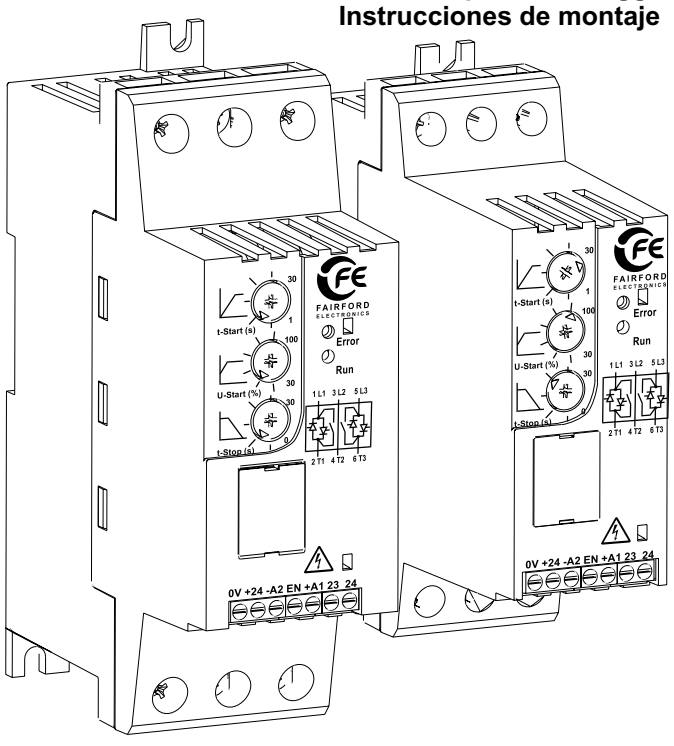
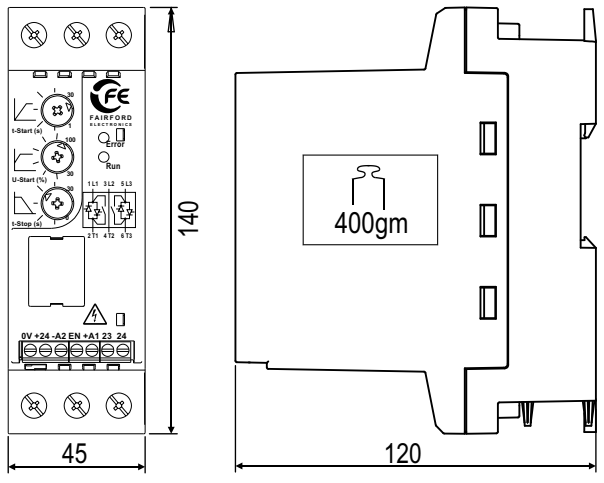
PFE Digital Soft Starters

