LV
Supervision
Advanced LV panel supervision system

Advanced low voltage supervision solution to monitor **LV fuse panels and outgoing feeders**

General characteristics

✓ Three-phase feeder metering for energy balancing

✓ Load profile recording

✓ Voltage, current, active and reactive power measurement

✓ Blown fuse detection

✓ Class S Power Quality measurement according to IEC 61000-4-30 and IEC 62586-2

✓ Ground fault detection and oscillographic recorder

✓ Enables mapping of smart meters to LV feeders

Provides **full visibility of the LV network**, by monitoring each one of the outputs of the LV fuse boards, to enable **advanced supervision** functionality.

The solution consists of current sensors (**LPCT**), measurement units (**5CTI**) and a controller (**4SLV**) that fare either integrated in the LV panel or in a cabinet.

The measurement data and events are transmitted to a head end system to enable applications such as **energy balancing**, **phase load balancing** or **feeder mapping of meters**.

Combined with **ZIV's MV monitoring systems** allows monitoring distribution transformers and operating smart transformers.

**Making the Smart Grid Real**

Secondary substation LV feeder advanced supervision

Allows monitoring every LV feeder output of the low voltage switchboard on the secondary (LV side) of the Distribution Transformer (DT).

It enables the implementation of advanced low voltage monitoring functionality such as detection of blown fuses, load imbalances among the feeders and phases, quality of supply assessment…

Combining smart meter data and energy balancing allows identifying technical and non-technical losses.
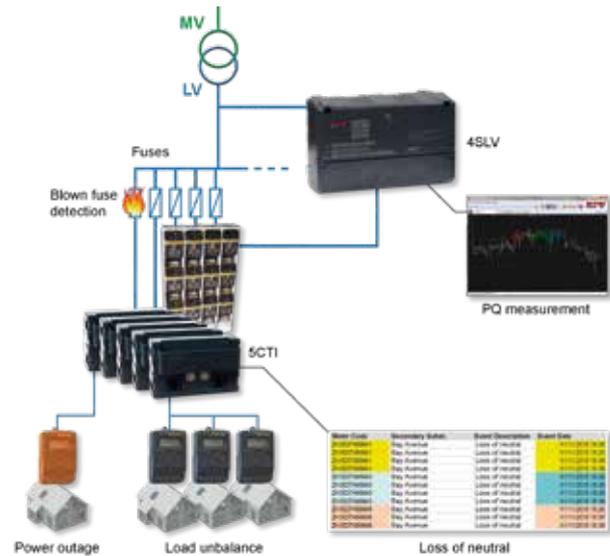
Earth fault detection

For the detection of earth faults in LV networks, which are masked by the load current due to the low fault current, 4SLV provides two methods: one based on the neutral to earth current and another in the neutral to earth voltage.

Mapping of meters to feeders

5CTI provides two methods to determine the electrical location of the meters and obtain a reliable topological information of the LV network: load variations and PLC signal strength.

This information helps in reducing the impact of LV power outages and in improving the information to clients.

Power Quality Measurement

The 4SLV controller is also a Power Quality analyzer (licker, supply voltage interruptions, sags/dips and swells, harmonic distortion, voltage variations) class S certified according to IEC 62586-2.

Key Features

- Bidirectional active and reactive energy recording in all 4 quadrants.
- Instantaneous measurements.
- Average voltage and current per phase, apparent power and neutral current (calculated).
- Maximum voltage and current per phase, apparent power and neutral current (calculated).
- Power Quality recording.
- Event recording.
- Blown fuse detection.
- Smart meter feeder identification
- Remote firmware update.
- Time synchronization.
- WebUI
- Cybersecurity: authentication and encryption

Technical information

	4SLV	5CTI
Enclosure	ZIV Universal Polycarbonate Box	Polycarbonate Box
Dimensions	220 x 140 x 93,6 mm	59 x 93 x 30 mm
Mounting options	✓ Wall mount ✓ DIN rail mount	✓ For LV panel adapting unit ✓ DIN rail mount
Communication ports	✓ RS485 (to 5CTI) ✓ Ethernet 10/100 Base T	RS485 (to SLV)
LEDs	3: Power, Eth, RS485	4: Power, RS485, V, I
Power supply	3 x 230 VAC (±20%)	24 VDC
Nominal voltage	3 x 127 - 230/400 VAC	
Current	3 x 5 (10) A	3 x 5 (6) A or 3 x 1 (1.2) A
Frequency	50/60 Hz	
Accuracy	Active/Reactive: Class S (IEC 62586-2)	Active: Class B (EN 50470-3) Reactive: Class 2 (EN 62053-23)
Environmental conditions	-25ºC ~ +70ºC < 95% (non-condensing)	
Other		✓ 2 x 10 position rotary switches ✓ 1 sturdy handle for easy connection/ disconnection