

Control and Monitoring

Auto-adaptive Fault Passage Indicator with remote communication improves network availability

Best solution for the smart network management



Principle

A fault passage indicator measures and processes the signals coming from simple and optimised current transformers. An indication is provided when a fault occurs.

They are widely used in underground substations and close to overhead load break switches to localize the fault and help to reduce power restoration time.

A fault passage indicator is auto-adaptive when there is no need to set a threshold. Setting is automatically done depending on service current.



Main points to remember

- *Easy to install for new or retrofit substations*
- *Auto setting to network parameter changes*
- *Cost effective solution for simple indication of a fault, compared to protection chains for fault indication*
- *Comprehensive range of FPIs for feeder automation solutions*

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Advantages

Compared to protection relays, the FPIs are easier to configure and independent from the upstream protection settings. Simple current sensors are sufficient to provide signals accurate enough for fault detection function. Moreover, CT saturation allows using simple electronic devices and avoids using short circuit connectors.

The auto-adaptative FPIs can be used in almost all the neutral systems and do not require accurate voltage sensors.

Moreover, auto-adaptive solution is more flexible to network evolutions, if loads or decentralized generations present intermittent characteristics. By the way, it will also allow avoiding false alarms which can occur in extreme conditions (such as network under-loaded or overloaded, where non ordinary currents could be misinterpreted as short-circuits or faults).

- Schneider Electric proposes a wide range of auto-adaptive FPI.

The integrated FPIs are cost effective and easy to use, directly fitted in the switchgear together with the sensors and wirings. Ammeter and Maximeter are included for the diagnosis and load management.

- Flair 21D = integrated self powered FPI with 4h indication.
- Flair 22D = integrated battery powered FPI with 16h indication.
- Flair 23DV = integrated auxiliary power supply FPI with 16h indication with communication and voltage relay.

Large choice of wall-mounted or overhead FPIs is provided as well which are independent from the cubicles.

- Flair 23DV increases network availability.

– Flair 23DV may be connected to voltage presence indicator (VPIS) in order to avoid transient faults because fault is validated by voltage lack (and not only by current measurement). Flair 23DV is the only one to propose it.

– Flair 23DV provides an integrated output voltage relay for ATS function or other applications.

– Flair 23DV is maintenance free since there is no integrated battery.

– Even in case of lack of power supply, phase fault and standard earth fault detection are ensured. Auxiliary power supply is only needed for communication and voltage presence relay.

– The earth fault protection is very sensitive (1A) thanks to additional homopolar CT

– Communication port is available and helps the control center to isolate and restore the network remotely.



FAQ

- **Is auto-adaptive FPI adapted to all neutral systems?**

The auto-adaptive FPIs can be used in all neutral systems except the pure isolated one.

- **The auto-setting is not always accepted by customer**

It is possible to change the setting to manual mode.

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