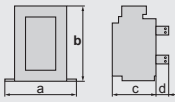
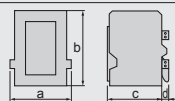


# DATA SHEET: TEMPOWER 2 ACB

Types: AR208S, AR212S, AR216S, AR220S,

## Electrical Characteristics to IEC 609647-1, IEC 60947-2

Type		AR208S	AR212S	AR216S	AR220S			
<b>Series</b>		Standard	Standard	Standard	Standard			
AMPERE RATING(A)		800	1250	1600	2000			
RATED CURRENT (max) [ $I_n$ ](A) ① ②	JIS ⑫, IEC, EN, AS	800	1250	1600	2000			
	NEMA, ANSI	800	1250	1540	2000			
	Marine	800	1250	1600	2000			
NEUTRAL POLE AMPERES FRAME (A)		800	1250	1600	2000			
NUMBER OF POLES ③ ④		3 4	3 4	3 4	3 4			
RATED PRIMARY CURRENT OF OVER-CURRENT RELEASE [ $I_{CT}$ ](A) • for general feeder circuit use		200	400	400	400			
		400	800	800	800			
		800	1000	1250	1250			
			1250	1600	2000			
RATED CURRENT OF OVER-CURRENT RELEASE (A) • for generator protection use [ $I_n$ ] is generator rated current.		$100 \leq I_n \leq 200$ $200 < I_n \leq 400$ $400 < I_n \leq 800$	$200 \leq I_n \leq 400$ $400 < I_n \leq 800$ $630 < I_n \leq 1250$	$200 \leq I_n \leq 400$ $400 < I_n \leq 800$ $630 < I_n \leq 1250$ $800 < I_n < 1600$	$200 \leq I_n \leq 400$ $400 < I_n \leq 800$ $630 < I_n \leq 1250$ $800 < I_n \leq 1600$ $1000 < I_n \leq 2000$			
AC RATED INSULATION VOLTAGE [U](V. 50/60Hz)		1000	1000	1000	1000			
RATED OPERATIONAL VOLTAGE [ $U_e$ ](V. 50/60Hz)		690	690	690	690			
AC RATED INSULATION VOLTAGE [kA sym rms]/MAKING CAP [kA peak]								
JIS ⑫, IEC, EN, AS AC [ $I_{CS} = I_{CU}$ ]	690V ⑤	50/105	50/105	50/105	50/105			
	440V	65/143 ⑥	65/143 ⑥	65/143 ⑥	65/143 ⑥			
NEMA ANSI	AC 635V	42/96.6	42/96.6	42/96.6	42/96.6			
	508V	50/115	50/115	50/115	50/115			
	254V	65/149.5	65/149.5	65/149.5	65/149.5			
⑦	DC 600V ⑧	40/40	40/40	40/40	40/40			
	250V	40/40	40/40	40/40	40/40			
NK ⑨	AC 690V	50/115	50/115	50/115	50/115			
	450V	65/153 ⑥	65/153 ⑥	65/153 ⑥	65/153 ⑥			
LR, AB, ⑨ GL, BV	AC 690V	50/115	50/115	50/115	50/115			
	450V	65/153 ⑥	65/153 ⑥	65/153 ⑥	65/153 ⑥			
RATED IMPULSE WITHSTAND VOLTAGE [ $U_{imp}$ ](kV)		12	12	12	12			
RATED SHORT TIME WITHSTAND	1s	65	65	65	65			
CURRENT [ $I_{cw}$ ](kA rms)	3s	50	50	50	50			
LATCHING CURRENT (kA)		65	65	65	65			
TOTAL BREAKING TIME (s)		0.03	0.03	0.03	0.03			
CLOSING OPERATION TIME								
SPRING CHARGING TIME (s) max.		10	10	10	10			
CLOSE TIME (s) max.		0.08	0.08	0.08	0.08			
No. of operating cycles								
Mechanical life	with maintenance	30000	30000	30000	25000			
	without maintenance	15000	15000	15000	12000			
Electrical life	without maintenance AC460V	12000	12000	12000	10000			
	AC690V	10000	10000	10000	7000			
Draw-Out Body (kg)	⑪	45 51	45 51	46 52	46 52			
Draw-Out Chassis (kg)	⑪	28 35	28 35	30 38	33 42			
Total Draw-Out Weight (kg)	⑪	73 86	73 86	76 90	79 94			
Fixed (kg)	⑪	53 59	53 59	54 60	54 60			
OUTLINE DIMENSION (mm)								
FIXED TYPE		a	360	445	360	445	360	445
		b	460	460	460	460	460	
		c	290	290	290	290		
		d	75	75	75	75		
DRAW-OUT TYPE		a	354	439	354	439	354	439
		b	460	460	460	460		
		c	345	345	345	345		
		d	40	40	40	40		

① : Values in open air at 40°C (45°C for marine applications).

