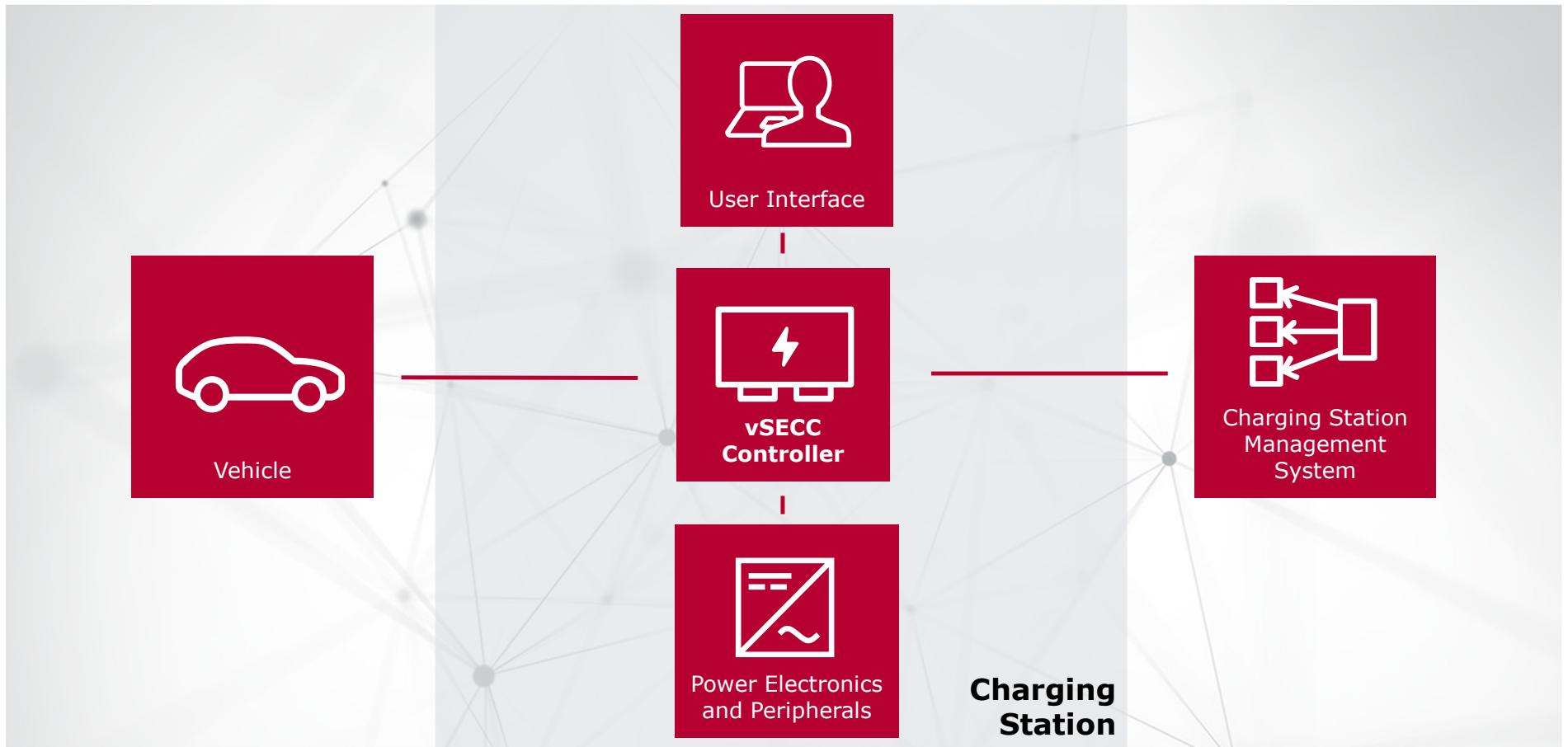


vSECC – Supply Equipment Communication Controllers

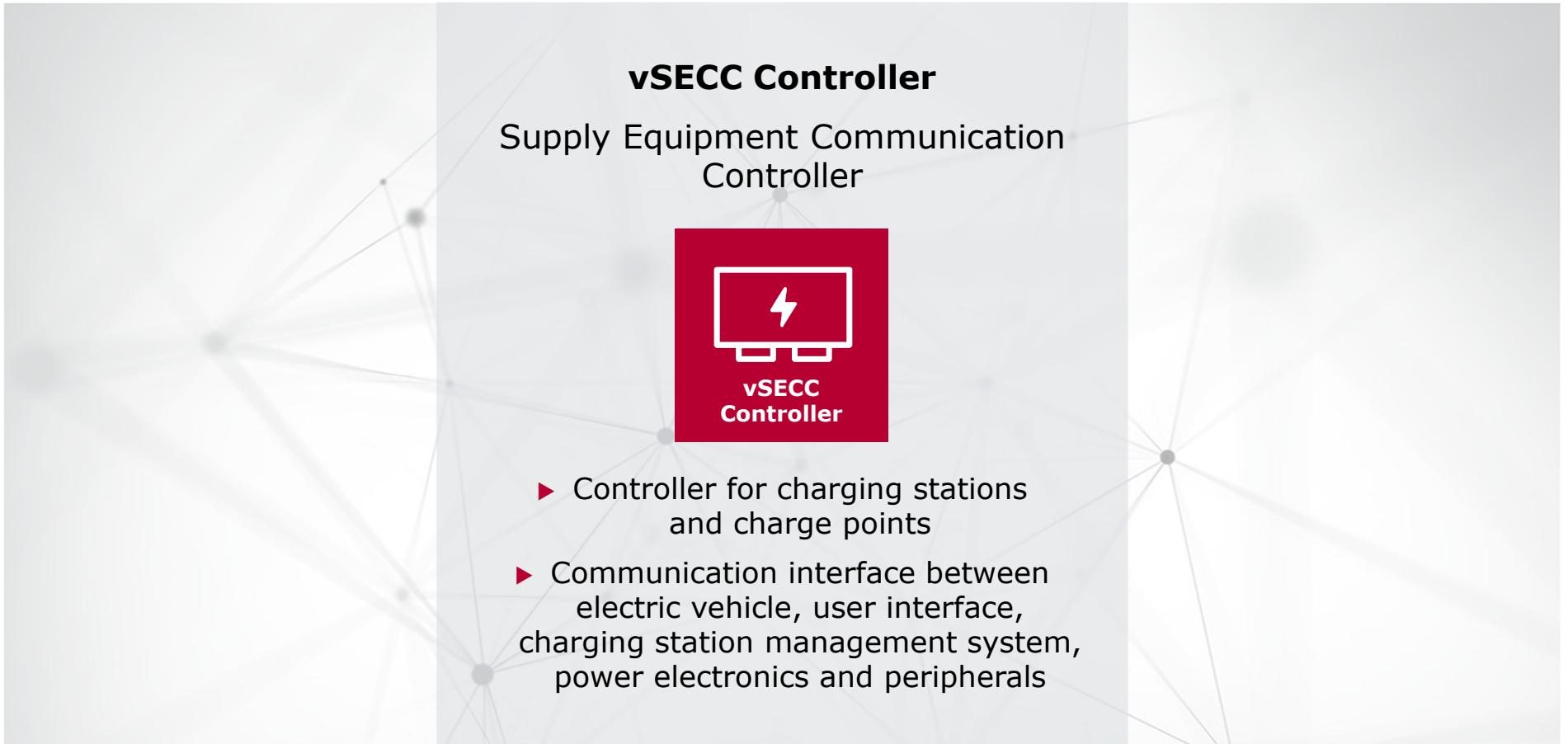
The Role of the vSECC Controller in the Charging System



The Role of the vSECC Controller in the Charging System



The Role of the vSECC Controller in the Charging System



vSECC Controllers Overview

Products



vSECC Standalone Controller

High-Power Chargers

- ▶ Public and Semi-Public
- ▶ Companies
- ▶ Communities

Commercial

- ▶ Double dispenser for commercial vehicles

Commercial and Pantograph

- ▶ Charging stations for commercial vehicles



vSECC.single Board for Integration

Semi-Public

- ▶ Mobile Chargers
- ▶ Commercial Fleets



Residential

- ▶ Smart DC Wallbox
- ▶ DC charging for microgrids



vSECC.single Standalone Controller

Public and Semi-Public

- ▶ Single dispenser solutions
- ▶ Charging stations for commercial fleets

Advantages

**Universal controller
for all communication
functions**

**Powerful multi-core
processor**

**Compact industrial
top-hat rail design***
with IP 20

Available on Stock!

