

Application		Trip Class
Default		10
Heavy		20
Agitator		10
Compressors	Centrifugal	20
	Reciprocating	20
	Rotary Screw	10
	Rotary Vane	10
	Scroll	10
Ball mill		20
Centrifuge / Decanterbowl / Separator - extended start needed for sizing		Motor FLC x 2.3 class 30
Bow Thruster	Zero Pitch	10
	Loaded	20
Chillers		10
Conveyor	Unloaded	10
	Loaded	20
Crusher		30
Escalator		10
Fan	Low inertia <85A	10
	High Inertia >85A	30
Feeder - screw		10
Grinder		20
Hammer mill		20

Application		Trip Class
Lathe machines		10
Mills - flour Etc		20
Mixer	Unloaded	10
	Loaded	20
Moulding Machine		10
Pelletisers		20
Plastic and textile machines		10
Press, flywheel		20
Pump - Submersible	centrifugal	10
	rotodynamic	10
	Reciprocating	20
	Rotary	20
Pump Jack		20
Rolling mill		20
Roots Blower		20
Saw	Band	10
	Circular	20
Screen - vibrating		20
Shredder		30
Transformers, voltage regulators		10
Travelators / Walkways		10
Tumblers		10
Wood chipper		30

Sizing Guide

Minimum current ratings based on typical rated operation currents of motors for the corresponding rated operational powers.
Current rating optimised for kW@400V & hp@440-480V - Ref IEC 60947-4-1:2009 Table G.1

In Line			
IEC	IEC	UL	UL
	kW ¹⁾		HP ²⁾
A ³⁾	400V	A ⁴⁾	440-480V
17	7.5	17	10
22	11	21	15
29	15	27	20
35	18.5	34	25
41	22	40	30
55	30	52	40
66	37	65	50
80	45	77	60
100	55	96	75
132	75	124	100
160	90	156	125
195	110	180	150
242	132	242	200
302	160	302	250
361	200	361	300
430	250	414	350
500	280	477	400

In Delta			
IEC	IEC	UL	UL
	kW ¹⁾		HP ²⁾
A ³⁾	400V	A ⁴⁾	440-480V
29	15	27	20
35	18.5	34	25
41	22	40	30
55	30	52	40
66	37	65	50
80	45	77	60
100	55	96	75
132	75	124	100
160	90	156	125
195	110	180	150
230	132	242	200
280	160	302	250
350	200	361	300
481	280	477	400
610	355	590	500
690	400		
850	500	650	540

Trip Class 10	Trip Class 20	Trip Class 30
AC-53a	AC-53a	AC-53a
3-23: 90-5		
3.5-17:90-5	4-19: 90-5	4-29: 90-5
SGY-101	SGY-103	SGY-105
SGY-103	SGY-105	SGY-107
SGY-105	SGY-107	SGY-109
SGY-107	SGY-109	SGY-111
SGY-109	SGY-111	SGY-113
SGY-111	SGY-113	SGY-115
SGY-113	SGY-115	SGY-117
SGY-115	SGY-117	SGY-201
SGY-117	SGY-201	SGY-203
SGY-201	SGY-203	SGY-205
SGY-203	SGY-205	SGY-301
SGY-205	SGY-301	SGY-303
SGY-301	SGY-303	SGY-305
SGY-303	SGY-305	SGY-307
SGY-305	SGY-307	Call
SGY-307	Call	Call
SGY-307	Call	Call

For more information on how **synergy™** from **Fairford Energy** can reduce your running costs and lower maintenance bills contact the numbers below;

synergy™
a revolution in motor control



synergy™
a revolution in motor control



For more information on how **synergy™** from Fairford Electronics can reduce your running costs and lower maintenance bills contact your local distributor:

+ 44 (0)1752 894554
www.fairford.com



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synergy™ Redefining Motor Control

In industry as it is in life there are some people whom have pushed the boundaries of what is possible. These ideas have changed the world and the technology which we use within it. Fairford Electronics was born as a result of one of these individuals and that ethos is still at the core of its business today.

In 1979 Fairford Electronics Ltd was at the forefront of the creation of the industry which is now referred to as the soft starter market. This industry is now worth an estimated \$600 million a year and is growing at an ever increasing pace.

In the early days of this technology Fairford Electronics patented key techniques for use in motor control and supplied this in the form of PCB's and chipsets to companies such as Siemens, GE and ABB.