② : Values of AR208S, AR212S, AR216S for draw-out type with horizontal terminals, Values of the other ACBs for draw-out type with vertical terminals.

③ : For 2 pole ACBs use outside poles of 3 pole ACB.

④ : 4poles ACBs without Neutral phases protection can not apply IT earthing system.

⑤ : Contact TERASAKI for the details.

⑥ : For 500V AC.

⑦ : AGR OCRs can not be used for DC. Please contact TERASAKI for DC application.

⑧ : A special version of the ACB is required above 250V DC. Contact Terasaki for details.

⑨ : Applicable to only 3 pole ACBs.

⑩ : For vertical terminals or horizontal terminals.

⑪ : These weights are based on normal specifications with the OCR and standard accessories

⑫ : Comply with JIS C 8201-2-1 Ann.1 Ann.2

# : Contact TERASAKI for the ratings.

**Note:** When the INST trip function is set to NON, the MCR function should be enabled, otherwise, the rated breaking capacity is reduced to the rated latching current.

# DATA SHEET: TEMPOWER2 ACB

Types: AR208S, AR212S, AR216S, AR220S,

L-characteristic for general feeder circuits (Type AGR-11BL, 21BL, 31BL)

## Specifications

### Setting range of protection functions

Protection functions	Setting range																					
<b>Adjustable long time-delay trip characteristics</b> <b>LT</b> Pick-up current [ $I_R$ ] (A) Time-delay [ $t_R$ ] (s) Time-delay setting tolerance (%)	$[I_n] \times (0.8 - 0.85 - 0.9 - 0.95 - \underline{1.0} - \text{NON})$ ; 6 graduations • Non tripping when load current $\leq ([I_R] \times 1.05)$ . • Tripping when $([I_R] \times 1.05) < \text{load current} \leq ([I_R] \times 1.2)$ $(0.5 - 1.25 - 2.5 - 5 - \underline{10} - 15 - 20 - 25 - 30)$ at 600% of [ $I_R$ ]; 9 graduations $\pm 15\%$ +150ms - 0ms																					
<b>Adjustable short time-delay trip characteristics</b> <b>ST</b> Pick-up current [ $I_{SD}$ ] (A) Current setting tolerance (%) Time-delay [ $t_{SD}$ ] (ms) Relay time Resettable time (ms) Max. total clearing time (ms)	$[I_n] \times (1 - 1.5 - 2 - 2.5 - 3 - 4 - \underline{6} - 8 - 10 - \text{NON})$ ; 10 graduations $\pm 15\%$ <table border="1"> <tr> <td>50</td><td>100</td><td>200</td><td>400</td><td>600</td><td>800</td> </tr> <tr> <td>25</td><td>75</td><td>175</td><td>375</td><td>575</td><td>775</td> </tr> <tr> <td>120</td><td>170</td><td>270</td><td>470</td><td>670</td><td>870</td> </tr> </table> ; 6 graduations	50	100	200	400	600	800	25	75	175	375	575	775	120	170	270	470	670	870			
50	100	200	400	600	800																	
25	75	175	375	575	775																	
120	170	270	470	670	870																	
<b>Adjustable instantaneous trip characteristics</b> <b>INST</b> or <b>MCR</b> (For AGR-11B, INST only) Pick-up current [ $I_I$ ] (A) Current setting tolerance (%)	$[I_n] \times (2 - 4 - 6 - 8 - 10 - 12 - 14 - \underline{16} - \text{NON})$ ; 9 graduations $\pm 20\%$																					
<b>Adjustable pre-trip alarm characteristics</b> <b>PTA</b> Pick-up current [ $I_{P1}$ ] (A) Current setting tolerance (%) Time-delay [ $t_{P1}$ ] (s) Time-delay setting tolerance (%)	$[I_n] \times (0.75 - 0.8 - 0.85 - 0.9 - \underline{0.95} - 1.0)$ ; 6 graduations $\pm 7.5\%$ $(5 - 10 - 15 - 20 - 40 - 60 - 80 - \underline{120} - 160 - 200)$ at [ $I_{P1}$ ] or more; 10 graduations $\pm 15\%$ +100ms - 0ms																					
<b>Adjustable ground fault trip characteristics</b> <b>GF</b> Pick-up current [ $I_G$ ] (A) Current setting tolerance (%) Time-delay [ $t_G$ ] (ms) Relay time Resettable time (ms) Max. total clearing time (ms)	Note: Set [ $I_G$ ] to 1200A or less. $[I_{CT}] \times (0.1 - \underline{0.2} - 0.3 - 0.4 - 0.6 - 0.8 - 1.0 - \text{NON})$ ; 8 graduations $\pm 20\%$ <table border="1"> <tr> <td>100</td><td>200</td><td>300</td><td>500</td><td>1000</td><td>2000</td> </tr> <tr> <td>75</td><td>175</td><td>275</td><td>475</td><td>975</td><td>1975</td> </tr> <tr> <td>170</td><td>270</td><td>370</td><td>570</td><td>1070</td><td>2070</td> </tr> </table> ; 6 graduations	100	200	300	500	1000	2000	75	175	275	475	975	1975	170	270	370	570	1070	2070			