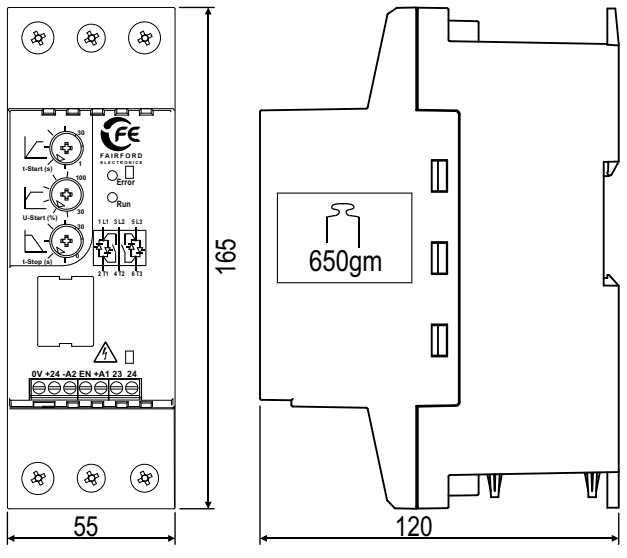
M-7G44-F
090930

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





Mounting Centres 30mm x 130mm



Mounting Centres 40mm x 155mm

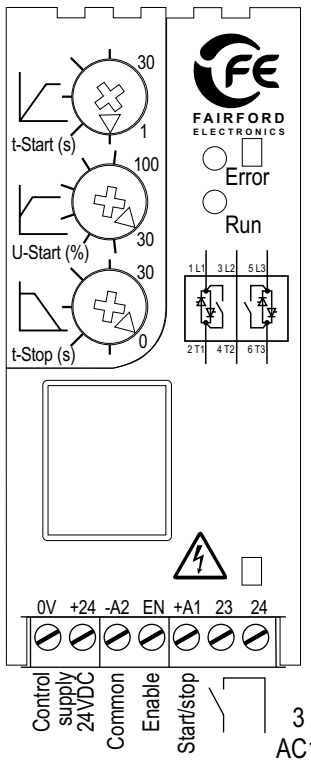
This device is suitable for use in industrial environments. EN 55011/22 Class A
Das Gerät ist für den industriellen Einsatz geeignet EN 55011/22 Klasse A.
L'appareil a été conçu pour l'emploi en milieu industriel EN 55011/22 classe A.
L'apparecchio è adatto per uso in ambienti industriali EN 55011/22 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 (Non UL)**
PFE-18	**30HP**	**@460V**	**FLA 40A (UL)**

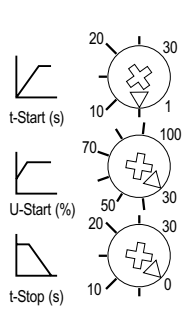


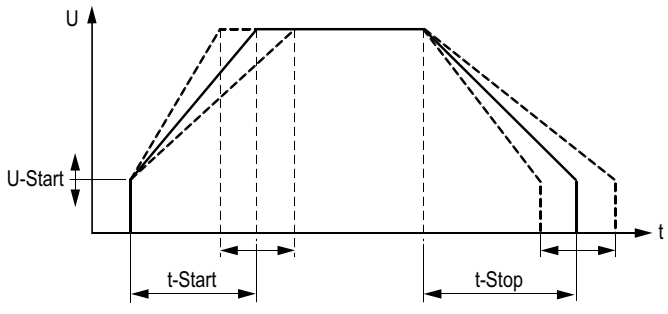
3 Amp NO
AC11 230VAC

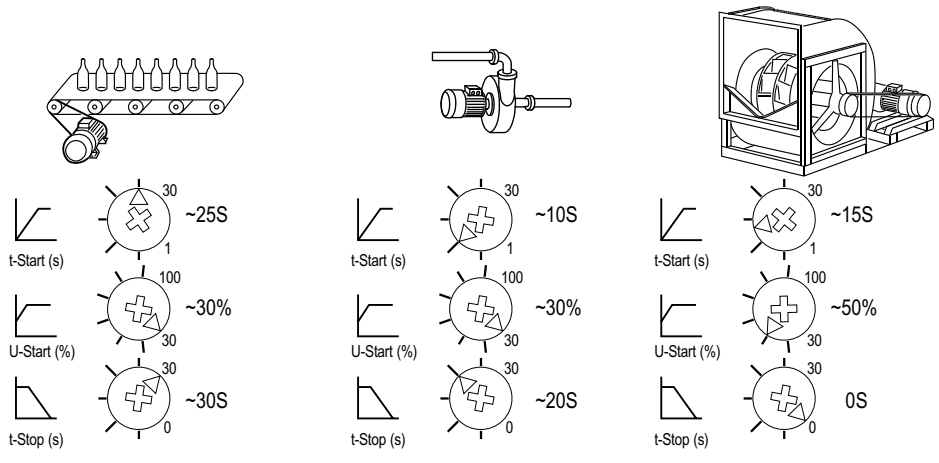
Not Enabled	**LED green+red - LED grün+rot – DEL vert+rouge – LED verde+rosso - LED verde+rojo**		
Slow Flash	Initialisation – Initialisierung – Initialisation – Inizializzazione – Inicialización		
Run	**LED green - LED grün – DEL vert – LED verde - LED verde**		
Slow Flash	Ready for operation – Betriebsbereit – Prêt à fonctionner - Pronto al funzionamento – En condiciones para funcionamiento		
Quick Flash	Starting – in Rampe – en rampe – in rampa – en rampa		
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

