LEKTRI·CO

MAINTENANCE MANUAL

FAST DC Charger

120 kW / 180 kW / 240 kW / 360 kW / 480 kW

Preventive maintenance · inspection · cleaning · troubleshooting · service records



Models ENC-DCL120B • ENC-DCL180B • ENC-DCL240B • ENC-DCL360B • ENC-DCL480B

Authorized service & station operator reference

Overview

This Maintenance Manual applies to the LEKTRI.CO FAST DC Charger family (120 / 180 / 240 / 360 / 480 kW). It defines the preventive-maintenance tasks, inspection intervals, cleaning procedures, electrical checks, troubleshooting flow and record-keeping required to keep the equipment safe, compliant and available throughout its service life.

The manual is structured for two audiences: station operators (daily/weekly inspections, cleaning, basic diagnostics and fault reporting) and authorized service technicians (quarterly and annual electrical maintenance, component replacement, firmware service and commissioning). Tasks reserved for authorized technicians are clearly marked throughout.

Content is derived from the LEKTRI.CO FAST DC Charger User Manual and extended with preventive-maintenance schedules, inspection checklists and intervention records. Where discrepancies exist between this document and the physical unit, the physical unit prevails.

Who may service this equipment

Only personnel holding a valid high- and low-voltage electrician certificate and trained on LEKTRI.CO DC equipment may open the enclosure or perform electrical work. Station operators are limited to external visual inspection, external cleaning with the unit powered down, and reporting.

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1. Safety Precautions

Before performing any maintenance activity, carefully read the precautions below. The warnings in this document supplement — but do not replace — applicable industrial safety norms. Technicians and operators must comply with all local regulations for high- and low-voltage electrical work.

1.1 Qualified personnel

- Only electricians holding a valid high- and low-voltage certificate may open the cabinet, connect AC input, or perform any electrical work inside the charger.
- Operators without certification are limited to external inspection, external cleaning and fault reporting.
- Remove watches, bracelets, rings and other conductive items before opening the cabinet.
- Use certified insulated tools only. Personal tools are prohibited on high-voltage and DC circuits.

1.2 Environmental safety

- Keep flammable, explosive or combustible materials, chemicals and combustible vapors away from the charger at all times.
- If water or moisture is found inside the cabinet, immediately power off at the upstream distribution board and do not restore power until the unit has been fully dried and inspected.
- Prevent moisture ingress when servicing in humid conditions (cover the opened cabinet, avoid working in rain).
- Do not perform high-voltage, DC, iron-tower or mast work in thunderstorm weather.

1.3 Procedural safety

- Disconnect all switches and the upstream distribution switches before detection or troubleshooting, apply lock-out/tag-out, and verify absence of voltage with a certified instrument.
- Hang a “Do not operate” sign on any switch or button that must remain open during the intervention.
- Wear an anti-static wrist-strap (properly grounded) before touching circuit boards, IC chips or any electrostatic-sensitive component.
- Never short-circuit the neutral to a phase conductor or a non-grounding electrode to ground. Short-circuits cause fire and severe personal injury.
- During charging, do not unplug connectors, do not start the vehicle, keep cabinet doors closed, and keep children clear of the equipment.

⚠ HIGH VOLTAGE — RISK OF ELECTRIC SHOCK

The DC bus retains hazardous voltage after power-off. Wait at least 5 minutes after disconnecting upstream power before touching internal DC terminals, and verify absence of voltage with a calibrated meter before any contact.

2. Warning Signs

The following signs appear on the equipment and in this manual. Each sign identifies a residual hazard that cannot be eliminated by design and must be controlled by procedure.

Sign	Description
High Voltage	Risk of fire and electric shock during work on AC input lines. The AC supply shall be erected, connected and wired in accordance with local regulations. Only personnel holding high- and low-voltage electrician certification may perform high-voltage work.
Lightning Risk	High-voltage, DC, iron-tower and mast work is strictly forbidden in thunderstorm weather. Strong electromagnetic fields during storms can damage the equipment. Ensure the unit is properly earthed at all times.
Tools	High-voltage and DC work requires certified special tools. Ordinary or self-carried tools are not permitted on energised circuits.
Static Electricity	Body static damages electrostatic-sensitive components (ICs, control boards). Wear a grounded anti-static wrist-strap before touching any PCB, connector or chip.
Short Circuit	Shorting the neutral to a phase conductor, or a non-grounding electrode to ground, will cause equipment burn-out and personal injury. Always verify wiring before powering the charger.

