



KBUPOEI-110W-WB

Industrial Ultra-Wide Voltage Boost PoE Injector

Ultra Power up to 110 W, Ultra-Wide 7–60 V input, and a Boost step-up design built to start strong even when solar, battery, or DC UPS sources sag below 10 V.

Model	KBUPOEI-110W-WB
Product Name	Industrial Ultra-Wide Voltage Boost PoE Injector
Rated / Peak Power	90 W / 110 W
Quality System	ISO 9001 Certified
Document No.	KB-DS-KBUPOEI110WWB-001
Revision	V1.00
Issue Date	August 2026

Product Overview

The KBUPOEI-110W-WB is an industrial single-port PoE++ injector built around three defining strengths: Ultra Power, Ultra-Wide voltage range, and a Boost step-up topology. It is fully compliant with the complete IEEE 802.3 af/at/bt standard series, delivering a rated output of 90 W and a peak power of 110 W — enough headroom for the most demanding Class 8 PD devices. Its Ultra-Wide 7–60 V DC input accepts everything from a sagging 12 V battery bank to a 48 V industrial busbar through a single model, achieving full-range conversion efficiency of 85%–97%. What sets it apart is its Boost (step-up) power topology: rather than simply tolerating low input voltage, it actively steps a low DC input up to a stable PoE output, stably delivering the full 90 W rated power from as little as a 9 V input. This matters most in exactly the installations where power is least predictable — photovoltaic solar arrays, battery banks, and DC UPS systems routinely sag under 10 V during startup, under heavy load, or as batteries discharge, and a conventional buck-only PoE supply will brown out or shut down in that window. The KBUPOEI-110W-WB's Boost design keeps the PoE output solid through that dip. It transmits 2.5 Gbps network signals and power simultaneously via standard Cat5e Ethernet cables over a maximum distance of 100 meters. Housed in an IP40-rated fanless metal enclosure, it supports both DIN rail and wall mounting, and operates reliably within the harsh industrial temperature range of –40 °C to +80 °C. Equipped with proprietary overtemperature protection, it provides comprehensive five-fold safeguards against undervoltage, overvoltage, overcurrent, short circuits, and overheating, and is integrated with 6 kV lightning and ESD protection — making it suitable for power supply scenarios with volatile voltage fluctuations, including photovoltaic energy storage, vehicle-mounted systems, 24 V industrial busbars, long cable voltage-drop applications, and field/outdoor deployments.

Ultra Power

Rated 90 W, peak 110 W — headroom for Class 0 through Class 8 PD devices.

Ultra-Wide Voltage Range

DC 7–60 V input on a single model, covering battery, solar, and industrial bus voltages.

Boost Step-Up Topology

Actively steps up low DC input rather than merely tolerating it — full 90 W output from as little as 9 V.

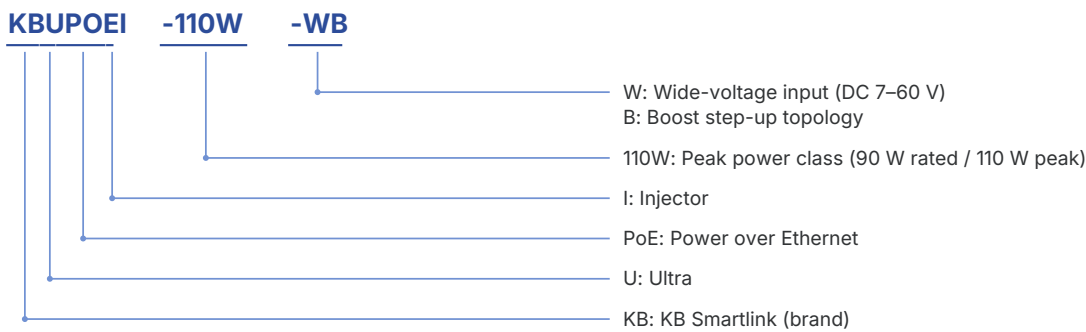
Built for Solar & Battery Systems

Keeps PoE output stable through the low-voltage dips typical of PV, battery-bank, and DC UPS startup.

