



DEHN protects.

Photovoltaic system and noise barrier
Pölling Bühl, Neumarkt, Germany

Customer

EXAPHI GmbH, Neumarkt

ESGO GmbH Energietechnik
und Schaltgeräte Oppach

Himmel u. Papesch Bauunter-
nehmung GmbH & Co. KG,
Bebra

(project sponsor: Town of
Neumarkt)

Project overview

Sector

Photovoltaics

Protection of

5,090 solar modules with a
capacity of 1.2 MW over a
length of 744 m

Hardware

DEHNguard
DEHNventil
BLITZDUCTOR

DEHN protects.



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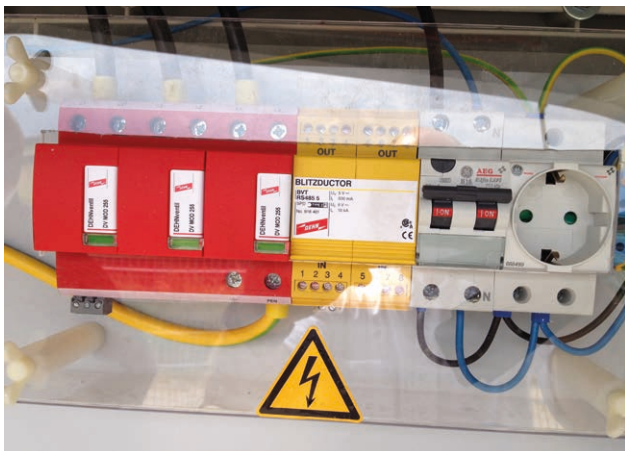
An existing residential area was insufficiently protected from the pass-by-noise of trains and therefore noise protection had to be improved. To solve this problem, an aesthetically pleasing PV system with a capacity of 1.2 MW was installed on an existing 744 m long and 7 m high noise barrier. Thus, 800 citizens are protected from the pass-by-noise of trains and electricity for 300 households is generated at the same time. Special emphasis was placed on the harmonious integration of the system in the cultural landscape. The generation of renewable energy prevents the emission of 1,053 tonnes of carbon dioxide per year.

Particularities

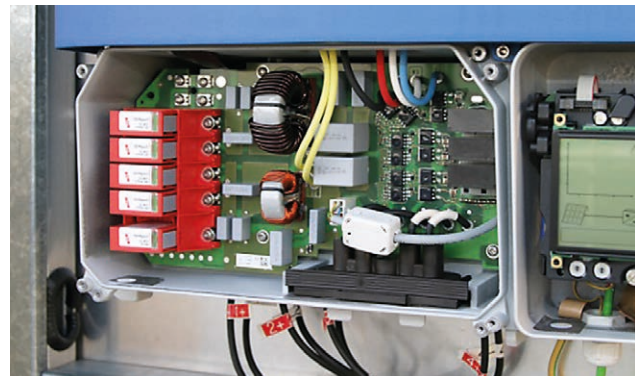
- ➔ High significance of sustainability and climate protection in Neumarkt
- ➔ Close cooperation with the company EXAPHI GmbH, which was the major initiator, idea generator and planner of the pilot project
- ➔ Unique project with two functions (protection from the pass-by-noise of trains and generation of solar energy)
- ➔ Special modules with anti-reflection/anti-glare surface

Challenges

- ➔ Due to the size of the PV system (length of 744 m), it is quite likely that surges are injected into the electrical system.
- ➔ Besides thunderstorms, induction may also occur due to the parallel traction power supply (contact wire).
- ➔ The impact of the railway traffic on the PV system and the resulting rise of the earth potential must be reduced to a minimum.



- ➔ The inverters, modules and system monitoring must be protected from these impacts.
- ➔ Risk of system failure and destruction of the modules, inverters and system monitoring due to lightning strikes and surges.



Benefits of the DEHN solution

- ➔ The use of string inverters with integrated type 2 DEHNguard surge protective devices reduces installation time; additional enclosures are not required.
- ➔ Thanks to its voltage-switching function, DEHNventil reduces loads on the a.c. side of the inverters to a minimum. The a.c. power unit and the electronics in the inverter are thus protected from defects and premature ageing. The safety requirements of the German Railways are also fulfilled.
- ➔ The availability of the data communication is ensured by BLITZDUCTOR surge protective devices. Both the communication between the inverters and the remote indication and maintenance are protected by DEHN arresters.
- ➔ The consistent surge protection concept for the d.c. side, a.c. side and data communication forms the basis for high system availability at low maintenance effort.
- ➔ The surge protective devices used make a fundamental contribution to long-time and sustainable operation of the photovoltaic system.