

Technical Evaluation Checklist for 360° Portable Work Lights

The firms to be evaluated one the basis of following technical criteria:

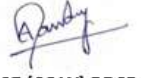
Sr. No.	Technical Parameter	Required Specification	Mandatory?	Bidder's Compliance (Yes/No)	Proof/Document Required
1	Weight (Portability)	Total system weight less than or equal to 6 kg (including battery/tripod).	YES		Physical Weighing/OEM Datasheet.
2	Light Head Configuration	Triple independent heads with 360° rotational capability.	YES		OEM Product Catalog/Drawing.
3	Luminous Flux	Minimum 12,000 Effective Lumens .	YES		Photometric Test Report (LM-79).
4	Focusable Optics	Must switch from Spot to Flood without external lenses/filters.	YES		OEM Datasheet/Demo.
5	Integrated Mast & External Tripod	Built-in telescopic mast (Min. 1.8 meters extension). External Tripod with Minimum 4.5 m height.	YES		Physical Measurement.
6	Battery Runtime	Minimum 2.5 Hours at 100% (Full) Brightness.	YES		Discharge Test Certificate.
7	Charging Dual Mode	Must include both AC (230V) and DC (12V/24V) charging.	YES		Accessories list in Bid.
8	Ingress Protection	Minimum IP54 (Dust and Water Splash proof).	YES		IP Rating Certificate from Lab.
9	Battery Chemistry	Lithium-based (Li-Ion/LiFePO4) for weight/life ratio.	YES		Material Safety Data Sheet (MSDS).
10	Stabilizer Legs	Integrated folding tripod legs for railway ballast/slopes.	YES		Product Photo/Physical Demo.
11	Terrain Adjustment	At least one adjustable leg to level the unit on 1:2 or 1:3	YES		Product Photo/Physical Demo.
12	Wind Stability	The mast at max height of 4.5 m must remain stable and upright in wind speeds up to 30 km/h without tilting	YES		Testing Certificate from Lab.

Critical Note for Technical Evaluation:

- **Physical Demonstration:** "The technically qualified bidders may be required to provide a physical demonstration of the unit at the Vadodara SPARME siding on 24-hour notice to verify 'Ease of Carry' and '360° Illumination' claims."
- **OEM Authorization:** The bidder must provide a **Manufacturer's Authorization Form (MAF)** specifically for this tender.

Rejection Criteria:

1. Any unit exceeding **16 kg** shall be summarily rejected as it violates the "Single-Person Portability" requirement for Accident Relief.
2. Units requiring external tripod stands (not integrated) shall be rejected due to "Deployment Speed" constraints.
3. Units with lead-acid batteries shall be rejected due to weight and maintenance issues.



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SCOPE OF WORK

Supply and commissioning of a lightweight, multi-function, battery-operated LED work light system capable of 360-degree illumination, specifically designed for emergency railway restoration and rescue operations.

The successful bidder/contractor shall be responsible for the following:

1. **Supply of Equipment:** Supply of 06 Nos. Multifunction Integrated Portable LED Work Light systems, complete with internal battery banks and telescopic mast systems.
2. **Mast Mechanism:** The mast must be quick-deployable and lockable at various heights to prevent accidental collapse.
3. **Terrain Adaptability:** Tripod must feature at least one adjustable leg to level the unit on 1:2 or 1:3 railway embankments/slopes.
4. **Transport Gear:** Supply of dedicated padded shoulder straps and protective transit bags for the 4.5m tripod assembly.
5. **Charging Infrastructure:** Supply of dedicated AC Mains Charging Adapters (230V) and DC Vehicular Charging Cables compatible with SPARME internal power sockets (110V/230V AC or 24V DC).
6. **Transit Protection:** Supply of heavy-duty, weather-resistant padded carrying bags or integrated hard-shell cases for safe storage of lighting system in the SPARME van.
7. **Demonstration & Training:** On-site demonstration of the equipment at Vadodara Railway Station (SPARME Siding) for the breakdown staff, covering deployment, battery management, and 360° head adjustment.
8. **Warranty Support:** Provision of a comprehensive warranty (as specified) including a "Doorstep Service" clause for the Vadodara Division.
9. **Documentation:** Provision of Operation & Maintenance (O&M) Manuals, Battery Health Charts, and Troubleshooting Guides in English/Hindi.

Detailed Technical Specifications

1. Light Output & Optical Performance

- **Luminous Flux:** Minimum **12,000 to 15,000 Lumens** (to compensate for the 4.5m height) on boost mode (regulated output).
- **Light Source:** High-efficiency LED array with a minimum lifespan of 50,000 hours.
- **Light Head Design:** Triple-headlet (3 separate LED panels) system, independently adjustable to provide:
 - 360° Area Floodlighting.
 - 180° Directional Area Lighting.
 - Long-distance Spot/Search Lighting.
 - Or combination of all above three.
- **Variable Optics:** In-built "Focusable" lensing to switch between wide flood and concentrated spot beams without external attachments.
- **Color Temperature:** Cool White (approx. 6000K – 6500K) for high-contrast visibility.

