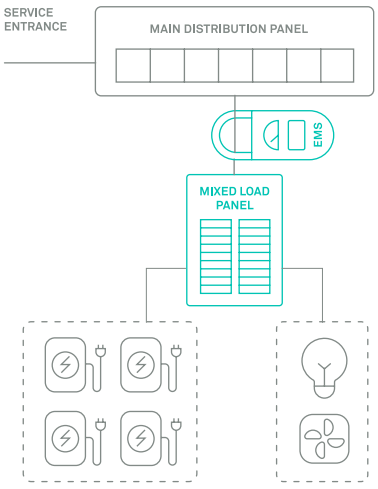
SWTCH Control™ Technical Sheet

SWTCH Control™ Configuration Types

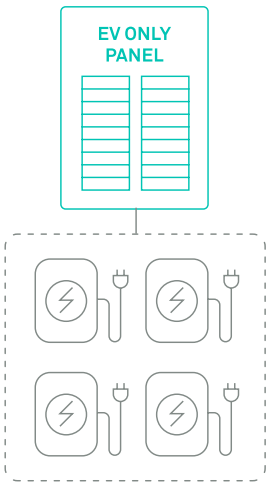
Shared Panel

When there is existing load such as HVAC, light, or others on the same panel as the EV chargers. SWTCH Control™ ensures the maximum current on the panel remains within the panel breaker safety limits.



EV Only Panel

When there are no other loads such as HVAC, light, or others on the panel. SWTCH Control™ ensures the maximum current on a circuit remains within the breaker safety limits.



Electric Vehicle Charging Station (EVSE) Settings

Hardware Specification:

Please refer to the designated charger make and model for details.

Configuration Settings

Setting	Example/Description	Example Values
Fallback Current	The maximum current the charger operates when offline.	8 A
Hardware Rating	The maximum current rating of the charger.	32 A
Software Rating	The maximum current of the charger is configured to deliver.	16 A
EVSE Offline Behaviour	The charger's charging behaviour when it is offline. (e.g. use fallback value as maximum charging current for new transactions.)	Retry every 5 min for 30 times
Metering Interval	The frequency for the chargers to send meter values to the central system, which can be configured up to 300 seconds (ideal 60 seconds).	Every 5 minutes

Current Sensor Specification (only required for the 'Shared Panel' configuration)

	Wired	Wireless	WiFi
Power Supply Voltage	5V DC input		6V AC input
Power Supply Current	0 to 0.3A		0 to 0.4A
Operating Conditions	32 to 122°F (0 to 50°C) 80% relative humidity		
Storage Conditions	-4 to 158°F (-20 to 70°C) 80% relative humidity		
Module Dimensions (W x H x D)	3 x 3 x 1 in (77 x 75 x 25 mm)		
Weight (approximate)[1]	1.8 lbs (0.800 kg)	1.9 lbs (0.875 kg)	1.7 lbs (0.790 kg)
Wireless Link	N/A	IEEE 802.15.4 2.405 to 2.480 GHz	IEEE 802.11 b/g/n 2.412 to 2.484 GHz
Wireless Range[2]	N/A	Indoors: 500ft (150m) Line of sight: 1000ft (300m)	Indoors: 150ft (46m) Line of sight: 300ft (92m)
Sensor Type	200A		
Ethernet Cable	RJ45-Cat6, 3 meters		
Power Source	6V AC type A North American power adapter		

[1] Two (2) sensor models used; EHEM1, EHWEM1, EYEFI-2, Approximate weight includes packaging and contents.

[2] Wireless range is dependent on the location and environment that device(s) are installed in. Typical values provided.

Current Sensor Installation

- Current sensors should be installed on the secondary side of the transformer
- The Power supply of the Panel Metering Device must be taken from the current sensor side (secondary side of the transformer)

SWTCH Control™'s Load Management Algorithm

The central system monitors and controls the aggregated charging capacity. When the charging is ready to start, the central system will calculate the available capacity based on real-time overall consumption, including the Current Sensors readings if equipped.

The central system continuously detects changes in load. It will recalculate and redistribute the available capacity to other EVSEs dynamically.

Operation Envelope

System Buffer: the system will dynamically allocate up to 5% of the panel capacity as an operational buffer. For a 200A panel, the buffer will be 10 A. The buffer will accommodate unexpected network connectivity issues, mal-functional devices, and other unexpected situations.

Current Senor Reading Frequency: The current sensor passes the measurements to the Panel Metering Device, which transmits to the central system every 5 seconds.

Connectivity & Offline Behaviour: When EVSE disconnects from the internet, it will attempt to reconnect following the re-connect algorithm. The EVSE's charging behaviour will follow the pre-defined EVSE offline policy during the offline period.

Panel Specifications

(Example values, refer to the last page for input fields):

Setting	Example values
Panel Brand / Model Number	ABB, AQF-ML-Interial-N
Panel Name	EV panel 001
Panel Rating (current, voltage, signle/3 phase)	200 A, 208V, 3-phase, 4 wire
Panel Safety Buffer	20%
Number of Breakers slots	40
Number of Installed slots	10

EVSE Electrical Connection (Example values, refer to the last page for input fields)

Configuration: Shared Panel

(with Current Sensors)

EVSE Serial #	Phase	Breaker Size	Breaker Tag
IC3-009-3231	A, B	40A	CB1
IC3-009-3232	A, C	40A	CB2
IC3-009-3233	B, C	40A	CB3
IC3-009-3234	A, B	40A	CB4

Configuration: EV Only Panel

EVSE Serial #	Phase	Breaker Size	Breaker Tag
IC3-009-3231	A, B	40A	CB1
IC3-009-3232	A, C	40A	CB2
IC3-009-3233	B, C	40A	CB3
IC3-009-3234	A, B	40A	CB4

Safety and Compliance Protocols

Install and operation of the electrical panel shall comply with the local, national, or international electrical codes and the latest version of:

- United States—National Fire Protection Association (NFPA 70), United States National Electrical Code
- Canada—Canadian Electrical Code, Part 1, CSA C22.1
- Other countries—International Electromechanical Commission (IEC) 60364

Safety-related work practices and procedures for service vendor employees who work on or near exposed energized circuits or components must be followed by the requirements of the local, national standards for electrical safety in the workplace.

SWTCH Control™ Load Management Configuration Form

Project Address: _____

Installation Date: _____

Installer Company: _____

EVSE Settings:

Setting	Value
Fallback Current	
Hardware Rating	
Software Rating	
EVSE Offline Behaviour	
Metering Interval	

Panel Specifications:

Setting	Value
Panel Brand / Model Number	
Panel Name	
Panel Rating (current, voltage, signle/3 phase)	
Panel Safety Buffer	
Number of Breakers slots	
Number of Installed slots	
Non-EV loads on the panel (in amps)	

EVSE Electrical Connection

Configuration 1:

- [ ] **EV Only Panel**
- [ ] **Shared Panel**
  With Current
  Sensors

EVSE Serial #	Phase	Breaker Size	Breaker Tag

Configuration 2:

- ☐ **EV Only Panel**
- ☐ **Shared Panel** With Current Sensors

EVSE Serial #	Phase	Breaker Size	Breaker Tag

Installer Name: _____ Installer Signature: _____

SWTCH Representative:

Name: _____ Signature: _____

Date: _____