Deye SUN-12K-SG05LP3-EU

Product code: **F.deye.3f.H.12k-SG05LP3-EU**

Deye SUN-12K-SG05LP3-EU – Three-Phase Hybrid Inverter with Low Voltage Battery Support and Off-Grid Functionality

The Deye SUN-12K-SG05LP3-EU is a three-phase hybrid inverter with 12 kW of power, designed for advanced photovoltaic systems with energy storage. With support for low-voltage 48V batteries, transformer-based architecture, and both off-grid and on-grid (parallel-capable) operation, this inverter offers maximum flexibility for new PV installations as well as retrofitting existing systems.

Product variants

Index	Price
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Product description

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Key Benefits:

Hybrid power and flexibility – Allows battery charging from PV panels, the grid, or a diesel generator, with intelligent control of 6 customizable charge/discharge time periods.

High load handling and true off-grid support – Off-grid mode supports 2x rated power for 10 seconds, with 100% unbalanced output current on each phase.

Parallel system support – Up to 10 inverters can operate in parallel in both grid-tied and off-grid modes, with support for multiple parallel batteries.

Advanced compatibility – AC-coupling capability for retrofitting PV systems; works with both LiFePO4 and lead-acid batteries.

High efficiency and safety – 97.6% peak efficiency, >99% MPPT efficiency, complete AC/DC protection package, and Type II surge protection.

Technical Specifications:

General Data:

System type: Hybrid, three-phase

Rated power: 12,000 W

Max PV input power: 18,000 W

Number of MPPTs / Strings per MPPT: 2 / 1+1

Operation modes: On-grid, Off-grid, Backup

Off-grid peak power: 24,000 W (10 seconds)

PV Input:

MPPT voltage range: 200 – 650 V

Max PV input voltage: 800 V

Start-up voltage: 160 V

Max input current per MPPT: 2 × 20 A

Max short-circuit current: 2 × 30 A

Battery Input:

Supported battery types: Lithium-ion / Lead-acid

Operating voltage: 40 – 60 V

Max charge/discharge current: 240 A

Battery input ports: 1

Charging mode: Auto-adaptation to BMS

AC Output/Input:

Nominal voltage: 230/400 V

Voltage range: 0.85Un – 1.1Un

Frequency: 50/60 Hz

Nominal current: 18.2 A

Max current: 27.3 A

100% unbalanced load support per phase

Max continuous grid input current: 45 A

Efficiency & Protection:

Max efficiency: 97.6%

Euro efficiency: 97.0%

MPPT efficiency: >99%

THDi: <3%

Protection features: short circuit, overvoltage, overcurrent, thermal, reverse polarity, ground fault detection, RCD, etc.

Ingress protection: IP65

Cooling method: Intelligent air cooling

Communication & Interfaces:

Monitoring: GPRS / Wi-Fi / Bluetooth / 4G / LAN (optional)

Communication ports: RS485, RS232, CAN

Cloud and mobile app integration supported

Mechanical & Environmental Data:

Dimensions: 386 × 660 × 253 mm

Weight: 35.2 kg

Operating temperature: -40°C ~ +60°C (derating above 45°C)

Humidity range: 0 – 100%

Max altitude: 3000 m

Noise level: ≤55 dB

Compliance & Certifications:

Grid standards: IEC 61727, IEC 62116, EN 50549, G99, VDE-AR-N 4105, and others

Safety standards: IEC/EN 62109-1/-2, IEC/EN 61000-6-1/2/3/4

Surge protection: Type II (DC & AC)

Invest in the Future of Energy with the Deye SUN-12K-SG05LP3-EU Inverter

The Deye SUN-12K-SG05LP3-EU is a versatile, high-performance solution built for demanding energy scenarios. Ideal for modern PV systems with energy storage, it serves both residential and small commercial applications with uncompromising efficiency and reliability.