Your servo system, from the beginning

A reading guide and buying worksheet for one Leadshine EL8-EC1000F drive and one ELM1H-1000MA80E braked motor.

You are building a small electrical control cabinet. The drive and motor are two of its components. The cabinet also needs power distribution, protection, switching, a 24 V supply and a complete stop system.

> **The useful first distinction:** the wall powers the **drive**; the drive powers the **motor**. A separate 24 V DC circuit powers the motor's **holding brake**. The motor encoder reports position back to the drive.

Read it in this order

Page	What you learn
2	Electrical words and drawing symbols
3	The original vendor drawing
4	The drawing's left side: power and switching
5	The drive, motor, encoder and terminal names
6	The brake and emergency stop
7	Your practical assembly and commissioning sequence
8	Tools to buy or borrow
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What is confirmed, and what is not

The drive nameplate accepts single-phase 200–240 V AC; the motor is the braked 1 kW variant. USB communication has previously worked. None of that proves the mains, motor, brake or safety wiring is correct.

This is not a released installation schematic. The manual conflicts at X3 (brake) and CN6 (STO). We also do not yet have selected protection, contactors and a completed stop circuit. Those decisions must be resolved before powered commissioning.

Use tonight to understand the system and prepare the order. Tomorrow's useful work can be inventory, layout and isolated mechanical assembly. Have a qualified electrical installer build/check the mains and safety circuits before power-up.

1. The electrical words

Word	Plain-language meaning
Voltage · V	The electrical difference between two points. “230 V across L1C and L2C” means between those two terminals.
Current · A	How much electrical charge flows. A supply’s 2.5 A rating is its capacity; it does not force 2.5 A through every load.
Power · W	Rate of energy use. For the DC brake, 11.5 W ÷ 24 V ≈ 0.48 A nominal.
AC / DC	AC alternates polarity; the mains is AC. DC has defined + and − polarity; the brake supply is 24 V DC.
Circuit / return	A complete path lets current flow. A circuit normally needs both supply and return, not just one wire.
Branch / parallel	One supply can feed several circuits. Each branch still needs appropriate wiring and protection. This does not mean two wall plugs.
Live, neutral, PE	Live and neutral carry normal mains current. Protective earth (PE) bonds exposed metal for fault protection. PE is not a normal return wire.
0 V	Reference/return of a DC circuit. It is not automatically mains neutral or PE; bonding follows the electrical design.
DIN	Deutsches Institut für Normung: the German standards organisation. A DIN rail is a standard mounting rail. “DIN” does not mean a voltage or a special Leadshine connector.
Terminal block / jumper	A terminal block clamps wires. A matching jumper electrically joins selected terminals. Grey terminal blocks are not all connected just because they sit next to each other.
Ferrule / cable gland	A ferrule is a crimped sleeve on stranded wire. A gland grips a cable where it enters an enclosure. A gland is not an electrical splice.

