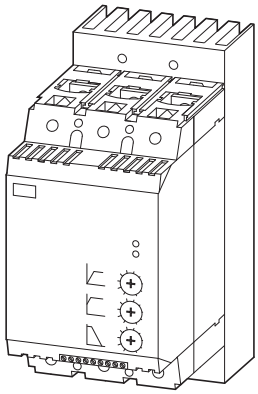
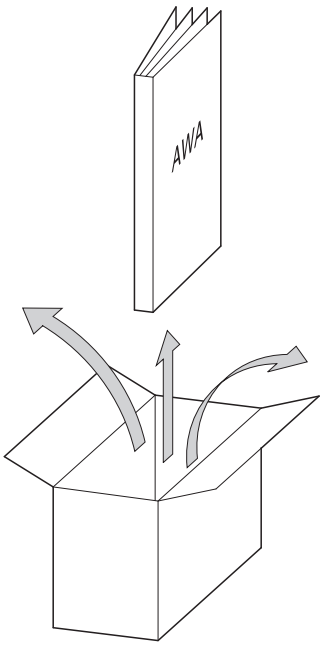
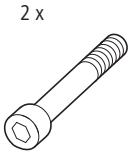
Montageanweisung
Installation Instructions
Notice d'installation
Istruzioni per il montaggio

Instrukcja montażu
Инструкция по монтажу
安装说明

DS6-...







Lebensgefahr durch elektrischen Strom!
Nur Elektrofachkräfte und elektrotechnisch unterwiesene Personen dürfen die im Folgenden beschriebenen Arbeiten ausführen.

Electric current! Danger to life!
Only skilled or instructed persons may carry out the following operations.

Tension électrique dangereuse !
Seules les personnes qualifiées et averties doivent exécuter les travaux ci-après.

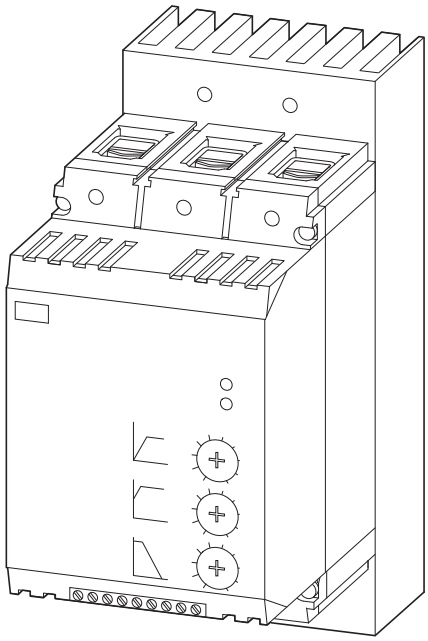
Tensione elettrica: Pericolo di morte!
Solo persone abilitate e qualificate possono eseguire le operazioni di seguito riportate.

Prąd elektryczny! Zagrożenie życia!
Poniższe czynności mogą być wykonywane tylko przez przeszkolony personel.

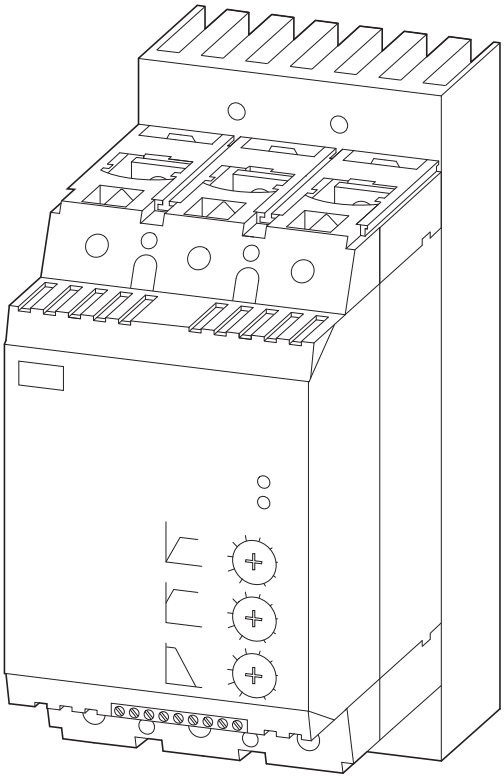
Электрический ток! Опасно для жизни!
Только специалисты или проинструктированные лица могут выполнять следующие операции.

触电危险！
只允许专业人员和受过专业训练的人员进行下列工作。

DS6-340-22K-MX
DS6-340-30K-MX
DS6-340-37K-MX
DS6-340-45K-MX
DS6-340-55K-MX

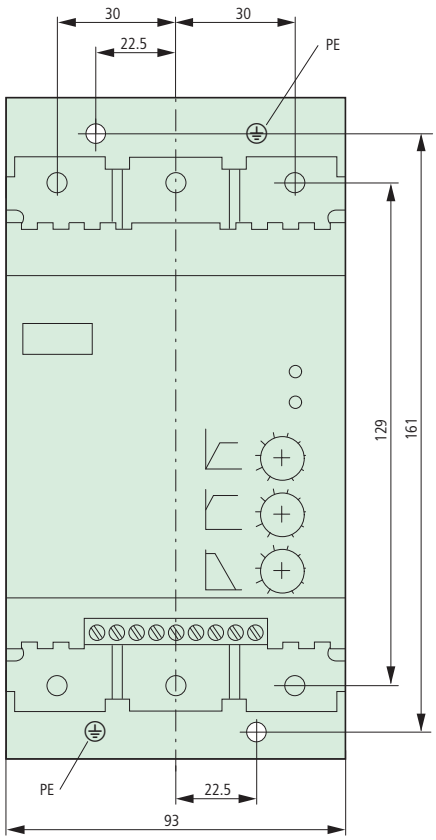


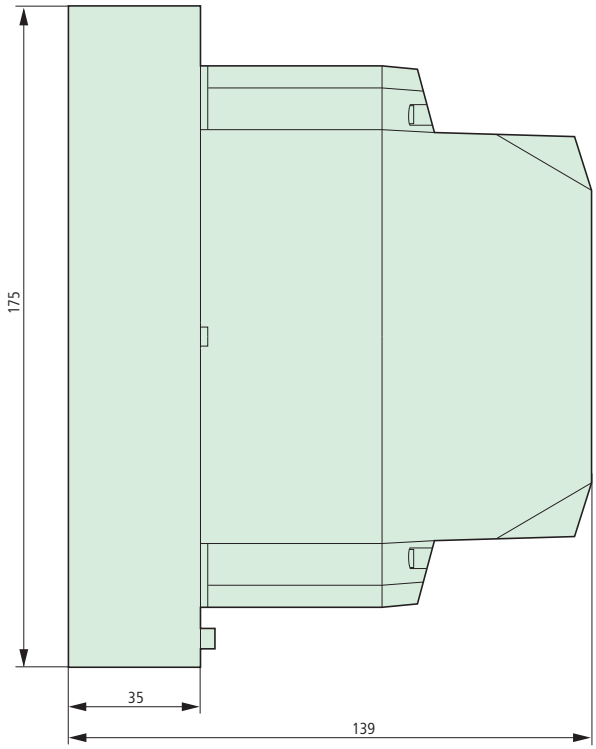
DS6-340-75K-MX
DS6-340-90K-MX
DS6-340-110K-MX

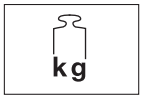


Abmessungen und Gewichte – Dimensions and weights – Dimensions et poids – Dimensioni e pesi – Wymiary i waga – Размеры и веса – 尺寸和重量

