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SPK-40KWPL-HYB-300KWH-220V-N3R

Industrial Solar Power System - 40 kWp - (80) 500W Monocrystalline PV Panels, LiFePO Battery Bank (48V, 2-Day Autonomy), Hybrid Inverter (6 kVA), Roof Mount System

Product ID: 333707



Image: SPK-40KWPL-HYB-300KWH-220V-N3R

Larson Electronics LLC manufactures a wide variety of products, including custom built to spec designs. The pictures displayed for this unit are a general representation of form factor for the product line and may not accurately represent this exact configuration in every detail due to custom builds and changes between similar products in our standard catalog. The specifics for this configuration are listed in the specification table and supporting documentation (CAD files, Dimensional Drawing, Name Plate Diagram, Wiring Diagram, etc.). This means that specific details (receptacles, plugs, wires, connections, mounting brackets, external finishes, etc.) may not be accurately represented in images vs specifications. Please review specifications and do not order based solely on images.

SPK-40KWPL-HYB-300KWH-220V-N3R Solar Panel System

Solar Panel Specs

Listing: NRTL Listed for United States and Canada
Solar Panel Qty: (80)
Solar Cells: Monocrystalline Silicon (N-Type TOPCon)
Single-panel Dimensions: 89" x 44" x 1.4"
Cells Orientation: 144 Half-Cell (Typical)
Voltage: 41V (Vmp per module)
Maximum System Voltage: 1000V DC
Watts: ≥500W per panel
Current: 13A (Imp)
Module Efficiency: ~21–23%
Tolerance: 0 to +5W
Limiting Reverse Current: 20A
Temperature Coefficient of Isc: ~0.04%/°C
Temperature Coefficient of Voc: -0.28%/°C
Temperature Coefficient of Pmax: -0.35%/°C
Maximum Fuse Rating: 25A
Open Circuit Voltage - Voc: 49V
Short Circuit Current - Isc: 14A
Solar Inverter: 12–15 kVA Hybrid Inverter, 220V AC, 3-Phase Output
Materials: Anodized Aluminum Frame, EVA Encapsulant, Tempered Glass
Cover: High Transmission Tempered Glass
Mounting: Aluminum Roof Mount System, 15° Tilt Angle

Ratings/Approvals

IEC 61215 / IEC 61730 Certified
NEMA 3R Enclosure (Inverter & Battery Bank)
(80) ≥500W Monocrystalline TOPCon PV Panels
LiFePO Battery Bank (48V, ~80–120 kWh capacity)
(1) Hybrid Inverter with MPPT

Hubs: MC4 Compatible Connectors
Color: Black / Silver

Battery Bank Specs
Dimensions: -
Battery Type: Lithium Iron Phosphate (LiFePO□), 48V System
Total Capacity: ~250–300 kWh (Sized for 2-Day Autonomy @ ≤6 kW Load)
Total Usable: 90% Depth of Discharge
Cycle Life: ≥6000 Cycles @ 90% DoD
Materials: Steel Rack, Aluminum Battery Housing
Enclosure Type: NEMA 3R / NEMA 4X (optional upgrade)

Hybrid Inverter / MPPT Controller Specs
Charge Controller Type: (2)
Voltage: 48V DC Battery System / 220V AC Output
Maximum Battery Current: ≥120A
Nominal Maximum Operating Power: ≥6 kVA Continuous
Peak Efficiency: ≥97%
Maximum PV Open Circuit Voltage: 500–800V DC
Battery Operating Voltage Range: 40–60V DC
Maximum Self-consumption: <50W
Transient Surge Protection: Integrated SPD (DC & AC)
Charging Algorithm: Multi-stage (Smart Charging)
Charging Stages: Bulk, Absorption, Float
Ambient Operating Temp: –10°C to +50°C
Protection: Overload, Short Circuit, Over/Under Voltage, Over Temperature, Reverse Polarity, Surge Protection
Communication Ports: RS-485, CAN, WiFi/Ethernet Monitoring
Wiring: Complete DC/AC Cabling, Connectors, and Protection Devices