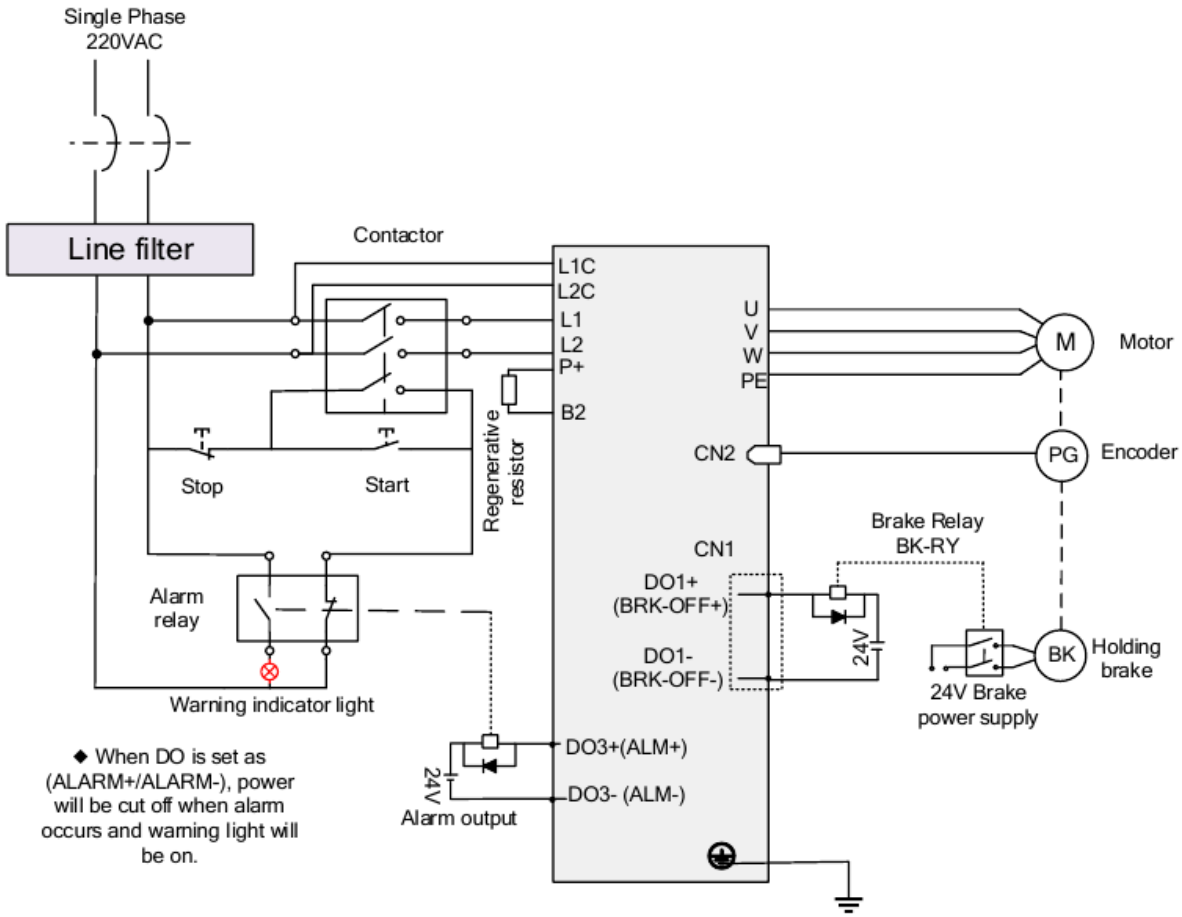
Symbols in this drawing

Symbol	How to read it
Solid line; filled dot	A drawn conductor; a filled dot identifies a connection. A crossing without a dot is not automatically a joint.
NO / NC contact	Normally open / normally closed in the unactuated state. “Normally” does not mean that the machine is operating.
Dashed linkage	In this vendor drawing it can mean mechanical association or parts of one device—not another wire. In our planning sheet, dashed amber instead marks an unresolved interface.
Circle with cross / earth symbol	Indicator lamp / protective-earth connection. A lit lamp cannot prove a circuit is safe to touch.

References: D: DIN: introduction to standards · W: WAGO 2002-1201 DIN terminal example · B: Exact ELM1H-1000MA80E motor and brake drawing

2. Keep this drawing beside you

Single Phase 220VAC



This is the vendor’s generic single-phase example, not a completed schematic for your cabinet. Its “220 VAC” heading refers to this voltage class; your delivered drive label says 200–240 V. It does not permit a 400 V supply.

1. **Top left:** incoming supply and protection/switching.
2. **Middle left:** contactor, Start/Stop and alarm interlock.
3. **Centre:** drive, including separate control and main AC inputs.
4. **Right:** motor, encoder and holding brake.
5. **Bottom:** alarm output and protective earth.

The example shows the **CN1 plus external brake-relay option**. The manual separately describes an **X3 direct-switching option**. Do not combine them or buy both by default. STO is not shown here, so this page alone is not a complete emergency-stop design.

