



Ordering Code

1,2	3,4		5		6		7,8,9,10,11,12			
TYPE	ACB/CT RATING		No. of POLES		Manual / Electrical FIXED/DRAW OUT		CODE			
							MOTOR	CC	SHT	VOLTAGE RATING
BN/ AN	630A	06	3-POLE	3	MANUAL FIXED	A	M0	D0	D0	NIL
	800A	08	4-POLE	4	ELECTRICAL FIXED	B	M1	D1	D1	AC/DC 100-130V
	1000A	10			MANUAL DRAW OUT	C	M2	D2	D2	AC/DC 200-250V
	1250A	12			ELECTRICAL DRAW OUT	D	M3	D3	D3	DC 125V
	1600A	16					M4	D4	D4	DC 24-30V
BS/ AS	2000A	20					M5	D5	D5	DC 48-60V
	2500A	25					M6	D6	D6	AC 380-415V
	3200A	32					M7	D7	D7	AC 48V
	4000A	40					M8			AC 440-480V
	5000A	50								
	6300A	63								

		13,14,15			
		TRIP RELAY			
TYPE		Communication & Protection		CONTROL VOLTAGE & FREQUENCY	
		WITHOUT TRIP RELAY (CODE:- 000)			
NORMAL	N	Without Communication + L/S/I/G	G	SELF POWERED,50HZ	0
				SELF POWERED,60HZ	5
AMMETER	A	Without Communication	G	SELF POWERED,50HZ	0
		Without Communication + Earth Leakage	Z	AC/DC 100-250V, 50 HZ	1
		Without Communication + Earth Leakage	E	DC 24-60V, 50HZ	2
		Communication	C	SELF POWERED,60HZ	5
		Communication + Earth Leakage	K	AC/DC 100-250V, 60 HZ	6
		Communication + Earth Leakage	X	DC 24-60V, 60HZ	7
POWER METER	P	Communication	C	AC/DC 100-250V, 50 HZ	1
		Communication + Earth Leakage	K	DC 24-60V, 50HZ	2
		Communication + Earth Leakage	X	AC/DC 100-250V, 60 HZ	6
		Communication + Pre-Trip Alarm	A	DC 24-60V, 60HZ	7

"NORMAL" type Release

- * L/S/I/G configuration supplied as standard
- With LED Indicators
- Without output contacts
- * Ground fault system is by vector sum

"AMMETER" type Release

- * L/S/I/G configuration supplied as standard
- * Ground fault system is by vector sum(G,C)
- * Earth Leakage system
- Z,K: External CT- HPL ZCT to be used for fault current 0.5- 30A, 1600AF
- E,X: External CT- Customer has to use on his own for fault current > 30A
- * Communication and output contacts DO NOT work under self power condition

