

Motor Brake Relay

Type SX 9033/500
ministop

NEW!!
High frequency motor
option now available



Model SX 9033/500
Model SX 9033/500HF, Model SX 9033/502

NB: Due to the many variations of machine design, size and configuration, this unit is not supplied prewired.

Description

A compact IP65 screw mounted motor brake relay assembly, designed for retrofitting to existing DOL and Star Delta starter systems. SX 9033/500 is suitable for motors rated from 7.5 kW to 22 kW, or greater if optimum stopping time is not required. Braking current (I_b) is adjustable via a potentiometer from 5A to (85A with restricted use), with an adjustable time delays (t_b) of 1 to 30 sec.

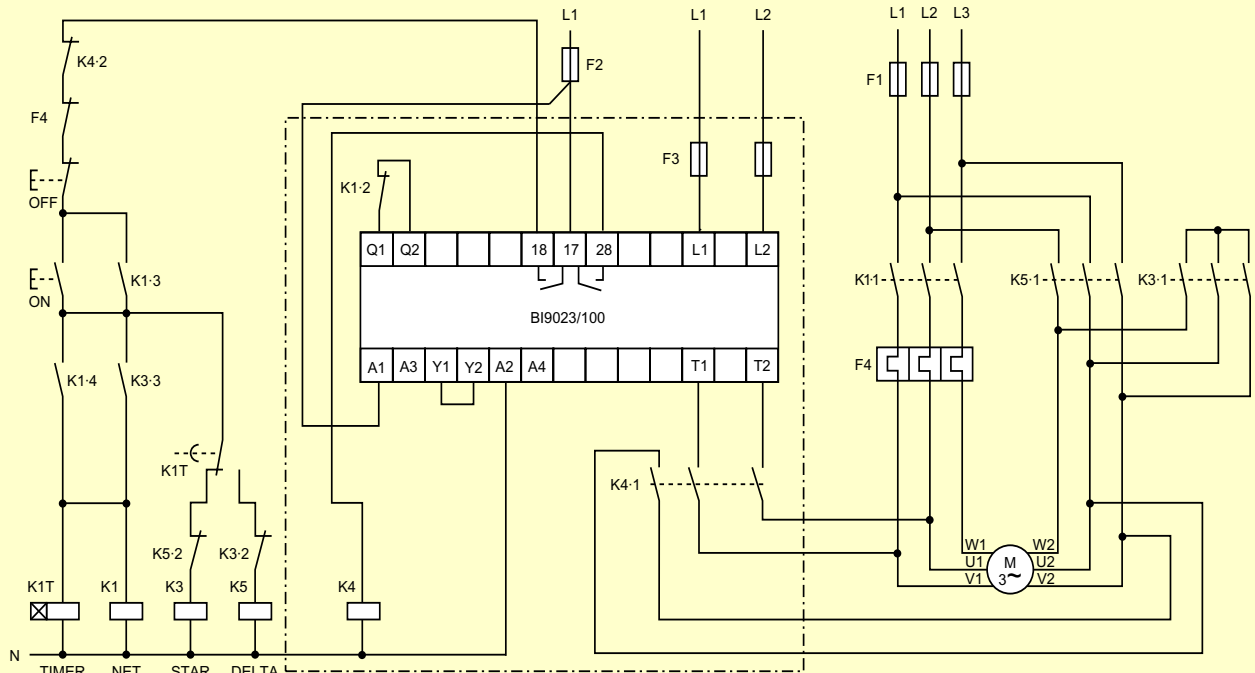
Indication on the braking module is via a green LED for power connected and via yellow LEDs for DC current injection and start circuit interlock. The braking module requires an external contactor to connect the DC output of the relay to the motor. This contactor is controlled by contact 17 - 28, see diagrams 1 & 2. The inter-lock contact 17 - 18 must be wired into the main contactor control circuit to prevent motor restart while injecting braking current.

Braking is initiated by a close - open - close Volt free contact sequence at terminals Q1 - Q2.

High frequency motor option fitted with BI9023/200.

Application Circuit Diagram

SX 9033/500 with BI 9023/100 for Star Delta applications



230Vac auxiliary supply option connect to A1 - A2, link Y1- Y2

Fuses F3 to be superfast or ultrafast semi - conductor fuses rated at 50A

Diag 1

Warning

Attention !!

