Electrical Panel Schematic Symbols and NO–NC Contacts

Date: 29.10.2026 · Rev. 1

Article address: https://drgmotor.com/en/blog/electric-motors/electrical-panel-schematic-symbols

Technical assumptions

- Symbols are drawn in IEC 60617 style, with contacts in the de-energised (normal) position.
- Sample circuit: 400 V 50 Hz three-phase supply, 230 V AC control.
- Letter codes and terminal numbers show common practice; the project legend and the marking on the device take precedence.
- Terminal names vary by device; the device's own wiring diagram always applies.
- Values are examples; protection and device selection follow the motor nameplate.

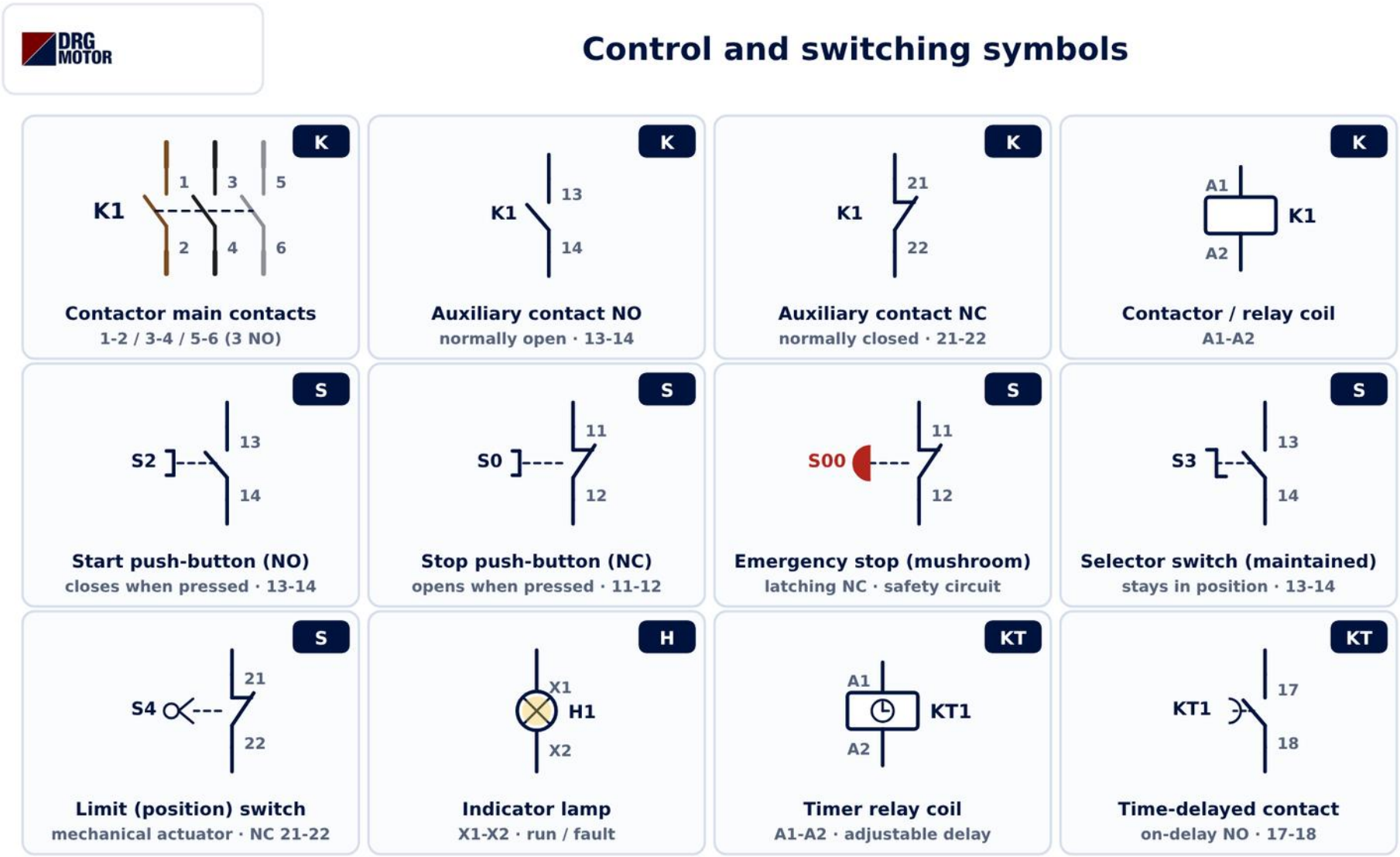
Safety notice

- This content is for technical information only. Wiring, measurement and commissioning must be carried out by qualified electrical personnel, following lock-out and verification of de-energised state, and in line with the motor and device manufacturer's documentation.

Suitable DRG motors and store

- DRG-90L-4 – 1,5 kW: https://drgmotor.com/en/buy-electric-motors-online/1-5-kw-1500-rpm-three-phase-motor-aluminium-drg-90l-4
- DRG-100L2-4 – 3 kW: https://drgmotor.com/en/buy-electric-motors-online/3-kw-1500-rpm-three-phase-motor-aluminium-drg-100l2-4
- DRG-112M-4 – 4 kW: https://drgmotor.com/en/buy-electric-motors-online/4-kw-1500-rpm-three-phase-motor-aluminium-drg-112m-4
- DRG-132M-4 – 7,5 kW: https://drgmotor.com/en/buy-electric-motors-online/7-5-kw-1500-rpm-three-phase-motor-aluminium-drg-132m-4
- https://drgmotor.com/en/buy-electric-motors-online

