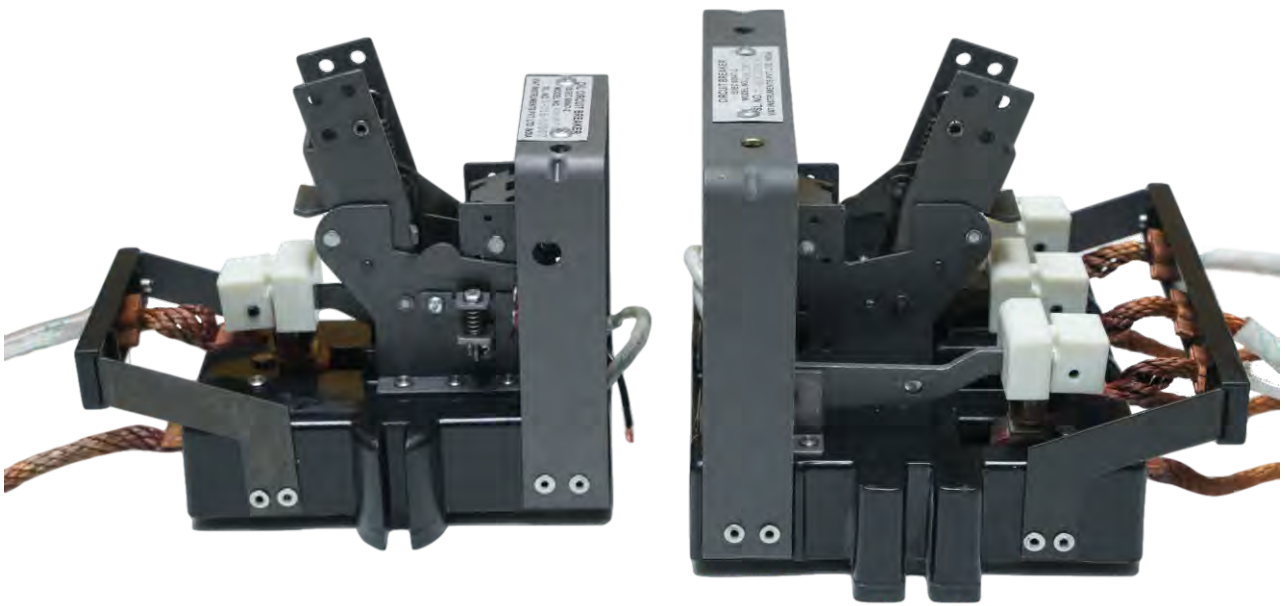


# OIL IMMERSED CIRCUIT BREAKER

## For complete self-protection of oil filled distribution transformer

Single Phase 1 pole : Upto 50 kVA

Three Phase 3 pole : Upto 200 kVA



### FEATURES

- Tripping mechanism is inside transformer tank and hence cannot be tampered with or bypassed.
- Combination of oil temperature and current based operations protects transformer while preventing nuisance tripping as per IEC/EN 60947-2
- External handle for reset
- LED external indicator integrated in handle.
- Made in dedicated highly automated assembly line with 100% testing
- Type tested at ERDA to IEC/IS 60947-2.

**VIAT**

**INSTRUMENTS**

AT14R0

**ATVUS®**

## **Why Oil Immersed Circuit breakers (OCB)?**

In the Indian context, many distribution transformers are regularly overloaded due to electricity pilferage and cable hooking -and this is often very difficult to control or monitor for discoms due to ground realities. Overloading reduces the effective life of such transformers very significantly, adding huge replacement and failure costs on a grid level

The absence of many safety features like PRV and level gauge in distribution transformers also poses significant risk to peoples lives when transformers fail

Oil Immersed circuit breakers are fitted into the transformer tank and provide a tamper proof tripping mechanism to the transformer that protects the transformer from damaging overloading, and also helps prevent catastrophic failure due to overloading.

## **Components and location**

The circuit breaker system comprises of three elements

i) The Circuit Breaker: This is mounted between the transformer's low voltage coil & the low voltage bushings inside the transformer tank, typically directly above the coil & core assembly.

ii) The operating handle + LED indicator: The operating handle is installed on the tank and is used to reset the Circuit breaker. An LED light indicates the condition of the circuit breaker

iii) The HV fuse: The HV fuses are a backup to the circuit breakers and operate as per rated current

## **How an OCB functions**

The current through the transformer passes through bi-metal strips in the circuit breaker (immersed in the tank). Both higher current and higher temperature cause the bi-metal strip to deflect. When temperature and current exceed parameters defined in IEC/IS 60947-2, the circuit breaker trips

