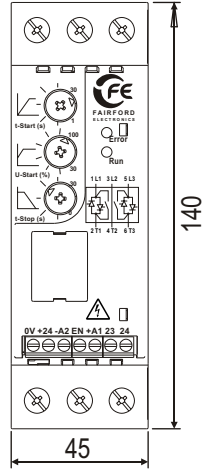
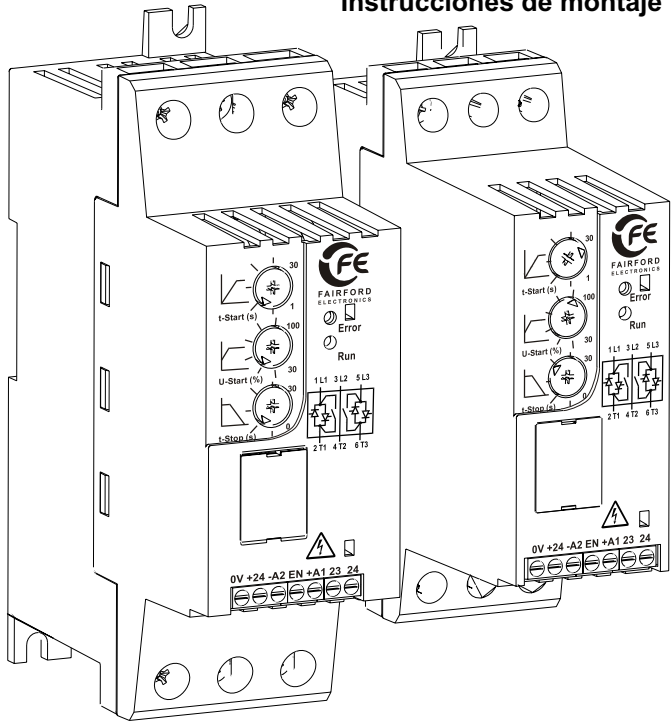


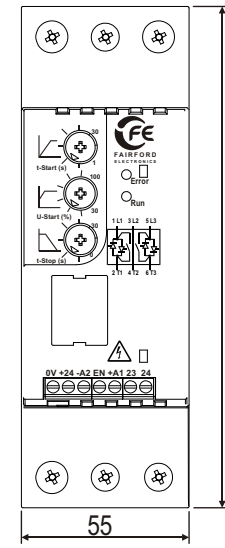
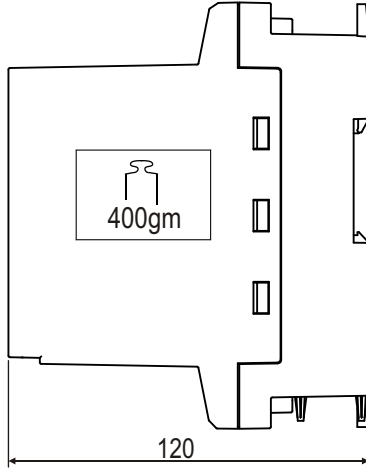
# PFE Digital Soft Starters

M-7G44-F  
0903303

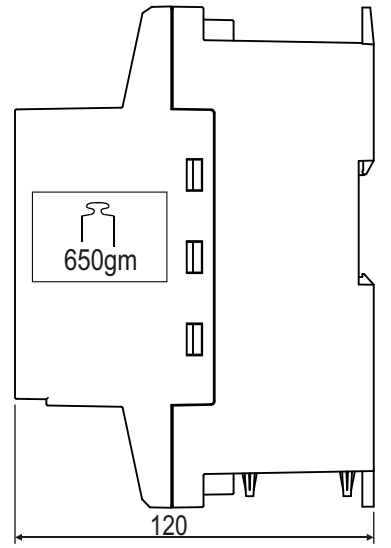
**Installation Instructions**  
**Montageanweisung**  
**Notice d'installation**  
**Istruzioni per il montaggio**  
**Instrucciones de montaje**



