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# Measuring power consumption based on dimming level

Application note

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# Introduction

This document aims to present how to measure power consumption of an individual light fixture). The power consumption of a LED driver is linear and proportional to dimming level. Measuring power consumption of lighting devices is necessary to use Silvair Connected Service - Energy Monitoring.

## Items required to measure the power consumption:

- A lighting project commissioned with Silvair Commissioning
- A light fixture that is added to the Silvair mesh network, installed in a manner to allow easy access with an energy meter
- Before doing energy measurement in the zone, make sure that this zone's scenario settings for Low/high-end trim are 0% - 100%

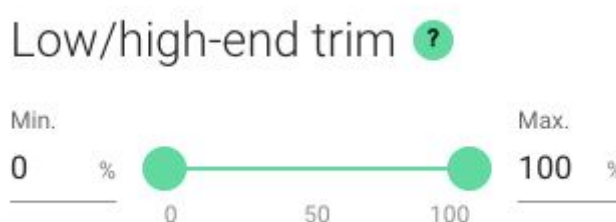


Fig.2 Silvair web app - Scenario settings view

- Silvair mobile app, which allows you to manually set the desired dimming level for a driver
- An energy metering device (multimeter, an inline consumer electricity usage monitor)

# Measurement instructions

**Required items:** an energy meter, a commissioned lighting device (LED driver), and the Silvair mobile app.

**NOTE:** Ensure that the measurement resolution of your Energy meter is appropriate for the rated Wattage of your device under test.

1. Open the Silvair mobile app, select your project, area and zone.
2. Open the **TEST** tab to change the dimming level for devices commissioned in that zone via the dimming level slider.
3. Set the desired dimming level using the slider, or enter the % value manually in the provided field.



Fig.2 Silvair mobile app - TEST tab

4. The selected device should adjust its dimming level. Use your Energy Meter to measure the power consumed by the driver at the set dimming level. Depending on the model of the selected Energy Meter, the measurement instructions may vary. Read the instructions attached to the Energy Meter carefully.

**NOTE:** To obtain an accurate measurement result, you should measure a device which has been operating for some time, e.g. an hour. Measuring a device's power consumption shortly after switching-on, or changing device's dimming level will not provide accurate readings. The power measurement on the meter can be recorded once the reading is stable.

5. Record the measured power reading from the energy meter. Repeat the measurements on the same device for several different dimming levels (start again from p.2).

# Sample energy consumption readings

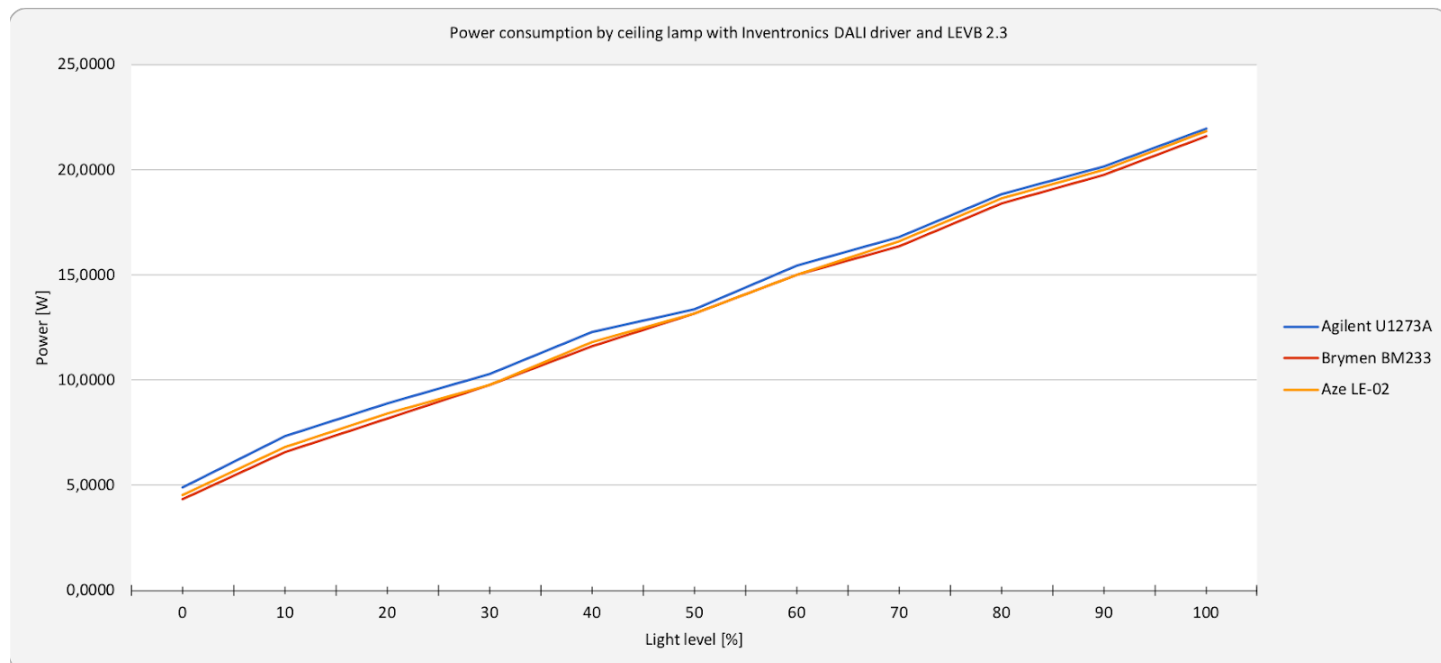


Fig.3 Power consumption measurement (DALI driver, Voltage 227,4)

The power consumption measurement shown in fig.2 has been done using three various energy meters, connected to the LED driver and mesh controller. The choice of an energy metering device is up to the user, but Silvair may recommend 3 energy meters used for testing purposes:

- Agilent U1273A
- Brymen BM233
- Aze LE-02

# Document revisions

Rev	Date	Editor	Changes
1	25.07.2019	IK	Initial document release.

# Contact Information

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