Special Orders - Special Requirements
Contact us for special requirements
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The SPK-40KWPL-HYB-300KWH-220V-N3R Hazardous Solar Power System from Larson Electronics is designed for reliable, continuous-duty power generation in industrial and commercial applications. The system features high-efficiency monocrystalline TOPCon solar panels rated at ≥500 watts, a large-capacity LiFePO□ battery bank (48V) with approximately 300 kWh storage for extended автоному, a hybrid inverter with integrated MPPT, complete electrical protection systems, and roof-mounted aluminum panel structures. A NEMA 3R-rated enclosure protects critical components, including the inverter and battery bank, from outdoor environmental conditions.

The SPK-40KWPL-HYB-300KWH-220V-N3R is a high-capacity solar power system engineered to deliver up to 40 kWp of renewable energy generation. This system includes approximately eighty ≥500-watt solar panels, an aluminum roof mounting system with a 15° tilt angle, a 12–15 kVA hybrid inverter providing 220V AC three-phase output at 60 Hz, and a lithium iron phosphate battery bank sized to support up to two days of автономous operation. Integrated MPPT technology ensures optimal solar energy harvesting, while a manual transfer switch allows seamless transition between solar and grid power sources.

Solar Panels: A total of approximately eighty ≥500-watt monocrystalline N-type TOPCon solar panels are included with the system. Each panel offers module efficiencies of approximately 21–23 percent and operates at around 41V (Vmp) with an open circuit voltage of approximately 49V. Designed for high-performance applications, these panels feature 144 half-cell configurations for improved efficiency and reduced power loss. The modules are constructed with anodized aluminum frames, EVA encapsulant, and high-transmission tempered glass for durability in harsh outdoor environments. MC4-compatible connectors

allow for secure and efficient electrical connections. The panels are mounted using aluminum roof mounting kits with a fixed 15° tilt for optimal solar exposure.

The solar panels are engineered to withstand demanding environmental conditions. The robust frame and tempered glass construction provide resistance against wind, debris, and temperature variations. The modules are certified to international standards, including IEC 61215 and IEC 61730, ensuring reliability and long-term performance in industrial solar installations.

Battery Bank/Inverter System: This system is equipped with a high-capacity lithium iron phosphate (LiFePO□) battery bank operating at 48V, with an approximate total storage capacity of 250–300 kWh. The battery system supports up to two days of автоному for continuous operation of critical loads. With a cycle life exceeding 6000 cycles at 90% depth of discharge, the battery bank offers long service life and high reliability. The integrated hybrid inverter, rated at 12–15 kVA, converts DC power to 220V AC three-phase output and manages energy flow between solar panels, batteries, and grid input. The inverter includes advanced MPPT tracking, multi-stage charging (bulk, absorption, float), and comprehensive protection features.

Electrical protection components are included to ensure safe and reliable operation. These include DC and AC circuit breakers, surge protection devices, isolation switches, and a manual transfer switch for grid interconnection. A complete grounding system with earth rods and copper conductors is provided to meet safety requirements. The system also features an internet-based monitoring platform, allowing operators to remotely track performance, energy production, and system status in real time.

The battery bank and inverter are housed within a NEMA 3R-rated enclosure constructed of durable materials for outdoor use. Complete wiring systems, including solar cables, battery interconnections, conduits, and cable management accessories, are included for streamlined installation.

Applications: Industrial facilities, refrigerated containers, cold storage systems, agricultural processing, remote installations, off-grid and hybrid energy systems, renewable energy projects, backup power systems, and continuous-duty electrical loads.

At Larson Electronics, we do more than meet your lighting needs. We also provide replacement, retrofit, and upgrade parts as well as industrial grade power accessories. Our craftsmen can custom build any lighting system and/or accessories to fit the unique demands of your operation. A commitment to honesty, quality, and dependability has made Larson Electronics a leader in the lighting and electronics business since 1973. Contact us today at 800-369-6671 or message sales@larsonelectronics.com for more information about our custom options tailored to meet your specific industry needs.

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Frequently Asked Questions (FAQ)

There are no Faqs