Control and switching symbols

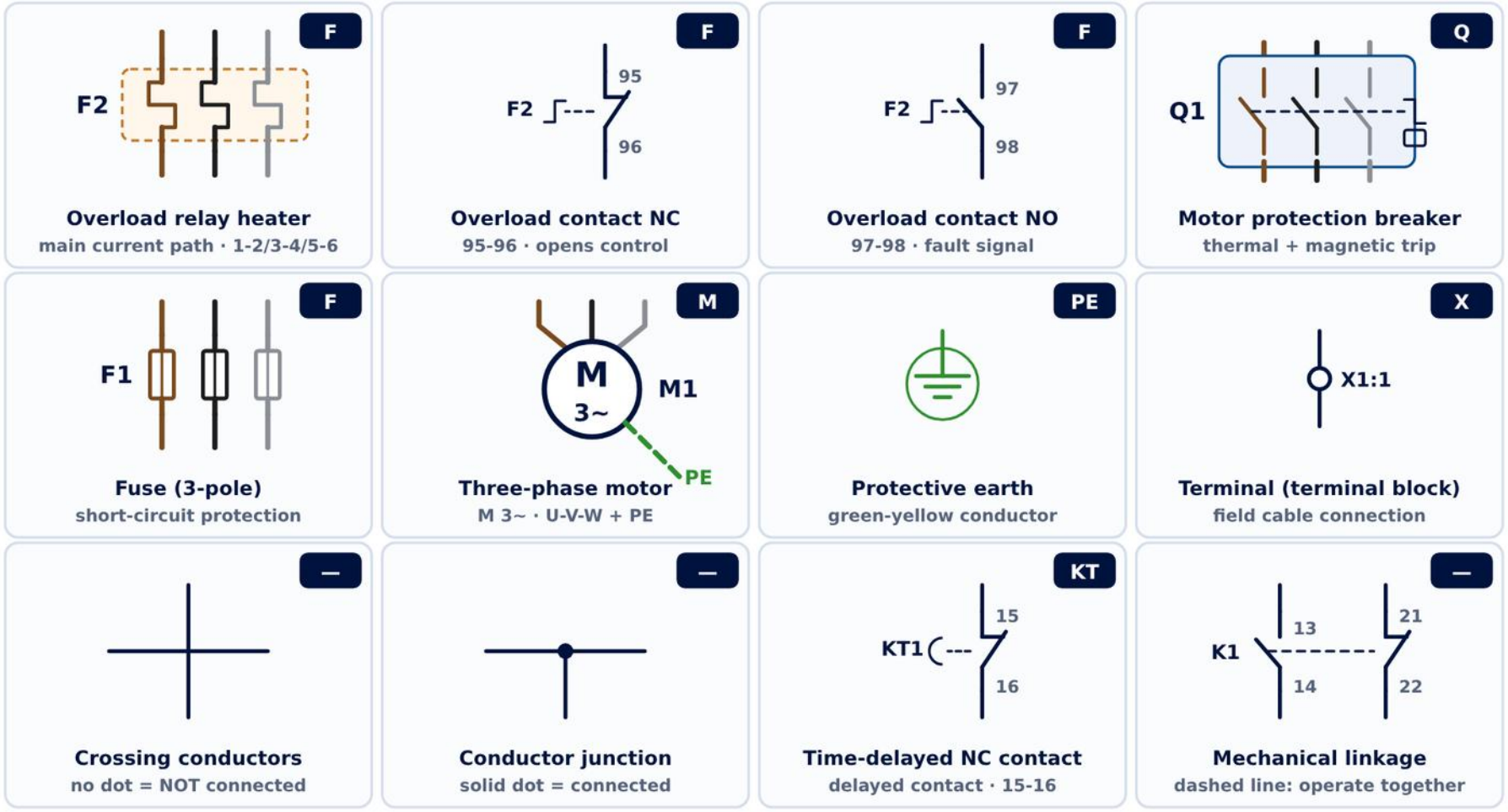


Panel schematic symbols 1: contacts, coil, push-buttons

Top-right badge: letter code · Contacts are drawn in the de-energised (normal) position