References: M: Leadshine EL8-EC manual V2.0.1; pp.21, 25–31, 38–39

3. The left side: where power arrives

Item on the drawing	What it does / what it means for you
Single-phase supply	One AC source feeds the installation. Your design distributes it to the drive's two input circuits and the external 24 V supply.
Linked device at the top	The two mechanically linked poles represent the input switching/protection device. The illustration does not specify an orderable breaker, trip curve or current rating.
Line filter	Reduces electrical interference travelling through the supply. It is not a transformer, fuse, circuit breaker or safety relay. Its leakage and earthing matter.
Contactor	An electrically operated power switch. Its main contacts switch the drive's main AC branch. A separate coil operates the contacts.
Auxiliary contact	A smaller contact associated with a contactor. The example uses an auxiliary holding path so the contactor can remain on after Start is released.
Start button	A momentary normally-open command in the illustrated contactor-control circuit. It is not a motor-speed command.
Stop button	A normally-closed contact that interrupts that control circuit. This generic Stop symbol is not proof of a validated emergency-stop function.
Alarm relay	The drive's alarm output operates an external relay. Its contacts can interrupt the contactor circuit and operate the warning lamp. An ordinary alarm relay is not automatically a safety relay.
Warning indicator light	A lamp indicating the illustrated alarm condition. Buy only with the voltage/rating matching its designed circuit; this example has mains-connected control branches.

The DIN parts you noticed in the video

Terminal blocks make supply branches neat, labelled and accessible. A matched bridge joins only the intended terminals; end plates cover exposed sides and end stops keep the row from moving. The rail holds them mechanically. PE terminals need an approved, bonded rail/earth arrangement.

No improvised double wires: putting two wires into one clamp is allowed only when that exact terminal permits it. Use designed distribution points instead of guessing.

The final cabinet may use a different contactor-control voltage and layout from this example. Match the complete design, not just the picture.

References: M: Leadshine EL8-EC manual V2.0.1; pp.21, 25–31, 38–39 · W: WAGO 2002-1201 DIN terminal example

4. The drive and right side

Label	Meaning and destination
L1C / L2C · X1	Control-electronics AC input. The “C” identifies the control supply. Both are mains-voltage terminals, not a 24 V connection.
L1 / L2 · X1	Main power-stage AC input for the single-phase arrangement. The contactor switches this branch. L3 is unused in that arrangement.
Why two pairs?	Control electronics can remain powered while the main power stage is switched off. Both pairs are needed for normal powered motor operation, but one source can feed both branches.
U / V / W · X2	The three drive outputs to the motor windings. Match U→U, V→V, W→W on the verified cable. Never connect wall mains here.
PE	Protective earth. Bond the drive, motor frame and applicable exposed enclosure metal. It is not the terminal labelled N.
M	The motor. It turns when the drive supplies controlled current to its windings.
PG / CN2	Encoder and drive feedback connector. The encoder tells the drive where the shaft is. It is separate from winding power and the brake.
CN1	Control input/output connector. This example uses configurable brake and alarm outputs on it. CN1 means connector 1, not “motor channel 1”.
DO1+ / DO1− · BRK-OFF	A digital-output pair assigned to brake release in this example. It controls the illustrated relay circuit; it is not a general 24 V power supply.
DO3+ / DO3− · ALM	A digital-output pair assigned to alarm signalling. The actual output function, polarity and load ratings must be checked.
P+ / B2; regenerative resistor	The resistor disposes of returned braking energy as heat. It does not hold the shaft still. The illustrated external resistor is not automatically required.
N, if present on your X1	DC-bus negative. Despite its letter, it is not mains neutral. Do not connect the mains neutral there.

Terminal names are not physical pin positions. Identify printed markings and the matching connector view. The drawing is not permission to copy an assumed top-to-bottom order.

References: M: Leadshine EL8-EC manual V2.0.1; pp.21, 25–31, 38–39

5. Two kinds of “braking”, plus STO

The holding brake on your motor

Your ELM1H-1000MA80E has a holding brake: a mechanism that holds the shaft. Its specified supply is **24 V DC ±10%, 11.5 W**, about **0.48 A nominal**. It is intended to hold a stopped shaft, not to absorb every normal moving stop.