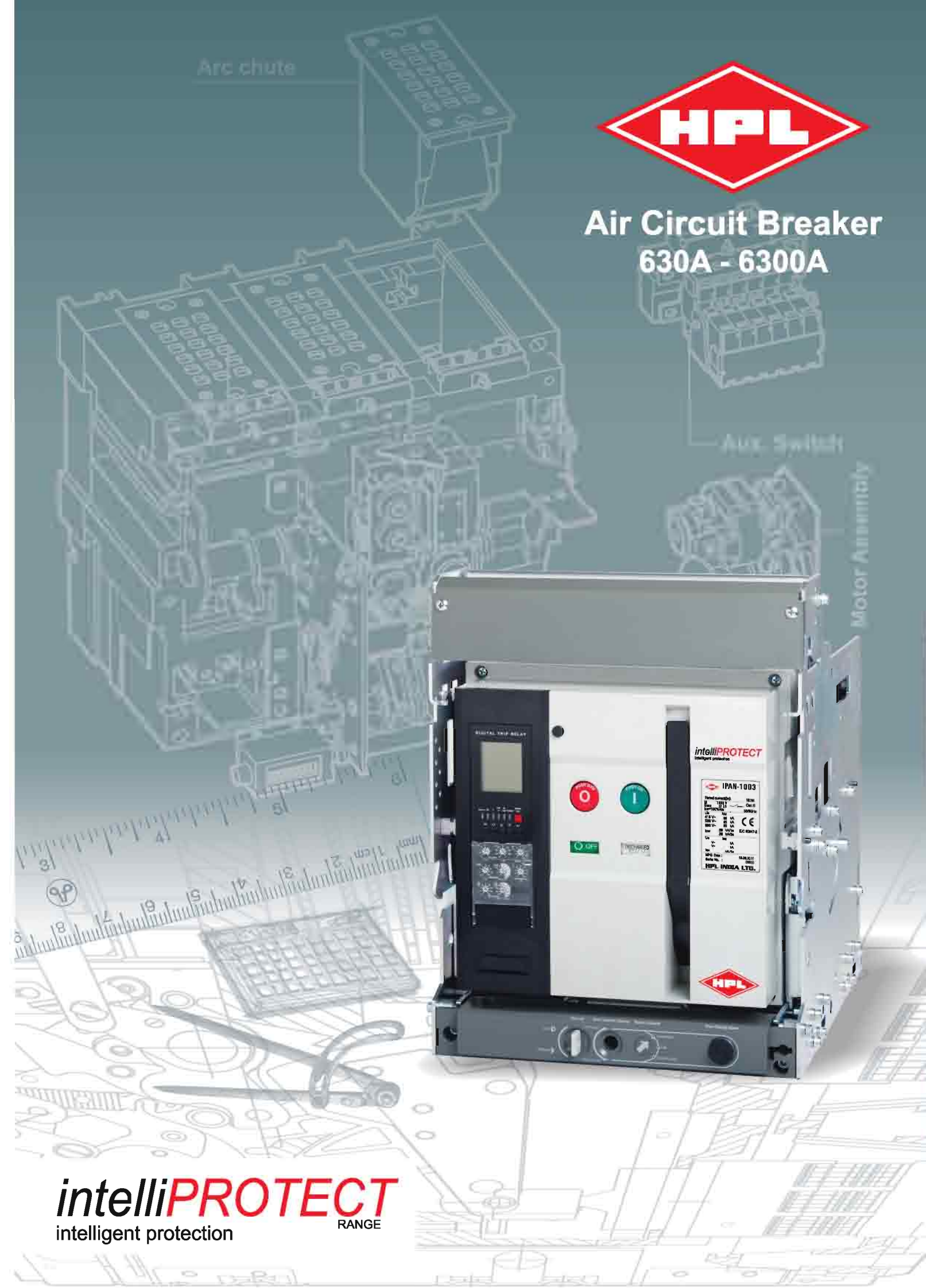
"POWER METER" type Release

- * L/S/I/G configuration supplied as standard
- * Ground fault system is by vector sum(G,C)
- * Earth Leakage system
- K: External CT- HPL ZCT to be used for fault current 0.5- 30A, 1600AF
- X: External CT- Customer has to use on his own for fault current > 30A
- * Applicable for generator protection purpose

HPL ACB Cat. 01/12



Air Circuit Breaker 630A - 6300A



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intelliPROTECT
intelligent protection RANGE



Corporate Information

Founded in 1956, the **HPL** Group is a major player in Indian Electrical Industry with commitment to state of art technology, manufacturing world class products. HPL Group has been serving Indian Industry since last 54 years with time tested, reliable and well-proven products in the field of Switchgears, Protection Devices, Electronic Energy Meters, Energy Management Systems, CFL Lamps, Luminaries and Wires & Cables.

HPL Group has 69 marketing offices spread throughout the country with 1200 authorised dealers and over 15000 retailers. The Group has manpower of over 5000 people. HPL Group possess nine ultra modern state-of-art manufacturing plants, located in Gurgaon (Haryana), Noida (U.P), Kundli (Haryana), Sonapat (Haryana) and Jabli (Himachal Pradesh), having 80,000 sq. mtr. covered area, to manufacture the products confirming to latest Indian and International standards. HPL has an R&D center with over 100 Design Engineers, who are consistently working to upgrade the product technology.

