

Chapter 8 Basic Setting Up Procedure

BEFORE ATTEMPTING TO CONNECT POWER, CAREFULLY CHECK

1. Main power supply voltage is correct.
 2. Motor is of correct voltage rating and is connected in either star or delta as appropriate.
 3. All external wiring circuits:-
 - Power connections
 - Control connections
 - Motor connections
- NOTE:- Completely disconnect the controller before point to point checking with a buzzer or when checking insulation with a meggar.
4. Check for damage to equipment.
 5. Check for loose ends, clippings, drilling swarf, etc., lodged in the drive or ancillary equipment.
 6. If possible check that the motor can be turned freely and that cooling fan is intact and free of obstructions.

CAUTION

1. That rotation of the motor in either direction will not cause damage.
2. That nobody else is working on another part of the equipment and will be affected by powering up.
3. That other equipment will not be adversely affected by powering up.

PREPARATION

1. Prevent application of the main power supply by removal of the supply fuses or isolate via supply circuit breaker.
2. Disconnect the load from the motor shaft, if possible.
3. Check switch selection:-

SW1	Supply Frequency 50/60Hz.
SW2	} V/F Characteristics.
SW3	
SW4	Up Ramp.
SW5	Down Ramp Range.
SW6	OFF
SW7	} Stopping Mode
SW8	
SW9	OFF

SW10

SW11

SW12

Power Rating

Controllers are shipped from Eurotherm Drives with switches set to the lower power rating for each power rating.

4. Pots are set:-

P1	Boost	Anticlockwise	(no boost)
P2	Current Limit	Clockwise	(full current)
P3	Maximum Speed	Mid	(approximately base speed)
P4	Minimum Speed	Anticlockwise	(zero minimum speed)
P5	Ramp Up	Clockwise	(slow ramp)
P6	Ramp Down	Clockwise	(slow ramp)

5. Check external run contacts are open.

6. Check external setpoints are all zero.

POWER ON

Once all the proceeding steps are completed and understood, the supply fuses/circuit breaker may be replaced and power applied to the drive. Although fairly general, the following assumes a single drive and motor configuration.

1. At switch on the “Power ON” (LED 1) should illuminate as should DC Link charged LED.

2. Close RUN contact, either give drive small speed demand via speed potentiometer or rotate slightly clockwise minimum speed potentiometer. Motor should rotate slowly.

If motor rotates in wrong direction either:- Swap two of the output phases (U, V, W).
Close direction switch.
Power down and hard wire terminal 4 to terminal 10.

3. With speed potentiometer set to zero set minimum speed to desired minimum running speed of motor.

4. On applications where high starting torque is required increase of low voltage BOOST may be necessary. Excessive adjustment may cause drive to trip on over current and will cause motor to overheat if left running in this condition.

5. Set speed potentiometer to 100% and either increase or decrease maximum speed potentiometer to set maximum running speed of the motor.

6. By varying the speed demand potentiometer the ramp times may be set by adjustment of Ramp Up/Down potentiometers.

7. If Ramp down times cannot be achieved without the drive tripping on over voltage alarm, then a 5801 brake unit must be fitted.

8. Stopping modes may be selected via SW7 and SW8. Power must be removed before this adjustment is made.

9. If the motor used is rated below the rating of the inverter a reduction in current limit (anticlockwise adjustment of P2) will give electronic protection of the motor, and a crude form of torque limit. If more than one motor is used, each must be protected via an appropriate overload.

APPLICATION NOTES AND HINTS

1. Always use gold flash relays, or others designed for low current operation (5mA) on all control wiring.
2. Use screened cable on all control wiring.
3. Place control and power wiring in different ducts.
4. Isolation between inverter and motor may be employed although it is recommended that this is operated when motor is stationary or in emergencies only. Note that dangerous voltages are present within the drive for a few minutes after the power is removed.
5. Occasionally a motor line-choke (582 - CO055930) (583 - CO055931) is recommended to prevent nuisance over-current tripping when motor cables exceed 20m in length. 20m is a nominal length; some installations may be better, others worse.
6. All power factor correction equipment must be removed from the motor before an inverter can be used.
7. Motors with low efficiency and small $\cos \theta$ (power factor) should be avoided since they require a larger KVA rated inverter to produce the correct shaft kW.
8. On applications where synchronous, slip ring, pole change or brake motors are used, please consult with Eurotherm Drives Limited prior to installation.