3. Maintenance Roles & Responsibilities

Maintenance tasks are split between two roles. Respecting the boundary between roles is a safety and warranty requirement.

Role	Typical profile	Scope of work	Cabinet access
Station Operator	Site manager / on-site personnel	• Daily visual inspection • External cleaning (powered down) • Fault reporting (status indicator, screen messages) • Emergency stop activation in case of incident	External only
Authorized Technician	Certified LV/HV electrician trained on LEKTRI.CO DC equipment	• Quarterly & annual electrical inspection • Terminal torque, insulation & RCD testing • Module replacement, mainboard replacement • Firmware upgrade, network reconfiguration • Commissioning after repair	Internal + external, powered or de-energised

⚠ Warranty boundary

Disassembly, internal cleaning or modification of the charger by non-authorized personnel voids the warranty and may create safety hazards. See the Disclaimer in the User Manual for the full list of cases excluded from warranty.

4. Product Identification

Before starting any maintenance task, identify the unit and the components referenced in the procedures below. The table follows the labels used in Section 1.3 of the User Manual.

4.1 External components

ID	Part	Function
A	Ambient light	Decorative canopy illumination (top).
B	Charging cable	Connects charger to vehicle; transmits DC energy.
C	Emergency stop switch	Cuts input and output power immediately.
D	Ventilation inlet	Cooling air inlet for the charging modules.
E	Right door lock	Controls right-hand module compartment.
F	Hanging ring	Holster for the charging cable.
G	Status indicator	Shows charger state (idle / charging / fault).
H	12.1-inch display	HMI touch-screen for charging operation.
I	Charging connector	CCS2 vehicle-side connector.
J	Card reader / POS	Optional — authentication and settlement.
K	Antenna	4G / Wi-Fi signal enhancement.
L	Left door lock	Controls left-hand module compartment.

4.2 Nameplate

The equipment nameplate is located on the rear of the cabinet. It carries the model code (ENC-DCL…), serial number, manufacturing date and electrical ratings. Record the serial number and model before contacting support — this is the first information requested by the service desk.

5. Status Indicators & Quick Diagnostics

The illuminated status ring on top of the charger provides the first diagnostic signal for operators. Colors can be reconfigured in the HMI parameter menu; the defaults are shown below.

Color	State	Operator action
🔵	Idle — ready to charge	No action required.
🟢	Charging in progress	Do not unplug the connector. Do not move the vehicle.
🔴	Fault	Stop use, press the emergency stop if needed, read the fault message on the screen, record it and follow Chapter 11.

5.1 Quick diagnostic flow (operator)

- Status ring red — note the fault text on the screen, photograph the screen, stop use, notify the authorized technician.
- Screen frozen / blank — do not force-power the unit; report to the technician. See 11.2 ‘Display screen freezes’.
- No network / OCPP offline — follow 10.2 checks, then report if unresolved.
- Emergency stop pressed — reset only after confirming the incident has been resolved and the cabinet is safe.

6. Preventive Maintenance Schedule

The schedule below is a minimum. Increase frequency where site conditions are severe (coastal / salt air, dust, heavy traffic, temperatures approaching the operating limits of −25 °C to +55 °C, or altitudes close to the 2000 m limit).

Frequency	Role	Task	Indicative time
Daily	Operator	Visual inspection — cable, connector, enclosure, screen, status ring	3 min / unit
Weekly	Operator	External cleaning of enclosure, screen and CCS2 connector face; clear debris from air inlets	10 min / unit
Monthly	Operator	Check emergency stop functional test (consult technician); verify cable management retract; photograph any cosmetic damage	20 min / unit
Quarterly	Authorized technician	Open cabinet, inspect busbars & terminals, measure torque on sample of AC/DC terminals, clean air filters, inspect modules for dust/discoloration	90 min / unit
Semi-annually	Authorized technician	Thermal imaging of AC/DC terminal block and contactors under load (if available); check SPD status; OCPP backend connectivity audit	60 min / unit
Annually	Authorized technician	Full electrical verification — insulation resistance, earth continuity, RCD trip test, emergency stop test, torque audit 100 %, firmware audit & upgrade, service report	3–4 h / unit
Every 2 years	Authorized technician	Replace cabinet dust filters (if installed); inspect door gasket for IP54 integrity; inspect cable entries and seals	60 min / unit
Post-event	Authorized technician	After lightning strike, impact, flooding, or any man-made fault (see 11.1): full inspection before returning the unit to service	Variable

Adjust for site conditions

Coastal installations (corrosion risk), dusty environments and high-traffic public stations typically require quarterly cleaning of connectors and monthly torque checks. Record the adjusted frequency in the commissioning report and keep it consistent for the life of the unit.

