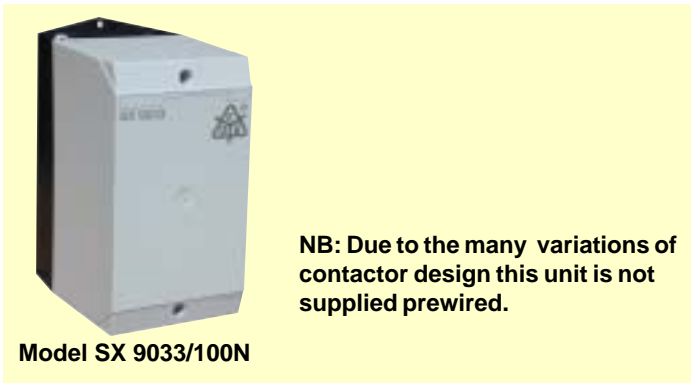


Motor Brake Relay

Type SX 9033/100N
ministop

New!! with single pot adjustment



NB: Due to the many variations of contactor design this unit is not supplied prewired.

Model SX 9033/100N

Description

A compact IP65 screw mounted motor brake relay assembly, designed for retrofitting to existing DOL and star delta starter systems. SX9033/100N is suitable for motors rated from 500W to 7.5kW, or greater if optimum stopping time is not required. Braking current (IB) is adjustable via a potentiometer scaled 10-100% (2.5A to 25A), with a built in current limit which is scaled to the actual current % setting. Indication is via three LEDs' which indicate power connected (green), fault indication (red) and DC current injection (Yellow). The braking module BA9034N incorporates standstill monitoring and an internal contactor which connects the DC output of the relay to the motor. The inter-lock contact X5-X6 is utilised to avoid motor restart while injecting braking current and a built in safety brake override timer will stop the braking cycle if standstill is not detected within the safety time. An 11 sec safety time is standard with 32 sec available on request. Braking is normally initiated by a close - open - close Volt free contact sequence at terminals X3-X4, usually the opposite to the main motor contactor sequence, this sequence can also be manually triggered via the red button on the IK interface module for testing. However if this contact fails to function, BA 9034N has a built in back EMF detection circuit which will automatically detect motor turn off and a braking cycle will be initiated. Contact X7 and interface relay IK8701 can be used to control star contactors, see diagram 2.

Special Note

When monitoring the injected DC current we recommend the use of a **true RMS or moving iron instrument** to limit the injected current to no more than 2.8 x the motor rated current for delta connected motors or 2 x the rated current for star connected motors or 25A whichever is achieved first, low reading errors will often occur with other types of instrument.