DS6-340-22K-MX
DS6-340-30K-MX
DS6-340-37K-MX
DS6-340-45K-MX
DS6-340-55K-MX

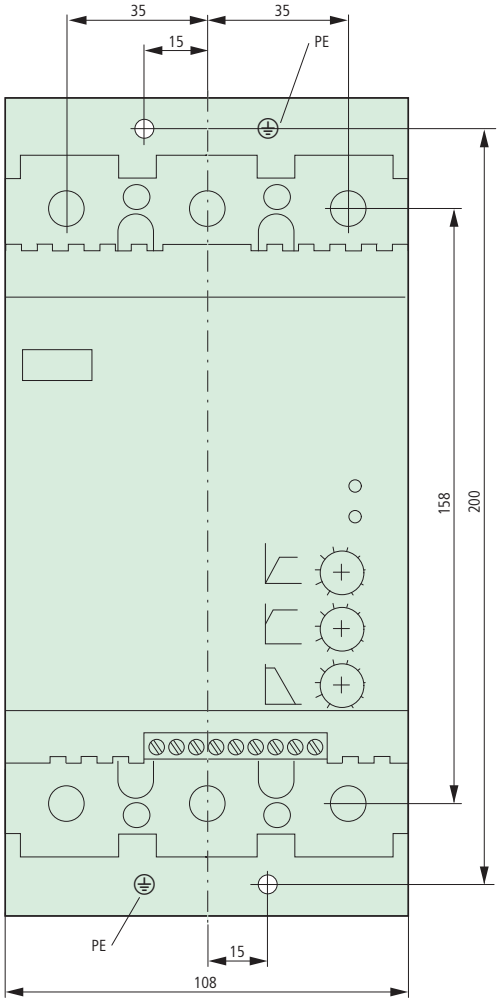


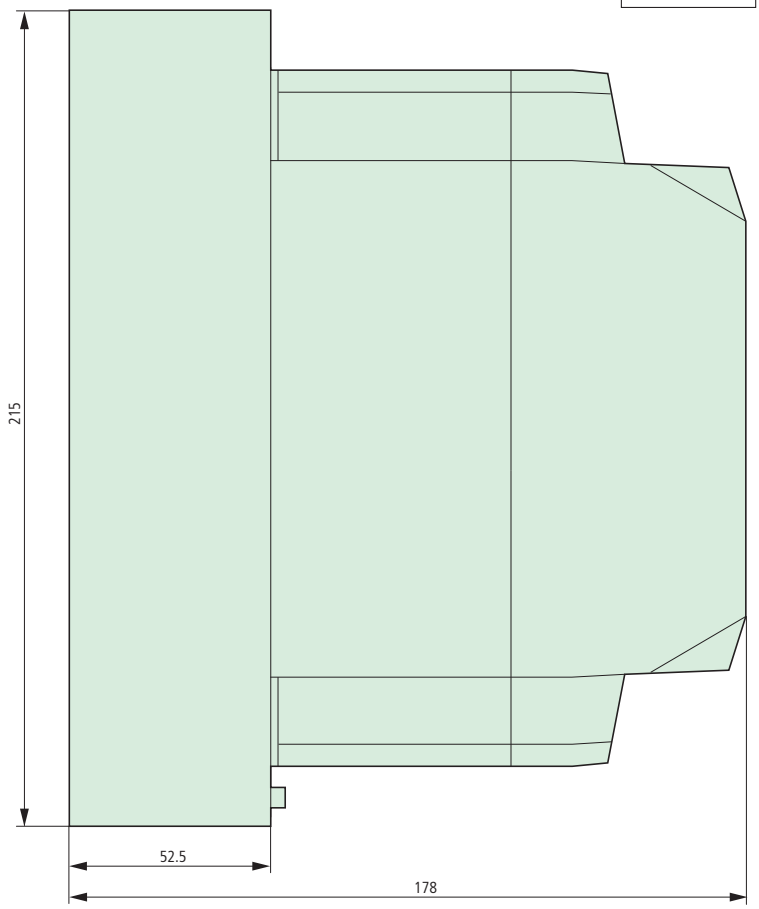


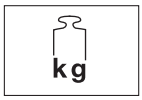


1.8

DS6-340-75K-MX
DS6-340-90K-MX
DS6-340-110K-MX





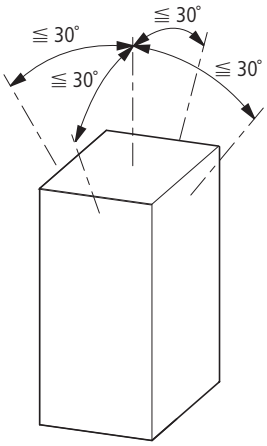


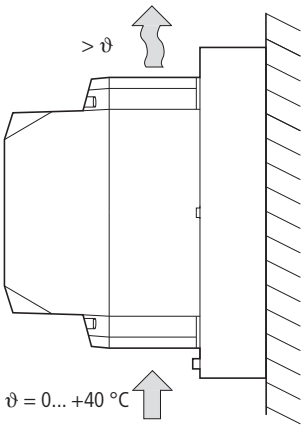
3.7

06/09 AWA8250-2330

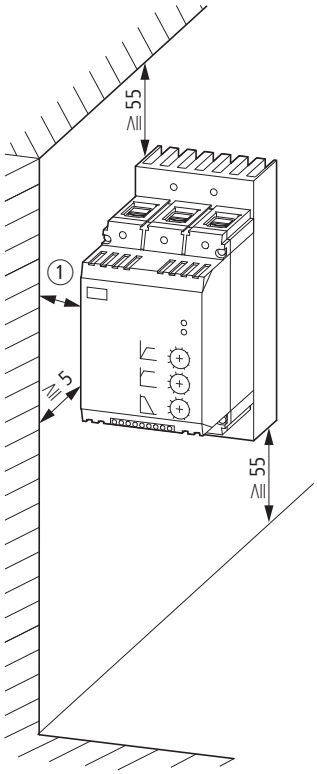
Emergency On Call Service: Local representative (http://www.moeller.net/address) or +49 (0) 180 5 223822 (de, en)

Einbaulage – Mounting position – Position de montage – Posizione di montaggio – Pozycja montażu – Положение установки – 安装位置





Einbaumaße – Fitting dimensions – Dimensions de montage – Dimensions di montaggio – Dopasowanie wymiarów – монтажные размеры – 安装尺寸

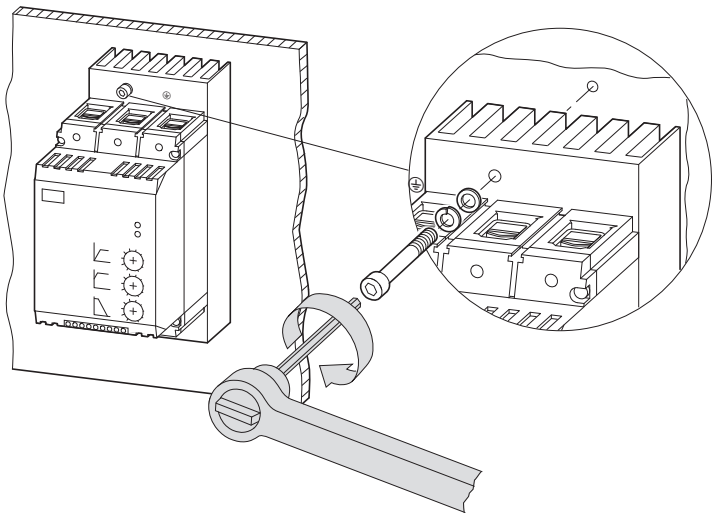


①	
≧ 0	DS6-340-22K ... -110K-MX
≧ 5	NZM2 + DS6-340-75K ... -110K-MX
	→ AWA1230-1916 (NZM2)

06/09 AWA8250-2330

Montage – Mounting – Montaggio – Montaż – Монтаж – 安装

DS6-340-...-MX

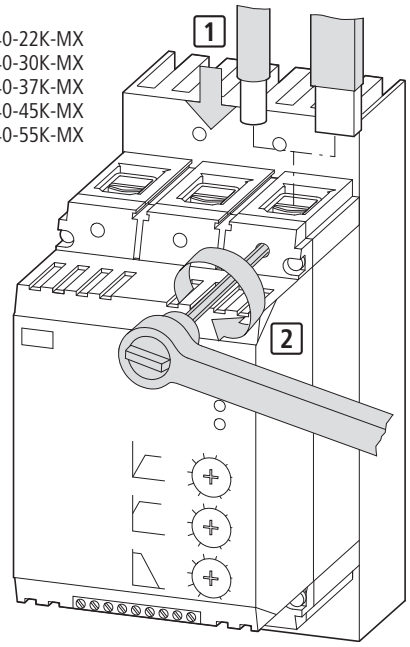


		mm	Nm	lb-in
DS6-340-22K-MX	2 x	4	9	80
DS6-340-30K-MX				
DS6-340-37K-MX	M5 x ≧ 55			
DS6-340-45K-MX				
DS6-340-55K-MX				
DS6-340-75K-MX	M6 x ≧ 65	5	14	123
DS6-340-90K-MX				
DS6-340-110K-MX				

Leistungsklemmen – Power terminals – Bornes de puissance – Morsetti di potenza – Zaciski silnoprądowe – Силовые зажимы – 功率接线柱

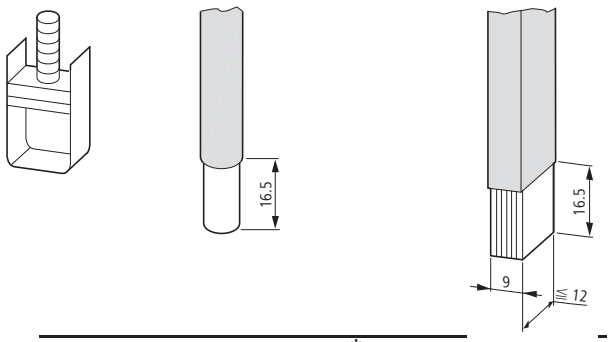
1

DS6-340-22K-MX
DS6-340-30K-MX
DS6-340-37K-MX
DS6-340-45K-MX
DS6-340-55K-MX



4 mm

Nm		lb-in
9	> 10 mm² AWG 6 - 2/0	80
6	≦ 10 mm² AWG 12 - 8	53



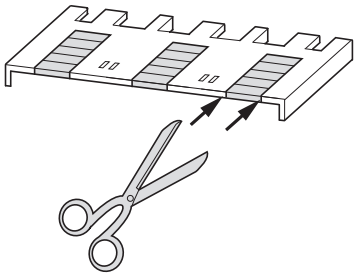
Standard	1 x 10 - 70 mm² (95 mm²)*	≧ 2 x 9 x 0.8 mm
	2 x 6 - 25 mm²	
UL-use	1 x AWG 12 - 1 x AWG 2/0	

UL/CSA = Cu only, Ampacity per 75 °C Table.

* Je nach Kabelhersteller bis zu 95 mm² anschließbar
Max. 95 mm² can be connected depending on the cablemanufacturer
Selon le fabricant de câble, possibilité de raccorde jusqu'ŕ 95 mm²
Sezione max collegabile 95 mm² in base al produttor del cavo
Maksymalny przekrój kabla 95 mm² w zależności od producenta
В зависимости от производителя кабеля можно подключатьдо 95 mm²
根据不同的电缆制造商，可连接最大 95 mm²

Schutzarterhöhung – Increase of degree of protection – Augmentation du degré de protection – Aumento del livello di protezione – Zwiększanie stopnia ochrony – повышение степени защиты – 防爆等级升级

2 NZM1-XKSFA



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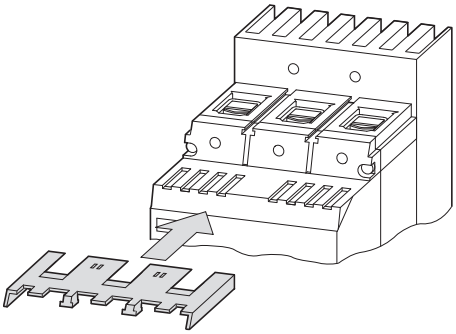

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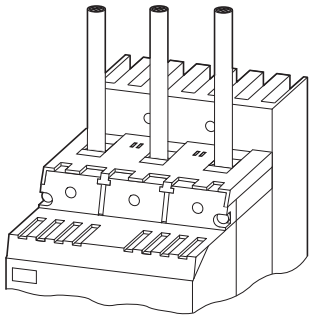

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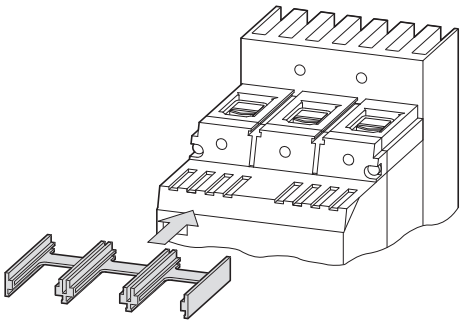
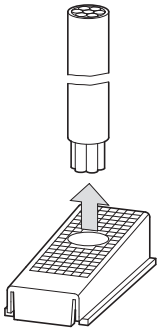
1 NZM1-XIPK



AWA1230-2057

2



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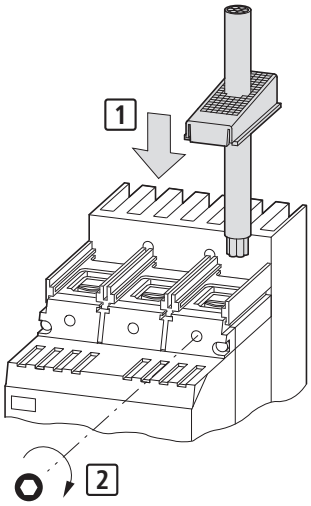

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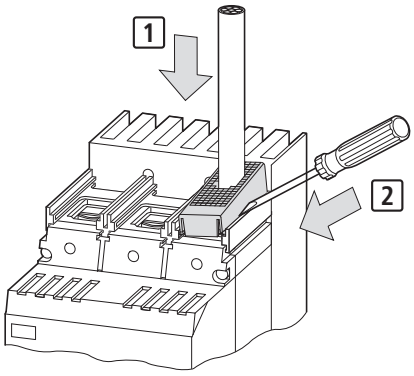
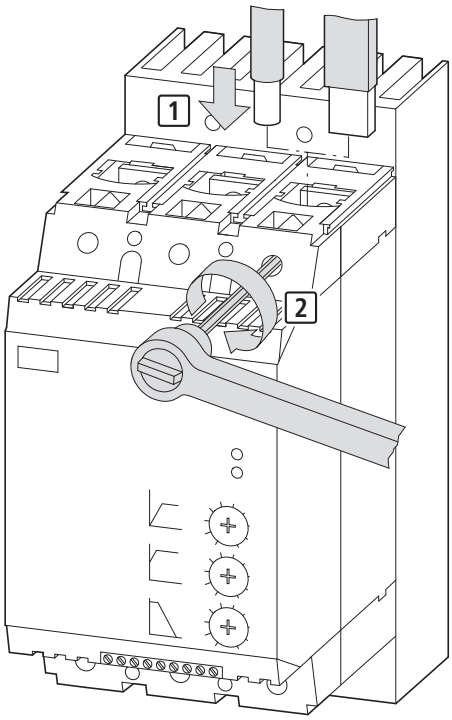


