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the fault diagnosis
intelligent protection
self supervision
thermal management

fault diagnosis
self supervision
intelligent protection
thermal management

TempPower

Simply two steps ahead

TEMPOWER 2 THE DOUBLE BREAKER

Breaking Contacts

Tempower2 is the world's first *DoubleBreak ACB*, having two breaking contacts per phase. The unique pole structure means that the short-time withstand rating (Icw) is equal to the service short-circuit breaking capacity (Ics) for all models.

Packing Density

You can increase switchboard packing density using the smallest one-second rated ACB on the market. The fixed version is 290mm deep, the drawout version is 345mm deep.

Reliability

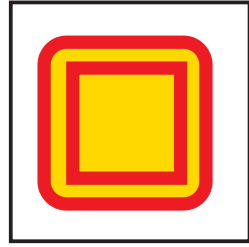
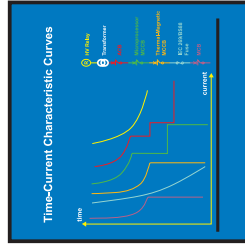
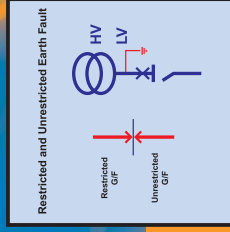
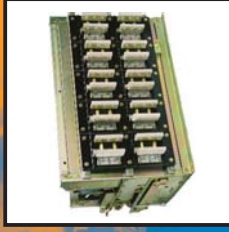
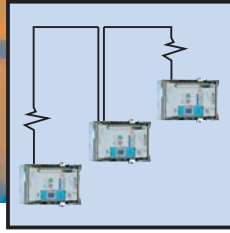
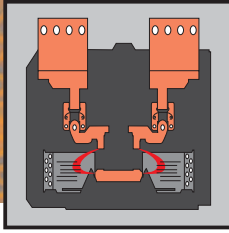
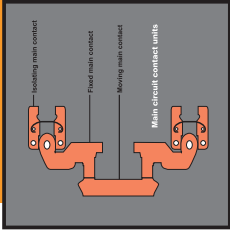
DoubleBreak contacts increase service life. Electrical and mechanical endurance ratings are the best available, and exceed the requirements of IEC 60 947-2.

Double Quick Opening

Tempower2 ACBs clear short-circuit faults in less than 30ms. That's twice as fast as most ACBs.

Zone Interlocking

During a fault; considerable thermal and mechanical stresses are placed on the entire system. With the *Tempower2 Z* Interlock system, the breaker nearest the fault will trip first, irrespective of the short time delay setting.



Double Opening and Closing Coils

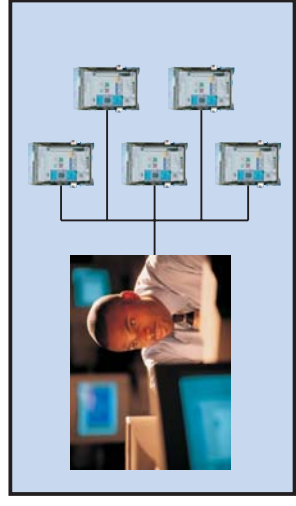
Now you can extend control system redundancy to an ACB. Double coils allow designers to implement back-up tripping and closing systems.

Double Neutrals

How do you make a system harmonic proof in the face of increasing triple-N harmonic currents? Terasaki have launched the first Double Neutral ACB. The AH-60DN will carry 10,000A of neutral current.

Double Ground Fault Protection

Restricted and Unrestricted Ground Fault Protection. The AGR-B Protection Relay offers Ground Fault Protection on the linetransformer side (Restricted) and load side (Unrestricted) of the ACB.



Reduce Time to Repair

Modular construction means that each pole of the *Tempower2 ACB* can be replaced in about 15 minutes – by the user. This unique feature will reduce downtime for end-users.

Control and Monitoring Options

Circuit breaker control and monitoring can be implemented either by hard wiring or digital data transmission. The *Tempower2 ACB* can support Modbus communication protocol.

Protection Characteristics

Tempower2 is the only ACB which offers time-current characteristics to 3 different standards:

- IEC 60 947-2 (low voltage circuit breakers)
 - IEC 60 255-3 (electrical relays)
 - Lloyds Register of Shipping (for marine generator protection)
- All models have LSI protection.

Double Insulation Properties

All operator controls and accessory locations are double insulated from the main phases.