Following the philosophy of 3D's i.e. Duty to work, Discipline to quality & Devotion to customers, HPL group has created a niche for itself in the electrical industry. **HPL** today is popularly known as “**The Technology Brand of India**”.

HPL range of ACBs are in technical collaboration with **LSI** Co. Ltd, Korea, a US\$ 25 billion group. **LSI** is a leader in LV, MV & HV Switchgear, Circuit Breakers, Automation, Large scale systems, GIS and Green technologies solutions.



Air Circuit Breaker

intelliPROTECT
RANGE

intelligent protection





Air Circuit Breaker *intelliPROTECT*

intelligent protection

Range of HPL Air Circuit Breaker meets your demands for high breaking capacity and optimized panel size. Wide range of accessories and connection methods offerings meet the various installation needs & simplified switch board design.

It provides total solutions with an advanced trip relay for measurement, diagnosis, analysis and communication as well as protective functions for absolute protective coordination and electric power monitoring system.

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Air Circuit Breaker

intelliPROTECT
intelligent protection

Overview

Product Introduction

Background Information on Development of intelliprotect Series of ACB

Intelliprotect Series of ACB is developed to meet high breaking capacity required for elevated electricity demand, to satisfy compact panel size & modularity and to increase users convenience by providing various accessories, safety features & connecting methods.

More over, providing total solutions for every application / installation by developing a Relay to achieve absolute protection coordination & to correspond with IT system.

Product Offer :

IPAS Type

Ics = 100%Icu at 500Vac

2000 AF	4000 AF	6300 AF
70kA	85kA	120kA



IPAN Type

Ics = 100%Icu at 500Vac



1600 AF
65kA

Characteristics

- Modularity & Compactness
- Various Accessories Possession.
- Comply with IEC / IS
- Acquire multi-rating (690Vac, 500Vac) standard for all models
- Impulse Withstand Voltage (Uimp) : 12kV
- Ics = 100%Icu
- Icw Ratings :
 - IPAS type has Icw rating of 65kA for 1sec to as high as 100kA for 1sec.
 - Also for 3sec - from 50kA to 85kA
 - IPAN type can offer 50kA for 1sec
 - Enhanced Life
 - Multiple terminal connection choice
- N phase current conducting capacity : 100%
- Suitable for installations with IT system
- Possess various customer oriented digital trips (N,A,P, Type)
- The wide spectrum of protection functions with a flexibility of thresholds & trip times make it suitable to meet any type of installation need.
- Advanced measurement function, communication function & Additional protection function over and above traditional made it a true choice for any application.