Leistungsklemmen – Power terminals – Bornes de puissance – Morsetti di potenza – Zaciski silnoprądowe – Силовые зажимы – 功率接线柱

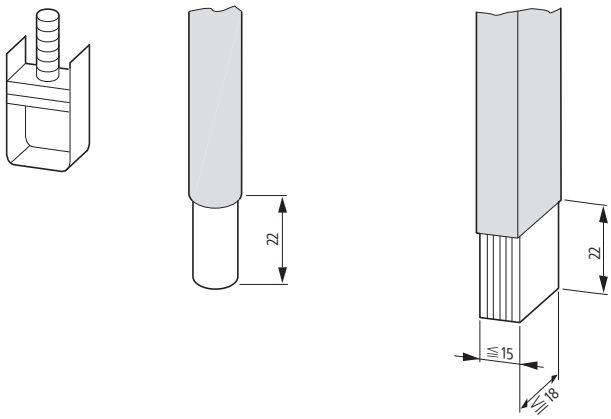
1

DS6-340-75K-MX
DS6-340-90K-MX
DS6-340-110K-MX



5 mm
≦ 25 mm
≧ AWG 4

Nm		lb-in
14	> 10 mm², AWG 6 - 6/0	123
5	≦ 10 mm², AWG 12 - 8	44



Standard	1 x 4 - 185 mm²	≧ 2 x 9 x 0.8 mm
	2 x 4 - 70 mm²	
UL-use	1 x AWG 12 - 6/0	

UL/CSA = Cu only, Ampacity per 75 °C Table.

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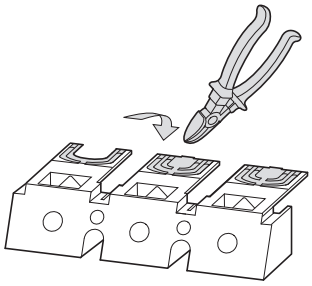
Schutzarterhöhung – Increase of degree of protection – Augmentation du degré de protection – Aumento del livello di protezione – Zwiększanie stopnia ochrony – повышение степени защиты – 防爆等级升级

2 **NZM2-XKSFA**



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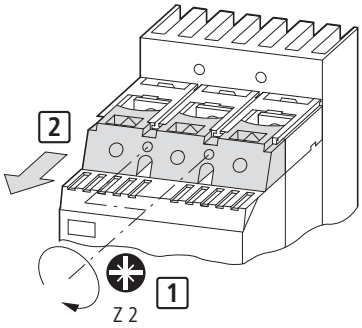

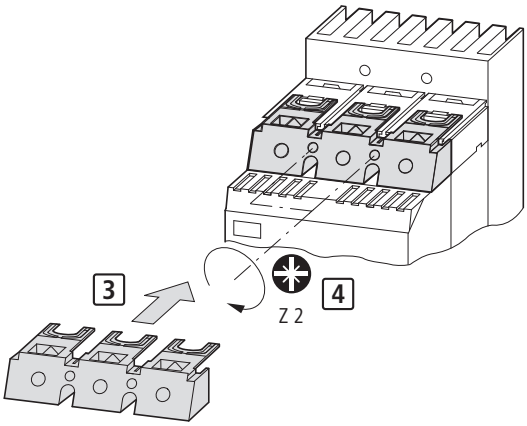

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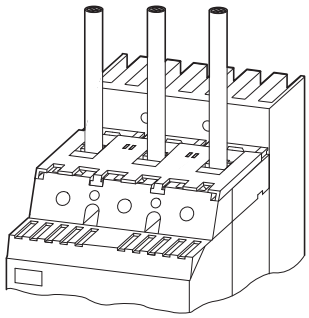
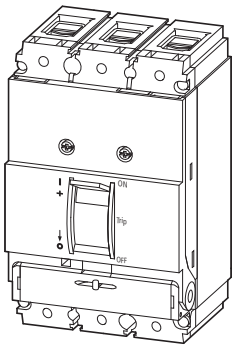
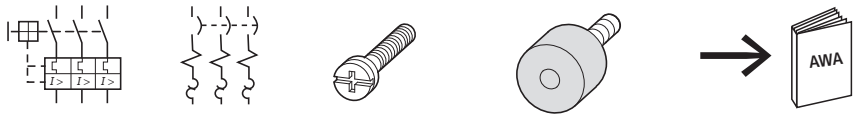


Montage – Mounting – Montaggio – Montaż – Монтаж – 安装

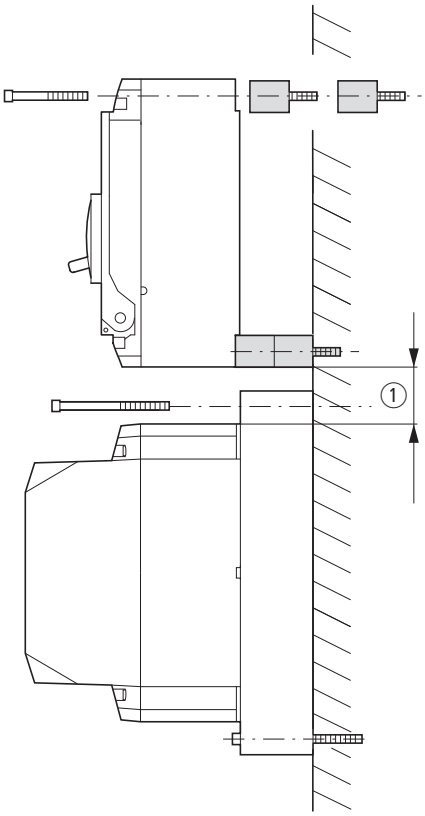
NZM1 + DS6-340-22K- ... -55K-MX NZM2
+ DS6-340-75K- ... -110K-MX



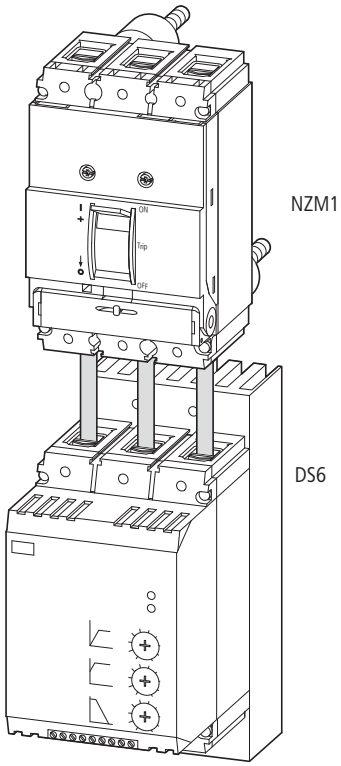


Standard UL-use

NZM1	2 x M4 x 50 2 Nm, 18 lb-in	4 x (= 1 x NZM1/2-AB)	AWA1230-1913
NZM2	4 x M4 x 85/20 1.7 Nm, 15 lb-in	12 x (= 3 x NZM1/2-AB)	AWA1230-1916

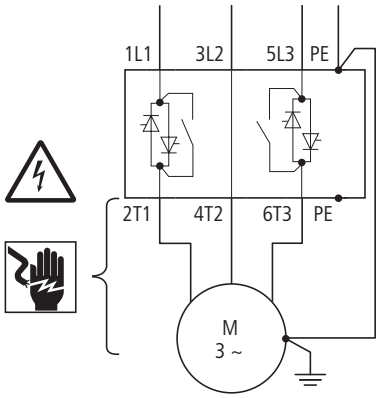


① NZM1	NZM2
≧ 25 mm	≧ 35 mm



06/09 AWA8250-2330

GEFAHR! – DANGER! – PERICOLO! – NIEBEZPIECZEŃSTWO! – ОПАСНО! – 危险！



Gefährliche Spannung. Lebensgefahr oder schwere Verletzungsgefahr.
Bei eingeschalteter Versorgungsspannung (U_{LN}) steht auch im AUS-/STOP-Zustand des Softstarters am Ausgang gefährliche Spannung an.

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 (U_{LN}).

Tension dangereuse. Danger de mort ou risque de blessures graves.
En cas de tension d'alimentation (U_{LN}) enclenchée, la tension dangereuse existe aussi en position d'Arrêt à la sortie du démarreur progressif.

Tensione pericolosa. Può provocare morte o lesioni gravi.
Con la tensione di alimentazione (U_{LN}) inserita, anche nello stato OFF/STOP del softstarter è presente tensione pericolosa in uscita.

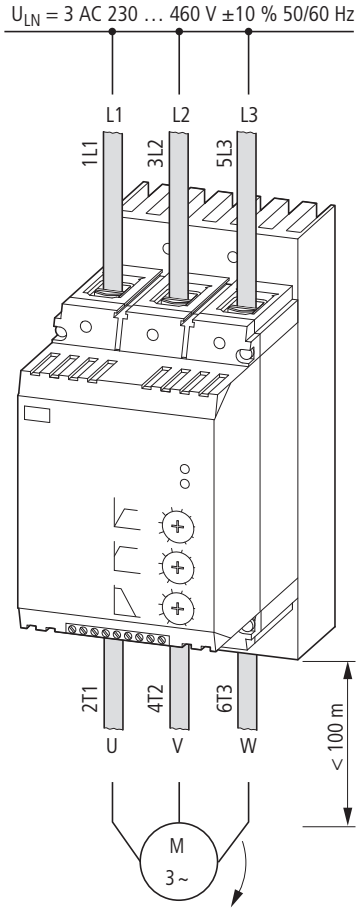
Niebezpieczne napięcie! Zagrożenie życia lub zranienia!
Niebezpieczne napięcie jest obecne również w stanie OFF/Stop softstartu, kiedy napięcie zasilania U_{LN} jest załączone.

Опасное напряжение. Возможен смертельный случай или тяжелая травма.
При включенном напряжении питания (U_{LN}) опасное напряжение присутствует также и в положении "выключено"/"останов" софтстартера на выходе.