vSECC Controllers

**Turnkey solution
for Bi-directional
Charging
with ISO 15118-20**

**CP/PP supervision
designed for SIL 2***
**No extra hardware
required!**

**Remote software
updates**

**ISO 15118
DIN SPEC 70121
OppCharge*
CHAdE MO*
OCPP**

*except vSECC.single Board

vSECC Controllers

vSECC Standalone Controller

High-Power Chargers

- ▶ Public and Semi-Public
- ▶ Companies
- ▶ Communities

Commercial

- ▶ Double dispenser for commercial vehicles

Commercial and Pantograph

- ▶ Charging stations for commercial vehicles



Common Software Base



vSECC.single Board for Integration

Semi-Public

- ▶ Mobile Chargers
- ▶ Commercial Fleets

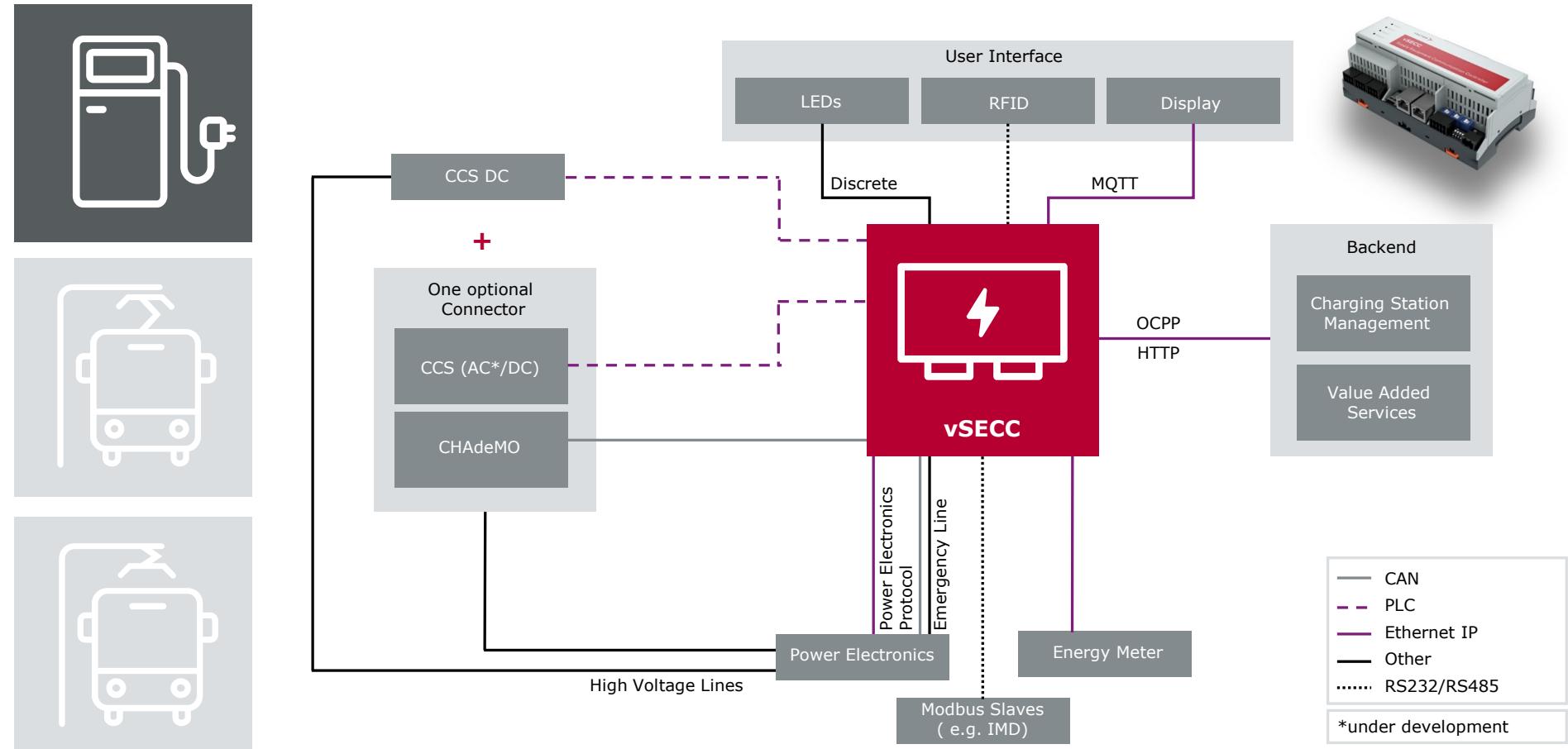
Residential

- ▶ Smart DC Wallbox
- ▶ DC charging for microgrids

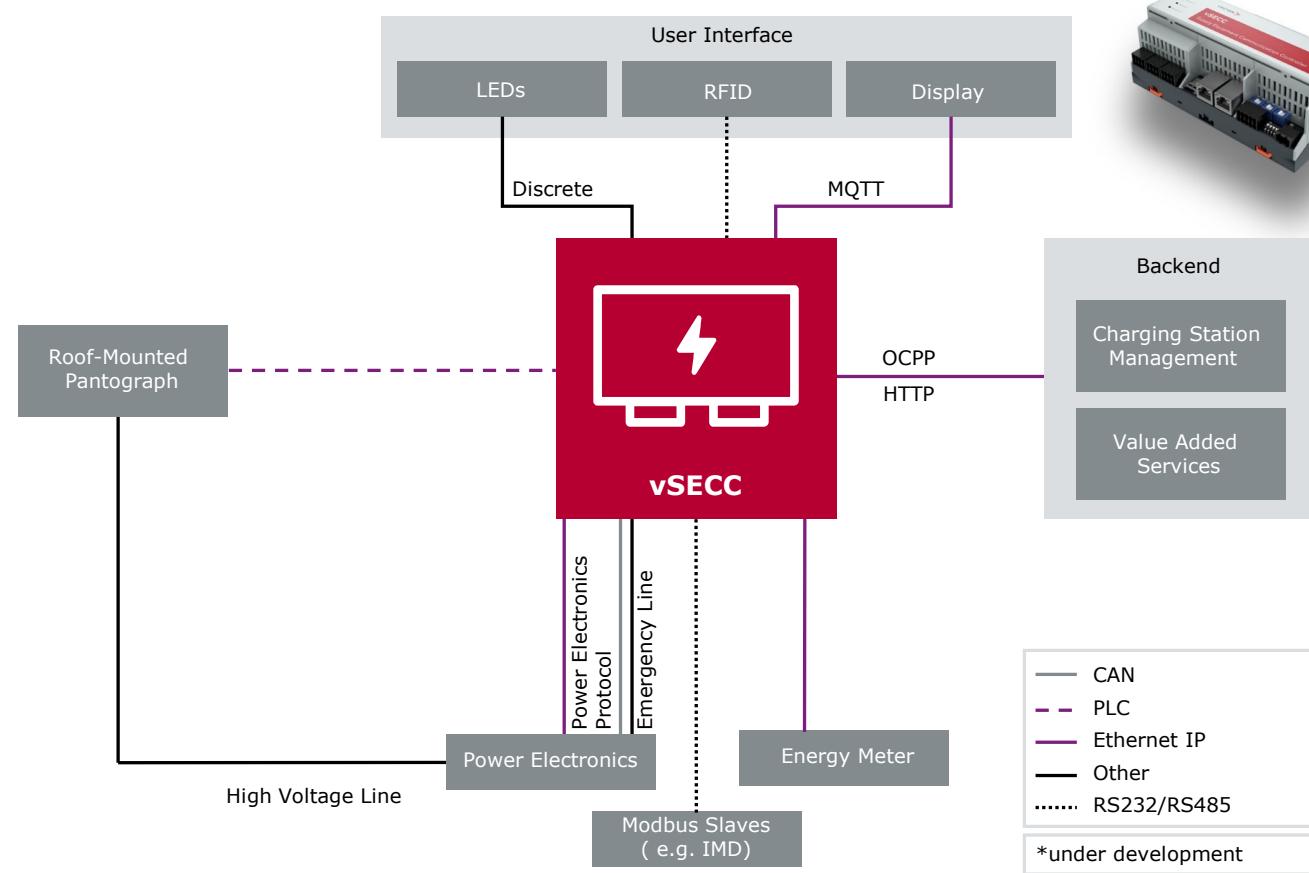
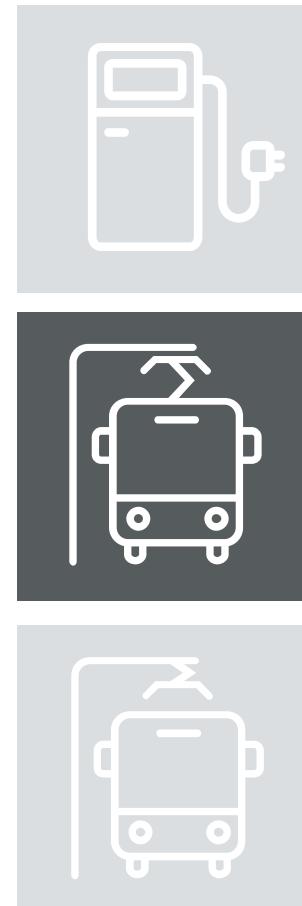
Public and Semi-Public

- ▶ Single dispenser solutions
- ▶ Charging stations for commercial fleets

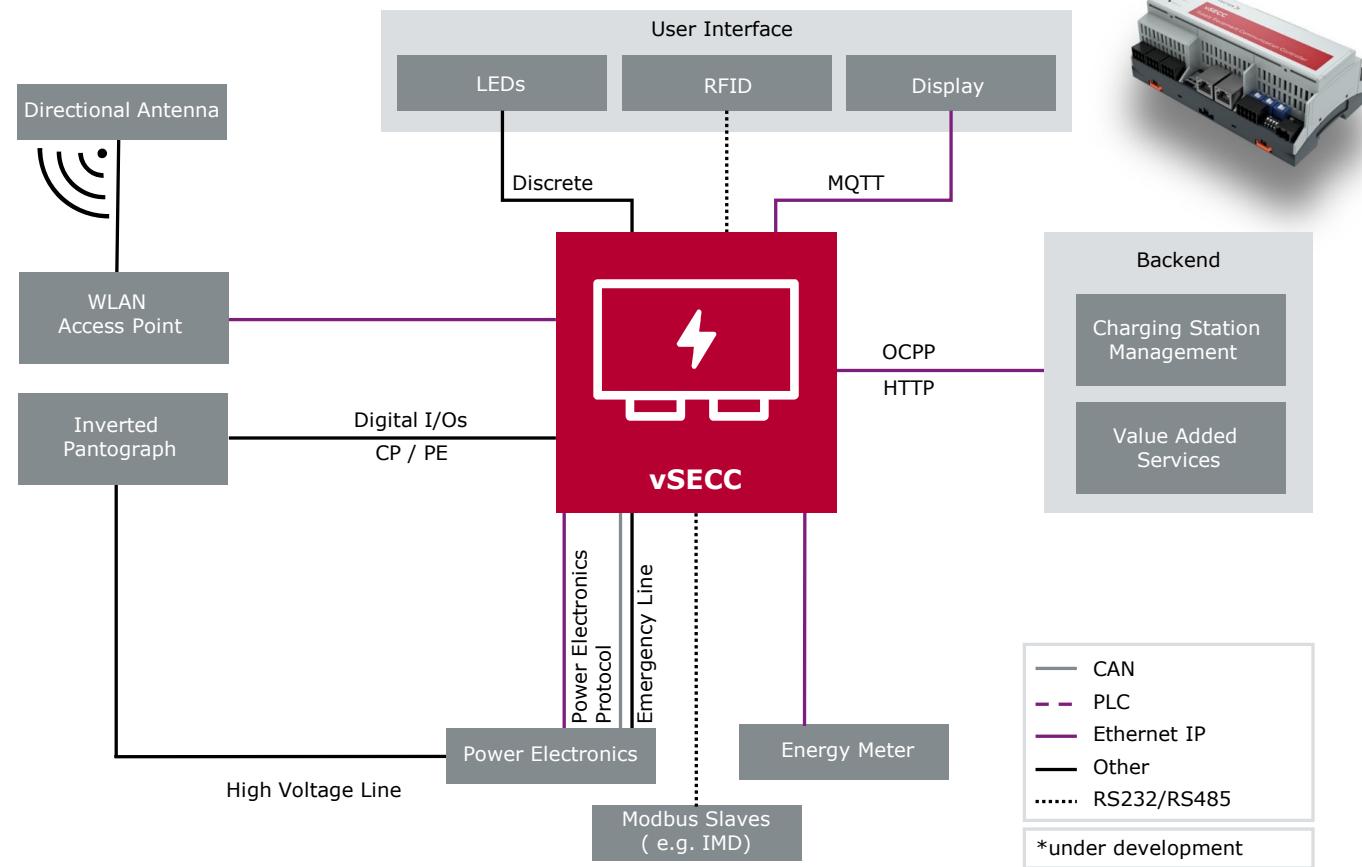
Interfaces Inside Conductive Charging Station



