

EC-Swap

Installation and commissioning — the essentials

WW-EC-SWAP-1

Version 1.1 (draft) · 22.10.2026

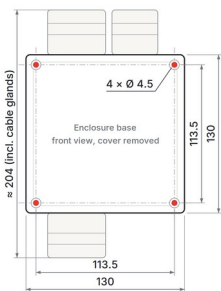
This guide summarises the installation and commissioning of the EC-Swap. It does not replace the **EC-Swap operating instructions (version 1.8)**, which must be read before any work: they contain all the safety instructions, technical data and diagrams.

DANGER Dangerous voltage 400 V

Contact with live parts will result in death or serious injury from electric shock or burns.

- Installation, commissioning and maintenance by a qualified technician only.
- Isolate and lock out all power supplies before any work (cabinet, EC-Swap, motor cable, EC motor).
- Motor output J2 remains **permanently live**, even when the motor is stopped, without an LS or HS command.
- The EC-Swap has no protection or isolating device of its own: supply it only via a three-pole circuit breaker of **16 A maximum**.

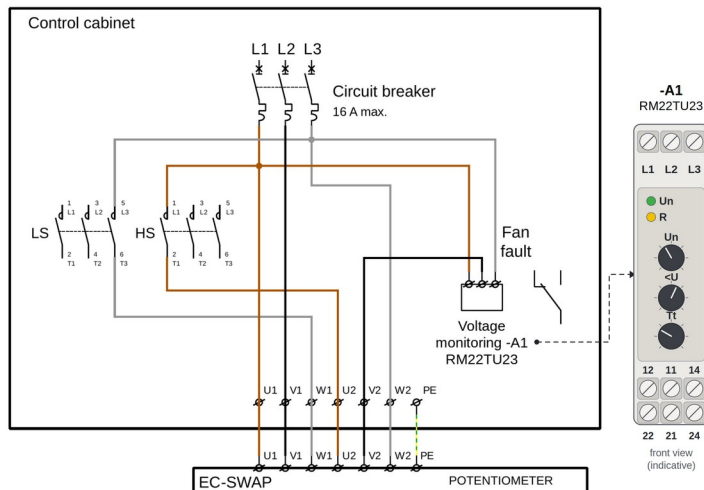
1 Mounting



Drilling template (dimensions in mm)

- Indoors, on a **vertical, solid and flat** surface; 0 to 45 °C, humidity < 80 % non-condensing, 2000 m max.; never in direct sunlight or in an explosive atmosphere.
- Keep **100 mm clearance** around the enclosure; overall height ≈ 204 mm including cable glands (2 at the top, 1 at the bottom).
- Remove the cover (4 screws), then fix the base with **4 screws Ø 4 mm** (not supplied, head Ø 7.5 mm max.) at the bottom of the corner wells: holes Ø 4.5 mm, spacing 113.5 × 113.5 mm.
- Degree of protection **IP65** only with the cover fitted, cable glands tightened on suitable cables and the unused cable gland sealed.

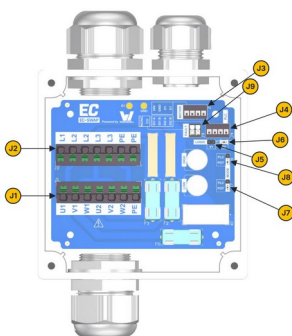
2 Adapting the control cabinet



Reference wiring: wiring diagram "EC-SWAP 1 fan", sheets 4 and 5

1. Isolate and lock out the cabinet power supply.
2. Disconnect the LS and HS contactors from the outgoing terminals to the old motor.
3. Connect **U1, V1, W2** to L1, L2, L3, downstream of circuit breaker -Q1 (16 A max.).
4. Connect **W1** to the LS contactor (pole 5-6, phase L3) and **U2** to the HS contactor (pole 1-2, phase L1).
5. Install relay **-A1** (Schneider RM22TU23) on L1, V2, L3: V2 must carry phase L2. Route its contact 11-12-14 to the fault signalling.
6. Connect the PE and keep the LS / HS interlock: never both commands at the same time.

3 Connecting the EC-Swap



Markings J1 to J9 on the board

Terminal block	Terminals	Connect to
J1 LS/HS	U1 V1 W1 U2 V2 W2 PE	cable from the cabinet (old motor cable)
J2 motor	L1 L2 L3 L3 PE PE	EC motor 3 × 400 V: L1, L2, L3, PE
J3 MOTOR	24V GND D1 E1	EC motor: 24 V (25 mA), ground, enable D1, 0-10 V setpoint E1
J9 FAULT	C0 NO/NC	motor fault contact (Ziehl-Abegg: 11 common, 12 NC)
J4 PLC	DI1 A/B DI2 A/B	PLC option (operating instructions, section 6.5)

Cross-sections: J1, J2 0.5 ... 2.5 mm² rigid, 0.5 ... 1.5 mm² flexible, stripping 9-10 mm; J3, J4, J9 0.25 ... 1.5 mm² (ferrule 0.75 mm² max.). Flame-retardant conductors; observe the printed terminal markings.

