



**TRANE®**

**AIRFINITY™**  
SOLAR

# Powering solar-ready rooftops with PV panels



**IR** Ingersoll Rand®

# Airfinity Solar

The natural choice.



Air-conditioning and ventilation can represent up to 80% of your commercial building's energy consumption. Ironically, these systems consume valuable peak power at the same time that solar energy is most available.

By installing solar panels to power your HVAC equipment, you can reduce your carbon emissions and peak time electricity consumption. At the same time you can put unexploited rooftop space to good use while protecting your operation from future electricity price fluctuations.

Trane has committed to developing a solution that can reduce your operating costs while using sustainable and clean energy. We call it **Airfinity™ Solar**.

Trane Airfinity™ Rooftops have been specially designed to be **solar-ready**. That means you can now use clean solar energy to partially or totally power your air-conditioning system while continuing to benefit from the quick and easy installation of a direct expansion system. Our integrated solar rooftop solution offers you an innovative and reliable way of reducing operating costs without compromising comfort, while drastically reducing the carbon footprint of your building.

**Trane is proud to lead the HVAC industry towards a cleaner, more sustainable future at an affordable cost.**

# Key features and benefits

## of the Trane Airfinity™ Solar solution

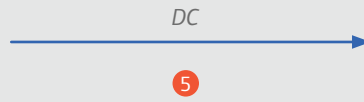
- ✓ **Total solution:** Designed for high performance, easy installation and trouble-free operation in combination with the Trane Airfinity™ rooftop.
- ✓ **Complete package:** You no longer need to think about your PV installation and HVAC equipment separately. Trane can provide you with the complete package, ensuring you have the optimum design for your installation and simplifying logistics.
- ✓ **Plug & Play:** All components have been carefully selected to be easily connectable on-site, without any hassle.
- ✓ **Independent and reliable:** The system is designed to be entirely based on self-consumption, which means you can eliminate the heavy bureaucratic load traditionally associated with these kinds of systems.
- ✓ **Optimized for maximum efficiency:** Airfinity™ Solar uses 98%+ efficient inverters allowing the use of ModBus for easy integration into a Building Management System.
- ✓ **Ideal for BREAAAM / LEED building certification:** Increase the value of your property by using completely renewable and sustainable technologies.
- ✓ **Enhanced brand reputation:** Trane's Airfinity™ Solar solutions contribute supporting proof of your initiatives towards reducing your carbon footprint

## Payback

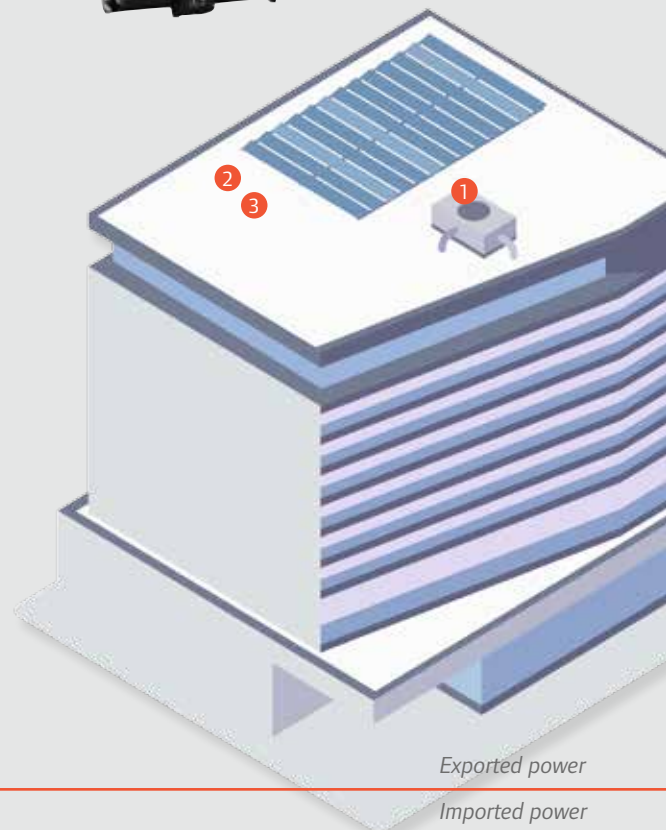
Installing Airfinity™ rooftops with PV solar panels represents an investment with a very attractive return on investment. The payback period depends on local solar conditions, on-site electricity consumption and the retail price of electricity now and in the future. As a general rule, the more electricity consumed on-site and the higher the price paid for grid electricity, the shorter the payback period.