External Configuration

Fixed type ACB



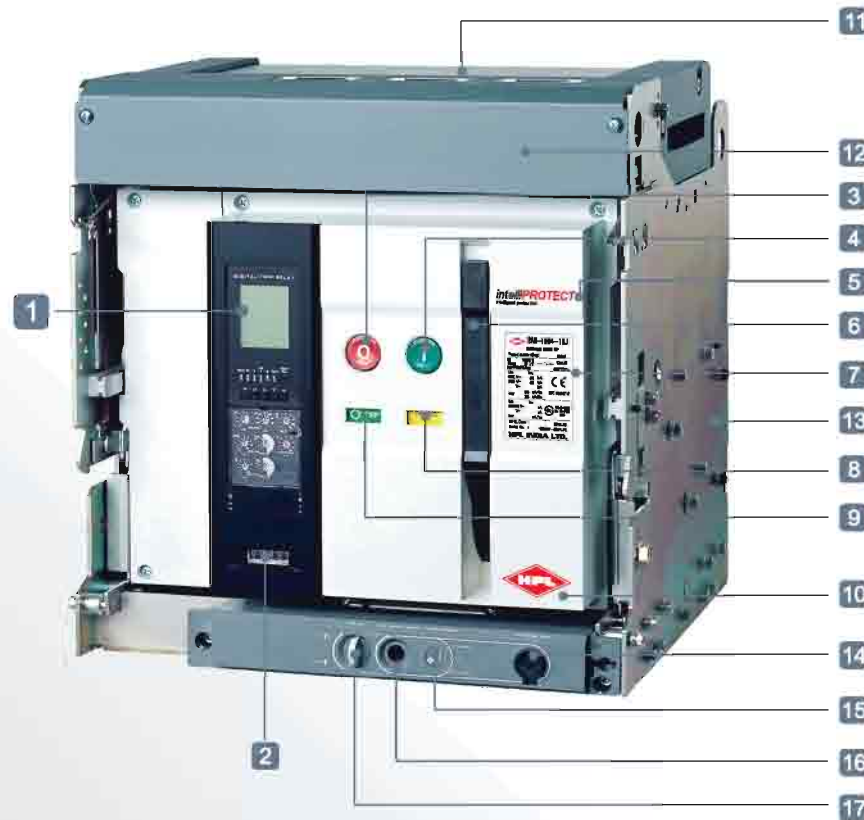
Terms

1. Trip relay
2. Counter
3. OFF button
4. ON button
5. Series name
6. Charge handle
7. Rated name plate
8. Charge / Discharge indicator
9. ON / OFF indicator
10. Company Logo
11. Arc cover
12. Terminal cover
13. Cradle
14. Handle storage space
15. Position indicator
16. Draw-out handle
17. Pad lock button
18. Arc chute
19. Control cover

Available in Fixed and Draw out - Three pole & Four pole - manual & Electrical draw out version through out the range.

Offers all the functions & characteristics of a power circuit breaker in a very compact volume.

Also standardization & optimisation of switchboard is simplified - result of innovative integration of components and performance. The uniform height & depth made it a perfect choice of switchboard Manufacturers.



Draw-out ACB

Overview

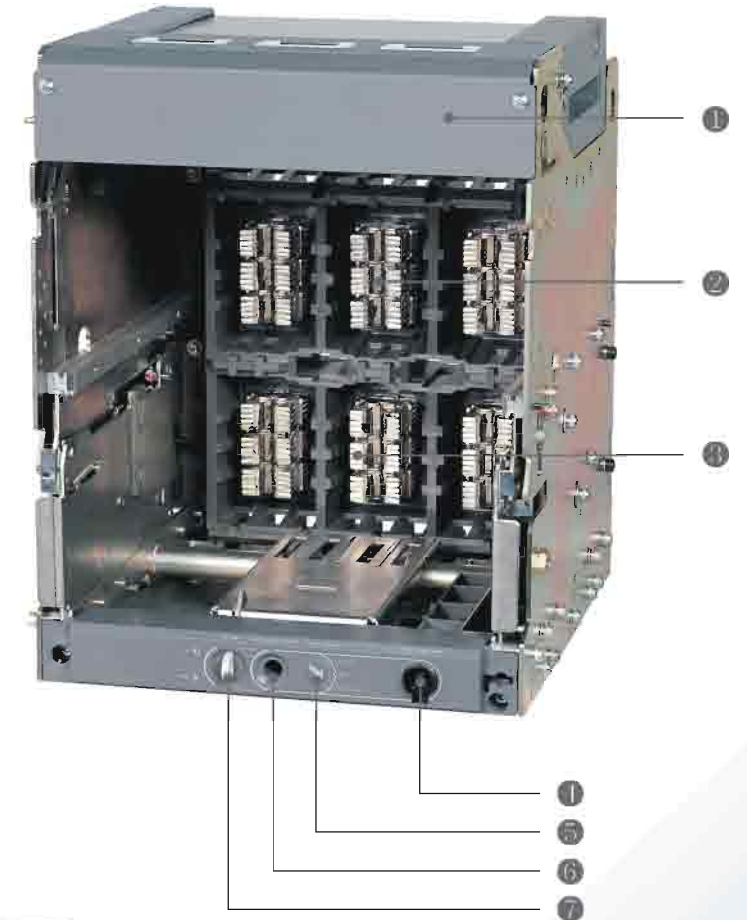
ACBs are built with very strong robust metal structure - can with stand very high level of thermal / dynamic stresses extending there by reliability and dependability along with safety for each installations.

The fixed part of drawout ACB have shutters to extend safety when ACB is withdrawn.

