HUIJUE GROUP

HJ048 6kW Outdoor Telecom DC Power Supply: A Practical Selection Guide

Assess the HJ048 6kW outdoor DC power supply by load duty, battery interface, branch capacity, mounting, monitoring, expansion and site acceptance.

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PRODUCT KNOWLEDGE

HJ048 6kW Outdoor Telecom DC Power Supply: A Practical Selection Guide

Translate the HJ048 manual into a site decision: confirm the real load duty, battery interface, branch limits, mounting environment, monitoring scope and expansion state before specifying the compact outdoor power unit.

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Six kilowatts is a converter rating, not a complete telecom-site design. A compact outdoor unit can be physically easy to mount and still be the wrong choice if battery recharge, peak radio demand, cable voltage drop, branch allocation, source quality or thermal derating has not been resolved. The HJ048 manual provides enough product data to build a useful qualification record, but the site duty must still decide the final configuration.

The HJ048 is particularly relevant where an access-layer site needs AC-to-DC conversion, protected load outputs, a battery connection and remote supervision close to the radio equipment, without a full walk-in shelter or large integrated cabinet. The split arrangement keeps the power module and battery enclosure separate, which can simplify replacement and mounting but creates interfaces that the project must document.

What is the HJ048 6kW outdoor telecom DC power supply?

The HJ048 is a compact, naturally cooled outdoor AC/DC power module rated at 6,000 W and nominal DC 48 V in the supplied manual. It combines conversion, seven protected load interfaces, two battery interfaces, surge protection, local status indication and wired or wireless monitoring in a die-cast aluminum enclosure.

That makes the **6kW telecom power supply** a distributed site-power platform rather than a bare rectifier board. The product boundary includes its sealed housing, connectors, power conversion, output branches, battery ports and controller functions. The battery module, mounting steelwork, upstream AC protection, downstream cables, radio loads, site earthing and remote management platform remain coordinated parts of the project.

Manual field	HJ048 value	How to use it in engineering
Rated capacity	6,000 W	Use as the starting converter limit, then apply the released input and environmental derating data.
AC input	220 V rated; 176-264 V; 45-55 Hz; 36 A maximum	Compare with the actual grid or generator range, feeder rating, protective device and restart condition.
DC output	48 V rated; seven 40 A load branches	Confirm the connected equipment’s full voltage window, polarity and branch current rather than relying on the nominal label.
Battery interface	Two 125 A ports; 48 V battery; CAN communication	Verify the exact battery model, BMS protocol, current limits, connector keying and fallback state.
Environment	-40 °C to +55 °C operating range; IP65 enclosure; natural cooling	Request the output-versus-temperature curve and check solar exposure, altitude, mounting orientation and connector assembly.
Mechanical	342 × 442 × 99 mm; no more than 15 kg; ADC12 aluminum alloy	Check bracket load, wind action, access, lifting method, cable bend space and supporting structure.
Monitoring	RS485, CAN, 4G and Bluetooth; three configurable dry contacts	Release a point list, protocol revision, alarm matrix, access policy and loss-of-communications response.

Product evidence boundary

The values above come from the supplied HJ048(6KW) V1.0 operating manual. They describe that documented model, not every Huijue telecom power product. The controlled original, current configuration sheet and project drawings should govern an order.

Which site types are a good match for the HJ048?

The HJ048 is a credible candidate for a micro base station, distributed antenna or indoor-coverage node, remote radio location, compact repeater site or other access-layer installation whose combined live-load and battery-recovery duty remains inside the qualified 6 kW envelope. Its mounting options suit sites where conventional rack space or a large cabinet is unavailable.

A good application has a known single-phase AC source, a compatible nominal DC load interface, a modest number of separately protected load circuits, a defined battery strategy and a clear remote-monitoring path. The product may be mounted near the load to reduce a long high-current DC feeder, but moving the converter outdoors does not remove the need to check the upstream AC run, surge exposure, earthing and service access.

