

Circuit-Level Intelligence for Modern Electrical Systems

Give every outgoing circuit the data, control, and diagnostics your operation team needs to run safer and smarter.



Every Circuit	Remote Control	Early Warning	EMS Execution
Visible	Ready	Diagnostics	Built In

Know every circuit

See each feeder, auxiliary load, HVAC circuit, charger, pump, and critical branch load instead of relying only on main-meter data.

Control critical loads

Switch, schedule, limit, and prioritize circuits from HMI, SCADA, EMS, or cloud platforms when site conditions change.

Protect your uptime

Turn overloads, leakage, abnormal heat, and capacity stress into early warnings your team can act on before shutdown.

Where customers use it

- Less blind-spot operation inside the low-voltage distribution system.
- Faster response for auxiliary power, HVAC, lighting, EV charging, BESS, and process loads.
- A practical path from basic protection to active energy operation.

Customer Message

Your low-voltage distribution system is no longer only a protection layer. It becomes a transparent, controllable energy network for safer daily operation and better lifecycle performance.

What Customers Gain

Smart breakers give owners and operators clearer visibility, faster control, and a stronger foundation for EMS operation.

For asset owners

Improve electrical transparency, reduce operating risk, and support long-term energy-cost control.

For site operators

Identify abnormal circuits faster and operate key loads remotely with status feedback.

For project teams

Add digital capability without changing the familiar low-voltage distribution architecture.

Customer Concern	Smart Breaker Capability	Value to Your Site
Unknown branch-load condition	Circuit-level metering, status, alarms, and trend data	Operators see what is happening inside the distribution system in real time
Rising energy cost	Sub-metering and branch-load energy reports for each outgoing circuit	Energy use can be allocated, compared, and improved by actual load
Limited site manpower	Remote switching, alarm push, status feedback, and circuit diagnostics	Fewer inspection trips and faster response to abnormal conditions
EV, BESS, and HVAC growth	Load scheduling, current limiting, and peak-management support	More controlled use of available electrical capacity
Unplanned downtime risk	Temperature, leakage, overload, and abnormal-load early warning	Earlier intervention before small issues become outages
EMS and SCADA integration	Modbus/MQTT gateway integration with EMS, SCADA, and cloud platforms	Each circuit becomes an active endpoint in the energy-management system

Customer Decision Message

Keep the distribution architecture you trust, then add intelligence where operation happens: at every outgoing circuit. You get protection, visibility, control, and EMS-ready data in one practical layer.

What You Receive

- 1P/2P/3P/4P smart breaker options, 6A to 80A rated current.
- 10kA breaking capacity with C/D trip characteristics.
- RS485, 4G, Ethernet, and WiFi connectivity for flexible site networking.
- Modbus/MQTT gateway integration for EMS, SCADA, and cloud O&M.

Why Customers Are Moving to Circuit-Level Intelligence

Public market examples show why customers increasingly expect power infrastructure that can measure, decide, and act at circuit level.

SPAN Panel - circuit-level smart panel

Source: SPAN official product page

A smart electrical panel with 16 to 48 controllable circuits, energy insights, remote on/off control, EV charging coordination, and battery backup prioritization. The customer signal is clear: circuit-level visibility is becoming an expectation, not a luxury.

Schneider Home - modular HEMS platform

Source: WIRED coverage of Schneider Home

The system combines a smart panel, battery, EV charger, inverter, and app-based energy control. The same value logic applies to commercial, industrial, and energy sites: coordinate distribution, schedule loads, reduce peak stress, and protect critical circuits.

Savant Smart Budget - load capacity management

Source: The Verge CES 2025 report

Savant applies software and automated circuit control to manage high-draw loads such as EV chargers, appliances, solar, and batteries without exceeding panel capacity. This reinforces a customer benefit: get more control from existing electrical capacity.

ABB Tmax XT - digital low-voltage protection

Source: ABB official Tmax XT page

ABB highlights electronic trip units, Modbus communication, supervision-system integration, energy metering, motor protection, generator protection, and diagnostics. It validates the customer need for protection devices that connect directly to EMS and SCADA.

SCE Tehachapi - grid-scale BESS operation

Source: Edison International news release

The 32 MWh battery energy storage project was built to modernize the grid and integrate renewable energy. For BESS and renewable-energy sites, smart breakers help supervise auxiliary loads, alarms, HVAC, pumps, chargers, and support systems.

EMSx and MPC field studies - control proof points

Source: arXiv EMSx, MPC panel-control, LV switchboard monitoring papers

Research on microgrid EMS, panel/service protection, and remote LV switchboard monitoring shows why granular measurement plus controllable endpoints matter. Smart breakers give customers field data and execution points inside the distribution system.

