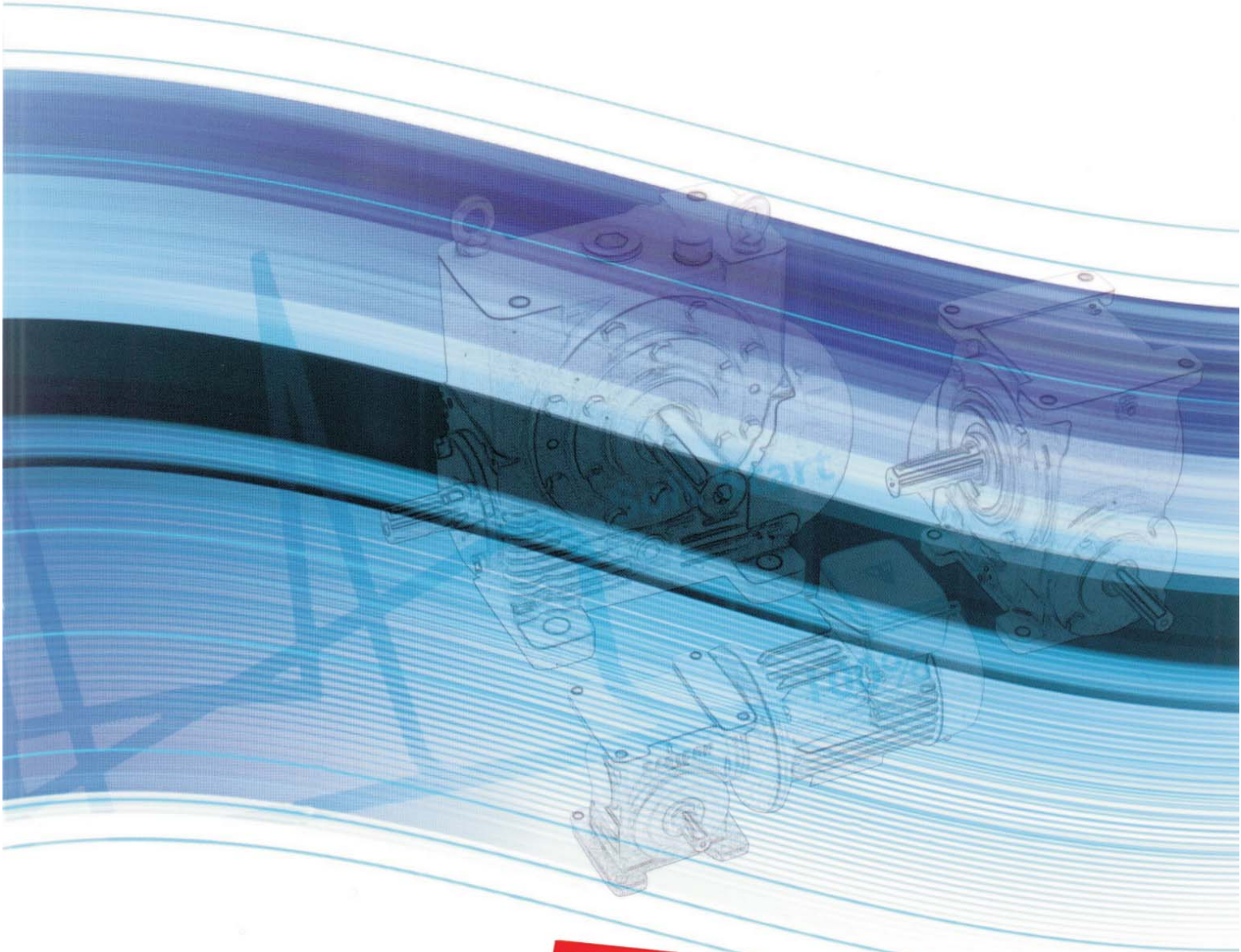




FAIRFORD ELECTRONICS; THE HUB OF SOFT STARTER INNOVATION



M^{FE} & C^{FE} **StartMaster** **Soft Starters**



INNOVATION IN SOFT STARTER TECHNOLOGY

FULLY DIGITAL SOFT STARTERS IN EITHER IP 20, IP43 or IP55 PROTECTION

Fairford's fully digital non-energy optimising **MFE** & **CFE** Soft Starters are the simplest and most economic way of starting your three phase induction motors. They have automatic set-up features selectable by changing a 10 way application profile selector switch.