Figure 1

Protection, power and conductor symbols

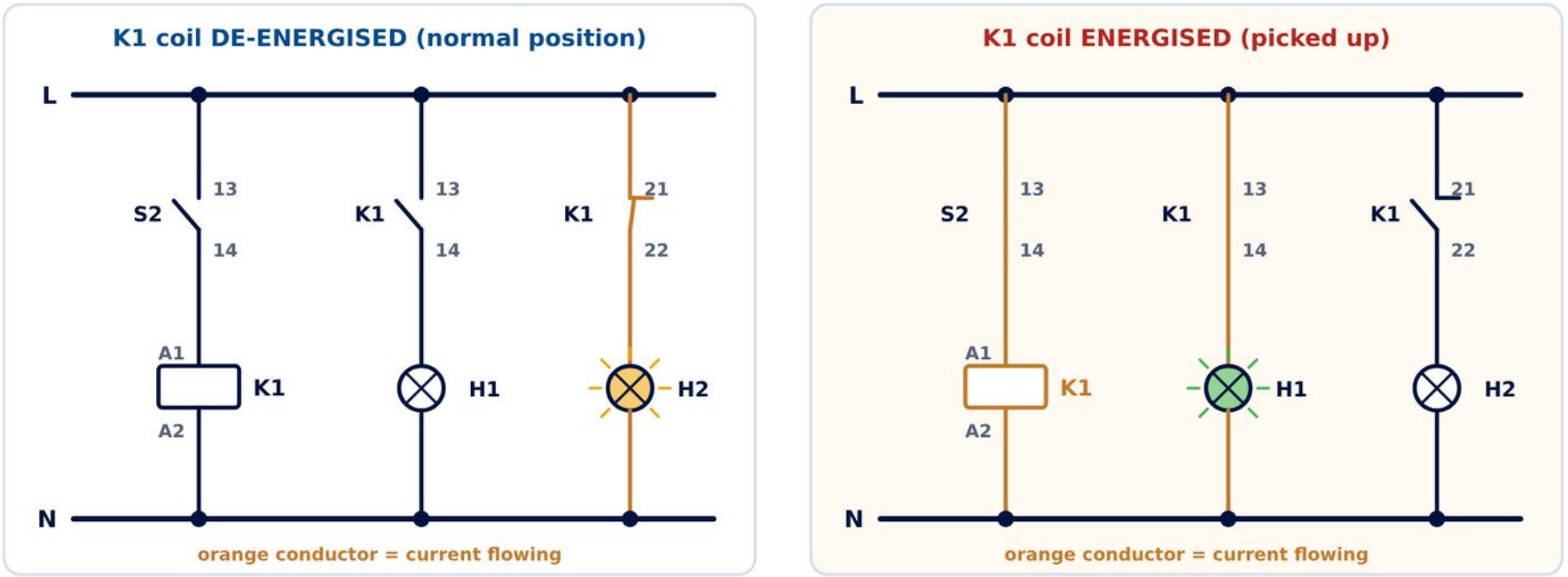


Panel schematic symbols 2: protection, motor, PE, junction

Without a solid dot, crossing conductors are not connected

Figure 2

NO and NC contact: de-energised / energised



Coil K1 (A1-A2)	NO 13-14	NC 21-22	Lamps
de-energised	open	closed	H1 off · H2 on
energised	closed	open	H1 on · H2 off

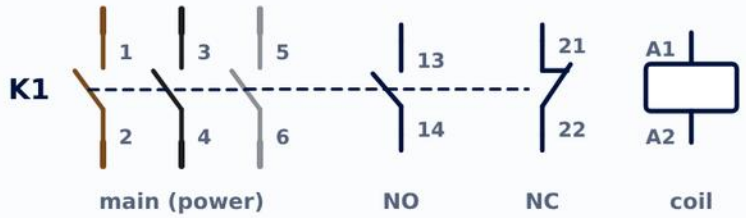
NO vs NC: two auxiliary contacts of the same contactor

Schematics are always drawn as on the left: de-energised, no button pressed

Figure 3

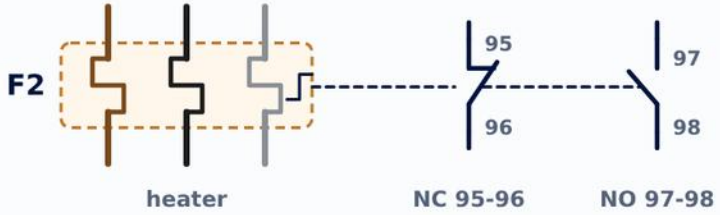
How to read terminal numbers

K1 contactor



Main contacts: odd in (1-3-5), even out (2-4-6) · 1/L1 → 2/T1

F2 overload relay



95-96 opens the control circuit, 97-98 lights the fault lamp

Timer: 15-16 delayed NC, 17-18 / 15-18 delayed NO

Lamp X1-X2 · terminal block X1:1, X1:2 ...

Numbering logic

Auxiliary contacts use two digits (e.g. 13)
1st digit = sequence no. (1st, 2nd...)
2nd digit = function:
- 1-2 → NC · 3-4 → NO
- 5-6 → special NC (timer, overload)
- 7-8 → special NO (timer, overload)

e.g. 13-14, 23-24 NO · 21-22, 31-32 NC

Letter codes (common practice)

Q switch, motor protection breaker
K contactor, auxiliary relay
KT timer relay
F fuse, overload relay
S push-button, selector, limit switch
H indicator lamp, horn
M motor · X terminal block

