

CASE HISTORY

Security for Photovoltaic installations

The anti-theft system to guard the “*Photovoltaic sails*” near the Baltic Sea



Customer:
Hringsdorf municipality

Location:
Heringsdorf (Germany)

Industry: Public

Application:
Solar Defender: the anti-theft system for solar panels

The Photovoltaic installation

“*PV sails*” installed on the German side of the longest “*European promenade*”, that connects the coastal cities of Świnoujście (Poland) and Heringsdorf (Germany), on the island of Usedom, on the Baltic Sea.

The PV installation provides the electricity to feed 55 Led street lamps, that light the German side of the “*promenade*” and avoid the production of about 2,7 t/a of CO₂ .

How the PV installation is made

Five “*photovoltaic structures shaped like a sail*”, each one made by 18 solar panels with a 240 Wp each one, for a total power of 180 kWp.

The security needs

The longest “*European promenade*”, between the coastal cities of Świnoujście (Poland) and Heringsdorf (Germany), on the island of Usedom, Baltic Sea, is part of the wider project of “*cross-border cooperation*” between the two cities, to assure a coordinated development on the economic, cultural and territorial side.

The promenade is made with a special focus on sustainability and low environmental impact, so to be renamed “*Klimaneutrale EuropaPromenade*”, for its “*green design*” and the use at 360° of green energy.

As consequence of the common effort to save the environment, both the cities have expressed the will to guard at the best what was made, as for example to protect the 5 “*photovoltaic sails*” that assure the light along the promenade, on the German side.

The main requirements of the project were: to protect the single PV structures, in a punctual way; the complete integration of the security solution with the context; the low environment impact, to match all the requirements defined by the assurance company involved in the project

The Solution

The “**Solar Defender**” system, Pocket version, installed on each one of the five photovoltaic sails.

Based on technology over **plastic optical fiber**, for structure and operation logic, the “**Solar Defender**” system guards directly the solar panels that constitute the “*sails*”, without the necessity of other systems, with

consequence on the reference environment and the same installation.

The plastic optical fiber is assured against any electromagnetic emission and is highly immune at the RF noises, thanks its small diameter (just 2 mm) it is not invasive and can coexist with the installed electrical cables, compelling with the relative laws. The plastic optical fiber has a long life (more than 20 years) and high resistance at any temperature and environment condition. It assures a high immunity at false alarms, as required by the assurance policy.

The **Solar Defender** system resulted as the only possible security solution, in order to the peculiarity of the installation context and the requirements of the customer.

The Solar Defender system has been installed on the single PV sails without any special works on the structures and/or new special installations. It is completely integrated with the installation, without affects the original design (*the plastic optical fiber is installed on the backside of each solar panel and is unobtrusive*). It assures a H24 high level of protection, also during the ordinary maintenance of the panels, (due to the sea proximity, the solar panels are frequently cleaned, in order to assure the high level of energy production).

The use of **Solar Defender, Pocket version**, has assured costs saving both in provision and in the installation of the system, in the respect of the project budget.

The Companies partner in the project

Dolphit GmbH, based in Fulda (Germany), is a system integrator in the security, information technology, business management industries. Thanks its high-qualified team it's able to offer solutions for cross-sector integration, in partnership with different German assurance companies.

MARSS IP & Security srl, manufactures and distributes security, video surveillance, home&building automation systems. MARSS operates in the national and international market with a network of partners in the security field and number main customers in the Residential, Retail, Industrial, Solar, Public sectors.

Beyond any MARSS' solution: a vast knowledge of the security market; cooperation with qualified partners; a professional team to support the customer with an innovative and modular approach; compliance with standard and sector laws; "*Made in Italy*" solutions where design and innovation are combined.



The installed products



AML-6816 - Pocket Module for POF with torsion, length 200 m, 1 Loop, 12Vcc Manages 1 Lines of optical fiber, length 200 m. Double-mode to detect fiber alarm signals: interruption and torsion. Operation mode: Stand-alone. Signal Outputs: Alarm by fiber interruption, alarm by fiber torsion, Life, alarm tamper box. CE, REACH, RoHS Compliant.



FCX-6008- Plastic Optical Fiber. High flexibility and tensile strength, vibration and shock. Electromagnetic immunity, galvanic insulation, sheath PE-HD quality M1-LSZH - Low

Friction (complies with resistance to sunlight: UL 1581 section. 1200, UL 2556, ISO 4892-2, EN50289-4-17, ASTM D 2565). Diameter 2,2 mm. Termination without special tools. Life: more than 20 years. CE, REACH, RoHS Compliant.



ALM-6006 – Sigillo Solar Defender Patented system for fixing the optical Fiber, installed as a close ring between the panels. The use of the Sigillo Solar Defender to apply at the 6 mm hole existing on the panel frame, reduce of the 70% the

installation time of the Fiber, allows the right install and to avoid too sharp curves that may cause undesired operation, increases the level of system security and preserves the panel guarantee.