Why Boost Step-Up Matters for Solar, Battery, and DC UPS Projects

Solar panels, battery banks, and DC UPS systems rarely hold a clean, steady voltage — output commonly sags below 10 V during startup, under heavy load, on a cloudy day, or as a battery discharges toward end-of-charge. A conventional PoE supply that only bucks voltage down will brown out or shut off exactly when it is needed most. The KBUPOEI-110W-WB's Boost (step-up) topology instead raises a sagging low-voltage input back up to a stable PoE output, so connected cameras, APs, and IoT terminals keep running through that dip — making it a natural fit for photovoltaic, vehicle, and backup-battery power architectures.

Model Nomenclature



Performance Features

- Ultra Power output: rated 90 W and peak 110 W, compatible with all PD devices from Class 0 to Class 8.
- Ultra-Wide voltage input: a single model accepts DC 7–60 V, covering battery, solar, and industrial bus voltages without model changes.
- Boost step-up topology (PSE90W-H): actively steps up low DC input rather than just tolerating it, with conversion efficiency ranging from 85% to 97% across the full input range.
- Purpose-built for solar, battery-bank, and DC UPS projects: stably delivers full 90 W rated output at 9 V input, and needs only 10 V for full-load startup — exactly the range these sources commonly sag into.
- 2.5G high-speed Ethernet: supports auto-negotiation of 10/100/1000/2500 Mbps with full-duplex bidirectional simultaneous transmission.
- Long-distance power supply and data transmission: hierarchical transmission via Cat3/Cat5/Cat5e Ethernet cables; four-pair cable delivers synchronous data and power up to a maximum distance of 100 m at 2.5 G rate.
- Plug-and-play without configuration: no software tuning required; automatically identifies all types of PoE PD terminals after power-on.
- Comprehensive electrical protection: automatic protection against undervoltage, overvoltage, overcurrent, short circuit, and overtemperature with fault auto-recovery.
- Industrial-grade lightning and ESD protection: 6 kV surge protection with 8/20 μ s waveform, 6 kV contact discharge ESD protection.
- Stable operation over ultra-wide temperature range: operating temperature from -40°C to $+80^{\circ}\text{C}$, storage temperature from -60°C to $+90^{\circ}\text{C}$.
- IP40 dustproof metal enclosure with fanless silent design.
- Multi-stage power indicator lights for real-time and intuitive display of current load power.

Application Scenarios

General Indoor Scenarios (Compatible with PSE90W)

- 4K/8K indoor high-definition surveillance cameras
- Indoor wireless APs and industrial gateways for machine rooms
- Standardized 48 V weak-current computer room projects

Exclusive Extended Scenarios for Boost Version (Not Applicable to Standard Version)