100	200	300	500	1000	2000																	
75	175	275	475	975	1975																	
170	270	370	570	1070	2070																	
Ground fault trip characteristics on line side <b>REF</b> (AGR-21B, 31B only) Pick-up current [ $I_{REF}$ ] (A) current setting tolerance (%) Time-delay (s)	$[I_{CT}] \times (0.1 - \underline{0.2} - 0.3 - 0.4 - 0.6 - 0.8 - 1.0 - \text{NON})$ ; 8 graduations $\pm 20\%$ Inst																					
<b>N-phase protection characteristics</b> <b>NP</b> Pick-up current [ $I_N$ ] (A) Time-delay [ $t_N$ ] (s) Time-delay setting tolerance (%)	$[I_{CT}] \times (0.4 - 0.5 - 0.63 - 0.8 - 1.0)$ ; Factory set to a user-specified value for AGR-11BL. • Non tripping when load current $\leq ([I_N] \times 1.05)$ . • Tripping when $([I_N] \times 1.05) < \text{load current} \leq ([I_N] \times 1.2)$ Tripping at 600% of [ $I_N$ ] with <b>LT</b> time-delay [ $t_R$ ] $\pm 15\%$ +150ms - 0ms																					
<b>Phase rotation protection characteristics</b> <b>NS</b> (AGR-21B, 31B only) Pick-up current [ $I_{NS}$ ] (A) current setting tolerance (%) Time-delay [ $t_{NS}$ ] (s) Time-delay setting tolerance (%)	$[I_n] \times (0.2 - 0.3 - \underline{0.4} - 0.5 - 0.6 - 0.7 - 0.8 - 0.9 - 1.0)$ ; 9 graduations $\pm 10\%$ $(0.4 - 0.8 - 1.2 - 1.6 - 2 - 2.4 - 2.8 - 3.2 - 3.6 - \underline{4})$ at 150% of [ $I_{NS}$ ]; 10 graduations $\pm 20\%$ +150ms - 0ms																					
<b>Adjustable earth leakage trip characteristics</b> <b>ELT</b> (AGR-31B only) Pick-up current [ $I_{AR}$ ] (A) Current setting tolerance Time-delay [ $t_{AR}$ ] (ms) Relay time Resettable time (ms) Max. total clearing time (ms)	$0.2 - 0.3 - \underline{0.5}$ (Medium sensitivity) or $1 - 2 - 3 - \underline{5} - 10$ (Low sensitivity) Non operate below 70% of [ $I_{AR}$ ]. Operate between 70% and 100% of [ $I_{AR}$ ]. <table border="1"> <tr> <td>100</td><td>150</td><td>300</td><td>500</td><td>800</td><td>1500</td><td>3000</td> </tr> <tr> <td>50</td><td>100</td><td>250</td><td>450</td><td>750</td><td>1450</td><td>2950</td> </tr> <tr> <td>250</td><td>300</td><td>450</td><td>650</td><td>950</td><td>1650</td><td>3150</td> </tr> </table> ; 7 graduations	100	150	300	500	800	1500	3000	50	100	250	450	750	1450	2950	250	300	450	650	950	1650	3150
100	150	300	500	800	1500	3000																
50	100	250	450	750	1450	2950																
250	300	450	650	950	1650	3150																
<b>Undervoltage alarm characteristics</b> <b>UV</b> (AGR-31B only) Recovery setting voltage (V) Recovery voltage setting tolerance (%) Setting voltage (V) Voltage setting tolerance (%) Time-delay (s) Time-delay setting tolerance (%)	$[V_n] \times (0.8 - \underline{0.85} - 0.9 - 0.95)$ ; 4 graduations $\pm 5\%$ $[V_n] \times (0.4 - \underline{0.6} - 0.8)$ ; 3 graduations $\pm 5\%$ $0.1 - 0.5 - \underline{1} - 2 - 5 - 10 - 15 - 20 - 30 - 36$ ; 10 graduations $\pm 15\%$ +100ms-0ms																					
<b>Control power</b>	<table border="1"> <tr> <td>AC100 - 120V</td> <td rowspan="2">Common</td> <td>DC100 - 125V</td> <td rowspan="2">Common</td> <td>DC24V</td> <td rowspan="2">Common</td> </tr> <tr> <td>AC200 - 240V</td> <td>DC200 - 250V</td> <td>DC48V</td> </tr> </table> Power consumption: 5 VA	AC100 - 120V	Common	DC100 - 125V	Common	DC24V	Common	AC200 - 240V	DC200 - 250V	DC48V												
AC100 - 120V	Common	DC100 - 125V		Common		DC24V		Common														
AC200 - 240V		DC200 - 250V	DC48V																			