This unit **must be isolated** from the mains supply before any work is carried out on the motor or motor control circuit.

Adjustments and wiring should only be carried out by qualified persons.

NB: when installing options supplied with **BI 9023/200** on high frequency low impedance motor applications, please ensure that the L1-L2, A1- A2 and the coil connections to K4 contactor are all connected to a 50Hz supply, not the high frequency connection of the motor.

Special Note

When monitoring the injected DC current we recommend the use of a **Moving Iron or true RMS current measuring instrument**, connected to terminal T2, to allow the amount of DC current flowing in the motor to be limited to no more than 2.8 times the motor rated current for Delta connected motors or 65A or (85A with de rated cycle time).

If the motor is **Star** connected, limit the DC current to no more than 2 times the rated motor current.

Fuses F3 always to be replaced with 50A rated superfast or ultrafast semiconductor fuses for up to 65A applications, for 85A applications fusing information on request.

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Description

Basic Setting :
Set pot (lb) to min (anti clockwise), set time delay on pot (tb) to 30 sec. Initiate a stop cycle and turn up current pot (lb) slowly to a maximum of no more than 2.8 x the motor line current or 65A. Reduce brake time pot (tb) to a suitable level normally around 1 to 2 seconds longer than the motor takes to stop.

Restart the motor and fine tune the settings until the required stop times are achieved.

Wiring Information :
Connect wiring for phases L1, L2 to fuses (F3) and then respectively to terminals L1 and L2 on BI 9023/100.

Connect N/C contact 11 - 12 of IK 8701 trigger relay (if fitted) or N/C auxiliary contact of main contactor to terminals Q1 - Q2 on BI 9023.

Description

Wiring Information Continued :
If trigger relay IK 8701 is required, terminals A1 and A2 should be wired across the coil terminals of contactor K1 (see diagram 3).

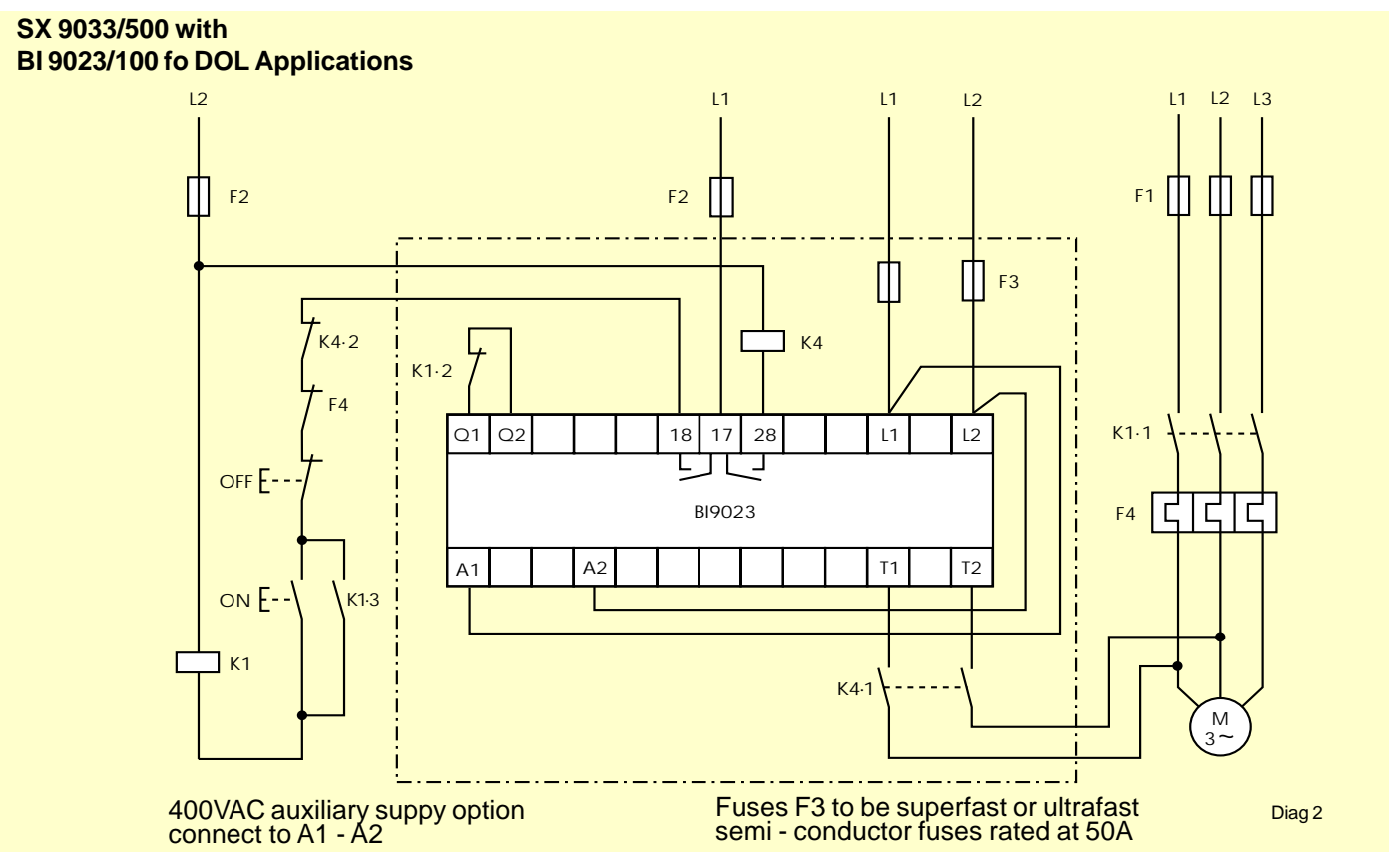
Connections A1 and A2 on BI 9023/100 should be connected to a suitable auxiliary supply.

