

APPLICATION NOTE

TLP NEUTRAL to EARTH MONITOR OPERATION

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TRANSTECH has designed a unique circuit using its instrumentation design experience. The design has given rise to providing a monitor circuit for Transtech's new series 3 phase protectors to ensure that the Earth/Neutral circuit is always healthy.



The "NEMON" protector circuit

The NEMON concept was designed to meet a need for a method of checking the health of the EARTH-NEUTRAL Protection Varistors (ENPV). The next step was to increase its functions to include:-

- Testing the EARTH-NEUTRAL connection;
- Checking whether the NEUTRAL is connected.

FUNCTIONAL DESCRIPTION:

• ENPV fuse Monitoring:

NEMOM detects when this fuse has operated by a low current HBC monitor connected in parallel. A low level galvanically isolated, 10KHz signal is injected across this monitor fuse to detect an open circuit; when an open circuit is detected, the alarm relay drops out and the corresponding indicator is extinguished.

• NEUTRAL-EARTH Resistance Monitoring:

NEMON checks that the NEUTRAL-EARTH resistance is more than ten (10) ohms by injecting a low level galvanically isolated, 10KHz current signal, and measuring the resultant voltage. When the measured resistance exceeds ten (10) ohms the alarm relay drops out and the corresponding indicator is extinguished.

• Missing NEUTRAL:

NEMON also determines whether the NEUTRAL is connected by way of a pseudo-neutral generated with balanced resistances and an out of balance reactance. Opening the NEUTRAL results in a shift of this 'pseudo-neutral' which will cause the relay to drop out. The state of the two (2) fault indicators is indeterminate under these conditions.

Features.....

- FULL THREE modes of protection L-E / L-N / N-E
- Unique detection circuit for zero potential conductors (E & N)
- Category C / Class III (Point of entry)
- Unlimited life / fully self-resetting up to rated kA faults
- Manufactured to meet IEC 61643-1 and AS/NZS 1768:2005



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