Application Circuit Diagram

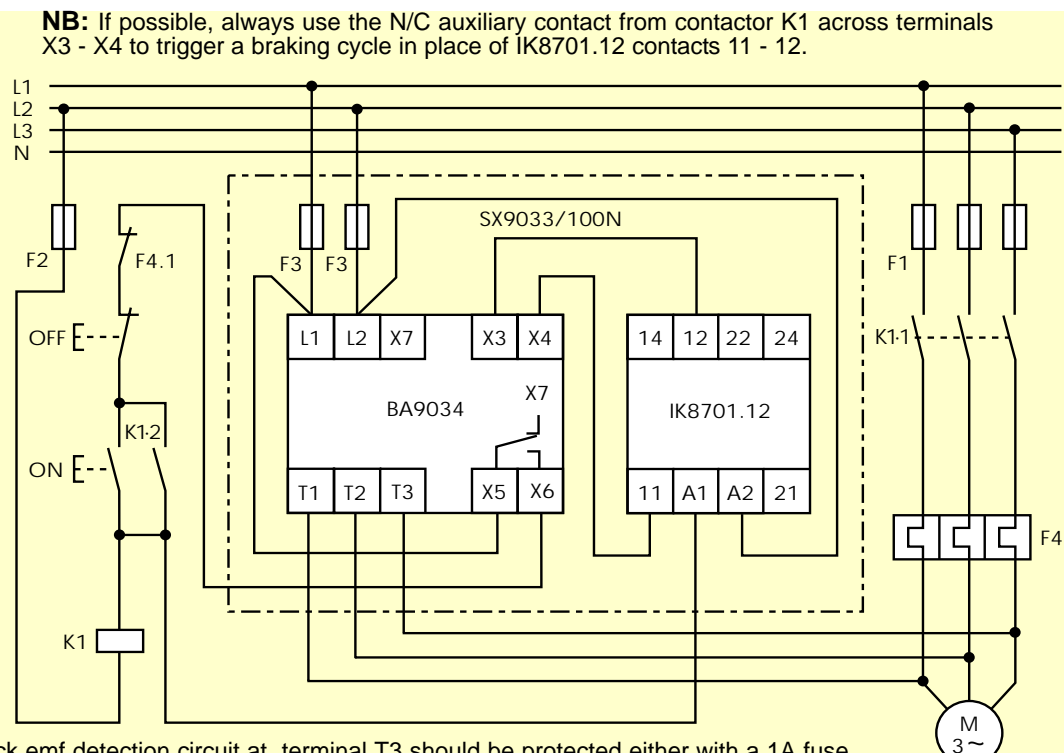
DOL

Fuses F3 to be superfast or ultrafast semi - conductor fuses rated at 32A

Fuse F2 to be 5A Max

NB: Return path for main contactor coil to be connected via fuse F2 to phase L2

A1, A2 on IK8701 to + and N for 110Vac auxiliary connection



NB: If possible, always use the N/C auxiliary contact from contactor K1 across terminals X3 - X4 to trigger a braking cycle in place of IK8701.12 contacts 11 - 12.

NB: The wiring to the back emf detection circuit at terminal T3 should be protected either with a 1A fuse mounted as close as possible to the motor connection, or the wiring between terminal T3 and the motor must be wired with either double insulated cable or cable rated for protection via fuse F1 .

Diag 1

Braking Current Adjustment

Connect power to L1 - L2, (green LED on), set current pot (IB) to min (anti clockwise) and initiate a braking cycle via X3 - X4, (yellow LED (IB) on), slowly turn up the current pot until the motor starts to brake, then turn pot up further to a maximum of no more than 2.8 or 2 x the motor line current measured at terminal T2. Restart the motor and re initiate a braking cycle, if necessary re adjust until the desired stopping time is achieved. The yellow LED (IB) should turn off 1 - 1.5sec after motor standstill has been detected. If standstill monitoring is not detected either adjust stopping time to 7 to 9 sec and the safety timer will then turn off the brake current after 11sec or contact Dold Industries for further application advice.

Braking Current Adjustment Continued

If the red LED (Error) flashes and contacts X5 - X6 remain open, the unit has detected a fault, please see fault diagnosis overleaf. The red LED should not illuminate under normal operation, the fault can be reset by removing power to the BA9034N.