A magnetic tripping mechanism provides fast tripping in short circuit overloads

## **OCB vs external circuit breaker**

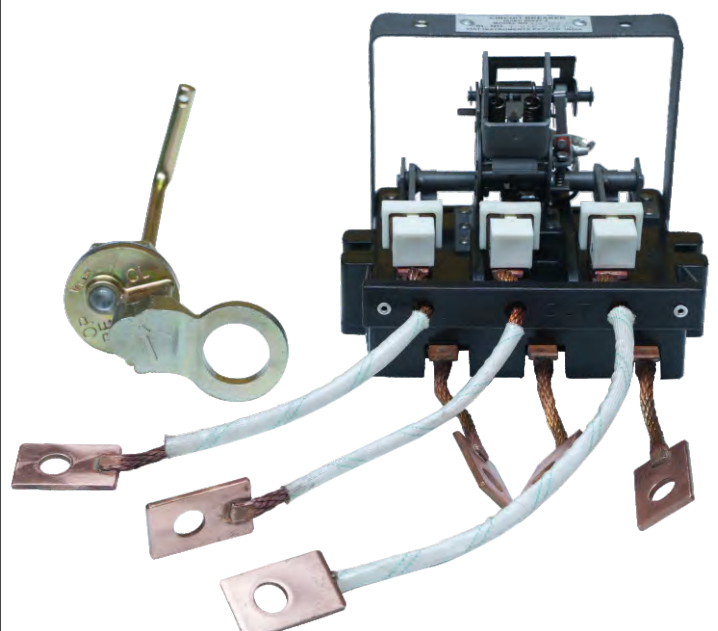
An external circuit breaker only senses current and has no context of the temperature of oil in the tank.

It does not know what the ambient temperature is, if the temperature is high because oil has been stolen, or if the current is high but transformer is cool due to low ambient temperature

Hence an external circuit breaker will trip even when there is little risk of damage to the transformer from marginal overloading, whereas an OCB will trip when genuinely transformer damaging temperature-current thresholds are exceeded

## **SPDT**

Self Protected Distribution Transformers offers a complete, unified system of overload protection. The primary means of protecting the transformer is Circuit Breaker, which is designed to give adequate protection from short circuits & severe overloads.



## Why Viat OCB?

- **Positive mechanical**

**interlocking results** in the mechanical interlock between each of the Circuit Breaker poles assuring simultaneous operation of all poles in a 3 phase Circuit Breaker.

- **Foolproof**

**leakproofing:** Unique design with two independent seals ensures 100% leakproofness of the operating handle. The seals can be tightened further during installation

- **LED light integrated**

**with handle:** The optional integrated signal light on the handle makes mounting easier and reduces one potential leakage point in the transformer

- **Special contact**

**material-** This reduces arcing & eliminates the possibility of contacts welding in service.

- **Type Tested at**

**Electrical Research & Development**

**Association** (ERDA, Vadodara), which conforms to IS/IEC- 60947

- Combination of oil temperature and current based operations protects transformer while preventing nuisance tripping as per IEC/EN 60947-2.

- Made in dedicated highly automated assembly line with 100% testing

## **Operating Handle for quick reset.**

The operating handle & emergency overload lever protrudes from the transformer tank and is mechanically connected to the circuit breaker. To open the low voltage circuit manually, move the

handle from the CL” ( Closed ) to “OP ” ( Open ). When the pointer coincides with the “OP” position, the low voltage circuit is open. To close the breaker, move the handle to position “RE” (Reset) to engage the latch mechanism, then to “CL”.

The breaker operating handle is usually operated with a rod , with a hook like bend at one end.

If the operator tries to close the breaker while a fault exists on the line, the breaker will open even though the Circuit Breaker operating handle is held in the closed position.

## **LED signal light:**

When the circuit breaker trips, the LED signal light will light up, serving as a visual evidence that an unusual overload has occurred on the transformer. In this way the LED indicator serves as a continuous load survey device on each individual transformer.

This light will remain on until it is reset by the circuit breaker operating handle



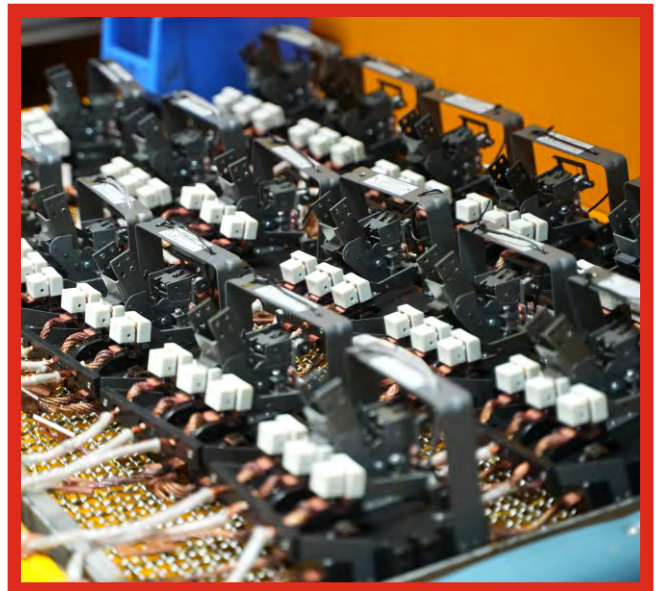
## Who we are

Viat & Atvus have been pioneers in Transformer Protection for over 53 years (Since 1972). Today, Viat is among the largest independent transformer instrumentation and safety device manufacturers in the world with supply to over 500 transformer OEMs in 70 countries.

Viat has over 75,000 square feet of covered area in manufacturing facilities, with two plants- one in Gandhinagar, GJ and another in Kolkata. We have dozens of distributors and warehouses globally.

With extensive expertise in the transformer Industry, Viat also has been manufacturing and supplying ANSI based electrical products like rotary off load tap changers and Load break switch for North and South American markets for nearly 8 years.

- Instruments in operation in over 10,000,000 transformers in 70 countries.
- Presence in every continent. Customer list includes over 500 transformer manufacturers including most leading brands worldwide.
- 50 years of experience in the transformer industry
- Export house status granted by the Govt. of India.
- Constant R&D helps us improve products. Launching better models regularly help us improve transformer protection, as needed by the industry.
- A very responsive and highly technical team are always at your service



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