危险电压。 有生命危险或严重伤害。
接通电源（U_{LN}）时，即使输出端的软起动器在关闭状态也存在着危险电压。

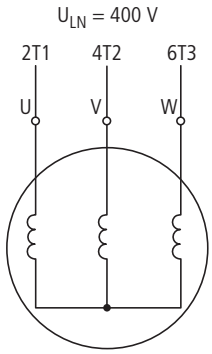
Emergency On Call Service: Local representative (http://www.moeller.net/address) or +49 (0) 180 5 223822 (de, en)

Anschluss Leistungsteil – Connection of power section – Raccordement de la partie puissance – Collegamento stadio di potenza – Podłączenie przewodów siłowych – Присоединение Силовая часть схемы – 动力部分接头

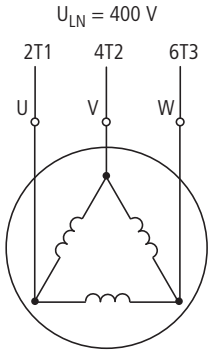


→ Das Gerät ist für den industriellen Einsatz geeignet (→ EN 55011/22 Klasse A).
The device is suitable for use in industrial environments (→ EN 55011/22 Class A).
L'appareil a été conçu pour l'emploi en milieu industriel (→ EN 55011/22 classe A).
L'apparecchio è adatto per uso in ambienti industriali (→ EN 55011/22 Classe A).
Urządzenie nadaje się do zastosowań przemysłowych (→ EN 55011/22 Klasa A).
Прибор пригоден для промышленной эксплуатации (→ EN 55011/22 Класс A).
此设备适合于工业用途
(--> EN 55011/22 等级 A)

→ UL/CSA: Odpowiednie do instalacji w środowsku o stopniu 2 zanieczyszczenia.



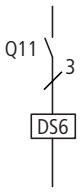
230/400 V



400/690 V

06/09 AWA8250-2330

Externe Zusatzkomponenten – External add-on components – Eléments complémentaires externes – Componente aggiuntivo esterno – Zewnętrzne dodatkowe komponenty – Внешние дополнительные компоненты – 外部附加组件



	I_e	P_M 400 V	460 V	I_e	Class 1 1) I_q → PKZM4/NZM1/NZM2	Class 2 (F3) 3 × I_q ≦ 100 kA	Q11 2)	F2 1)
	[A]	[kW]	[HP]	[A]	①	②		
X = 3 x I_e, T_x = 5 s, S = 10/h, ED = 75 %								
DS6-340-22K-MX	41	18.5	25	36	NZMN1-M40/PKZM4-40	20.189.20-100	DILM40	ZB65-40 (+ ZB65-XEZ)
DS6-340-22K-MX	41	22	30	41	NZMN1-M50/PKZM4-50	20.189.20-100	DILM50	ZB65-40 (+ ZB65-XEZ)
DS6-340-30K-MX	55	30	40	55	NZMN1-M63/PKZM4-58	20.189.20-125	DILM65	ZB65-57 (+ ZB65-XEZ)
DS6-340-37K-MX	68	37	50	68	NZMN1-M80	20.610.32-200	DILM80	ZB150-70/KK
DS6-340-45K-MX	81	45	60	81	NZMN1-M100	20.610.32-200	DILM95	ZB150-100/KK
DS6-340-55K-MX	99	55	75	99	NZMN1-M100	20.610.32-200	DILM115	ZB150-100/KK
DS6-340-75K-MX	135	75	100	134	NZMN2-M160	20.610.32-350	DILM150	ZB150-150/KK
DS6-340-90K-MX	160	90	125	160	NZMN2-M200	20.610.32-400	DILM185	Z5-160/FF250
DS6-340-110K-MX	200	110	150	196	NZMN2-M200	20.610.32-500	DILM225	Z5-220/FF250

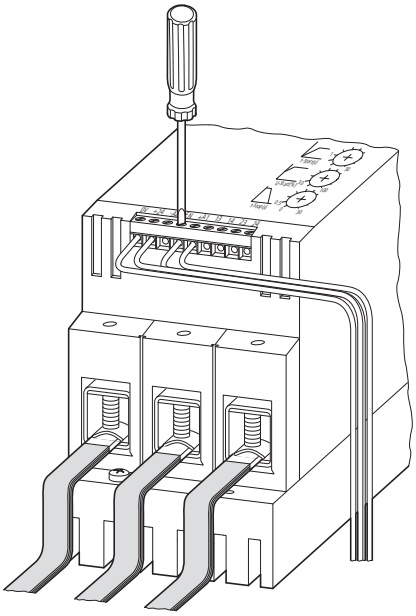
Hinweise – Notes – Remarques – Note – Wskazówki – Указание – 提示

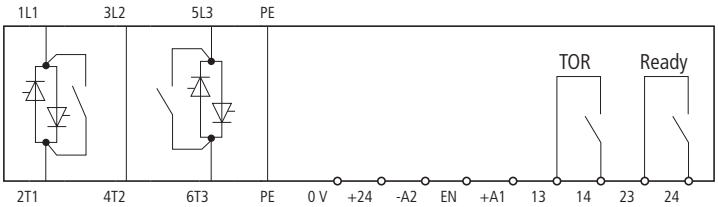
1) Alternativ kann auch ein Motorschutzschalter mit internem Überlastschutz verwendet werden (z. B. PKZM0, NZM)
1) A motor-protective switch with internal overload protection may be used as an alternative (e. g. PKZM0, NZM)
1) Possibilité d'utilisation au choix d'un disjoncteur-moteur avec protection contre les surcharges intégrée (p. ex. PKZM0, NZM)
1) In alternativa può anche essere utilizzato un interruttore protettore con protezione termica (relè) incorporata (ad esempio PKZ0, NZM)
1) Alternatywnie można zastosować wyłącznik silnikowy z członem przeciążeniowym (np. PKZM0, NZM)
1) В качестве альтернативы можно применять защитный автомат двигателя с внутренним устройством защиты от перегрузок (напр., PKZM0, NZM)
1) 也可选择使用带有内部过载保护的电动机保护开关（例如PKZM0、NZM）

2) optional – en option – opzionale – opcja – по выбору – 选装

Class 1 = ①
Class 2 = ① + ②

Anschluss Steuerteil – Control section connection – Connexion partie commande – Collegamento stadio di comando – Podłączenie przewodów sterujących – Подключение блока управления – 控制部件接头





0 V	+24	–A2	EN	+A1	13	14	23	24

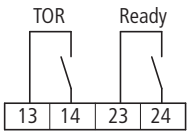
mm²	mm²	UL-use AWG	mm		M3 Nm	ft-lbs
1 x 0.5 - 2.5	1 x 0.5 - 1.5	21 - 16	6	0.6 x 3.5	0.4	0.3
2 x 0.5 - 1.0	2 x 0.5 - 0.75	2 x 21 - 20	6	0.6 x 3.5	0.4	0.3

→ Vor Arbeiten am Gerät sich selber statisch entladen!
Ground yourself before working at the device!
Déchargez-vous avant de commencer le travail sur l'appareil !
Liberarsi dalle scariche elettrostatiche prima dell'inizio di lavoro sull'apparecchio!

→ Przed rozpoczęciem pracy należy rozładować z siebie ładunki elektrostatyczne!
Перед работой на приборе необходимо самому статически разрядиться!
在对设备作业前要对自身进行静电放电处理！

Melderelais – Signalling relay – Relais à voyant – Relè di segnalazione – Przekaźnik sygnalizacyjny – Сигнальное реле – 信号继电器

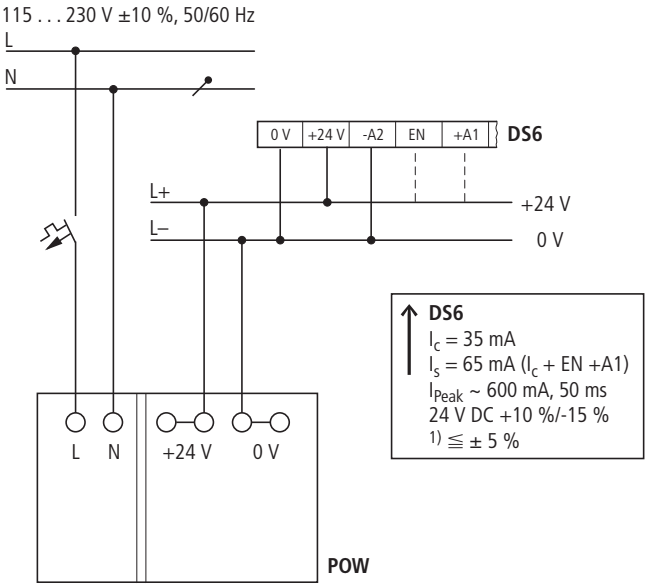
U	I (L)	(R) AC11	I_{min}	U_{min}
250 V ~	0.2 A	2.5 A	10 mA	100 V~
30 V ⎓	0.7 A	3 A	100 mA	5 V⎓



→ Bei Mehrleiteranschluss darf maximal ein DIN-Normgrößen-Sprung zwischen den verwendeten Leitern liegen.
Where several conductors are to be connected, the difference between the wires/cables used must not exceed one DIN Standard size level.
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.
Jeżeli zachodzi konieczność podłączenia kilku przewodów, to różnica przekrojów żył/kabli nie może przekraczać jednej znormalizowanej wielkości.
При многопроводном присоединении скачок между применяемыми проводами должен составлять максимум одну номинальную величину по ДИНу.
在多个导体连接时在所用导体间最多允许有一个 DIN 标准尺寸的差别。

Versorgungsspannung Steuerteil – Control section power supply – Tension d'alimentation de la partie puissance – Tensione di alimentazione porta di comando – Napięcie zasilające obwód sterowania – Питающее напряжение блока управлениў – 电源电压调节装置

EASY400-POW, EASY430-POW, EASY500-POW, EASY600-POW



AWA2727-1869
www.moeller.net → support

1) Restwelligkeit – Residual ripple – Ondulation résiduelle – Ondulación residual – Tętnienia szczątkowe – Остаточная волнистость – 脉动电压

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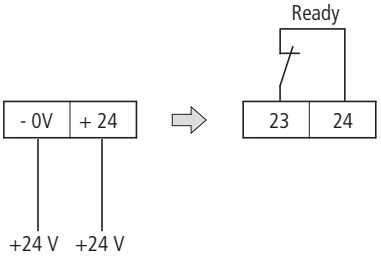
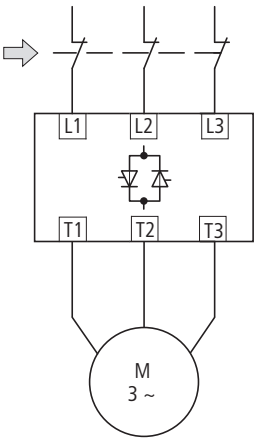
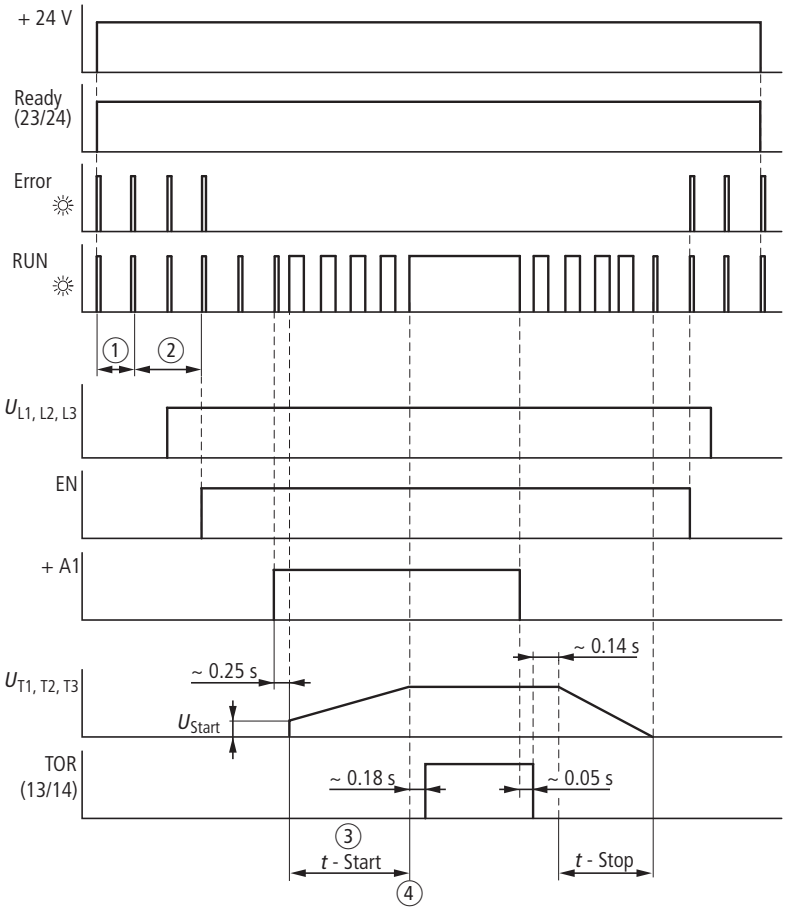
1