\_\_\_ : Default setting

# DATA SHEET: TEMPOWER2 ACB

Types: AR208S, AR212S, AR216S, AR220S,

L-characteristic for general feeder circuits (Type AGR-11BL, 21BL, 31BL)

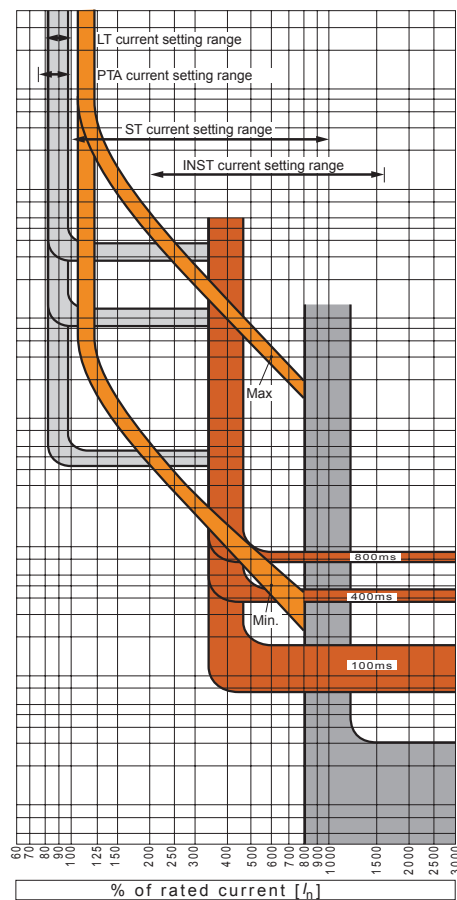
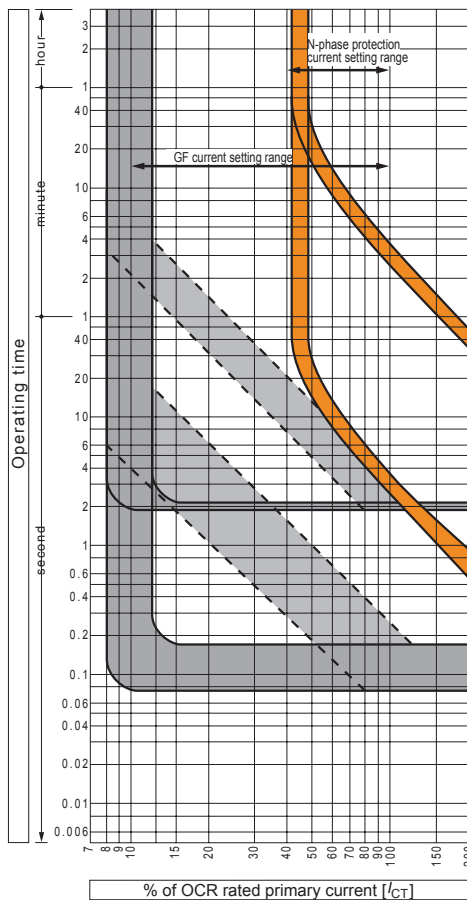
## Specifications