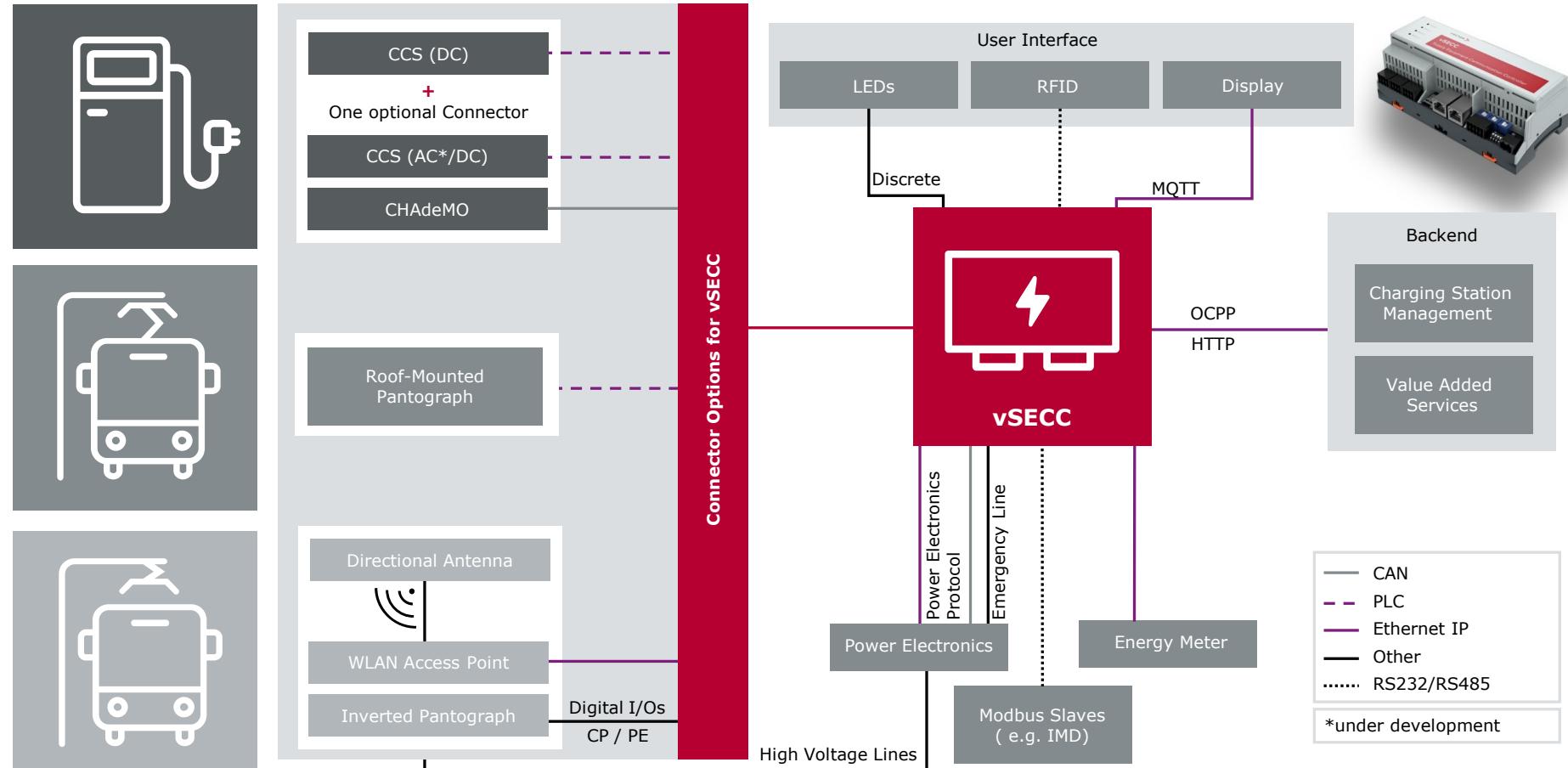
Interfaces Inside Roof-Mounted Pantograph Pole



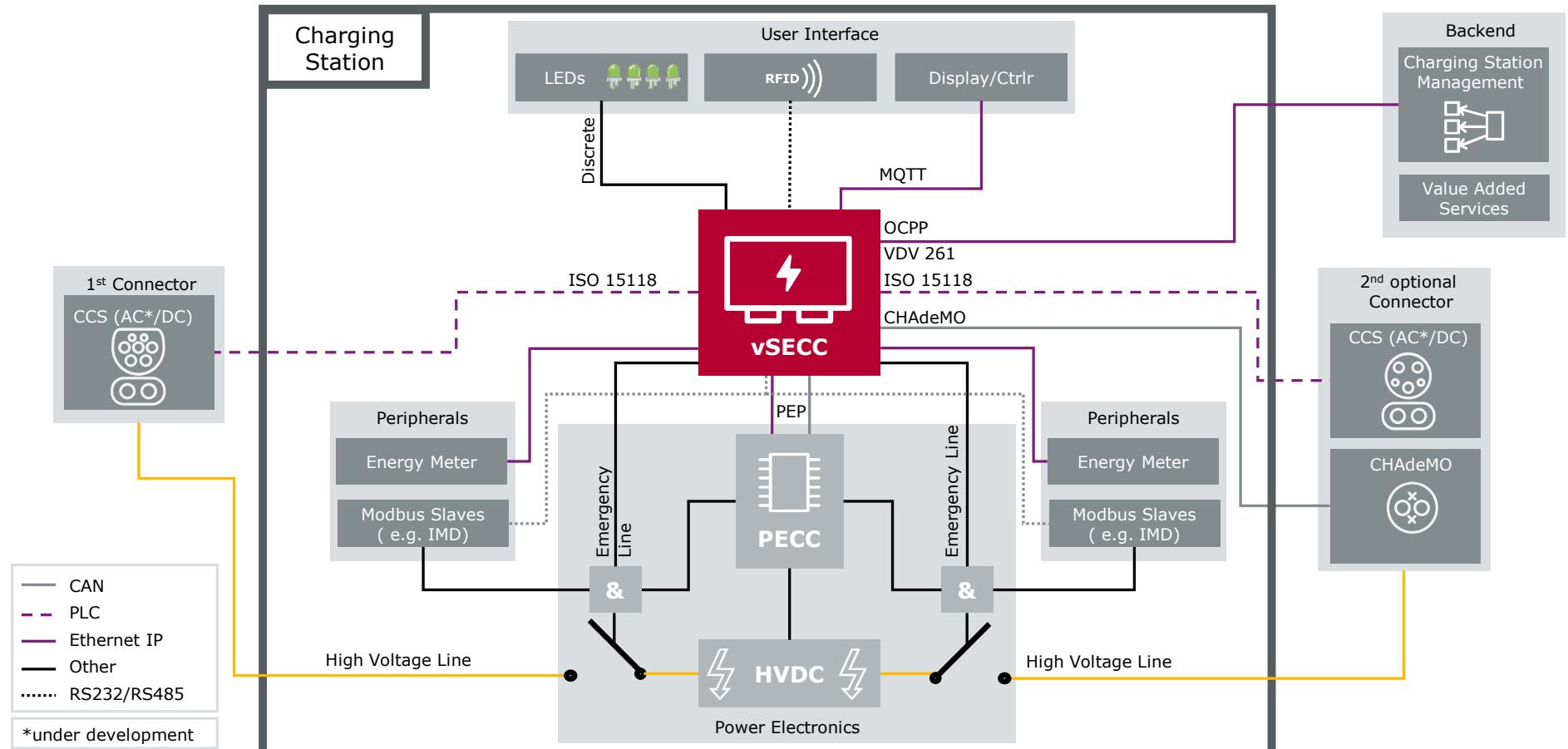
Interfaces Inside Inverted Pantograph Pole



