MicroStart Data Sheet

For Better Controlled Small Power Motor Starting

SAFTRONICS 2S LIMITED
Turnbridge Mills, Quay Street,
Huddersfield, West Yorkshire HD1 6QT
Tel: 01484 530893 Fax: 01484 550500
E-mail: sales@saftronics.co.uk
Website: www.saftronics.co.uk

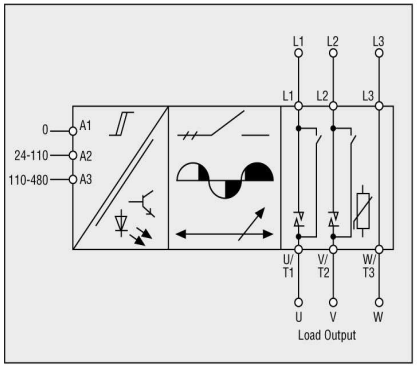
MODE OF OPERATION

The motor controller is intended to be used to Soft Start/Stop 3-phase induction motors and thereby reduce wear on gear and belt/chain drives, and to give smooth operaiton of machines.

Soft Starting and/or Stopping is achieved by controlling the motor voltage. During running operation the semi-conductor is by-passed by an internal electromechanical relay.

The initial torque can be adjusted.
The Soft Start and Soft Stop time can be adjusted depending on the motor load.

FUNCTIONAL DIAGRAM

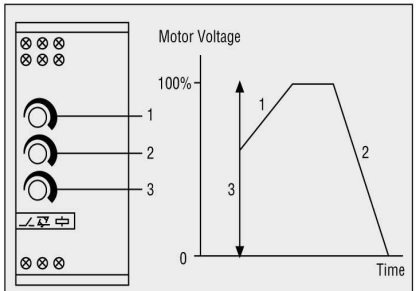


CONNECTIONS

L1, L2, L3	Mains 230/400V AC ±15% 50/60Hz
U/T1, V/T2, W/T3	Output to Motor
Control Voltage Terminals	A1 - A2 24V-110V AC/DC ± 15%
	A1 - A3 110V-400V AC ± 15%

Start/Stop activated by application/removal of control supply

OPERATION DIAGRAM



1 - Ramp-up time. Time from zero load voltage to full load voltage.
2 - Ramp-down time. Time from full load voltage to zero load current.
3 - Initial torque adjustment at the start of the ramp-up function.

GENERAL SPECIFICATIONS

	12A	25A
CE Marked	Conforms to all current relative directives	
Rated Insulation (volts)	630V	
Approvals	CSA/UL	
Weight	270 grammes	592 grammes
IP Rating	IP20	
Starting Torque	5-85%	5 - 50%
Ramp Up Time	0.5 - 5 secs	0.5 - 10 secs
Ramp Down time	0.5 - 5 secs	0.5 - 20 secs
LED Indication	Green - Supply On Yellow 1 - Ramping Yellow 2 - Running	Green - Supply on Yellow(F) - Ramping Yellow(C) - Running Red(F) - Wrong Phase Sequence Red(C) - Overheated
Temperature Rating	-20 to +50°C	
Utilisation Category	AC53b integral by-passing of Controller	
Overload Current Profile	X/tx: 6/13 (BSEN60947-4-2)	X/tx: 6/6

(F) = Flashing (C) = Constant

FUSING CONSIDERATIONS

The motor controller provides by-passing of the semiconductors during running operation. Therefore the semiconductors can only be damagaed by short-circuit currents during ramp-up and ramp-down. A 3-phase induction motor with correctly installed and adjusted overload protection does not short totally between lines or directly to earth as some other types of loads, eg. heater banks. In a failing motor there will always be some part of a winding to limit the fault current. If the motor is installed in an environment where the supply to the motor cannot be damaged, the short circuit protection can be considered to be acceptable if the controller is protected by a 3-pole thermal-magnetic overload relay.

Time between rampings (SAF4012)

	Ramp time (sec)			
I ramp (A)	1	2	5	10
72	2.5min	5min	40min	n/a
60	1.5min	3min	13min	17min
48	50sec	1.5min	5min	10min
36	30sec	1min	3min	7min
24	15sec	40sec	1.5min	2.5min
12	10sec	20sec	50sec	70sec
6	5sec	9sec	20sec	40sec

Time between rampings (SAF4025)

	Ramp time (sec)				
I ramp (A)	1	2	5	7	10
150	4min	8min	20min	n/a	n/a
125	3min	6min	14min	19min	n/a
100	2min	4min	9min	12min	18min
75	1min	2min	5min	7min	10min
50	27sec	53sec	2min	3min	4min
25	7sec	13sec	33sec	47sec	67sec