

# TCA-A

## Directional Fault Passage Indicator (FPI)



## 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 digital inputs
- ✓ 7 digital outputs for signalling
- ✓ 6 analog channels: 3 for voltage and 3 for current
- ✓ 1 residual current analog channel for isolated grounding networks.
- ✓ 2500 event log and 5 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  
protocol.

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

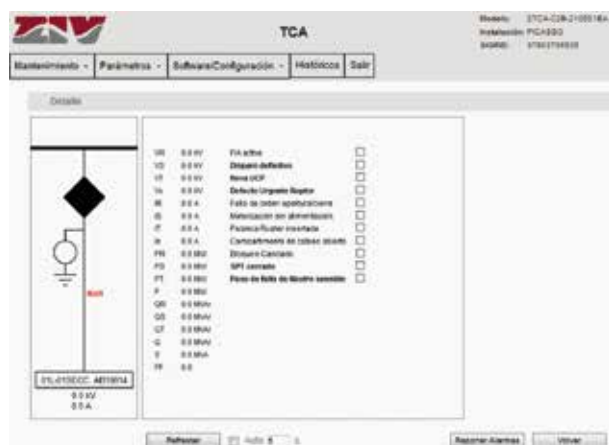


## Other features

### Monitoring & Management via WebUI

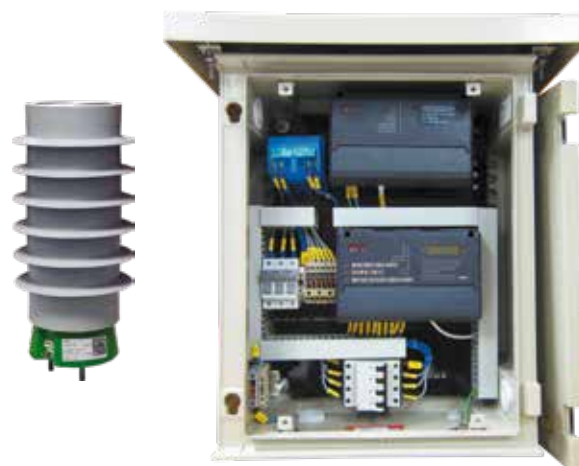
The WebUI in the TCA-A displays the equipment and facility single line diagram together with the measured values of relevant parameters, including Fault Passage Indication.

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 revealed 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

A powerful programmable logic engine can be accessed by means of the built-in WebUI. The TCA-A allows the user to define a number of global alarms for monitored equipment. It is possible to define interblocks for FPI function in some conditions, if it is required.

### Protection units

ANSI	FUNCTIONS	
50	Phase instantaneous overcurrent	3
51	Phase time overcurrent	3
50N	Neutral instantaneous overcurrent	3
51N	Neutral time overcurrent	3
50SG	Sensitive Ground Instantaneous Overcurrent	1
50Ni/C	Instantaneous isolated/compensated neutral overcurrent	1
27	Undervoltage	1
59	Overvoltage	1
67	Phase directional 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