Contact 17-18 should be wired in series with the stop pushbutton circuit via a suitable fuse (5A), (see diag 1 and 2).

All control wiring to be 1.5 mm² min or dimensioned to the control fuse circuit rating, Conduit or gland entry, 20 mm or 25 mm.

All wiring to fuses F3, and power terminals on BI 9023/100, L1,L2 and T1,T2 to be 6mm² stranded min.

Application Circuit Diagram



Notes

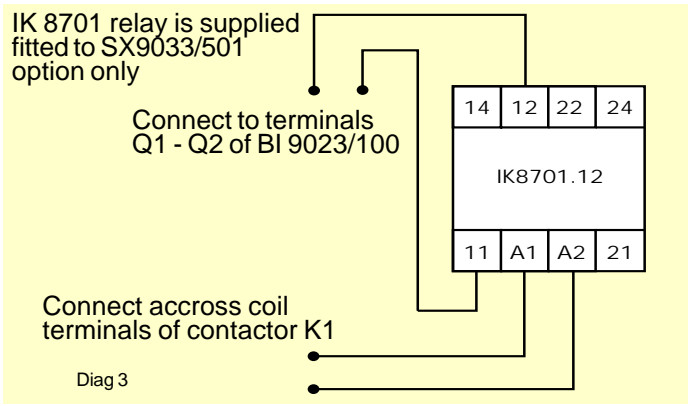
Key switch override of braking function: SX9033/502 option
An external key switch with 1 N/O, 1N/C contacts may be used to override the braking function of BI 9023 for machine set up purposes.

The N/O key switch contact should be connected across terminals Q1 - Q2 in parallel with the N/C contact from the common or net contactor K1 (see also star delta diag 1). The N/C key switch contact should be placed in series with the hold on contact K1.3 of K1 contactor coil to create a jogging function and prohibit the machine from auto running.

If the key switch is closed during the machine operation, a braking cycle will result. **NB:** limit jog functions to no more than 3 per min / 6off.

NB: The key should **always** be removed before the machine is used.

Connection Diagram For IK 8701 Trigger Relay (SX9033/501)