7. Inspection Checklists

These checklists are reproduction-ready. Print one copy per visit, sign, and archive with the Service Record (Chapter 14).

7.1 Daily visual inspection — Operator

- ☐ Enclosure intact — no cracks, no impact marks, no signs of fire or melting
- ☐ Status ring visible and lit in the expected color for the current state
- ☐ Display screen on, not frozen, no persistent error banner
- ☐ CCS2 connector clean, pins intact, seal not cracked; dust cap in place when idle
- ☐ Charging cable free of cuts, abrasion, crushing; no cable crushed by vehicle tyre
- ☐ Hanging ring / holster holds the connector fully; cable retract operates
- ☐ Cabinet doors closed, locks engaged, no tampering evidence
- ☐ Air inlets/outlets free of leaves, dust build-up, plastic bags or snow
- ☐ No water pooling on or under the foundation; no visible corrosion at base
- ☐ Surrounding area free of flammable materials; bollards / protective posts undamaged
- ☐ Emergency stop button visible, not stuck, no foreign object around it

7.2 Monthly operator inspection

- ☐ All daily items above plus:
- ☐ Clean screen with a soft, dry, lint-free cloth — no solvents
- ☐ Clean CCS2 connector face with a dry lint-free cloth — never wet, never under power
- ☐ Wipe enclosure with a damp (not wet) cloth; dry immediately
- ☐ Log any cosmetic damage with a photograph and date in the service log
- ☐ Confirm the expected OCPP status on the backend (online / idle / charging)
- ☐ Confirm latest fault codes list from the backend has no unresolved tickets

7.3 Quarterly technician inspection

Prerequisites: de-energise at the upstream distribution board, lock-out/tag-out, verify absence of voltage, wait 5 minutes for DC bus discharge, wear anti-static strap.

- [ ] AC input terminals — visual inspection for discoloration, carbonisation, loose strands
- [ ] Torque audit of a representative sample (min. 20 %) of AC input terminals per manufacturer torque value
- [ ] DC output busbars — visual inspection, tighten to manufacturer torque value
- [ ] Protective earth conductor — visual continuity, no corrosion at the bonding point
- [ ] AC contactors — no carbonisation on contacts, no abnormal smell
- [ ] Charging modules — no dust accumulation on heatsinks, no discoloration, fans spin freely
- [ ] Cabinet interior — vacuum dust (anti-static vacuum), no insects or rodent activity
- [ ] Air filters / grilles — vacuum / replace if heavily loaded
- [ ] SPD (surge protection device) — indicator window shows green / “OK”; replace if flagged
- [ ] RCD — test button operates (trip confirmed)
- [ ] Emergency stop — functional test (see 9.4)
- [ ] Display — calibrate touch if drift observed; clock in sync
- [ ] 4G / Wi-Fi antenna — firmly connected to PCB (see 11.5)
- [ ] Door gaskets — intact, no tears; closing pressure even
- [ ] Record all readings and observations on the Service Record template (14).

> ⚠ **Do not re-energise until**
> All tools are removed from the cabinet, all covers are re-fitted, all torque seals are renewed, and the checklist is signed. Then re-energise upstream, confirm the unit returns to Idle (blue), and perform one dummy charging session.

