

SIB Enclosed Soft Start User Guide

(7.5kW~55kW)



V1.1.0

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Declaration of Conformity

Willpower Electrical Limited trading as Motor Control Warehouse hereby states that the Enclosed Soft Start range of products (SIB) conforms to the relevant safety provisions of the **Low Voltage Directive 2006/95/EC** and the **EMC Directive 2004/108/EC** and have been designed and manufactured in accordance with the following harmonised European standards:

EN61000-6-2	EMC immunity in industrial environment
EN61000-6-4	EMC emission in industrial environment
EN61010-1	Safety
EN60529: 1992	Specifications for the degrees of protection provided by enclosures

Model	kW Rating	Input Voltage
SIB7.5EN400V	7.5kW	380-440V
SIB11EN400V	11kW	380-440V
SIB15EN400V	15kW	380-440V
SIB22EN400V	22kW	380-440V
SIB30EN400V	30kW	380-440V
SIB37EN400V	37kW	380-440V
SIB45EN400V	45kW	380-440V
SIB55EN400V	55kW	380-440V

Signed	
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Position	Technical Director
Date	17.03.2018

Safety Information

This chapter provides very important information so that you can use the **SIB Enclosed Soft Start** safely, prevent injury or death, or damage to equipment. Please read this information thoroughly and make sure you observe all the safety information shown below and elsewhere in this manual and in the DFE Soft Start User Guide. Please make this User Guide and the DFE Soft Start User Guide available for the end user.

Please read this safety information in conjunction with the safety information in the DFE Soft Start User Guide. Please read the DFE Soft Start User Guide for details such as Fuse/MCB and cable sizes etc.

Safety symbols



Danger: Danger of electrical shock which can cause injury or death, or damage to equipment



Warning: Potential hazard, other than electrical, that can cause physical injury or damage to equipment



Danger

- The SIB Enclosed Soft Start should **ONLY** be installed, commissioned and maintained by qualified and competent personnel.
- The SIB must be installed to the latest IEE wiring regulations taking into account local regulations.
- Before power is applied to the SIB, ensure the SIB cubicle door is closed.
- Dangerous voltages are present when the input power supply is connected to the SIB. Before attempting any work on the SIB cubicle or motor, isolate and lock off the input power supply. Prove dead using a voltage tester. The voltage tester itself should be proved immediately before and after testing using a proving unit with a low power output.
- The SIB cubicle must be connected to system ground using the cubicles earth terminals. The size of the earth conductor and earth loop impedance must comply with national and local electrical regulations.
- Do not flash test the components within the SIB cubicle.
- If the SIB cubicle is supplied from a pluggable power connector, the SIB interlocked isolator must be turned off before unplugging the connector.
- The SIB is a non-field repairable unit. Contact the supplier of the SIB.
- The SIB cubicle must be protected by the recommended fuses/MCB (See DFE Soft Start User Guide).



Warning

- All machinery, in which this SIB is used, within the European Union, must comply with directive 98/37/EC, Safety of Machinery.
- Do not install the SIB in an explosive environment.
- The motor must be used within the manufacturers guidelines.
- Do not allow conductive material to enter the components within the SIB, e.g. from drilling during installation.
- **The RED mushroom type button on this equipment is NOT an Emergency Stop button. It is a Soft Stop button. This button provides a 'Category zero stop' (coast to stop) by removing the start signal from the soft start. It is a low integrity level, PLa system and has no built in redundancy or safety relay control. This button should not be used as a means of isolation of the motor or equipment for maintenance or any other function. This button must not be used as an Emergency Stop button. Please check this type of system is adequate for your machine/equipment.**

Technical data

Model	kW rating	Input phases	Max motor current (A)	Dimensions (H x W x D) Trip Class 10	Dimensions (H x W x D) Trip Class 20	Weight (kg)
SIB7.5EN400V	7.5	3	18	400 x 300 x 200mm	400 x 300 x 200mm	20
SIB11EN400V	11	3	22	400 x 300 x 200mm	400 x 300 x 200mm	20
SIB15EN400V	15	3	29	400 x 300 x 200mm	400 x 300 x 200mm	20
SIB22EN400V	22	3	41	400 x 400 x 200mm	600 x 400 x 200mm	23/27
SIB30EN400V	30	3	55	600 x 400 x 200mm	600 x 400 x 200mm	27
SIB37EN400V	37	3	66	600 x 400 x 200mm	600 x 400 x 200mm	27
SIB45EN400V	45	3	80	600 x 400 x 200mm	600 x 400 x 200mm	27
SIB55EN400V	55	3	97	600 x 400 x 200mm	600 x 400 x 200mm	27

Approvals	CE approval	CE
Environment	Altitude	1000m rated 1000m~2000m, 1% rated current de-rating per 100m
	Operating Temperature	0°C~+40°C
	Max. Humidity	≤85%RH, non-condensing
	Vibration	≤5.9m/s ² (0.6g)
	Storage Temperature	-25°C~+60°C
	Running Environment	Non-flammable, No corrosive gasses, no contamination with electrically conductive material
Supported Power Supply Systems		TT
		TN
SIB Enclosure		IP65
Breaking capacity of protective devices		10kA
Supply frequency		50 to 60Hz (±2%)
Supply voltage		3 phase 400VAC ±10%
Trip Class		10

