

# SL1556A

## CCS Charging Protocol Tracer

Perform seamless observation of the CCS communication channel between EV and EVSE



# Perform Seamless Observation of the CCS Communication Channel between EV and EVSE

The Keysight SL1556A CCS Charging Protocol Tracer (CCS Tracer) enables seamless observation of the CCS communication channel between a charging station (EVSE) and an electric vehicle (EV). In combination with SL1487A CCS Charging Protocol Trace Viewer (CPT), the user can analyze the over-the-wire communication traffic, which is communicated via HomePlug Green PHY Powerline Communication (HP GP PLC) on the Control Pilot (CP) Line.

The CCS Tracer integrates a HomePlug Green PHY (HP GP) MAC/PHY according to DIN SPEC 70121:2014 and ISO/IS 15118-3:2015 as well as CP signal detection circuitry for IEC 61851-1:2017 Ed 3. The observed data is available via an Ethernet Bridge. The CCS Tracer provides a non-invasive test interface for direct coupling to the Control Pilot (CP) and Protective Earth (PE) lines. Alternatively, the SL1556A-001 Inductive Cable Clamp also provides an option for inductive coupling, e.g. for field tests between real EVs and EVSEs.

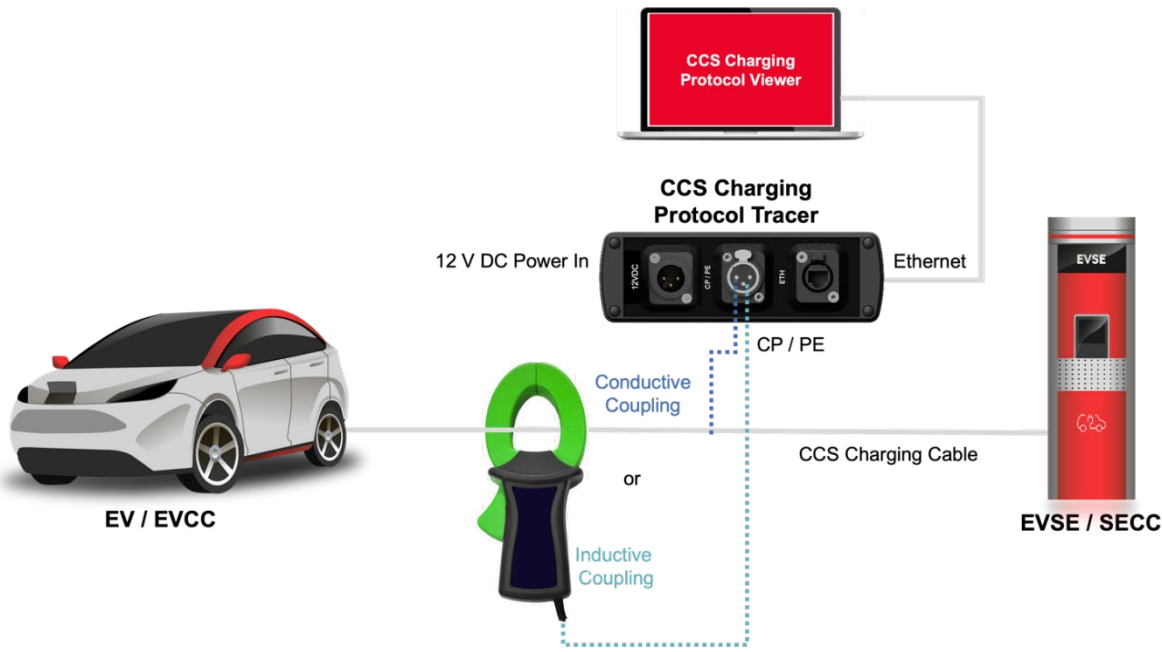


Figure 1. SL1556A CCS Charging Protocol Tracer (CCS Tracer) overview <sup>1</sup>

<sup>1</sup> The size of the CCS Tracer shown is used for illustration purposes only and does not correspond to reality.

# Feature Overview

Feature	Description
Operating modes	(1) Passive Sniffer (PLC to Ethernet Bridge) via Inductive Cable Clamp (SL1556A-001) (2) Passive Sniffer (Control Pilot PWM/PLC to Ethernet Bridge) via direct coupling (SL1556A-002)
Observation of CP according to IEC 61851-1:2017 Ed. 3	PWM detection (configurable) <ul style="list-style-type: none"> <li>• Frequency (Hz), duty cycle (%) and voltage (mV)</li> <li>• Note: Direct coupling is required.</li> </ul>
HomePlug Green PHY V1.1.1 PLC Sniffer	HP GP packet sniffing (Layer 2 MMEs) <ul style="list-style-type: none"> <li>• DIN SPEC 70121:2014</li> <li>• ISO/IS 15118-3:2015</li> </ul>
Casing	Robust metal case

## Front/Rear Panel and Interfaces

With the CCS Tracer, you can tap on the charging cable between EV and EVSE via conductive or inductive coupling over the XLR industrial-grade 3-pin female connector on the front panel. The connection to the data logger or test host is provided via a XLR industrial-grade RJ-45 Ethernet socket (100Base-TX). The wide range 6~48 V DC input socket is based on an industrial-grade 3-pin XLR male connector.