Mounting Centres 30mm x 130mm



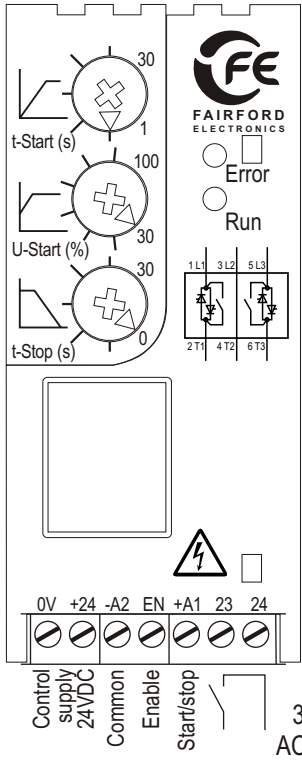
Mounting Centres 40mm x 155mm



This device is suitable for use in industrial environments. EN 55011/22 Class A  
Das Gerät ist für den industriellen Einsatz geeignet EN 55011/22 Klasse A.  
L'appareil a été conçu pour l'emploi en milieu industriel EN 55011/22 classe A.  
L'apparecchio è adatto per uso in ambienti industriali EN 55011/22 Classe A.  
El aparato es adecuado para uso en ambiente industrial EN 55011/22 clase A.

**Size1 5Amp to 16Amp**  
PFE-02 2.2kW @ 400V 5Amp  
PFE-04 3kW @ 400V 7Amp  
PFE-06 4kW @ 400V 9Amp  
PFE-08 5.5kW @ 400V 12Amp  
PFE-10 7.5kW @ 400V 16Amp

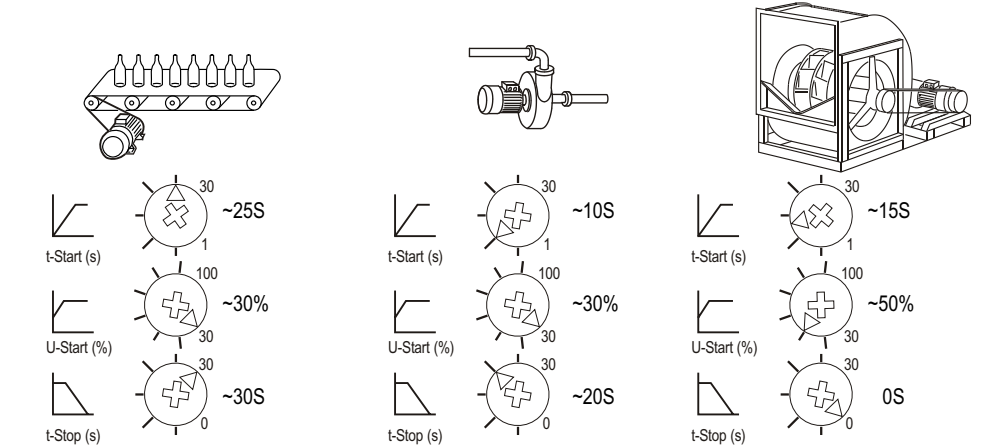
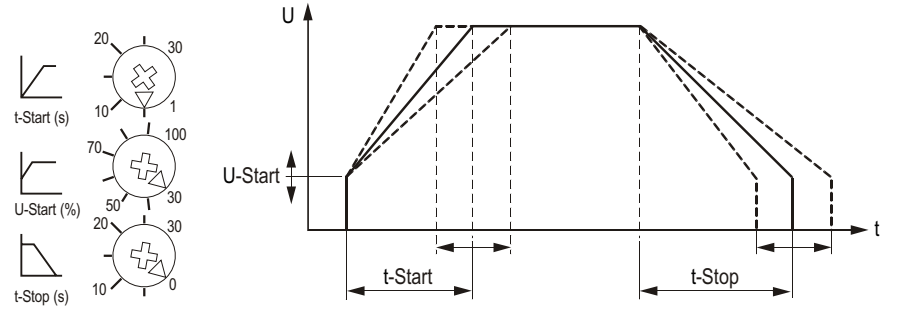
**Size2 22Amp to 41Amp**  
PFE-12 11kW @ 400V 22Amp  
PFE-14 15kW @ 400V 30Amp  
PFE-16 18.5kW @ 400V 36Amp  
PFE-18 22kW @ 400V 41 Amp



