

# Scienlab Dynamic DC Emulator

Mid Power Series – Up to 50 kW

SL1041B



## Table of Contents

Introduction.....	3
Use Cases in Combination with Charging Discovery System (SL1040A-STD).....	4
System Configurations .....	5
Options .....	7
References .....	8
Service Options.....	9

## Introduction

The Scienlab Dynamic DC Emulator Mid Power Series from Keysight provides up to five power stages, called Regenerative Power Systems (RP79xx series). It is a family of bi-directional, regenerative DC power supplies. The regenerative capability enables the energy normally consumed to be returned to the power grid cleanly, saving costs associated with energy consumption and cooling.

Additionally, by combining the seamless source and load functionality into a compact 3U-high package, not only do you save energy but also floor space and integration time. The Scienlab Dynamic DC Emulator Mid Power Series with up to 5 RP79xx units delivers the fastest, most accurate, integrated regenerative power system:

- Up to 950 V, up to  $\pm 100$  A, up to 50 kW
- Create up to 150 kW power ( $\pm 300$  A) or loading through easy paralleled connections of three racks
- Operate in two-quadrant mode as power source and regenerative electronic load
- Maximize throughput with fast output speed and sub-millisecond command-processing time
- Reduce cost for cooling and electricity with eco-friendly, regenerative design

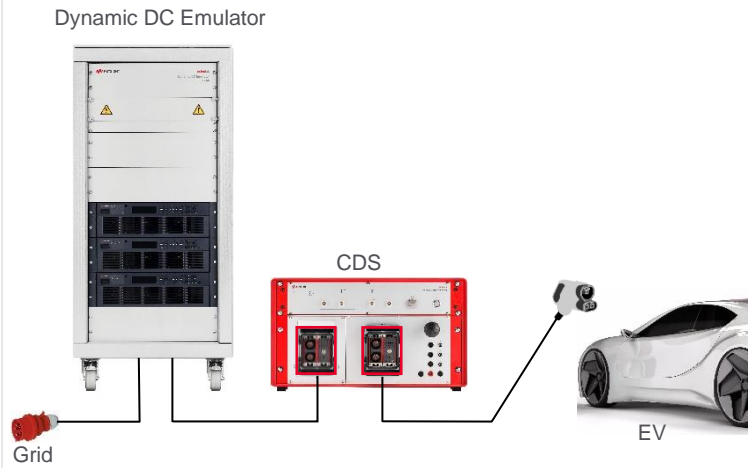
The integrated RP79xx is a part of Keysight's HEV/EV Power Converter Test Solutions that gives you confidence to deploy high-voltage, high-power solutions to meet the fast paced, high-growth demands of the Hybrid-Electric/Electric Vehicle (HEV/EV) market.

This Emulator can be used in combination with the SL1040A Scienlab Charging Discovery System (CDS) to act as a DC power source (Electric Vehicle Supply Equipment (EVSE) emulation) or to act as an electronic load, replacing a battery pack and feed energy back to the power grid (Electric Vehicle (EV) emulation).

## Use Cases in Combination with Charging Discovery System (SL1040A-STD)

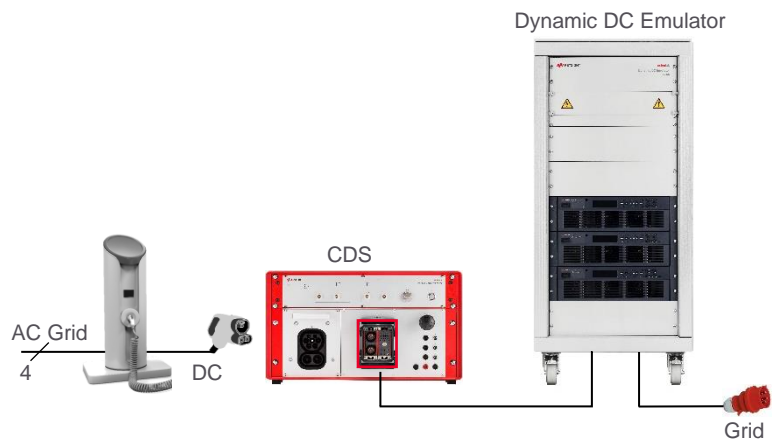
### Example #1: EVSE Emulation

Adding the Scienlab Dynamic DC Emulator Mid Power Series to the CDS to perform EVSE emulation, enables conformance and interoperability testing (EV test cases) of the DC charging interface.



### Example #2: EV Emulation

Adding the Scienlab Dynamic DC Emulator Mid Power Series to the CDS to perform EV emulation, enables conformance and interoperability testing (EVSE test cases) of the DC charging interface.



## System Configurations

### System Characteristics

Dimensions H x W x D (with wheels)	1300 x 600 x 1030 mm
Weight (without power stages)	Approximately 160 kg
Protection class	IP20

### General Configuration

Item numbers	SL1041B-S10	SL1041B-S11	SL1041B-S12	SL1041B-S13	SL1041B-S14
No. of RPS units	1	2	3	4	5
DC output power	± 10 kW	± 20 kW	± 30 kW	± 40 kW	± 50 kW
DC output voltage	0 to 950 V DC				
DC output current	± 20 A	± 40 A	± 60 A	± 80 A	± 100 A
AC input voltage	3 ~ 400 V; N, PE				
AC input current per phase	17,3 A	34,6 A	51,9 A	69,2 A	86,5 A
Approx. total weight	191 kg	223 kg	255 kg	287 kg	319 kg

## Interfaces

Description	
<b>Digital Interfaces</b>	
Interface to Charging Discovery System	RJ45 socket, Ethernet
Interface for parallel mode of up to three DC Emulators	RJ45 socket
<b>Power Connections</b>	
AC power supply connection	
Connection type	125 A CEE (IEC 60309) socket
DC output connection	
Voltage	Maximum 950 V
Current	Maximum 300 A
Connection type	Pre-assembly of configured Charging Discovery System cable *
Additional Output sockets	
Output socket EU version	2x 230 V (CEE 7/3, Type F) socket

\*Note 1: When using the emulator in combination with the CDS, “Adapter cable for connection of an emulator” with item number “SL1040A-211” (see data sheet of SL1040 A Charging Discovery System) is necessary.

