

PSL Series Air Circuit Breaker

# Small, flexible, efficient

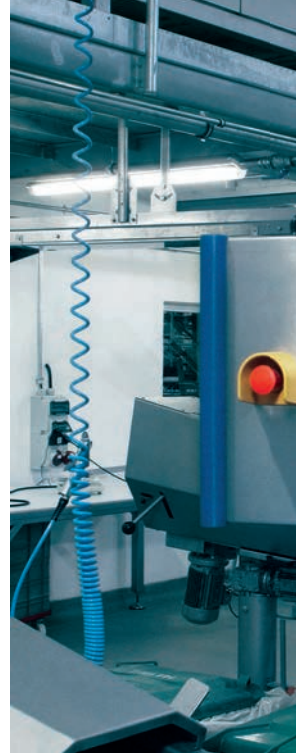
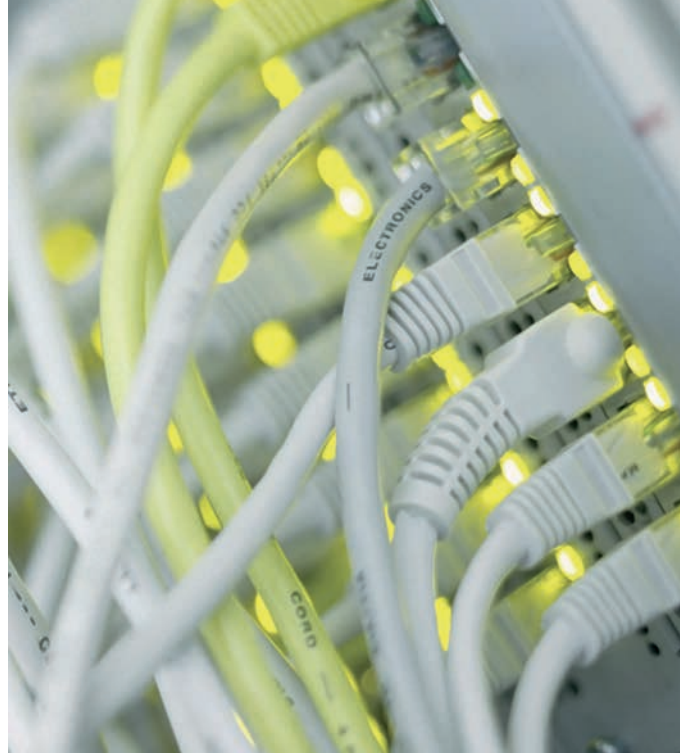
Catalogue 2017

## Air circuit breakers and switch-disconnectors 800 to 4000A

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**PSL Circuit Breakers,  
Switch-disconnectors**



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# PSL Series Air Circuit Breaker

## Technical Data

### Technical Data



		PSL5...		PSL6...	
<b>General</b>					
Standards		IEC/EN 60947		IEC/EN 60947	
Rated Current ( $I_n$ )	at +40°C	800A, 1000A, 1250A, 1600A, 2000A, 2500A, 3200A, 4000A			
Ambient temperature	Storage	-25 - 70°C		-25 - 70°C	
	Operating (open)	-25 - 70°C		-25 - 70°C	
Utilization category		B		B	
Protection type		IP30, IP40 with door sealing frame		IP30, IP40 with door sealing frame	
<b>Switching capacity</b>					
Type of circuit breaker		800-2000A	2500-4000A	800-2000A	2500-4000A
N-pole rated current		100% $I_n$	100% $I_n$	100% $I_n$	100% $I_n$
Type of switching capacity		PSL5...	PSL5...	PSL6...	PSL6...
Rated impulse withstand voltage ( $U_{imp}$ , VAC)		12000	12000	12000	12000
Rated insulation voltage ( $U_i$ , VAC)		1000	1000	1000	1000
Rated operational voltage ( $U_e$ , VAC, 50/60Hz) <sup>(1)</sup>		440	440	440	440
Ultimate breaking capacity ( $I_{cu}$ , kA)		55	55	66	66
Rated service breaking capacity ( $I_{cs}$ , kA, 1s)		55	55	66	66
Rated short-time withstand current ( $I_{cw}$ , kA)		55	55	66	66
Rated short-circuit making capacity ( $I_{cm}$ , kA)		121	121	145	145
Breaking time		≤ 30ms	≤ 30ms	≤ 30ms	≤ 30ms
Closing time		≤ 70ms	≤ 70ms	≤ 70ms	≤ 70ms
<b>Durability and installation characteristics</b>					
Lifespan	Mechanical, without maintenance	10000	10000	10000	10000
	Mechanical, with maintenance	20000	20000	20000	20000
	Electrical, without maintenance	6000	6000	6000	6000
Dimensions (H × W × D, mm)	Fixed 3P	398x362x332	394x422x339	398x362x332	394x422x339
	Fixed 4P	398x457x332	394x537x339	398x457x332	394x537x339
	Withdrawable 3P	432x375x430	432x435x450	432x375x430	432x435x450
	Withdrawable 4P	432x470x430	432x550x450	432x470x430	432x550x450
Weight (kg)	Fixed 3P	41	60	41	60
	Fixed 4P	50	72	50	72
	Withdrawable 3P	71	103	71	103
	Withdrawable 4P	91	120	91	120

<sup>(1)</sup> Contact Eaton for higher voltage ratings

### Technical Data



Eaton P/N	PVR21	PVR21V	PVR22	PVR22V
Display	Digital LED	Digital LED	LCD	LCD
Trip unit type	Current	Current & Voltage	Current	Current & Voltage
Protective options	LSI, LSIG	LSI, LSIG	LSI, LSIG	LSI, LSIG
<b>Overload protection (L)</b>				
Overload trip ( $I_{l1}$ , x $I_n$ )	OFF, (0.4 ~ 1.0) × $I_n$	OFF, (0.4 ~ 1.0) × $I_n$	OFF, (0.4 ~ 1.0) × $I_n$	OFF, (0.4 ~ 1.0) × $I_n$
Protection curve options	$I^2t$		$I^2t$ : $T = 2.25t / N^2$ (factory default) EI(G): $T = 1.25t / (N^2 - 1)$ EI(M): $T = 1.3974t \times \ln[N^2 / (N^2 - 1.15)]$ F: $T = 4.0625t / (N^4 - 1)$ $N = I / I_r$ $I$ = Fault current $I_r$ = Long-delay current $T$ = Action time $t$ = pickup time setting (C1 ~ C16)	
pickup time setting -- t	C1 ~ C11 (delay setting)		C1 ~ C16 (delay setting)	
Thermal memory	fixed 30min		10min, 20min, 30min, 45min, 1h, 2h, 3h, OFF	
<b>Short-time delayed short-circuit protection (S)</b>				
Short delayed pickup ( $I_{sd}$ , Inverse / flat time), x $I_r$	OFF, (1.5 ~ 15) × $I_r$			
Short delay time, flat characteristic curve ( $t_{sd}$ )	0.1s, 0.2s, 0.3s, 0.4s		0.1 ~ 0.4s	
<b>Non-delayed short-circuit protection (I)</b>				
Non-delayed pickup ( $I_i$ )	OFF, (1.0 ~ 20) × $I_n$			
Conventional tripping/non-tripping	$\leq 0.9I_i$ , not trip $\geq 1.1I_i$ , trip			
Breaking action time ( $I >$ MCR setting)	< 30ms			
<b>Optional ground fault protection (G)</b>				
Ground/Earth pickup ( $I_g$ ), x $I_n$	OFF, (0.2 ~ 1.0) × $I_n$			
Ground/Earth time ( $t_g$ )	0.1s, 0.2s, 0.3s, 0.4s		0.1~1.0s	
Conventional tripping/non-tripping	$\leq 0.8I_g$ , not trip $\geq 1.0I_g$ , trip			
<b>Neutral protection setting</b>	50% $I_n$ , 100% $I_n$ , OFF		50% $I_n$ , 100% $I_n$ , 160% $I_n$ , 200% $I_n$ , OFF	

# PSL Series Air Circuit Breaker

## Technical Data

### Overload Long-time Delay Protection Action Delay Time

Curve type	Fault Current	Pickup time setting (S)							
		C1	C2	C3	C4	C5	C6	C7	C8
I <sup>2</sup> t	1.5×I <sub>r</sub>	15.00	30.00	60.00	120.00	240.00	360.00	480.00	600.00
	2×I <sub>r</sub>	8.44	16.88	33.75	67.50	135.00	202.50	270.00	337.50
	6×I <sub>r</sub>	0.94	1.88	3.75	7.50	15.00	22.50	30.00	37.50
	7.2×I <sub>r</sub>	0.65	1.30	2.60	5.21	10.42	15.63	20.83	26.04
EI (G)	1.5×I <sub>r</sub>	8.00	12.80	19.20	32.00	48.00	64.00	80.00	108.00
	2×I <sub>r</sub>	3.33	5.33	8.00	13.33	20.00	26.67	33.33	45.00
	6×I <sub>r</sub>	0.29	0.46	0.69	1.14	1.71	2.29	2.86	3.86
	7.2×I <sub>r</sub>	0.20	0.31	0.47	0.79	1.18	1.57	1.97	2.66
EI (M)	1.5×I <sub>r</sub>	6.22	9.96	14.90	24.90	37.30	49.80	62.20	84.00
	2×I <sub>r</sub>	2.95	4.72	7.06	11.79	17.67	23.59	29.46	39.79
	6×I <sub>r</sub>	0.28	0.45	0.68	1.13	1.69	2.26	2.82	3.81
	7.2×I <sub>r</sub>	0.19	0.31	0.47	0.78	1.17	1.56	1.95	2.63
F	1.5×I <sub>r</sub>	2.46	3.94	5.90	9.85	14.80	19.70	24.60	33.20
	2×I <sub>r</sub>	0.67	1.07	1.60	2.67	4.01	5.34	6.66	8.99
	6×I <sub>r</sub>	0.01	0.01	0.02	0.03	0.05	0.06	0.08	0.10
	7.2×I <sub>r</sub>	0.00	0.01	0.01	0.01	0.02	0.03	0.04	0.05

Curve type	Fault Current	Pickup time setting (S)							
		C9	C10	C11	C12	C13	C14	C15	C16
I <sup>2</sup> t	1.5×I <sub>r</sub>	720.00	840.00	960.00					
	2×I <sub>r</sub>	405.00	472.50	540.00					
	6×I <sub>r</sub>	45.00	52.50	60.00					
	7.2×I <sub>r</sub>	31.25	36.46	41.67					
EI (G)	1.5×I <sub>r</sub>	144.00	224.00	320.00	480.00	640.00	800.00	960.00	1120.00
	2×I <sub>r</sub>	60.00	93.33	133.33	200.00	266.67	333.33	400.00	466.67
	6×I <sub>r</sub>	5.14	8.00	11.43	17.14	22.86	28.57	34.29	40.00
	7.2×I <sub>r</sub>	3.54	5.51	7.87	11.80	15.74	19.67	23.60	27.54
EI (M)	1.5×I <sub>r</sub>	112.00	174.00	249.00	373.00	498.00	622.00	747.00	871.00
	2×I <sub>r</sub>	53.05	82.42	117.95	176.68	235.89	294.63	353.84	412.58
	6×I <sub>r</sub>	5.08	7.89	11.30	16.92	22.59	28.22	33.89	39.52
	7.2×I <sub>r</sub>	3.51	5.45	7.81	11.69	15.61	19.50	23.42	27.30
F	1.5×I <sub>r</sub>	44.30	68.90	98.50	147.00	197.00	246.00	295.00	344.00
	2×I <sub>r</sub>	12.00	18.66	26.68	39.81	53.35	66.63	79.90	93.17
	6×I <sub>r</sub>	0.14	0.22	0.31	0.46	0.62	0.77	0.93	1.08
	7.2×I <sub>r</sub>	0.07	0.10	0.15	0.22	0.30	0.37	0.45	0.52



### Product Features

#### Design Features

##### The trip units are of full range and versatile

- Various kinds of trip units are optional:  
PVR21 - Basic function, Digital LED display and simplicity to use. PVR21V has the voltage measurement function integrated; PVR22 - more advanced function with LCD display, optional voltage (PVR22V) and power measurement.
- Current protection features: A variety of protection function is offered including overload long-time delay protection, short-time delay, instantaneous, ground fault, neutral line N-pole protection, current unbalance protection, MCR circuit breaker making capacity protection;
- Optional remote reset function to remotely recover after fault tripping

#### Easy of installation

Zero flashover, and supports both forward and reverse power feeding.

Supports both horizontal or vertical connection.

#### Efficient arc extinguishing and breaking characteristics

Arcing chamber and contact system was designed with distinguished technology that can significantly improve the breaking capability of the breakers. It also optimizes the current sensing path and acting time that can greatly shorten the tripping time in case of large fault current.

#### High electrical lifetime and short circuit withstand ability

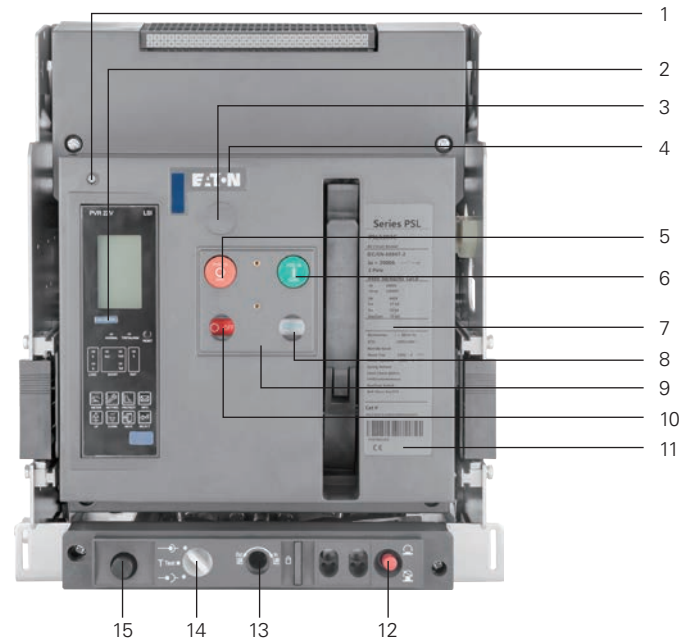
The breaker design adopts high strength DMC material, which has good insulation characteristics and mechanical strength. The double-contact structure improves the electric life of products; The optimized design of the mechanism realizes compensation to the contact pressure, and improves the product reliability and short circuit withstand ability.

#### More safety protection features

It has drawout type circuit breaker door interlocking, drawout type three-position interlocking device and off-position locking key lock, rear terminal protective cover, closing ready indicating device and other protection devices.

#### Structural Features

##### Introduction of Structure and Indications



1. Reset button
2. Nominal current sign
3. Off-position key lock (optional function)
4. Eaton logo
5. Disconnection button
6. Closing button
7. Counter (knockout under label)
8. Energy releasing and storing indicator
9. Closing ready "OK" indicator (optional function)
10. Opening and closing indicator
11. Front label
12. "CONNECT", "TEST" and "DISCONNECT" position locking and unlocking device
13. Rocker operating position
14. "CONNECT", "TEST" and "DISCONNECT" position indicator
15. Rocker and its storage position

**Note:** 12~15 for drawout type only

# PSL Series Air Circuit Breaker

## Product Features

### Drawout Type Circuit Breaker Structure

Drawout type circuit breaker is composed of the circuit breaker base and the cassette. The cassette has guide rails on both sides. There's a movable guide plate on the guide rail. The circuit breaker is mounted on both of the guide plates. The drawout type circuit breaker connects to the main circuit by inserting the busbar on the circuit breaker into the clusters of the cassette.



### Scope of Application

PSL series of air circuit breaker (referred to as circuit breaker in the following) can be applied to the power grid of 50Hz/60Hz, rated current of 800A ~ 4000A, rated insulation voltage of 1000V, rated operational voltage of AC220V/230V/240V/380V/400V/415V/440V/480V/690V. It can protect circuit and equipment from overload, short-circuit, under-voltage, grounding fault and harm of other faults. It can also be offered as isolation switch which is non-auto type (without trip unit).