7.4 Annual technician inspection

Includes the quarterly checklist, plus:

- [ ] 100 % torque audit of all AC input and DC output terminal connections
- [ ] Earth-continuity measurement — ≤ 0.1 Ω from PE terminal to accessible metal parts
- [ ] Insulation-resistance test — minimum per EN 61851-1; typical ≥ 1 MΩ at 500 V DC between live parts and earth (with the RCD and electronics isolated as required by the test procedure)
- [ ] RCD trip test — trip within specified time at IΔn (Type A)
- [ ] Emergency stop functional test from each e-stop button — verifies cut-off of input and output
- [ ] Insulation detection (IMD) self-test from the HMI menu
- [ ] Firmware audit — verify current firmware version against LEKTRI.CO release list; upgrade if required (see 10.1)
- [ ] OCPP backend audit — verify certificate validity, endpoint URL, authorization token
- [ ] DC meter verification — check calibration seal, date of last verification
- [ ] Cable integrity — insulation resistance of the charging cable conductors
- [ ] CCS2 connector — pin inspection, replacement if pitting or discoloration present
- [ ] Door gasket, cable gland seals — replace if IP54 compromised
- [ ] Refresh service label on cabinet interior with date, technician signature, next due date
- [ ] Archive the full service report with the customer and in the LEKTRI.CO service database

8. Cleaning Procedures

> ⚠ **Never clean a powered unit**
> External surfaces, screen and connector shall be cleaned only after the charger is in Idle state and has been de-energised at the upstream breaker. Never spray water, solvents or compressed air directly on the connector.

8.1 Enclosure

- Dry lint-free cloth or slightly damp microfibre. Never use solvents, abrasives or petroleum-based cleaners.
- Dry immediately with a second cloth. Do not allow water to pool around door seals.
- For graffiti or stubborn marks, use a cleaner compatible with painted galvanised steel (pH neutral).

8.2 12.1-inch touch screen

- Dry microfibre, gentle circular motion. For finger oils, a microfibre slightly dampened with demineralised water is acceptable.
- Do not use paper towels, alcohol, ammonia, or screen cleaners containing these. They will damage the anti-glare coating.

8.3 CCS2 connector

- Inspect the connector face visually before every cleaning. If pins are cracked, bent, burnt, corroded or wet: do not attempt to clean — remove from service and replace.
- Clean contact faces with a dry lint-free cloth only. Never use water, solvents or contact spray.
- Clean the outer shell with a soft damp cloth if grime is present; dry immediately.
- Re-fit the dust cap / park the connector in its holster after cleaning.

8.4 Ventilation inlets / outlets / filters

- Exterior grilles: vacuum with a soft brush attachment to remove leaves, insects, dust. Never poke into the grille.
- Interior filters (authorized technician, cabinet open): gently vacuum with an anti-static vacuum, or replace if heavily loaded. Reinstall with the arrow pointing in the airflow direction.
- Never clean filters with compressed air from the outside — this drives dust into the modules.

8.5 Charging cable

- Wipe with a dry cloth. Inspect along the entire length for cuts, abrasion and crush marks.
- If any damage to the insulation is detected, remove the unit from service and replace the cable assembly — do not attempt a repair with tape or heat-shrink.

9. Electrical Maintenance Procedures

Authorized technician only. The procedures in this chapter require the cabinet to be opened and partially or fully de-energised. Follow the Safety Precautions in Chapter 1 before and throughout.

9.1 Lock-out / Tag-out (LOTO) sequence

- 1. Inform the site operator. Stop all active charging sessions from the HMI.
- 2. Open the upstream AC breaker feeding the charger.
- 3. Apply a padlock and personal tag to the upstream breaker.
- 4. Open all cabinet doors; visually confirm the internal AC and DC busbars.
- 5. Using a calibrated multimeter / voltage tester, verify absence of voltage on both sides of the AC input terminal block.
- 6. Wait 5 minutes for DC bus capacitors to discharge. Verify DC bus voltage ≤ 60 V DC before any contact.
- 7. Place a ‘Do not operate’ sign on any switch that must remain open.

9.2 Terminal torque verification

- Use a calibrated torque wrench (within its last calibration interval).
- Re-torque to the manufacturer value stated on the label adjacent to each terminal block. Typical values are marked in the commissioning report — do not assume generic values.
- After torquing, renew the witness mark (paint-pen line across bolt head and substrate).
- Visually confirm no strand of conductor is outside the clamp.

9.3 Insulation resistance & earth continuity

- Use a 500 V or 1000 V DC insulation tester, calibrated.
- Disconnect electronics per the test procedure — do not apply the test voltage across live electronics.
- Measure L–PE, N–PE, L–L. Minimum acceptable value as per the applicable installation standard; typical acceptance ≥ 1 MΩ.
- Earth continuity: ≤ 0.1 Ω from the PE bar to accessible metal parts (door, enclosure, connector shell).
- Record values and measurement conditions (temperature, humidity) in the service record.