The **MFE** offers easy-to-use technology suitable for a wide variety of applications and is available in IP-20 and IP-43. IP-43 is ideal for retrofit and 'splashproof' applications such as food manufacturing or where you have an existing DOL starter or an existing Star/Delta starter to replace.

The **CFE** has all the features of the **MFE** but is a complete starter with in an IP55 rugged box for new or direct replacement of Star/Delta and DOL starters.

Features	Benefits
Non-optimising	Reduced cost and cabinet size
Wide range of IP options (IP-20, IP-43 and IP-55)	Multiple application options and simple fitting reduces cost and maintenance
Simple wiring	Simple fit/retrofit with just 3 wires in/out
Auto-set-up with 10 pre-programmed Soft Starting profiles	Quick and easy (low cost) set-up by switch selecting your standard applications
'Fit and Forget'	Low cost of ownership
Adjustable Over-current "shear pin" protection	Significantly reduces the maintenance time in comparison to mechanical "shear pins" reducing down time
Fully Digital Microprocessor Control	Reliability and long life
Kick Start Option	For high break-away torque loads, easily overcomes load without failure less likelihood of outages and associated cost.



Starting Profiles

Multi ramp starting and stopping strategies suitable for all applications are designed into the **MFE** & **CFE**

0	Standard
1	High Torque
2	Pump
3	Pump Kick-start
4	Light Conveyor
5	Heavy Conveyor
6	Low Inertia Fan
7	High Inertia Fan
8	Recip. Compressor
9	Screw Compressor

Design Standards

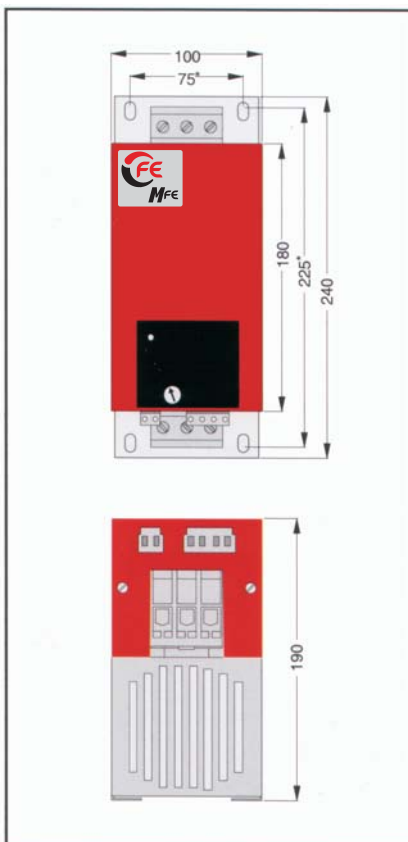
IEC 60947-4-2 Standard for AC Semiconductor Motor Controllers and Starters

EN 60947-4-2 European Standard for AC Semiconductor Motor Controllers and Starters

M_{FE} & C_{FE} Technical Specifications

Supply	400-460V 3-Phase (-15% +10%) 50/60Hz +/- 2Hz 230V 3-Phase (-15% +10%) 50/60Hz +/- 2Hz also available	
Control Outputs	n/o Run Relay 5A 250V AC1 (terminals 13,14) n/o TOR Relay 5A 250V AC1 (terminals 23,24)	
Start/Stop Control Input	Control Input for RUN/STOP, link to run, open to soft stop (terminals S0,S1)	
Application Selection	10 position rotary switch	
Start Times	Units Up to 90A Units Above 90A	1-15 Seconds 5-30 seconds
Stop Times	Units Up to 90A Units Above 90A	0-15 Seconds 0-35 seconds
Start Duty	Units up to 90A 5 x FLC for 4 seconds* 4 x FLC for 6 seconds 3 x FLC for 12 seconds 2 x FLC for 26 seconds * Not IP55 Units	Units 105A to 202A 4 x FLC for 6 seconds 3 x FLC for 15 seconds 2 x FLC for 26 seconds
	242A 4 x FLC for 6 seconds 3 x FLC for 12 seconds 2 x FLC for 26 seconds	
Equally spaced starts per hour	Units up to 202A 10 starts per hour Unit 242A 3 Starts per hour 8 minutes cooling time IP55 Units 3 Starts per hour 2 minutes cooling time	
Ambient Temperature	0° to 40°C Above 40°C de-rate linearly by 2% of unit FLC per °C to a maximum of 40% at 60°C IP55 Min 0°C, Max 40°C	
Altitude	1000m Above 1000m de-rate linearly by 1% of unit FLC per 100m to a max altitude of 2000m	