It can offer the selective protection with high accuracy and also improve the safety and reliability of the power supply.

### Operating Environment

#### Ambient temperature

Applicable ambient temperature is -25°C ~ + 70°C.

If the ambient temperature is higher than +40°C, de-rating of the rated current is needed.

#### Humidity

When the ambient air temperature is +40°C, the relative humidity shall not be more than 50%. Higher relative humidity is allowed in lower temperature. for example, in case of +25°C, the relative humidity can be 90%. For condensation due to temperature change, dehumidification or corresponding measures should be taken.

#### Anti-corrosion Level

Salt mist: Severe Level 2

### Pollution Level

Pollution level: Level 3

### Installation Conditions

With the vertical gradient no more than 5°, the circuit breaker shall be installed under the environment condition without explosion danger, conductive dust or the possibility of corroding metal and damaging the insulation.

### Installation Category

Installation category of the circuit breaker's main circuit, under-voltage tripping coil and power transformer's primary coil is IV; the installation category of the rest auxiliary circuit and control circuit is III.

### Protection Class

IP30 and IP40 (installed in a cubicle and equipped with a protective door frame).

### Utility Category

Class B.

### Recommended busbar

Frame size (A)	Rated current In (A) 40°C	Copper busbar specifications	
		Dimension	Number of busbars
2000	800	50mm×5mm	2
	1000	60mm×5mm	2
	1250	80mm×5mm	3
	1600	100mm×5mm	2
	2000	100mm×5mm	3
4000	2500	100mm×5mm	4
	3200, 4000	100mm×10mm	5

#### Note:

The table indicates the copper busbar specifications adopted when the circuit breaker is under the ambient temperature of 40°C and in the open area. If the temperature is higher than 40°C, more busbar should be used, or current de-rating should be applied.



# PSL Series Air Circuit Breaker

## Technical Characteristics

### Technical Characteristics

#### Trip unit

Trip unit is one of the main components of the circuit breaker, which can provide variety of protection functions like overload, short circuit, grounding, under-voltage and other kind of faults. Trip unit has the function of measuring the current, voltage, frequency and other power quality factors.

#### Trip unit Types

Model	PVR21	PVR21V	PVR22 PVR22V
800-4000A			

### Trip unit Functions

Functional items		PVR21	PVR21V	PVR22	PVR22V
Display type	Digital LED and symbols display	√	√	–	–
	LCD panel symbols and graphics display	–	–	√	√
Protection functions	Overload long-time delay protection	√	√	√	√
	Overload thermal memory	√	√	√	√
	Overload pre-alarm	√	√	√	√
	Short circuit short-time delay protection	√	√	√	√
	Short-time delay thermal memory	√	√	√	√
	Short circuit instantaneous protection	√	√	√	√
	Grounding fault protection	√	√	√	√
	Ground alarm (LED indication)	–	–	√	√
	Neutral line protection	√	√	√	√
	Current unbalance protection	√	√	√	√
	MCR	√	√	√	√
	Undervoltage, overvoltage protection	–	–	–	√
	Voltage unbalance protection	–	–	–	√
	Phase sequence protection	–	–	–	√
Under/Over frequency protection	–	–	–	√	
Measuring function	Current	√	√	√	√
	Voltage	–	√	–	√
	Phase sequence	–	–	–	√
	Frequency	–	–	–	√
	Energy and power	–	–	–	√
Maintenance function	Fault status indication (LED)	√	√	√	√
	Fault event record(8 events) and query	√	√	√	√
	Historical peak current record	–	–	√	√
	Historical alarm event	–	–	√	√
	Self-diagnostic function	√	√	√	√
	Tripping simulation test	√	√	√	√
	Contact wear query	–	–	√	√
	Operating counter	–	–	√	√
Others	Clock function	–	–	√	√
	DC trip units (DC220V, DC110V)	▲	▲	▲	▲
	Remote reset of trip unit	▲	▲	▲	▲

“√” represents this function is available; “▲” represents optional functions for users, and “–” represents this function is not available

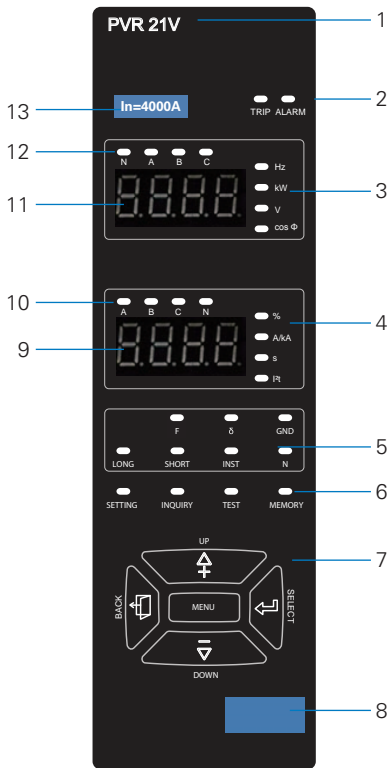
### Factory default setting

Protection	Current	Time	Remarks
Overload long-time delay protection	1.0 I <sub>n</sub>	60s	Thermal memory ON
Short circuit short-time delay protection	8 I <sub>r</sub>	0.2s	Flat type of the curve
Instantaneous short circuit	10 I <sub>n</sub>	-	-
Ground protection (if applicable)	0.5 I <sub>n</sub>	0.1s	-
Current unbalance protection	OFF	-	Can be opened as needed

# PSL Series Air Circuit Breaker

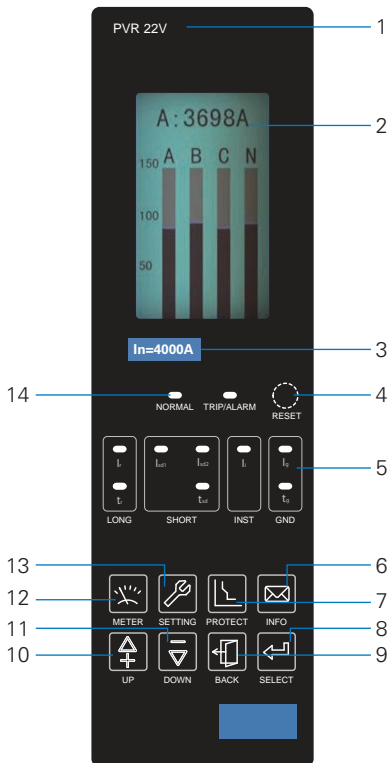
## Technical Characteristics

### PVR21 / PVR 21V



1. Trip unit model
2. Fault tripping and alarm indicators
3. Voltage indicators (PVR21V only)
4. Current%, current, time and I<sup>2</sup>t indicators
5. Protection and setting indicators
6. Setup, query, test and memory indicators
7. Operating buttons
8. Field test port
9. Digital display
10. Three-phase current, N current indicators
11. Digital display (PVR21V only)
12. N-phase and A, B, C phases voltage indicators (PVR21V only)
13. Rated current sign

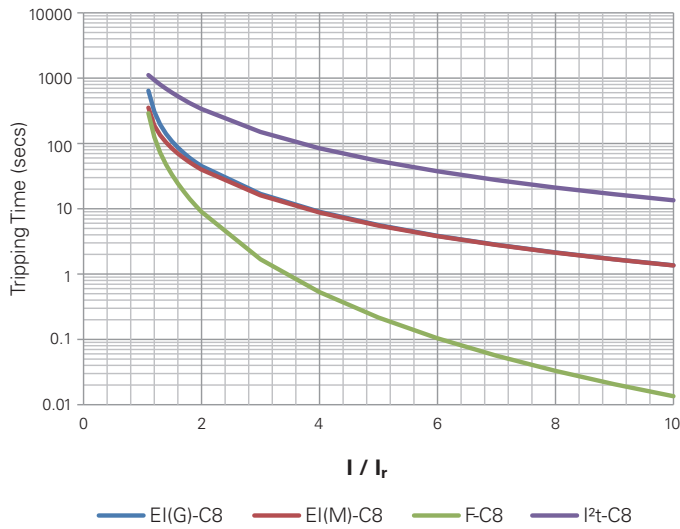
### PVR22 / PVR 22V



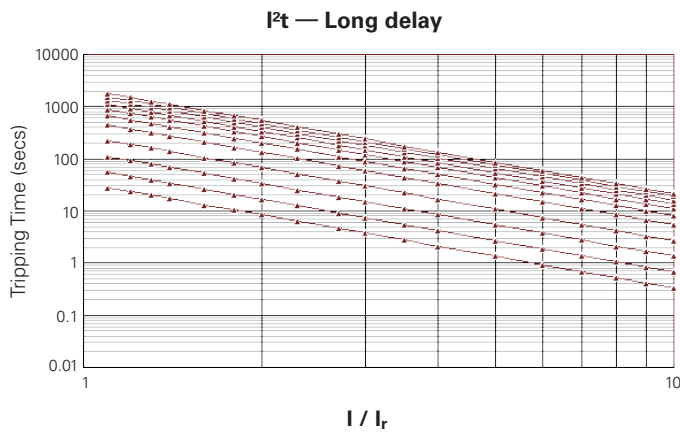
1. Trip unit model
2. LCD display
3. Rated current sign
4. Fault and alarm reset
5. Protection setting indicators
6. "Information" button
7. "Protection" button
8. "Select" button
9. "Exit" button
10. "Up" button
11. "Down" button
12. "Metering" button
13. "Setup" key
14. "normal" and "failure/alarm" indicators (LED)



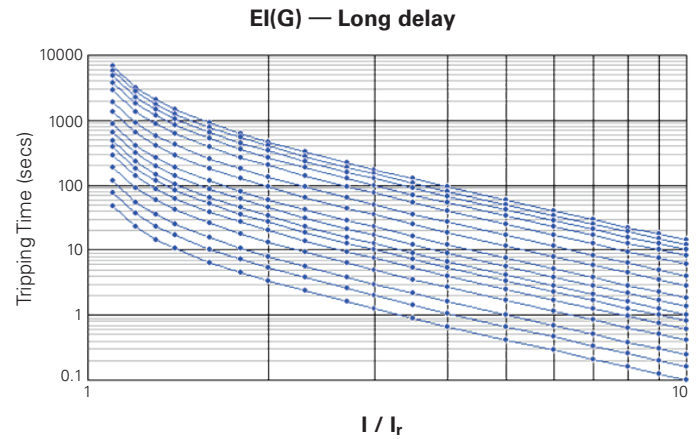
### Long time delay Comparison of long time delay curves(C8 delay setting as example)



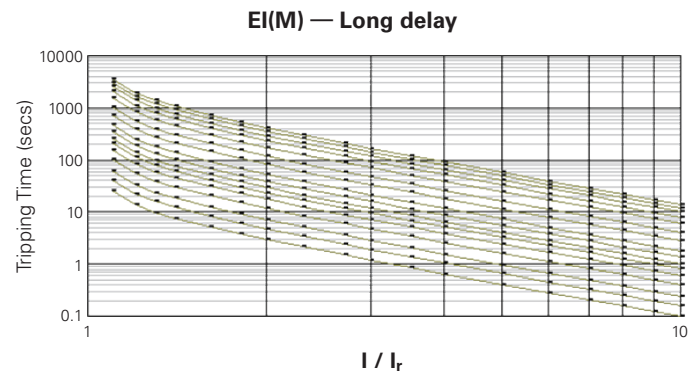
### I<sup>2</sup>t curve (Bottom to top: C1 ~ C11)



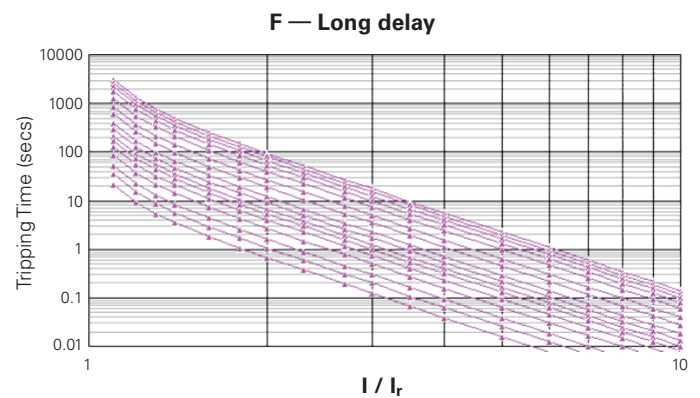
### EI(G) curve (Bottom to top: C1 ~ C16)



### EI(M) curve (Bottom to top: C1 ~ C16)



### F curve (Bottom to top: C1 ~ C16)



#### Note:

For trip unit of PVR21 / PVR21V (digital LED type), only I<sup>2</sup>t curve is available for long delay setting.

# PSL Series Air Circuit Breaker

## Tripping curves

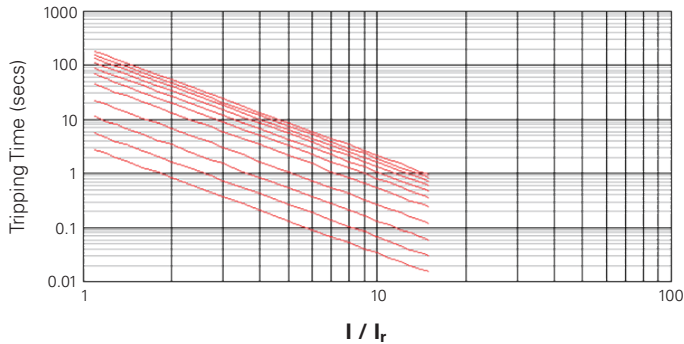
### Short time delay

Short time delay curve includes 2 parts:

- Inverse time curve, 4 curve styles
- Flat curve

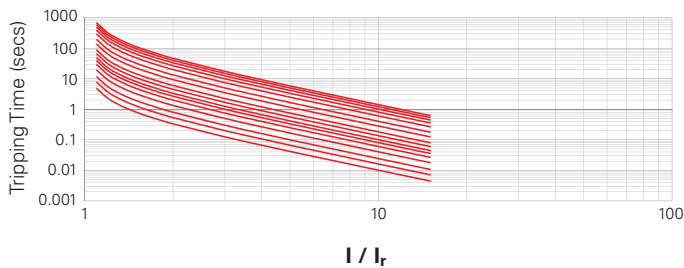
### I<sup>2</sup>t curve (Bottom to top: C1 ~ C11) — inverse time part

I<sup>2</sup>t — Short delay, inverse time part



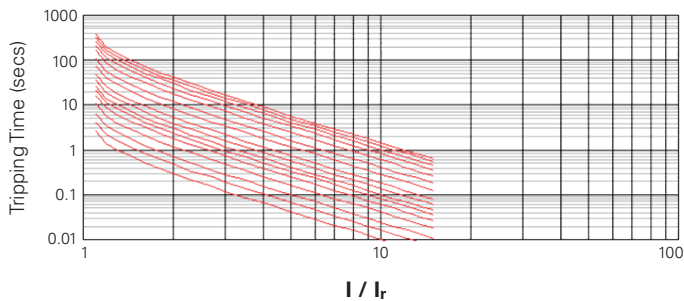
### EI(G) curve (Bottom to top: C1 ~ C16) — inverse time part

EI(G) — Short delay, inverse time part



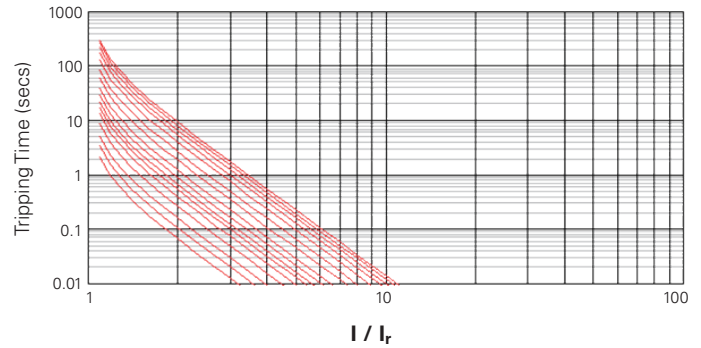
### EI(M) curve (Bottom to top: C1 ~ C16) — inverse time part