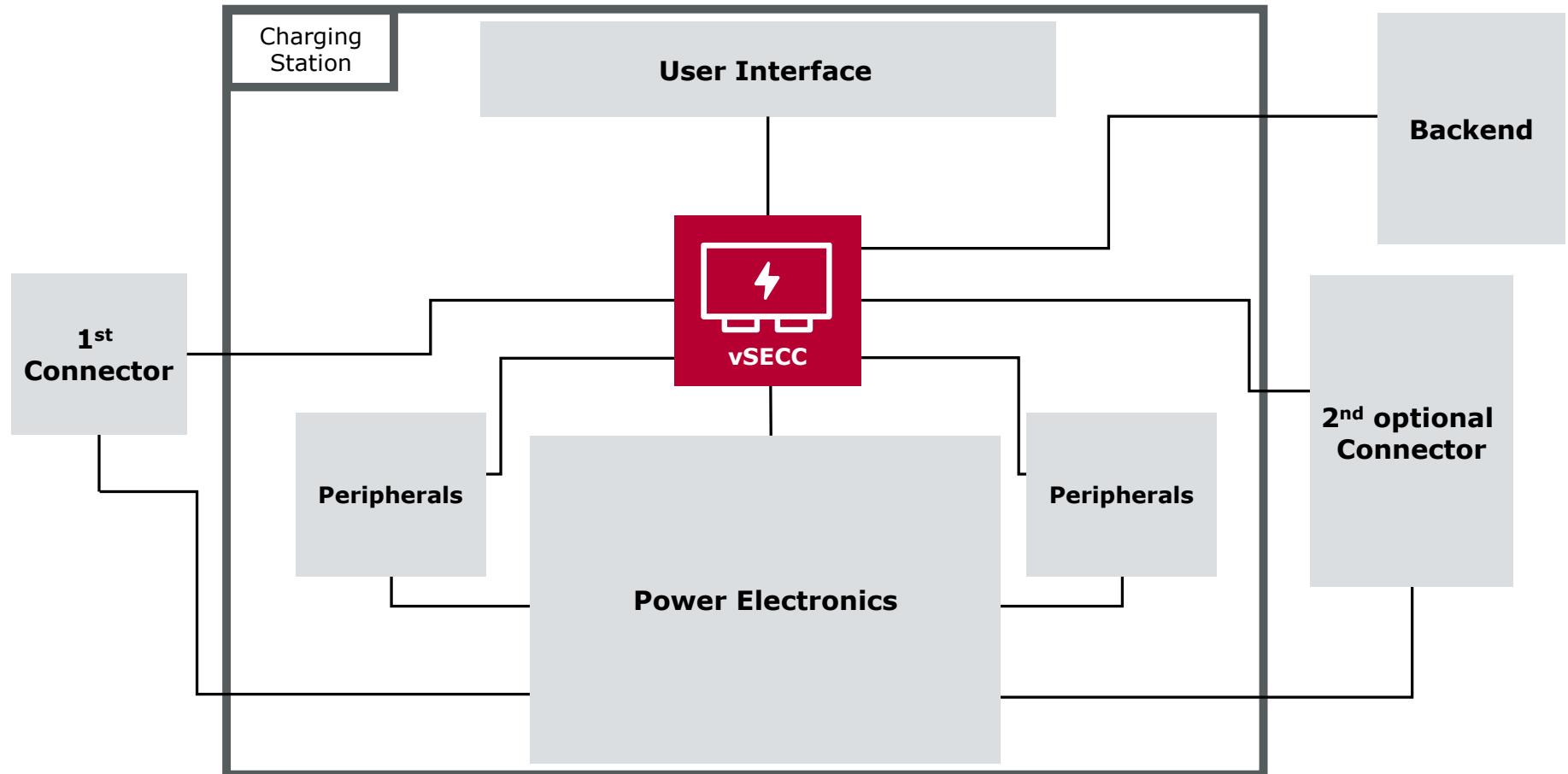
Many Applications with One Device



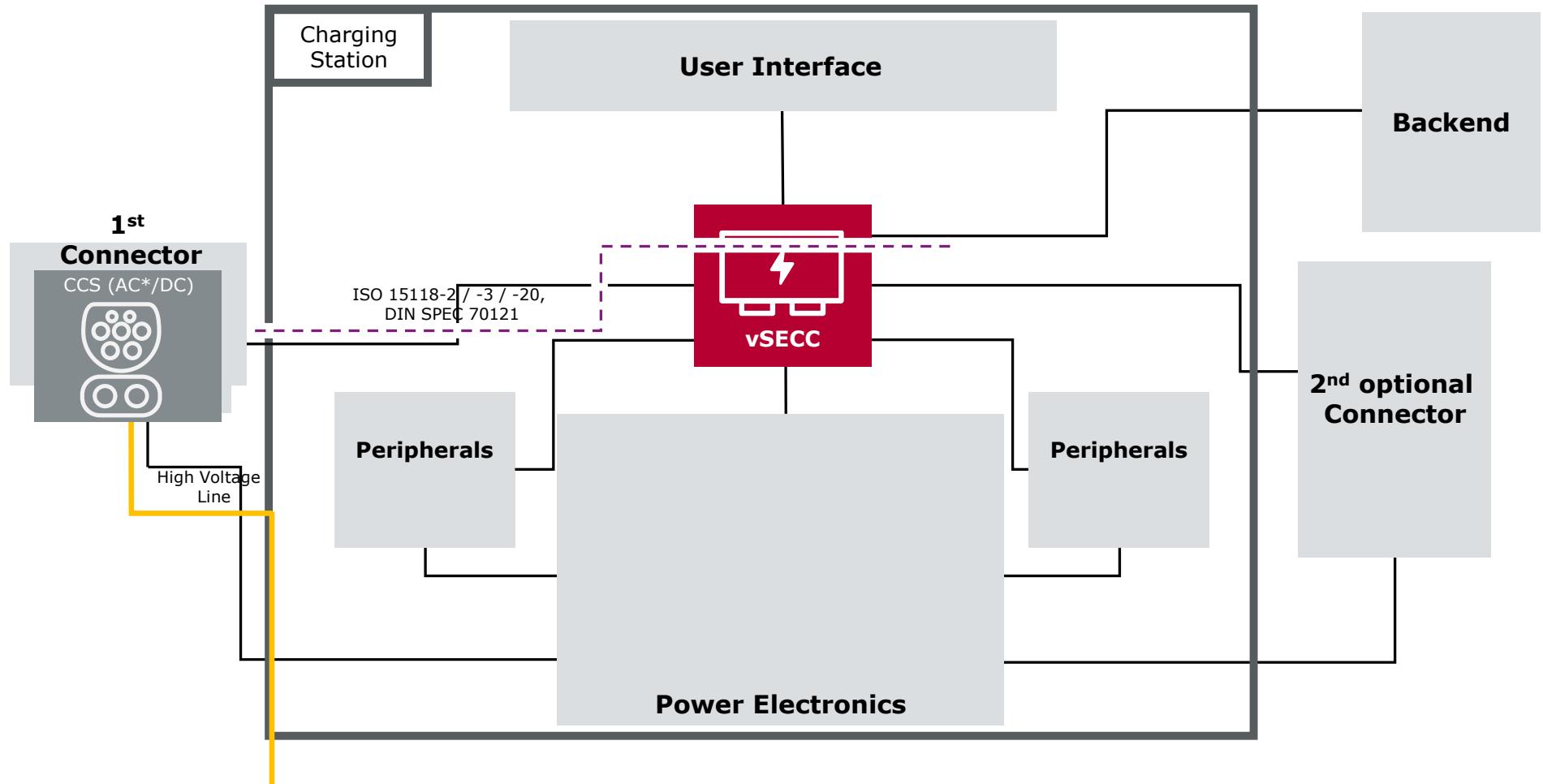
Interfaces Inside Conductive Charging Station



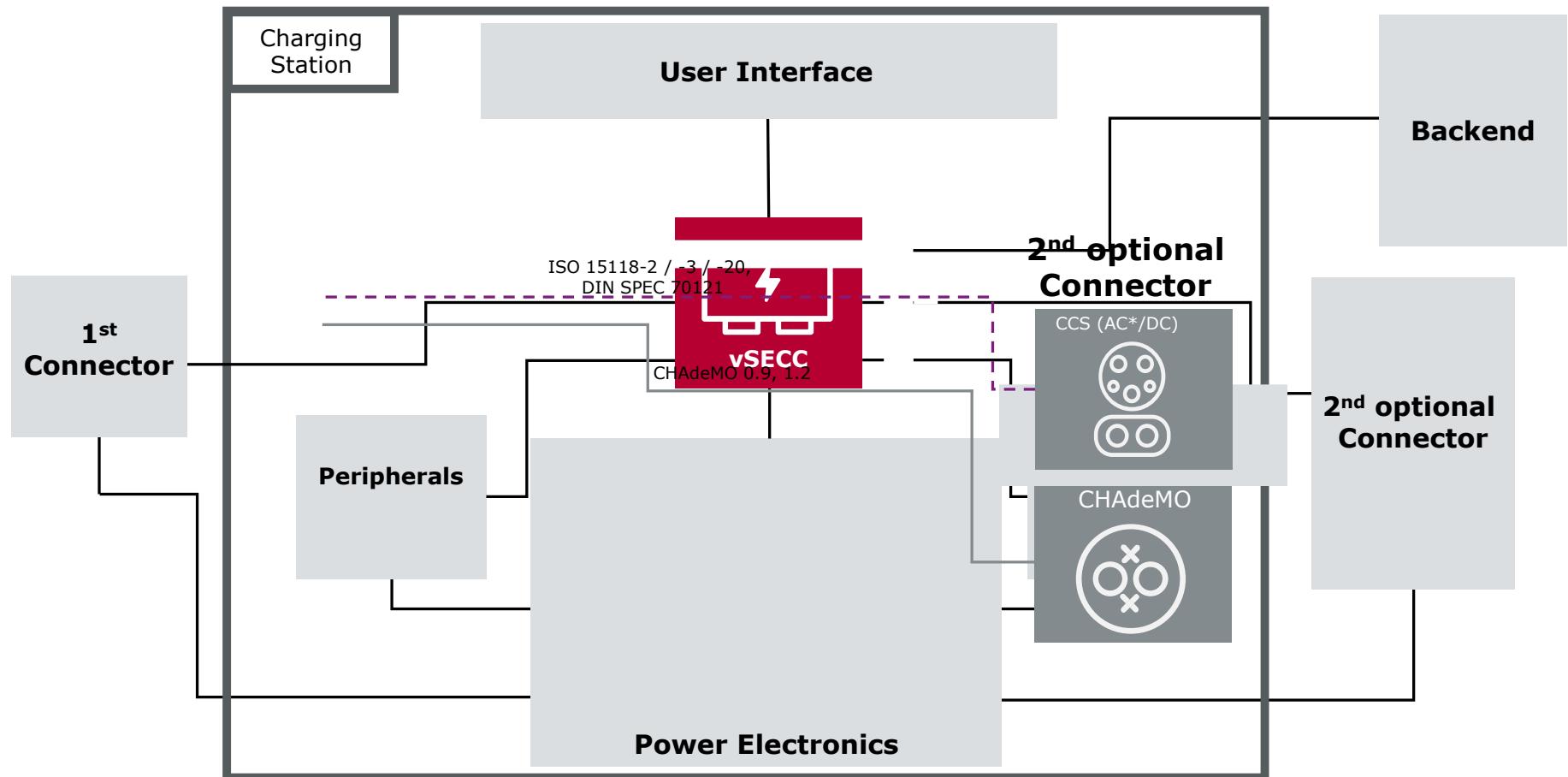
Interfaces Inside Conductive Charging Station



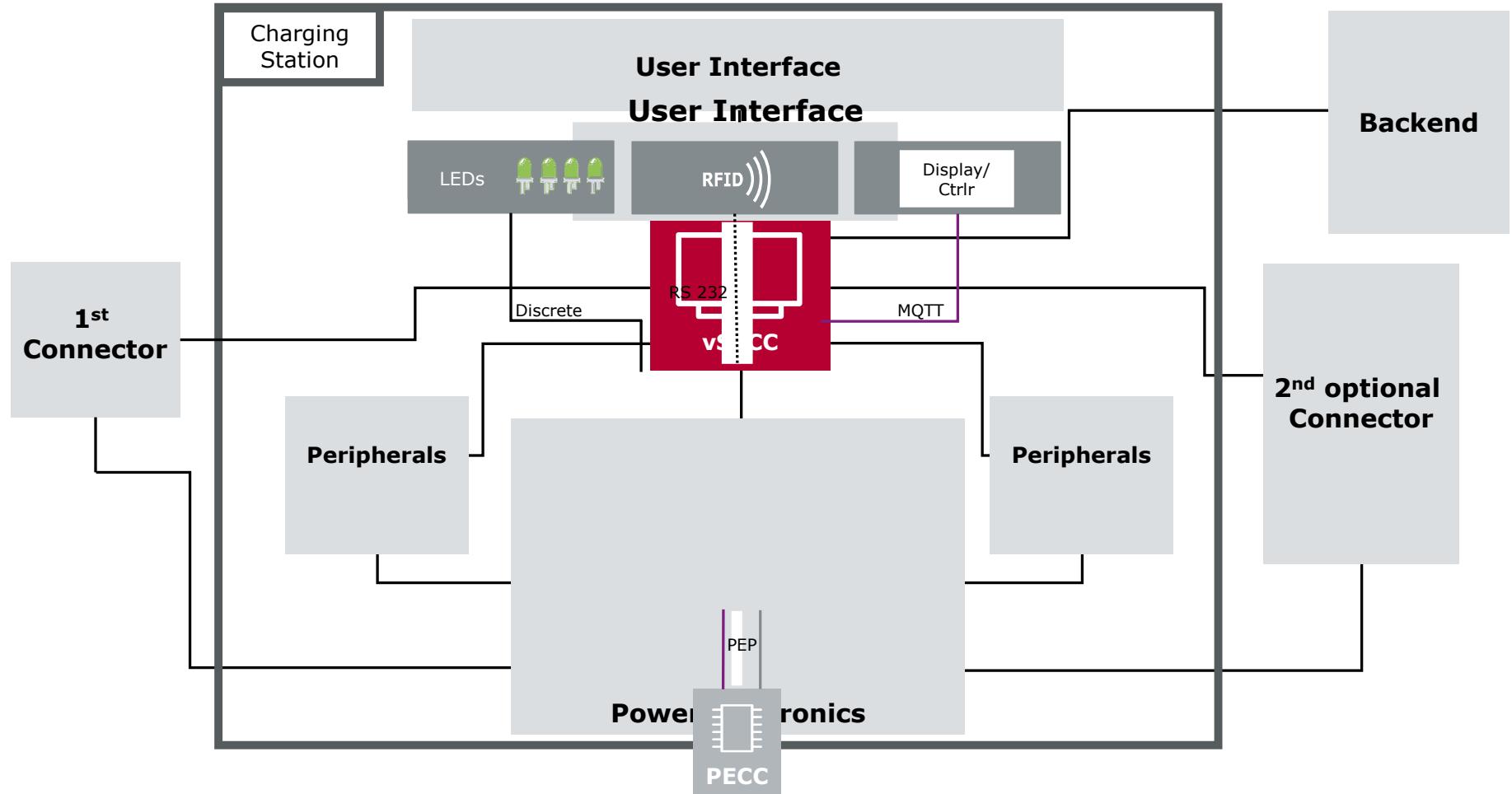
Interfaces Inside Conductive Charging Station