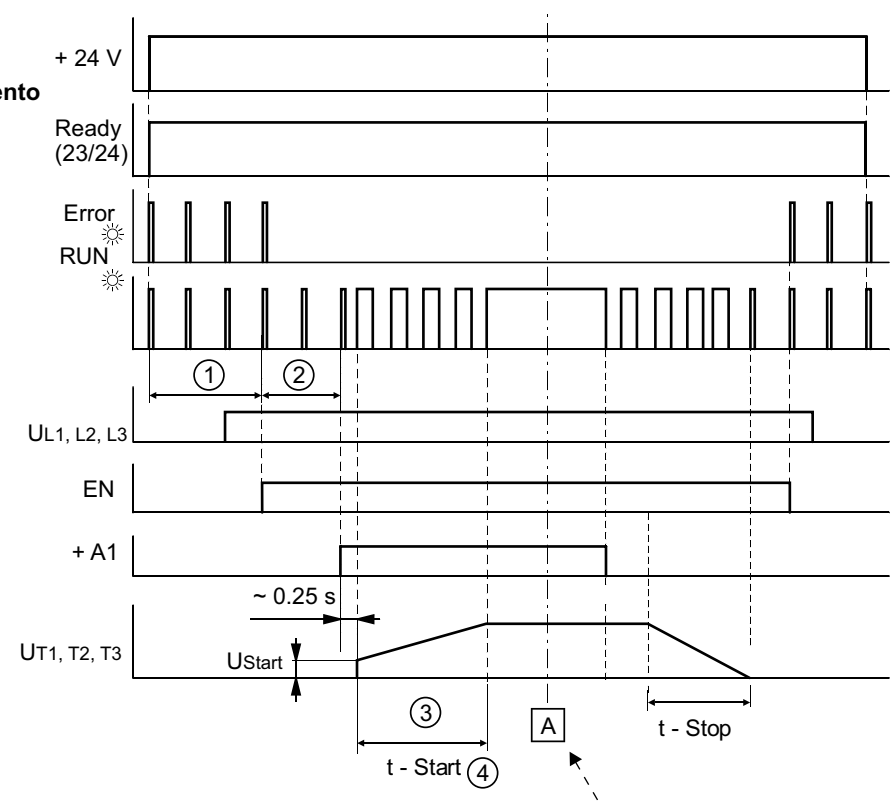
Error	**Fault LED red – Fehler LED rot – DEL erreur rouge – LED errore rosso –LED error rojo**		
1	SCR or supply	2	Too hot
3	Control supply low volts	4	Bypass relay failure
5	Shearpin (4.4 x Ie)	6	Overcurrent







Operation – Betrieb – Service – Funzionamento



Fault – Störung – Défaut – Guasto – Avería

RUN-LED green – RUN LED grün – DEL RUN vert – LED RUN verde – LED RUN verde – RUN-LED –

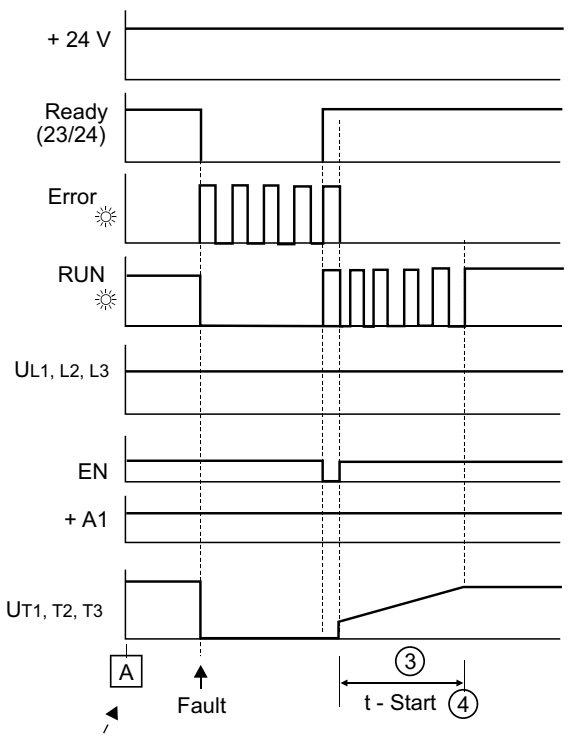
Error-LED red – Error LED rot – DEL erreur rouge – LED errore rosso – LED error rojo

1 Initialisation – Initialisierung – Initialisation – Inizializzazione – Inicialización

2 Ready for operation – Betriebsbereit – Prêt à fonctionner – Pronto al funzionamento – En condiciones para funcionamiento

3 in ramp – in Rampe – en rampe – in rampa – en rampa

4 Top of ramp – Rampenende erreicht – Fin de rampe atteinte – Fine rampa – Fin de rampa



0V, +24 + A1, E, -A2 23, 24	mm² / AWG	mm / inch	Nm / Lb.in	mm
1 x	0.5 – 2.5 / 20 – 14	6 / ¼"	0.4 / 3.5	0.6 x 3.5
2 x	0.5 - 1.5 / 20 – 16			

Melderelais – Signalling relay – Relais à voyant – Relè di segnalazione – Relé de señalización

U	(L)	(R) AC11	I_{min}	U_{min}
250V AC	0.2A	2.5A	10mA	100V AC
30V DC	0.7A	3A	100mA	5V DC

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.