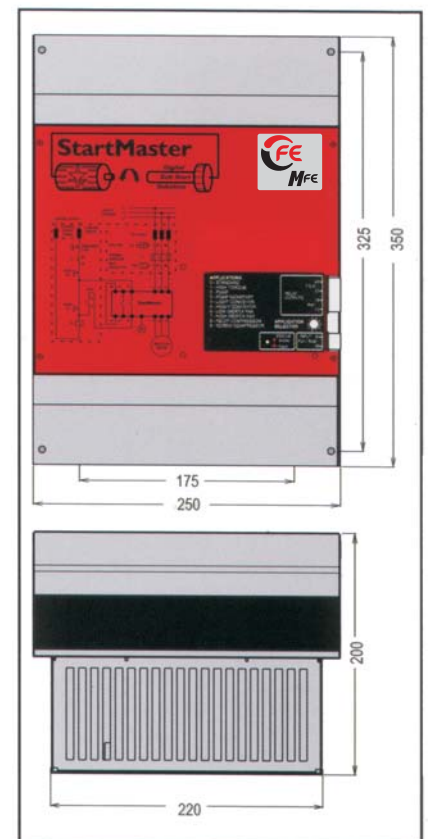
IP20 for Panel Mounting



**Mechanical outline
5A- 90A MFE IP 20**

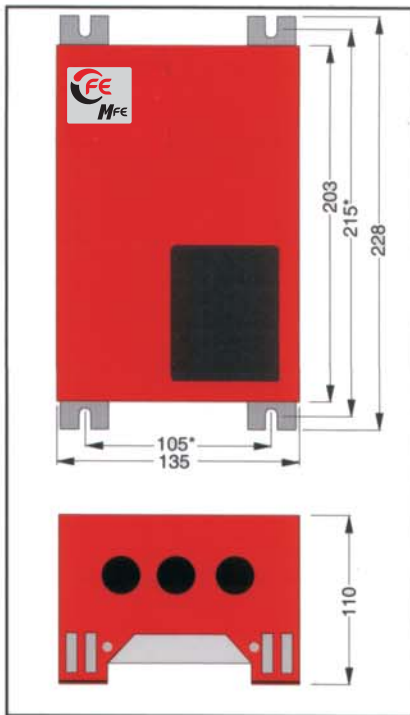
*Din Rail and/or M5 fixing mounting holes
Dimensions in mm

Model Name	Motor Full Current (A)	Approx Motor Power Rating @400V (kW)
MFE 5 IP20	5A	2.2
MFE 9 IP20	9A	4
MFE 16 IP20	16A	7.5
MFE23 IP20	23A	11
MFE 30 IP20	30A	15
MFE 44 IP20	44A	22
MFE 58 IP20	58A	30
MFE 72 IP20	72A	37
MFE 90 IP20	90A	45
MFE 105 IP20	105A	55
MFE 146 IP20	146A	75
MFE 174 IP20	174A	90
MFE 202 IP20	202A	110
MFE 242 IP20	242A	132