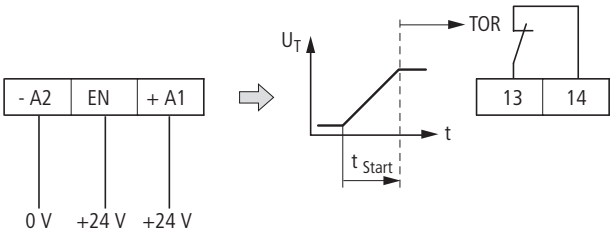


2



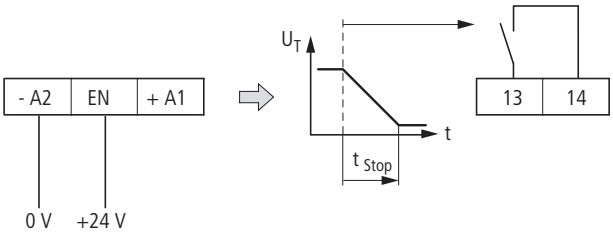


3

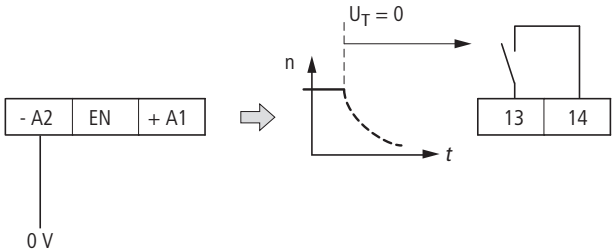


① Initialisierung – Initialisation – Initialisation – Inizializzazione – Inicjalizacja – Инициализация – 初始
② Betriebsbereit – Ready for operation – Prêt à fonctionner – Pronto al funzionamento – Gotowy do pracy – Готов к работе – 准备就绪
③ in Rampe – in ramp – en rampe – in rampa – rampa przyspieszania – в рампе – 斜坡中
④ Rampenende erreicht – Top of ramp – Fin de rampe atteinte – Fine rampa – Koniec rampy – Вершина рампы – 斜坡顶端

4a



4b



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Achtung!
Im Geltungsbereich der EG-Richtlinien dürfen die Softstarter der Reihe DS6 und deren Zubehör nur dann in Betrieb genommen werden, wenn festgestellt wird, dass die Maschine die Schutzanforderungen der Maschinenrichtlinie 89/392/EWG erfüllt.

Attention!
Within the scope of the EU Directives, the soft starters of series DS6 and their accessories may be commissioned only provided it is established that the machine fulfils the protective requirements of Machine Directive 89/392/EWG.

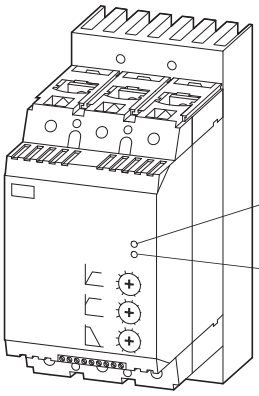
Attention !
En application des directives européennes, les démarreurs progressifs de la gamme DS6 et leurs accessoires ne doivent être mis en service que s'il a été vérifié que la machine répond bien aux exigences de la directive machines 89/392/EWG.

Attenzione!
Nel campo di validità delle direttive CEE i softstarter della serie DS6 e i loro accessori possono essere messi in esercizio solamente se è verificato che la macchina soddisfa i requisiti di sicurezza delle direttive macchine 89/392/CEE.

Uwaga!
W ramach Dyrektyw Europejskich, układy łagodnego rozruchu serii DS6 i ich akcesoria mogą być uruchamiane, jeśli stwierdzono, że maszyny, w których je zamontowano spełniają wymagania Dyrektywy Maszynowej 89/392/EC.

Внимание!
На территории действия Предписаний ЕС плавный стартер ряда DS6 и его принадлежности можно вводить в эксплуатацию только в том случае, если будет установлено, что машина выполняет требования по защите согласно Предписанию для машин 89/392/ЕЭС.

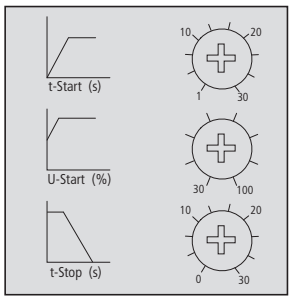
注意！
在欧共体准则的使用地区，DS6 系列的软起动器及其备件只有当确保机器满足机器准则 89/392/EWG 的保护要求时才能投入运行。

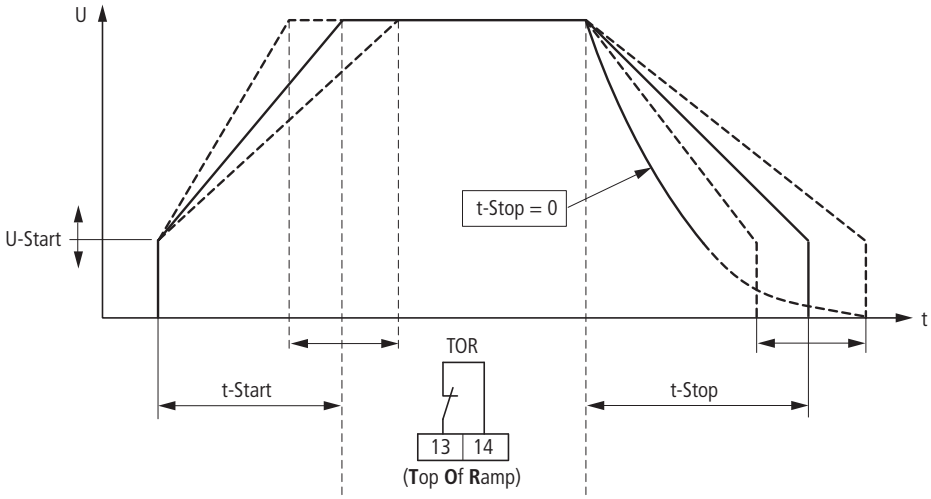


Error-LED rot – Error LED red – DEL erreur rouge – LED errore rosso – LED błąd czerwony – Ошибка СИД красный – 故障 LED 灯红色

RUN-LED grün – RUN LED green – DEL RUN vert – LED RUN verde – LED RUN zielony – RUN-LED зеленый – 运行 LED 指示灯绿色

Softstarterfunktion – Soft starter function – Fonction démarreur progressif – Funzione softstarter – Funkcja softstartera – Плавная стартерная функция – 软起动器功能





$t_{stop} = 0$

ungeführte Verzögerung – free run stop – temporisation non effectuée – ritardo non pilotato – wybieg – несопровождаемая задержка – 非引导制动

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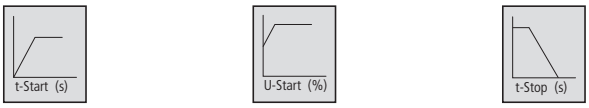
Beispiel – Example – Exemple – Esempio – Przykład – Пример – 举例



t-Start (s)	U-Start %	t-Stop (s)		
~10	~30	0		J → 0
~25	~30	~30		
~20	~40	0		
~10	~30	~20		
~15	~40	0		
~18	~40	0		J → ∞ → DS6 > P_{Motor}
~15	~50	0		→ DS6 > P_{Motor}
~10	~60	0		
~10	~60	0		→ DS6 > P_{Motor}

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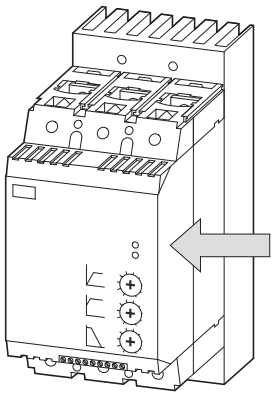


Soft Starter

Typ	DS6-340-30K-MX
Zasilanie	U_e 230 - 460 V AC 3 PH 50/60 Hz (230 - 460 V ±10 %)
	U_s/U_c 24 V DC (24 V ±10 %)
Wyjście	0 - U_e V AC 3 PH 50/60 Hz
Przepisy	IEC/EN 60947-4-2
Cykl obciążenia	55 A: AC53a: 3 - 5: 75 - 10
Standardowy silnik	30 kW/400 V 40 HP/460 V (400 V, 50 Hz, 1500 min^{-1})

Soft Start – Плавный пуск – 软起动 AC-53a (IEC 947-4-2)

55A: AC-53a: 3 - 5 : 75 - 10

- S
- F [%]
- T_x [s]
- X
- I_e [A]

S = Starts pro Stunde – Starts per hour – Démarrages par heure – Avviamenti all'ora – Ilość startów na godzinę – пусков в час – 每宣时起动次数

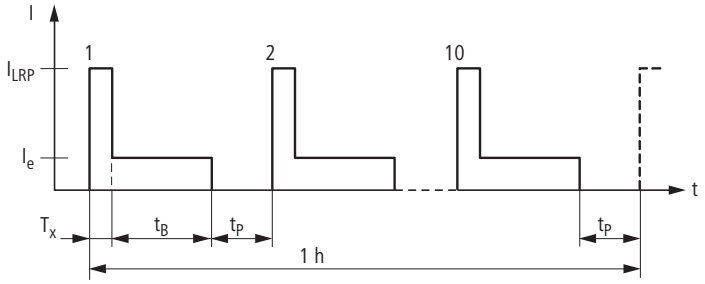
F = Lastarbeitszyklus – On Load duty cycle – Cycle de marche en charge – Ciclo lavoro utile sotto carico – Cykl obciążenia – цикл работы под нагрузкой – 负载工作周期

T_x = Startzeit – Start time – Temps de démarrage – Ora di avviamento – Czas startu – время пуска – 起动时间

