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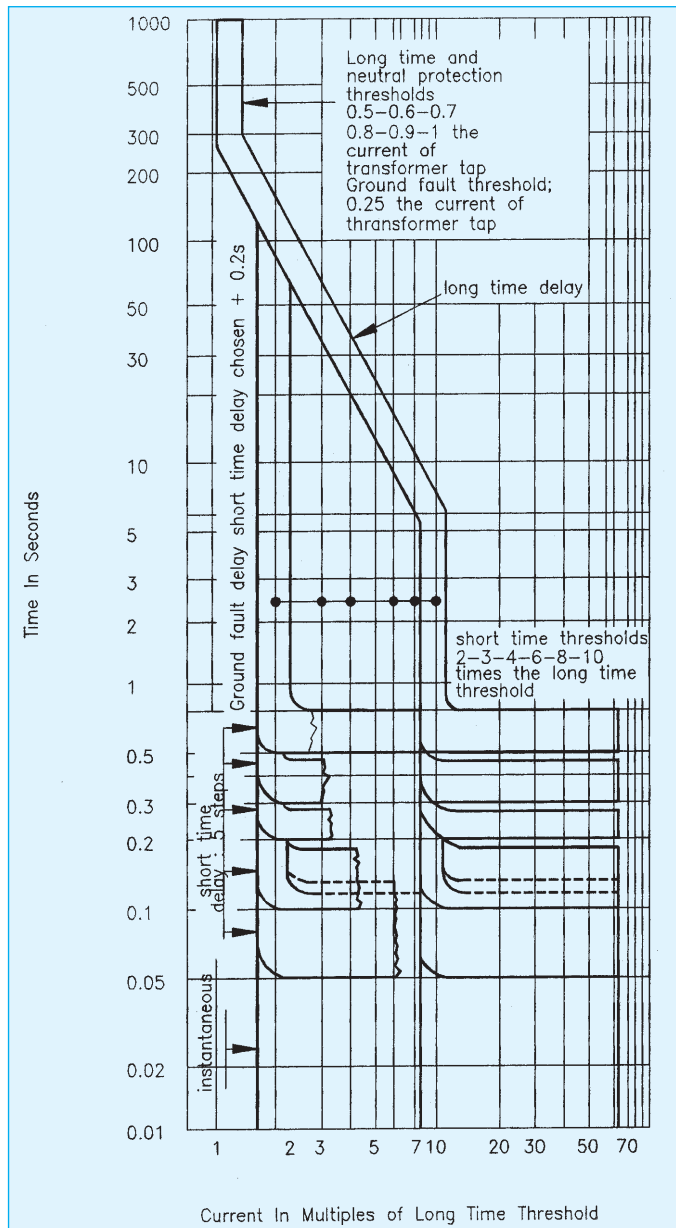
Flat No.101, Atharva Apartments,  
Nelco Society, Subhash Nagar,  
Nagpur - 440022  
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# Unepact Air Circuit Breaker

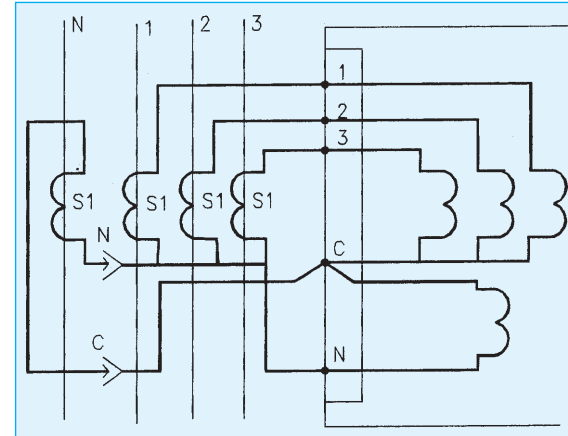


## I-t Characteristics RWZ Release

Operating zone



Connection of the 4th transformer delivered separately ( RW2 )



Graphs shown exhibits the various characteristics possible to arrive at discrimination of any circuit.

Whenever RW is used in a 3 phase 4 wire system, a separate neutral current transformer is given.



## Introduction

Unepact Air Circuit Breakers are ideally suited for motor control centres and switchboards equipped with outgoing MCCBs or fuse switches.

## Salient Features

- Unepact Air Circuit Breakers are specially designed for switchboards construction of shallow depth--ideal for 500 mm. deep panels.
- 2 basic frame sizes covering ratings from 800 Amps to 2500 Amps-upto 1600 Amps in one size and 2000/2500 Amps in the other.
- ACBs are suitable for manual closing.
- Design is of modular construction with a standardised contact system -- height and depth remains same while width varies on thermal rating.
- Static trip releases RW2 provide highly flexible trip characteristic for perfect co-ordination.
- Robust trip-free mechanism with mechanical on/off indicators.
- Available in 3-pole and 4-pole configuration.
- Provision for fitting LV accessories like U/V, shunt trip.
- Provision to fit Castell/Ronnis interlocks.
- Automatic safety shutters with facility for padlocking fitted as standard (for draw-out breakers).
- Covered front panel--preventing accidental access to live terminals.
- For draw-out breakers while withdrawing the moving portion a latch is provided preventing accidental falling of ACB.
- All Circuit Breakers comply with the requirements of IS 13947 specification. The breakers are certified for this duty regardless of whether incoming supply are to the top or bottom terminals.
- Optional door interlock.