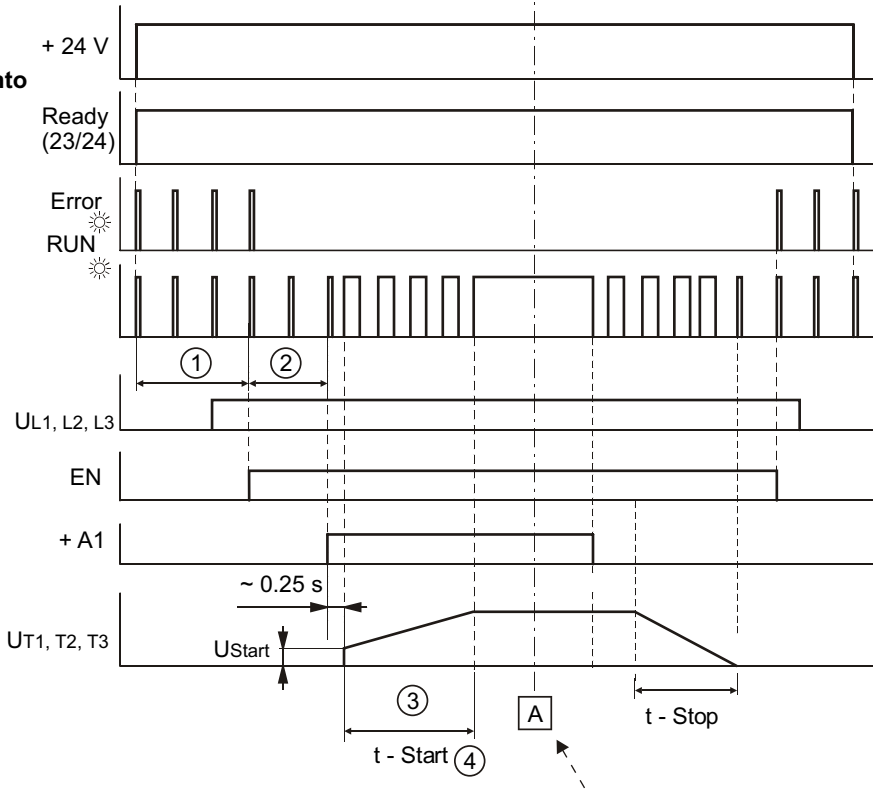
- Not Enabled** LED green+red - LED grün+rot - DEL vert+rouge - LED verde+rosso - LED verde+rojo  
Initialisation - Initialisierung - Initialisation - Inizializzazione - Inicialización
- Run** LED green - LED grün - DEL vert - LED verde - LED verde  
Ready for operation - Betriebsbereit - Prêt à fonctionner - Pronto al funzionamento - En condiciones para funcionamiento
- Slow Flash** Starting - in Rampe - en rampe - in rampa - en rampa
- Quick Flash** Full On - Full volts - vollen Spannung - pleine tension - piena tensione - plena tensión
- Quick Flash** Soft-Stop - Soft stop - Arrêt progressif - Soft-Stop - Paro suave

Very quick green flash:- Starting to trip on over current

- Error** Fault LED red - Fehler LED rot - DEL erreur rouge - LED errore rosso - LED error rojo
- |   |                          |   |                      |
|---|--------------------------|---|----------------------|
| 1 | SCR or supply            | 2 | Too hot              |
| 3 | Control supply low volts | 4 | Bypass relay failure |
| 5 | Shearpin (4.4 x l)       | 6 | Overcurrent          |