PFE-02 to PFE-10 1 L1, 3 L2, 5 L3 2 T1, 4 T2, 6 T3	75°C wire CU only mm² / AWG	mm / inch	M4 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-18 1 L1, 3 L2, 5 L3 2 T1, 4 T2, 6 T3	75°C wire CU only mm² / AWG	mm / inch	M5 Nm / Lb.in	mm	
1 or 2 x	2.5 – 10 / 12 – 8	12 / ½"	2.5 / 22	1 x 6	PZ2

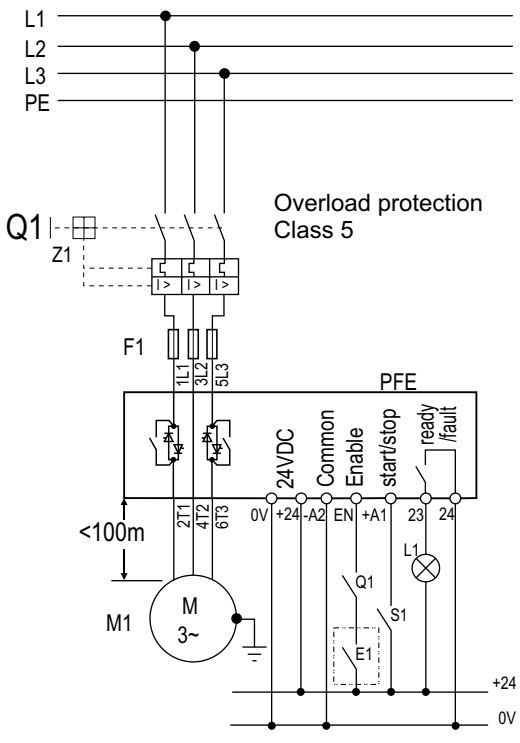
Where several conductors are to be connected, the difference between the wires/cables used must not exceed one DIN Standard size level.

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 grandezze 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.



F1 = Coordination Type1
Recommended Semiconductor Fuses
PFE-02 to PFE-08 SIBA 2018920-35
PFE-10 SIBA 2018920-40
PFE-12 to PFE-18 SIBA 2018920-125

UL Requirement - Short Circuit rating 5000A, 480Vac when protected by fuses or circuit breakers, rated as indicated in table below

MODEL #	Class J or T Fuse Rated 600VAC	Circuit Breaker Rated 600VAC
PFE-02	15A	-
PFE-04	15A	-
PFE-06	30A	-
PFE-08	40A	-
PFE-10	50A	-
PFE-12	80A	80A
PFE-14	100A	100A
PFE-16	125A	125A
PFE-18	150A	150A

Control Circuit Elements
E1 = Optional switch to allow trip reset without opening main breaker **Q1**
Q1= Auxiliary contact of main breaker **Q1**
S1 = Start/Stop control switch
L1 = Indicator:-
On: Ready
Off: Fault

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 1 coordination, in addition to Q1
Halbleitersicherung für Zuordnungsart 1, zusätzlich zu Q1
Per avere la protezione del semiconduttore in coordinamento di tipo 1, è necessario un fusibile in aggiunta a Q1
Fusible semiconductor para tipo de coordinación 1, adicionalmente a Q1
Fusible pour semi-conducteurs pour coordination de type 1, 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 qualifées 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)* **5**kA
Short Circuit Co-ordination* Type 1
Surrounding Air 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 (not UL)
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"
United States Standard UL508
* When protected by recommended semiconductor fuse.

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

Operational Voltage (Ue)		230-460 VAC rms 3-Phase (-15% +10%)
Rated Frequency		50 - 60Hz +/- 2Hz **Form Designation** Form 1
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

Listed Soft starter can be used when fitted with fan part numbers as detailed in document M-7G71-F

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