Figure 2. SL1556A CCS Tracer front panel



Figure 3. SL1556A CCS Tracer back panel

# Inductive Coupling Unit

The SL1556A-001 Inductive Cable Clamp enables capturing trace files between CCS EV and EVSE.



Figure 4. SL1556A-001 Inductive Cable Clamp

## System characteristic

Dimensions (H x W x D)	220 x 92 x 39 mm
Weight	approx. 650 g
Clamp opening/conductor diameter	max. 43 mm
Physical interface	CP/PE plug (3-Pin XLR)

## Technical Data

### System characteristic

System designation	CCS Charging Protocol Tracer
Model number	SL1556A
Dimension (H x W x D)	52 x 169 x 150 mm
Weight	approx. 1 kg

### Mains supply

Input voltage	6~48 V DC
Power consumption (average)	~1400 mW
Power supply	90 to 264 V AC to 12 V DC, 5 A, 60 Watt
Power socket	3-Pin XLR-male socket onnector

### Interfaces

SUT interfaces	3-Pin XLR-female connector for CP/PE Industrial-grade RJ-45 Ethernet socket (100Base-TX)
Test system interfaces	<ul style="list-style-type: none"><li>• PLC to Ethernet Bridge</li><li>• PWM (Control Pilot) to Ethernet Bridge</li></ul>

## Included in the Scope of Delivery

- Power supply including power cable
- Operating instructions

## Accessories

- SL1556A-001 Inductive Cable Clamp (SUT adapter)
- SL1556A-002 BNC Adapter Cable (SUT adapter)
- SL1556A-003 Ethernet Cable (Ethercon to RJ45), 3 m
- SL1556A-004 Transport Case

## Software Option

- SL1487A CCS Charging Protocol Trace Viewer (CPT)

# Extend the Capabilities of your Test Solution

## Meet the SL1487A CCS Charging Protocol Trace Viewer

The CCS Charging Protocol Trace Viewer (CPT) enables decoding of CCS charging protocols for vehicle-to-grid (V2G) communication. In addition, the software can be used together with Wireshark, a packet analyzing tool, for easy and detailed tracking of communication between EV and EVSE.

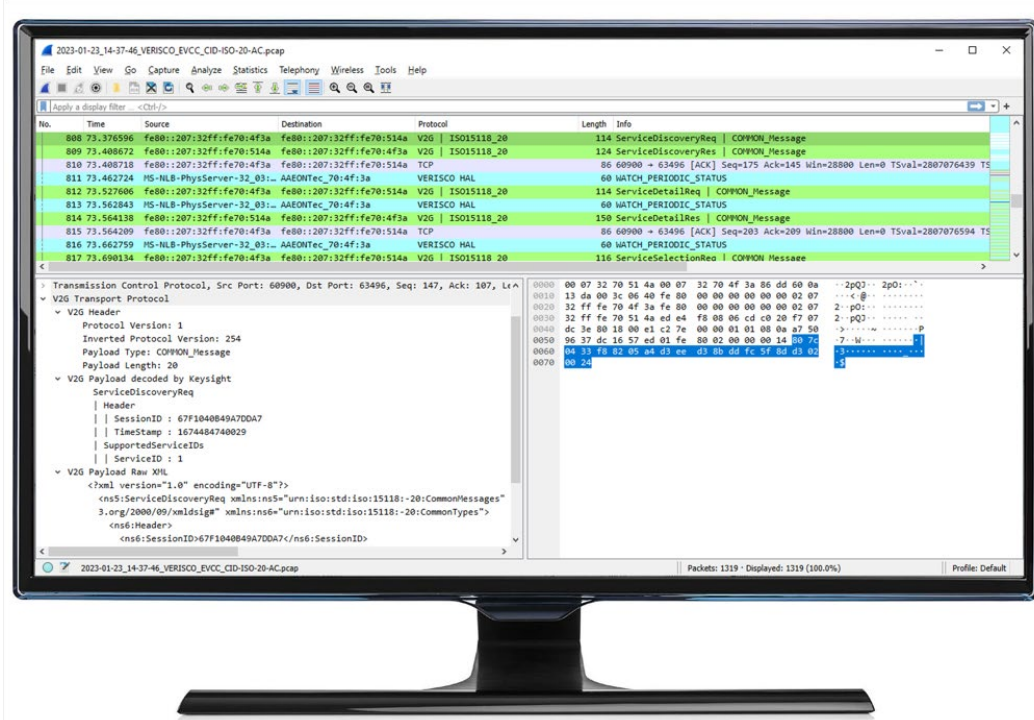


Figure 5. SL1487A CCS Charging Protocol Trace Viewer with Wireshark integration

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