Site condition	Why the HJ048 may fit	Reason to stop and review
Small-cell or access-layer node	Compact enclosure and multiple DC outputs place power close to distributed equipment.	Load voltage range, peak demand or municipal mounting constraints are unknown.
Pole or tower-side radio	Pole, wall and angle-steel mounting options reduce dependence on indoor rack space.	Wind, corrosion, climbing clearance, cable route or structural capacity has not been checked.
Remote site with battery backup	Separate battery ports and CAN communication support a coordinated split system.	Required autonomy, battery temperature, recharge time or communications fallback is unresolved.
Expandable distributed site	Two power units and additional battery modules are described as an expansion option.	The project assumes expansion automatically creates redundancy or doubles every upstream rating.
High-load macro or shared hub	The unit may serve a defined subsystem or distributed load group.	One complete site duty exceeds 6 kW or requires more branches, source diversity or serviceable modular redundancy.

The product should not be selected merely because the present radio nameplates add to less than 6 kW. Where the site requires modular hot-swap redundancy, multiple AC sources, a large battery plant, extensive tenant separation or hybrid solar control, the broader telecom rectifier system guide owns that architecture decision.

Does a 6kW rating mean 6kW is available to the live telecom load?

No. The 6 kW rating is shared by the active DC loads, permitted battery recharge and any supported DC auxiliary duty at the same time, subject to input voltage, temperature and other qualification limits. A design should reserve capacity for the operating state

that matters, not assign the full nameplate to both load and charging.

Required DC output = live telecom load + allowed battery recharge + supported DC auxiliaries + declared growth

Remaining margin = qualified HJ048 output under site conditions − required DC output

Consider a screening case with a 3.6 kW live load, 1.2 kW allowed recharge, 0.15 kW of supported auxiliary demand and 0.4 kW of declared growth. The simultaneous requirement is 5.35 kW, leaving 0.65 kW below the 6 kW nameplate before any environmental or input derating is applied. This example does not prove that the unit can provide full rated output at every point in the stated -40 °C to +55 °C operating range; the released derating curve is still required.

The manual states peak efficiency of at least 97.5% and power factor of at least 0.99. Peak efficiency should not be used as a constant value for feeder, heat or energy calculations. Request efficiency and input-current data across relevant load, voltage and temperature points, then coordinate the AC branch with the stated 36 A maximum input current and the site’s protective design.

At nominal values, 6,000 W divided by 48 V is about 125 A. That arithmetic is only a reference point: the actual current changes with DC voltage and operating state. It also explains why seven branch connectors marked 40 A cannot be summed as 280 A of continuous converter output. The total **outdoor DC supply** capacity and the rating of every shared internal path remain upstream limits.

How should the seven load branches be interpreted?

The seven 40 A load interfaces provide circuit separation and connection flexibility; they do not create seven independent 40 A power sources. Each assigned branch needs a load identity, normal and peak current, voltage-drop check, criticality, protection basis, connector and cable schedule, controlled disconnection rule and commissioning record.

The manual states that DC branch power-off timing and method can be configured according to load requirements. Before using that function, divide the site into service groups. Radio, transmission, synchronization and site-control loads may have different outage consequences. A low-priority auxiliary branch can be shed earlier only when its loss does not remove the controller, alarm path or backhaul needed to operate the remaining site.

- Do not place two unrelated critical functions on one branch merely to save a connector.
- Do not allocate a 40 A branch until the connector, conductor, protective device and load input are all suitable for the same duty.
- Do not count an unused connector as expansion capacity unless the converter, battery, AC input and thermal design retain headroom.
- Identify both outgoing and return conductors, polarity and the physical load destination in the as-built record.
- Test any remote or voltage-based disconnection sequence with a safe load before relying on it during a grid outage.

The detailed telecom DC power distribution guide explains breaker or fuse selection, branch schedules, fault separation and real expansion capacity. For the HJ048 article, the key decision is whether seven interfaces are enough and whether their planned loads remain inside the common product boundary.

How does the split battery arrangement affect backup planning?

The split arrangement keeps energy storage in a separate outdoor battery module and connects it through the HJ048 battery power and communication interfaces. The supplied manual describes one or two parallel 48 V/50 Ah battery units for one power module, plus a larger expansion arrangement, but final compatibility depends on the released battery model and BMS protocol.