Fig.1



1. Operating handle
2. On / Off indicator
3. Trip / Reset button
4. Knockout for fitting Castell / Ronnis interlock



## Operating Mechanism

### Manual Closing

This mechanism is standard for all breakers and with the clockwise rotation of the handle will change and release the closing springs in one movement closing the breaker at the correct speed, independent of the operator. A direct mechanical coupling gives ON/OFF indication.

### Unepact - Accessories

#### 1. Shunt Trip Releases

A shunt trip release can be fitted as an option for local or remote electrical tripping. Since the shunt trip is a short-time rated coil, it is wired in series to a cut-off switch provided separately in the breaker. A wide range of coils are available.

Voltages	24V/ 30V	110V/ 125V	200V 220V
DC Watts	30	30	30
Voltages	240V	415V	500V
AC 50Hz VA (Pickup)	80 to 100	80 to 100	80 to 100

The tripping time is 60 millisecons.

#### 2. Undervoltage Release

The coil of the device is continuously energised and dropping of voltage will cause tripping of breaker. Voltage is calibrated for pick up and drop-off in accordance to IS 13947.

Burden (VA) after pick-up	23	23
Voltage (Volts) Range	220	415

The undervoltage mechanism fits in the same place where a shunt trip is fitted. The tripping time is 60 millisecons.

#### Note:

In all these breakers either a shunt trip or an undervoltage mechanism can be fitted. In case a breaker is required without both of the above, they will be supplied with a bracket in that position. Do not remove this bracket.

#### 3. Micro Switch

An optional micro switch with one change over contact can be fitted along with the integrally mounted release for giving external trip indication.

#### 4. Mechanical Interlock

A special figure type interlock or Ronnis type interlock can be fitted on the front panel of the breaker. A knock-out is provided for this purpose. The front panel is to be removed & the knock-out removed and the interlock fitted. To lock the breaker, the trip push button is to be pushed & then locked. Now the breaker cannot be closed unless the interlock is released.

#### 5. Automatic Safety Shutters

All draw-out ACBs are fitted with automatic safety shutters providing complete shielding of live parts when the breaker is totally withdrawn. These safety shutters can also be padlocked if required (refer Fig. 3)

#### 6. LV Secondary Isolating Contacts

All draw-out ACBs are provided with & up to 24 ways of LT disconnects which are of plug & socket type. Contacts up to 6 ways per block are available for external auxiliary circuits.

Fig.9



Shunt trip mechanism

Fig.10



Position of shunt trip/UV mechanism

Fig.11



LV secondary isolating contacts



#### 7. Auxiliary Switch

A positively driven auxiliary switch with changeover contacts are provided with each breaker. The maximum number of these switches which can be mounted are 6 numbers for fixed type of breakers. In case of draw-out breakers, provision for 3 numbers of these switches are available.

#### 8. Breakers with releases

All Unepact Air Circuit Breakers can be provided with integrally mounted static trip releases Type RW2 is for short circuit / overcurrent and earthfault protection.

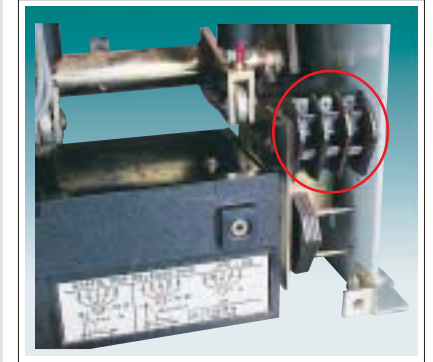
RW2 releases is self-powered, drawing current from the secondary of the current transformer. This release has the following adjustments:

- Overcurrent - pick-up
  - 0.5,0.6, 0.7, 0.8, 0.9 & 1 times the transformer tap chosen
- Tripping time
  - 15 secs. at 6 times current setting (fixed)
- Short time delay pick-up
  - 2, 3, 4, 5, 6, 7, 8, 10 times current setting
- Short time delay
  - Instantaneous, 0.05, 0.1, 0.2, 0.3, & 0.5 secs.
- Earthfault pick-up
  - 0.25 times the current setting (fixed)
- Earthfault delay
  - Short-time delay setting + 0.2 secs.
- Fault diagnosis
  - Seperate overload, short circuit & earthfault trip indicator available on release. (optional feature)

#### Arc Chutes

All Circuit Breakers are provided with arc chutes. Ensure that these are installed in the breaker prior to commissioning. The arc chutes are held in position by two tie rods. The arc chutes can be removed for maintenance by removing the tie rods and lifting the arc chutes vertically.

Fig.12



Auxiliary switches

Fig.13



RW release

Technical Data (For both fixed and withdrawable circuit breaker)

The Circuit Breaker complies with IS : 13947 (2) (1993)

Thermal Ratings (Free air ratings in amperes for circuit breaker of 50° C ambient)

		USP 800	USP1000	USP1250	USP 1600	USP 2000	USP 2500
1. Rated voltage	Volts	415	415	415	415	415	415
2. Thermal rating	Amps.	800	1000	1250	1600	2000	2500
3. Rated insulation voltage	Volts	660	660	660	660	660	660
4 Making capacity	kA peak	105	105	105	105	105	105
5 Short circuit breaking capacity (Ics) at 415 volts	kA RMS	50	50	50	50	50	50
6. Rated short time withstand current for 1 sec. (Icw)	kA RMS	36	36	50	50	50	50
7. Electrical overload performance (25 operations)	Amps.	4800	6000	7500	9600	12000	15000
8. No of poles		3/4	3/4	3/4	3/4	3/4	3/4