X = Startstrom – Start current ratio – Courant de démarrage – Tensione di avviamento – Intensidad de arranque – пусковой ток – 起动电流

I_e = Bemessungsbetriebsstrom – Full load current (FLC) – Courant assigné d'emploi – Corrente nominale di impiego – Znamionowy prąd – измеренный рабочий ток – 额定控制电流

I_{LRP} = Motorstillstandsstrom – Prospective locked motor current – Courant d'arrêt du moteur – Tensione motore bloccato – Możliwy prąd silnika silnika – ток простоя двигателя – 发动机停止状态电流



$$F = 10/h \rightarrow 1\ h = 3600\ s \rightarrow T_x + t_B + t_P = 360\ s$$

$$F = \frac{T_x + t_B}{T_x + t_B + t_P} \times 100\ \% \rightarrow \frac{5\ s + 265\ s}{5\ s + 265\ s + 90\ s} \times 100\ \% = 75\ \%$$

$$X = \frac{I_{LRP}}{I_e} \rightarrow I_{LRP} = X \times I_e = 3 \times 55\ A = 165\ A$$

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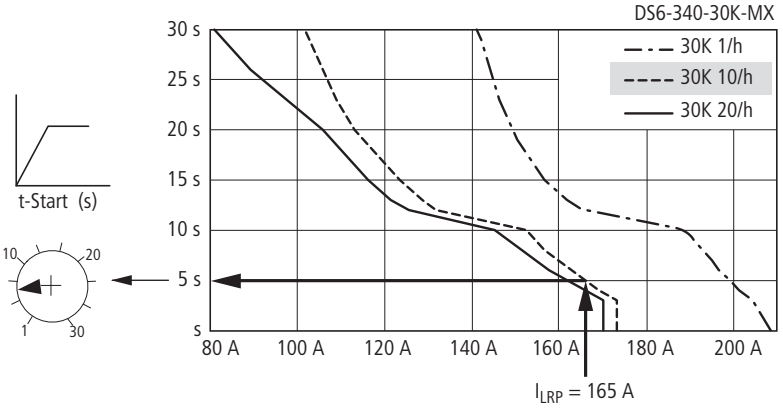
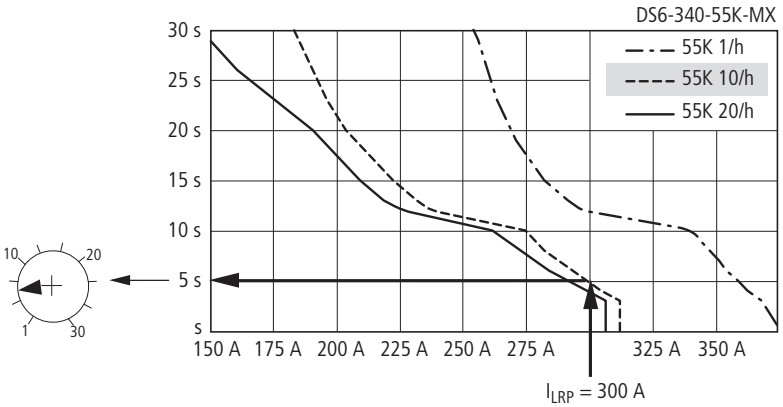


P_{Motor} = 30 kW, F = 10/h, x = 3



DS6 > P_{Motor}
P_{Motor} = 30 kW, F = 10/h, x ~ 5.4

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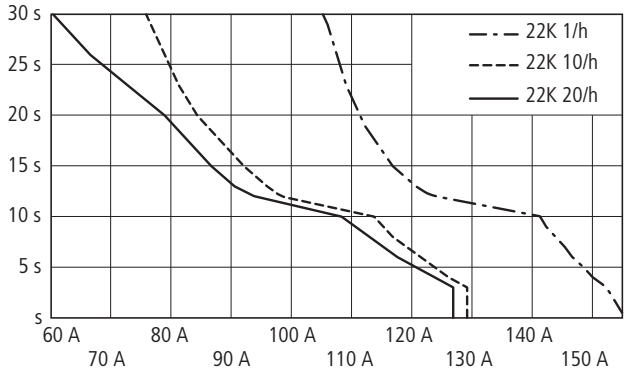
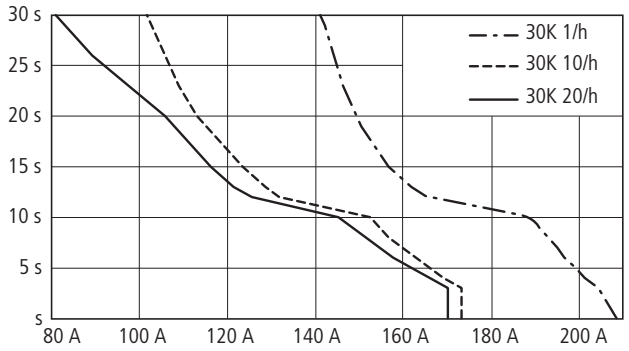
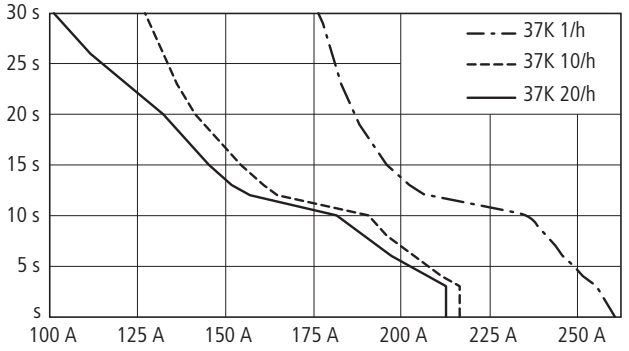
DS6-340-22K-MX



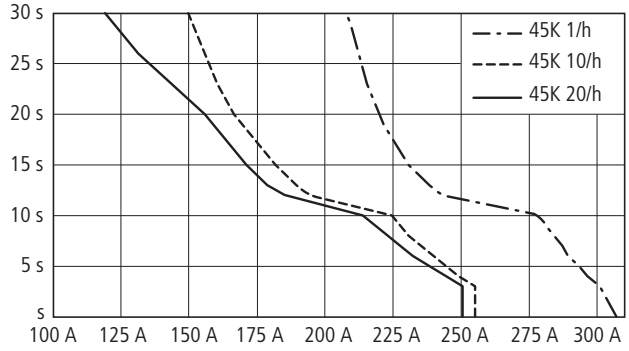
DS6-340-30K-MX



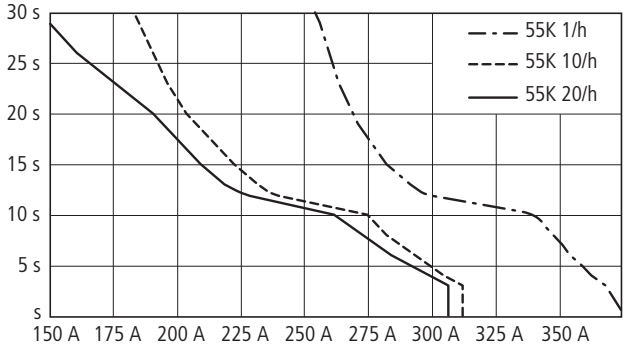
DS6-340-37K-MX



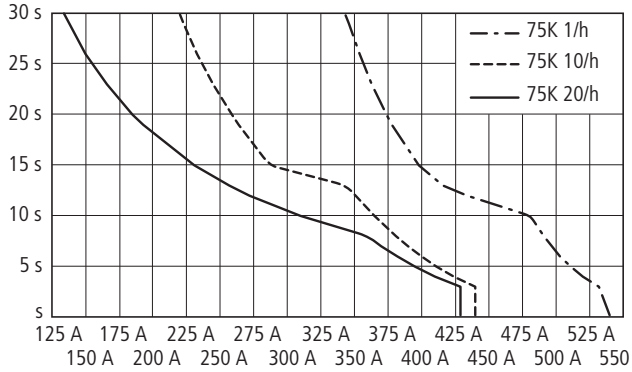
DS6-340-45K-MX



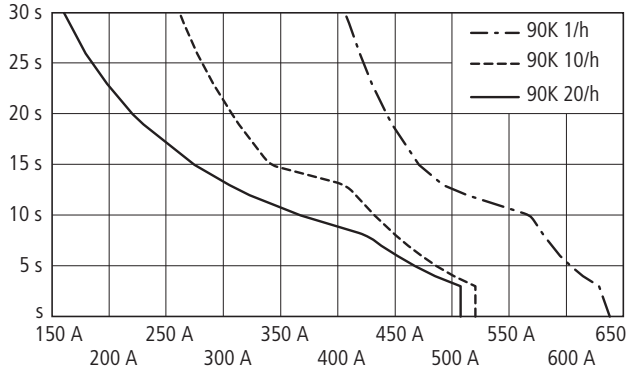
DS6-340-55K-MX



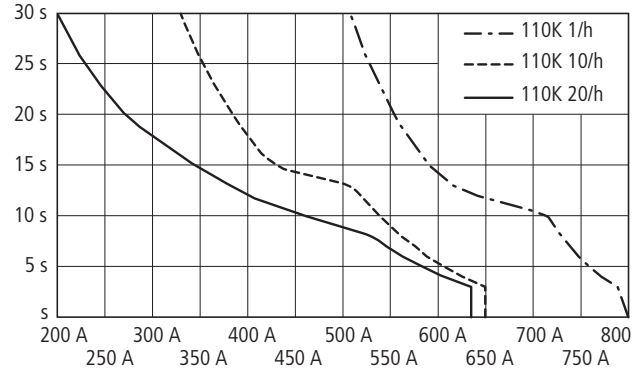
DS6-340-75K-MX



DS6-340-90K-MX



DS6-340-110K-MX



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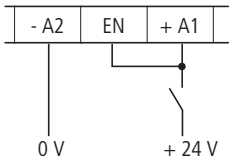
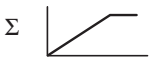
55A: AC-53a: 3 - 5 : 75 - 10

S

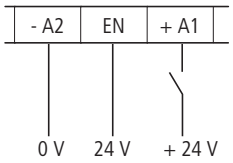
S = 10 Starts pro Stunde – 10 Starts per hour – 10 Démarrages par heure – 10 avviamenti all'ora – 10 startów na godzinę – 10 пусков в час – 每宣时起动 10 次