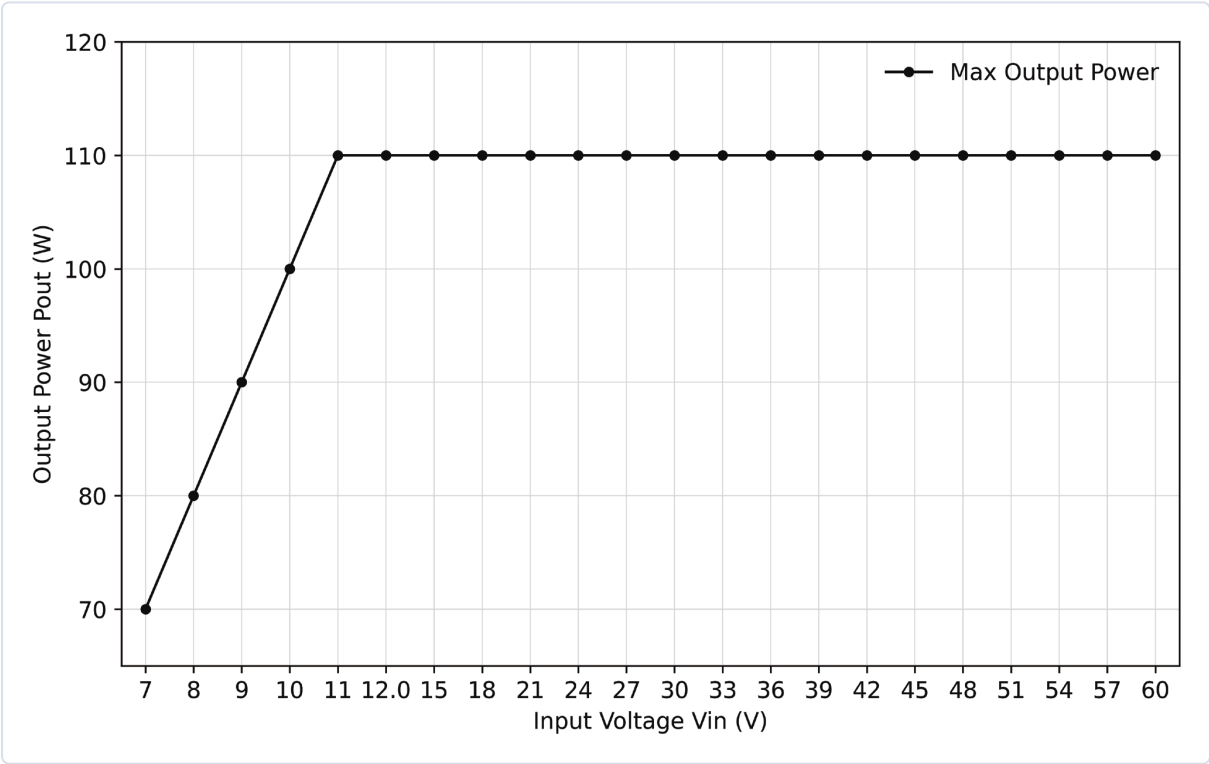
- Field surveillance powered by solar photovoltaic energy storage
- 12 V / 24 V vehicle-mounted weak-current systems for trains and engineering vehicles
- Industrial vision cameras and IoT terminals on factory 24 V automated production lines
- Long-distance wiring in tunnels and mountainous areas to solve low-voltage shutdown caused by cable voltage drop
- Supporting acquisition equipment for 60 V DC cabinets of new energy storage systems
- Equipment supplied continuously by low-voltage backup batteries during power outages
- Heavy-duty PTZ cameras, LiDAR, and outdoor 5G small base stations for mines and field environments
- Renovation of old multi-voltage projects; single model compatible with 12 V / 24 V / 48 V power supplies