Terms

1. Terminal cover of control circuit
2. Cradle finger (Line side)
3. Cradle finger (IOAD SIDE)
4. Draw-out handle
5. Position indicator
6. Handle storage space
7. Pad lock button
8. Connecting conductor (Line side)
9. Connecting conductor (Load side)

Cradle (Internal)




Cradle (Rear)



Provision for multiple connection options meets various installation needs and offers ease of termination while fabricating the switch board and during installation.

Ratings

Type			
Ampere frame		(AF)	
Rated current(A)	(In max)	at 40℃	
Setting current (A) *	Control trip relay (... × In max)		
Rated current of neutral pole (A)			
Rated insulation voltage(V)	(Ui)		
Rated operating voltage(V)	(Ue)		
Rated impulse withstand voltage (kV) (Uimp)			
Frequency (Hz)			
Number of poles (P)			
Rated breaking capacity (kA sym)	(Icu)	IEC 60947-2	220V/230V/380V/415V
AC 50/60Hz		KS C 4620	460V/480V/500V
			550V/600V/690V
Rated service breaking capacity (kA) (Ics)			... % × Icu
Rated making capacity (kA peak)	(Icm)	IEC 60947-2	220V/230V/380V/415V
AC 50/60Hz		KS C 4620	460V/480V/500V
			550V/600V/690V
Rated short-time	(Icw)		1 sec
withstand current (kA)			2 sec
			3 sec
Operating time (ms)			Maximum total breaking time
			Maximum closing time
Life cycle (time)	Mechanical		Without maintenance
			With maintenance
	Electrical		Without maintenance
			With maintenance
Connections **	Draw-out / Fixed		Horizontal connection
			Vertical connection
			Front connection
			Mixed connection
Weight (kg)	Draw-out type	Main body	Motor charging type
(3P/4P)		(With cradle)	Manual charging type
		Cradle only	
	Fixed type		Motor charging type
			Manual charging type
External dimensions (mm)		Draw-out	3P
(H×W×D)		type	4P
		Fixed type	3P
			4P
Trip relay			

* Refer to trip relay specification. ** ● : Standard, ○ : Option

● ACBs are also available for 50kA (Ics, Icu)



IPAN-06D	IPAN-08D	IPAN-10D	IPAN-13D	IPAN-16D	IPAN-20D
630	800	1000	1250	1600	2000
200	400				
400	630	1000	1250	1600	2000
630	800				
(0.4 ~ 1.0) × In max					
400	400	1000	1250	1600	2000
630	630				
	800				
1000					
690					
12					
50/60					
3/4					
		65			70
		65			70
		50			65
		100%			100%
		143			154
		143			154
		105			143
		50			65
		42			55
		36			50
		40			
		80			
		20,000			
		30,000			
		5,000			
		10,000			
		●			-
		○			●
		○			-
		○			-
		○			-
		63/74			70/85
		61/72			68/83
		29/32			33/40
		34/44			38/47
		32/42			36/45
		430 × 334 × 375			
		430 × 419 × 375			
		300 × 300 × 295			
		300 × 385 × 295			
		N, A, P type			



IPAS-20E	IPAS-25E	IPAS-32E	IPAS-40E
2000	2500	3200	4000
630, 800			
1000, 1250	2500	3200	4000
1600, 2000			
(0.4 ~ 1.0) × In max			
630, 800			
1000, 1250	2500	3200	4000
1600, 2000			
1,000			
690			
12			
50/60			
3/4			
		85	
		85	
		85	
		100%	
		187	
		187	
		187	
		85	
		75	
		65	
		40	
		80	
		15,000	
		20,000	
		5,000	
		10,000	
	●		○
	○		●
	○		-
	○		-
	○		-
	87/103		104/147
	85/101		102/145
	44/50		58/70
	44/55		63/100
	42/53		61/98
	430 × 412 × 375		
	430 × 527 × 375		
	300 × 378 × 295		
	300 × 493 × 295		
	N, A, P type		




