Pioneering PV planning: fast, safe, accurate, and now with AI

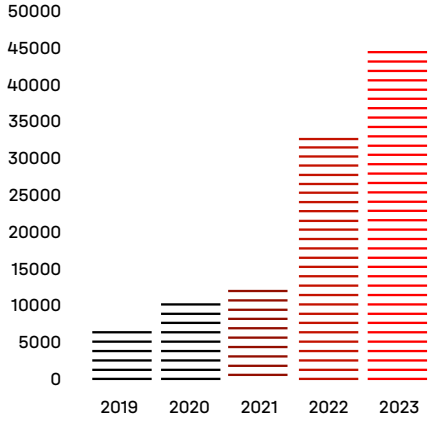
Through the use of artificial intelligence (AI) PV project planning is significantly accelerated. That means even more time-savings for planners. The planning software K2 Base, provided free of charge by the globally active mounting system specialist K2 Systems, is constantly being optimized with new products, new functions and adaptations for new requirements. No wonder it has become one of the most popular planning tools in the PV industry. Useful features have been added in recent months such as an obstacle detection function, new roof shapes such as hipped roofs, an optimization for touch screens as well as interfaces with special programs for the design and optimization of photovoltaic systems.

'Connecting Strength' is more than a claim: it is a philosophy that around 400 employees at the 12 global locations of K2 Systems GmbH live with, heart and soul. The company is driving solar energy production with intuitive mounting systems that are built to last. They are intelligently designed, with universal components so that they are simple and intuitive to install. In this way, the PV-mounting specialist has developed into the European market leader.

Complementing the company's clever systems are cutting-edge digital solutions and exceptional customer service. Underlying the company's strategy is its noteworthy commitment to sustainability, which is exemplified through its strategic sourcing practices and the manufacturing of its systems primarily in Europe.

Since 2004, it has been steadfastly supporting photovoltaic systems worldwide especially in Europe and the US. This means that 2024 marks a big year for the medium-sized company. Not only is it opening a new, state-of-the-art logistics center in March, it is also celebrating its 20th anniversary of driving solar power generation.

This article focuses on how K2's popular digital services complement its physical solutions with state-of-the-art technology.



New Registrations in Base (2019-2023)

Across all project phases, the digital services are continuously being enhanced with new features and partnerships that accelerate and streamline the PV process: from fast, accurate planning to project completion through to future monitoring for healthy system performance.

Automatic, fast and smart: Base meets artificial intelligence

The innovative online planning tool, K2 Base, enables fast, safe and accurate planning of PV projects. In just five steps, planners and installers can determine the optimal design of mounting systems and the configuration of PV projects for pitched and flat roofs. And all of this is free of charge. You only have to register once and can use all digital services via one MyK2account.

Highlights of the planning tool include:

- Google Maps integration and graphic drawing tools
- automatic determination of wind and snow loads
- intuitive editor for drawing roofs and module arrays
- automatic calculation and depiction of roof fasteners and ballasting
- a result report, including the assembly plan and bill of materials

The tool is constantly being optimized to make it more useful and user-friendly. For example, the use of AI makes PV project planning considerably faster and easier. Now, the planner can draw an obstruction once and define the tolerance using the slider. Then with just one click, AI detects all similarly designed objects. With this new obstacle detection function, drawn-in areas such as skylights or chimneys can be recognized by AI and automatically added to the roof.

The experts know: the more roof surfaces, the more variation possibilities. Thanks to exact dimension and angle specifications, the online-software delivers precise results, quickly and easily for flat, gable and monopitch roofs.

And now this capability has been extended for hipped roofs. Previously, these required a great deal of effort to calculate the available PV area. A hipped roof has two trapezoidal and two triangular roof surfaces, in other words, four potential substrates for a photovoltaic system. If mounted on the east, south, west and north sides, virtually every ray of sunlight is captured during the day.

Of course, even diffuse light is still well utilised by modern PV modules with a high degree of efficiency. However, the pointed area of roof limits the usable area. To achieve a high yield, it is therefore important to arrange the modules so that space is utilized in the best possible way. Hipped roofs can now be planned as well, in addition to accounting for obstacle recesses and shadow casting views, Base automatically calculates the most efficient placement of the modules that maximize the available surface area.

More flexibility: PV planning direct on tablets

The planning tool is known for its intuitive handling and practical graphical tools. This of course means significant time saving in the office, and thus more time available for the construction site. But with this new capability, planners don't even have to leave their construction site to plan the substructure. They can do it quite comfortably on their tablet, because the specialists have optimized the software for touch screens. This means that all steps, including drawing in the roof surfaces, can now be carried out with a finger or a stylus. This makes it easy to calculate the roof fasteners, rails and ballastings while on the move and gives those responsible more flexibility.

Transfer PV project data quickly and without errors

During the planning of photovoltaic systems, a lot of dimensions, key figures and product

information play an important role. Thanks to digital tools, processing these values is becoming increasingly easier. Nevertheless, they often have to be entered several times in the course of planning a PV project. This not only requires extra time, it also harbors the risk that values are not entered or updated correctly.