### Values of $[I_{CT}]$ and $[I_n]$

Type	Applicable $[I_{CT}]$ (A)	Rated current $[I_n]$ (A)			
		$[I_{CT}] \times 0.5$	$[I_{CT}] \times 0.63$	$[I_{CT}] \times 0.8$	$[I_{CT}] \times 1.0$
AR208S	200	100	125	160	200
	400	200	250	320	400
	800	400	500	630	800
AR212S	400	200	250	320	400
	800	400	500	630	800
	1000	500	630	800	1000
	1250	630	800	1000	1250
AR216S	400	200	250	320	400
	800	400	500	630	800
	1000	500	630	800	1000
	1250	630	800	1000	1250
	1600	800	1000	1250	1600

Type	Applicable $[I_{CT}]$ (A)	Rated current $[I_n]$ (A)			
		$[I_{CT}] \times 0.5$	$[I_{CT}] \times 0.63$	$[I_{CT}] \times 0.8$	$[I_{CT}] \times 1.0$
AR220S	400	200	250	320	400
	800	400	500	630	800
	1000	500	630	800	1000
	1250	630	800	1000	1250
	1600	800	1000	1250	1600
	2000	1000	1250	1600	2000

## PROTECTION CHARACTERISTICS



The ST trip characteristic shown in the figure applies when the ramp characteristic select switch is in the OFF position.