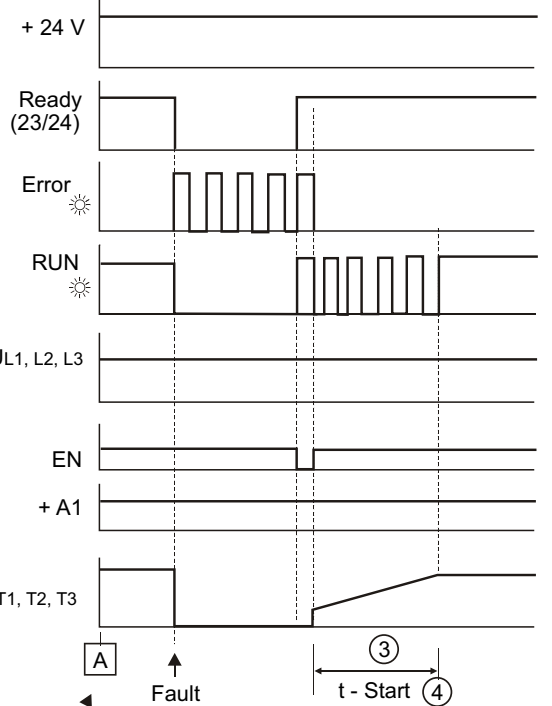


**Operation - Betrieb - Service - Funzionamento**



**Fault - Störung - Défaut - Guasto - Avería**

- RUN-LED green - RUN LED grün - DEL RUN verde - LED RUN verde - LED RUN verde - RUN-LED -  
Error-LED red - Error LED rot - DEL erreur rouge - LED errore rosso - LED error rojo
- Initialisation - Initialisierung - Initialisation - Inizializzazione - Inicialización
  - Ready for operation - Betriebsbereit - Prêt à fonctionner - Pronto al funcionamiento - En condiciones para funcionamiento
  - in ramp - in Rampe - en rampe - in rampa - en rampa
  - Top of ramp - Rampenende erreicht - Fin de rampe atteinte - Fine rampa - Fin de rampa



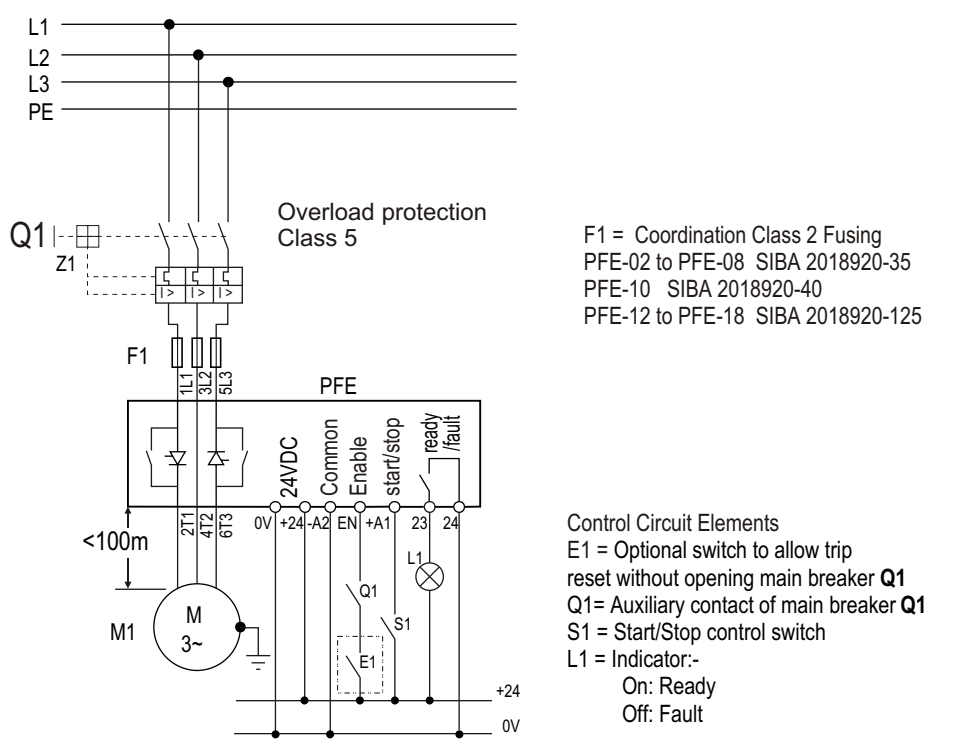
0V, +24 + A1, E, -A2 23, 24			
mm <sup>2</sup> / AWG	mm / inch	Nm / lb.in	mm
1 x 0.5 - 2.5 / 20 - 14	6 / 1/4"	0.4 / 3.5	0.6 x 3.5
2 x 0.5 - 1.5 / 20 - 16			