The brake normally needs power to release. The control sequence must release it before the motor tries to rotate and apply it in the intended stopped condition. Do not permanently wire it to 24 V as a shortcut, or attempt to drive through an engaged brake.

What BK-RY and the small symbols mean

BK-RY is the external brake relay in this CN1 example. Its coil is operated by the drive’s brake signal. Its associated contact switches the brake’s separate 24 V supply. The dashed line associates those parts of the relay.

The small diode beside the coil limits the voltage spike when the coil switches off. Suppression affects polarity and release timing, so use the specified arrangement rather than adding an arbitrary diode. The “24 V” labels describe the DC circuits; the drive’s signal output does not generate their power.

X3 is an alternative, not an extra brake

The manual describes X3 direct brake switching without an external relay. Unfortunately, its terminal wording and drawing disagree. Before selecting that route, the supplier must confirm the exact wiring, current capacity and suppression for your delivered unit. The loose cable’s 24 V and 0 V leads must also be positively identified.

The regenerative resistor

A moving load can return energy through the motor into the drive. A regenerative resistor turns excess energy into heat. The drive family has an internal resistor; any external resistor depends on the load and stopping-energy calculation. It is different from the motor’s holding brake.

STO and emergency stop

STO = Safe Torque Off. CN6 has two STO input channels and a monitoring output. STO prevents torque production; it does not disconnect mains or necessarily stop coasting or gravity-driven motion. It does not itself establish the correct brake sequence.

An emergency-stop system includes the button, safety logic, outputs, feedback and restart behaviour. Its action must suit this machine. The pictured Start/Stop/alarm circuit alone does not demonstrate that. The CN6 pin-polarity conflict is still unresolved.

References: M: Leadshine EL8-EC manual V2.0.1; pp.21, 25–31, 38–39 · B: Exact ELM1H-1000MA80E motor and brake drawing

6. What to do, in order

1. ☐ **Inventory while everything is isolated.** Put the drive, motor, labelled cables, connector kits and existing E-stop buttons on the list. Mark unidentified tails “unidentified”; do not connect them to test a theory.
2. ☐ **Get the circuit questions answered.** Send the questions on page 12 to the drive supplier and give this handbook to your electrical installer. Finalise the stop design, protection, contactor and brake route.
3. ☐ **Lay out the enclosure.** Position the drive, terminals, power supply and switching devices with room for connector access, cable bends and the manufacturer’s cooling clearances. Do not choose the smallest box just because the bare drive fits.
4. ☐ **Assemble the empty mechanical parts.** Mount rail, ducts and hardware with electronics removed/protected from swarf. Clean up metal chips. Mount the motor by a suitable bolted fixture before any motion test.
5. ☐ **Prepare protective bonding and distribution.** The installer builds the approved earth and protected AC circuits. Keep the AC, DC and signal groups labelled and separated as required by the layout.
6. ☐ **Terminate the verified cables.** Follow connector strip lengths, conductor ranges and tightening instructions. Use ferrules only where the terminal allows/requires them. No exposed loose strands or solder-tinned wire ends as a substitute for proper termination.
7. ☐ **Finish the brake and safety circuits.** Only after the marked questions are resolved. Include strain relief, suppression, branch protection and the designed reset/feedback paths.
8. ☐ **Inspect and test before energisation.** A competent person verifies earth continuity, wiring, protection and absence of unintended shorts using an appropriate procedure. Disconnect sensitive electronics where the test procedure requires it; do not apply an insulation tester arbitrarily to the drive.
9. ☐ **Power up inhibited, using the approved procedure.** Check the supply, drive state and faults. No automatic restart, enable, tuning or motion merely because the display lights up. Save the parameter baseline.
10. ☐ **Prove stop behaviour, then perform the first finite move.** Use an approved low-energy bare-motor test, verified brake timing and controlled access to the shaft. Record the result. Coupling the reducer/robot is a later commissioning stage.