TEMPOWER 2 ACB SELECTION GUIDE



ACB Frame Size	AR 2		AR 3		AR 4	AH6
Type	S	H	S	H	S	H
In Rated Current (A)	800/1250/1600/2000	1250/1600/2000	2500/3200	1600/2000/2500/3200	4000	5000/6300/6300
In Rated Current (A) in the Neutral Pole	800/1250/1600/2000	1250/1600/2000	2500/3200	1600/2000/2500/3200	4000	5000/6300/10000
ACB Model	AR208S/AR212S/AR216S/AR220S	AR212H/AR216H/AR220H	AR325S/AR332S	AR316H/AR320H/AR325H/AR332H	AR440S	AH-50C/AH-60C/AH-60C-DN
Ics SERVICE BREAKING CAPACITY (kA, symmetrical rms)	50 65 65	55 80 80	65 85 85	85	75 100 100	85 120 120
Icm MAKING CAPACITY (kA, asymmetrical peak)	105 143 143	121 176 176	143 187 187	187	165 220 220	187 264 264
Icw SHORT-TIME WITHSTAND (kA rms)	65 50	80 55	85 65	100 75	100 85	100/120 70
Endurance (With maintenance) (Without maintenance) (Without maintenance AC 460V) (Without maintenance AC 690V) Number of operating cycles	30000 15000 12000 10000	3 3 3 3	20000 10000 7000 5000	3 3 3 3	15000 8000 5000	----- 1500 500 -----
Times Breaking Time (second) maximum.	0.03	0.03	0.03	0.03	0.03	0.03
Spring Charging Time (second) maximum.	10	10	10	10	10	10
Closing Time (second) maximum.	0.08	0.08	0.08	0.08	0.08	0.04
Dimensions Fixed Type (mm)	360 445 460	360 445 460	466 586 460	466 586 460	466 586 460	466 586 460
Drawout Type (mm)	354 439 460	354 439 460	460 580 460	460 580 460	631 801 460	747 937/1126 685

These specifications are common throughout the whole range

Rated Operational Voltage [Ue] (V/50/60Hz)-690

AC Rated Insulation Voltage [Ui] (V/50/60Hz)-1000

Rated Impulse Withstand Voltage [Uimp] (kV)-12 (8 for AH ACBs)

Applicable standards:

IEC 60947-2

EN 60947-2

JIS C8372 (New JIS C8201-2 is also supported)

AS 3947-2

NEMA PUB. NO. 563

1 With Instantaneous Protection

2 AH-50C/AH-60C for more information refer to catalogue ref. 06.452E

3 AR228 3AH

4 - Mechanical (without maintenance) Endurance 10000 Cycles

- Electrical AC460V (without maintenance) Endurance 10000 Cycles

5 For five pole-double neutral AH-60C-DN

For unearthing IT systems please contact Terasaki

PROTECTION RELAY GUIDE



Economy AGR -11B
Dial Adjustment



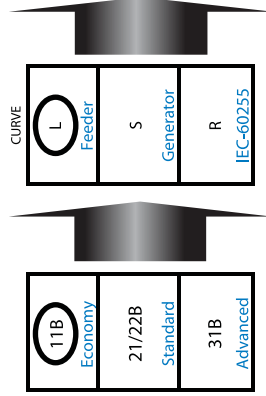
Standard AGR -21/22B
LCD 'Ammeter'



Advanced AGR -31B
LCD 'Analyser'

AGB	PROTECTION RELAYS			PROTECTION TYPES					PROTECTION AND INDICATION			
	11B Economy	21/22B Standard	31B Advanced	OVER LOAD	SHORT CIRCUIT	GROUND FAULT	FLEETING INDICATION	INDIVIDUAL INDICATION	AL	GL	PS	PG
	L Feeder	S Generator	R IEC-60255	✓	✓	✓	✓		✓	✓		✓

TIME CURRENT CURVE

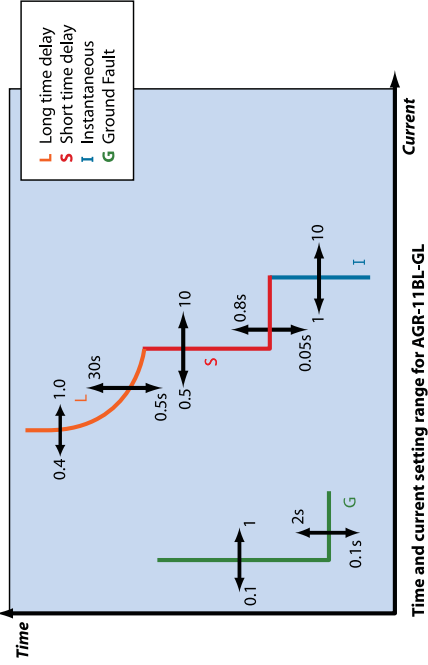


Example of the product coding guide

AGR-11BL-GL

The *TempPower2* Protection Relay Range is equipped with RMS sensing and has a wide range of protection functions. Options available:

- Ground Fault (*Unrestricted and Restricted*)
- Earth Leakage
- Pre-Trip Alarm
- Neutral Protection
- Individual Contact Indication & LCD
- Spring Charge and Trip Indication
- Undervoltage Alarm
- Reverse Power
- Zone Interlocking
- Contact Temperature Monitoring
- Communication
- Phase Rotation Protection



Safety and protection are the prime purposes of Terasaki products. You care about safety and protection. The people who depend on products you specify care about safety and protection. We call the *TempPower2* ACB the Double Breaker. Throughout this leaflet you will see key features of our Double Break ACB. It is one of the world's smallest and offers high specifications with guaranteed reliability.

Please read on and discover the benefits of the *TempPower2* Double Breaker.