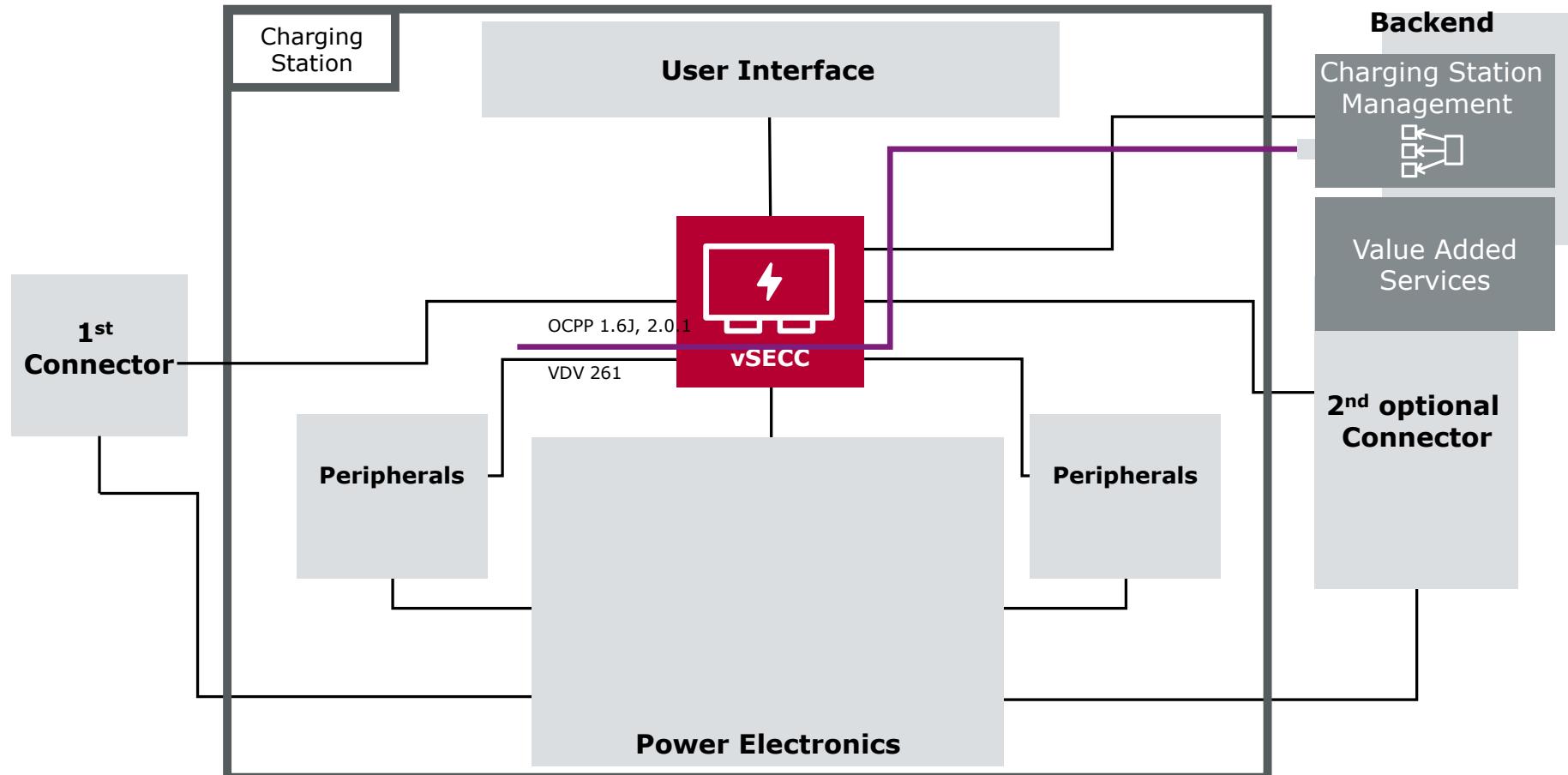
Interfaces Inside Conductive Charging Station



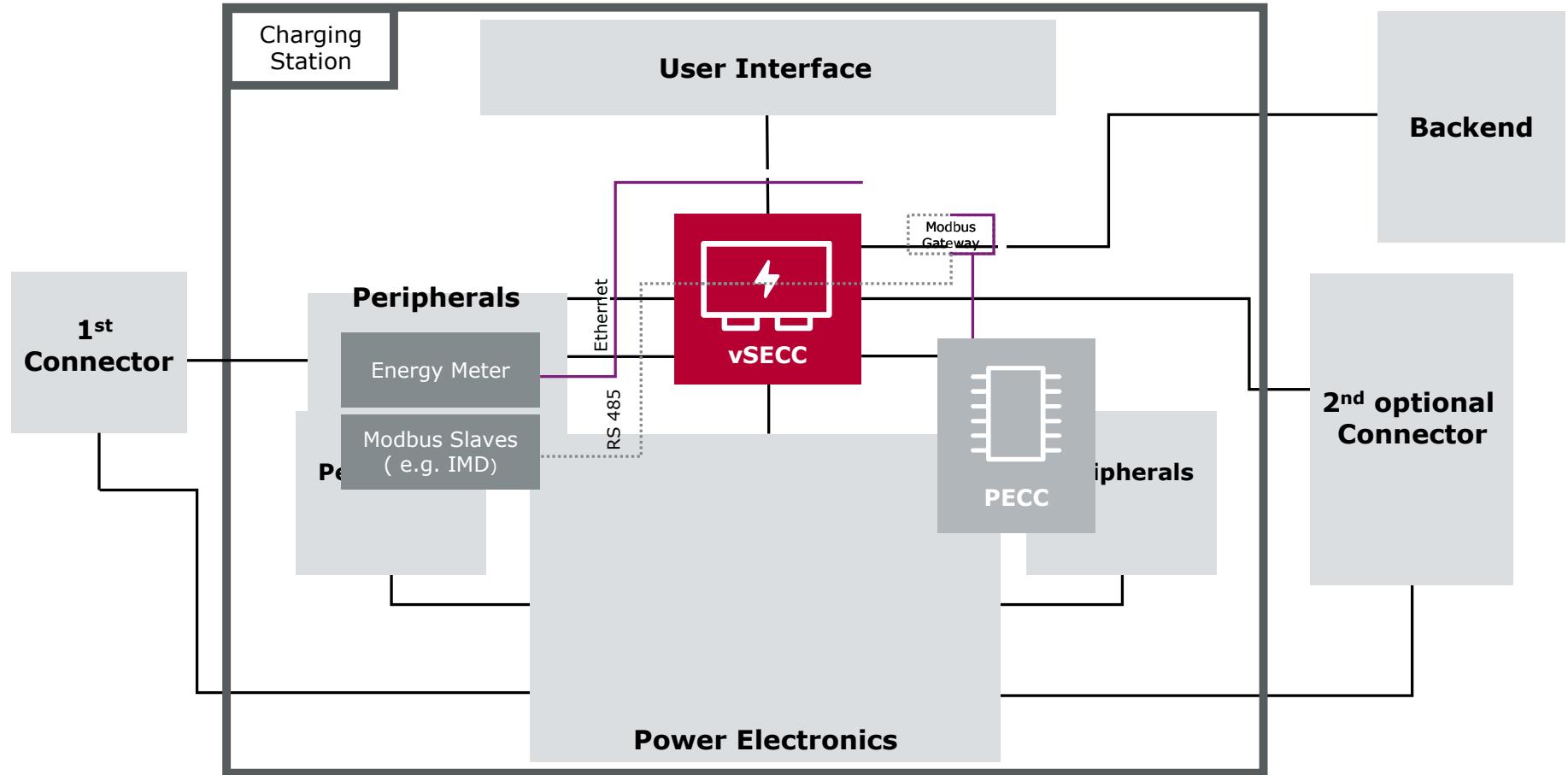
Interfaces Inside Conductive Charging Station



