Swift Start LITE Enclosed Inverter User Guide

(0.75kW~37kW)

V0.0.0

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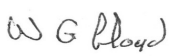
Declaration of Conformity

Willpower Electrical Limited trading as Motor Control Warehouse hereby states that the Enclosed Inverter range (SSL) 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 (+/-10%)
SSL0037EN200V	0.37kW	230VAC
SSL0075EN200V	0.75kW	230VAC
SSL0150EN200V	1.5kW	230VAC
SSL0220EN200V	2.2kW	230VAC
SSL0400EN200V	4.0kW	230VAC
SSL0075EN400V	0.75kW	400VAC
SSL0150EN400V	1.5kW	400VAC
SSL0220EN400V	2.2kW	400VAC
SSL0400EN400V	4.0kW	400VAC
SSL0550EN400V	5.5kW	400VAC
SSL0750EN400V	7.5kW	400VAC
SSL1100EN400V	11kW	400VAC
SSL1500EN400V	15kW	400VAC
SSL1850EN400V	18.5kW	400VAC
SSL2200EN400V	22kW	400VAC
SSL3000EN400V	30kW	400VAC
SSL3700EN400V	37kW	400VAC

Signed	
Name	Gareth Lloyd
Position	Technical Director
Date	21.11.2025

Safety Information

This chapter provides very important information so that you can use the **SSL Enclosed Inverter** 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 E3 User Guide. Please make this User Guide and the E3 User Guide available for the end user.

Please read this safety information in conjunction with the safety information in the Invertek E3 User Manual. Please read the Invertek E3 User Manual 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 SSL Enclosed Inverter should ONLY be installed, commissioned and maintained by qualified and competent personnel.**
- **The SSL must be installed to the latest IEE wiring regulations taking into account local regulations.**
- **Before power is applied to the SSL, ensure the SSL cubicle door is closed.**
- **Dangerous voltages are present when the input power supply is connected to the SSL. Before attempting any work on the SSL cubicle or motor, isolate and lock off the input power supply. After disconnecting the supply, wait at least 10 minutes (to let the SSL drives internal capacitors discharge) before opening the cubicle door. 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 SSL 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 SSL cubicle.**
- **If the SSL cubicle is supplied from a pluggable power connector, the SSL interlocked isolator must be turned off before unplugging the connector.**
- **The SSL is a non-field repairable unit. Contact the supplier of the SSL.**
- **The SSL cubicle must be protected by the recommended fuses/MCB (See E3 User manual).**

Warning

- **All machinery, in which this SSL is used, within the European Union, must comply with directive 98/37/EC, Safety of Machinery.**
- **Do not install the SSL in an explosive environment.**
- **The motor must be used within the manufacturers guidelines.**
- **Do not allow conductive material to enter the components within the SSL, e.g. from drilling during installation.**

Technical data

Model	kW rating	Input phase	Input voltage (VAC +/-10%)	Max motor current (A)
SSL0037EN200V	0.37	1	230	2.3
SSL0075EN200V	0.75	1	230	4.3
SSL0150EN200V	1.5	1	230	7
SSL0220EN200V	2.2	1	230	10.5
SSL0400EN200V	4.0	1	230	15.3
SSL0075EN400V	0.75	3	400	2.2
SSL0150EN400V	1.5	3	400	4.1
SSL0220EN400V	2.2	3	400	5.8
SSL0400EN400V	4.0	3	400	9.5
SSL0550EN400V	5.5	3	400	14
SSL0750EN400V	7.5	3	400	18
SSL1100EN400V	11	3	400	24
SSL1500EN400V	15	3	400	30
SSL1850EN400V	18.5	3	400	39
SSL2200EN400V	22	3	400	46
SSL3000EN400V	30	3	400	61
SSL3700EN400V	37	3	400	72

Approvals	**CE approval**		CE
Environment	**Altitude**		1000m rated 1000m～2000m, 1% rated current de-rating per 100m
	Operating Temperature		−10°C～+50°C
	Max. Humidity		≤95%RH, non-condensing
	Storage Temperature		−40°C～+60°C
	Running Environment		Non-flammable, No corrosive gasses, no contamination with electrically conductive material, avoid dust which may restrict the fan
Supported Power Supply Systems			TT & TN
			IT (removal of drives internal EMC filter and VAR required)
SSL Enclosure			IP54
Breaking capacity of protective devices			10kA
Supply frequency			49 to 61Hz
Input supply voltage		**200V models**	Single phase 200 – 240VAC ±10%
		400V models	3 phase 400VAC ±10%
Output Voltage		**200V models**	0 to input (230V 3 phase)
		400V models	0 to input (400V 3 phase)

Maximum Motor Cable Lengths

The maximum motor cable lengths for standard SWA (steel wire armoured) or standard screened cable is 100m for all SSL cubicles. If high capacitance motor cables are used, the maximum motor cable should be halved to 50m. If the maximum motor cable length is to be exceeded, an output motor reactor or sine filter must be used.