As the pioneer of this technology it further evolved its offering by designing and patenting the worlds first energy saving motor controller for use in fixed speed applications. This technology is now widely recognised as being a proven solution for use in 3 phase and single phase applications and is being supplied on a global basis.

Today, electric motors consume 65% of all electricity used in industry worldwide with around 60% of these being fixed speed applications, and are a major focus for energy saving initiatives. Electric motors are very efficient at full load, but this efficiency falls away as the motors become lightly loaded.

An Energy Saving Motor Controller constantly adjusts the voltage/current supplied to the motor ensuring that the motor operates at peak efficiency whatever the load. Fairford soft starters are currently used in every conceivable motor application in over 80 countries from Bow thrusters to Oil and Gas to

HVAC and Fans. And that's only under the Fairford banner!

We design and manufacture for some of the worlds biggest OEM's and brand label for many additional distributors in their own name. As such we can justly claim to be one of if not the leader in bespoke solutions for the Motor control industry.



"synergy™ is redefining the rule book on motor controller size vs performance. It achieves a 54% decrease in controller size compared to competitor offerings. This performance improvement has been the result of extensive thermal modelling and the introduction of innovative and effective cooling methods. This has been made by the introduction of two patented technologies that cannot be emulated by any other motor controller.

However, synergy™ is not just about size reduction, it's about performance and features. An industry leading human interface, extensive input / output programmability, and enhanced energy optimising features place synergy at the leading edge of motor control."

Bob Ching – Product Development Director.

Keep up to date with our product launch at
www.fairford.com/product/synergy

synergy™ specification for sizes 1, 2 and 3

Range from 17Amp - 500Amp
3-phase SCR
Full motor overload
Trip class 10: 3 x 23 secs or 3.5 x 17 secs - 3 or 5 starts per hour
A frame sizes: Size 1 - H: 27, D: 177.1, L: 95.2, Size 2 - H: 318, D: 233.1, L: 143.1, Size 3 - H: 490, D: 311.46, L: 205
200, 230, 400, 480 volts
Allowing for varying frequency 45Hz-65Hz
IP20 / NEMA 1, IP00
Full automatic set up choose the application and motor size 6 button process
Control voltages of 24v AC/DC, 110/230VAC
Enhanced Energy Optimising with Internal bypass
In Delta / 6 wire connection
Multiple languages factory set if required
Inputs / Outputs:
- 4 x programmable output relays
- 3 x programmable digital inputs
- Analogue input / outputs
- USB for data logging and parameter setting/saving
- Thermistor
- Fully field upgradeable
- Comprehensive data logging
Fully field serviceable fans
2 year warranty extendable to 5 years



Energy recovery with Internal bypass as standard

As the innovators and pioneers of the soft start industry, we have long recognised the demand for an energy saving system for fixed speed motors. **iERS** is our patented energy saving system with a combined internal bypass to save energy on lightly loaded motors.

iERS reduces the voltage and current supplied to a lightly loaded motor to only allow the motor to consume the exact amount of energy required to maintain the speed at that load. When the motor is at full load the internal bypass reduces the losses produced by the control element. This combined approach enables **iERS** to save more energy in more applications than any other competing technology.

iERS has been market proven over the past 10 years and has now reached its latest development realising even greater savings. Applications such as fans, pumps and chillers can typically see savings of around 8-40% of total energy consumption.

Redefining Motor Control

Fairford has always been at the forefront of any major changes within the industry whether these be technology based or even that of standards and certification. Recently we have been working closely with GAMBICA and with the

development of the 'EN50xxx Efficiency of Power Drive Systems' standard and contributing to the EU Eco Design Lot 30 (www.eco-motors-drives.eu) study. As such we consider that we are in an enviable position to react to any proposed changes that may be relevant.

In 2010 Fairford Electronics Ltd saw that there were some increasing market demands on the motor control industry.

Energy saving has always been important in this field however in recent years this has started to take precedent over other aspects. Smaller and more robust units are being sought but with ever increasing levels of functionality but with reduced cost. In November 2010 Fairford started work on the design and development of a new form of motor control that created a synergy between existing soft starter technology and that of Variable Speed Drives. After 6 months of specification and information gathering design of a new technology started.

synergy™ has been created with the needs of the market place and those of specific industries in mind. The first release is size one which will reach up to 100Amps and will be followed by 2 further sizes up to 1800 Amps as a standard offering. It utilises some of the existing features developed by Fairford and incorporates new requirements.

