'TRANS SWITCH'

A new device for protection and switching of transformers

Rated Voltage	12	kV
Rated Current	400	A
Rated Power Frequency withstand voltage	28	kV
Rated Impulse withstand voltage	75	kVp
Making capacity – Main circuit	25	kAp
Making capacity – Earth circuit	7.8	kAp
Breaking Capacity - Fuse	20	kA
Short-time withstand capacity (3 sec) – Main circuit	10	kA
Short-time withstand capacity (3 sec) – Earth circuit	3.15	kA

Background:

Switch-Fuse units are conventionally used for switching and protection of transformers up to 10 MVA. The units generally consist of an oil based load break switch cum isolator and a fuse. The load break switch cum isolator is used for switching and isolation; whereas the fuse protects the transformer against short-circuit faults. As this is an oil based device, it comes along with the various issues associated with oil break switches. The bulk oil circuit breakers (BOCB) and the minimum oil circuit breakers (MOCB) have become obsolete and have now been replaced by SF6 circuit breakers and Vacuum Circuit breakers respectively. In the medium voltage interruption in vacuum has been proven to be the most effective solution and hence vacuum circuit breakers are dominating in this domain. On the same lines the oil based load break switches can be replaced by Vacuum based switches as elaborated in the next section.

About the new product:

Isotech has launched, **"TransSwitch"** a vacuum technology based load break switch for Transformer switching and protection. This product incorporates a VI based load break switch, an air break isolator cum earthing switch, HT fuses for protection, and corresponding interlocks and indication. The single line diagram of the device is depicted in figure 1. The sectional view showing the various components of the device is shown in figure 2.

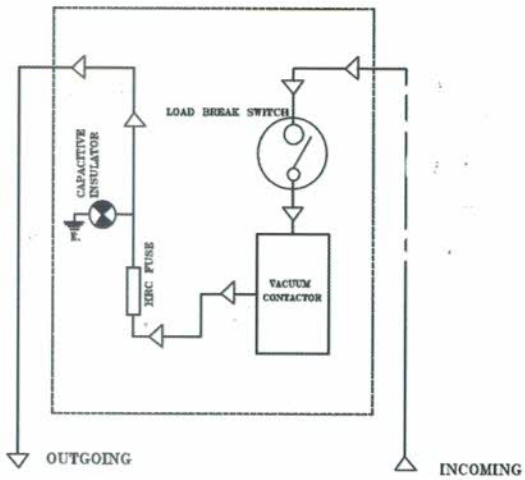

Figure 1: SLD of "**TransSwitch**"

Figure 2: Sectional view of "**TranSwitch**"

Advantages over the existing product:

As mentioned, the TransSwitch employs vacuum as the current interruption medium. With respect to this the advantages of TransSwitch over the conventionally used oil switch is as mentioned in the following comparison.

Vacuum switching	Oil switching
In Vacuum switching, arcing is confined in a sealed housing. Hence it has no exhaust of gas to the atmosphere so environmental friendly	In oil switching, the arcing takes place in oil. Hydrogen generated during arcing in oil, when it combined with air, may form an explosive mixture which is harmful to environment and public location.
Longer life due to the rapid gain of dielectric strength	Short life as compared to vacuum switching
Maintenance free – no replacement required	Requires periodic maintenance and replacement of contacts, filtration and refilling of oil.
No hazard of leakage	Possibility of leakage
No fire hazard	Oil is inflammable and may cause fire hazards



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