TCA-A

Directional FPI with IEC60870-5-104 communications

Directional **Fault Passage Indicator (FPI)** and **switchgear monitoring** for **Overhead** or **Underground Distribution Grid**

General characteristics

- ✓ Powerful programmable logic engine
- ✓ Directional FPI embedded function
- ✓ Up to 12 field digital inputs
- ✓ 7 x Digital output alarms
- ✓ 3-phase voltage and current analogue input.
- ✓ Sensitive Residual current analogue input for isolated ground networks.
- ✓ 2,500 event log and five Fault Registers
- ✓ Oscillography recorder (five COMTRADE files and a sampling rate of 7200 Hz)
- ✓ Diagnosis and Maintenance WebUI

Medium Voltage Grid Monitoring for Distribution networks with FPI function. Overhead or underground lines.

Fault Location solution for semiautomated Distribution Networks through IEC 60870-5-104 communications.

Suitable for a variety of **grounding systems** (solidly-grounded, impedance grounded, isolated or compensated-Petersen coil grounding).
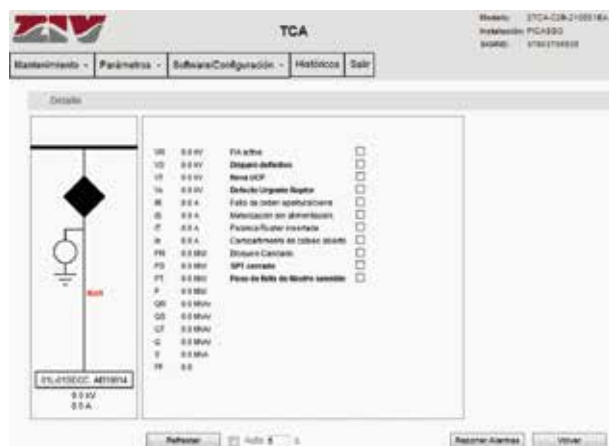
Making the Smart Grid Real

Other features

### Monitoring & Management via WebUI

The WebUI in the TCA-A displays the equipment and facility single line diagram together with the measured values of relevant parameters, including Fault Passage Indication.

No proprietary software tools are required.

Event logger and oscillography recorder

The device includes a 2,500 event register and oscillography recorder with a capacity of 5 COMTRADE files and a sampling rate of 7200 Hz. Trigger options and associated digital signals for oscillographic function can be configured.
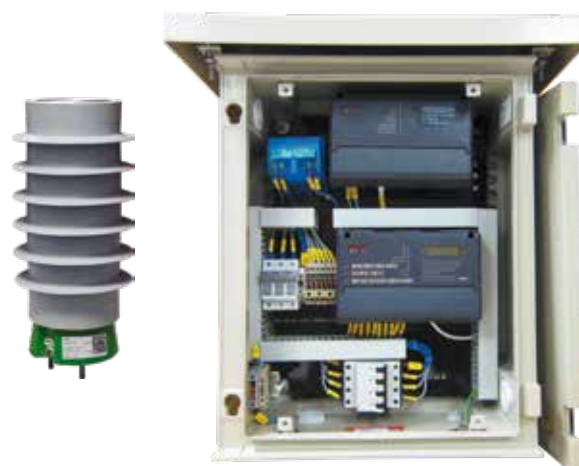
Pole-mounted cabinet with FPI and M2M router

Communication Protocols & Cybersecurity

Directional FPI function incorporated in TCA-A can communicate the status of MV line monitored to the control centres or SCADA systems using the IEC 60870-5-104 communications protocol. Connection with backup control centres can be also configured. FPI and fault direction (forward / reverse) can be revelaled via a configurable output contact or via communication protocol.

Both modes floating point and engineering units are supported in the transmission of monitoring measures to SCADA.

Remote firmware update, device configuration and other operations on the device are performed through WebUI or web services.

All operations are transmitted over secure transport protocols like HTTPS or SSH.

Role-based access control is managed via authentication using LDAP and TACACS+ protocols.

Control and Supervisory Functions

TCA-A incorporates a powerful programmable logic engine that allows the user to define several global alarms of monitored element. It is also possible to define the block or reverse polarization of FPI function, if it is required.

Protection units

ANSI	FUNCTIONS	
50	Non-directional instantaneous three phase overcurrent	3
51	Non-directional time-delayed three phase overcurrent (IDMT/DT)	3
50N	Non-directional instantaneous neutral overcurrent	3
51N	Non-directional time-delayed neutral overcurrent (IDMT/DT)	3
50Ns	Non-directional instantaneous sensitive neutral overcurrent	1
50Ni/C	Non-directional instantaneous Isolated/Compensated neutral overcurrent	1
27	Three phase undervoltage	1
59	Three phase overvoltage	1
67	Directional Three phase overcurrent	1
67N	Directional neutral overcurrent	1
50FD	Fault pass detector	1
47	Negative sequence overvoltage	1
60VT	VT supervision and fuse failure detector	1
60CT	CT supervision	1