Customer takeaway

- The market is moving from passive distribution to active circuit intelligence.
- Smart breakers give your electrical system a digital layer your team can see and use.
- For BESS, EV charging, microgrid, utility, and industrial sites, this becomes a practical upgrade for daily operation.

Reference sources: SPAN Panel; WIRED Schneider Home Energy Management; The Verge Savant Smart Budget; ABB SACE Tmax XT; Edison International SCE Tehachapi Energy Storage Project; arXiv EMSx, MPC panel-control, and LV switchboard monitoring papers.

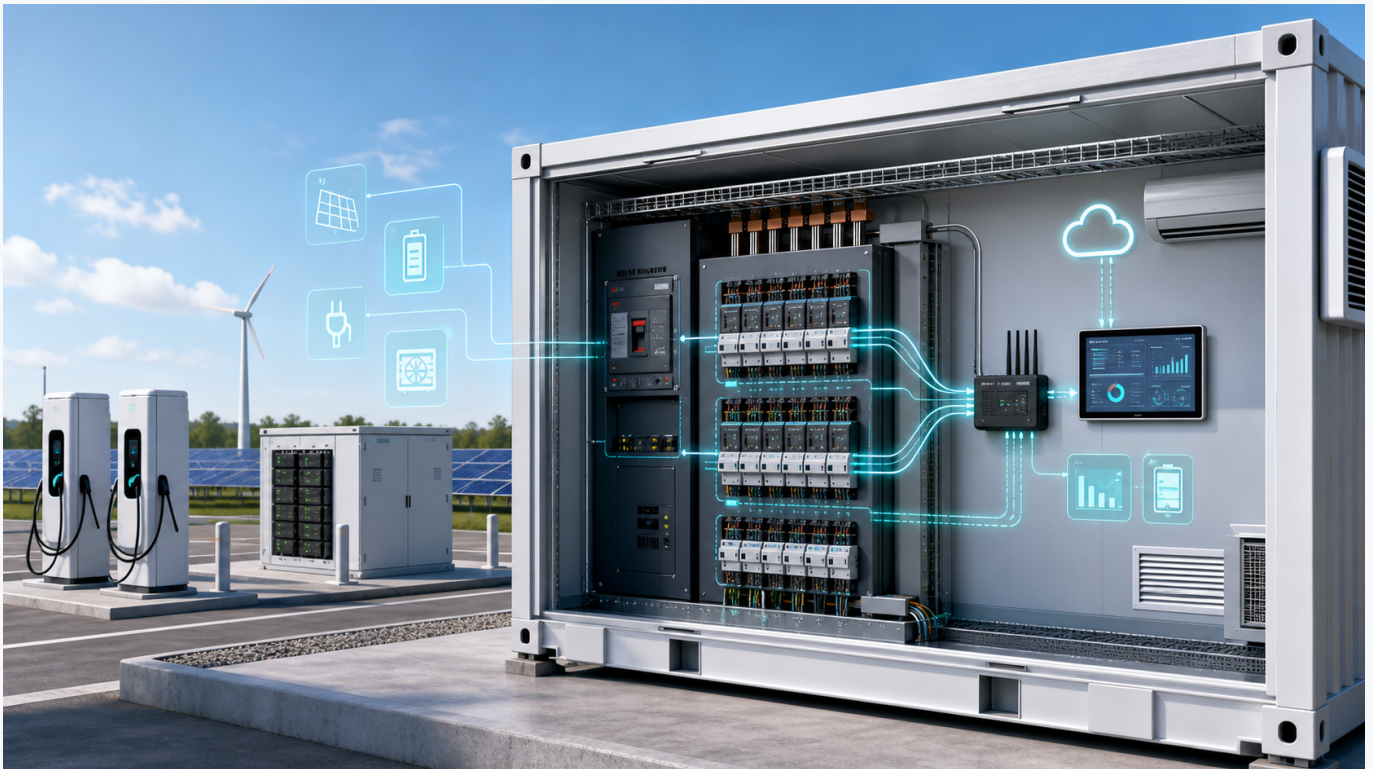
Designed for Real-World Electrical Operation

A compact smart protection device that helps customers operate each branch circuit as a managed energy endpoint.



What it adds to your panel

- Standard DIN-rail form factor for integration into LV panels and outgoing feeders.
- Protection, metering, status feedback, communication, alarm reporting, and remote operation in one device layer.
- Better visibility for auxiliary systems, HVAC, lighting, pumps, EV chargers, BESS support loads, and distributed load points.
- A practical bridge from field circuits to gateway, EMS, SCADA, and remote O&M platforms.