EI(M) — Short delay, inverse time part



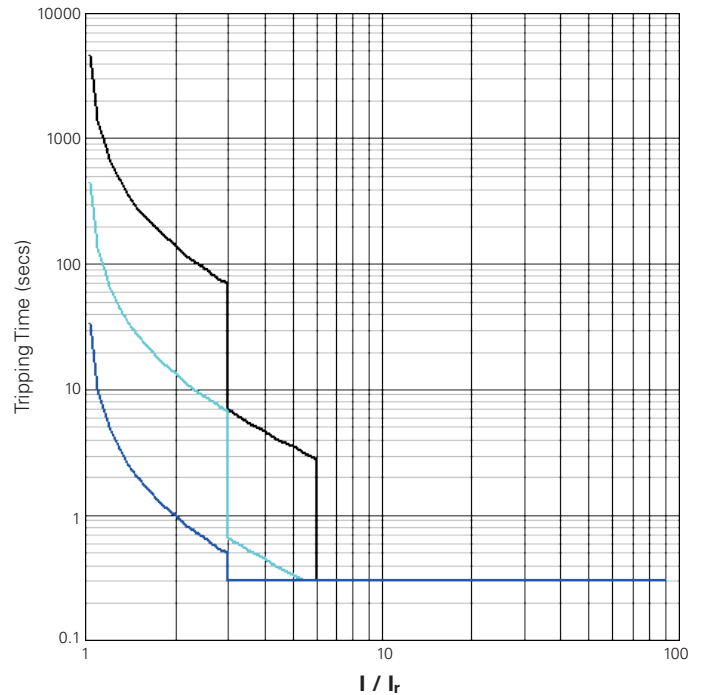
### F curve (Bottom to top: C1 ~ C16) — inverse time part

F — Short delay, inverse time part



### Example of inverse time part and flat part

Overall protection curve example



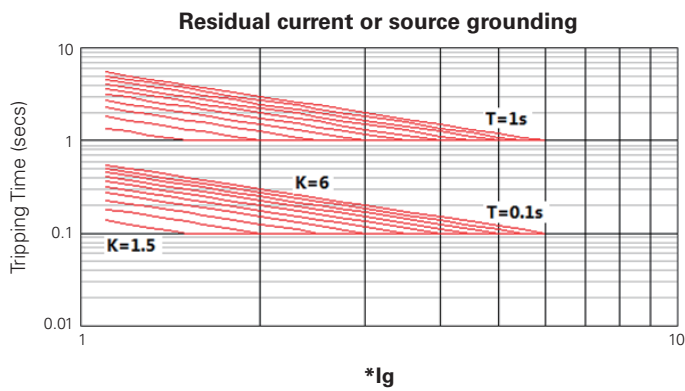
Above curve is set with following:

- Curve style = I<sup>2</sup>t
- Delay setting = C1, C 8 and C16 (C1 fastest)
- Board of long and short delay setting = 3 x I<sub>r</sub>
- Board of inverse time and flat curve on short delay = 6 x I<sub>r</sub>
- Time setting for flat curve of short delay = 0.3 S

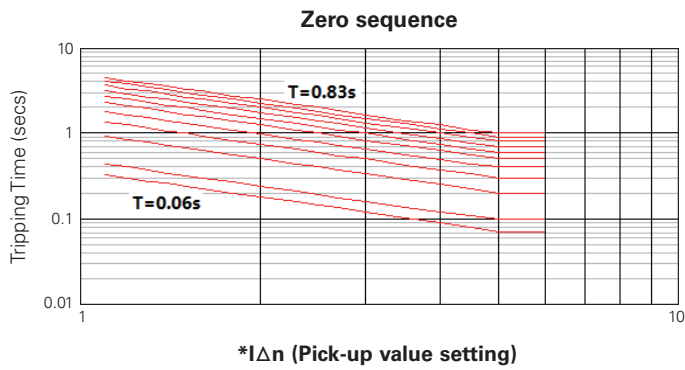
#### Note:

For trip unit of PVR21(digital LED type), only I<sup>2</sup>t curve is available for inverse time part of short delay setting

### Grounding fault — Residual current or source grounding protection curve



### Grounding fault — Zero sequence protection curve





# PSL Series Air Circuit Breaker

PSL series catalog numbering

## PSL series catalog numbering:

Bit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Field	a			b	c			d	e	f	g	h(0-3)				i	j	k	l	m	n	o	p	q	r	s
Example	P	S	L	6	2	0	3	F	E	N	N	B	V	N	R	R	R	N	N	6	1	Y	Y	N	X	

Field#	Configuration part	Option	Description
a	Series name	PSL	Power Safe Line
b	lcu/lcs/lcw	5	55kA
b	lcu/lcs/lcw	6	66kA
c	Continuous current	08	800A
c	Continuous current	10	1000A
c	Continuous current	12	1250A
c	Continuous current	16	1600A
c	Continuous current	20	2000A
c	Continuous current	25	2500A
c	Continuous current	32	3200A
c	Continuous current	40	4000A
d	Poles	3	3 pole
d	Poles	4	4 pole
e	Fixed/Drawout and Rear terminal and cell switch	F	Fixed and Horizontal terminals
e	Fixed/Drawout and Rear terminal and cell switch	E	Fixed and Vertical terminals
e	Fixed/Drawout and Rear terminal and cell switch	D	Drawout and Horizontal terminals
e	Fixed/Drawout and Rear terminal and cell switch	C	Drawout and Vertical terminals
e	Fixed/Drawout and Rear terminal and cell switch	Y	Drawout and Horizontal terminals, with cell switch
e	Fixed/Drawout and Rear terminal and cell switch	V	Drawout and Vertical terminals, with cell switch
f	Nameplate Language	E	English
g	Customized In rating	N	Keep initial rating
h0	Grounding fault protection	N	Only LSI or Switch disconnecter
h0	Grounding fault protection	G	LSIG(Residual current)
h0	Grounding fault protection	S	LSIG(Source grounding)
h0	Grounding fault protection	Z	LSIG(Zero sequence)
h1	trip unit version---Voltage & display	N	None(Switch disconnecter)
h1	trip unit version---Voltage & display	A	AC380V/AC400V, Digital LED
h1	trip unit version---Voltage & display	B	AC220V/AC230V, Digital LED
h1	trip unit version---Voltage & display	E	AC24V/DC24V, Digital LED
h1	trip unit version---Voltage & display	F	AC380V/AC400V, LCD
h1	trip unit version---Voltage & display	G	AC220V/AC230V, LCD
h1	trip unit version---Voltage & display	J	AC24V/DC24V, LCD
h2	Protection type	N	None(Switch disconnecter)
h2	Protection type	V	Current measure
h2	Protection type	U	Current and voltage measure
h3	Remote reset	N	None(Switch disconnecter)
h3	Remote reset	2	AC220V/AC230V
i	Shunt trip	N	None
i	Shunt trip	S	220Vac/dc
i	Shunt trip	D	24Vdc
j	Motor operator	M	None(manual)
j	Motor operator	R	220Vac/dc
j	Motor operator	C	24Vdc
k	Spring release & Latch check switch	N	No SR, No LCS
k	Spring release & Latch check switch	R	220Vac/dc SR, No LCS

**PSL series catalog numbering (continued):**

<b>Bit</b>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25			
<b>Field</b>	a			b		c		d	e	f	g	h(0-3)						i	j	k	l	m	n	o	p	q	r	s
<b>Example</b>	P	S	L	6	2	0	3	F	E	N	N	B	V	N	R	R	R	N	N	6	1	Y	Y	N	X			

<b>Field#</b>	<b>Configuration part</b>	<b>Option</b>	<b>Description</b>
k	Spring release & Latch check switch	T	220Vac/dc SR, LCS wired external
l	Undervoltage release	N	None
l	Undervoltage release	S	220Vac, no delay
l	Undervoltage release	Q	380Vac, no delay
l	Undervoltage release	M	220Vac, delay 5s
l	Undervoltage release	P	380Vac, delay 5s
m	Door interlock	N	None
m	Door interlock	A	With door interlock(right)
m	Door interlock	B	With door interlock(left)
n	Auxiliary switch	N	None
n	Auxiliary switch	4	4 ON/OFF (800-2000A only)
n	Auxiliary switch	6	6 ON/OFF (800-2000A only)
n	Auxiliary switch	A	4 Form C (2500-4000A only)
n	Auxiliary switch	B	6 Form C (2500-4000A only)
o	OFF lock and counter	N	No counter, No lock
o	OFF lock and counter	K	No counter, with lock
o	OFF lock and counter	A	With counter, no lock
o	OFF lock and counter	Y	With counter, with lock
p	Overload tripping switch (OTS) & Door frame	N	No OTS, no Door frame
p	Overload tripping switch (OTS) & Door frame	D	No OTS, with Door frame
p	Overload tripping switch (OTS) & Door frame	Y	with OTS, no Door frame
p	Overload tripping switch (OTS) & Door frame	W	With OTS and Door frame
q	Padlocking cover	N	None
q	Padlocking cover	P	Plastic cover
r	Reserved	N	
s	Reserved	X	For special request only

**Note:**

Please contact Eaton for more configuration options

# PSL Series Air Circuit Breaker

PSL system view

## PSL system view



### 1 PSL circuit breaker

PSL5: 55kA  
PSL6: 66kA  
800–4000A, 3P/4P, drawout/fix type

### 2 Control terminal block

800–2000A: 62 pins  
2500–4000A: 62 pins

### 3 Auxiliary switch

None/4a4b/6a6b/40N+40FF/60N+60FF

### 4 Phase barrier

Default assembled on 2500–4000A  
optional for 800–2000A

### 5 Undervoltage release

220V/380Vac  
No delay/1s/3s/5s delay

### 6 Shunt trip / Spring release

R: 220Vac  
C: 24Vdc

### 7 Motor operator

R: 220Vac  
C: 24Vdc

### 8 Mechanical interlock

MIL2C/MIL31C/MIL33C

### 9 Door frame

### 10 OFF position keylock

### 11 Operation counter

### 12 Trip unit



### Optional accessory List

Accessory name	Type of circuit breakers
Off-position key lock	Fixed type/drawout type
Door interlock	Drawout type
Auxiliary switch	Fixed type/drawout type
Spring release	Fixed type/drawout type
Shunt trip	Fixed type/drawout type
Electric operating motor	Fixed type/drawout type
Phase barrier	Fixed type/drawout type
Latch Check Switch (LCS)	Fixed type/drawout type
Undervoltage release	Fixed type/drawout type
Counter	Fixed type/drawout type
Door frame	Fixed type/drawout type
Proof cover	Fixed type/drawout type
Mechanical interlocking	Fixed type/drawout type
Mechanical interlock	Fixed type/drawout type

### Locks

#### Off-position key lock



#### Drawout three-position lock (standard configuration on the Cassette)

On the cassette, there's "CONNECT", "TEST" and "DISCONNECT" position status, which is indicated through an indicator.

The DISCONNECT, TEST, and CONNECT positions are reached by means of the levering mechanism. During the process, the circuit breaker will be locked respectively in these three positions, and unlocked only through the reset button (red).



#### Door interlock (Optional, on the cassette)

Installed on the left or right side of the cassette. When the drawout type circuit breaker is NOT in the DISCONNECT position, it can avoid opening of the panel door.



#### "DISCONNECT" position lock of the drawout type circuit breaker (on the cassette)

When the drawout type circuit breaker is in the DISCONNECT position, pull out the black lever at the cassette bottom to lock. Then the breaker can only be levered out and cannot be levered in to the "TEST" or "CONNECT" position.

Diameter of the padlock should be 40mm or less, equipped by user.



# PSL Series Air Circuit Breaker

## Accessories

### Indication contact

#### Auxiliary switch

- Rated current 6A
- Form of contacts:
  - 4 Form-C switchover
  - 6 Form-C switchover
  - 4NO+4NC
  - 6NO+6NC
- See Table 43. for detail



Current	Type of contacts
2500-4000A	4 Form-C; 6 Form-C
800-2000A	4NO+4NC; 6NO+6NC

### Latch Check Switch

Latch check switch is the device to indicate whether the break is ready to be closed. It will only be activated after below conditions valid:

- ACB in OFF status
- Spring enough charged
- No open signal from shunt trip
- Under-voltage release in non-tripping condition
- All fault is reset in trip unit



### Remote operation

#### Spring release

- Key features
  - working voltage: 85% ~ 110% Us
  - Pulse driven



Rated insulation voltage (Ui)	Rated control voltage (Us)	Instantaneous power
400V	AC380V/AC400V 50/60Hz	620VA
400V	AC220V/AC230V 50/60Hz	500VA

### Shunt trip

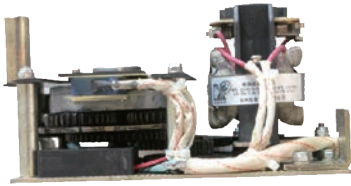
- Key features
  - working voltage: 70%~110% Us



Rated insulation voltage (Ui)	Rated control voltage (Us)	Instantaneous power
400V	AC380V (AC400V) 50/60Hz	620VA
400V	AC220V (AC230V) 50/60Hz	500VA

## Electrical Operating Motor

working voltage: 85% ~ 110 of system voltage



Rated insulation voltage (Ui)	Charging duration	Rated control voltage (Us)	Operating power
400V	4 ~ 5s	AC220V/AC230V AC380V/AC400V (50/60Hz)	110VA

## Undervoltage Release

- Key features
  - Started to trip breaker when voltage drops to 70% ~ 35%
  - The breaker can't be closed when voltage is below 35%
  - The breaker can be closed when voltage is 85% ~ 110% of rated operating voltage
- Composed of 2 indiscriptible parts:
  - Instantaneous tripping coil
  - Time delay module
- Time delay module

Delay time can be adjusted by changing the coding switch. Setting values: no delay, 1s, 3s, 5s.



Rated insulation voltage (Ui)	Frequency (f)	Rated operational voltage (Ue)	Operating power
400V	50/60Hz	AC220V (AC230V)	3.9W
400V	50/60Hz	AC380V (AC400V)	5.2W

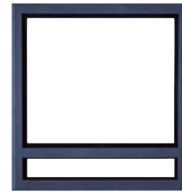
## Counter

Counter is used to record the number of the "close-open" operation of the circuit breaker.



## Door frame

To be used on the panel doors together with the breaker, to reach IP40 protection level.



Drawout type



Fixed type

## Phase barrier

To be installed between different phase terminals to get reinforced insulation.



## Mechanical Interlocking System

- Mechanical interlocking mechanism can be used for interlocking of the drawout circuit breaker or the fixed circuit breaker.
- Interlocking mechanism shall be installed by users. First, dismount the nut for connecting the rear part of the interlocking device with four combination screws; then, fix the interlocking mechanism on the rightside plate of the circuit breaker with four combination screws;
- Interlocking pattern selection.



