



Case study

Panel: 60 cells, polycrystalline, ND Series

Sharp PV Panels Allow an Installation with Short Mounting Rails

PV installation on the metal roof of a wood company in Mkalles, Lebanon

Project: Mkalles, Matn, Lebanon

Installation by Lebanon Power Systems s.a.l.

LIBAN ENERGIE
LEBANON POWER SYSTEMS s.a.l.

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Summary:

- **Scale:** 380 PV panels of the series ND-RJ were installed in the project in Mkalles, Matn, Lebanon.
- **Energy cost reduction:** With the installation of the PV panels, the electricity costs of the company, Asmar Wood International, were reduced by more than 35%.
- **Short mounting rails:** The panels are installed on a metal corrugated roof on short mounting rails under the clamping area. This way, the metal doesn't expand too much due to high temperatures, which might cause damages to the roof and the modules.
- **Proximity to the ocean:** Salt spray resistant panels were used due to the short distance of 5km to the shore. Sharp PV panels are certified salt mist tested according to (IEC 61701).

PV panels

Product:	Sharp ND-RJ270
Number of modules:	380
Rated power:	270 Wp
Cells:	60
Size:	1,654 x 989 x 40 mm
Efficiency:	16.5%

Solar power plant

Plant size:	100 kW
Roof orientation:	South
Roof pitch:	10°





Asmar Wood is using 380 Sharp panels on their new headquarters' roof

Asmar Wood International is a leading wood trade company in Lebanon. In 2017, they opened new headquarters and warehouse facilities in Mkalles, Lebanon. The building design as well as the electricity supply are state-of-the-art: the company partnered with Lebanon Power Systems s.a.l. for the installation of 380 Sharp ND-RJ270 panels on the metal roof of the headquarters. Sharp ND-RJ270 panels are extremely reliable panels with a high efficiency. Reliability was the main concern of Asmar Wood as the company needs a steady electricity supply for their business.

Sharp panels have been proven to sustain even more demanding climate situations while providing superior performance in locations like Malawi, the Arctic Circle and on the shore of the Atlantic on Gran Canaria.

Salt mist resistant panels are installed on the metal roof with an effective mounting

Just like in Gran Canaria, Mkalles is close to the sea. The headquarters of Asmar Wood are approximately 5km off the shore. Thus, the air is salty, which could cause harm to the PV installation in the long run. Sharp PV panels are certified salt mist tested according to (IEC 61701) and were therefore the appropriate choice for this installation.

The 380 panels were installed as 19 parallel strings on the flat roof. The tilt angle is 10° and the panels are facing South. Due to the Mediterranean climate and the positioning of the panels, the power production is optimized during the long summer months but also the short winters. As the summers can get hot, the metal roof can reach elevated temperature exceeding 38 °C. Therefore, the installer chose short metal mounting pieces because they expand less than continuous rails under the heat, which could cause damage to the roof. Moreover, this mounting technique results in material savings and thus lowers material costs.

One year after the installation, Asmar Wood is not only very pleased with the reliability of the panels, but also with the annual energy cost reduction of almost \$20,000, while aligning with its mission of being a green, innovative company.



Savings

Since the installation was completed in 2017, the operator has reliable numbers about his annual savings on electricity costs: Asmar Wood International has reduced its annual electricity costs by more than 35%, saving almost \$20,000 per year.



From left to right: Andrew Lee (Sharp), Maroun Charabati (Power Systems s.a.l.), Peter Thiele (Sharp)

The installer says:

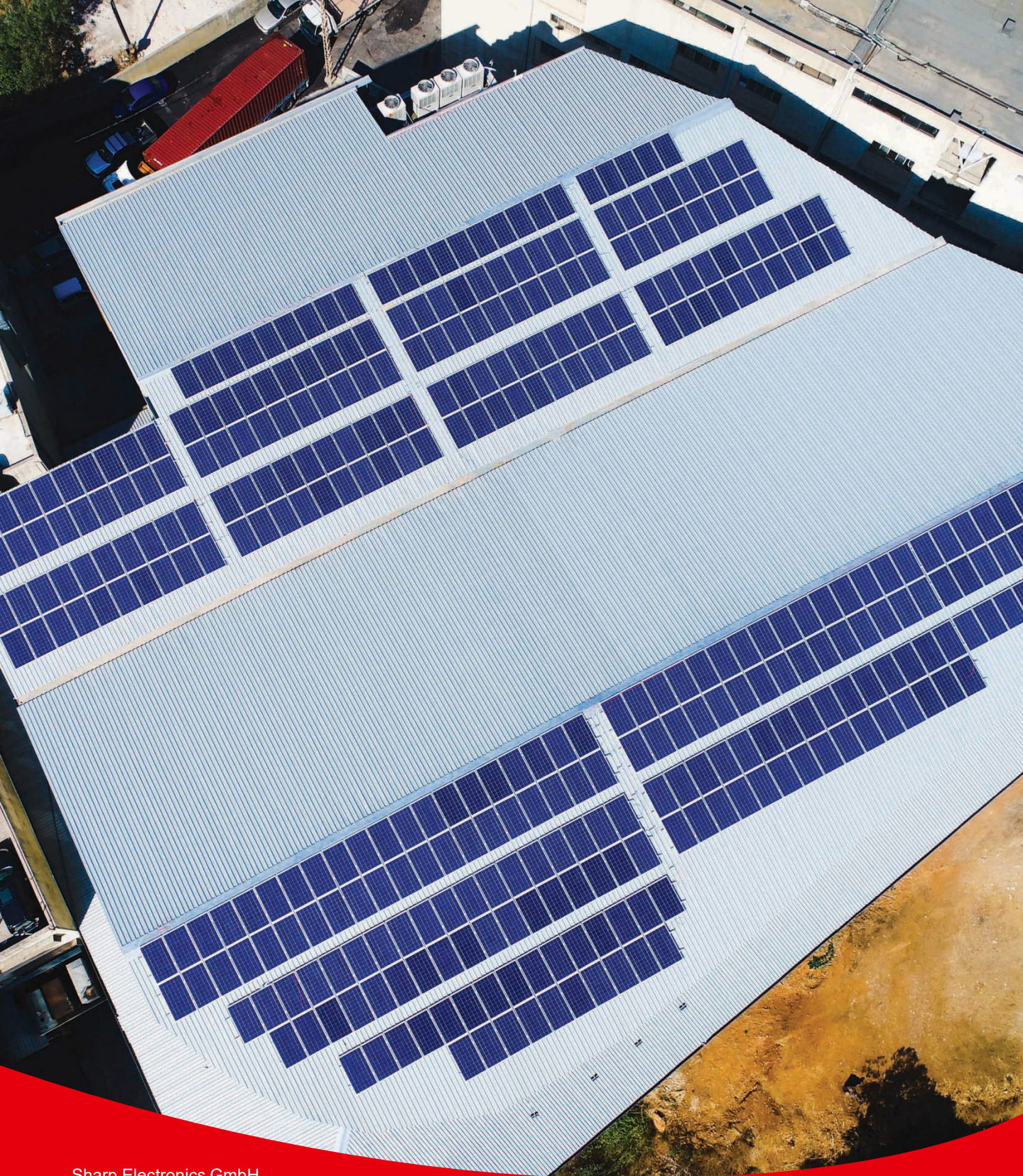
'We have been using Sharp panels for years due to a variety of reasons: Sharp is one of the worldwide leading power system equipment manufacturers offering 60 years of solar experience. They offer great quality products and product guarantee of 10 years and even a 25 year guarantee on linear power output.'

Maroun Charabati, Lebanon Power Systems s.a.l.

The operator says:

'We were hesitant to install a PV system at first, because we were sceptical of its reliability. Now, we are very pleased with the results! The installation process by Lebanon Power Systems s.a.l. was quick and smooth and the panels are working exceptionally. The system is very effective and our energy costs have dropped substantially.'

Reda Asmar, Asmar Wood Int. s.a.l



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