Technical Specifications

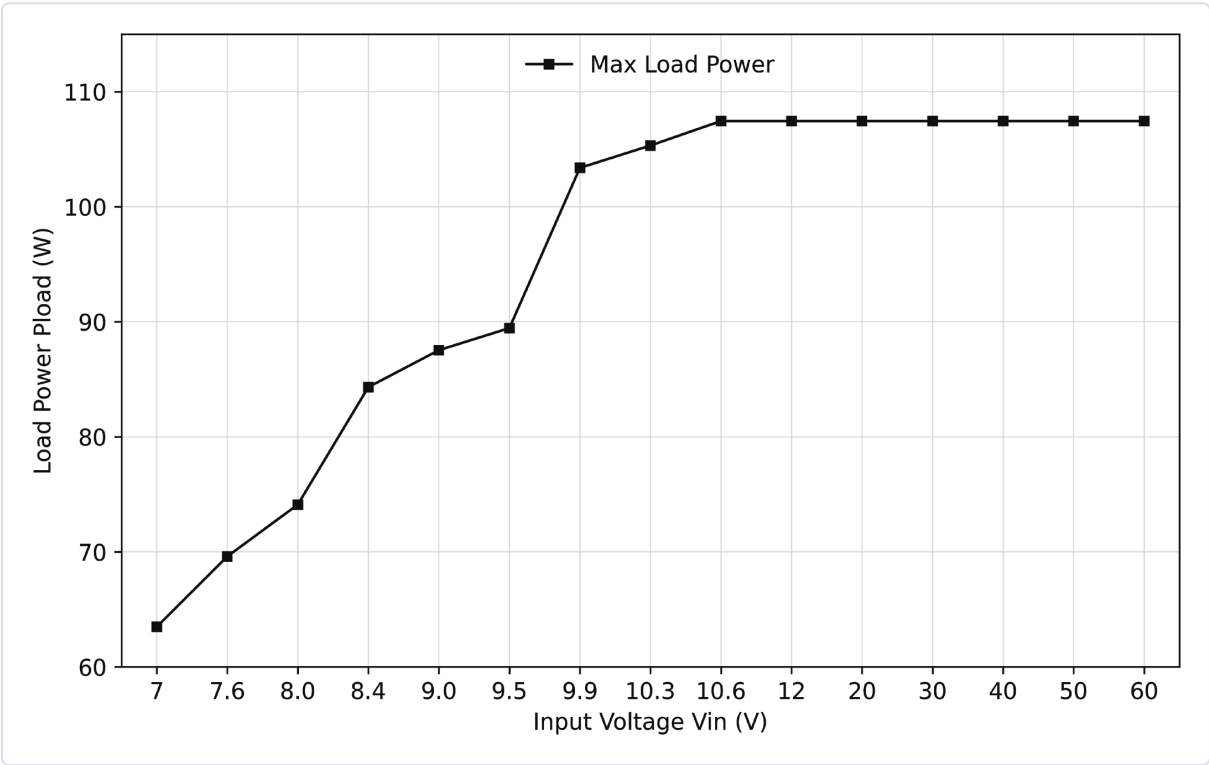
PoE Standards	IEEE 802.3 / 802.3u / 802.3ab / 802.3af / 802.3at / 802.3bt
PoE Output Power	Rated 90 W, Peak 110 W
DC Input Voltage	DC 7–60 V (built-in Boost step-up circuit)
Boost Conversion Efficiency	85%–97% (full range of 9–60 V input)
PoE Output Voltage	DC 44–57 V
Network Transmission Rate	Auto-negotiation 10/100/1000/2500 Mbps
Ethernet Cable Transmission Distance	10Base-T: Cat3 or higher twisted pair, max. 250 m — 100Base-TX: Cat5 or higher twisted pair, max. 150 m — 1000/2500Base-T: Cat5e or higher 4-pair twisted pair, max. 100 m
Protection Functions	Undervoltage / Overvoltage / Overcurrent / Short Circuit / Overtemperature
Dimensions	90 mm (L) × 30 mm (W) × 105 mm (H)
Weight	≤ 0.50 kg
Interfaces	Data IN: RJ45 port — PoE OUT: RJ45 port, full power supply via 4 pairs (Pin 1/2 & 4/5 = DC+; Pin 3/6 & 7/8 = DC–) — 5.08 mm 3-pin pluggable terminal block (DC+, GND, DC–)
Indicators	PWR: steady on = normal input power, off = no input / undervoltage fault — 15 W / 30 W / 60 W / 90 W / 110 W load LEDs light progressively as load increases, up to the 110 W maximum
Operating Temperature	–40 °C ~ +80 °C
Storage Temperature	–60 °C ~ +90 °C
Operating Humidity	10%–95% RH, non-condensing
Storage Humidity	5%–95% RH, non-condensing
Lightning & ESD Protection	6 kV 8/20 µs surge protection, 6 kV ESD protection
Ingress Protection Grade	IP40
MTBF	> 100,000 hours under 25 °C normal temperature
Mounting Method	Standard 35 mm DIN rail; wall mounting also supported
Warranty	2 years

