



EV4 Quick Start Guide (SW≥1310): Sheet 1- Set up

1) INPUT Motor parameters (E1-xx & E2-xx) **Prog. menu**

How? Set **A1-01** to **2** (allows access to all **E1** and **E2** parameters). Input **E1-xx** and **E2-xx** parameters, which are given for **ELMO** motors in the **EV4 User Manual Annexure 1**. For other motors perform **Auto**

Tuning (Refer to EV4 User Manual, page 23) or ask for support from Blain Hydraulics. **Set A1-01 back to 3** (eases set-up procedure by accessing only necessary parameters).

2) CHECK the direction of motor rotation **Programming menu**

How? Give only levelling speed signal from the controller and observe the movement or hear the pump noise. If motor rotates in reverse direction correct go to parameter **b1-14** and change its setting (eg. If b1-14 is 1 then set it to 0 or vice versa).

3) CHECK oil temperature **Monitor Menu** → Insure that the temperature sensor is in oil

MAKE SURE THAT OIL TEMPERATURE IS BETWEEN 18°C AND 30°C

How? Read oil temperature [°C] from **U7-02**. For that, go to “**Monitor Menu**“, press **ENTER** and change **U1-01** parameter to **U7-02**. If reading is much different than the real oil temperature (like ±50°C) in the tank, **check the connections of temperature converter** (See pages 12 or 15 in EV4 User Manual).

4) OBTAIN pump parameters (P1-11 to P1-15) **Programming menu**

How? Go to www.blain.de/calc or install EV4 Calculator Android app. **SELECT** oil and motor type from **Table 1**, INPUT lift data in **Table 2** and **OBTAIN** pump parameters from **Table 3**.

Blain Hydraulics EV4 Calculator Show or hide All tables

Show or hide All tables

Table 1 Oil & Motor Table 2 Power unit Table 3 Inverter values

Oil selection

Oil type	Temperatur at 100 cSt	Temperatur at 25 cSt
ISO VG22	11 °C	37 °C
ISO VG32	18 °C	46 °C
ISO VG45	25 °C	54 °C
ISO VG68	32 °C	63 °C
Other	0	0

Motor selection

2 poles 50 Hz
2 poles 60 Hz
4 poles 50 Hz
4 poles 60 Hz

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Elevator data

Cylinder diameter [mm] P1-04	85	Flow rates [l/min]
Number of Cylinder P1-05	1	65.05
Suspend ratio P1-06	2	59.58
Empty car pressure [bar] P1-07	18	51.07
Pay load [kg] P1-08	1000	10.21
Dynamic press.increase P1-09	3	
Nominal speed [m/s] P1-16	0.4	
Intermediate speed [m/s] P1-17	0.35	
Inspection speed [m/s] P1-18	0.3	
Levelling speed [m/s] P1-19	0.06	
Loaded car pressure [bar]	32.6	

At 40 bar, 50 cSt => Pump: 71.6l/min

Pumpfixing

Deceleration parameters

Decel. switch distance 65 [cm]	
Decel. curve - start C2-03	0.5 sec
Decel. curve - end C2-04	1.6 sec
Max. frequency E1-04	60 Hz
Deceleration ramp C1-02	2.12 sec

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Pump performance data

Show or hide All parameters

Parameter	Input	Explanation
P1-11	72.7	pump flow at 100 cSt viscosity & at loaded c
P1-12	64.2	pump flow at 25 cSt viscosity & at loaded c
P1-13	2700	RPM at which pump data sheet was derive
P1-14	76.2	pump flow at empty car pressure & at 100
P1-15	81.95	pump flow at 1 bar pressure & at 100 cSt

Pump parameters

5) INPUT lift data into the drive

How? Go to Programming menu → Select **P1** parameters → Press **ENTER** → Input the value for **P1-01** → Press **ENTER**. Do this for all **P1-xx** parameters. An example is given below.

P1 Parameter	Parameter description	Example	Parameter type
P1-01	Hydraulic Oil ISO VG Number	3: ISO VG 46	Oil parameters
P1-02	Temperature at 100 cSt	25°C	
P1-03	Temperature at 25 cSt	55°C	
P1-04	Ram Diameter	85mm	Lift parameters
P1-05	Number of rams	1	
P1-06	Suspension Ratio	1	
P1-07	Empty car static pressure	18bar	
P1-08	Pay load	1000kg	
P1-09	Dynamic pressure in-crease	3	Pump parameters (obtain them from www.blain.de/calc)
P1-11	Flow at 100cSt & at max. Pressure	72,7 l/min	
P1-12	Flow at 25cSt & at max. Pressure	64,2 l/min	
P1-13	Pump Rated Speed	2750	
P1-14	Flow at empty car pressure & at 100cSt	76,2 l/min	
P1-15	Flow at 1 bar pressure & at 100cSt	81,3 l/min	Speed parameters
P1-16	Nominal speed	0,40 m/s	
P1-17	Intermediate speed	0,35 m/s	
P1-18	Inspection speed	0,30 m/s	
P1-19	Leveling speed	0,06 m/s	

6) INPUT deceleration parameters (C1-02, C2-03 and C2-04)

How? From **Table 2** read the values of **C1-02**, **C2-03** and **C2-04** and input them into the drive (Go to Prog. menu → Select **Cx-xx** parameters → Press ENTER → Modify the value → Press ENTER).

7) SET P4-01 to 1 (Perform basic calculations)

How? Go to Prog. menu → Select **P4-01** parameters → Press ENTER → Set the value to **1** → Press ENTER (after pressing ENTER the value automatically returns to 0)

8) MAKE SURE that lift is empty and the shaft switch distances will allow levelling travel (See page 33 and correct deceleration switch distances if necessary). To cancel teach run set **P4-01** to **0**.

9) SET P4-01 to 2 (Prepare for a teach run)

How? Go to Prog. menu → Select **P4-01** parameters → Set the value to **2** → Press ENTER
The red ALM LED blinks and the drive asks for an empty car teach run at nominal speed.

10) PERFORM A TEACH RUN: Send the empty car up to the next stop at nominal speed

11) SET P4-01 to 3 (Save registered data)

How? Go to Prog. menu → Select **P4-01** parameters → Set the value to **3** → Press ENTER
After pressing ENTER the red ALM LED goes out.

IF NECESSARY PERFORM FINE TUNING by modifying the parameters given in page 29

Note 1: It is acceptable if Auto-tuning ends with **End 1**, **End 2** or **End 3** warnings.

Note 2: The terminals **HC**, **H1**, **H2** (at the inverter) must be linked otherwise, the motor will not start for auto tuning. If the Safe Disable function is not utilized for disabling the drive, **HC**, **H1**, **H2** must also be linked.

Note 3: To obtain unknown motor parameters approximately see EV4 User Manual page 54.

DELAY DEENERGIZING MOTOR CONTACTORS ABOUT 1 SECOND AFTER THE CAR REACHES THE STOP SWITCH (i.e. After Forward Run-S1 signal is removed).