> **For you right now:** reading, inventory and layout are productive. Buying insulated tools does not make unverified mains wiring safe. Keep powered testing with the person who can verify the complete installation.

References: M: Leadshine EL8-EC manual V2.0.1; pp.21, 25–31, 38–39 · I: Electrical Safety First: safe isolation guidance

7. Tools: buy, borrow or let the installer bring

Qty / tool	Why it is needed; selection
1 wire stripper	Removes insulation without cutting strands. Candidate: **Knipex 12 62 180**, standard insulated conductors 0.2–6 mm². Cable outer jackets may need a different stripping tool. [K]
1 ferrule crimper	Forms the correct compression on wire-end sleeves. Candidate: **Knipex 97 53 04**. Match ferrule, conductor and terminal—not just the tool's maximum size. It is not a universal ring-lug or signal-pin crimper. [C]
1 insulated screwdriver set	Correct-size flat/Phillips/Pozidriv tips as needed. Example: **Wera Kraftform Kompakt VDE 16 extra slim 1**. Work isolated; insulation is not permission for live work. [V]
1 wire/cable cutter	For the selected copper conductors and cable diameter. A stripper's small cutter may not handle the motor cable's outer diameter. Avoid crushing cable with unsuitable pliers.
1 terminal operating tool	Matching spring-clamp tool or specified screwdriver. Check the actual Leadshine and DIN terminals before ordering a tip size.
1 torque screwdriver — borrow first	Needed for specified screw-terminal torques. Choose its range and bits after reading the actual component instructions. Ordinary "tight enough" is not a torque value.
1 mechanical tool set — buy/borrow	Tape measure, marker, suitable hex keys/spanners, drill/bits, deburring tool and DIN-rail cutting tool if lengths are not pre-cut. Check fastener and gland sizes first.
1 eye-protection set	Wear suitable eye protection when cutting or drilling. Secure the workpiece and keep swarf away from electronics.
1 labelling method	Wire/cable markers and terminal labels; a permanent marker plus suitable labels is enough to start. A dedicated label printer is optional.
Installer: voltage tester + proving device	A suitable two-pole tester, e.g. Fluke T150, and compatible proving device. The installer proves the tester before/after the absence-of-voltage check. A neon screwdriver or non-contact pen is not enough. [T, I]
Installer: verification instruments	Appropriate protective-bonding/installation test equipment and procedures. A cheap multimeter alone does not certify this cabinet. Borrowing professional test equipment with its competent operator avoids an unnecessary purchase.

Do not buy a soldering station just for these power terminals. Use the termination method specified for each connector. If a supplied signal connector genuinely requires soldering or a proprietary pin crimper, identify it first; a factory-terminated cable may be simpler.

References: K: Knipex 12 62 180 wire stripper · C: Knipex 97 53 04 ferrule crimper specifications · V: Wera insulated screwdriver set example · T: Fluke T150 two-pole tester · I: Electrical Safety First: safe isolation guidance

8. Cabinet parts and consumables

Quantities below are purchasing allowances, not a completed connection schedule. Reuse verified parts you already have. Select the enclosure after the component layout.