**Mechanical outline
105 - 242A MFE IP 20**

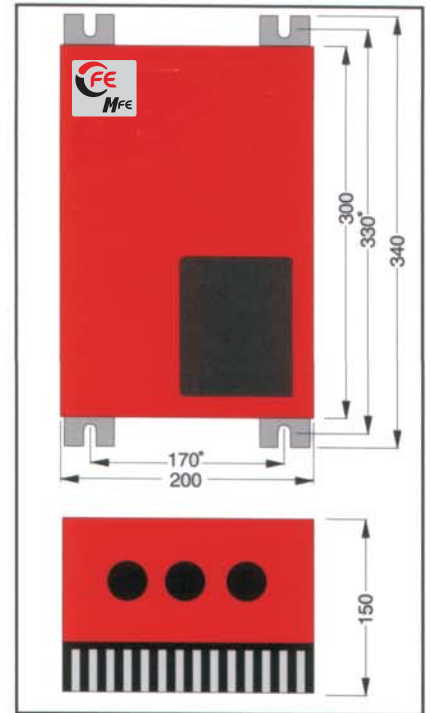
*M6 fixing mounting holes
Dimensions in mm



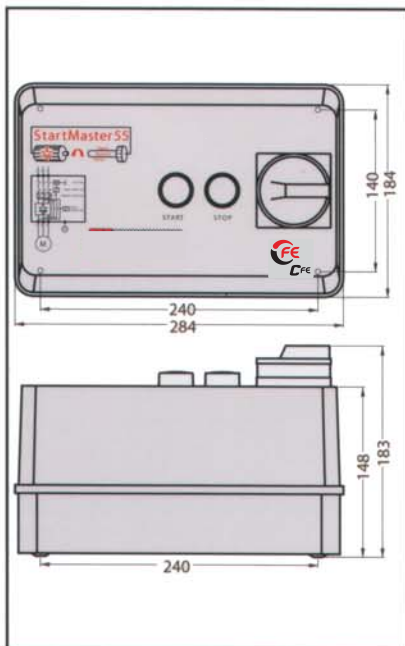
**Mechanical outline Size 1
5A - 16A StartMaster IP43**
*M5 fixing mounting holes
Dimensions in mm

IP43 for Retrofitting

Model Name	Motor Full Current (A)	Approx Motor Power Rating @400V (kW)
MFE23 IP43	23A	11
MFE 30 IP43	30A	15
MFE 44 IP43	44A	22
MFE 59 IP43	59A	30
MFE 72 IP43	72A	37



**Mechanical outline Size 2
23A - 72A StartMaster IP43**
*M6 fixing mounting holes
Dimensions in mm



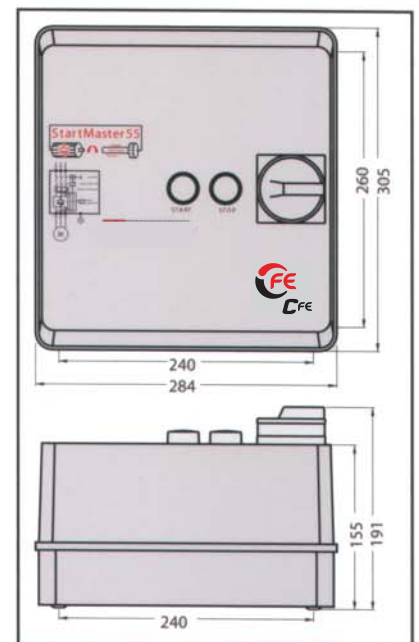
**Mechanical outline Size 1
6A - 22A StartMaster IP55**
M4 clearance mounting holes
Dimensions in mm

IP55 Complete Starter

Model Name	Motor Full Current (A)	Approx Motor Power Rating @400V (kW)
CFE 5 IP43	5A	2.2
CFE 9 IP43	9A	4
CFE 16 IP43	16A	7.5
CFE 23 IP43	23A	11
CFE 30 IP43	30A	15
CFE 44 IP43	44A	22

IP55 Complete Starter includes:-

CFE Soft Starter,
Panel Mounted Isolator, Main Contactor,
Thermal Overload, By Pass Contactor,
Panel Mounted Start and Stop Push Buttons
and Control Circuit Fusing



**Mechanical outline Size 2
30A - 44A StartMaster IP55**
M4 clearance mounting holes
Dimensions in mm

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