# DATA SHEET: TEMPOWER2 ACB

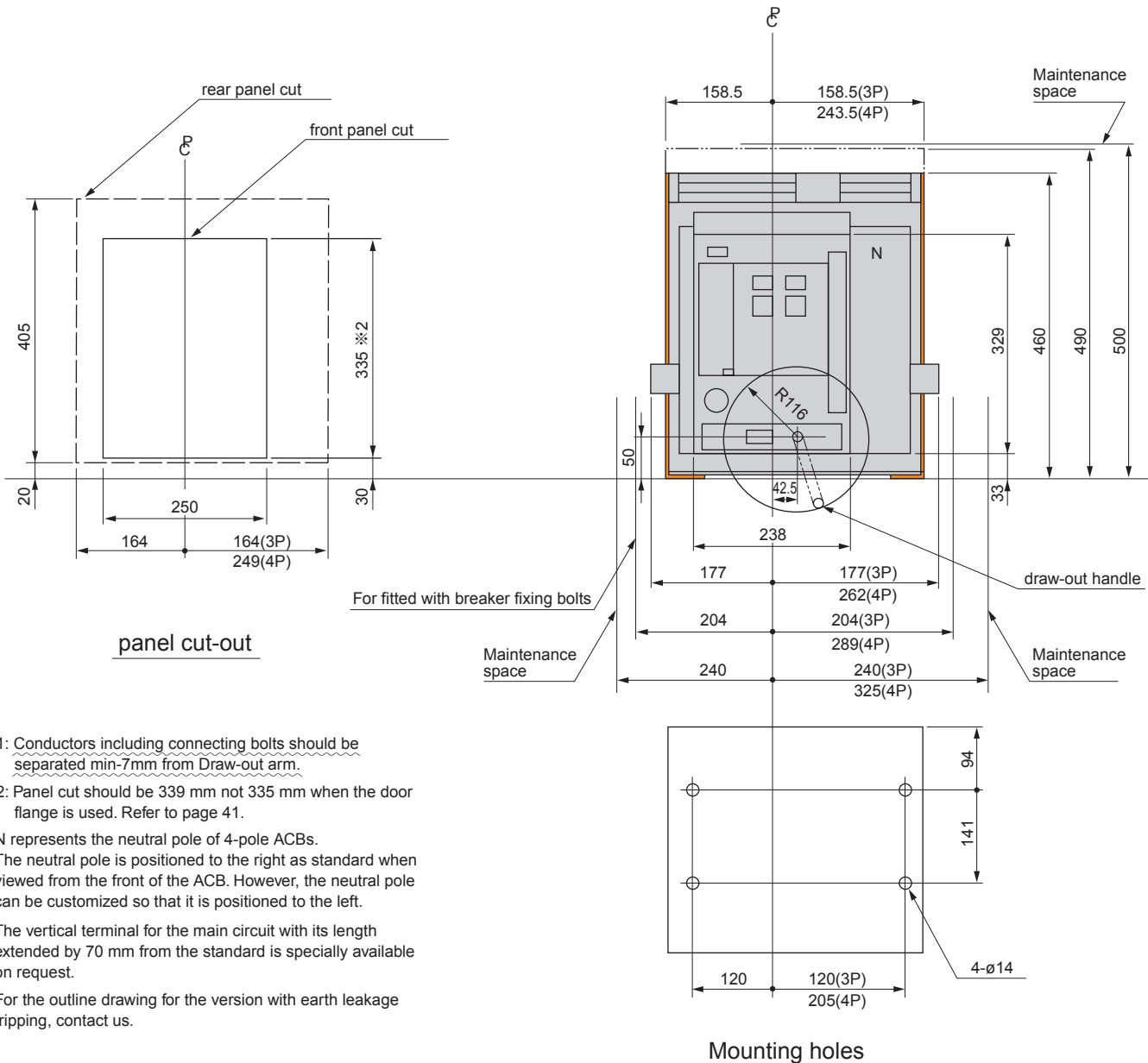
Types: AR208S, AR212S, AR216S, AR220S,

## Drawout Type Outline Dimensions

$\mathcal{P}$ : ACB Front cover center line

### Terminal size

Type	(t <sub>1</sub> )	(t <sub>2</sub> )	(t <sub>3</sub> )	W
AR208S	10	10	15	17.5
AR212S	10	10	15	17.5
AR216S	20	15	25	22.5
AR220S	20	15	25	—



※1: Conductors including connecting bolts should be separated min-7mm from Draw-out arm.

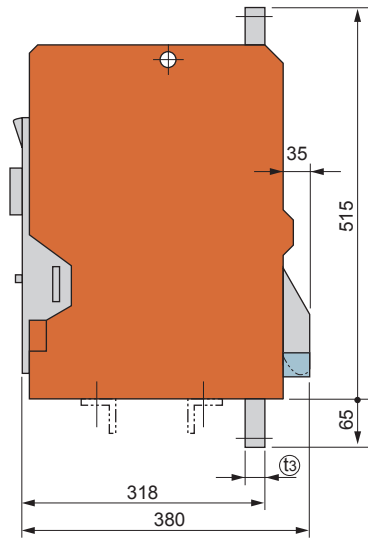
※2: Panel cut should be 339 mm not 335 mm when the door flange is used. Refer to page 41.

- N represents the neutral pole of 4-pole ACBs. The neutral pole is positioned to the right as standard when viewed from the front of the ACB. However, the neutral pole can be customized so that it is positioned to the left.
- The vertical terminal for the main circuit with its length extended by 70 mm from the standard is specially available on request.
- For the outline drawing for the version with earth leakage tripping, contact us.