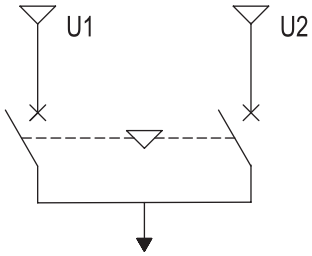
Selection mode	Code	Specification	Number of circuit breakers
1	MIL2C	Two sets of cables, one for closing and one for opening	2
2	MIL33C	Three sets of cables, one for closing and two for opening	3
3	MIL31C	Three sets of cables, two for closing and one for opening	3

# PSL Series Air Circuit Breaker

## Accessories

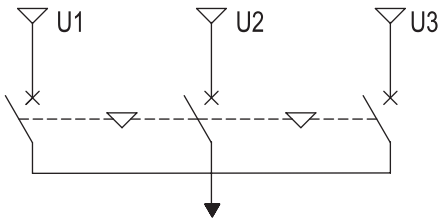
- The circuit breaker can be applicable to interlocking in the following power supply states

- MIL2C (one for closing and one for opening)



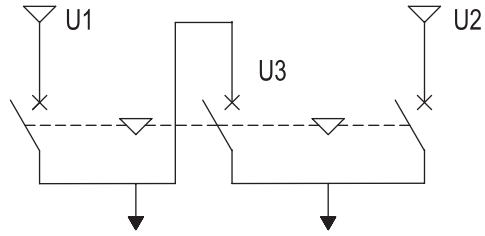
U1	U2
Close	Open
Open	Close
Open	Open

- MIL33C (one for closing and two for opening)



U1	U2	U3
Close	Open	Open
Open	Close	Open
Open	Open	Close
Open	Open	Open

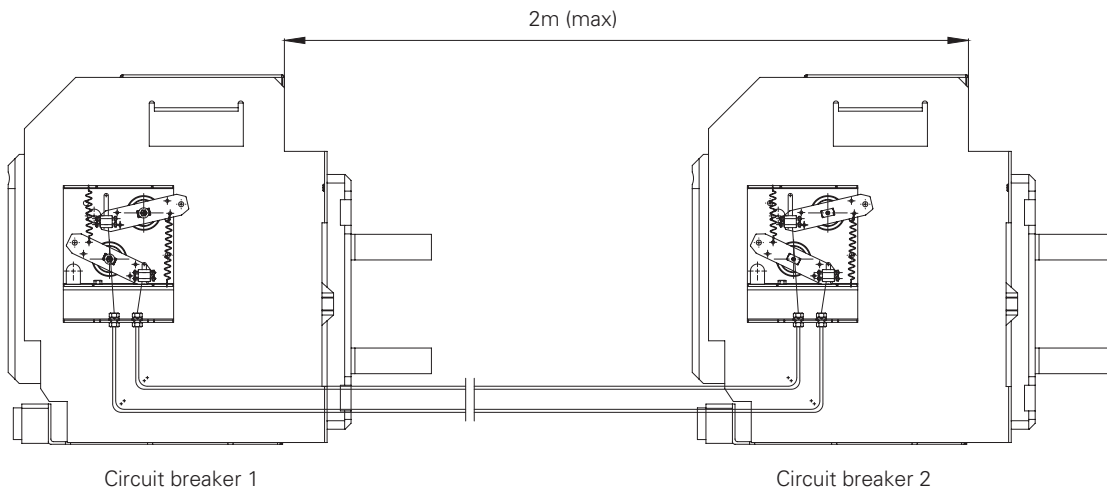
- MIL31C (two for closing and one for opening)



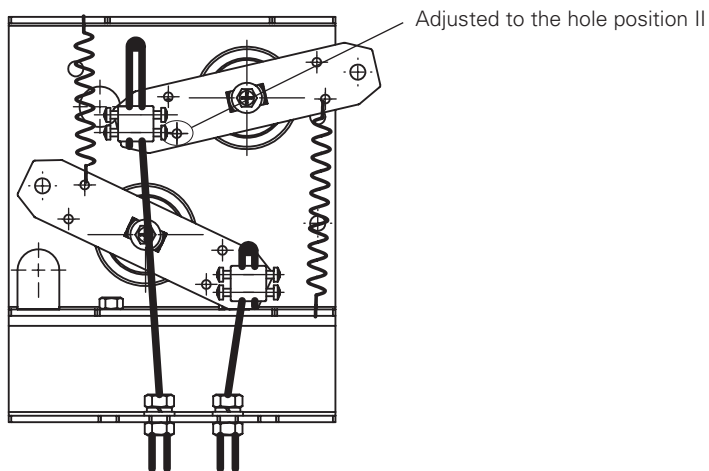
U1	U2	U3
Open	Open	Open
Close	Close	Open
Close	Open	Close
Open	Close	Close

- Two interlocking cables (one for closing and one for opening)

The installation schematic diagram:



The adjustment schematic diagram:



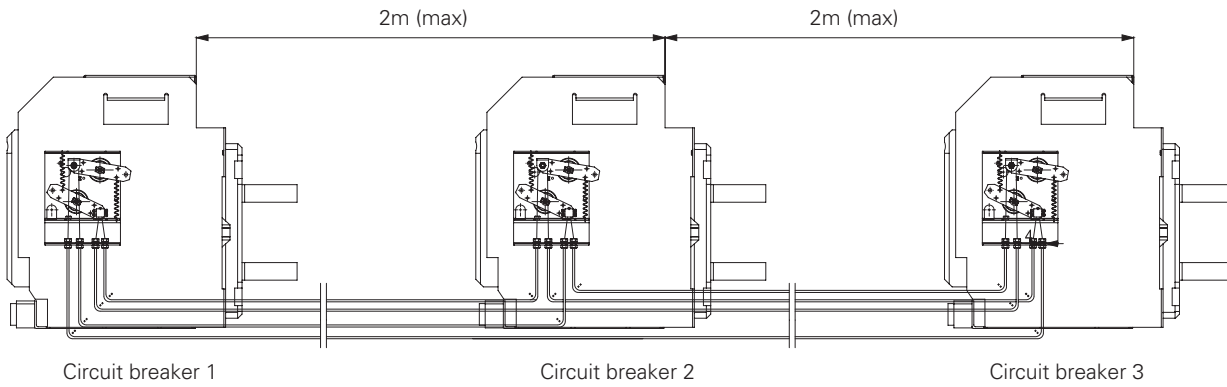


# PSL Series Air Circuit Breaker

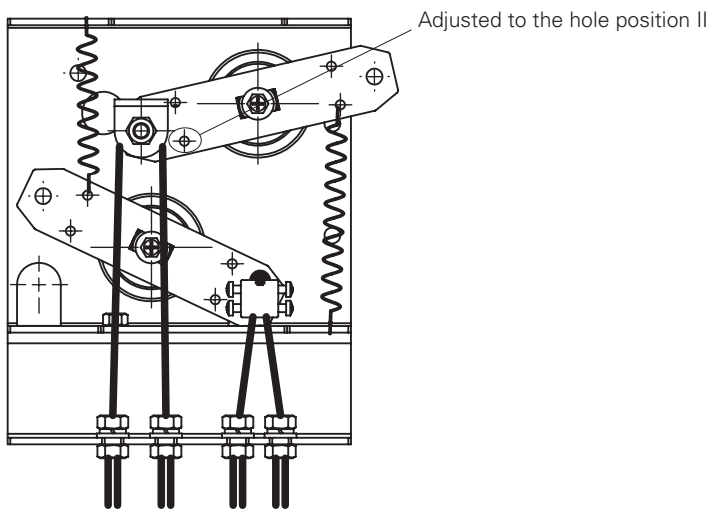
## Accessories

- MIL31C or MIL33C

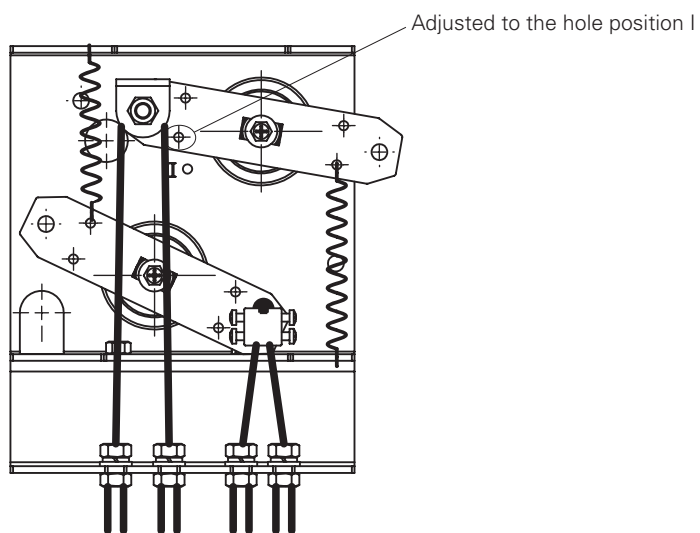
The installation schematic diagram:



1) MIL33C:



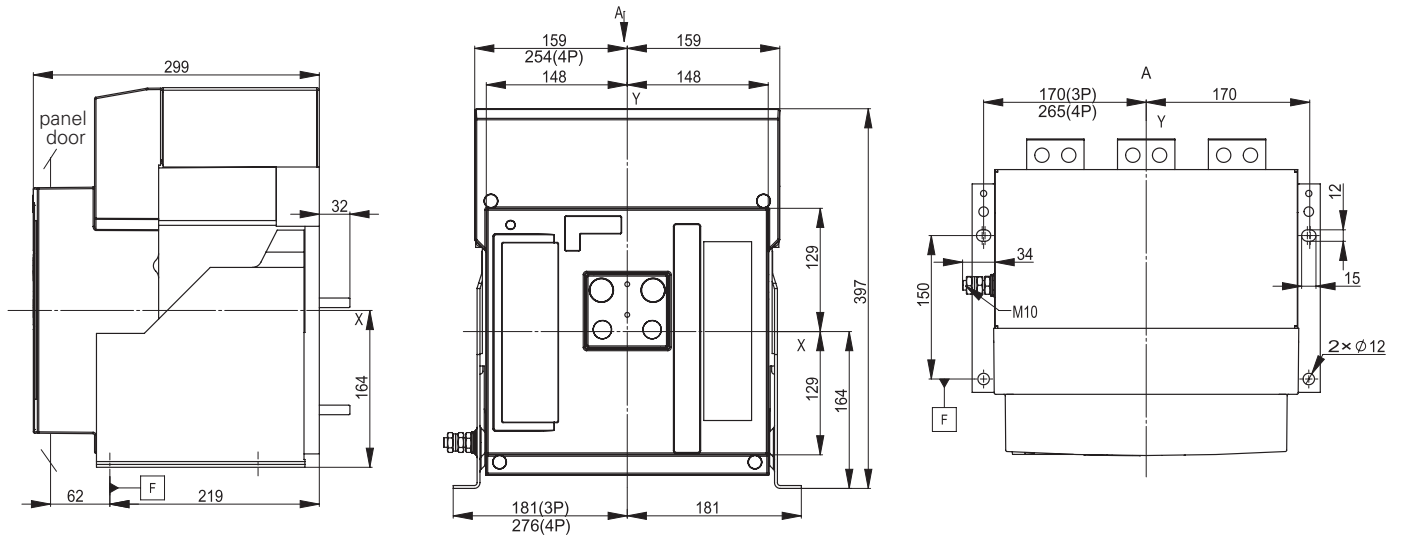
2) MIL31C:



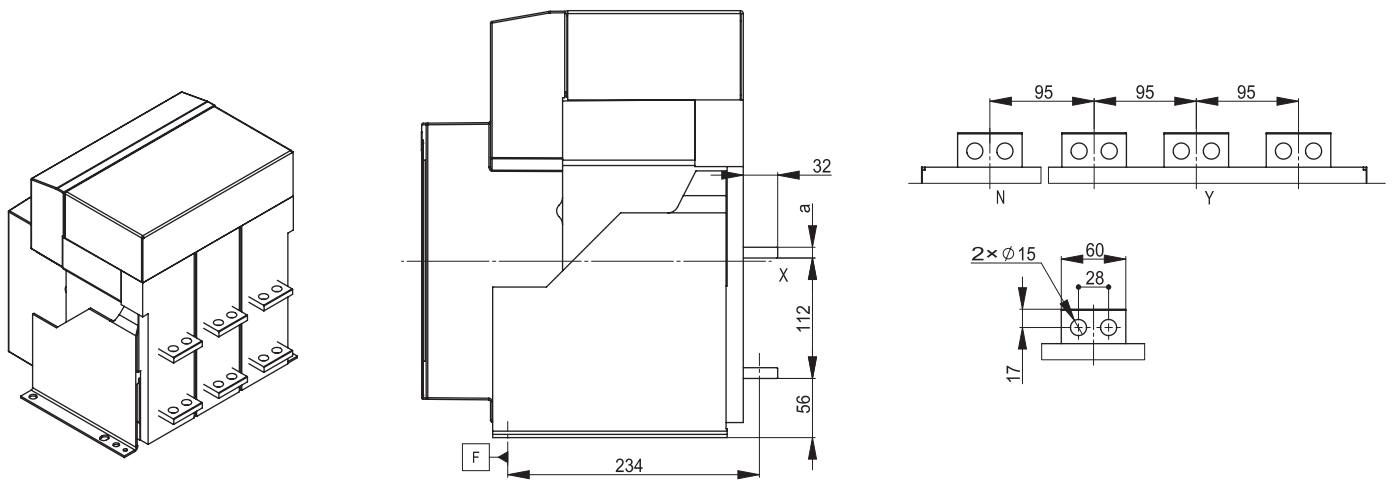
### Dimension drawing

(Unit: mm)

#### 800-2000A Fixed type



### Horizontal wiring



**Note:** X, Y are the symmetrical lines of front cover

Connection of busbar and terminal	Torque value with washer (N.m)
M12	60

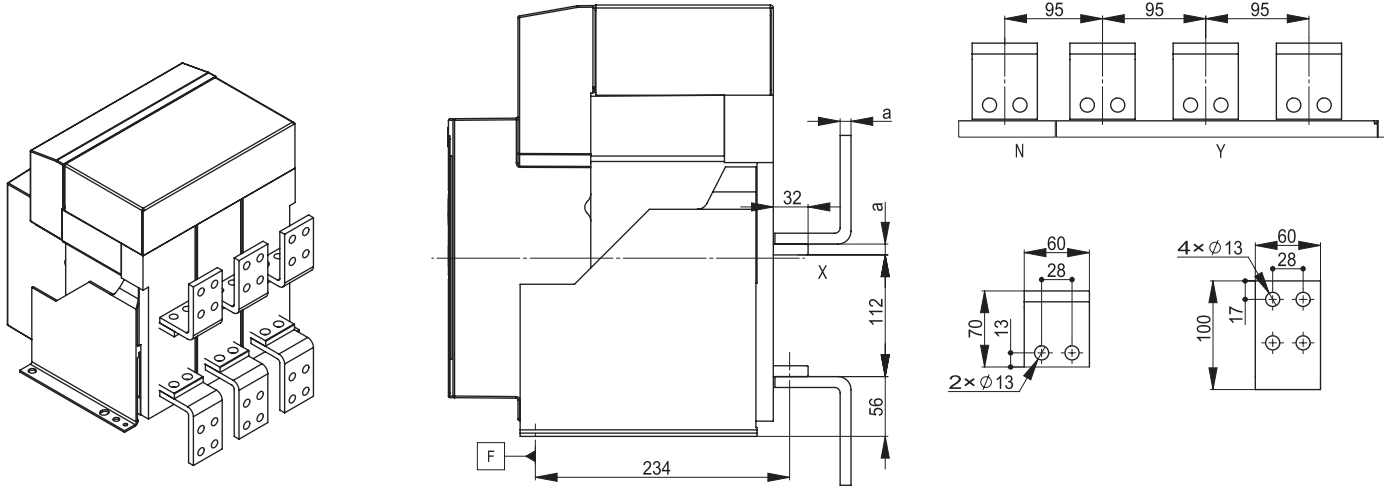
Current	Busbar thickness a (mm)
800A	10
1000A、1250A、1600A	15
2000A	20

# PSL Series Air Circuit Breaker

## Dimensions

(Unit: mm)