Best-fit customer sites

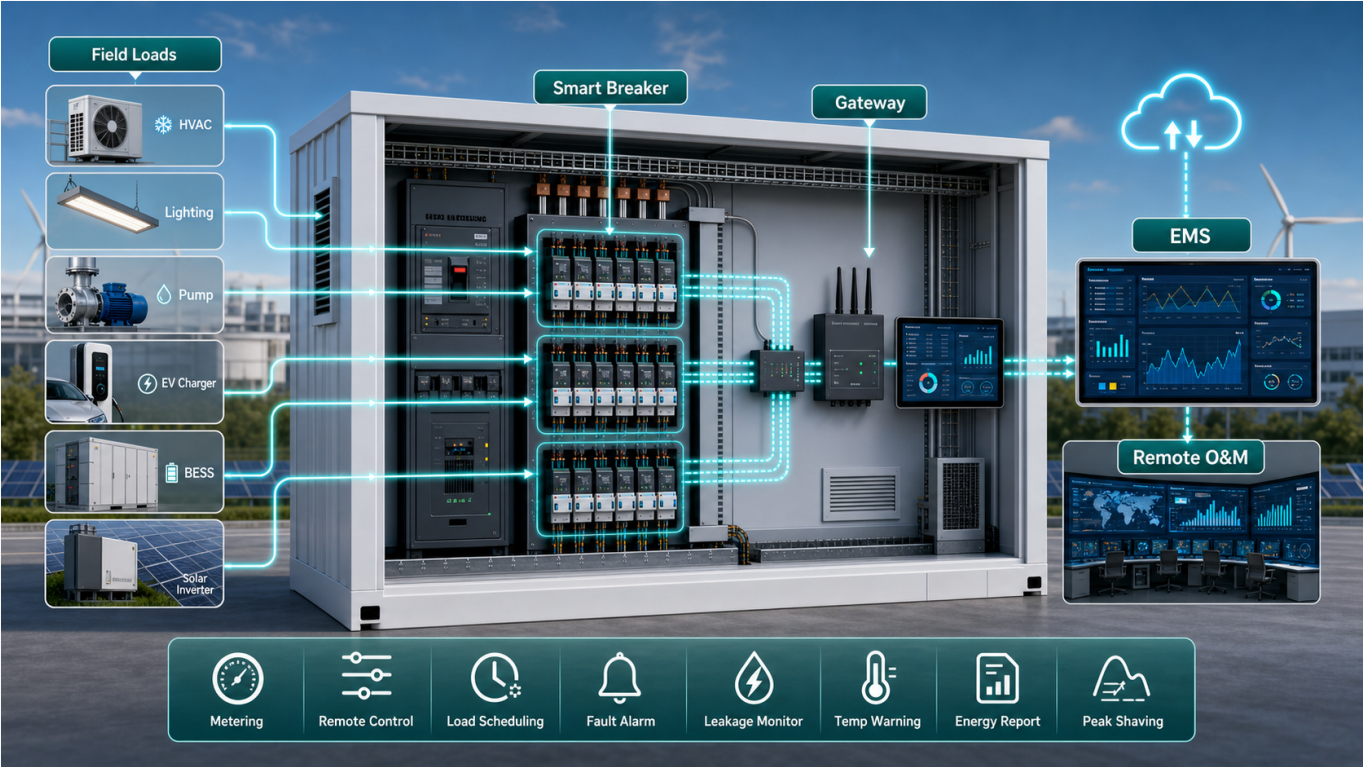
BESS containers, EV charging hubs, solar plants, industrial parks, data centers, commercial buildings, and unattended utility stations.

What the 3D scene shows

- The distribution panel becomes a smart power command center.
- Every feeder can be monitored, controlled, and diagnosed.
- EMS data becomes more granular, more actionable, and closer to the actual load.

Make Every Circuit an Active Part of EMS

Smart breakers connect your field loads, protection, energy analytics, and remote operation into one controllable loop.



Field Loads	Smart Breaker	Gateway	EMS/SCADA	Remote O&M
HVAC / lighting / pumps / EV chargers / BESS / solar	Measures each circuit and executes control	Aggregates and uploads site data	Analyzes, alarms, optimizes, and dispatches	Helps teams maintain uptime remotely

Why customers need it

Main-meter visibility is not enough for modern modular power systems. Customers need to know which circuit is consuming energy, which load is abnormal, and which branch can be controlled safely.

Customer outcomes

- Lower operating risk through early warning and faster fault localization.
- Better energy decisions from real branch-load data.
- More flexible load management for EV, BESS, HVAC, and process loads.
- A smarter electrical system for new projects and retrofit upgrades.

In one sentence: smart breakers help customers turn low-voltage distribution from passive protection into a visible, controllable EMS execution layer.