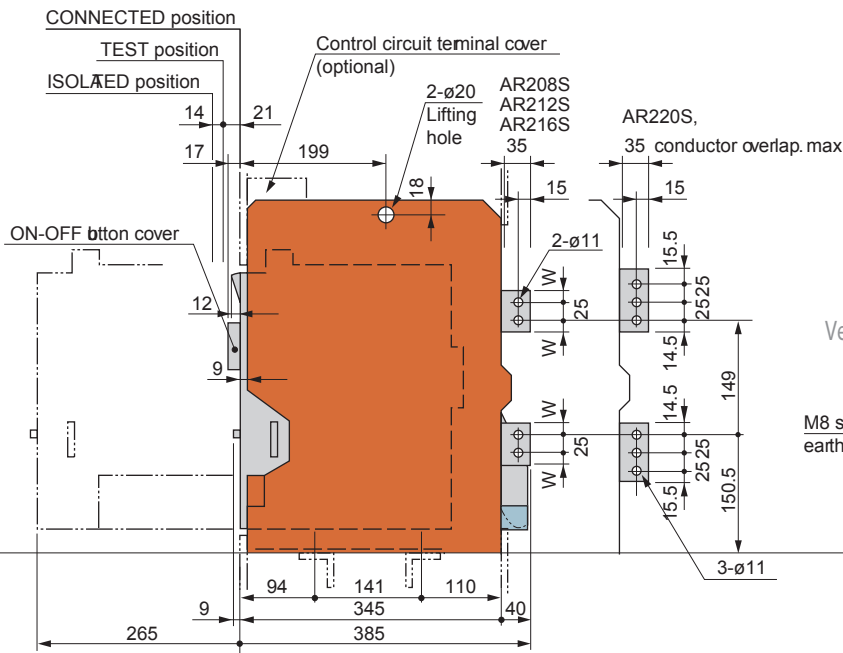
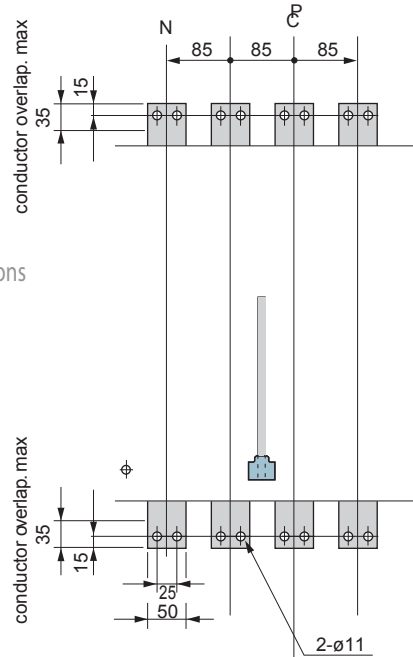
# DATA SHEET: TEMPOWER2 ACB

Types: AR208S, AR212S, AR216S, AR220S,

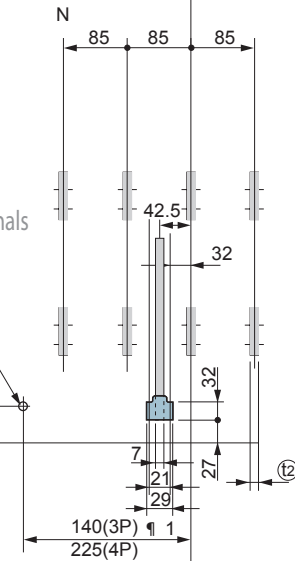
## Draw-out Type Outline Dimensions



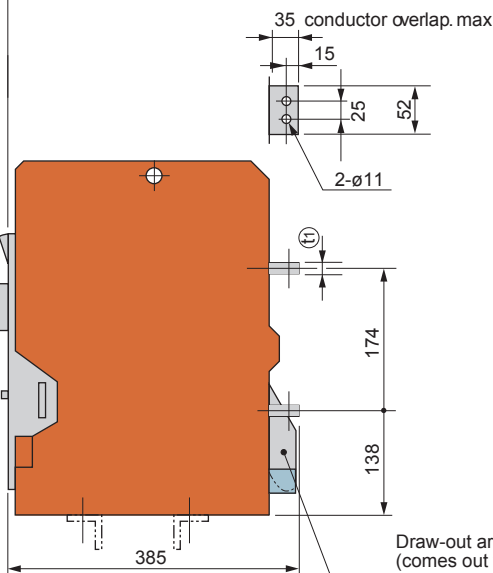
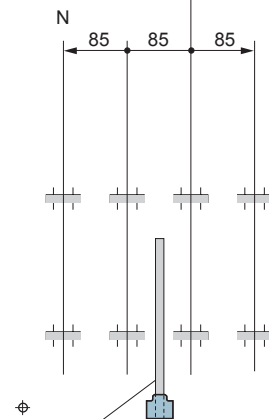
Front connections



Vertical terminals



Horizontal terminals



Draw-out arm (comes out when breaker is drawn out)