### L type wiring

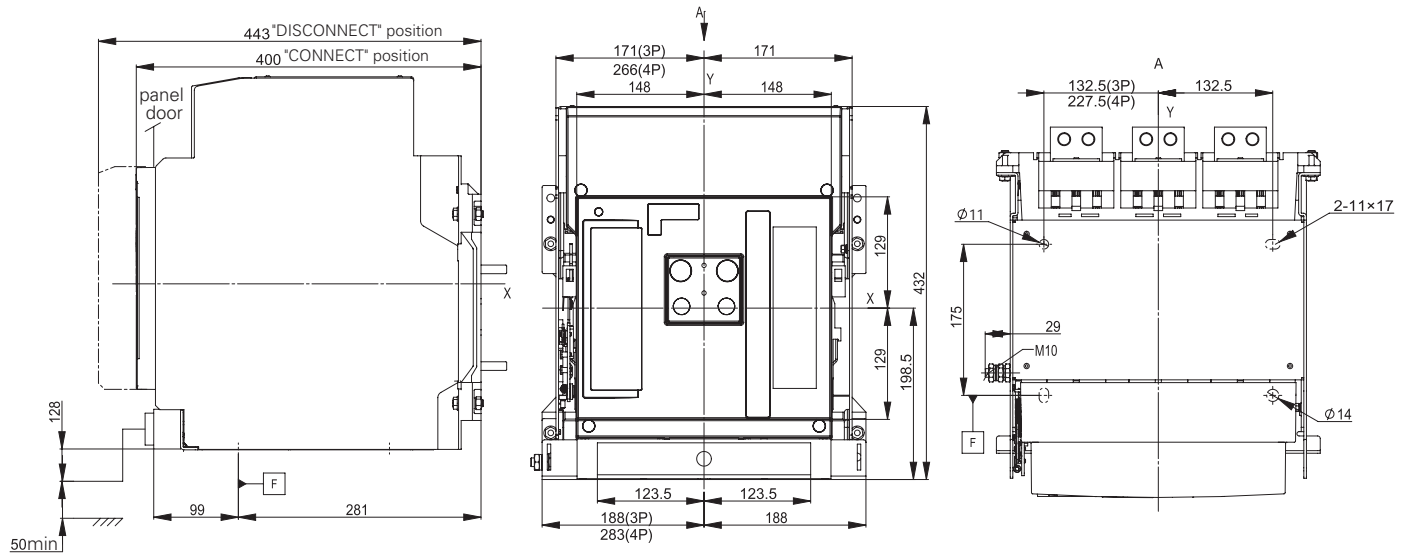


**Note:** X, Y are the symmetrical lines of front cover

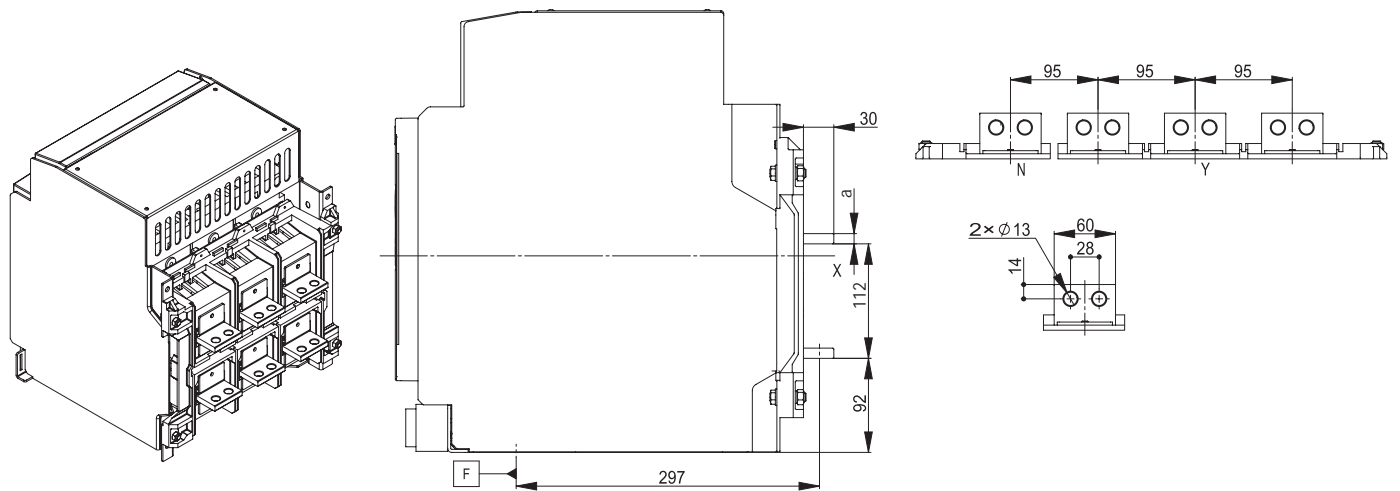
Current	Busbar thickness a (mm)
800A	10
1000A、1250A、1600A	15
2000A	20

(Unit: mm)

### 800-2000A drawout type



### Horizontal wiring



**Note:** X, Y are the symmetrical lines of front cover

### Connection of busbar and terminal Torque value with washer (N.m)

M12	60
-----	----

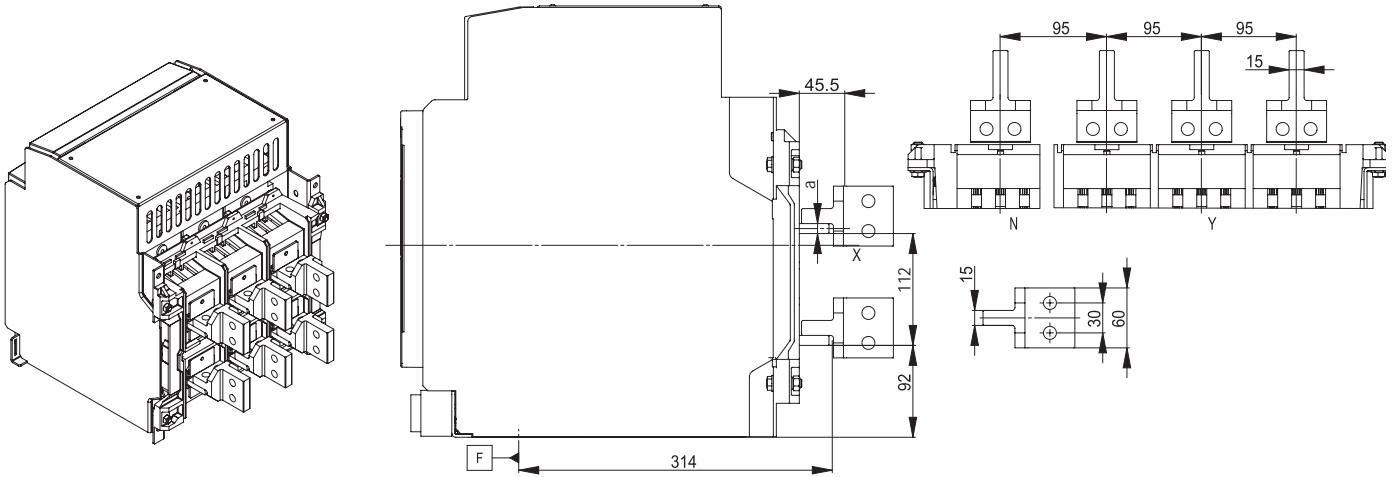
Current	Busbar thickness a (mm)
800A	10
1000A、1250A、1600A	15
2000A	20

# PSL Series Air Circuit Breaker

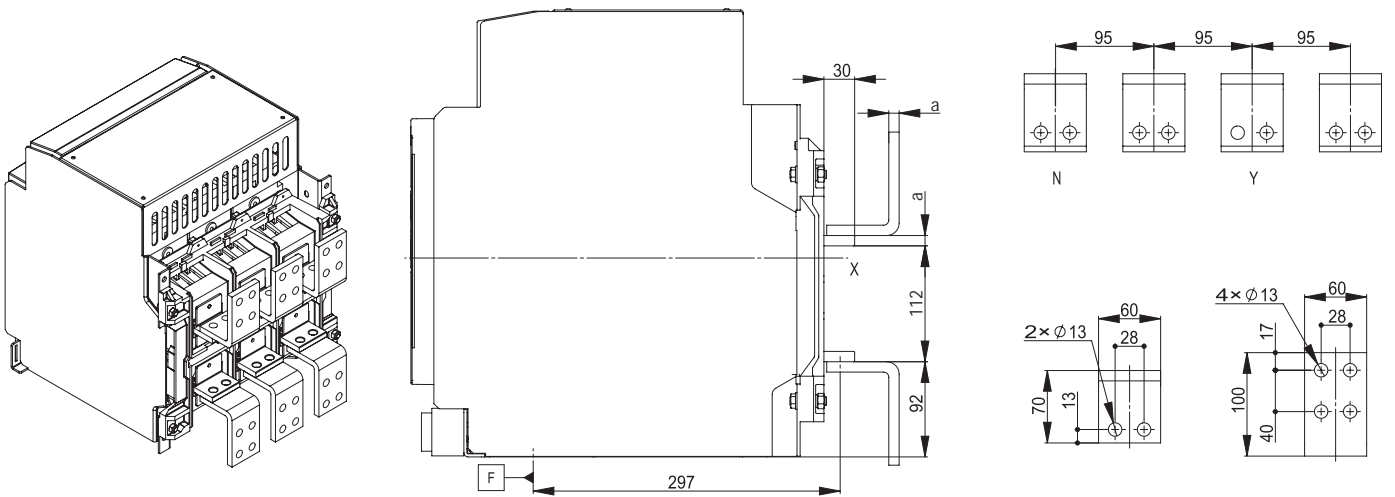
## Dimensions

(Unit: mm)

### Vertical terminal



### L type wiring



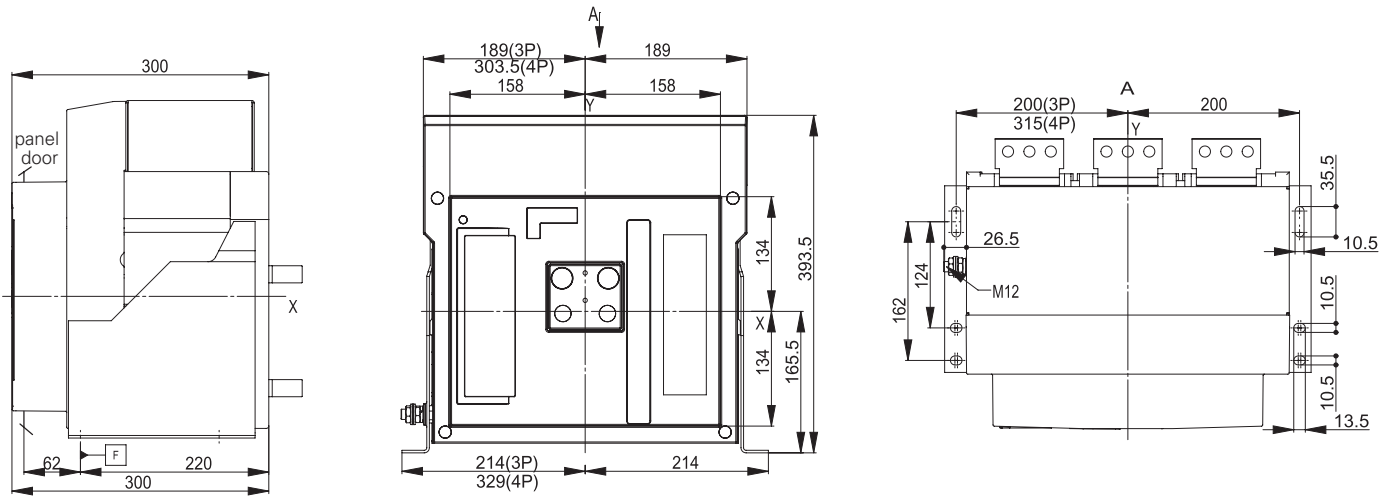
**Note:** X, Y are the symmetrical lines of front cover

Current	Busbar thickness a (mm)
800A	10
1000A、1250A、1600A	15
2000A	20

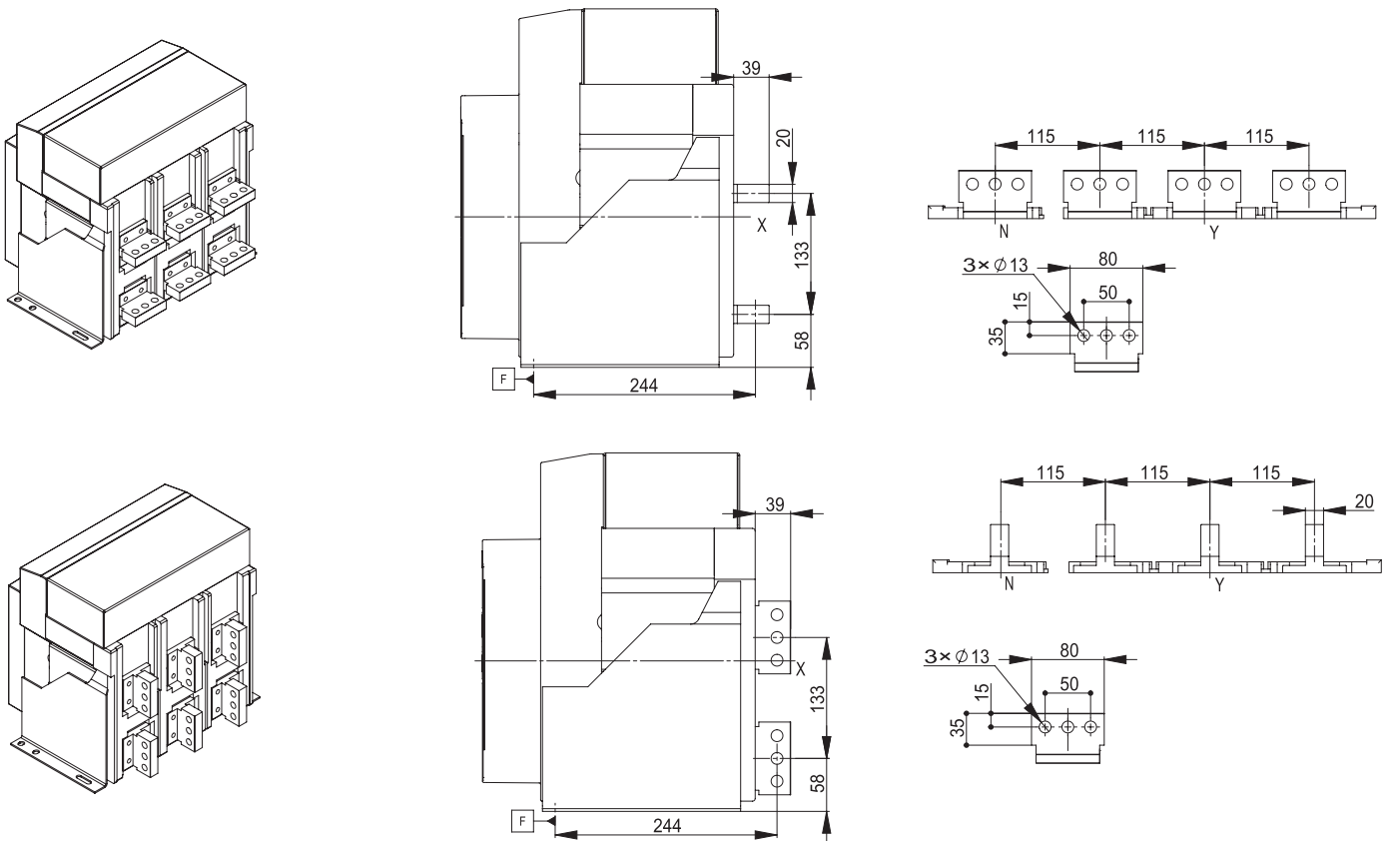


(Unit: mm)