PFE-02 to PFE-10 1 L1, 3 L2, 5 L3 2 T1, 4 T2, 6 T3				
mm <sup>2</sup> / AWG	mm / inch	Nm / lb.in	mm	
1 or 2 x 1 - 4 / 18 - 12	9 / 3/8"	1.3 / 12	1 x 6	PZ2

PFE-12 to PFE-16 1 L1, 3 L2, 5 L3 2 T1, 4 T2, 6 T3				
mm <sup>2</sup> / AWG	mm / inch	Nm / lb.in	mm	
1 or 2 x 1.5 - 6 / 16 - 10	12 / 1/2"	2.5 / 22	1 x 6	PZ2

Where several conductors are to be connected, the difference between the wires/cables used must not exceed one DIN Standard size level.  
Bei Mehrleiteranschluss darf maximal ein DIN-Normgrößen-Sprung zwischen den verwendeten Leitern liegen.  
En cas de raccordement de plusieurs conducteurs, il faut 1 écartement normalisé max. entre les conducteurs.  
In caso di collegamento a più conduttori, è ammesso al massimo un salto di grandezza DIN standard fra i conduttori utilizzati.  
En caso de conexión de múltiples conductores puede haber como máximo un salto de magnitud normalizada DIN entre los conductores utilizados.

**DANGER!** Hazardous Voltage. Will cause death or serious injury. Hazardous voltage is also present in the OFF/STOP status of the soft starter when the supply voltage is switched on (Ue).  
**GEFAHR!** Gefährliche Spannung. Lebensgefahr oder schwere Verletzungsgefahr. Bei eingeschalteter Versorgungsspannung (Ue) steht auch im AUS-/STOP-Zustand des Softstarters am Ausgang gefährliche Spannung an.  
**DANGER!** Tension dangereuse. Danger de mort ou risque de blessures graves. En cas de tension d'alimentation (Ue) enclenchée, la tension dangereuse existe aussi en position d'Arrêt à la sortie du démarreur progressif.  
**PERICOLO!** Tensione pericolosa. Può provocare morte o lesioni gravi. Con la tensione di alimentazione (Ue) inserita, anche nello stato OFF/STOP del softstarter è presente tensione pericolosa in uscita.  
**¡PELIGRO!** Tensión peligrosa. Puede causar la muerte o lesiones graves. Si la tensión de alimentación está conectada (Ue), existe también en la salida tensión peligrosa con el arrancador suave en estado OFF/ON.