Start time

~5s default

1 to 30s (adjustable by potentiometer on front of DFE)

Stop time

0s default

0 to 30s (adjustable by potentiometer on front of DFE)

Pedestal Voltage

30% for standard rating

100% for high breakaway loads (adjustable by potentiometer on front of DFE)

Starts per hour

10 starts per hour or 5 starts and 5 soft stops per hour

SIB Features

Interlocked mains isolator
 10kA 3 phase and control MCBs
 Tri-rated cable
 Motor thermal overload
 Integral bypass contactor
 Motor connections on DIN rail terminals
 +24VDC control power supply
 Customer terminals

Enclosed Soft Start Trip Class

The MCW Enclosed softstarters are fitted with a **Trip Class 10** thermal overload relay as standard which is suitable for the majority of light to medium industrial type load applications. As an option the soft start can be converted to trip class 20 (medium to heavy industrial loads) at time of purchase. This involves a larger soft start unit, a trip class 20 thermal overload and a larger MCB/MCCB. **Please note on some models when upgrading to trip class 20 the enclosure size may increase.**

The MCW Enclosed Soft Starter range are not suitable for applications that have a very heavy load on start that takes greater than 20s to start or very high inertia loads such as high inertia fans, centrifuges or loaded crushers.

Starting the MCW Enclosed Soft Starters more than once every 10 minutes will alter the thermal overload tripping characteristics making the overload trip more quickly for a given thermal overload current setting.

Trip Class Explained

At 600% of the maximum current rating of the motor the **Trip Class 10** unit will trip in 10 seconds or less, **Trip Class 20** will trip in 20 seconds or less, and **Trip Class 30** will trip in 30 seconds or less.

Operation

The SIB range of enclosed motor soft starters is designed to be as close to a plug and play product as possible. They require a suitable 3 phase and earth power supply and a three wire and earth motor cable.

NOTE: The SIB range of Soft Starters are recommended for light to medium type industrial loads only (Trip Class 10). They are not suitable for heavy industrial type loads or very high inertia loads.

The SIB is equipped with:

- Green start button
- Red stop button
- Red key release latching **Soft Stop** button (**Not Emergency Stop button**)
- Soft Start healthy lamp
- Soft Start running lamp
- An interlocked mains isolator is also provided; the enclosure door cannot be opened unless the isolator is in the off position
- Motor thermal overload

The SIB will provide a soft start and a soft stop along with motor thermal protection.

The RED mushroom type button on this equipment IS NOT an Emergency Stop button. It is an soft stop button. This button provides a 'Category 0' stop by soft stopping the Soft Start. This is a low integrity stop button only and has no built in redundancy or safety relay control. This button should not be used as a means of isolation of the motor or equipment for maintenance or any other function. This button must not be used as an Emergency Stop button.

Start Button - When pressed (providing the Soft Stop button is not pressed) the Soft Start will enable and run to motor up to speed.

Stop Button - When pressed the Soft Start will either disable or ramp to a stop depending on the setting of the soft stop time potentiometer.

Soft Stop Button - When pressed the Soft Start will either disable or ramp to a stop depending on the setting of the soft stop time potentiometer. This is a twist release button and can be locked in the "in" position. **This is not an Emergency Stop button and should not be used Emergency stopping or for safety isolation.**

Soft Start Healthy Lamp - This lamp will be illuminated when the SIB is in the healthy state (not tripped).

NOTE: The soft start healthy lamp will only go out if the DFE soft start trips. It will not go out if the motor thermal overload trips.

Soft Start Running Lamp - This lamp will be illuminated when the SIB Soft Start is enabled.

Mains Isolator - With the mains isolator in the off position mains power will be removed from the control box. Mains power will still be present at the input connections to the isolator only.

Motor thermal overload - The motor thermal overload must be adjusted by the user to the desired motor current. From the factory, this has been set at the minimum setting. If the motor current exceeds the thermal overload setting, the thermal overload will stop the Soft Start and the motor will stop.