IPAS-50F	
4000	5000
4000	5000
(0.4 ~ 1.0) × In max	
4000	5000
1000	
690	
12	
50/60	
3/4	
100	
100	
85	
100%	
220	
220	
187	
85	
75	
65	
40	
80	
10,000	
15,000	
2,000	
5,000	
○	
●	
-	
-	
107/139	
102/145	
65/85	
61/81	
60/80	
460×629×375	
460×799×375	
300×597×295	
300×767×295	
N, A, P type	



IPAS-40G	IPAS-50G	IPAS-63G
4000	5000	6300
4000	5000	6300
(0.4 ~ 1.0) × In max		
4000	5000	6300
1,000		
690		
12		
50/60		
3/4		
		120
		120
		100
		100%
		264
		264
		220
		100
		90
		85
		40
		80
		10,000
		15,000
		2,000
		5,000
		○
		●
		-
		-
	181/223	186/230
	179/221	184/228
	97/117	102/124
	98/123	103/130
	96/121	101/128
	460 × 785 × 375	
	460 × 1015 × 375	
	300 × 751 × 295	
	300 × 981 × 295	
	N, A, P type	

Ratings

Type			
Ampere frame		(AF)	
Rated current(A)		(In max)	at 40℃
Setting current (A) *		Control trip relay (... × In max)	
Rated current of neutral pole (A)			
Rated insulation voltage(V)		(Ui)	
Rated operating voltage(V)		(Ue)	
Rated impulse withstand voltage (kV) (Uimp)			
Frequency (Hz)			
Number of poles (P)			
Rated breaking capacity (kA sym)		IEC 60947-2 KS C 4620	220V/230V/380V/415V
AC 50/60Hz			460V/480V/500V
			550V/600V/690V
Rated service breaking capacity (kA) (Ics)		... % × Icu	
Rated making capacity (kA peak)		IEC 60947-2 KS C 4620	220V/230V/380V/415V
AC 50/60Hz			460V/480V/500V
			550V/600V/690V
Rated short-time withstand current (kA)		(Icw)	1 sec
Operating time (ms)		Maximum total breaking time	
		Maximum closing time	
Life cycle (time)		Mechanical	Without maintenance
			With maintenance
		Electrical	Without maintenance
			With maintenance
Connections **		Draw-out / Fixed	Horizontal connection
			Vertical connection
			Front connection
			Mixed connection
External dimensions (mm)		Draw-out	3P
(H×W×D)		type	4P
			3P
			4P
Trip relay			

* Refer to trip relay specification. ** ● : Standard, ○ : Option



IPBN-06D	IPBN-08D	IPBN-10D	IPBN-13D	IPBN-16D	IPBN-20D
630	800	1000	1250	1600	2000
200	400				
400	630	1000	1250	1600	2000
630	800				
(0.4 ~ 1.0) × In max					
400	400	1000	1250	1600	2000
630	630				
	800				
1000					
690					
12					
50/60					
3/4					
	65				70
	65				70
	50				65
	100%				100%
	143				154
	143				154
	105				143
	50				65
	40				
	80				
	20,000				
	30,000				
	5,000				
	10,000				
	●				-
	○				●
	○				-
	○				-
	○				-
	430×334×375				
	430×419×375				
	300×300×295				
	300×385×295				
	N, A, P type				



IPBS-20E	IPBS-25E	IPBS-32E	IPBS-40E
2000	2500	3200	4000
630, 800			
1000, 1250	2500	3200	4000
1600, 2000			
(0.4 ~ 1.0) × In max			
630, 800			
1000, 1250	2500	3200	4000
1600, 2000			
1,000			
690			
12			
50/60			
3/4			
	70		
	70		
	70		
	100%		
	154		
	154		
	154		
	70		
	40		
	80		
	15,000		
	20,000		
	5,000		
	10,000		
	●		○
	○		●
	○		-
	○		-
	○		-
	430×412×375		
	430×527×375		
	300×378×295		
	300×493×295		
	N, A, P type		



IPBS-50F	
4000	5000
4000	5000
(0.4 ~ 1.0) × In max	
4000	5000
1000	
690	
12	
50/60	
3/4	
	85
	85
	85
	100%
	187
	187
	187
	85
	40
	80
	10,000
	15,000
	2,000
	5,000
	○
	●
	-
	-
	460×629×375
	460×799×375
	300×597×295
	300×767×295
	N, A, P type