# How it works



## Production

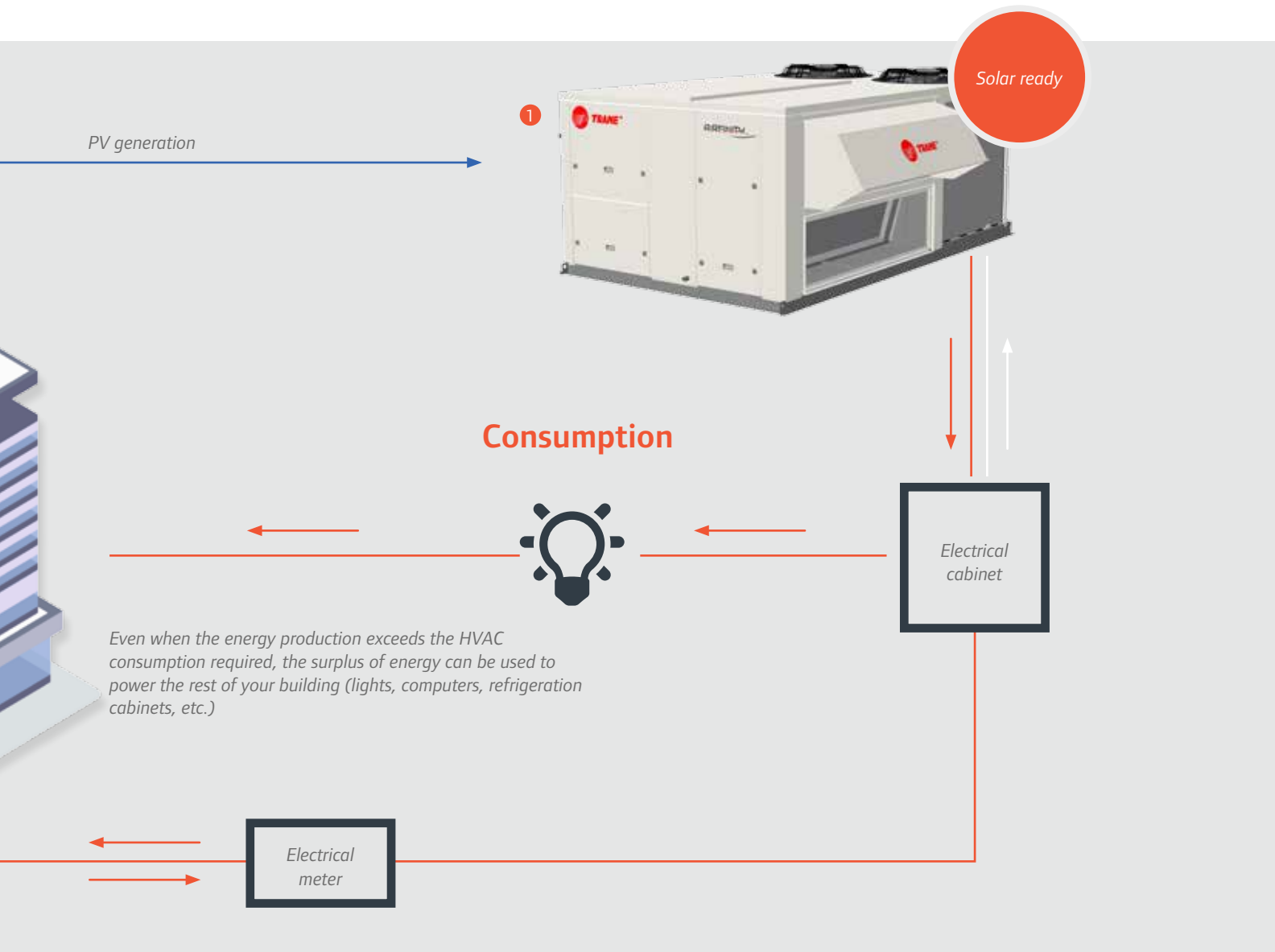


Airfinity™ Solar combines the best of both worlds: market-leading rooftop air-conditioning units together with proven silicon PV technology and best-in-class inverters.