9.4 Emergency stop functional test

- With the charger energised and in Idle, press each emergency stop button in turn.
- Verify AC input contactor and DC output both open (use the HMI event log and, if possible, measure DC output at the connector).
- Reset the e-stop (twist-release). Verify the unit returns to Idle within the expected time and no fault is latched.

- If any e-stop fails to cut output or fails to reset cleanly, replace the e-stop assembly and re-test before returning to service.

9.5 RCD test

- Use the RCD test button first — confirms the mechanism.
- For annual verification, use a calibrated RCD tester to measure trip time at IΔn (Type A).
- If the trip time or trip current is outside tolerance, replace the RCD before returning the unit to service.

9.6 Charging module inspection

- Visually inspect each module — discoloration on the housing, dust on the heatsink, bulging capacitors (visible through vents) are all reasons to remove and replace the module.
- Spin each fan by hand (module off, unit de-energised) — no grinding, no free play in the bearing.
- Confirm the DIP address on each module screen matches the commissioning record (see 16 — Power module configuration). Modules with wrong addresses are not recognised by the mainboard.
- To edit a module DIP code: short-press □ or □ until the module screen shows the code, long-press until the target digit flashes, short-press to step, then long-press □ to save.

10. Firmware, Network & OCPP Maintenance

10.1 Firmware upgrade

- Check the firmware version currently installed from the HMI System menu.
- Compare against the latest approved version published by LEKTRI.CO. Only apply firmware explicitly released for the exact hardware model (ENC-DCL120B / 180B / 240B / 360B / 480B).
- Confirm the unit is in Idle and no charging session is active or queued.
- Perform the upgrade via the HMI (USB) or OCPP (UpdateFirmware) as appropriate. Do not power-cycle during flashing.
- After upgrade: verify the version number, clear faults, perform one dummy charging session, confirm OCPP reconnects.

> ⚠ **Firmware / low-level mismatch**
> If the high-level firmware does not match the bootloader / low-level program, the mainboard LED does not flash and the program cannot be burned. See 11.4 — the solution is to load a matching program, not to force the current one.

10.2 Network & OCPP connectivity

- Three networking paths are supported: Ethernet (patch cable into LAN1 or LAN2 on the Android TCU board), 4G (SIM fitted to the TCU 4G module or to the internal router), or Wi-Fi (configured from the Android settings screen).
- From the HMI, verify which interface is active and that the signal indicator is present.
- If OCPP is offline: check the 4G router status LED, verify the SIM has an active data plan, verify the antenna lead is firmly connected to the router PCB (see 11.5), then power-cycle the router.
- Verify OCPP parameters: endpoint URL, Basic-Auth or certificate, Heartbeat interval, chargePointId. Do not change these without the backend operator’s agreement.
- After any network intervention, reboot the TCU (HMI □ Reboot □ APP / Connector 1 / Connector 2) and confirm OCPP reconnects via BootNotification, then run a dummy charging session end-to-end.

10.3 Logs & events

- Export the HMI fault log before every intervention. Attach to the service record.
- On the backend (OCPP), review the last 30 days of alerts for the unit.
- Correlate HMI events with backend events — divergences typically indicate network instability.

11. Troubleshooting

11.1 Man-made faults — immediate removal from service

The following conditions require the unit to be immediately removed from service and inspected by an authorized technician before any further use:

- The charging connector is crushed, cracked or soaked in water.
- The charging cable has been crushed by a vehicle or forcibly dragged.
- The charging cable is broken by external pulling force.
- The charger has been hit by a vehicle or a heavy object.
- A cabinet door is open abnormally (forced open, tampered, or not latched).
- Both air inlet and air outlet of the charger are blocked.

⚠ Personal electric shock risk

To prevent personal electric shock, all switches and upstream distribution switches of the equipment must be disconnected, protective measures applied and protective tools used during detection and troubleshooting.