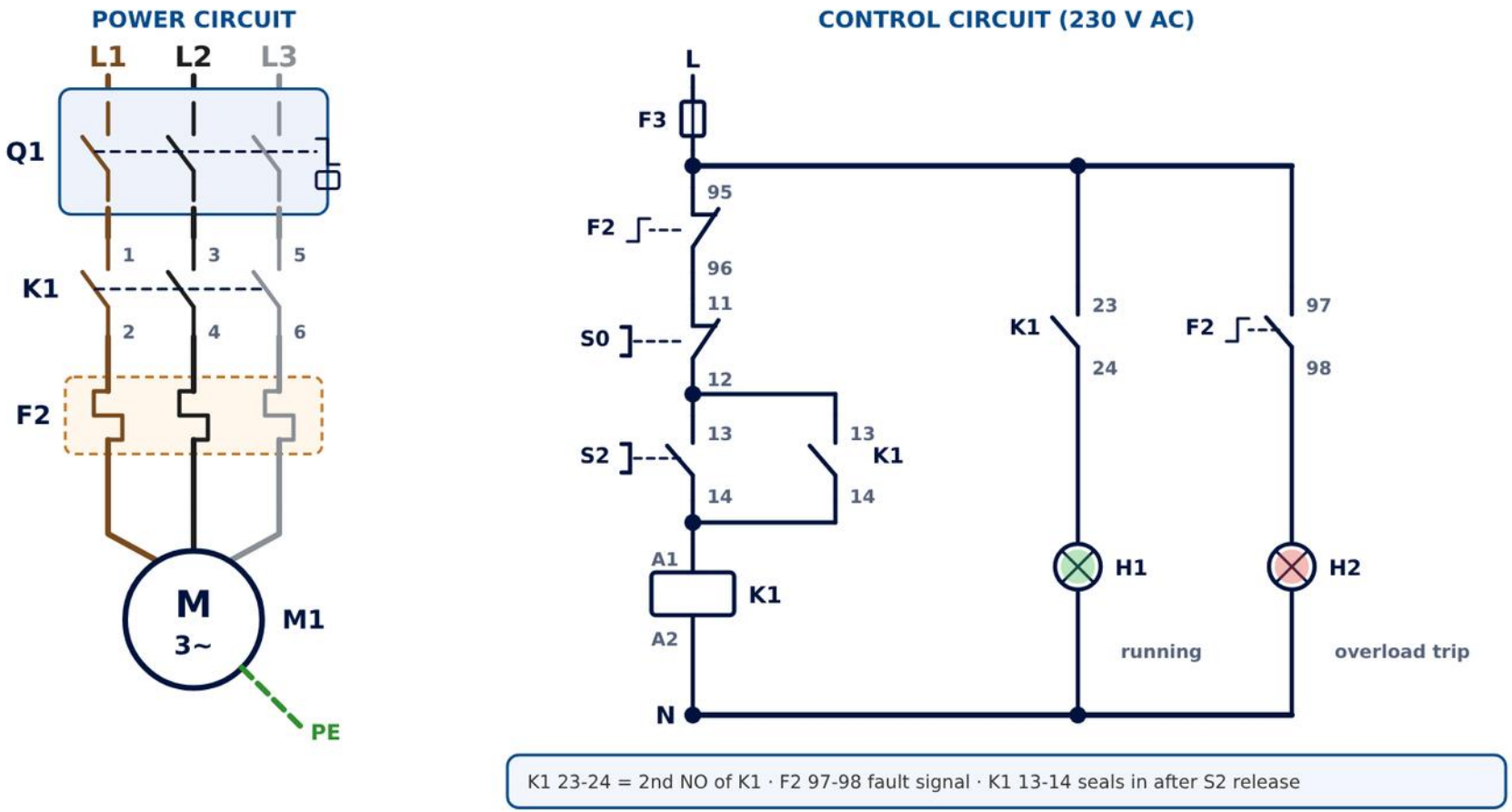
If the project has its own legend, it rules;
newer standard editions may use two-letter codes.
Terminal names vary by device.

Terminal marking: 1-2/3-4/5-6, 13-14, 21-22, 95-96, A1-A2

The marking on the device and its own wiring diagram always take precedence

Figure 4

Reading a sample schematic



K1 23-24 = 2nd NO of K1 · F2 97-98 fault signal · K1 13-14 seals in after S2 release

Example: start-stop with run and fault lamps

Q1 motor breaker · K1 contactor · F2 overload · F3 control fuse · S0/S2 buttons · H1/H2 lamps · M1 motor

Figure 5