Note 2: When using the emulator in combination with the CDS for EVSE emulation, “EVSE Plug-in adapter” with item number “SL1040A-106” is additionally necessary. See chapter Options on the next page.


Note 3: AC power supply cable is not in scope of delivery.

### Included in the Scope of Delivery


- 19-inch rack aluminum housing on wheels
- Up to 5 integrated RPS units, depending on configuration
- Integrated circuit breaker (Siemens C20A) and RCD (Siemens 5SV3 RCCB)
- Operating instructions, CE declaration of conformity

## Options

### DC Output Cable

Item	Picture	Rated Voltage	Rated Current	Max. Wire Cross-Section	Cable length	Weight
SL1040A-211 Adapter cable for connection of a DC-power-source/-load up to 300 A		1000 V	300 A	95 mm <sup>2</sup> PE: 50 mm <sup>2</sup>	5 m	9 kg

### EVSE Plug-in Adapter

Item	Picture	Rated Voltage	Rated Current	Max. Wire Cross-Section	Weight
SL1040A-106 EVSE Plug-in adapter for connection of an emulator		AC: 250 V	AC: 32 A	AC: 6 mm <sup>2</sup>	5.7 kg
		DC: 1000 V	DC: 400 A	DC: 120 mm <sup>2</sup>	

## References

You can get further information and more detailed specifications here:

**RP7900 Series Regenerative Power System**  
[www.keysight.com/find/rp7900](http://www.keysight.com/find/rp7900)

The Keysight RP7900 Series regenerative power system is a family of bi-directional, regenerative DC power supplies with highly integrated safety features that protect both your people and your device under test. The regenerative capability enables the energy normally consumed to be returned to the grid cleanly, saving costs associated with energy consumption and cooling.



**SL1040A Scienlab Charging Discovery System**  
<https://www.keysight.com/de/de/assets/7018-06414/data-sheets/5992-3488.pdf>

The Scienlab Charging Discovery System (CDS) from Keysight is a modular solution for conformance and interoperability testing of EV/EVSE charging interfaces. Thanks to its modular design, the CDS can be configured to customers' specific needs for testing and validating the charging interface of electric vehicles and charging infrastructures.





## Service Options

Service demand depends on the chosen hardware configuration, the installation location and its facilities, and the scope of testing. For that reason, it is difficult to estimate the exact amount of service required prior to identifying all relevant customer requirements. Keysight offers a wide spectrum of services to guarantee a successful project and reduce the ramp-up time for our customers.

### **Project Management and Technical Consulting Service**

Project Management and Technical Consulting Service is mandatory for every project including a construction, integration or customization part. Keysight recommends this additional service in every Charging Discovery System project with the first order. By ordering the Project Management Service, an experienced project manager or system specialist is dedicated to your project and acts as direct communication interface from Keysight to the customer's project team.

The project manager has the following responsibilities:

- Consult the customer with in-depth technical knowledge about the test solution, its application and relevant test standards
- Learn about the customer's objectives and give guidance how to use the ordered solution best in order to gain maximum benefits
- Evaluation of post-order requirements and change management
- Coordinating and tracking project progress from day one until system handover
- To provide complete and accurate project documentation to the customer

### **Installation Service**

The scope of Keysight's Installation Service depends on the customer's facility. Keysight can provide full installation options for all products. To get a quote, share all relevant information and requirements regarding test bench components that require media installation such as grid interface and cooling water supply with your local field engineer.

Note: Installation can also be executed by the customer.

### **Commissioning Service**

The Commissioning Service guides customers during first usage of the test bench after installation. Start-up assistance service is recommended for each test bench project and includes:

- Support in commissioning the test system and instructions on how to use it
- Local presence of experienced test bench engineer during first usage of the test bench
- Consulting of customer personnel with regards to intended usage of the test bench (e.g. initial test with customer specimen, evaluation of test results)
- Inspection of hardware/laboratory installation
- Initial installation and configuration to the control software Charging Discover as well as hand-on instructions how to use it
- Travel expenses

Note: Commissioning Service is offered on a daily basis. Keysight recommends at least two days of Start-up Assistance Service for each test system.

## HS0002A-100 Productivity Assistance

The Productivity Assistance is offered to support, consult, and train the customer's operation personnel to reduce the ramp-up time for initial usage of a new test bench and for any unexpected system behavior during the test bench life cycle. Productivity Assistance is executed either remotely (phone/ Internet) or on site (on request). It includes:

- Direct access to an experienced system specialist via Phone/Internet.
- Support for failure analysis and trouble shoot
- Software and programming support & consulting

**Note:** Keysight recommends at least two days of Productivity Assistance for each test bench project.

Learn more at: [www.keysight.com](http://www.keysight.com)

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: [www.keysight.com/find/contactus](http://www.keysight.com/find/contactus)