Qty / item	What to obtain / purpose
1 enclosure + backplate	Touch protection, room for cooling and bending cables, suitable ingress protection, mounting hardware and appropriate door/plate earth bonding.
2 short rails; duct/fixings pending	Two Spelsberg 89533501 steel rails, 35 × 7.5 mm profile, 202 mm long: now in the Elektramat basket. These are for terminal rows; remaining cabinet rail, fixing screws, duct and covers follow the layout. See page 13.
12 grey + 8 blue + 4 PE terminals	Candidate family: WAGO **2002-1201**, **2002-1204**, **2002-1207**. These are planning allowances, not fixed wiring quantities. Keep AC and DC groups separately labelled.
6 end plates + 1 pack of 25 stops	WAGO **2002-1291** plates and **249-116** stops are in the basket; the stop pack includes spares. Also 8 two-way and 2 four-way matching 2002 jumpers. Their installed positions must follow the final schematic.
1 × 24 V DC power supply	Added to Amazon: **Mean Well HDR-60-24**, 2.5 A / 60 W, €26.40. Confirm brake + safety electronics + coil pickup load, derating and required separation/earthing. Not yet an approved selection.
Wire and cable — lengths TBD	Correct conductor cross-sections, voltage/temperature ratings, flexibility and identification. Measure routes plus service allowance after layout. A generic coloured hookup-wire kit is not automatically mains-rated.
Ferrules / earth lugs — sizes TBD	Match actual conductor area, terminal insertion depth and permitted termination type. Buy the correct crimper for ring lugs if those are required; ferrule pliers are not interchangeable.
Glands, clamps and cable ties	Match cable outer diameters and enclosure openings. Provide strain relief without crushing cables; include shield termination hardware where specified.
Labels and blanking plugs	Label terminals and cables. Close unused enclosure openings and protect unused connectors as specified.
Motor mounting hardware	Suitable bracket/plate, correct bolts and guarding for the exposed shaft/key. The table clamp shown earlier is not a verified motor fixture.

Likely already in your pile

Drive, motor, USB service cable, motor-power/brake cable, encoder cable, STO harness and connector kits. Confirm part numbers and completeness before buying duplicates. The small unidentified tail is not automatically a brake lead.

References: M: Leadshine EL8-EC manual V2.0.1; pp.21, 25–31, 38–39 · W: WAGO 2002-1201 DIN terminal example · P: Mean Well HDR-60 manufacturer specifications

9. Do not guess these purchases

Item	What still determines the purchase
Mains connection and isolator	Plug/inlet/lead ratings, mounting, strain relief and the installation's disconnection arrangement. Buy only the complete specified assembly.
Breaker/fuses and residual-current protection	The actual supply, conductor size, fault level, inrush and manufacturer requirements. **8.8 A on the drive label does not directly specify a breaker.**
EMC line filter	Current rating, leakage, supply system and wiring/earthing arrangement. Coordinate it with the chosen protection.
Main contactor(s)	Drive-input switching/inrush suitability, coil supply, auxiliary feedback and stop architecture. A generic contactor with a large motor-kW number is not sufficient selection evidence.
Safety relay / controller	Example to evaluate: **Pilz PNOZ X2.8P 777301**. Required stop action, reset, feedback, STO interface and achieved safety performance must be assessed together.
E-stop and reset station	Example E-stop: **Schneider XB5AS8444** (2NC), with matching housing. Check your existing buttons first. Reset requires the contact arrangement specified by the safety controller.
Brake switching and DC protection	Supplier must confirm X3 route, current capacity, polarity and suppression. An external brake relay/socket is required only if that alternative is selected. Set DC branch protection from the designed circuit.
Alarm relay, Start/Stop and lamp	They appear in the generic vendor example. Their need, contact functions and voltage ratings depend on your final power-control design; do not assume every pictured item is a mandatory duplicate purchase.
External regenerative resistor	Only after stopping-energy calculation and drive resistor limits are checked. Not a substitute for the holding brake or STO.

Why this matters for tomorrow

It is reasonable to order identified tools and standard assembly materials. It is not yet possible to make an honest “everything required, guaranteed compatible” basket: the design choices above are still open.

Buying a safety relay with a high published rating does not assign that rating to the complete machine. Likewise, a USB read or a motor turning successfully does not prove that emergency stopping is correct.

References: M: Leadshine EL8-EC manual V2.0.1; pp.21, 25–31, 38–39 · R: Pilz PNOZ X2.8P 777301 candidate · E: Schneider XB5AS8444 2NC emergency-stop candidate

10. Your actual Amazon basket

Verified on 16 November 2026, updated after adding the supply: nine items, quantity one each, subtotal €256.32. Nothing has been ordered. Amazon currently shows delivery on 17 November for all nine; confirm the final date and total at checkout.