11.2 Common faults — fails to charge normally

Fault description	Probable cause	Solution
Insulation detection under-voltage	Module protection	Unplug the STOP ± wire of the module.
	AC contactor does not operate	Check wiring of the AC contactor; attempt to replace the AC contactor.
Emergency stop pressed (ghost trigger)	E-stop detection device on the mainboard is damaged	Check the main control board; attempt to replace the mainboard.
	Emergency stop button damaged	Check the e-stop button; attempt to replace.
Connector not detected	Mainboard damaged	Check the main control board; attempt to replace the mainboard.
Timeout waiting for battery-charging parameters	Communication timeout	Upgrade firmware.
	CAN-port IC on the mainboard damaged	Check the main control board; attempt to replace the mainboard.
Electricity-meter fault	Meter 485-IC on the mainboard damaged	Check the main control board; attempt to replace the mainboard.
Access-control fault	Access-control detection on the mainboard damaged	Check the main control board; attempt to replace the mainboard.

11.3 Card reader, indicator, surge protection

Symptom	Probable cause	Solution
No response on card swipe	Mainboard damaged	Attempt to replace the mainboard.
Status indicator is off / abnormal	Mainboard components damaged	Attempt to replace the mainboard; hardware engineer to inspect.
Unable to enter charging operation interface (lightning-protection failure)	Mainboard lightning-protection detection port damaged	Attempt to replace the mainboard; hardware engineer to inspect.

11.4 Firmware flash & display faults

Symptom	Probable cause	Solution
Program cannot be burned — mainboard LED does not flash	Mainboard hardware abnormal	Attempt to replace the mainboard.
	Burning program does not match the low-level program	Replace program.
Display screen stuck on charging-startup page	Hardware defect (FB2 magnetic beads)	Dismantle FB2 magnetic beads and replace with 0 Ω resistor in the original position.
	Hardware defect (C44A / C47A path)	Dismantle FB2 magnetic beads; short-circuit C44A cathode to C47A anode.

11.5 Network offline

Symptom	Probable cause	Solution
4G router offline / no internet	4G router network port damaged	Attempt to replace the 4G router.
	4G router burned out	Attempt to replace the 4G router.
	Adapter is broken	Replace the adapter.
	PCB antenna of the 4G router has fallen off	Dismantle the 4G router and reconnect the antenna properly.

Escalation

If a replacement mainboard has been installed and the fault persists, stop further replacements and open a case with LEKTRI.CO after-sales (Chapter 15). Provide fault logs, photos and the list of parts already replaced.

12. Component Replacement Guidelines

Replacement work is restricted to authorized technicians. Use only genuine LEKTRI.CO spare parts. Non-genuine parts void the warranty and may cause equipment damage or personal injury.

Component	Replacement method	Post-replacement action
Charging module (30 kW)	Slide-in; re-program the DIP address to match the bay position (see 9.6 and 16)	Unit must be de-energised. Wait 5 min for DC bus discharge. Verify module is recognised by the mainboard.
Mainboard	Bolt-on; transfer DIP settings and firmware version	Re-load configuration from backup; re-calibrate touch screen.
AC contactor	Screw-mount; ensure correct rated current for model	Torque to spec and renew witness marks.
RCD (Type A)	DIN-rail; match IΔn and type	Perform RCD test (9.5) before returning to service.
Emergency stop button	Panel-mount; NC contact	Test all e-stops (9.4) after replacement.
Charging cable assembly + connector	Full assembly replacement only — no field splicing	Insulation-resistance test on the new cable before use.
Display (HMI)	Ribbon + mounting bracket	Re-calibrate touch. Verify date/time and language.
4G router	DIN-rail or bracket; insert SIM	Verify antenna reconnection (see 11.5).
SPD (surge protection)	DIN-rail; match voltage / Iimp/In	Replace when the indicator window is no longer green.
Door gasket / cable-gland seals	Adhesive-backed gasket; replace in one piece	Required for IP54 integrity.

⚠ Commissioning after replacement

After any electrical replacement: repeat the checks of 9.3 (insulation & continuity), 9.4 (e-stop), 9.5 (RCD) as applicable, perform one dummy charging session, and sign the Service Record. The unit is not considered returned to service before all three steps are complete.

13. Storage of Spare Units & Parts

The conditions below extend the User Manual Chapter 6 for the maintenance use-case (spare units held on site, units temporarily removed from service, spare parts inventory).