### 2500-4000A fixed type



### 2500A horizontal and vertical terminal



**Note:** X, Y are the symmetrical lines of front cover

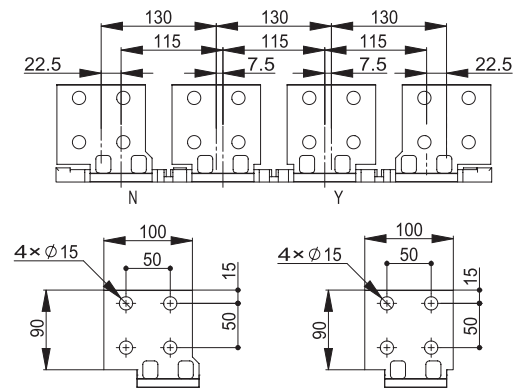
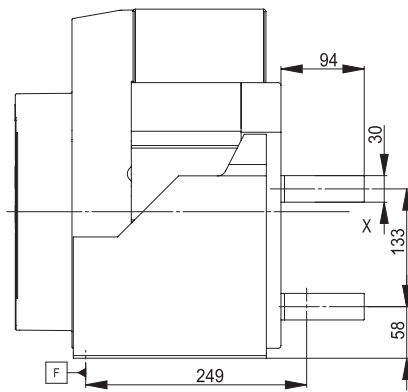
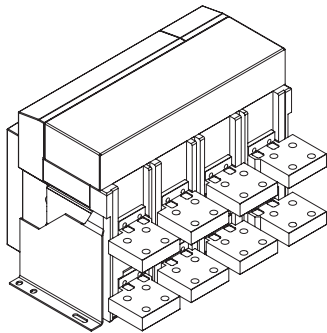
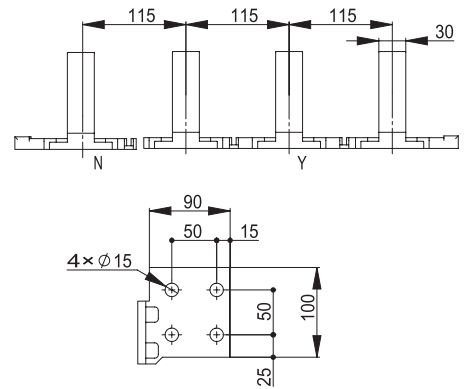
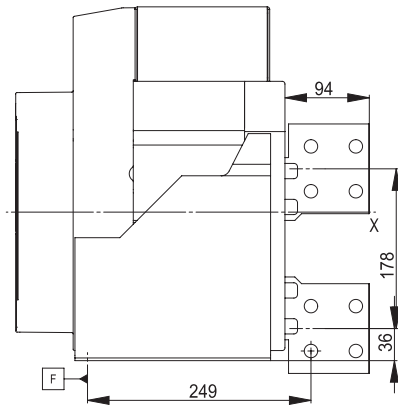
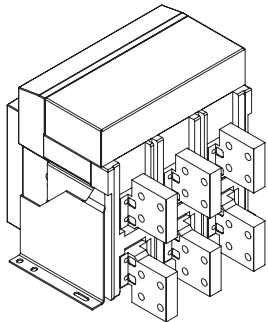
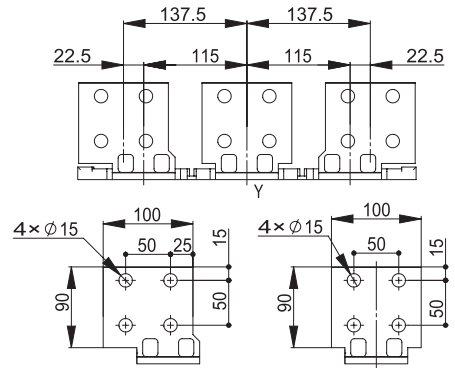
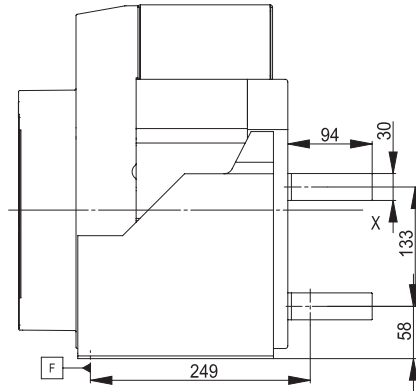
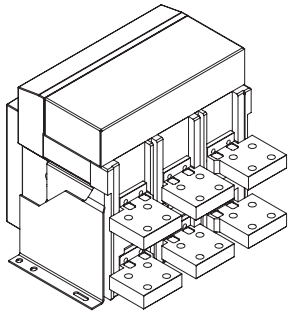
Connection of busbar and terminal	Torque value with washer (N.m)
M12 (2500A)	60
M14 (3200-4000A)	97

# PSL Series Air Circuit Breaker

## Dimensions

(Unit: mm)

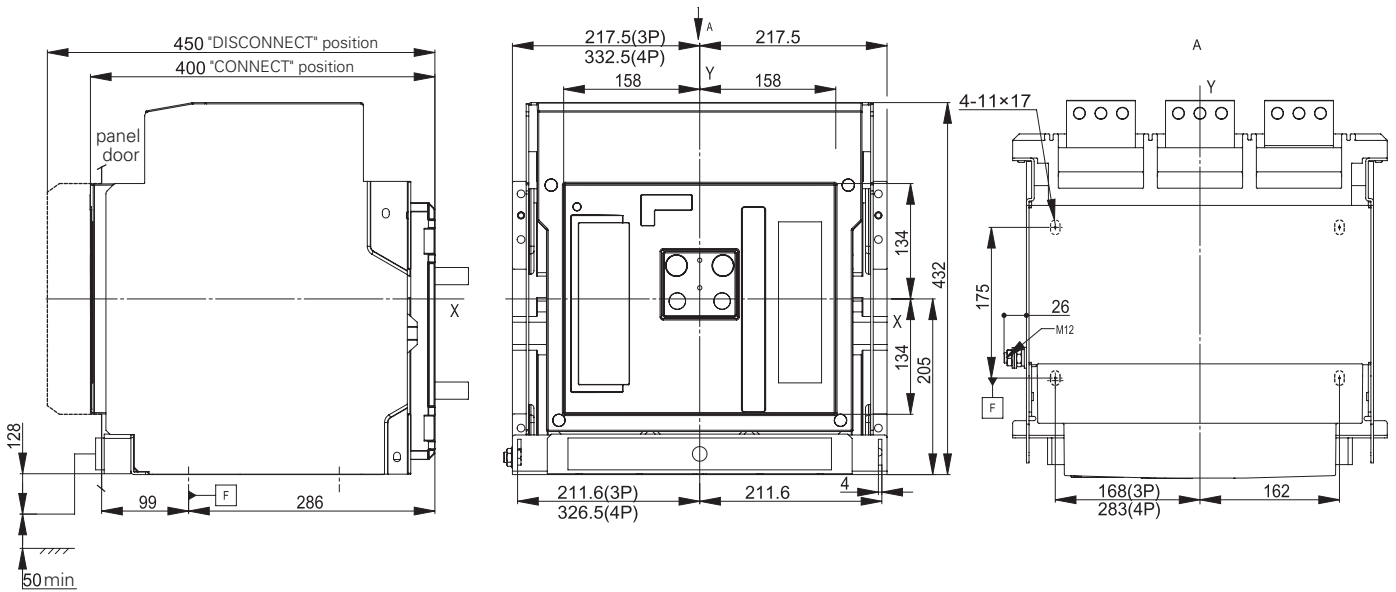
### 3200A-4000A extended terminal



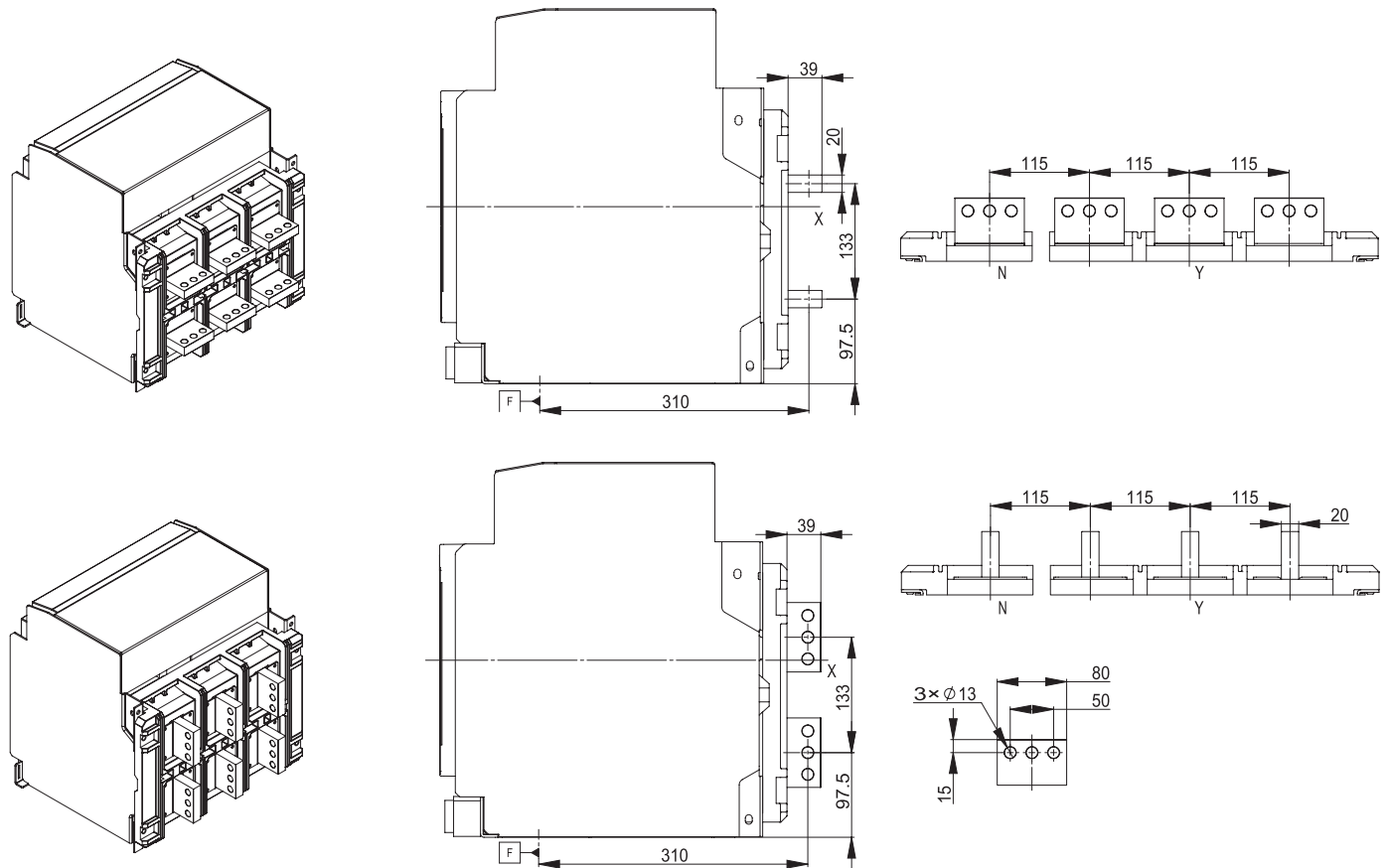
**Note:** X, Y are the symmetrical lines of front cover

(Unit: mm)

### 2500-4000A drawout type



### 2500A horizontal and vertical terminal



**Note:** X, Y are the symmetrical lines of front cover

#### Connection of busbar and terminal Torque value with washer (N.m)

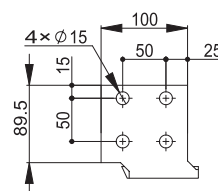
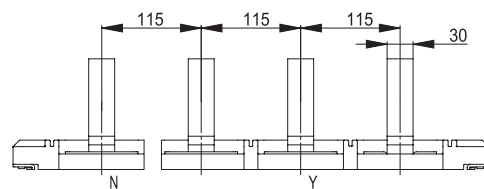
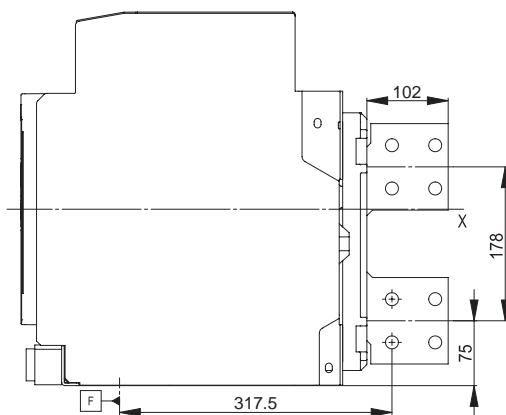
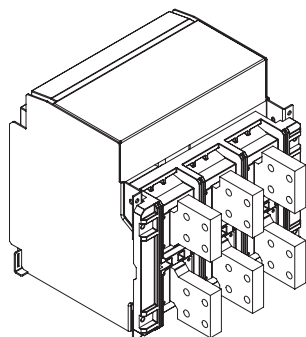
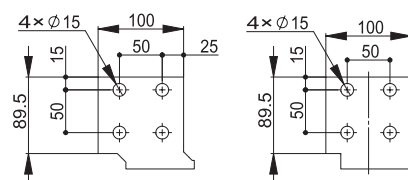
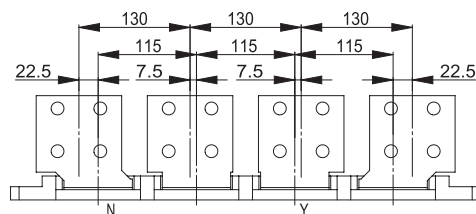
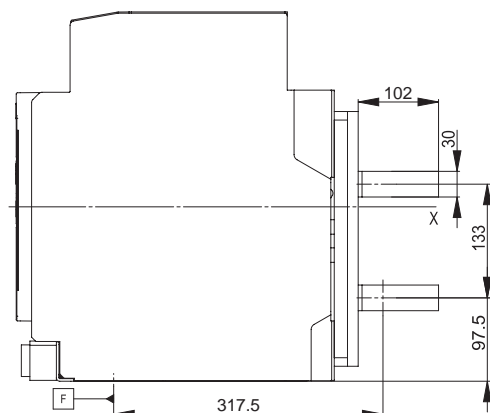
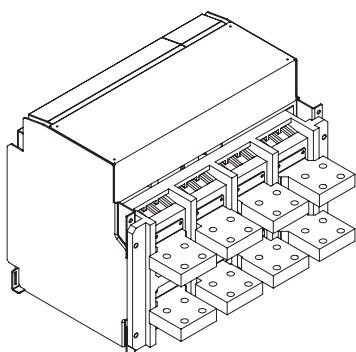
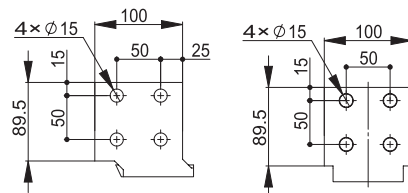
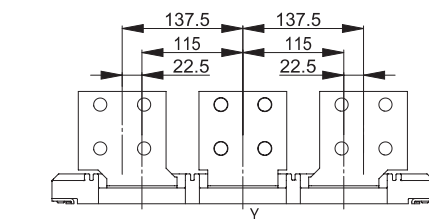
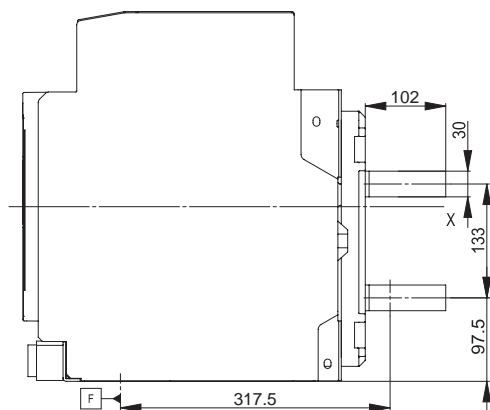
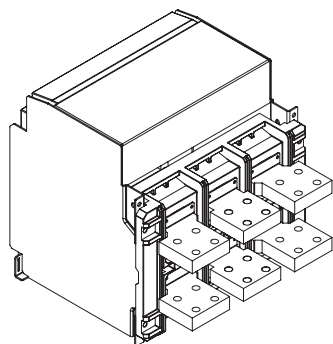
Connection of busbar and terminal	Torque value with washer (N.m)
M12 (2500A)	60
M14 (3200-4000A)	97

# PSL Series Air Circuit Breaker

## Dimensions

(Unit: mm)

