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Sustainable Photovoltaics Integration in buildings and Infrastructure for multiple applications



SPHINX - Deliverable report

D5.3 – PV integration in individual houses including façade



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Public Summary

During the two first years of project, Freesuns have found and installed matrix shingle solar tiles produced during the SPHINX project on 4 demonstrators:

- A 270 m² roof in Pully
- A 62 m² roof in Founex
- An 85 m² roof in Arzier
- A 24 m² façade in Colombier

These demonstrators are up and running since the end of 2025.

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1 Introduction

During the two first years of project, Freesuns have found and installed the matrix shingle tiles produced during the SPHINX project on 4 demonstrators:

- A 270 m² roof in Pully
- A 62 m² roof in Founex
- An 85 m² roof in Arzier
- A 24 m² façade in Colombier

These demonstrators are up and running since the end of 2025.

2 Demonstrator installation and monitoring

During the past months, Freesuns has installed the matrix shingle on the 4 demonstrators.

2.1 Pully demonstrator

ECOM demonstrator in Pully is the largest demonstrator of this deliverable.



Figure 1 Pully demonstrator

With around 270m² separated in two roof inclinations, it is composed of 2580 active tiles. This is a commercial building with electricity production starting before the summer 2025.

Irradiance sensors, temperature sensors and wind speed sensors have been installed at the top of the demonstrator.

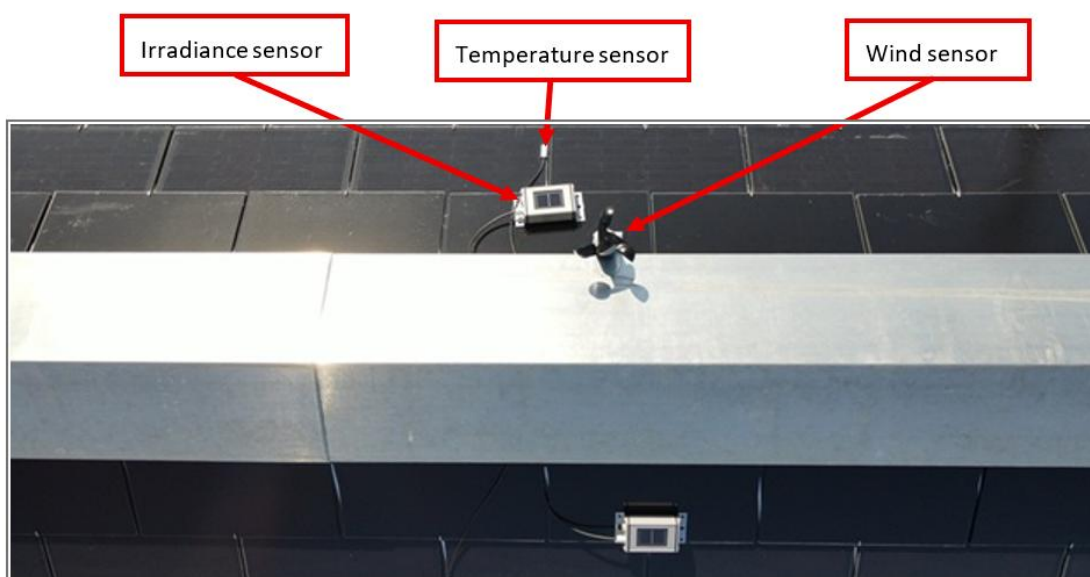


Figure 2 Weather sensors for the Pully demonstrator

2.2 Founex demonstrator

Founex demonstrator is a residential house. On this demonstrator the previous tiles have been removed, the woodwork has been replaced, and power optimizers have been reinstalled to prepare for the new SPHINX tiles.



Figure 3 Founex demonstrator installation

This roof also includes the downshifter foil on the top row tiles. We expect the production should be slightly higher for these tiles



Figure 4 Downshifter tiles on the Founex demonstrator

2.3 Arzier demonstrator

The Arzier demonstrator is also a residential building. The same work has been done as in the Founex demonstrator.



Figure 5 Arzier demonstrator installation

2.4 Colombier façade

The Colombier demonstrator is also a residential building. Tiles are installed on the façade instead of the roof. These tiles were coloured during production in purpose to look like terracotta tiles.



Figure 6 Colombier demonstrator installation

2.5 Data acquisition

The data are acquired with the SolarEdge API. Power data for each optimizer are stored every 15 min on the EPFL servers. For the concerned sites, irradiance data is also stored the same manner.

The data are available on <https://pvlab-monitoring.epfl.ch/grafana/>.



Figure 7 Monitoring data of Pully demonstrator, available on the website

3 Risks and interconnections

3.1 Interconnections with other deliverables

This deliverable shows the demonstrator planned in D5.1.

The demonstrator's data will be use in D5.7.

4 Acknowledgement

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Project partners:

#	Partner short name	Partner Full Name
1	VOL	VOLTEC SOLAR
2	ETW	ETWAY S.R.L.
3	HLP	HELIUP
4	M10	M10 INDUSTRIES AG
5	UNR	UNIRESEARCH BV
6	Fraunhofer	FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV
7	ICARES	ICARES CONSULTING
7.1	BI	BECQUEREL INSTITUTE FRANCE
7.2	BIE	BECQUEREL INSTITUTE SPAIN
8	CEA	COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES
9	FSUNS	Freesuns SA
10	CSEM	CSEM CENTRE SUISSE D'ELECTRONIQUE ET DE MICROTECHNIQUE SA - RECHERCHE ET DEVELOPPEMENT
11	EPFL	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE
12	SOP	SOPREMA

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