IPBS-40G	IPBS-50G	IPBS-63G
4000	5000	6300
4000	5000	6300
(0.4 ~ 1.0) × In max		
4000	5000	6300
1,000		
690		
12		
50/60		
3/4		
		120
		120
		100
		100%
		264
		264
		220
		100
		40
		80
		10,000
		15,000
		2,000
		5,000
		○
		●
		-
		-
		460×785×375
		460×1015×375
		300×751×295
		300×981×295
		N, A, P type

* Icw for 2 sec & 3 sec - available on request.




Trip relay (OCR)

The trip relay of Intelliprotect provides the additional protection functions for voltage, frequency, unbalance, and other in addition to main protection functions for over current, short-circuit, ground fault. It supports the advanced measurement functions for voltage, current, power,

electric energy, harmonics, communication function, and others. Zone selective interlocking function makes the protective coordination more simple and thermal memory can be applied to various loads.

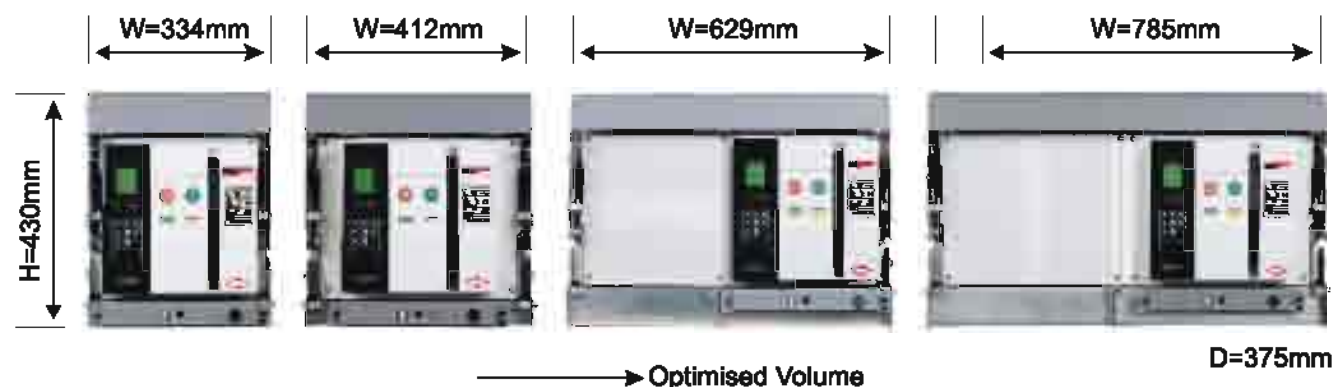


Trip relay types

	N Type	A Type	P Type
Externals			
Current protection	<ul style="list-style-type: none">L / S / I / G / Thermal	<ul style="list-style-type: none">L / S / I / G / ThermalZSI (Protective coordination)	<ul style="list-style-type: none">L / S / I / G / Thermal (Continuous)ZSI (Protective coordination)
Other protection		<ul style="list-style-type: none">Earth Leakage (Option)	<ul style="list-style-type: none">Earth leakage (Option)Over / Under currentOver / Under frequencyUnbalance (Voltage/Current)Reverse power
Measurement Function		<ul style="list-style-type: none">Current (R / S / T / N)	<ul style="list-style-type: none">3 Phase voltage / Current Rms / VectorPower (P, Q, S), PF (3-phase)Energy (Positive / Negative)Frequency, Demand
Fine Adjustment			<ul style="list-style-type: none">Fine adjustment for long/short time delay / instantaneous / ground
Pre Trip Alarm			<ul style="list-style-type: none">Overload protection relays : DO (Alarm) (Ground fault is not available when using Pre trip alarm)
Digital Output		<ul style="list-style-type: none">3DO (Fixed)L, S/I, G Alarm	<ul style="list-style-type: none">3DO (Programmable)Trip, Alarm, General
IDMTL setting			<ul style="list-style-type: none">Compliance with IEC60255-3 SIT, VIT, EIT, DT
Communication		<ul style="list-style-type: none">Modbus / RS - 485Profibus - DP	<ul style="list-style-type: none">Modbus / RS-485Profibus-DP
Power supply	<ul style="list-style-type: none">Self Power - Power source works over 20% of load current)	<ul style="list-style-type: none">Self Power - Power source works over 20% of load current.- External power source are required for comm.AC / DC 100~250VDC 24~60V	<ul style="list-style-type: none">AC/DC 100~250VDC 24~60V <div>Basic protection function (L/S/I/G) is still under normal operation without control power.</div>
RTC timer	<ul style="list-style-type: none">Available	<ul style="list-style-type: none">Available	<ul style="list-style-type: none">Available
LED for Trip Info.	<ul style="list-style-type: none">Long time delayShort time delay / InstantaneousGround fault	<ul style="list-style-type: none">N type	<ul style="list-style-type: none">N type