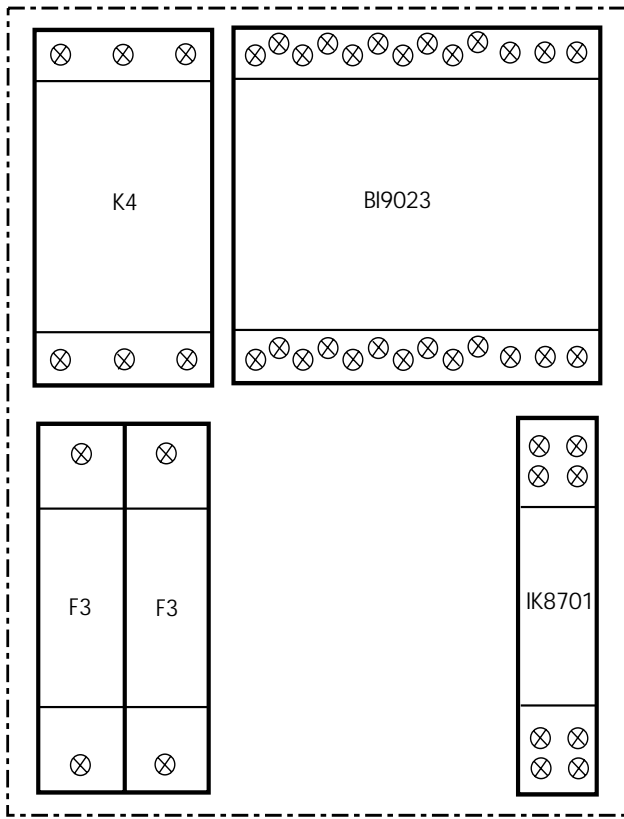


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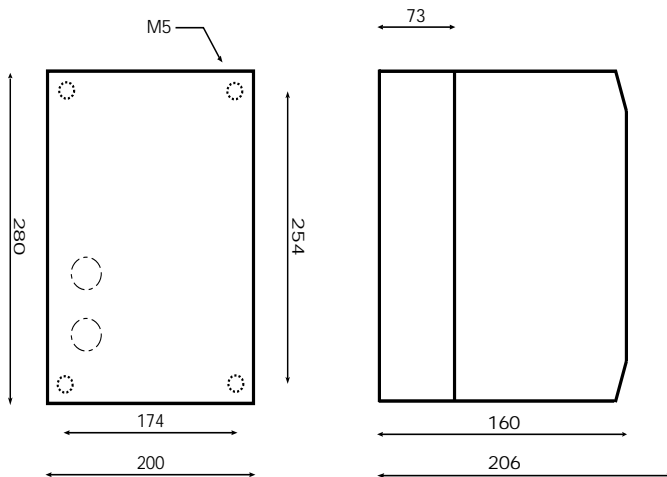


Layout



NB: IK 8701 relay supplied in SX9033/501 option only

Dimensions



Information Required With Order

• Model type • Auxiliary & Supply Voltage • Current •
Example: Motor Brake Module, SX 9033/500, 400V, 400V, 85A

Indication

Green LED - (ON) when power connected
(flashing) when braking.

Relay 1 - Contact 17-18

Yellow LED 1 - (ON) when relay 1 energised
17-18 closed, start circuit is enabled.

Relay 2 - Contact 17-28

Yellow LED 2 - (ON) when relay 2 energised
17-28 closed during braking cycle.

- (Flashing) indicates a fault, 17-18, 17-28 open.

1 - pulse Over temperature fault on semiconductors.

4 - pulses Phase failure on L1, L2.

6 - pulses Incorrect frequency.

Faults can be reset after they are cleared, by removing the power to the auxiliary supply terminals A1 - A2 for 5 seconds.

Auxiliary Supply Options:

Option-1, Multi Voltage Auxiliary.

AC 115V A1-A2 Link, A1-Y1, A2-Y2

AC 230V A1-A2 Link, Y1-Y2

DC 24V A3-A4 No Link

Option-2, 400V Auxiliary.

AC 400V A1-A2 No Link

Specifications

Nominal Voltage	L1, L2 200 to,480Vac
Voltage Tolerance	0.8 – 1.1Vn
Auxiliary Voltage	110Vac / 230Vac plus 24Vdc or 400Vac
Frequency	50 to 60Hz
Burden	3VA
Braking Current (ib)	5 - 65A (85A)
Braking Time Delay (tb)	1 to 30 sec
Reaction Time	1 sec
Stops Per Hour @ 65A	15 / Hr @ 30 sec duration
Stops Per Hour @ 85A	15 / Hr @ 20 sec duration
Control Contact Ratings	400V (AC1) 3A
Temperature Range	-20 – +55°C
Protection Class	Case IP65, Terminals IP20
Enclosure Material	Thermoplastic Vo rating UL94
Terminations	2 x 2.5mm ² solid 2 x 1.5mm ² stranded ferruled 1 x 6mm ² stranded ferruled

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