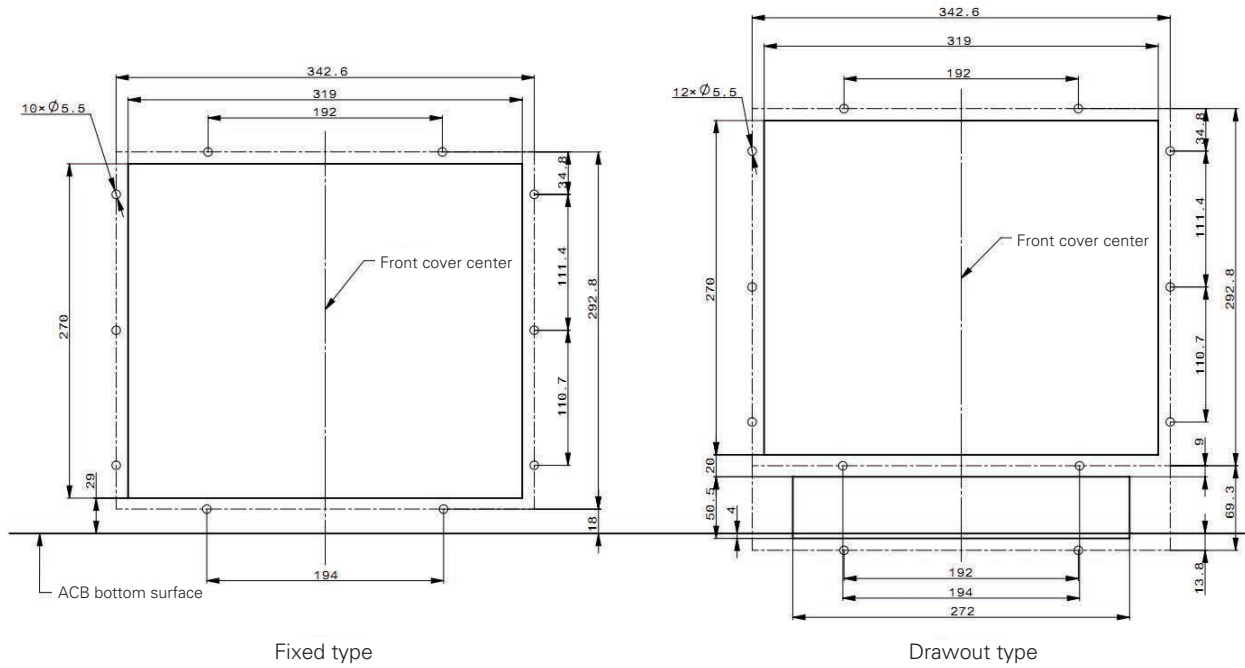
### 3200A-4000A extended terminal



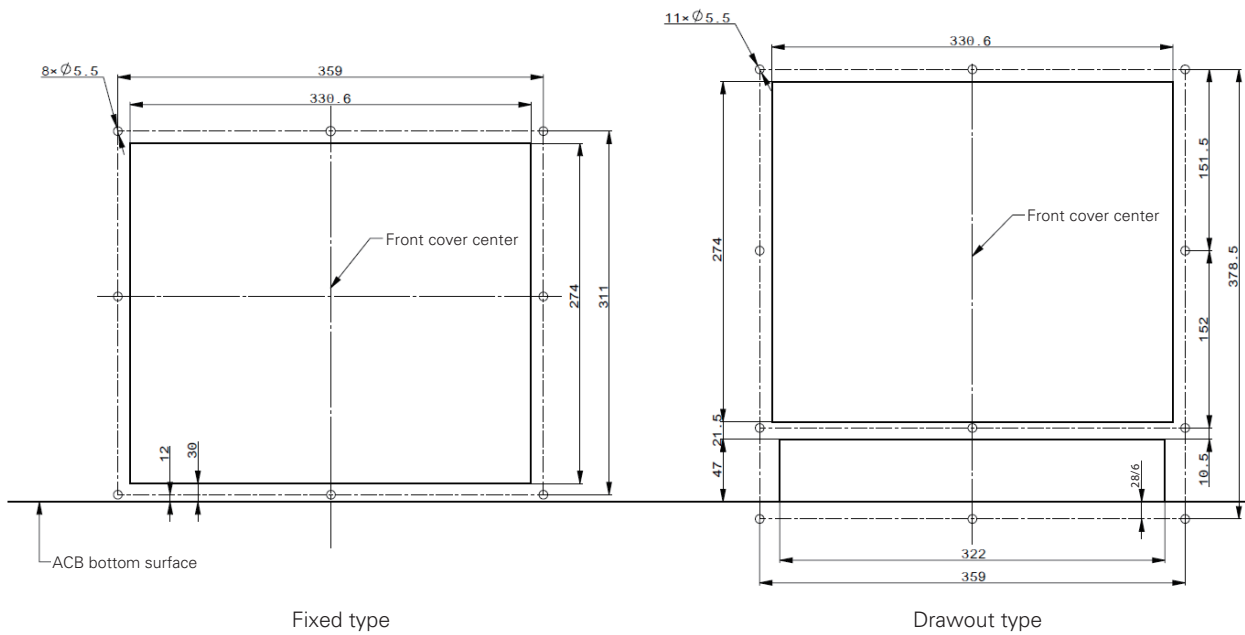
**Note:** X, Y are the symmetrical lines of front cover

(Unit: mm)

### Door cutout and the installation pitch 800-2000A door cutout



### 2500-4000A door cutout





# PSL Series Air Circuit Breaker

## Dimensions



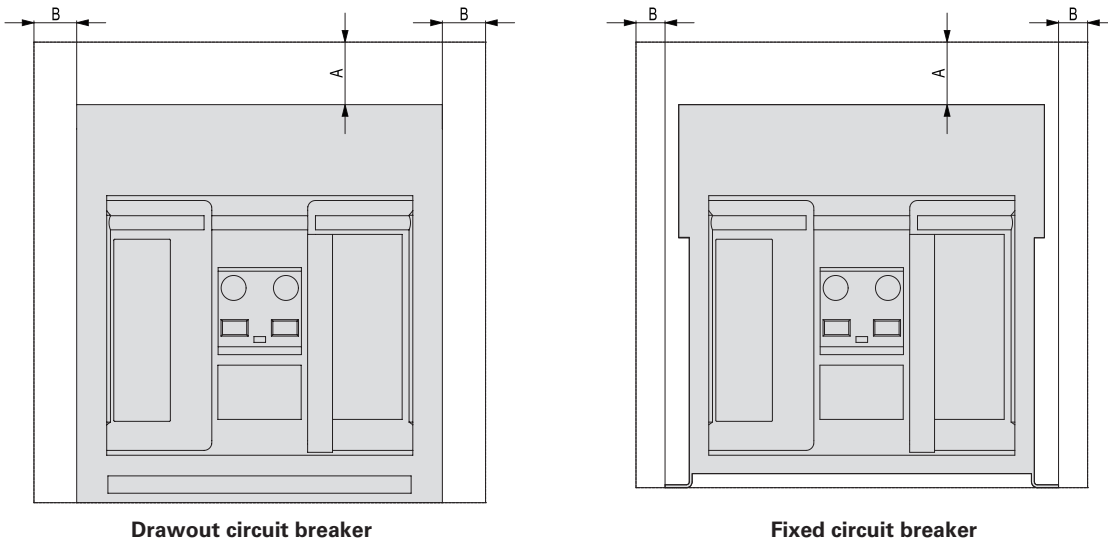
### Circuit Breaker Installation Notes

To ensure the safety of you and the electric equipment, before putting the circuit breaker into operation, users must:

- Carefully read the user instruction Manual before installation and use of the circuit breaker.
- Check whether the specification of the circuit breaker meets the application requirement.
- Install the circuit breaker under the environment condition without explosion danger, conductive dust or the possibility of corroding metal and damaging the insulation.
- Measure the insulation resistance of the circuit breaker with a 1000V megohmmeter before installation of the circuit breaker. When the ambient temperature is  $20^{\circ}\text{C}\pm 5^{\circ}\text{C}$ , the relative humidity 50%-70% should not be less than 10 m Ohm; otherwise it needs to be dried, and it can be used until the insulation resistance meets the requirements.
- Make sure nothing falls into the circuit breaker when installing the circuit breaker.
- Make sure connected busbar is flat without additional mechanical stress.
- Make sure reliable grounding is implemented. The grounding place of the circuit breaker has an obvious grounding symbol.
- Pressing (or powering on) the closing button after the spring is enough charged, then verify and make sure the ACB can be closed.
- Pressing (or powering on) the opening button, verify and make sure the ACB can be opened.

### Recommended safety clearances

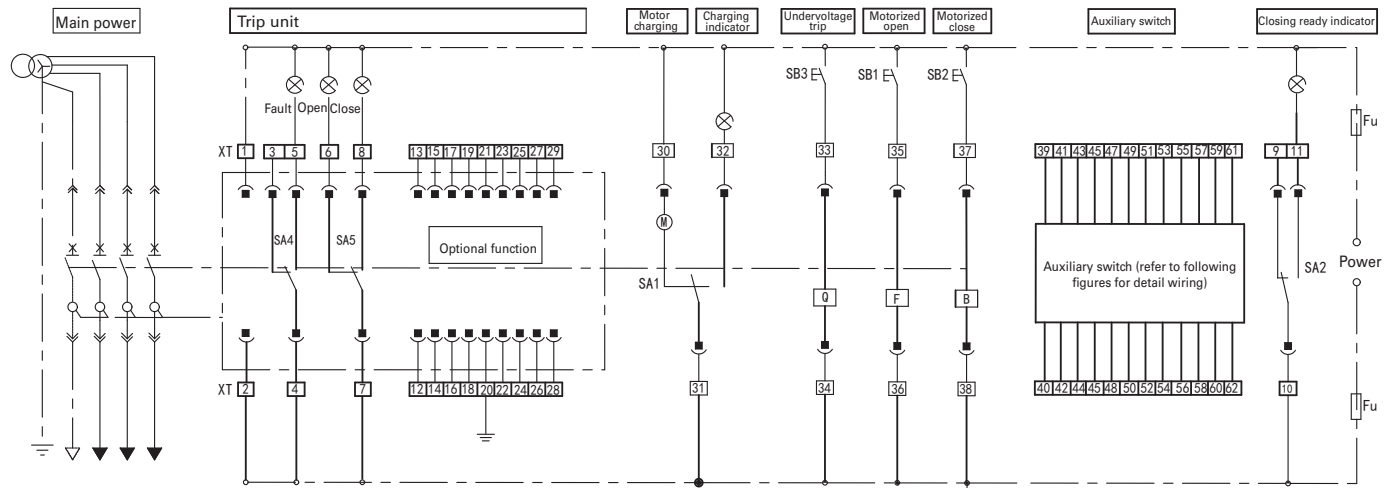
The following information about safety distances is intended to provide a guideline for the installation of circuit-breakers in an enclosure. Refer to Figure 50 and Table 51



Installation type of circuit breaker (unit in mm)	To insulated surface		To metal surface		To live parts	
	A	B	A	B	A	B
Drawout type	0	0	0	0	60	60
Fixed type	0	0	0	0	60	60

### 800-2000A Wiring Diagram

#### Full-function wiring diagram



1, 2 - Working power supply;

3, 4, 5 - OTS fault tripping contact outputs, contact capacity of AC250V/16A;

6, 7, 8 - Opening and closing contact outputs, contact capacity of AC250V/16A;

9, 10, 11 - Closing ready electric indicators;

12, 13 and 14, 15 and 16, 17 and 18, 19 - four groups of signal outputs;

20 - Grounding wire of trip unit;

21, 22, 23, 24 - Voltage signal input ends (N, A, B,C, respectively); when the power distribution system is three-phase three-wire system,

21 and 23 shall be short connected to U2. When it is three-phase fourwire system, carry out wiring according to the wiring diagram.

25, 26 - Input for external CT, or input for remote reset.

27, 28, 29 - Reserved for future use

30, 31, 32 - Electric charging indicators;

33, 34 - Under-voltage release;

35, 36 - Shunt trip;

37, 38 - Spring Release;

39-62 - Connecting terminals of auxiliary switch;

SB2 - Undervoltage button (to be prepared by users);

SB5 - Remote reset button (to be prepared by users);

SA1 - Motor limit switch;

SA2 - Closing ready limit switch;

SA4 - Fault tripping limit switch;

SA5 - Opening and closing indicating limit switch;

XT - Secondary terminal;

F - Shunt trip;

B - Spring release;

Q - Undervoltage (instantaneous or delayed) release;

Fu - Fuse (to be prepared by users);

M - Electrical charging motor.

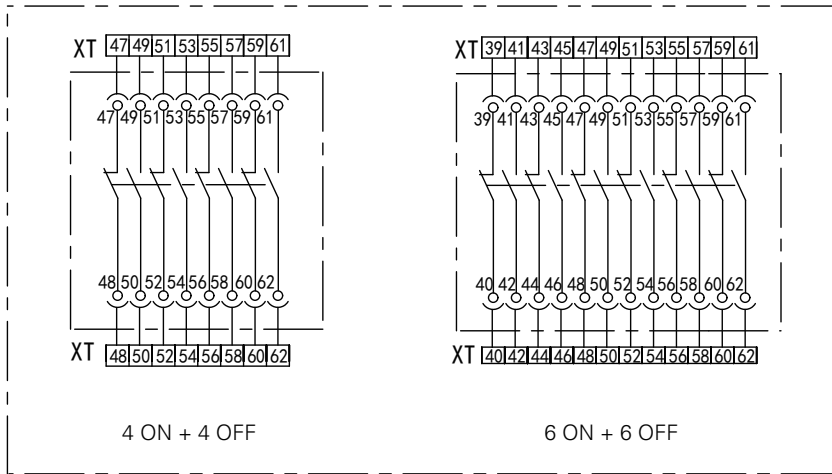
#### Note:

1. The status state of the circuit breaker shown is de-energized, OPEN, connected, discharged;
2. The dashed part shall be wired by users;
3. When the current of the main circuit is less than  $0.4 I_n$ , terminals 1 and 2 must be connected to the auxiliary power supply;

# PSL Series Air Circuit Breaker

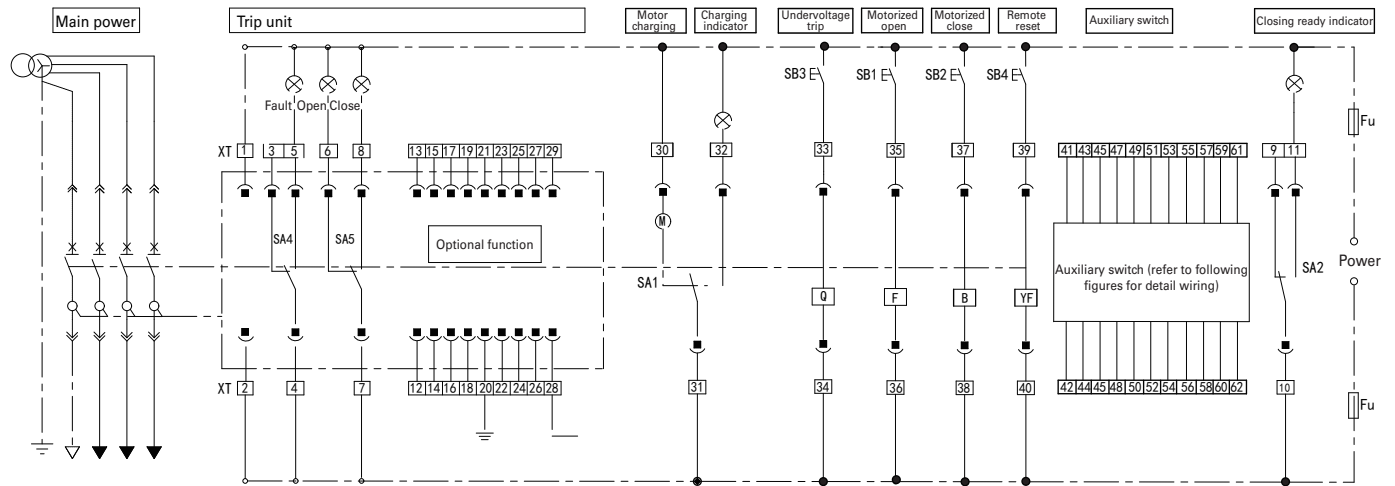
Wiring diagram

## 800-2000A Auxiliary switch wiring diagram



### 2500-4000A Wiring Diagram

#### Full-function wiring diagram



1, 2 - Working power supply;

3, 4, 5 - OTS fault tripping contact outputs, contact capacity of AC250V/16A;

6, 7, 8 - Opening and closing contact outputs, contact capacity of AC250V/16A;

9, 10, 11 - Latch Check Switch(LCS) output;

12, 13 and 14, 15 and 16, 17 and 18, 19 - Reserved for future use;

20 - Grounding wire of trip unit;

21, 22, 23, 24 - Voltage signal input ends (N, A, B,C, respectively); when the power distribution system is three-phase three-wire system, 21 and 23 shall be short connected to U2. When it is three-phase four-wire system, wire according to the wiring diagram.