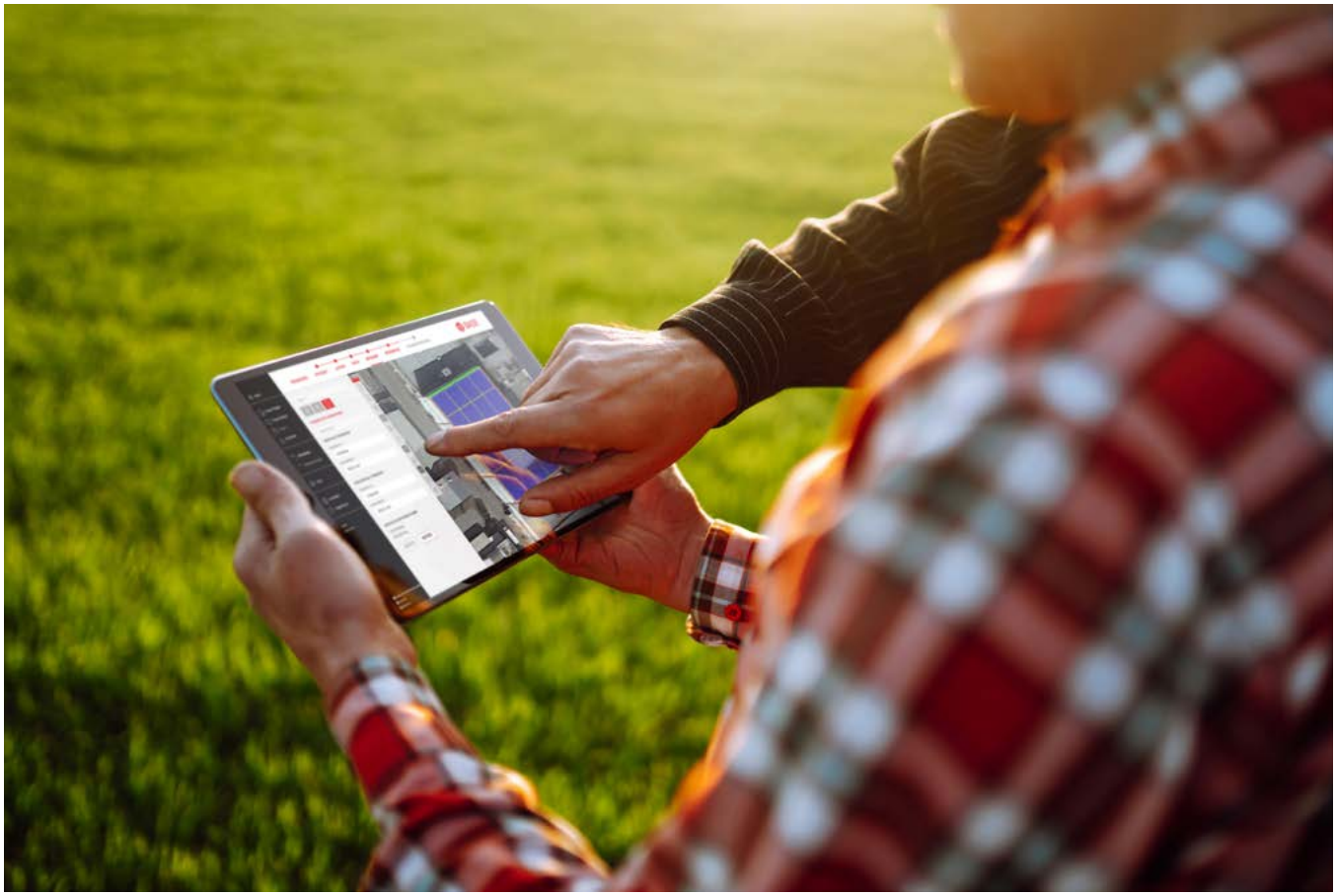
That is why K2 Systems has taken yet another step towards 'Connecting Strength'. With K2+, the planning tool also enables the direct transfer of project data to and from special programs for the design and optimization of photovoltaic systems. This further streamlines the planning process and ensures that data transfers can be accomplished quickly, comfortably, and most important error-free. There are partnerships regarding interfaces to tools from SolarEdge, SMA, Fronius, Kostal, GoodWe and archelios™ Pro, PV*SOL premium and Eturnity.

New digital campus for optimum support

To drive the energy transition, millions of residential and commercial buildings still need to be equipped with photovoltaic systems. Installers are in demand like never before and are usually booked up months in advance. So, it is an aim to enable them to get up to speed quickly, and help throughout every project phase: from a well-prepared start, to optimal planning and all the way through to professional completion of the installation.

The K2 Resource Center on the company website was developed to meet the needs of planners and installers. It is a free digital learning platform that makes it easier for PV-newcomers and career changers to immerse themselves in the world of photovoltaic assembly and mounting systems.

With weekly live webinars, easy to follow tutorials and numerous training courses, knowledge-hungry PV enthusiasts can quickly and conveniently get the information they need in a variety of ways. They can then even prove their newly acquired knowledge with training certificates, confirming their level of



expertise, which can in turn be used for their own marketing activities.

This digital campus is of course, not just for newcomers. Professionals and photovoltaic installers with many years of professional experience will also find a treasure trove of tips worth knowing about concerning rails, roof hooks and more. And experienced professionals can also contribute to the new platform. According to the motto 'learn from those who know how it's done', a constantly growing community shares its expert knowledge around the clock, helping others find answers and solutions for many PV-relevant topics. All in all, the Resource Center is a place of inspiration and expertise, focussed on transforming PV enthusiasts into PV experts.

With its planning tool Base and all its other digital services, K2 Systems continues to pioneer the industry, making the planning and installation of PV systems simpler, faster and safer. The aim is to realise and drive forward global power generation from solar energy to achieve a sustainable energy transition.

k2-systems.com