As soon as the sun is shining, the PV panels contribute to the electricity needs of the rooftop unit. The total savings of the system depend on the local irradiance (sunlight per sqm and per year) and on the electricity purchase price.

### The system comprises:

- 1 Airfinity™ rooftop units: High-efficiency direct-expansion air-conditioning units designed to provide air-conditioning and ventilation to an indoor space.
- 2 Silicon photovoltaic panels: The most widely-used technology to convert solar energy into DC electrical power.



3 Mounting structure: Used to support the PV panels without puncturing the building's roof. The membranes are durable but lightweight and serve as a wind deflector.

4 High efficiency inverter: Converts DC power supply provided by the PV panels into AC power needed to operate the rooftop HVAC unit and to feed into the utility grid.

5 Cables and connectors: Double-insulated and UV resistant cables suitable for rooftop applications with water resistant IP65 crimped connectors.

# Simulations



## MODERATE INDUSTRIAL FACILITY ROOF INSTALLATION

Trane experts will evaluate the site, the savings targets and the simulations results. Only then will they propose a solution with the right number of panels (ranging from 20 to 200), and the right orientation (classic southern orientation or space-saving East-West)\*, etc.

### MADRID, SPAIN

#### AIRFINITY SOLAR SOLUTION A

##### PV35S

PV kit type

**144**

Number of panels  
South orientation

**35 kW**

Maximum power

**380 m<sup>2</sup>**

Roof surface  
area required

**60 500 kWh**

Expected yearly  
production

**13 600 €**

Yearly savings



**PAYBACK  
4.1 YEARS**

#### AIRFINITY SOLAR SOLUTION B

##### PV40EW

PV kit type

**160**

Number of panels  
East-West orientation

**40 kW**

Maximum power

**316 m<sup>2</sup>**

Roof surface  
area required

**63 600 kWh**

Expected yearly  
production

**14 300 €**

Yearly savings

**PAYBACK  
4.4 YEARS**

### BRUSSELS, BELGIUM

#### AIRFINITY SOLAR SOLUTION A

##### PV35S

PV kit type

**144**

Number of panels  
South orientation

**35 kW**

Maximum power

**380 m<sup>2</sup>**

Roof surface  
area required

**35 600 kWh**

Expected yearly  
production

**9 600 €**

Yearly savings

**PAYBACK  
5.8 YEARS**

#### AIRFINITY SOLAR SOLUTION B

##### PV40EW

PV kit type

**160**

Number of panels  
East-West orientation

**40 kW**

Maximum power

**316 m<sup>2</sup>**

Roof surface  
area required

**37 400 kWh**

Expected yearly  
production

**10 000 €**

Yearly savings

**PAYBACK  
6.2 YEARS**

\* estimates are based on a nominal PV power of 13.0 kWp and a correction factor of 0.9 (East-West kit) or 0.95 (South kit) and on electricity purchase price of 0.25 €/kWh (Madrid, Spain) and of 0.30 €/kWh (Brussels, Belgium)

**Contact your local Trane sales representative to run a simulation today!**

## Did you know that?



- ✓ In 2016, Europe passed the 100 GW mark of installed solar photovoltaic (PV) capacity.

(source: Global Market Outlook for Solar Power 2016-2020, SolarPower Europe)

- ✓ In 2014, the EU-28 had the largest installed and connected solar PV capacity in the world, three times more than China.

(source: EEA Report: Renewable energy in Europe 2016, European Environmental Agency)





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