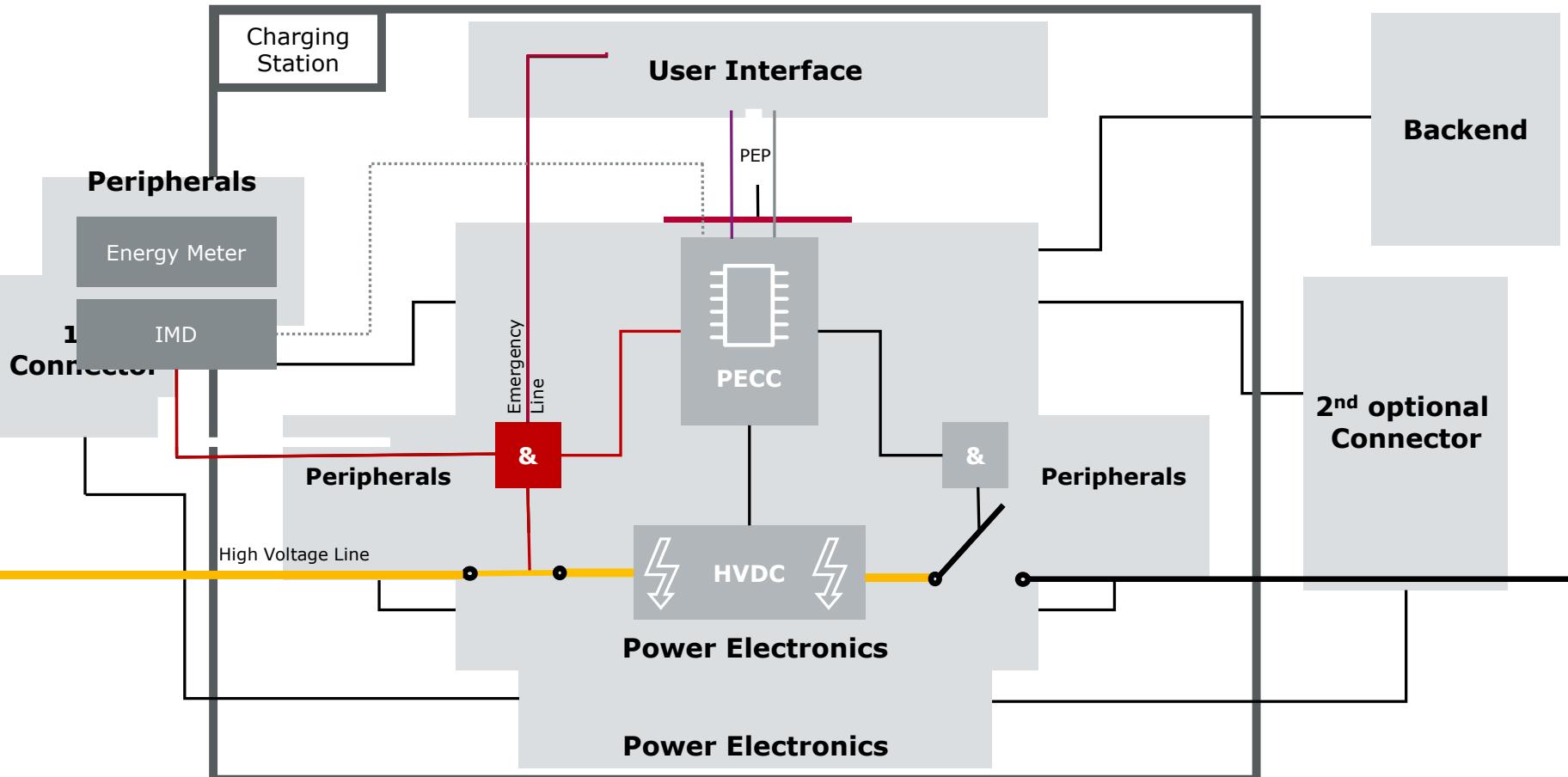
Interfaces Inside Conductive Charging Station



Interfaces Inside Conductive Charging Station



Interfaces Inside Conductive Charging Station



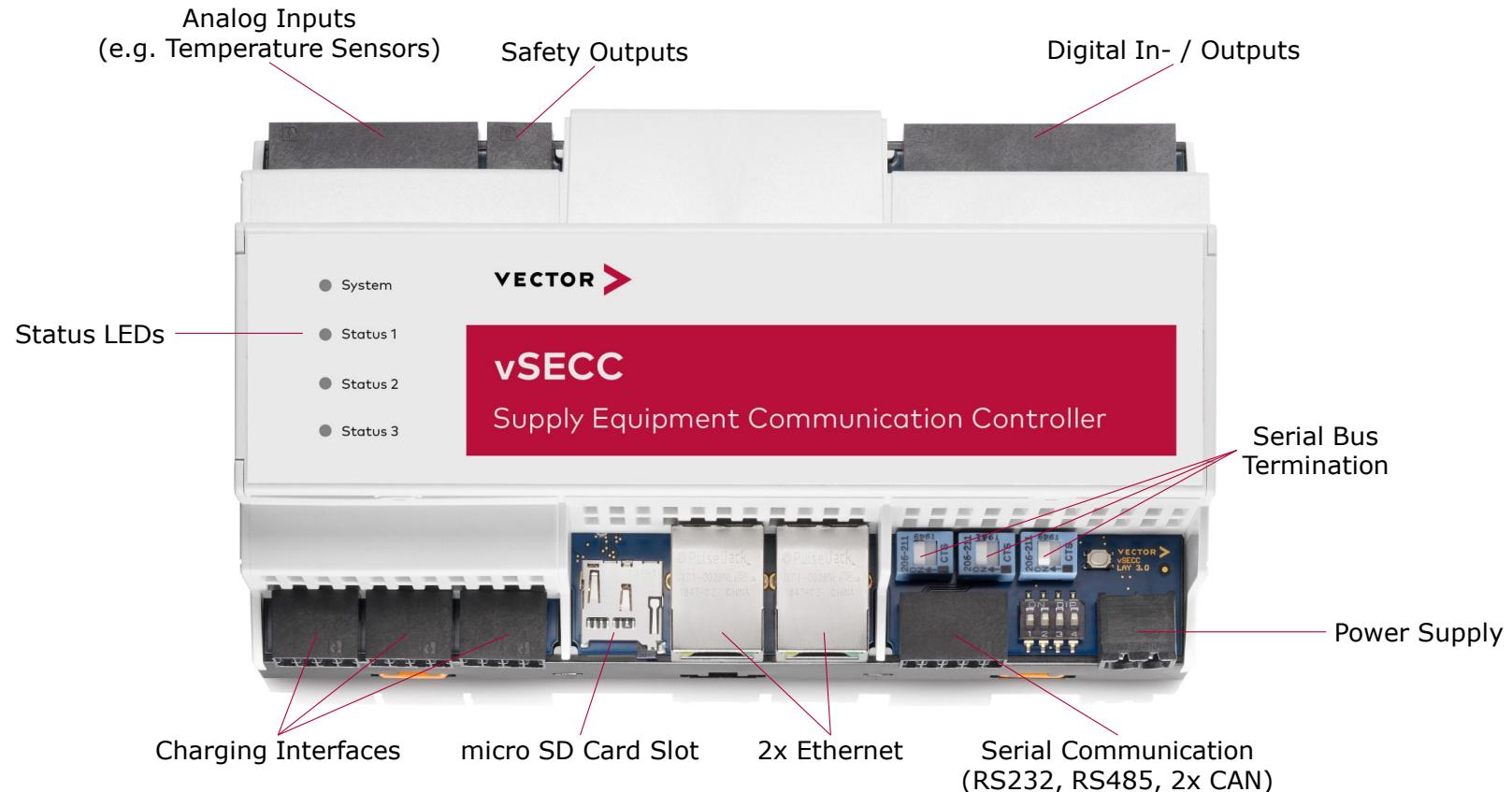
Interface Details



Slide 20

A1 Video Slide
Author, 8/25/2022

Interface Details



Slide 21

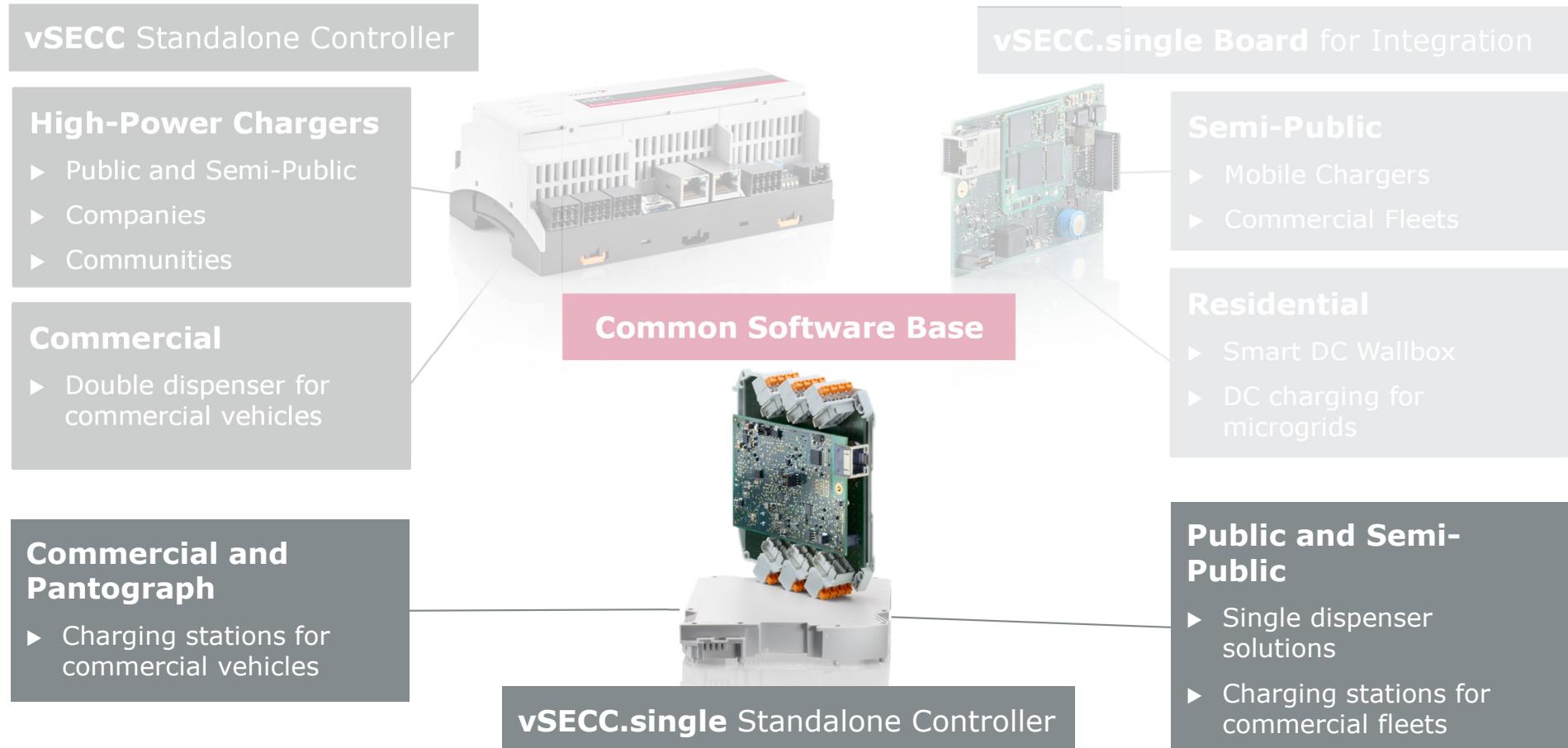
A2 Optional Picture Slide
Author, 9/21/2022

All required vSECC connectors are now available as a kit!