Fault Recording		<ul style="list-style-type: none">10 records (Fault / Current / Date and Time)	<ul style="list-style-type: none">256 records (Fault/Current/Date and Time)
Event Record			<ul style="list-style-type: none">256 records (Content, Status, Date)
Operating Button	<ul style="list-style-type: none">Reset button	<ul style="list-style-type: none">Reset, Menu Up / Down, Left / Right, Enter	<ul style="list-style-type: none">A Type

**intelliprotect - intelligent enough
yet simple & user friendly**

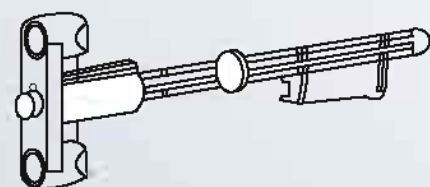
modularity & compactness



Suitability for copper & Aluminium termination



With optimised Volume & Flexibility in busbar terminations for different environmental condition made the switch board design, simple & effective.



Manual Reset Button (MRB)

It is a function which resets the circuit breaker when a circuit breaker is tripped by OCR.

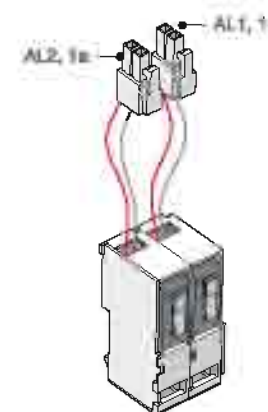


Ready to close switch (RCS)

It indicates that safety parameters are full filled & circuit Breaker is ready to do closing operation.



Under voltage trip device.



Trip Alarm Contact



Counter



Pad Lock / Position Lock



Vertical / Horizontal type connection

Various other designers friendly site fittable accessories.

- Shunt coil, double shunt coil – continuously rated.
- Under voltage trip device.
- Charge switch.
- Remote reset switch.
- Counter
- Vertical & Horizontal type terminals (can be rotated 90°).

Also availability of various accessories ensures complete safety / Reliability and very high performance level. Some of them are :

- Pad lock / position lock
- Key interlocks set, ON OFF button lock, mechanical interlock
- Temperature Alarm :
It shows the temperature (Inside of ACB) through a sensor. The output can be connected to control terminal block.
- Mechanical Operated cell switch :
It indicates ON / OFF condition of ACB. It operates only when breaker is in 'connected' position.
- Cell switch :
It indicates the present position of ACB (Connected / Test / Disconnect)
- Miss Insertion prevent device :
When the main body of ACB is inserted to the cradle, if the rating of ACB does not match with cradle, it mechanically prevents the insertion.

To summarize - availability of high performance connection accessories, accessories related to efficient, flexible, safe & better coordinated functioning of circuit breaker coupled with various indications & communication functions made Intelli protect an ideal choice for any application / installation.

Moreover, for change in power levels, installation change etc lead to extension of switchboard/upgradation of switchboard Intelli protect is designed to adapt the conditions.

A detailed Installation Manual is also available which provides informations required not only for Installation but also for periodic / routine maintenance.

Please contact our nearest sales office for any further clarification / Information