Qty	Item / product link	Price
1	Mean Well HDR-60-24, 24 V / 2.5 A supply	€26.40
1	Jokari Super 4 Plus wire stripper	€13.95
1	Knipex 97 53 04 ferrule crimper	€121.00
1	Wera VDE 16 extra slim screwdriver set	€48.93
1	Knipex 95 11 165 cable cutter	€23.27
1	3M SecureFit SF401AF clear safety glasses	€9.49
1	300 adhesive cable labels	€7.99
1	Edding 400 black permanent marker	€2.35
1	Stanley Tylon 3 m tape measure	€2.94

Seller/dispatch: the seven branded tool items and the power supply were shown as sold and shipped by Amazon. The adhesive labels were sold by Fredeom and dispatched by Amazon. Labels are for identification; their cabinet/environment suitability still needs checking.

Why the stripper changed

The originally listed Knipex 12 62 180 offer showed arrival on 23–25 November. The Jokari Super 4 Plus is specified for solid/flexible conductors from 0.2–6 mm² and showed tomorrow delivery. Its small cutter is not a substitute for the separate cable shears. Jokari manufacturer data.

What is NOT in this basket

This contains tools plus a 24 V supply, not a complete electrical installation kit. The terminal blocks, matching accessories and two short DIN rails are in a separate Elektramat basket, detailed on page 13. Enclosure, protection, contactors, safety devices, exact wire/ferrule/lug sizes and the brake interface remain pending the layout and circuit decisions on pages 9–10. Mechanical fasteners and specialised terminal/torque/test tools still need selection or borrowing.

Before you pay

1. Review whether to keep the €121 professional crimper or borrow one.
2. Recheck seller, quantity, total and delivery date for each item.
3. Keep the unresolved electrical parts separate until specified.

Open your Amazon basket. Basket contents and prices can change. Firefox keyboard control plus page DOM/XPath worked; no extra plugin was required.

11. Finish the design, then record the checks

Questions for the Leadshine supplier

Hardware: **EL8-EC1000F**, drive label version **12B2323931**; motor **ELM1H-1000MA80E**. The printed label version is not a verified firmware readout.

1. **X3 brake:** please provide the correct terminal diagram for this delivered drive and motor. The manual p.30 description and p.31 drawing are ambiguous. Confirm direct switching of the 24 V / 11.5 W brake, output-current limits, polarity, required suppression and timing requirements.
2. **CN6 STO:** please resolve the p.38 table versus p.39 illustration polarity discrepancy. Provide the matching harness pinout and recommended safety-input/EDM interface circuit, including supply/reference requirements.
3. **AC supply:** please provide recommended input protection, filter and contactor guidance for single-phase 230 V on this 1 kW model, including inrush and any applicable residual-current-device requirements.
4. **Cables:** please confirm the supplied motor/encoder/STO cable part numbers and identify any battery or auxiliary tails. We will not infer loose-wire functions from colour.

Questions for the electrical installer

Complete the cabinet circuit, specify the remaining page 10 parts, check the supply/earthing arrangement, decide the required stop and restart behaviour, and provide the inspection/commissioning procedure. Clarify which tools and test instruments you will bring before Jasper buys duplicates.

Commissioning record — leave blank until tested

Check	Who / date / result
Approved schematic revision and final parts list	_____
Mechanical mounting and protective bonding	_____
AC/DC wiring, protection and termination inspection	_____
Brake wiring and timing verified	_____
STO channels, feedback, reset/no automatic restart	_____
Inhibited power-up and parameter baseline saved	_____
First finite bare-motor move and stop result	_____

The live walkthrough remains the place to record USB checks and setup notes. This handbook consolidates the explanations and procurement decisions; it does not replace the vendor manuals or the completed electrical design.

References: M: Leadshine EL8-EC manual V2.0.1: pp.21, 25–31, 38–39 · B: Exact ELM1H-1000MA80E motor and brake drawing

12. Your DIN hardware basket

Verified 16 November 2026: eight product lines in your Elektramat browser basket, €59.48 including VAT and displayed delivery. Quantities were checked again after reloading the basket. Nothing has been ordered.

