

POSITIVE PROBLEM SOLVING **+** **=**

## WHEN BSI WERE LOOKING TO EXPAND THEIR POWER TEST CAPABILITIES, THEY NEEDED AN ELECTRONIC LOAD THAT WAS UP TO STANDARD.

The BSI [British Standards Institution] is the UK's National Standards Body. They develop British, European and international standards around a wide range of products and services, as well as providing testing and certification services.

With the push for the automotive industry to electrify, a huge growth area has been testing and certifying EV chargers. Diesel and petrol pumps are compatible with virtually any relevant combustion engine vehicle, whereas the wide variety of EV chargers all require their own testing.

ETPS supplied BSI with three ELPA-SINE AC/DC electronic loads. The loads can operate independently, in single-phase parallel or three-phase configurations.

An Electrical Engineer at BSI said "EV chargers either have an AC or DC output. What makes the ELPA-SINE so useful is that we can test single-phase and three-phase AC chargers, as well as DC models, all with one system. This simplifies our test set-ups greatly."

DC chargers typically provide the energy straight to the car without the need for conversion. This usually facilitates faster charging.

AC chargers require the vehicle to have an AC-DC converter onboard to charge the energy storage device. Although a slower charge is provided compared to DC, installation into existing infrastructure is often easier as the national grid is AC.

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# CASE STUDY

## BRITISH STANDARDS INSTITUTION

### MAINTAINING HIGH STANDARDS

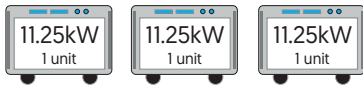
When asked in what other areas the electronic loads will be useful, an Electrical Engineer at BSI added “besides EV battery chargers, we envision using the ELPA-SINEs to test a wide range of products.”

“It’s crucial we are flexible for any major changes in standards or new market developments. The number of modes and configuration possibilities of the ELPA-SINE means we should be able to load test virtually anything conceivable up to high powers.”

“For example, the loads have inbuilt battery tests should we look to test the packs instead of the charger. The AC functions also allow us to test areas such as UPS transfer time and PV inverter efficiency”.

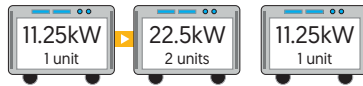
A simplified diagram of the different set-ups BSI can achieve with their three ELPA-SINE units is provided below.

### FLEXIBLE TESTING



#### Configuration 1

3x Units Operating Independently,  
Each Unit:  
+ AC: 11.25kW / 350Vrms / 112.5Arms  
+ DC: 11.25kW / 500Vdc / 112.5A

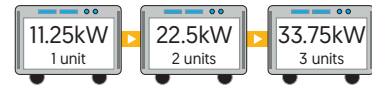


#### PARALLEL CONNECTION

#### Configuration 2

2x Units in Parallel:  
+ AC: 22.5kW / 350Vrms / 225Arms  
+ DC: 22.5kW / 500Vdc / 225A

1x Unit Operating Independently:  
+ AC: 11.25kW / 350Vrms / 112.5Arms  
+ DC: 11.25kW / 500Vdc / 112.5A



#### PARALLEL CONNECTION

#### Configuration 3

3x Units in Parallel:  
+ AC: 33.75kW / 350Vrms / 337.5Arms  
+ DC: 33.75kW / 500Vdc / 337.5A

#### Configuration 4

3x Units in Three Phase Configuration:  
+ AC: 3 x 11.25kW / 3 x 350Vrms / 3 x 112.5Arms  
+ DC: 33.75kW / 500Vdc / 337.5A



### ABOUT THE ELPA-SINE

With seven dedicated operating modes, the ELPA-SINE is highly versatile. A leading or lagging power factor can be set with adjustments from unity to zero lagging or leading in 0.01 steps.

Adjustable frequency is possible from 40-440Hz, making the units ideal for testing aerospace power sources.

The ability to also sink DC sources helps to ensure that the ELPA-SINE is the perfect all-round lab kit. Where most AC loads might only offer a basic DC function, the ELPA-SINE operates in CC, CV, CP, CR and even has a battery test function.

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