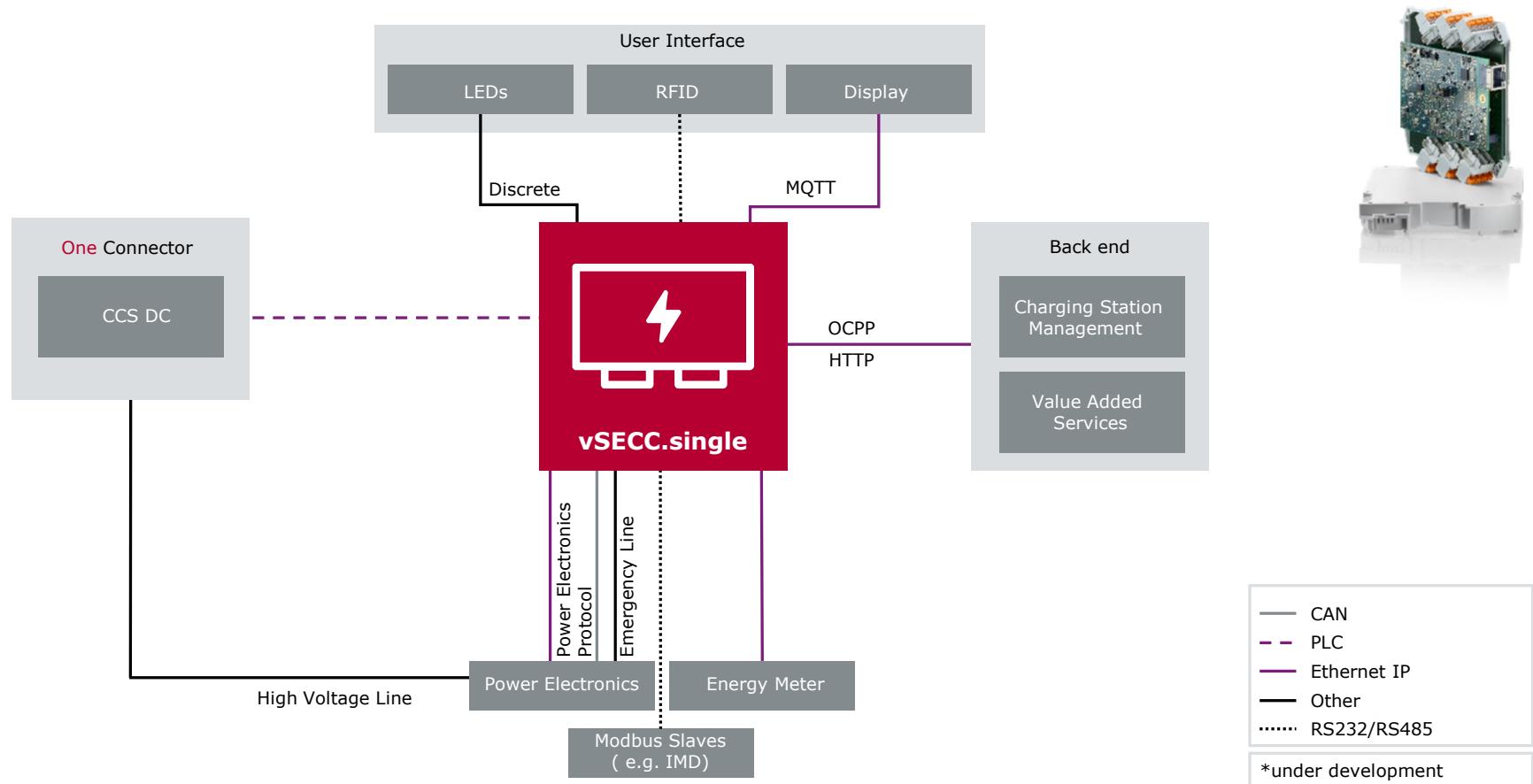
- ▶ 2x Charging Connector for CCS or CHAdeMO (X300, X302, X303)
- ▶ 1x Analog Inputs & Temperature Sensor (X301)
- ▶ 1x Safety Outputs (X304)
- ▶ 1x CAN / Serial Interfaces (X305)
- ▶ 1x Digital In-/Outputs, Start (CHAdeMO) and Stop Buttons, Pantograph Control (X306)
- ▶ 1x Power Supply Connector (X307)



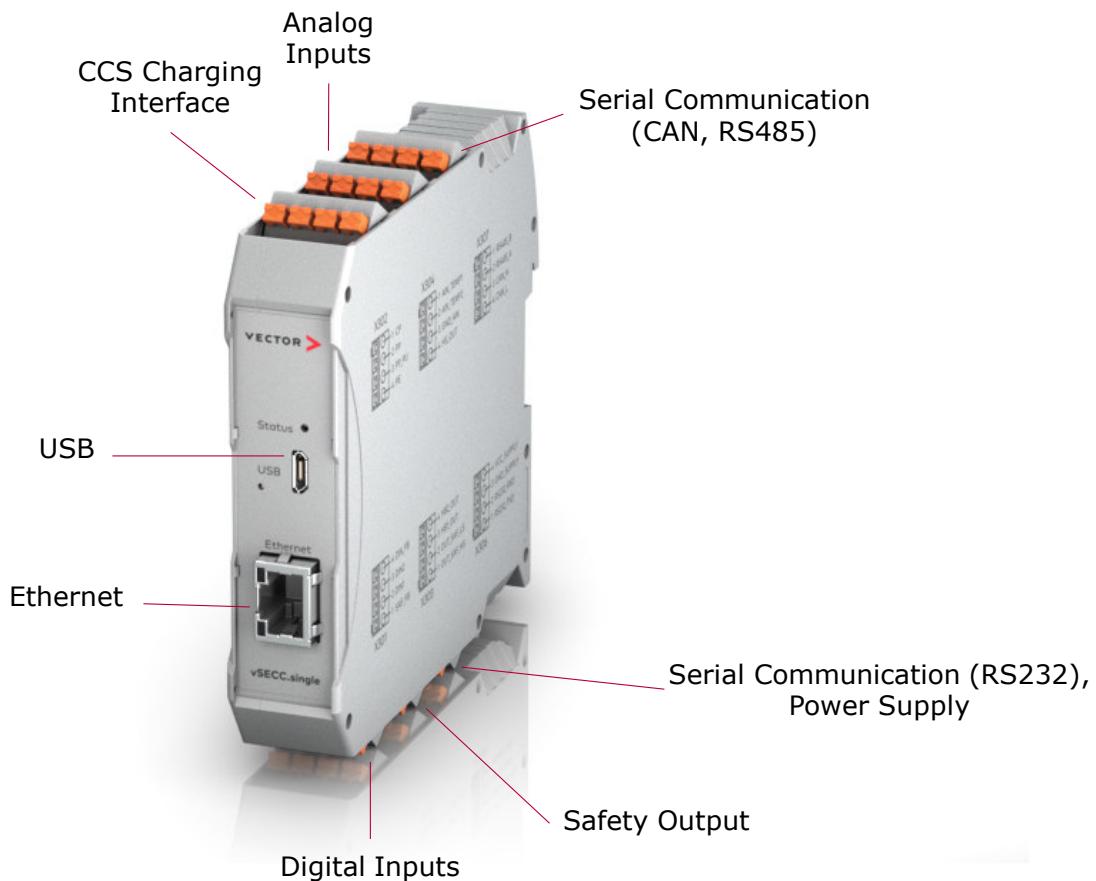
vSECC Controllers



Interfaces Inside Charging Station – vSECC.single



Interface Details



Layout of the vSECC.single Components



vSECC Controllers

vSECC Standalone Controller

High-Power Chargers

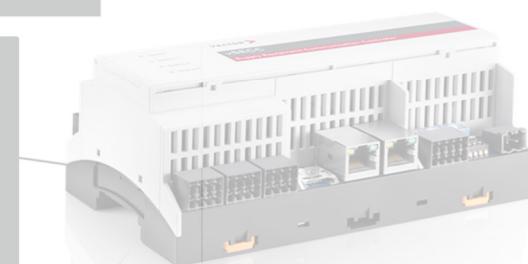
- ▶ Public and Semi-Public
- ▶ Companies
- ▶ Communities