These are standard assembly materials. Quantities are purchasing allowances, not an approved wiring schedule. The Amazon tools remain in their separate basket.

Qty	Exact item / product link	Purpose
6	WAGO 2002-1291 end plates	Close the exposed side of terminal groups.
12	WAGO 2002-1201 grey terminals	Individual feed-through connections.
8	WAGO 2002-1204 blue terminals	Separate, labelled return/neutral connections as designed.
4	WAGO 2002-1207 PE terminals	Protective-earth connections to a correctly bonded steel rail.
8	WAGO 2002-402 two-way bridges	Join two adjacent compatible terminals on the same electrical net.
2	WAGO 2002-404 four-way bridges	Join four adjacent compatible terminals on the same net.
1 pack / 25	WAGO 249-116 end stops	Hold terminal rows in position; includes spares.
2	Spelsberg 89533501 steel DIN rails	35 × 7.5 mm profile, 202 mm long; short terminal rows.

Delivery and ordering

All eight listings and cart rows showed **“Levertijd 1 werkdag”** (lead time: one working day). That is not a guaranteed delivery appointment tomorrow. Confirm the final address, delivery date, quantities and total before paying. Open your Elektramat basket in the same browser.

How these parts fit together

Rail mounts to the cabinet backplate; terminals clip onto it; end plates close exposed terminal sides; end stops keep the row from sliding. Bridges distribute a connection only between terminals that the schematic assigns to the **same electrical net**. Never bridge live, neutral, PE or separate DC nets together.

The short rails avoid cutting for the terminal rows. They do not supply all rail needed for the future power supply, protection and switching. Cabinet mounting screws and bonding must match the final enclosure. No mains connection, brake circuit or emergency-stop circuit is completed by this materials basket.

13. The complete system: buying status

The current baskets do not yet contain everything needed to power the system. The vendor diagram includes power conversion, protection, switching and control components beyond the DIN distribution hardware.

Item	Status	What it means
24 V DC supply	IN AMAZON	Mains to 24 V DC for brake/control circuits. HDR-60-24 (24 V, 2.5 A), quantity 1, €26.40. Added for procurement; final total load and circuit checks remain. The motor brake requires 24 V, not 12 V.
Distribution terminals / bridges	IN ELEKTRAMAT	The splitters: individual terminal blocks plus bridges for each separate net. See page 13. Final placement follows the schematic.
Line / EMI filter	NOT IN BASKET	Reduces conducted electrical interference. It is not a noise monitor. Exact current, leakage and installation compatibility still require selection.
Breaker/fuses and isolator	NOT IN BASKET	Overcurrent protection and mains disconnection, sized for the supply and wiring.
Main contactor(s)	NOT IN BASKET	Switch main drive input power. Specify inrush capability, coil and feedback arrangement.
Safety relay, E-stop, reset	NOT IN BASKET	Implement the agreed stop and restart behaviour. Identify existing buttons before buying replacements; resolve the STO pinout.
Brake interface / DC protection	NOT IN BASKET	Confirm X3 wiring and capacity. An external brake relay is needed only if the chosen circuit uses it. Include appropriate DC branch protection.
Alarm relay, lamp and Start/Stop	DESIGN DEPENDENT	Shown in the vendor example; exact devices depend on the final control circuit.
External regenerative resistor	CONDITIONAL	Not the motor holding brake. Need depends on braking energy and drive limits.
Enclosure, duct, cable, terminations and bonding	NOT IN BASKET	Select from the physical layout, current ratings and terminal requirements. The short rails on page 13 only cover terminal rows.

Next purchasing step: have the installer complete the mains/protection/stop circuit and load budget, and obtain the supplier's corrected X3/CN6 diagrams. Then select the exact remaining devices against that circuit. Adding a random filter, breaker or relay would not complete the design.

References: M: Leadshine EL8-EC manual V2.0.1; pp.21, 25–31, 38–39 · B: Exact ELM1H-1000MA80E motor and brake drawing · P: Mean Well HDR-60 manufacturer specifications