13.1 Spare chargers

- Store indoors, in the original wooden crate, supported by the foam inserts on all sides and fixed on the shipping pallet at the base. Do not invert.
- Dry, ventilated space. Avoid high temperature, humidity, dust and metal-powder environments.
- Protect from vibration and impact during any internal handling.
- Temperature: −25 °C to +55 °C (operating range is the same as the storage range stated by the manufacturer — follow the latest data sheet).
- Re-inspect before installation: visual inspection, insulation test, earth continuity, e-stop functional test.

13.2 Charging modules (spare)

- Original anti-static packaging, kept flat.
- Dry, dust-free, ESD-controlled storage.
- Do not stack beyond the manufacturer’s stated limit.
- Use FIFO — oldest stock first.

13.3 Electronic boards (mainboard, HMI, 4G router)

- Anti-static bag + box; ESD-controlled storage.
- Do not store adjacent to strong magnets or transformers.
- Log the serial number of every spare board held in stock.

13.4 Cables & connectors

- Store coiled with a diameter ≥ 10 × cable diameter.
- Dust caps on the connector at all times.
- Do not store adjacent to solvents or lubricants.

14. Service Record Template

Complete one record per intervention. Archive with the site file and upload a scan to the LEKTRI.CO service portal. Fields in bold are mandatory.

Site / Station name	
Charger serial number (nameplate)	
Charger ID (displayed top-right of screen)	
Model (ENC-DCL…)	
Intervention date / time	
Intervention type	☐ Daily ☐ Monthly ☐ Quarterly ☐ Annual ☐ Corrective ☐ Post-event
Technician name / certification	
Upstream breaker locked-out (LOTO ref.)	
Observations before work	
Work performed	
Parts replaced (name / SN)	
Firmware version before / after	
Insulation resistance (MΩ) L-PE / N-PE / L-L	
Earth continuity (Ω)	
RCD trip test (ms at IΔn)	
Emergency-stop test — all buttons	☐ Pass ☐ Fail
Dummy charging session performed	☐ Yes ☐ No
OCPP reconnection verified	☐ Yes ☐ No
Open issues / follow-up	
Next scheduled inspection	

Technician signature	
Operator acceptance signature	

15. After-sales Service

Contact the equipment supplier or LEKTRI.CO after-sales support whenever a troubleshooting step in Chapter 11 does not resolve the issue, or whenever a man-made fault event (11.1) has occurred.

Before contacting support, collect:

- Equipment model (ENC-DCL120B / 180B / 240B / 360B / 480B).
- Charger ID displayed in the top-right corner of the screen.
- Serial number from the nameplate (rear of cabinet).
- Date and time the fault first occurred.
- Photograph of the screen showing the fault, and a photograph of the external appearance of the unit.
- Fault log export from the HMI.
- Latest OCPP backend alerts for the unit.
- List of troubleshooting steps already performed, with outcomes.

> **Response**
> Cases opened with the full data set above are triaged faster and avoid back-and-forth. Incomplete cases can still be accepted but will typically require a follow-up request before dispatch of spares or engineers.

16. Technical Data (Reference)

Reproduced from the LEKTRI.CO FAST DC Charger User Manual. Use these values as a reference during service; always confirm against the nameplate of the specific unit.

AC nominal input

Parameter	Value
Earthing system	TN-S / TT
Voltage	400 V ± 15 %
Frequency	50 / 60 Hz
Current — 120 kW	185 A
Current — 180 kW	277 A
Current — 240 kW	369 A
Current — 360 kW	553 A
Current — 480 kW	738 A

DC nominal output

Parameter	Value
Voltage	200 – 1000 V
Current	Max. 250 A (350 A optional)
Power — per model	120 / 180 / 240 / 360 / 480 kW

Weight & mechanical data

Model	Net weight (approx.)
120 kW	550 kg
180 kW	560 kg
240 kW	620 kg
360 kW	720 kg
480 kW	890 kg

> ⚠ **Handling & lifting**
> Always use a forklift or pallet truck rated for the unit's weight. Foundation design and anchoring (4 × M12 expansion bolts) must support the full mass with a suitable safety factor. Verify the actual weight on the nameplate before transport or installation.