Quality System: ISO 9001 Certified

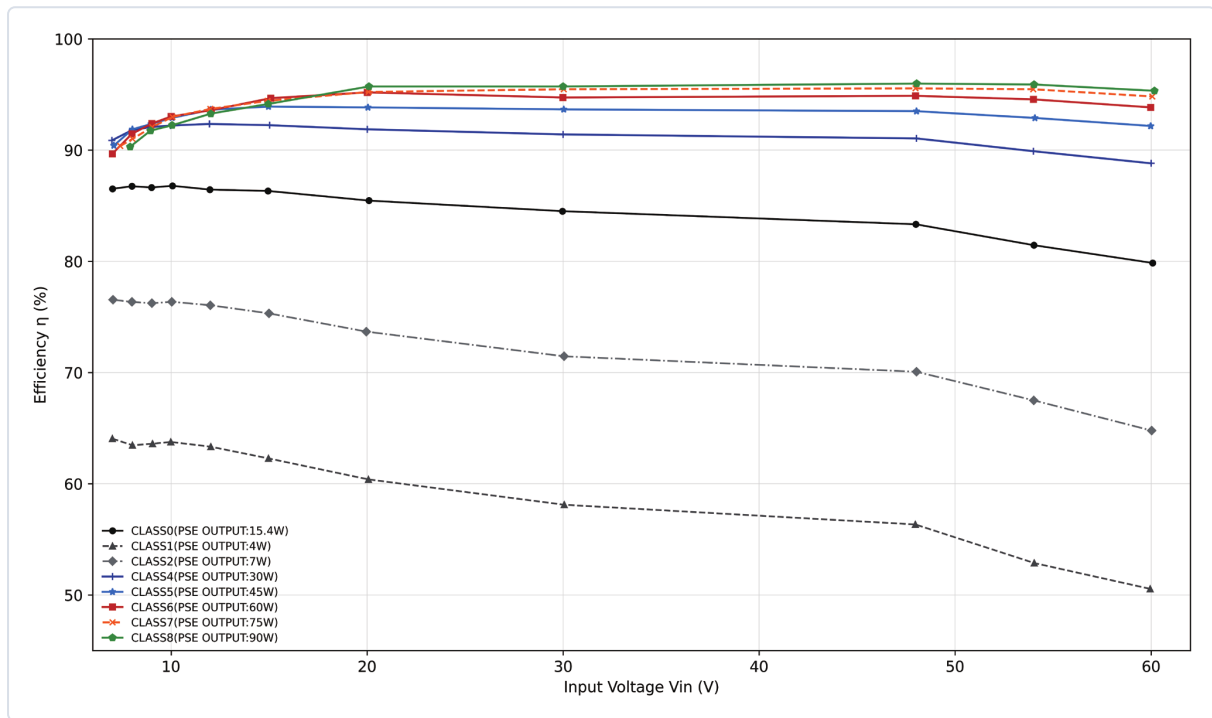
Typical Characteristics



Output Maximum Power vs Input Voltage

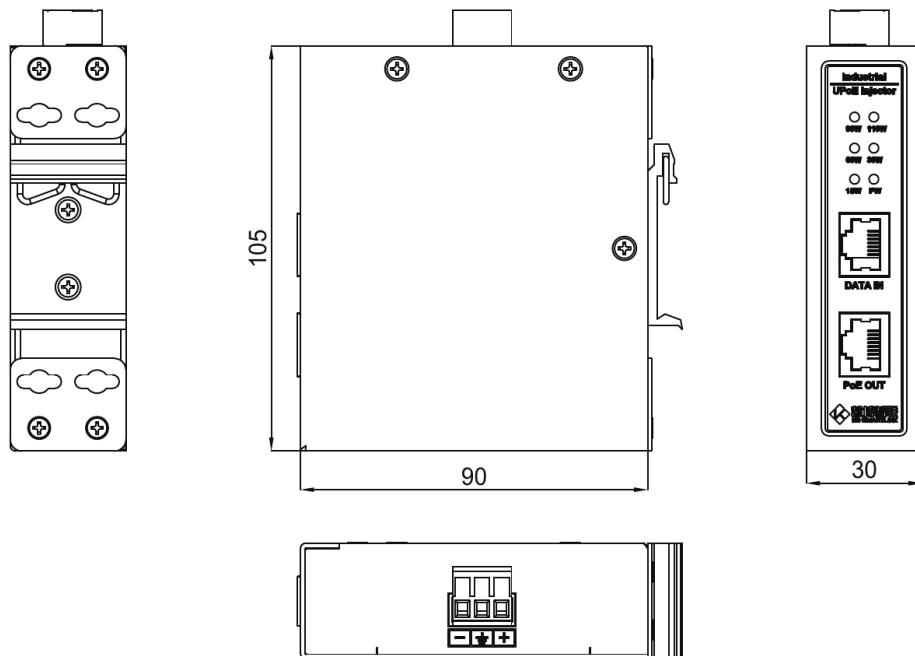


Max Load Power at Load Start vs Input Voltage



Efficiency vs Input Voltage at Different Power Levels

Mechanical Drawing



Dimensions shown in millimeters (mm).



Partner with KB Smartlink

KB Smartlink designs and manufactures industrial networking and power-delivery hardware built for demanding field, vehicle, and infrastructure environments.

Contact & Ordering Information

COMPANY

Qualitech Technology Pte. Ltd.

CONTACT EMAIL

sales@qualitech-sg.com

WEBSITE

qualitech-sg.com

MODEL

KBUPOEI-110W-WB

PRODUCT NAME

Industrial Ultra-Wide Voltage Boost PoE Injector

QUALITY SYSTEM

ISO 9001 Certified

Specifications in this document are subject to change without prior notice. All trademarks are the property of their respective owners. © 2026 KB Smartlink. All rights reserved.