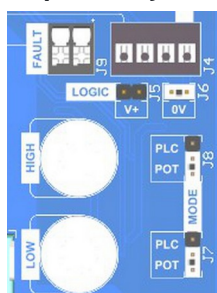
4 Commissioning

⚠ DANGER Live tests and adjustments

Cover removed: qualified technician, 1000 V insulated tools; do not touch J1, J2 or fuse holders F2, F3 and F5.

1. Check the mounting, the cabinet and the connections: no short circuit, PE continuity.
2. MODE jumpers J7 and J8 on **POT** (adjustment by potentiometers); check the LOGIC jumper J5 / J6.
3. Set the **LOW** and **HIGH** potentiometers to a low value.
4. Relay -A1: selector **Un to 400 V**; threshold <U and time delay Tt according to the installation.
5. Restore the power supply: on -A1, green LED (Un) and yellow LED (R) on, no fault signalled.
6. **LS test**: the motor starts at the LOW speed. **HS test**: it changes to the HIGH speed.
7. **Fault test**: on a motor fault, -A1 drops out (yellow LED off, contact 11-12 closed) and the "fan fault" alarm is reported to the cabinet.
8. Adjust LOW and HIGH, isolate and lock out, refit the cover (IP65), then put the installation back into service.

5 Speed adjustment



- **LOW** sets the motor speed for the LS command (low speed), **HIGH** for the HS command (high speed).
- Scale 0 to 100 = 0-10 V setpoint (output E1), measurable with a multimeter (V DC) between points **E1** and **GND** on the board.
- Apply the LS command and adjust LOW starting from a low value, then apply the HS command and adjust HIGH.
- Adjustment with the device live and the cover removed: only touch the potentiometers, with a 1000 V insulated screwdriver.
- MODE jumpers J7 and J8: POT position = setpoint set by the potentiometers, PLC position = setpoint supplied by the PLC.

6 Quick troubleshooting

Symptom	Possible cause	Remedy
The motor does not start at LS or HS	No 24 V from the motor on J3; D1 or E1 not connected; potentiometer at 0; no command on W1 or U2; fuse F2, F3 or F5 faulty	Check J3 and the 24 V; measure the setpoint between E1 and GND; adjust LOW / HIGH; measure W1 / U2; check fuses with power off
LS and HS speeds reversed	W1 and U2 swapped in the cabinet	W1 on the LS contactor (L3), U2 on the HS contactor (L1)
The motor runs without an LS or HS command	Residual voltage on W1 or U2: welded contactor, other control on the outgoing terminals	Check the LS / HS contactors and the wiring of the outgoing terminals
Permanent "fan fault" alarm (-A1 dropped out)	Motor fault; fault contact J9 incorrectly connected; V2 does not carry phase L2 (phase sequence); missing phase; unsuitable -A1 setting	Check the motor and J9 (CO, NO/NC); check L1, V2, L3 on -A1 and the phase sequence; Un = 400 V
Green LED of -A1 off	-A1 not powered: circuit breaker -Q1 tripped, L1 or L3 not connected	Find the fault before resetting -Q1; check the wiring of -A1
Fuse F2, F3 or F5 faulty	Fault in the installation	Eliminate the cause, then replace with power off by an identical fuse (0.5 A).

7 Key technical data

Supply	3 × 400 VAC, 50 Hz, without neutral	Max. current	16 A (upstream circuit breaker 16 A max.)
Logic stage	24 VDC, 25 mA, supplied by the EC motor	Setpoint E1	0-10 V, max. 1 mA
Protection	IP65 (cover fitted)	Temperature	0 to 45 °C; storage -10 to 50 °C
Enclosure	130 × 130 × 75 mm; ≈ 204 mm with cable glands	Qualified motor	Ziehl-Abegg GR31C-ZIK.DC.CR (ref. 116582)

8 Commissioning record

Date	Installer	LOW	HIGH	-A1: Un / <U / Tt	Remarks

Wellset — a brand of Workswell Sàrl · Rue de l'Industrie 10 · 1950 Sion · Switzerland · +41 27 326 60 00 · info@wellset.ch · wellset.ch
Complete operating instructions and wiring diagrams: wellset.ch/en/produits/ec-swap