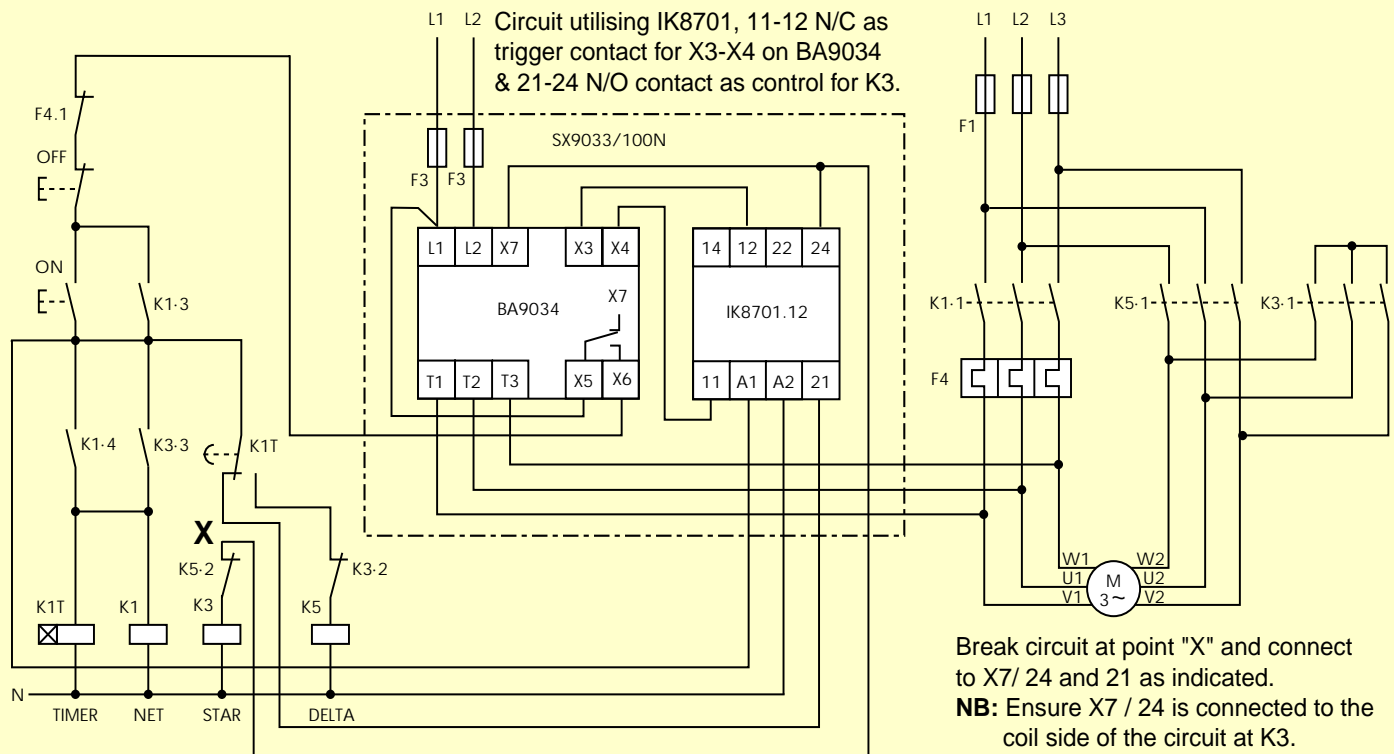
Special Note

All internal wiring to be 2.5 mm² min
Fuse F2 to be 5A max.
Conduit or gland entry 20 mm or 25 mm.
NB: Please ensure that the return path for the main contactor coil K1, is connected to L2 (for 3 phase systems), ie the same phase as terminal A2 on the interface module IK 8701.

Application Circuit Diagram

Star delta

NB: If possible, use the N/C auxiliary contact from contactor K1 across terminals X3 - X4 to trigger a braking cycle in place of contacts 11 - 12 of IK8701.12.



NB: The wiring to the back emf detection circuit at terminal T3 should be protected either with a 1A fuse mounted as close as possible to the motor connection, or the wiring between terminal T3 and the motor must be wired with either double insulated cable or cable rated for protection via fuse F1 .

Fuses F3 to be superfast or ultrafast semi-conductor fuses rated at 32A.

Diag 2

Indication

Green LED, (Run)	(On) Power connected
Yellow, LED, (IB)	(On) DC injection braking
Red LED, (Error)	(Off) System healthy
Red LED, (Error)	(On Flashing) System fault.
Flashing x 1 pulse	Incorrect mains frequency. Contact manufacturer for advice.
Flashing x 2 pulses	Set brake current is not achieved. Brake current circuit broken. Motor winding resistance too high. Repair circuit or reduce braking current and allow longer braking time.
Flashing x 3 pulses	Overtemperature of brake unit. Duty cycle exceeded. Reduce braking cycle time. Increase cooling in enclosure.
Flashing x 4 or 5 pulses	System error Return to manufacturer.
To reset Error fault (X5 - X6 open), cycle power to L1 L2.	

Special Note

Fuses F3 to be Superfast or Ultrafast Semi-conductor fuses rated at 32A.

Fuse F2 to be 5A max.

All internal wiring to be 2.5 mm² min

For 3 phase 3 wire systems, ensure terminal A2 on IK8701 is connected to terminal L2 on BA9034N and the return paths for the contactor coils are connected to phase L2 via a suitable fuse, or connected to terminal A2 on IK8701.

Conduit or gland entry 20 mm or 25 mm.

WARNING !!

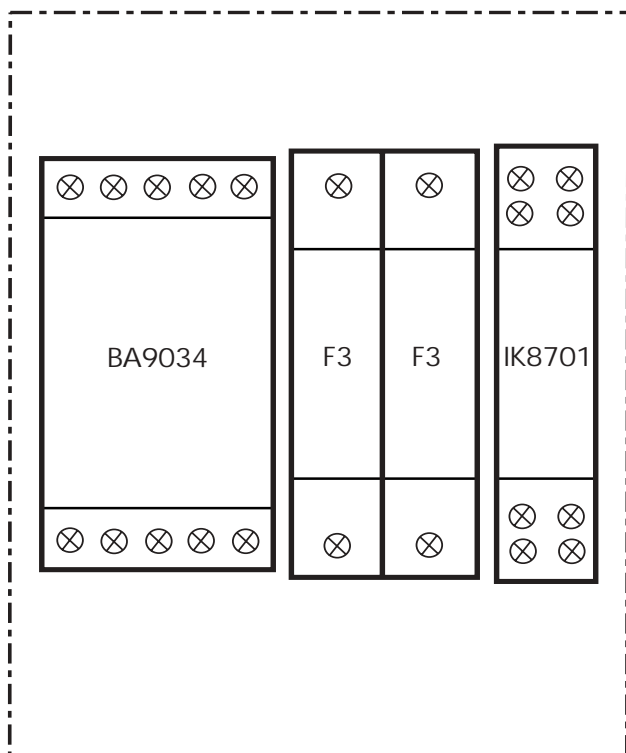
Please ensure this product is only installed and adjusted by electrically qualified personnel and the wiring to the unit and associated fusing is correct for the rated motor current.
If in any doubt please contact Dold Industries Ltd.