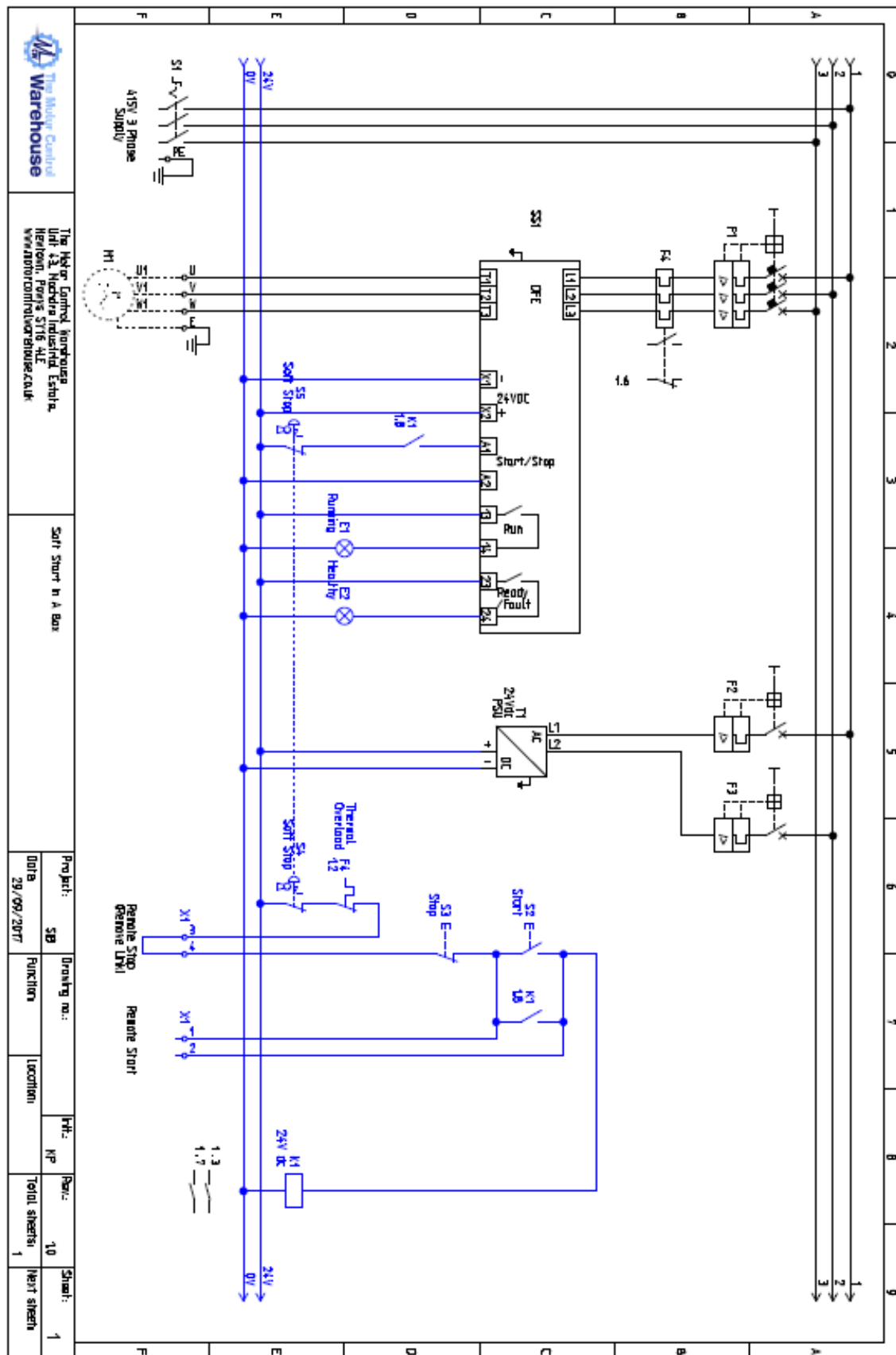
Thermal Overload Characteristics – Trip Class 10

The trip class numbers indicate the trip characteristics from cold state.

I_r = Current setting of overload relay. This should be the Full Load Current (FLC or FLA) shown on motor rating plate.

Trip Class	$1.05 \times I_r$	$1.2 \times I_r$	$1.5 \times I_r$	$7.2 \times I_r$
	Time to trip from a cold start			
Trip Class 10	>2 hours	<2 hours	<4 minutes	2s< to <10s

SIB Enclosed Soft Start Circuit Diagrams



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Other Enclosed Products from Motor Control Warehouse

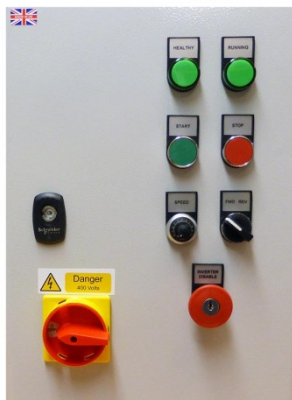
- **Enclosed Star Delta Starters**, three phase input from 7.5kW to 90kW. Rated for medium industrial loads.



Features

Powder coated steel enclosure
Lockable panel door
Interlocked mains isolator
3 phase MCB - Power
1 phase MCBs - Control
Tri rated cable
Motor outputs to terminals
Terminals for external stop/start
Key release E-Stop button
Adjustable changeover timer
Ingress protection – IP65.

- **Enclosed Inverter Drives**, single phase input from 1.5kW to 4kW. Three phase input from 0.75kW to 45kW.



Features

IP54 robust enclosure
Interlocked isolator
10kA MCBs
Tri rated cable
Keyed Inverter Disable button
IP rated speed pot
Motor connections to terminals
Fwd/Rev switch
Stop/Start buttons
Indication lamps
Thermostat controlled cooling
HD700 industrial inverter