One 48 V, 50 Ah unit represents 2.4 kWh of nominal stored energy; two parallel units represent 4.8 kWh nominal. Neither value is usable backup energy. A **telecom battery interface** must account for the permitted state-of-charge window, temperature, ageing or end-of-life basis, BMS current limits, cable losses, load profile and low-voltage response before autonomy can be estimated.

Do not convert ampere-hours directly into promised backup time

The manual identifies battery capacity and connection options, not a universal runtime. Use the actual load profile, approved battery data, BMS limits, temperature and recovery requirement. The battery communication mapping and the safe response to lost CAN communication must also be confirmed.

The two 125 A battery interfaces are bidirectional paths: they carry charge current toward storage and discharge current toward the site bus. Parallel batteries require

compatible voltage, state, BMS behaviour, protection and conductor impedance. Record whether each battery has independent isolation, how current sharing is observed, which unit may remain online after another is disconnected and how the controller recalculates charge limits.

Which HJ048 mounting method should be specified?

Select wall, pole, angle-steel tower or ground mounting from structural condition, cable approach, heat rejection, weather exposure, access and maintenance method. The manual supports flat and flag orientations and gives dedicated adapter hardware; the project drawing should name one released arrangement instead of leaving the installer to choose on site.

Mounting arrangement	Useful condition	Project check
Flat wall mount	Compact footprint and short cable route on a suitable wall	Wall capacity, fastener substrate, drainage, rear clearance and service reach
Flag wall mount	Side access or reduced face projection is required	Bracket moment, wind load, cable bend radius and collision clearance
Pole mount	Power is placed close to a radio or antenna support	Manual bracket range of 55-115 mm, pole capacity, clamp detail, galvanic corrosion and climbing route
Angle-steel tower mount	No wall or separate equipment frame is available	Steel geometry, approved attachment, tower-owner permission, RF and lightning zones
Ground support	Lower service height and a stable equipment pad are available	Foundation, flood level, impact risk, drainage, cable protection and security

The translated manual includes installation torque values for its supplied fasteners, but those values do not replace a structural design or the instructions for a different anchor substrate. Record bracket and fastener part numbers, coating system, torque, locking method and corrosion compatibility. Any change in mounting orientation should trigger a check of connector direction, water paths, cable support and natural-convection performance.

Can IP65 and natural cooling be treated as a complete outdoor guarantee?

No. The manual’s IP65 statement applies to the assembled HJ048 enclosure under its specified construction and connector conditions; it does not certify the complete site, field cable terminations, mounting surface or a damaged seal. Natural cooling also

depends on ambient temperature, solar load, orientation, clearance, contamination and the unit’s actual electrical losses.

IEC 60529 defines the IP Code classification for enclosure protection. An IP code does not state corrosion resistance, solar ageing, condensation behaviour, thermal capacity or installation quality. During acceptance, inspect every connector, gasket, unused opening, cable entry, drain path and enclosure joint that forms the claimed boundary.

The **naturally cooled power module** uses its die-cast aluminum housing and fins as part of the heat path. Do not cover the ribs, trap hot exhaust from adjacent radio equipment or mount the unit inside another unventilated box without a thermal study. The optional sunshade described in the manual can reduce direct solar loading, but its clearance, wind loading and effect on convection should be released with the mounting design.

The manual states an operating ambient range of -40 °C to +55 °C and storage/transport range of -40 °C to +70 °C. Those limits are not an assertion of full 6 kW output throughout the range. Ask for the rated-output curve, any cold-start restriction, high-temperature current limit, overtemperature alarm and automatic recovery sequence that apply to the ordered revision.

How should monitoring and expansion be accepted?

Monitoring should be accepted as an end-to-end information path, while expansion should be accepted as a tested operating state. A list of RS485, CAN, 4G, Bluetooth and dry-contact interfaces proves available connection methods; it does not prove that the required measurements, alarms and controls reach the operator with the correct names, units, severity and fallback behaviour.