- Q1 = Cable protection - Leitungsschutz - Protezione di linea - Protección de cable - Protection de câbles
- Z1 = Overload relay - Überlastrelais - Relè termico - Relé de sobrecarga - Relais thermique
- F1 = Semiconductor fuse for type 2 coordination, in addition to Q1  
Halbleitersicherung für Zuordnungsart 2, zusätzlich zu Q1  
Per avere la protezione del semiconduttore in coordinamento di tipo 2, è necessario un fusibile in aggiunta a Q1  
Fusible semiconduttore para tipo de coordinación 2, adicionalmente a Q1  
Fusible pour semi-conducteurs pour coordination de type 2, additionnel à Q1
- PFE = Soft Starter - Halbleiterschütz - Contactor semiconductor - Contattore a semiconduttori - Contacteur à semi-conducteurs
- A1-A2 = Start/Stop - Start/Stopp - Start/Stop - Arranque/Parada - Démarrage/Arrêt

**Electric shock risk. Danger**  
Only skilled or instructed persons may carry out the following operations.  
**Lebensgefahr durch elektrischen Strom!**  
Nur Elektrofachkräfte und elektrotechnisch unterwiesene Personen dürfen die im Folgenden beschriebenen Arbeiten ausführen.  
**Tension électrique dangereuse !**  
Seules les personnes qualifiées et averties doivent exécuter les travaux ci-après.  
**Tensione elettrica: Pericolo di morte!**  
Solo persone abilitate e qualificate possono eseguire le operazioni di seguito riportate.  
**¡Corriente eléctrica! ¡Peligro de muerte!**  
El trabajo a continuación descrito debe ser realizado por personas cualificadas y advertidas.

**Rated Impulse withstand Voltage (Uimp)** 2.5kV  
**Rated Insulation Voltage (Ui)** 500V  
**Pollution Degree** 2  
**Rated Short Circuit Current (Iq)\*** 10kA  
**Short Circuit Co-ordination\*** Type 2  
**Ambient Temperature** 0°C to 40°C.  
Above 40°C de-rate linearly by 2% of unit FLC per °C to a derate of 40% at 60°C  
**Transport and Storage** -25°C to +60°C  
**Altitude** 1000m. 1000-2000m de-rate 1% of unit FLC per 100m to 2000m.  
**Humidity** max. 85% non-condensing, not exceeding 50% at 40°C  
**IP Rating** IP20  
**Design Standards** IEC 60947-4-2; EN60947-4-2  
\*AC Semiconductor Motor Controllers and Starters  
\* When protected by recommended semiconductor fuse.

**Operational Voltage (Ue)** 230-460 VAC rms 3-Phase (-15% +10%)  
**Rated Frequency** 50 - 60Hz +/- 2Hz  
**Index Rating** Standard (Class5) AC53b: 3-5: 355  
Overcurrent = > 3 x Ie for 5 Seconds  
**Control Supply Us** 24V DC approx 4VA supplied to terminals 0V - +24V  
**Enable Control** 24V DC galvanically isolated terminals -A2 - EN  
**Start/Stop Control** 24V DC galvanically isolated terminals -A2 - +A1  
**Auxiliary Circuits relay** Ready/Fault - 23/24. 250VAC 2.5A, AC11.  
**Indication** Red = Error - Green = Run LEDs  
**t-Start** 1 to 30 seconds.  
**U-Start** 30% - 100%  
**t-Stop** 0 to 30 seconds  
**Start Duty** 3 x FLC for 5 seconds at standard rating  
**Starts / Hour** standard 10 starts per hour or 5 starts + 5 soft stops per hour  
with optional fan 60 starts per hour or 30 starts + 30 soft stops per hour  
Internally bypassed  
**Power Terminals** IP20 Rated wire clamping terminals

EMC EMISSION AND IMMUNITY LEVELS		
ESD immunity	IEC 61000-4-2	4kV contact. 8kV air discharge
R F immunity	IEC 61000-4-6	140dBuV over 0.15-80MHz
R F immunity	EC 61000-4-3	10V/m over 80 -1000MHz
Fast Transient immunity	IEC 61000-4-4	2kV/5kHz
Surge immunity	IEC 61000-4-5	2kV line to ground 1kV line to line
Conducted RF emissions	EN 55011	Class A
Radiated RF emissions	EN 55011	Class A

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