Power module configuration

Model power	Module configuration	DIP code positions
120 kW	4 × 30 kW modules	DIP 60, 61, 64, 65
180 kW	6 × 30 kW modules	DIP 60, 61, 62, 64, 65, 66
240 kW	8 × 30 kW modules	DIP 60–67
360 kW	12 × 30 kW modules	DIP 60–67, 68, 69, 6E, 6F
480 kW	16 × 30 kW modules	DIP 60–67, 68, 69, 6E, 6F (two racks)

> ⓘ **DIP code reference**
> Default factory code is “80H”. During module replacement, re-program the first two values to match the module position using the left / right keys on the module screen (short press to step, long press to enter/save edit mode). Modules with incorrect DIP addresses are not recognised by the mainboard.

Module bay layout (DIP addresses)

120 kW — 4 × 30 kW

60	61
64	65

180 kW — 6 × 30 kW

60	61	62
64	65	66

240 kW — 8 × 30 kW

60	61	62	63
64	65	66	67

360 kW — 12 × 30 kW

60	61	62	63
64	65	66	67
68	69	6E	6F

480 kW — 16 × 30 kW (two racks)

60	61	62	63	60	61	62	63
64	65	66	67	64	65	66	67

Basic attributes

Parameter	Value
Charge connector	Dual CCS2
Cable length	5 m (including the charging connector)

Parameter	Value
Enclosure	Galvanised steel
Installation	Floor mounted
HMI	12.1 inch touch screen with shell
Language	English (standard); other languages by firmware upgrade
Authentication	QR code / RFID card / password login
DC meter	CE certified DC meter standard (MID meter optional)
POS terminal	Optional
Cable management	Yes
Communication	Ethernet / 4G / Wi-Fi
OCPP protocol	OCPP 1.6J

16. Technical Data (Reference) — cont.

Electrical parameters

Parameter	Value
Efficiency	≥ 95 % at nominal output power
Power factor	≥ 0.99 (above 50 % load)
THDi	< 5 %
Standby self-consumption	≤ 100 W
Ripple factor	≤ ±5 %

Safety

Parameter	Value
RCD	Type A
Emergency stop	Yes
Enclosure rating	IP54
Impact protection	IK10 shell / IK08 screen
Electrical protection	Over-current, under-voltage, residual current, surge, leakage, short-circuit, over-temperature, etc.
EVSE–vehicle protocol	DIN SPEC 70121, ISO 15118
Certification	CE / CB
Certification standards	IEC 61851:2017, IEC 62196-1, IEC 62196-3

Working environment

Parameter	Value
Cooling method	Air cooling
Noise	≤ 65 dB(A) @ 1 m / 25 °C
Operating temperature	−25 °C to +55 °C (derating above +55 °C ambient)
Working humidity	5 % to 95 %, no condensation
Working altitude	≤ 2000 m

Input cable & upstream breaker (reference)

Model	Supply	Recommended copper cable	Upstream breaker
120 kW	380 V 3-phase	ZR-YJV22-0.6/1 kV — 3×95 mm² + 2×50 mm²	3P 250 A
180 kW	380 V 3-phase	ZR-YJV22-0.6/1 kV — 3×150 mm² + 2×70 mm²	3P 350 A
240 kW	380 V 3-phase	ZR-YJV22-0.6/1 kV — 2×(3×120 mm² + 2×70 mm²)	3P 500 A
360 kW	380 V 3-phase	ZR-YJV22-0.6/1 kV — 2×(3×150 mm² + 2×95 mm²)	3P 400 A × 2
480 kW	380 V 3-phase	ZR-YJV22-0.6/1 kV — 2×(3×240 mm² + 2×120 mm²)	3P 500 A

⚠ Breaker sizing

The upstream distribution switch must include leakage, over-current, short-circuit and surge protection, and shall be rated no lower than 1.5 × the actual load. Confirm the site breaker against the commissioning report before every electrical intervention.

Default parameters

Parameter	Value
Connector over-temperature alarm	100 °C (configurable)
Fan speed (commissioning default)	100 %
Module DIP factory code	80H (must be reprogrammed per position)
Status indicator — idle	Blue
Status indicator — charging	Green
Status indicator — fault	Red
Admin / O&M password (factory)	Must be changed at commissioning; held confidentially by site owner
Charging password (factory)	Must be changed at commissioning; held confidentially by site owner

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FAST DC Charger — Maintenance Manual

Models ENC-DCL120B / 180B / 240B / 360B / 480B