Commercial

- ▶ Double dispenser for commercial vehicles

Commercial and Pantograph

- ▶ Charging stations for commercial vehicles



vSECC.single Board for Integration

Semi-Public

- ▶ Mobile Chargers
- ▶ Commercial Fleets



Residential

- ▶ Smart DC Wallbox
- ▶ DC charging for microgrids

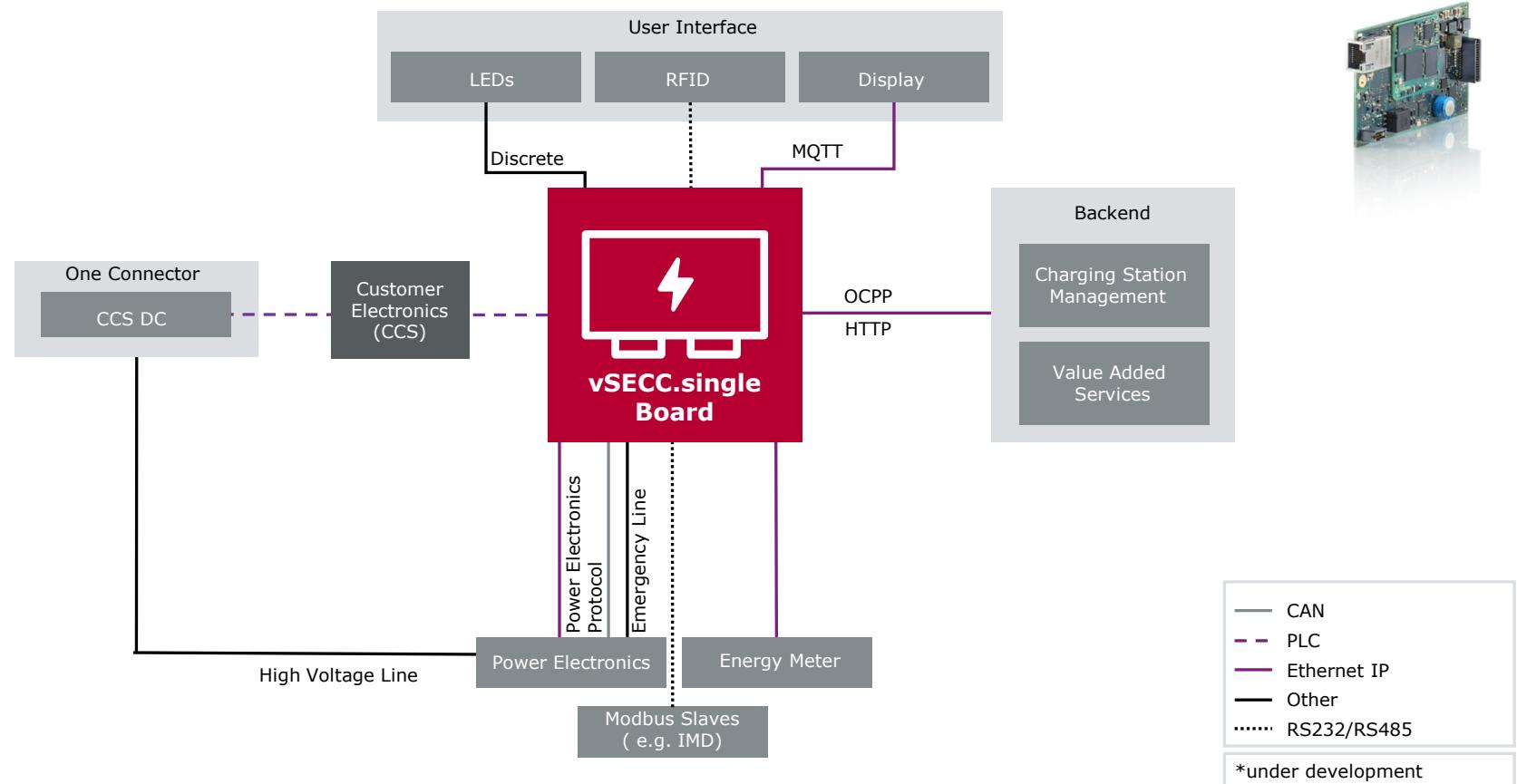


vSECC.single Standalone Controller

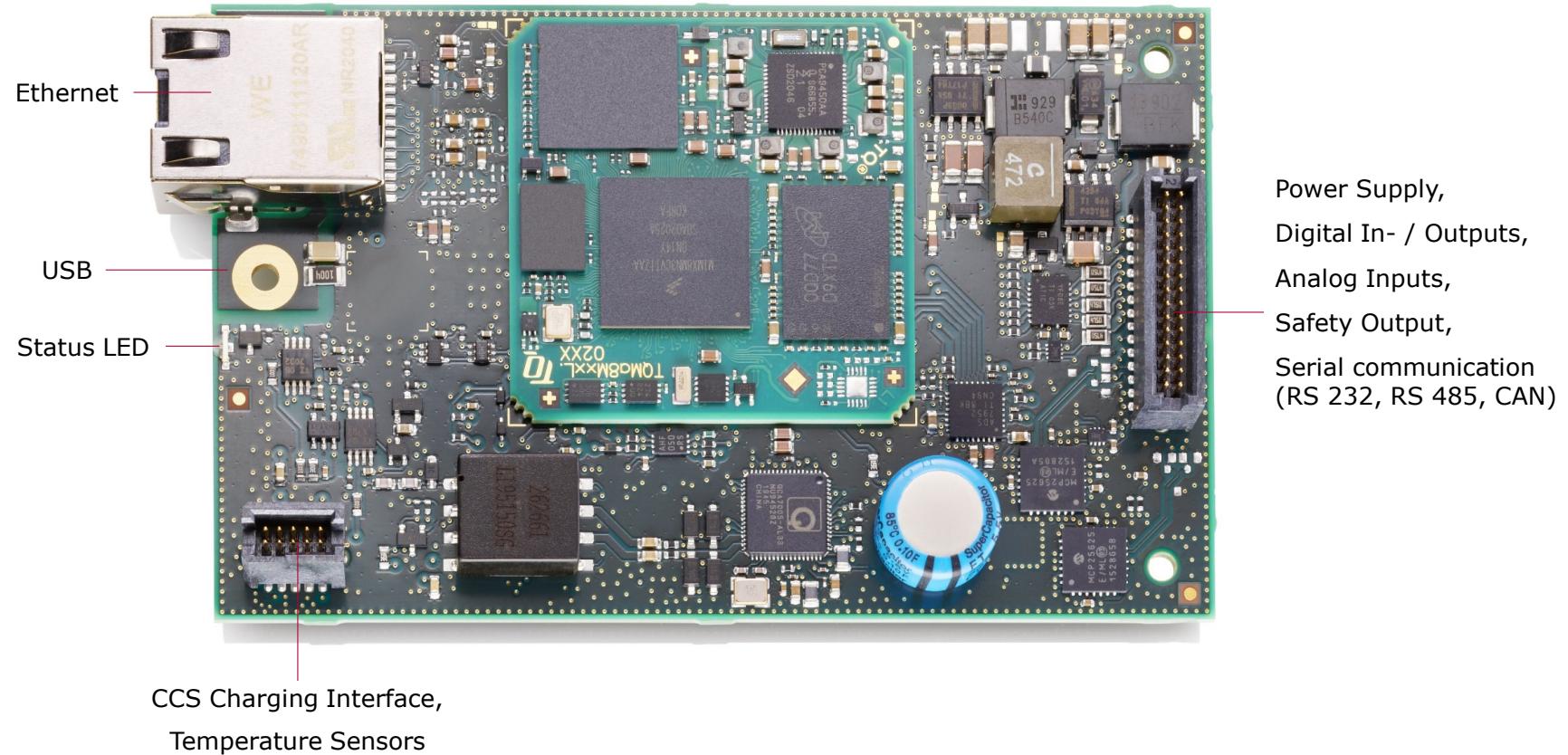
Public and Semi-Public

- ▶ Single dispenser solutions
- ▶ Charging stations for commercial fleets

Interfaces Inside Charging Station – Integration of vSECC.single Board



Interface Details



Hardware Details

	vSECC	vSECC.single	vSECC.single Board
Main-CPU	i.MX 6Quad Core		i.MX8M Nano
Power supply	18 V – 30 V DC	11 V – 13 V DC	12 V DC
Communication	2 x CAN 2 x 1000Base-T / 100Base-TX		1 x CAN 1 x 1000Base-T / 100Base-TX
			
Charging interfaces	OppCharge 1.3 CHAdMO v0.9, 1.2 Max. 2 charge points simultaneously		IEC 61851-1 / -23 SAE J1772 DIN SPEC 70121 ISO 15118-2 / -3 ISO 15118-20
Inputs and Outputs	8 x IEC 61131-2 Type 1 digital input 2 x 0 - 10 V analog input 16 x digital out (Imax = 200 mA)	3x High-Side Digital Outputs 4x Inputs (Analog / Digital Inputs, switchable)	10x Digital I/O (logic level 3.3 V) 4x 0-5 V Analog Input
Temperature Inputs	9 x temperature sensor input		2 x temperature sensor input (PT 1000)
Safety output	3 x relay output (NO)	1x High-Side Output	1 x (logic level 3.3 V)
(Housing) Dimensions (W x H x D)	162 mm x 89,7 mm x 62,2 mm (plastic)	22,5 mm x 99 mm x 114,5 mm (plastic)	14,25 mm x 58 mm x 94,1 mm
Weight	~276 g	~ 148 g	~ 48 g
Technical usage and storage requirements	Temperature: -40 °C to +70 °C Altitude: 0 – 2000m above sea level		
	Humidity: Not condensing IP Protection class: IP 20		
Connectors	2 x RJ45	1 x RJ45 1 x USB (in development)	
	92 x METZ AST series (spring clamp)	6 x Phoenix FKDSO series (spring clamps)	1 x 30 pole SAMTEC base board connector 1 x 10 pole SAMTEC charging connector

Features vSECC Software

vSECC Controllers

vSECC Standalone Controller

High-Power Chargers

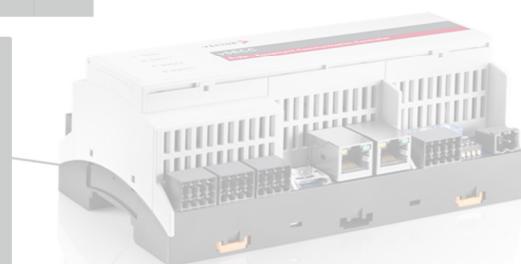
- ▶ Public and Semi-Public
- ▶ Companies
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Commercial

- ▶ Double dispenser for commercial vehicles

Commercial and Pantograph

- ▶ Charging stations for commercial vehicles



vSECC.single Board for Integration

Semi-Public

- ▶ Mobile Chargers
- ▶ Commercial Fleets



Residential

- ▶ Smart DC Wallbox
- ▶ DC charging for microgrids

vSECC Software



vSECC.single Standalone Controller

Public and Semi-Public

- ▶ Single dispenser solutions
- ▶ Charging stations for commercial fleets

Specification vSECC Software

VEHICLE COMMUNICATION

- ▶ IEC 61851 (basic signaling)
- ▶ ISO 15118-2/-3 (powerline)
- ▶ **ISO 15118-20, enabling bi-directional power transfer**
- ▶ DIN SPEC 70121 (powerline)
- ▶ CHAdeMO 0.9/1.2 (CAN)*
- ▶ OppCharge 1.3.0 (WLAN) =vSECClib.P

=vSECClib.CCS

USER INTERFACE

- ▶ Charging Information is provided via MQTT Broker
- ▶ Digital I/Os can be used for status information

METERING & BILLING

- ▶ Interface to Energy Meters ([LEM](#))
- ▶ Conformity to German Calibration Law



*vSECC only

Specification vSECC Software



CHARGING MANAGEMENT

- ▶ OCPP 1.6J and 2.0.1 downwards-compatible
=vSEClib.OCPP
- ▶ HTTP(S)
- ▶ Value Added Services (e.g. preconditioning with VDV 261)

POWER ELECTRONICS

- ▶ Control of Power Electronics via Power Electronics Protocol
 - ▶ PEP-WS: JSON over WebSocket
 - ▶ PEP-CAN: CAN frames with configurable CAN-ID-Segment
- ▶ vSECC: Control of 2 power electronics for 2 charge points
 - ▶ Dynamic switching between power modules possible
- ▶ Modbus Gateway (TCP to RTU) makes connected peripherals available to PE

Specification vSECC Software

PROVISIONING

- ▶ Configuration possibilities via CSMS or vSECC web interface:
 - ▶ Configuration of vSECC Controller and variables
 - ▶ Firmware update
 - ▶ Log file management
- ▶ Further features of vSECC web interface:
 - ▶ Network & IP configuration
 - ▶ PLC trace logging
 - ▶ Remote support interface
- ▶ Provisioning of multiple Controllers possible via Python Script

MAINTENANCE & SUPPORT

- ▶ Fast, reliable and ongoing support and training
- ▶ Clear and comprehensive documentation
- ▶ Feature updates every three months

LINUX SYSTEM

- ▶ Secure boot mechanisms
- ▶ Hardware security module (key management)
- ▶ Hardware watchdog

**Controller for smart DC bi-directional charging, including scheduling and renegotiation,
that is compliant to German calibration law and available on Stock!**

E-Mobility Starter Kit

► What you need

- Desk with 24V power supply
- SW development environment
- General knowledge in SW and HW

► What you get

- Two **vSECC** controllers with up to two charging interfaces each (CCS, CHAdeMo or Pantograph)
- Power cable and mating connectors
- 12 months test license for **vCharM**
- 12 months software updates
- Getting started documentation, manuals and necessary files
- Extensive integration guidance with comprehensive support



For more information visit vector.com/vSECC
or [watch the Unboxing Video](#)



For more information about Vector
and our products please visit

www.vector.com

Author:

Vector Germany