Braking Resistors

 **WARNING**:
If braking resistors are being installed for use with the SSL:

Braking resistors can reach high temperatures and therefore must be located as not to cause damage. They must be connected using cables suitable for these high temperatures.

It is essential that the braking resistor is protected against overload. A thermal device that disconnects the AC supply to the drive must be fitted.

NOTE: Please observe the minimum braking resistor value in the tables in the Invertek E3 User Manual.

SSL Cubicle Dimensions & Weights

Model	Dimensions (H x W x D)	Weight (kg)
SSL0037EN200V	400 x 400 x 200	20
SSL0075EN200V	400 x 400 x 200	20
SSL0150EN200V	500 x 400 x 250	20
SSL0220EN200V	500 x 400 x 250	24
SSL0400EN200V	500 x 400 x 250	28
SSL0075EN400V	400 x 400 x 200	20
SSL0150EN400V	400 x 400 x 250	20
SSL0220EN400V	500 x 400 x 250	24
SSL0400EN400V	500 x 400 x 250	24
SSL0550EN400V	600 x 400 x 250	28
SSL0750EN400V	600 x 400 x 250	28
SSL1100EN400V	600 x 400 x 250	40
SSL1500EN400V	800 x 600 x 300	43
SSL1850EN400V	800 x 600 x 300	43
SSL2200EN400V	800 x 600 x 300	43
SSL3000EN400V	1000 x 800 x 400	70
SSL3700EN400V	1000 x 800 x 400	70

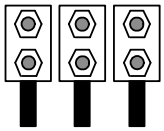
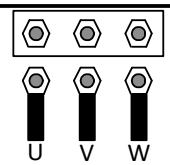
Motor cooling

The SSL can be used to reduce the speed of the motor. If the motor is going to be run at low speed for extended periods of time, the cooling air from the motor fan may become ineffective and therefore the motor could overheat. The fitting of a motor force vent cooling fan may be necessary.

Motor connection

When connecting a 3 phase motor to an AC inverter drive, it is important that the motor terminal box connections are correct for the supply voltage being used. Generally, up to 3kW, the motor is wound for 230V delta, 400V star. Generally above 3kW, the motor is wound for 400V delta, 690V star.

Please check the motor nameplate for the correct connection.

Inverter Supply Voltage	Motor Nameplate Voltages	Connections	
230V	230V / 400V	Delta △	
400V	400V / 690V		
400V	230V / 400V	Star ⅄	

The usual issues when the wrong connections are made:

230V AC drive connected to a 400V star connected motor or 400V AC drive connected to a 690V star connected motor:
The motor will probably run if starting a lightly loaded motor. If the motor tries to start a heavy load or if a heavy load is applied to the motor while running, the motor will stall due to a lack of torque and the drive will trip on an over current “I_t-trP”.

400V AC drive connected to a 230V delta connected motor:
On enable, the drive will either trip on an over current trip or the drive will go into current limit and trip on an “I_t-trP”.

NOTE: Please make sure there are no phase to earth short circuits on the motor/motor cable before powering up the SSL. A phase to earth short circuit at power up may cause drive failure on some models of SSL.

Operation

The SSL range of enclosed motor inverters is designed to be as close to a plug and play product as possible. They require a suitable 3 phase and earth or single phase and earth power supply and a three wire and earth motor cable. Please note it is best practice to use a screened motor cable.

The SSL is equipped with:

- Green start button
- Red stop button
- Optional: An Internally mounted single turn speed potentiometer
- An interlocked mains isolator is also provided; the enclosure door cannot be opened unless the isolator is in the off position.

With factory settings, the HIBL will provide a soft start and a soft stop along with motor thermal protection.

Start Button - When pressed the inverter will start and ramp up to the minimum speed. (If potentiometer is installed, speed will be determined by potentiometer)

Stop Button - When pressed the inverter will ramp to a stop.

Speed Potentiometer (Optional) - When turned in the anti clockwise direction this will reduce inverter output speed. When turned in the clockwise direction this will increase inverter output speed.

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.