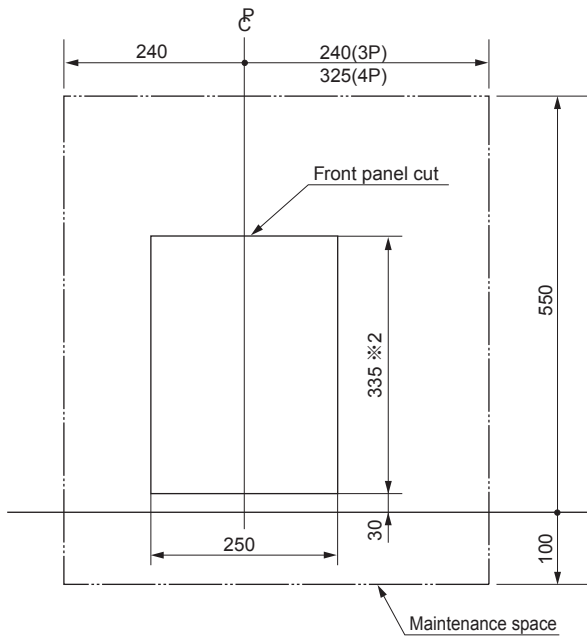
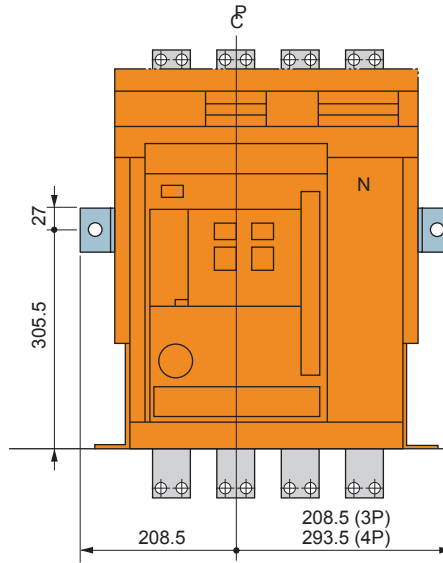
# DATA SHEET: TEMPOWER2 ACB

Types: AR208S, AR212S, AR216S, AR220S,

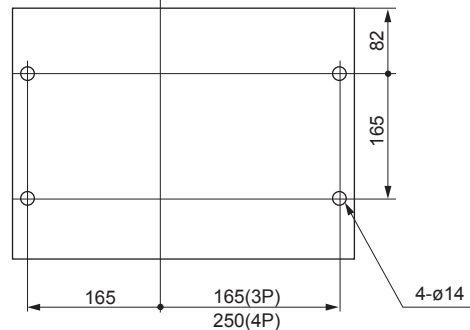
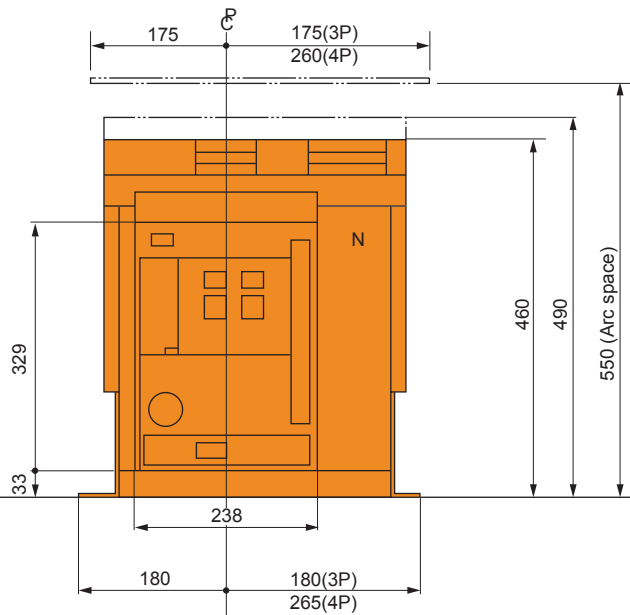


## Fixed Type Outline Dimensions

Ⓢ: ACB Front cover center line



Panel cutout



Mounting holes

### Terminal size

Type	t <sub>1</sub>	t <sub>2</sub>	t <sub>3</sub>	W
AR208S	10	10	15	17.5
AR212S	10	10	15	17.5
AR216S	20	15	25	22.5
AR220S	20	15	25	—

※2: Panel cut should be 339 mm not 335 mm when the door flange is used. Refer to page 41.

- N represents the neutral pole of 4-pole ACBs.  
The neutral pole is positioned to the right as standard when viewed from the front of the ACB. However, the neutral pole can be customized so that it is positioned to the left.
- For the outline drawing for the version with earth leakage tripping, contact us.

# DATA SHEET: TEMPOWER2 ACB

Types: AR208S, AR212S, AR216S, AR220S,

## Fixed Type Outline Dimensions