Motor Brake Relay

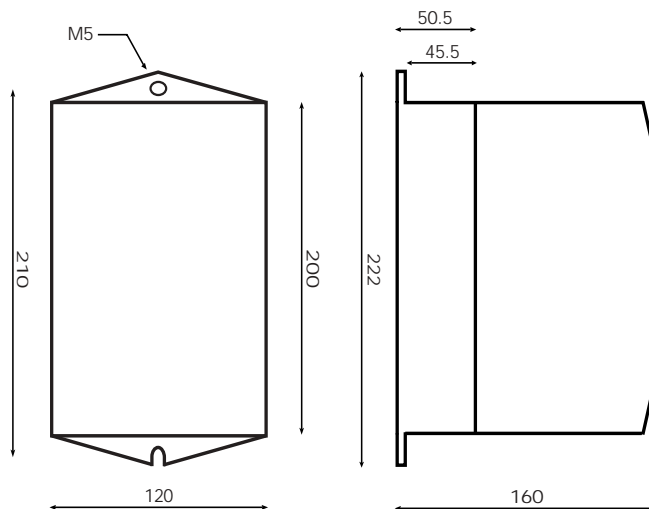
Type SX 9033/100N
ministop



Internal layout

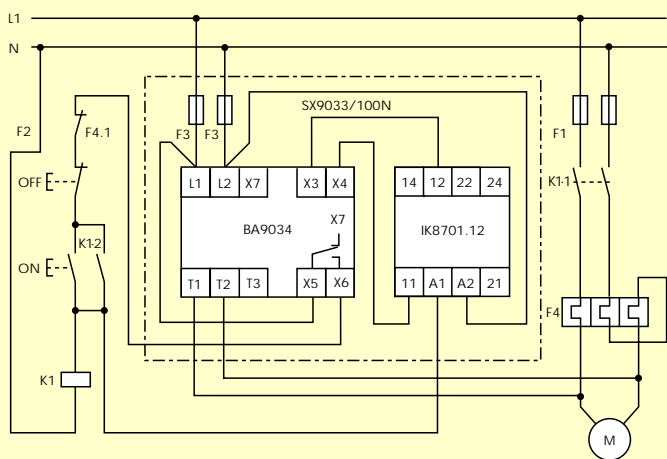


Dimensions



Application Circuit Diagram

Single phase option



NB : For single phase applications, the motor is connected to T1, T2 L & N are connected to L1 & L2, terminal T3 is not connected. The motor must run for a min of 3 seconds and a minimum current of 5A injected for standstill monitoring to be reliably detected.

Specifications (SX9033/100N)

Nominal Voltage	230V or 400Vac (to be specified)
Voltage Tolerance	0.9 – 1.1Vn
Auxiliary Voltage	110V, 230V, 400V ac (to be specified)
Frequency	50Hz +/- 1 Hz
Burden	3VA
Braking Current (IB)	2.5 – 25A (10 -100%)
Minimum On Time	>2s for single phase connection
Standstill detection range	5 – 25A
Braking Voltage (400V)	10 – 190V dc @ T1 - T2
Safety Time Delay	11sec max (32 sec option)
Reaction Time	0.2 to 2 sec motor back EMF dependant
Stops Per Hour @ 25A	60 / Hr @ 5 sec duration
Control Contact Ratings	400V (AC1) 3A
Semiconductor rating	1250 A ² /s
Temperature Range	0 – +45°C
Protection Class	Case IP40 Terminals IP20
Enclosure Material	Thermoplastic Vo rating UL94
Terminations	2 x 2.5mm ² solid 2 x 1.5mm ² stranded ferruled

Information Required With Order

• Model type • Motor supply • Auxiliary supply
Example: Motor Brake Relay, SX 9033/100N, 400V, 400V, 25A

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