SSL Parameter Settings

Please make sure that the following parameters are set according to the motor nameplate:

P-07 – Motor rated voltage
P-08 – Motor rated current
P-09 – Motor rated frequency

To set the speed required when a potentiometer is not installed set the following parameter to the speed required.

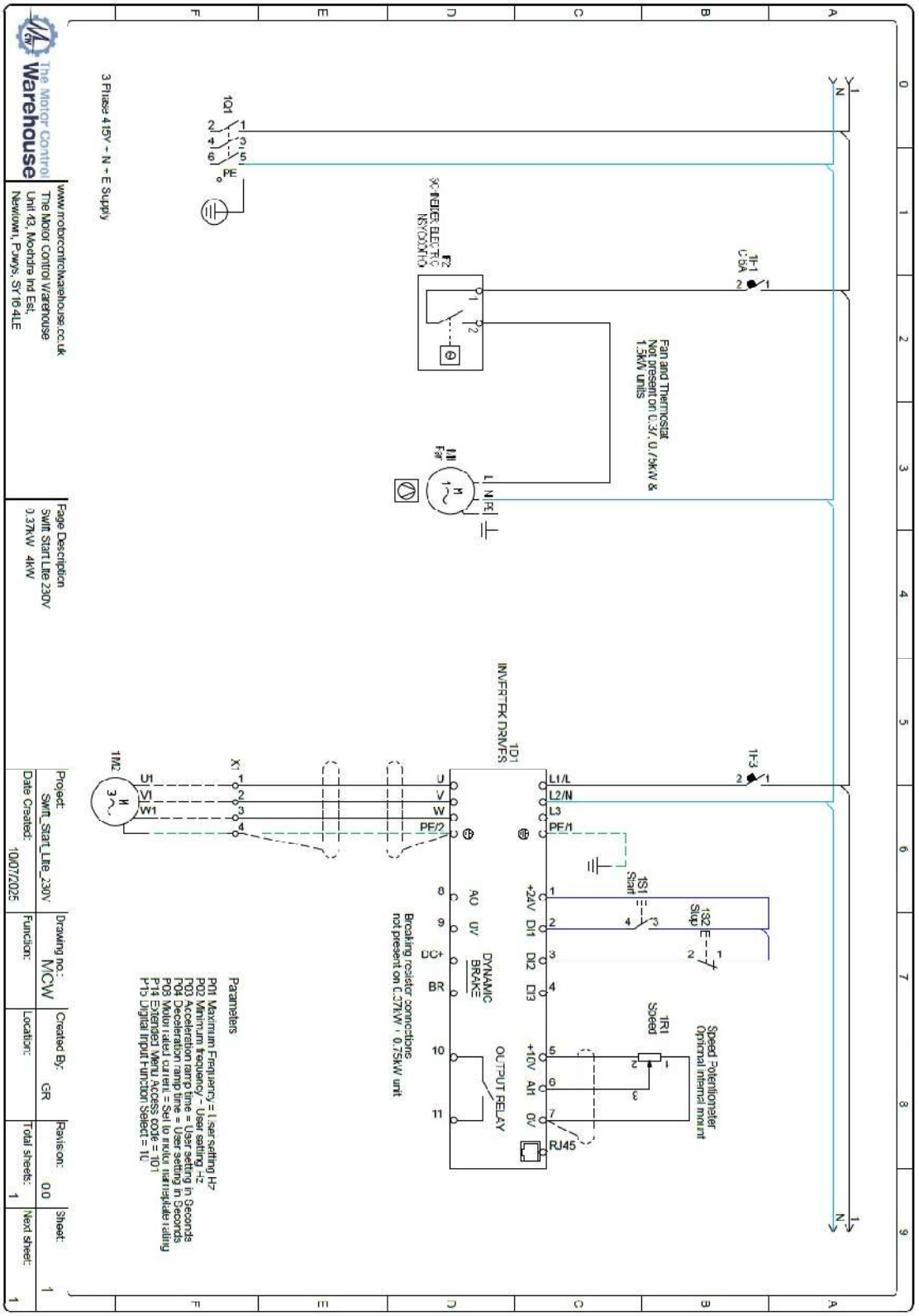
P-02 - Minimum Frequency / Speed Limit

To adjust acceleration and deceleration times please change the following parameters to time required.

