Sumitomo Drive Technologies

Sumitomo (SHI) Cyclo Drive Asia Pacific Pte. Ltd.
36 Tuas South Street 3, Singapore 638031
Tel (65) 6863-2238 Fax (65) 6863-4238 www.sumitomo.com.sg

How to connect Sumitomo Cyclo Drive ® and Hyponic Drive ® Brake-motors in 3 Phase 400V Class (380-440V) Power Supply

New motors and brake-motors for Cyclo Drive® and Hyponic Drive ® for power range of 0.1kW to 3.7kW are built for dual voltage use.

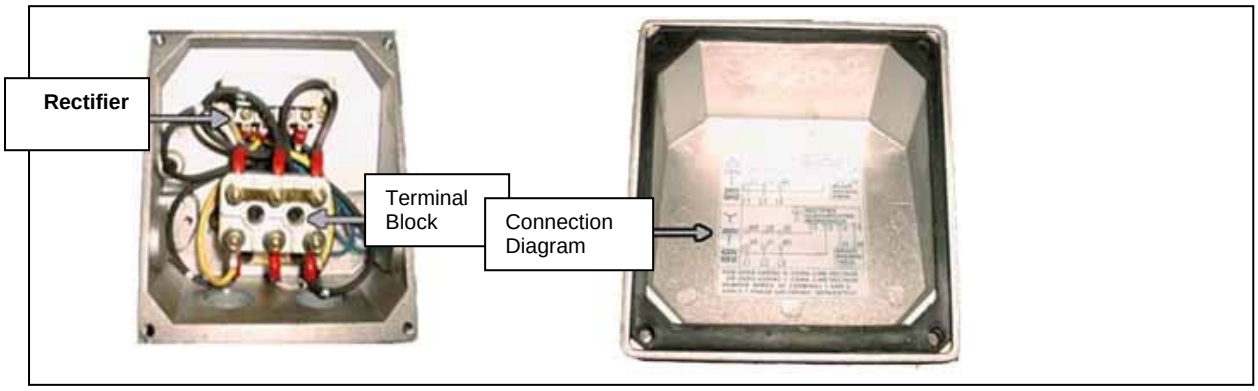
These Dual Voltage motors can be operated in the following 3Ph Voltage range:

200V Class:	50Hz :	220-240V	60Hz :	220V
400V Class:	50Hz :	380-415V	60Hz :	380-440V

The brakes fitted to these motors can operate in both 200V as well as 400V class power supply.

The terminal box of the brake motor contains a terminal block, a rectifier and wiring diagram as shown in Figure 1. The wiring diagram is shown on the inside cover of the terminal box (Fig. 1b). Fig. 1a shows the connection diagram of a brake motor operated in 400V Class power supply.

Figure 1:



1a 1b

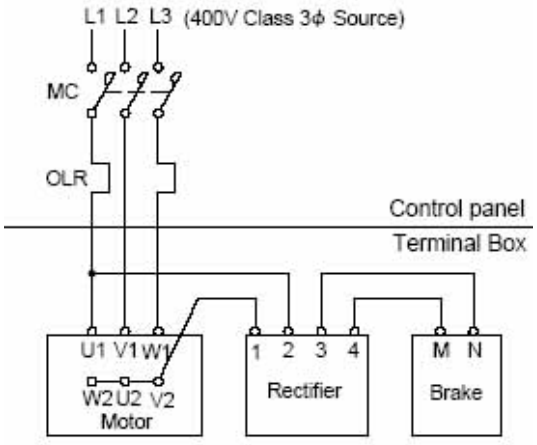
Procedure to connect these brake motors to 400V Class power supply:

Figure 2 shows the wiring diagram of the brake motor at 400V Power Supply.

There are ten lead wires inside the terminal box.

- Six motor wires (namely U1, V1, W1, U2, V2 and W2) which terminate at separate terminals of the block,
- Two brake wires, “M” and “N”, which are connected to terminals “3” and “4” of the rectifier respectively.
- Two wires, “1” and “2”, are from the rectifier.

Figure 2:



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When connecting the brake motor in 400V power supply,

a) W2, U2 and V2 are connected together to form a “Star-Point” using terminal strips (Fig 2). The strips are supplied in a plastic bag usually inside the Terminal box.

b) M and N are connected to “3” and “4” of the Rectifier (usually pre-connected at the factory).

c) “1” of the rectifier is connected to the “Star-point”.

d) “2” of the rectifier is connected to U1.

e) Main supply lines L1, L2 and L3” are connected to U1, V1 and W1 respectively.

When the power is “ON”, the brake disengages. When power is “OFF”, the brake activates to stop the motor.

Wire connection when operating the brake motor with an inverter:

When the above Dual Voltage brake-motor is operated with an inverter, the control of motor and brake are separated. It is because at low frequency, Inverters cannot produce enough voltage to energize the brake.

Figure 3 shows the wiring connection when a Dual Voltage Brake-motor is operated with an inverter.

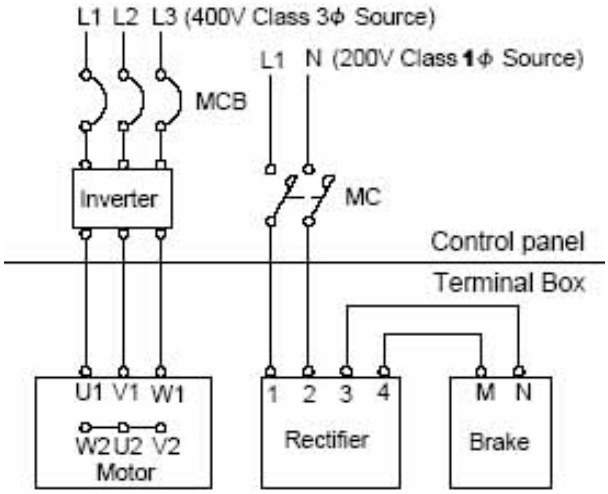
Main lines L1, L2 and L3 are connected to the “input terminals” of the Inverter.

The “output terminals” of the Inverter are connected to U1, V1 and W1 of the motor.

“1” and “2” of the brake rectifier are connected in single phase, to “L1” and “N” (where, “N” represents “Neutral”) via a Magnetic Contactor (MC).

This connection is generally used as most factories which operate on a 3Phase 400V Class Power Supply will have a Single Phase power supply of 200V (220-240V) available.

Figure 3:



Note:
In some rare cases, where separate single-phase lines are not available, the abovementioned 200V Class brake cannot be used. If your factory has such problem, please advise us at the time of the inquiry. We will offer gear-motors with 400V class Brake. This is only applicable when operating the brake-motor with an Inverter. With 400V Class Brakes, delivery and price are affected.

For details, please contact your salesperson or Sumitomo Drive Technology.