2. Electrical & Battery System

- **Battery Type:** Maintenance-free Lithium-Ion (LiFePO4) or equivalent high-density battery.
- **Runtime:** Minimum **2.5 to 3 hours** at 100% brightness.
 - Up to **40+ hours** on low/economy mode.
- **Dimming Control:** Microprocessor-controlled brightness levels (e.g., 10% to 150% boost mode).
- **Charging Compatibility:** Dual-mode charging capability:
 - AC Mains (230V, 50Hz).
 - **DC Mobile Charging (12V/24V)** for charging inside the SPARME van during transit.
- **Battery Indicator:** Clear LED/LCD display showing remaining battery percentage or runtime.

3. Mechanical & Deployment Features

- **Portability:** Weight must not exceed **18 kg** (including battery and tripod) for single-person carriage.
- **Integrated Tripod:** In-built, quick-deployable telescopic tripod system up-to minimum height of 1.8 M.

- **Additional Tripod:**
- **Maximum Height: Minimum 4.5 Meters** (Telescopic/Pneumatic or Manual Mast).
- **Stability:** Must include integrated folding stabilizer legs for use on uneven ballast or railway embankments.
- **Deployment Speed:** Must be operational from a stowed position in **under 60 seconds**.
- **Portability:** The tripod stand must include a **Shoulder Strap** for easy transport to remote derailment sites.

5. Environmental & Durability Standards

- **Ingress Protection:** Minimum **IP54** rating (dust and water-splash resistant) for use in rain/monsoon conditions.
- **Wind Stability:** Since the light will be deployed at 4.5 meters, the unit must remain stable and upright in wind speeds up to 30 km/h without tilting.
- **Safety Lock:** The telescopic mast must have a secondary safety locking pin or pneumatic damping to ensure the LED head does not drop suddenly during lowering.
- **Construction:** High-impact engineering plastics and corrosion-resistant aluminum/stainless steel.

Inspection & Testing (Quality Assurance)

- **Visual Inspection:** Check for physical finish, brand markings, and serial numbers.
- **Functional Test:** Each unit will be tested for "Burn Time" (at least 2 hours at full brightness) and "Deployment Time" (must be < 60 seconds).
- **Charging Test:** Verification of AC and DC charging functionality.

Mandatory Inclusions (The "Kit")

- Each unit delivered must include:
 - a) 01 x 360° LED Work Light Unit with Integrated Tripod & Additional Tripod.
 - b) 01 x AC Charging Adapter (Indian Plug Type).
 - c) 01 x DC Car/Vehicle Charging Cable.
 - d) 01 x Heavy Duty Padded Shoulder Carry Bag & Supply of dedicated padded shoulder straps and protective transit bags for the 4.5m tripod assembly.

Special Conditions of Contract (SCC)

1. Warranty and Life-Cycle Support

- **Comprehensive Warranty:** The contractor shall provide a minimum of **24 months** warranty from the date of commissioning or **30 months** from the date of supply, whichever is earlier.
- **Battery Guarantee:** Since the battery is the core component, the contractor must guarantee a minimum of **80% battery health** (retention of original capacity) for at least 2 years.
- **After-Sales Service:** The bidder must provide a list of dedicated functional service center or authorized service engineer near **Vadodara** to ensure rapid response during breakdowns.

2. Inspection and Testing (Pre-Dispatch)

- **Quality Check:** Each unit shall undergo a "Burn-in Test" where it remains illuminated at maximum intensity for **03 continuous hours** to verify battery endurance before dispatch.
- **Consignee Inspection:** Final inspection and acceptance will be done by the **Senior Section Engineer (SSE)** of the Vadodara SPARME unit upon delivery.

3. Operational Training

- The supplier shall provide mandatory on-site training to the **Breakdown (BD) Staff** at Vadodara on:
 - Safe deployment on uneven railway ballast.
 - Optimizing battery life through correct charging cycles.
 - Field-level maintenance (cleaning of LED lenses and telescopic mast lubrication).

4. Payment Terms

- **Standard M&P Terms: * 100% payment** after receipt of equipment in good condition at the SPARME siding, Vadodara and after successful commissioning and training of staff, subject to submission of a Performance Bank Guarantee (PBG).

Penalty & Liquidated Damages (LD) Clauses

In railway emergency services, "Time is of the essence." The following penalties are designed to ensure the contractor prioritizes your availability.

Default Scenario	Penalty / Action
Delay in Delivery	Liquidated Damages (LD): 0.5% of the contract value per week of delay, capped at a maximum of 10%.
Warranty Failure Response	If a unit fails during the warranty period, the contractor must attend within 48 hours . Failure to do so will attract a penalty of ₹500 per day per unit which will be deducted from the security deposit.
Failure to Repair (>15 days)	If a unit is not repaired/replaced within 15 days of reporting, the Railway reserves the right to repair it through a third party at the Contractor's Risk and Cost which will be deducted from the security deposit.
Non-Performance during Emergency	If a unit fails during an actual accident relief operation due to a manufacturing defect (noted by the Site In-charge), a flat penalty of 5% of the unit cost will be deducted from the security deposit.



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