The manual describes input voltage, output voltage, battery voltage, load current and battery charge/discharge current monitoring, together with mains, overload, temperature, battery-voltage and communication alarms. Build the project point list from the ordered firmware and hardware revision. For every point, record source object, protocol address, scale, unit, normal range, alarm delay, clear rule, timestamp, access authority and expected local action.

Front-panel indications provide a useful first check: the manual describes steady green with red off for normal operation, steady green with flashing red for a general fault, and green off with steady red for a severe fault. These combinations are fault classes, not diagnoses. The technician still needs the underlying event and measurements before resetting the unit or replacing hardware.

The manual also describes a maximum expanded arrangement of two power-supply

units and four battery units, with up to fourteen load branches. Treat this as a supported topology that requires a released diagram. Two units do not automatically mean N+1 redundancy: define whether they feed separate branch groups or a common bus, how current sharing works, which AC feeder supplies each unit, which controller has authority and what remains available after one unit, cable or communication link fails.

ITU-T K.35 addresses bonding, earthing and power distribution at remote electronic sites. Apply the destination’s current electrical and telecom rules as well. The HJ048 manual’s surge ratings and grounding terminal are product inputs; the site still needs a coordinated earthing, bonding and surge-protection design with short, maintainable connections.

From product manual to project submittal

A useful HJ048 submittal should close the gaps between the product’s standard functions and the site’s operating duty. Request these records before approving procurement:

1. **Model identity:** complete HJ048 variant, hardware revision, firmware, controlled manual and accessory list.
2. **Duty schedule:** present and future loads, peak behaviour, battery recharge power and relevant simultaneous states.
3. **DC interface:** actual output range, polarity, regulation, ripple if applicable, load minimum/maximum voltage and remote-feeder drop.
4. **Derating evidence:** qualified output against AC input, ambient temperature, mounting orientation and altitude where relevant.
5. **Distribution schedule:** seven branch assignments, protection, cable, connector, criticality and power-off sequence.
6. **Battery schedule:** model, quantity, nominal and usable energy basis, BMS protocol, current limits, protection and communication-loss response.
7. **Mechanical release:** selected mounting kit, support structure, orientation, wind basis, corrosion protection, sunshade and service clearance.
8. **Electrical installation:** approved AC/DC conductor schedule, protective devices, connector assembly, earthing, bonding and surge coordination.
9. **Monitoring package:** point list, dry-contact mapping, network method, cybersecurity/access controls, alarms and remote-command permissions.
10. **Expansion state:** single-unit or two-unit diagram, common limits, failure behaviour and reserved capacity.
11. **Acceptance plan:** factory and site tests, instruments, expected values, witnessed alarms, exceptions and handover records.

Installation and commissioning gate

Commissioning should prove the HJ048 as part of the site power path, not merely show

that its green indicator illuminates. Start with the approved drawing and isolated inspections, then energize through the destination’s authorized procedure.

- Confirm model, mounting kit, enclosure condition, fasteners, clearances and cable support against the released installation drawing.
- Verify AC source, isolation, protective earth, polarity, branch identity, connector keying and torque records before energization.
- Measure AC input and DC voltage at both the HJ048 output and representative load terminals under an approved load state.
- Record branch currents, battery charge/discharge current and thermal behaviour at a realistic operating point.
- Simulate or safely initiate representative mains, load, battery and communication alarms and confirm local, dry-contact and remote presentation.
- Prove the configured branch power-off order without interrupting an uncontrolled critical service.
- Where multiple power or battery modules are installed, test the released parallel or separate-feed state and the specified single-failure response.
- Handover as-built drawings, settings, firmware, point list, test results, spare connectors and the approved operating manual.

The power equipment contains hazardous AC input and high-current DC paths. Installation, testing and maintenance belong to authorized personnel using the approved isolation, earthing and personal-protective procedures. Never reverse or short a battery connection, bypass protection or open a sealed energized unit to diagnose a site problem.

Check the site duty before specifying HJ048

Send the AC source range, load schedule, DC voltage interface, battery and autonomy requirement, mounting location, ambient and solar exposure, branch priorities, monitoring protocol and expansion plan. Huijue can confirm the applicable HJ048 configuration and identify which ratings or drawings still require project approval.

Submit HJ048 site inputs

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