25, 26 - External CT input;

25, 26 - Input for external CT, or input for remote reset.

27, 28, 29 - Reserved for future use

30, 31, 32 - Electric charging indicators;

33, 34 - Under-voltage release;

35, 36 - Shunt trip;

37, 38 - Spring release;

39,40 - Remote reset

41-44 - Reserved for future use

45-62 - Connecting terminals of auxiliary switch;

SB2 - Undervoltage button (equipped by users);

SB5 - Remote reset button (equipped by users);

SA1 - Motor limit switch;

SA2 - Closing ready limit switch;

SA4 - Fault tripping limit switch;

SA5 - Opening and closing indicating limit switch;

XT - Secondary terminal;

F - Shunt trip;

B - Spring release;

Q - Undervoltage (instantaneous or delayed) release;

YF - Remote reset;

Fu - Fuse (to be prepared by users);

M - Electrical charging motor.

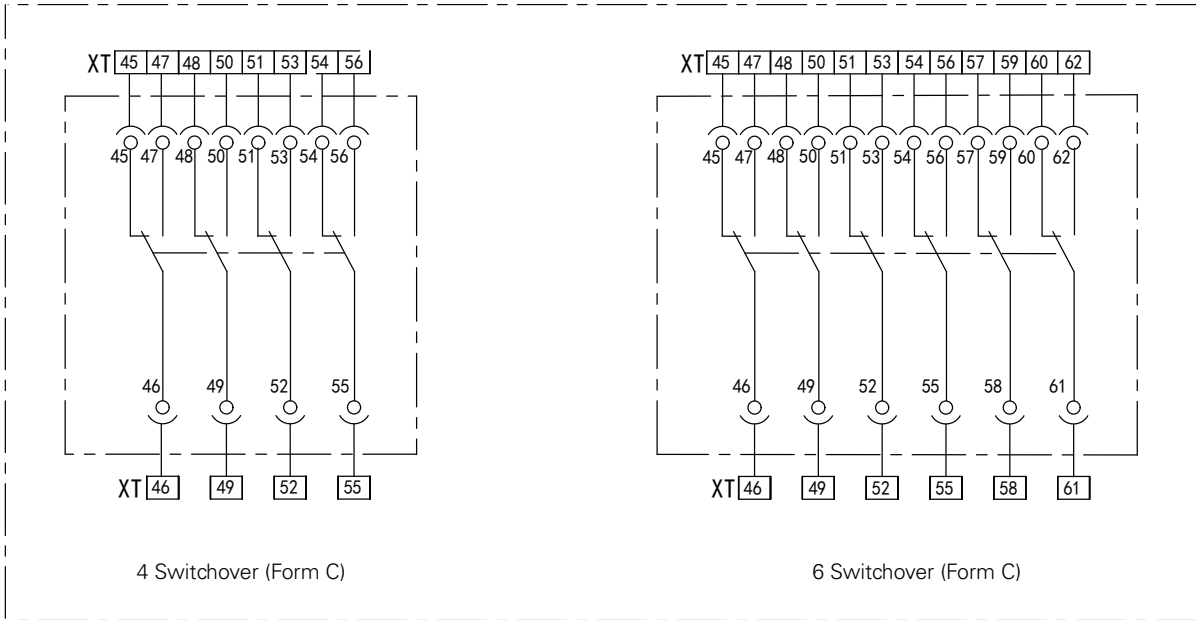
#### Note:

1. The state of the circuit breaker showed is de-energized, disconnected, OPEN, , discharged;
2. The dashed part shall be wired by users;
3. When the current of the main circuit is less than 0.4 In, terminals 1 and 2 must be connected to the auxiliary power supply.

# PSL Series Air Circuit Breaker

## Wiring diagram

### 2500-4000A Auxiliary switch wiring diagram





**Ordering code and part list (print the sheet, tick your selection and provide to Eaton sales representatives)**

P	S	L	6	2	0	3	F	E	N	N	B	V	N	R	R	R	N	N	6	1	Y	Y	N	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

SN	Description	Specification and type code	Note
1-3	Series name	PSL	
4	Icu/lcs/lcw	<input type="checkbox"/> 5: Icu/lcs/lcw = 55kA <input type="checkbox"/> 6: Icu/lcs/lcw = 66kA	
5-6	Rated current	<input type="checkbox"/> 08: 800A <input type="checkbox"/> 10: 1000A <input type="checkbox"/> 12: 1250A <input type="checkbox"/> 16: 1600A <input type="checkbox"/> 20: 2000A <input type="checkbox"/> 25: 2500A <input type="checkbox"/> 32: 3200A <input type="checkbox"/> 40: 4000A	
7	Poles	<input type="checkbox"/> 3: 3 poles <input type="checkbox"/> 4: 4 poles	
8	Mounting	<input type="checkbox"/> F: Fixed and Horizontal terminals <input type="checkbox"/> E: Fixed and Vertical terminals <input type="checkbox"/> D: Drawout and Horizontal terminals <input type="checkbox"/> C: Drawout and Vertical terminals <input type="checkbox"/> Y: Drawout and Horizontal terminals, with cell switch <input type="checkbox"/> V: Drawout and Vertical terminals, with cell switch	
9	Language	<input type="checkbox"/> E: English	
10	Reserved	<input type="checkbox"/> Always use "N" in the code	
11	Grounding fault	<input type="checkbox"/> N: Only LSI or Switch disconnect <input type="checkbox"/> G: LSIG(Residual current) <input type="checkbox"/> S: LSIG(Source grounding) <input type="checkbox"/> Z: LSIG(Zero sequence)	
12	Trip unit	<input type="checkbox"/> N: None(Switch disconnect) <input type="checkbox"/> A: AC380V/AC400V, Digital LED display <input type="checkbox"/> B: AC220V/AC230V, Digital LED display <input type="checkbox"/> E: AC24V/DC24V, Digital LED display <input type="checkbox"/> F: AC380V/AC400V, LCD display <input type="checkbox"/> G: AC220V/AC230V, LCD display <input type="checkbox"/> J: AC24V/DC24V, LCD display	
13	voltage measure	<input type="checkbox"/> N: None(Switch disconnect) <input type="checkbox"/> V: Current measure only <input type="checkbox"/> U: Current and voltage measure	
14	remote reset	<input type="checkbox"/> N: None or Switch disconnect <input type="checkbox"/> 2: AC220V/AC230V remote reset	
15	Shunt trip	<input type="checkbox"/> N: None <input type="checkbox"/> S: 220Vac/dc <input type="checkbox"/> D: 24Vdc	
16	Motor operator	<input type="checkbox"/> M: None(manual charging) <input type="checkbox"/> R: 220Vac/dc <input type="checkbox"/> C: 24Vdc	
17	Spring and LCS	<input type="checkbox"/> N: No SR, No LCS <input type="checkbox"/> A: 110Vac SR, No LCS <input type="checkbox"/> D: 110Vac SR, LCS wired external <input type="checkbox"/> R: 220Vac/dc SR, No LCS <input type="checkbox"/> T: 220Vac/dc SR, LCS wired external	

# PSL Series Air Circuit Breaker

## Ordering code and part list

### Ordering code and part list (print the sheet, tick your selection and provide to Eaton sales representatives) (continued)

SN	Description	Specification and type code	Note
18	UVR(Undervoltage release)	<input type="checkbox"/> N: None <input type="checkbox"/> B: 110Vac, no delay <input type="checkbox"/> S: 220Vac, no delay <input type="checkbox"/> D: 220Vdc, no delay <input type="checkbox"/> Q: 380Vac, no delay <input type="checkbox"/> A: 110Vac, delay 1s <input type="checkbox"/> C: 220Vac, delay 1s <input type="checkbox"/> E: 220Vdc, delay 1s <input type="checkbox"/> F: 380Vac, delay 1s <input type="checkbox"/> G: 110Vac, delay 3s <input type="checkbox"/> H: 220Vac, delay 3s <input type="checkbox"/> J: 220Vdc, delay 3s <input type="checkbox"/> K: 380Vac, delay 3s <input type="checkbox"/> L: 110Vac, delay 5s <input type="checkbox"/> M: 220Vac, delay 5s <input type="checkbox"/> N: 220Vdc, delay 5s <input type="checkbox"/> P: 380Vac, delay 5s	Users can adjust the delay time in the field, but will need to disassembly the front cover
19	Door interlock	<input type="checkbox"/> N: None <input type="checkbox"/> A: With door interlock(right) <input type="checkbox"/> B: With door interlock(left)	
20	Auxiliary Switch	<input type="checkbox"/> N: None <input type="checkbox"/> 4: 4 NO+ 4 NC (800-2000A only) <input type="checkbox"/> 6: 6 NO+ 4 NC (800-2000A only) <input type="checkbox"/> A: 4 Form C switchover (2500-4000A only) <input type="checkbox"/> B: 6 Form C switchover (2500-4000A only)	800-2000A ACB can only support "NO+NC" type, 2500-4000A type can only support Form C switchover type
21	OFF position lock and counter	<input type="checkbox"/> N: No counter, No lock <input type="checkbox"/> K: No counter, with lock <input type="checkbox"/> A: With counter, no lock <input type="checkbox"/> Y: With counter, with lock	
22	Overload tripping switch (OTS) & Door frame	<input type="checkbox"/> N: No OTS, no Door frame <input type="checkbox"/> D: No OTS, with Door frame <input type="checkbox"/> Y: with OTS, no Door frame <input type="checkbox"/> W: With OTS and Door frame	
23	Padlocking cover	<input type="checkbox"/> N: None <input type="checkbox"/> P: Plastic cover	
24	Reserved	<input type="checkbox"/> Always use "N" in the code	
25	Reserved	<input type="checkbox"/> Always use "X" in the code	

### Accessory part list

Accessory type	Article Number	Part type	Detail description
Inter-phase Barrier	90000019500011	PSL-IB203	Inter-phase barrier, 3P set, 2000A frame size
Inter-phase Barrier	90000019500012	PSL-IB204	Inter-phase barrier, 4P set, 2000A frame size
Inter-phase Barrier	90000019500013	PSL-IB403	Inter-phase barrier, 3P set, 4000A frame size
Inter-phase Barrier	90000019500014	PSL-IB404	Inter-phase barrier, 4P set, 4000A frame size
Operation counter	90000019500015	PSL-OC	Operation counter
Operating motor	90000019500016	PSL-M20-110AC	Operating motor, 800-2000A, 110Vac
Operating motor	90000019500017	PSL-M20-220AD	Operating motor, 800-2000A, 220Vac/dc
Operating motor	90000019500018	PSL-M20-24DC	Operating motor, 800-2000A, 24Vdc
Operating motor	90000019500019	PSL-M20-380AC	Operating motor, 800-2000A, 380Vac
Operating motor	90000019500020	PSL-M40-110AC	Operating motor, 2500-4000A, 110Vac
Operating motor	90000019500021	PSL-M40-220AD	Operating motor, 2500-4000A, 220Vac/dc
Operating motor	90000019500022	PSL-M40-24DC	Operating motor, 2500-4000A, 24Vdc
Operating motor	90000019500023	PSL-M40-380AC	Operating motor, 2500-4000A, 380Vac
Spring release	90000019500024	PSL-SR110AC	Spring release, 110Vac
Spring release	90000019500025	PSL-SR220AD	Spring release, 220Vac/dc

## Accessory part list (continued)

Accessory type	Article Number	Part type	Detail description
Spring release	90000019500026	PSL-SR24DC	Spring release, 24Vdc
Spring release	90000019500027	PSL-SR380AC	Spring release, 380Vac
Shunt trip	90000019500028	PSL-ST110AC	Shunt trip, 110Vac
Shunt trip	90000019500029	PSL-ST220AD	Shunt trip, 220Vac/dc
Shunt trip	90000019500030	PSL-ST24DC	Shunt trip, 24Vdc
Shunt trip	90000019500031	PSL-ST380AC	Shunt trip, 380Vac
Under-voltage release	90000019500032	PSL-UVR110AC	Under-voltage release, 110Vac
Under-voltage release	90000019500033	PSL-UVR220AC	Under-voltage release, 220Vac
Under-voltage release	90000019500034	PSL-UVR220DC	Under-voltage release, 220Vdc
Under-voltage release	90000019500035	PSL-UVR380AC	Under-voltage release, 380Vac
Latch Check switch	90000019500036	PSL-LCS	Latch check switch
Auxiliary switch	90000019500037	PSL-AS66	Auxiliary switch, 6a6b
Auxiliary switch	90000019500038	PSL-AS066	Auxiliary switch, 6 pairs switch over
Overload tripping switch	90000019500039	PSL-OTS	Overload tripping switch
Vertical terminal adaptor	90000019500040	PSL-TVH20	H/V adaptor for rear terminal, 800-2000A only
Door frame and gasket	90000019500041	PSL-DEG20-F	Door frame and gasket, 800-2000A, fixed type
Door frame and gasket	90000019500042	PSL-DEG20-W	Door frame and gasket, 800-2000A, drawout type
Door frame and gasket	90000019500043	PSL-DEG40-F	Door frame and gasket, 2500-4000A, fixed type
Door frame and gasket	90000019500044	PSL-DEG40-W	Door frame and gasket, 2500-4000A, drawout type
Lev in/out lever	90000019500045	PSL-LT	Lev in/out lever
Mechanical interlock	90000019500046	PSL-MIL2C-F	Mechanical interlock set, 1.5m cable, fixed type, 1 normal supply and 1 backup
Mechanical interlock	90000019500047	PSL-MIL31C-F	Mechanical interlock set, 1.5m cable, fixed type, 2 normal supply and 1 backup
Mechanical interlock	90000019500048	PSL-MIL33C-F	Mechanical interlock set, 1.5m cable, fixed type, 1 normal supply and 2 backup
Mechanical interlock	90000019500049	PSL-MIL2C-W	Mechanical interlock set, 1.5m cable, drawout type, 1 normal supply and 1 backup
Mechanical interlock	90000019500050	PSL-MIL31C-W	Mechanical interlock set, 1.5m cable, drawout type, 2 normal supply and 1 backup
Mechanical interlock	90000019500051	PSL-MIL33C-W	Mechanical interlock set, 1.5m cable, drawout type, 1 normal supply and 2 backup
External neutral sensor	90000019500052	PSL-CTN08	External neutral sensor, 800A
External neutral sensor	90000019500053	PSL-CTN16	External neutral sensor, 1000-1600A
External neutral sensor	90000019500054	PSL-CTN20	External neutral sensor, 2000A
External neutral sensor	90000019500055	PSL-CTN25	External neutral sensor, 2500A
External neutral sensor	90000019500056	PSL-CTN32	External neutral sensor, 3200A
External neutral sensor	90000019500057	PSL-CTN40	External neutral sensor, 4000A
Locking ON/OFF buttons	90000019500058	PSL-PLPC	Locking ON/OFF buttons, plastic cover
Safe OFF lock	90000019500059	PSL-1L1K	Safe OFF lock, 1 lock and 1 key
Cell switch	90000019500060	PSL-CS	Cell switch
Control terminal block	90000019500061	PSL-TB-F	secondary terminal block, fixed type, 62 pins
Control terminal block	90000019500062	PSL-TB-W	secondary terminal block, drawout type, 62 pins

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