

MEAN WELL SHP High Efficiency Digital Power Supply is a standard off-the-shelf solution

Date: 5/1/2023

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Industry: Warehouse Robotics

Application: Charging Dock System for Warehouse Robots

Power Solution: Custom Charging Dock that Utilizes the SHP High Efficiency Digital Power Supply

CUSTOMER PAIN POINTS:

With growing demand for robotics and artificial intelligence applications in various industries, robotics is one of the industries receiving high demand for performance and robustness. Warehouse robotics has improved the workflow for respective industries but has also helped improve delivery and lead time on customer demands. Being in such an ever growing and competitive market of supply chain industries, efficiency and functionality for robotics application has become a top priority. One of the challenges that warehouse robotics users have faced is with its charging systems to reduce down-time and increase productivity.

To keep up with such a competitive and innovative global industry and market, a leading robotics manufacturer was in need of a custom charging dock system. Requirements were to have the power supply convert industrial 3-phase mains power

to a constant current / constant voltage DC battery charging source. Additionally, the housing should contain the power supply and provide plugs for the user to interface with the power supply. Furthermore, the robot was supposed to mate with the docking station which is connected to the power supply via a cable. The docking station should include mechanical features to provide the necessary alignment aid when the power connector on the robot mates to the power connector on the docking station. To mention further this was to be used to fast-charge Li-Ion batteries for their warehouse robot. They had a challenge finding an off-shelf power supply solution.

Since the manufacturer was facing problems with coming up with a custom solution that solved their issue for their charging dock and they met with issues on efficiency and reliability when working with their end user needs. It is then, the robotics manufacturer reached out to MEAN WELL and evaluated our SHP High Efficiency Digital Power Supply for this custom application to overcome their challenges.



POWER SOLUTION:

The MEAN WELL SHP High Efficiency Digital Power Supply is a standard off-the-shelf solution. The SHP-10K-55 power supplies can accept 340~530VAC 3-phase delta input with 55VDC output. MEAN WELL worked with the robotics manufacturer to

develop a custom all-in-one charging dock solution that is based on standard off-the-shelf power supplies manufactured in the MEAN WELL Taiwan factory. The final solution will be assembled by our local Value-Added Center in the USA. At the core of this charging dock solution are three SHP-10K-55. Considering the closed space, cooling factors and derating this combination was able to meet the power needs for 20KW. Additionally, the custom charging station will be UL1564 and FCC certified with IP52 Design, allowing the robotics manufacturer to solve their custom charging system needs. There were some intricate designs and testing needed to achieve this custom part, which MEAN WELL's applications engineers in USA and design engineers in Taiwan worked together with the manufacturer to design a robust and efficient solution. Design parameters included custom enclosure and firmware modifications that allowed the robots to communicate with the chargers. MEAN WELL USA also supported the customer locally with UL certification and EMI debugging, so the charging dock solution is ready to be deployed as quickly as possible.



MEAN WELL was able to successfully support the robotics manufacturer with our Lead Time Guarantee program and our local Value-Added Center to deliver such custom production orders in a timely manner, which effectively solved their efficiency and productivity issue.



Conclusion

MEAN WELL's custom solution, which included triple SHP High Efficiency Digital Power Supplies in housing unit enclosure, was able to flexibly meet the warehouse robotics complex power requirements for charging dock system, and MEAN WELL's commitment to customer service together helped the robotics manufacturer to recover from various challenges they faced. This case study demonstrates the innovative capability of MEAN WELL and MEAN WELL's highly reliable products to excel even amidst the worst times. MEAN WELL will continue to advance with the times of innovation and optimization, and it is our mission to provide the best cost/performance value of standard power supplies and services.