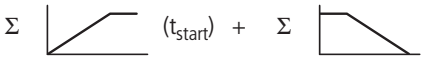
Start – Démarrage
Arranque – Старт
起动



$(t_{start}) \leqq 10$ S/h, $t_{stop} = 0$



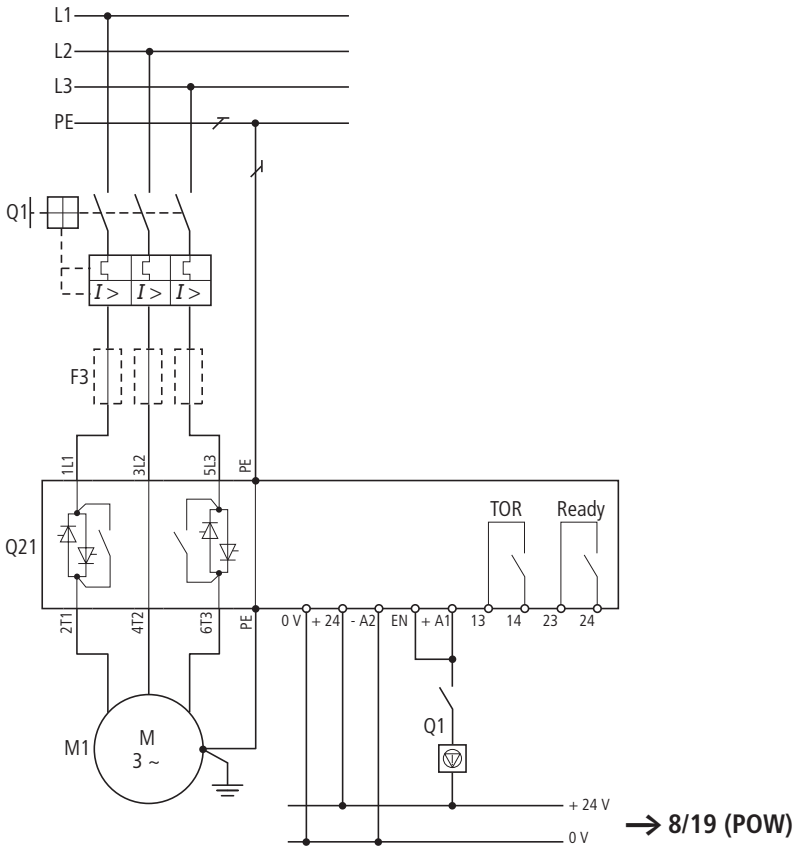
Start – Démarrage
Arranque – Старт
起动



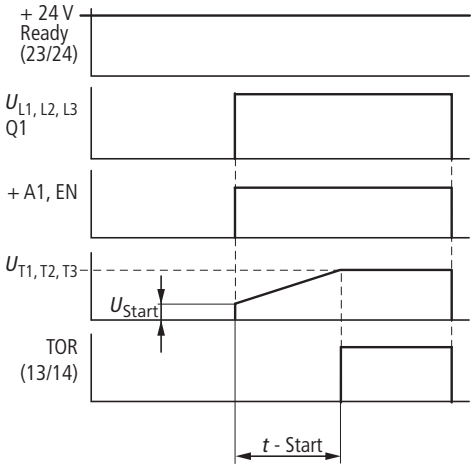
(t_{start}) + $(t_{stop} > 0) \leqq 10$ S/h

Standardanschluss – Standard connection – Raccordement standard – Collegamento standard – Standardowe podłączenie – Стандартное присоединение – 标准接头

Direkter Softstart – Direct soft start – Démarrage progressif direct – Softstart diretto – Pl œpœ^œfo– прямой плавный пуск – 直接软起动



→ 8/19 (POW)



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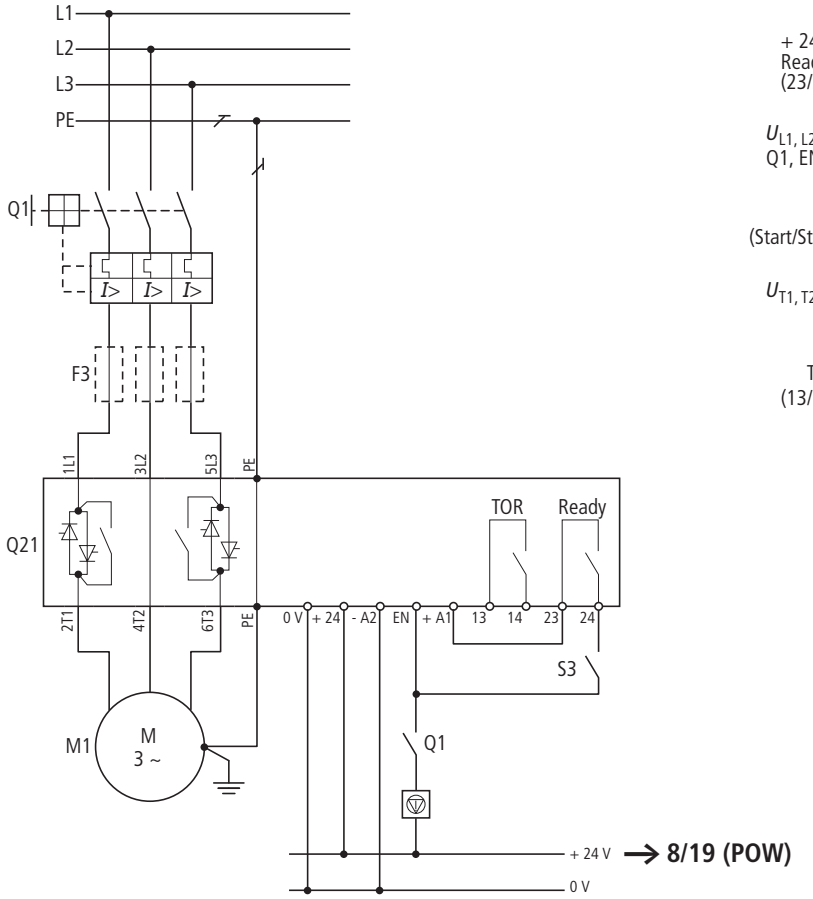
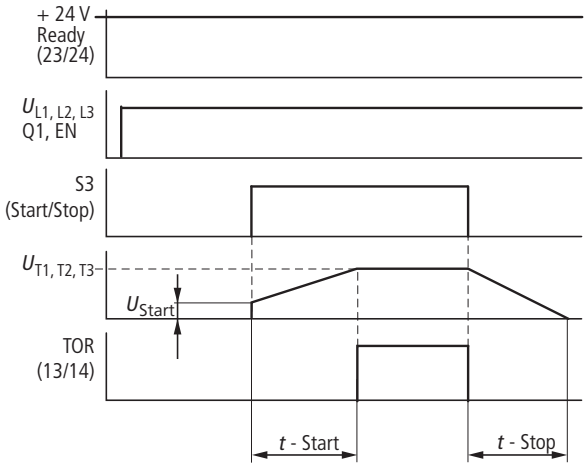
Emergency On Call Service: Local representative (http://www.moeller.net/address) or +49 (0) 180 5 223822 (de, en)

Softstarter – Soft starter – Démarreur progressif – Pl cpqq^cqfo– Пусковое средство программы – 软起动器





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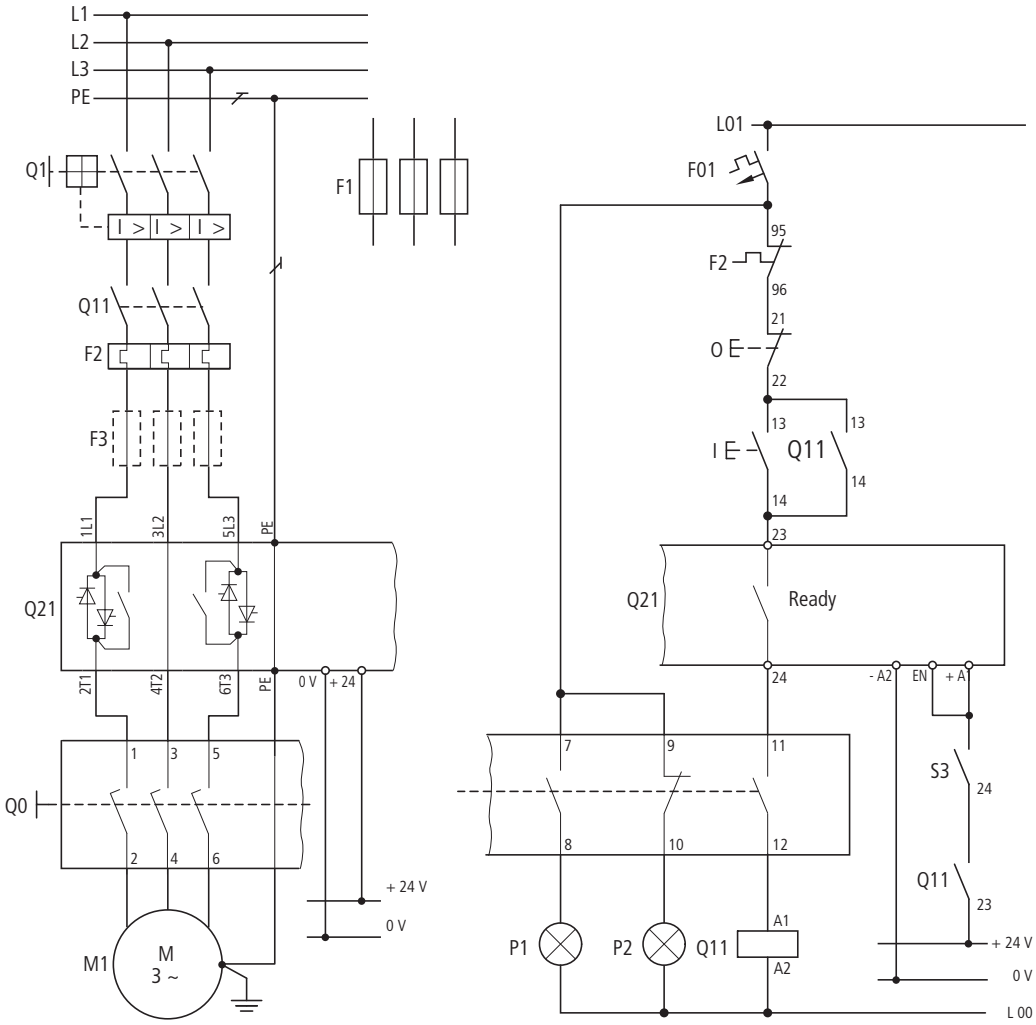
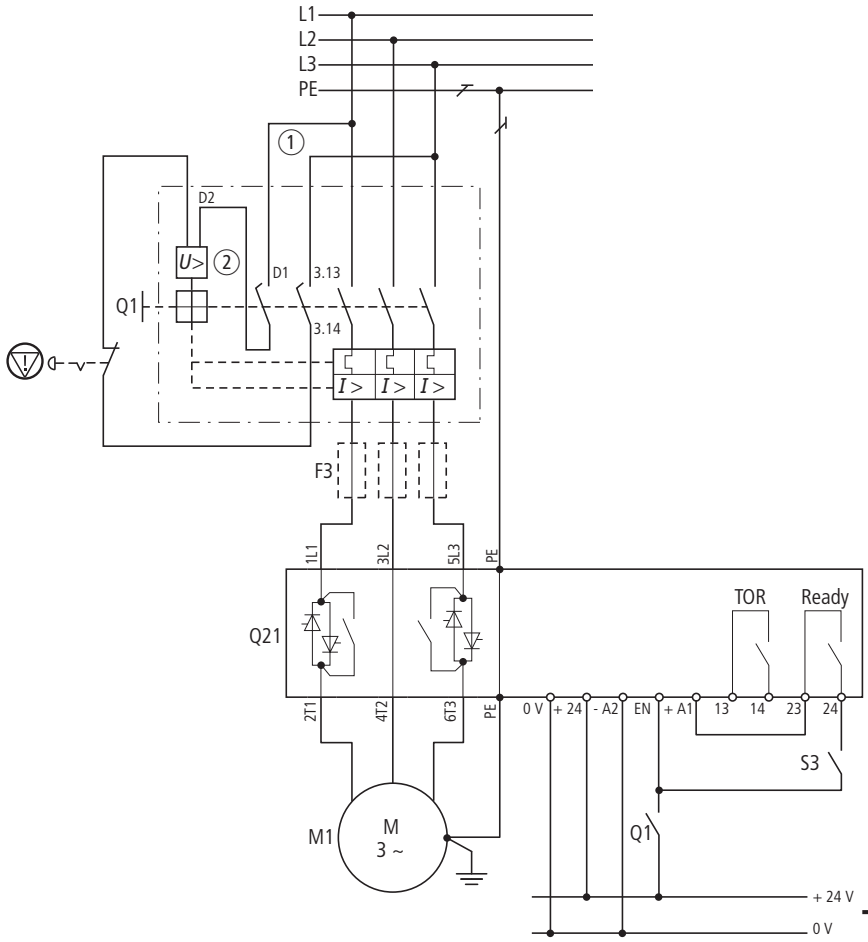
Wartungsschalter/Reparaturschalter – Maintenance switch – Interrupteur de maintenance – Interruttore di manutenzione/interruttore di riparazione – Wyłącznik główny – Ремонтный выключатель – 维修开关