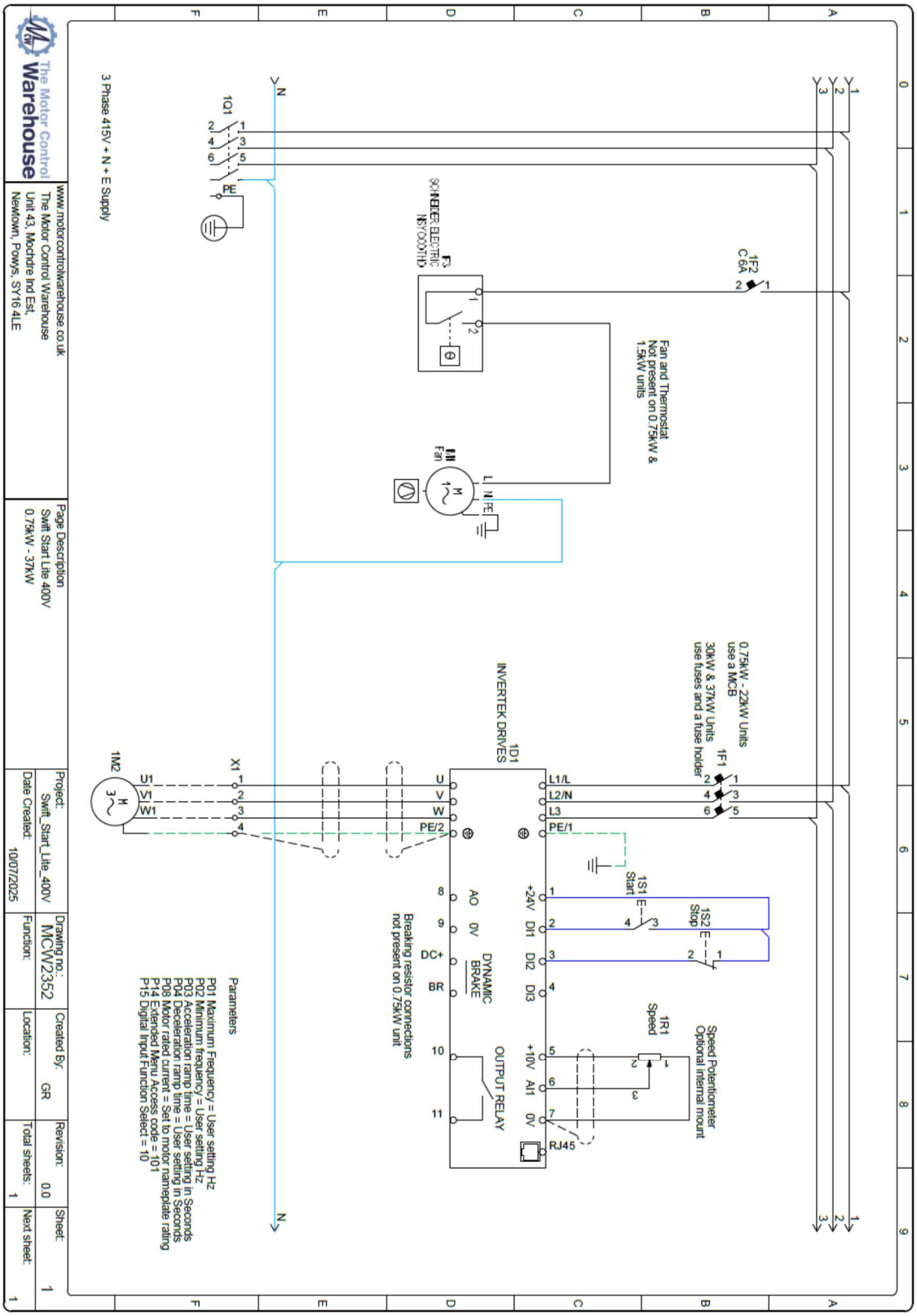
P-03 – Acceleration ramp time

P-04 – Deceleration ramp time

Circuit Diagrams - 230V Single phase input



Circuit Diagrams - 400V Three Phase Input



Notes

Notes

Other Enclosed Products from Motor Control Warehouse

SWIFT START CLASSIC

Features:

IP65 steel powder coated enclosure.

Interlocked mains isolator.

Start/stop buttons

Fwd/Rev switch

Speed potentiometer

Inverter disable button.

Motor outputs to terminals

The classic inverter in a box with all the control at your fingertips.

SWIFT START PRO SAFE

Features:

IP65 steel powder coated enclosure.

Interlocked mains isolator.

Start/stop buttons

Fwd/Rev switch

Speed potentiometer

Emergency Stop button.

Motor outputs to terminals

Our safest ever Inverter in a box, ready for the toughest applications.