abb.com

You can find the address of your local sales organisation on the ABB homepage:

www.abb.com/contacts
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