Softstarter und Hauptschalter mit NOT-AUS-Funktion gemäß IEC/EN 60204-1 und VDE0113-Teil 1 – Soft starter and main switch with emergency-stop function acc. IEC/EN 60204-1 and VDE0113-Part 1 – Démarreur progressif et interrupteur général avec fonction d'arrêt d'urgence selon IEC/EN 60204-1 et VDE0113-Partie 1 – Softstarter e interruttore gen. con funz. ARRESTO EMERGENZA sec. IEC/EN 60204-1 e VDE0113-P. 1 – Softstarter i wyłącznik główny z funkcją wyłączania awaryjnego zgodnie z IEC/EN 60204-1 i VDE0113 Część 1 – Софтстартер и главный выключатель с функцией аварийного отключения согласно стандарту МЭК/EC 60204-1 и предписанию Союза немецких электротехников VDE0113- часть 1 –
软起动器和主开关依据 **IEC/EN 60204-1** 和 **VDE0113** 第一部分带有紧急关闭功能



→ 8/19 (POW)

Q1: NZM1, NZM2

① Steuerleitungsanschluss
Control circuit terminal
Borne pour conducteur de commande
Collegamento cavo di comando
Zaciski obwodu sterowania
Присоединение к линии управления
控制导线接头

② Unterspannungsauslöser mit voreilendem Hilfsschalter
Undervoltage release with early-make auxiliary contact
Déclencheur à manque de tension avec contact auxiliaire à action avancée
Sganciatore di minima tensione con contatto ausiliario anticipato
Przekaźnik podnapięciowy z wyprzedzającymi stykami pomocnicznymi
Низковольтный расцепитель с опережающим блок-контактом
欠压释放器带有超前辅助开关

3 AC, 230 V	NZM1-XUHIV208-240AC NZM2/3-XUHIV208-240AC
3 AC, 400 V	NZM1-XUHIV380-440AC NZM2/3-XUHIV380-440AC

NOT-AUS
EMERGENCY-STOP
ARRET D'URGENCE
ARRESTO D'EMERGENZA
WYŁĄCZENIE AWARYJNE
Аварийное выключение
紧急关闭

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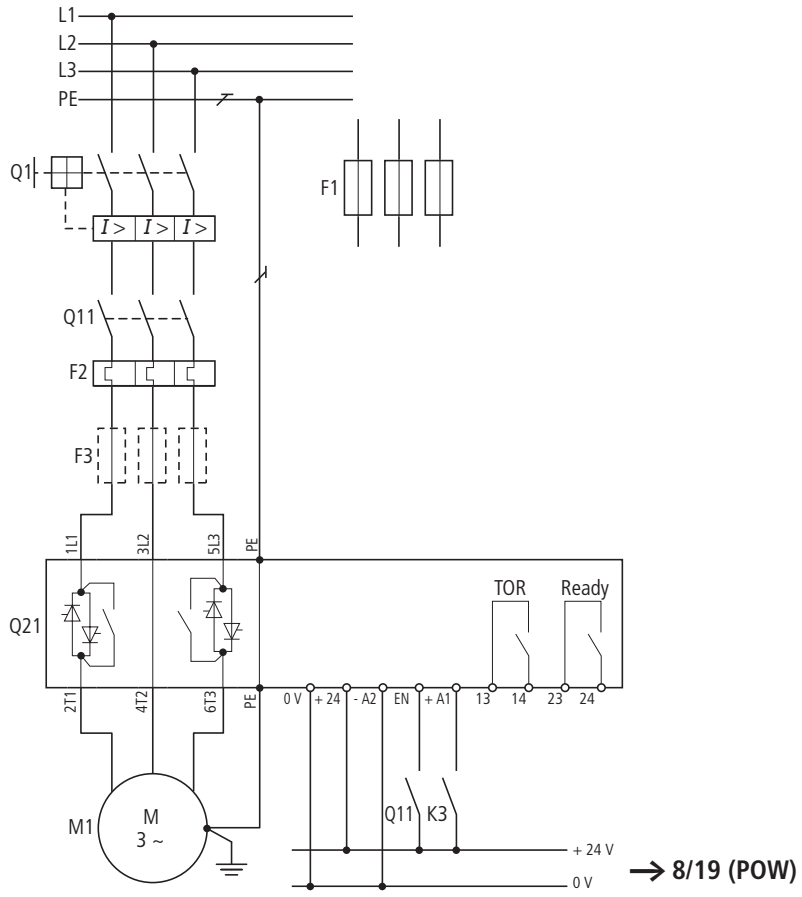
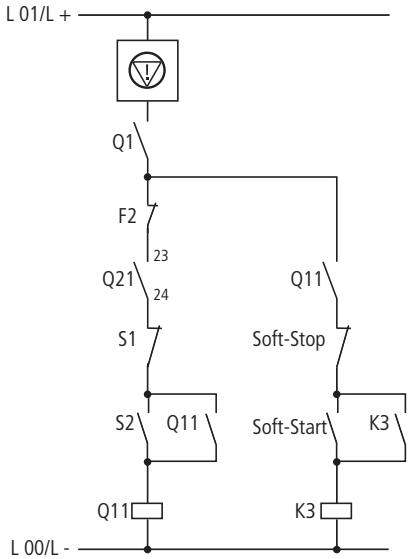
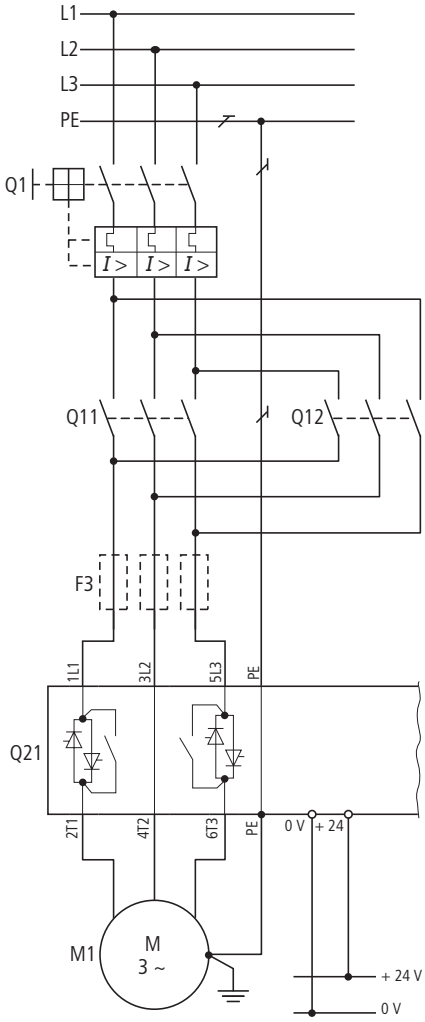
Softstarter mit Netzschütz – Soft starter with mains contactor – Démarreur progressif avec contacteur réseau – Softstarter con contattore di rete – Softstarter ze stycznikiem sieciowym – Пусковое средство программы с сетевом контактором – 软起动器及网路接触器



→ 8/19 (POW)





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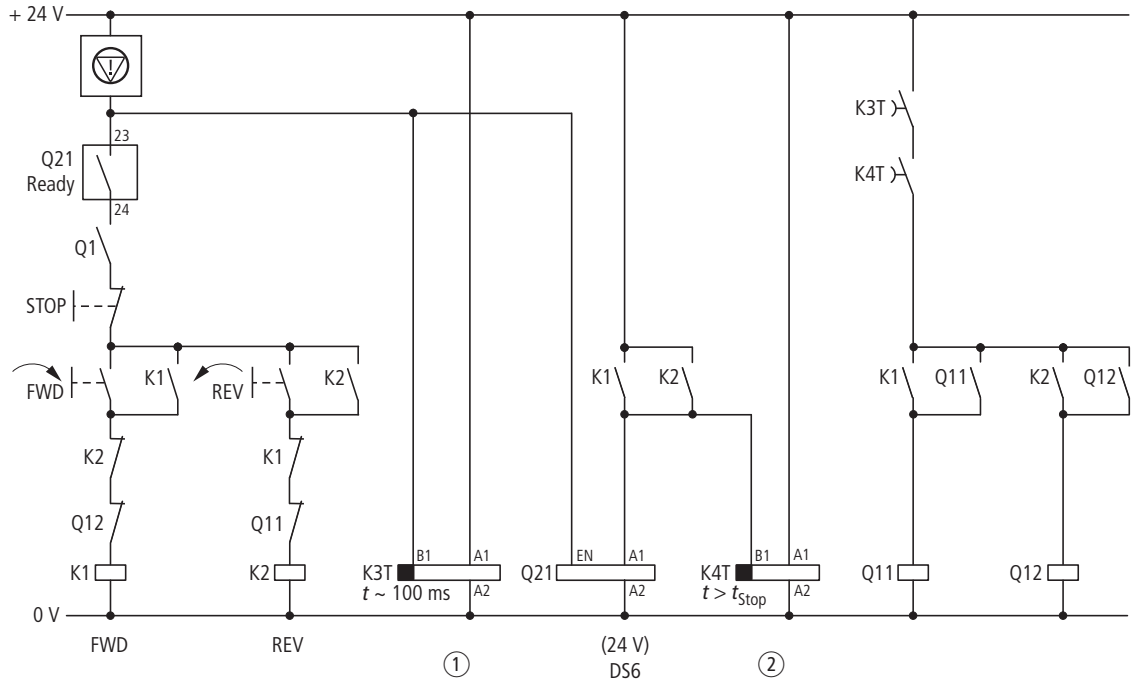

① Selbsthaltung Reglersperre – Self-maintaining controller inhibit – Maintien du verrouillage – Blocco regolatore ad autotenuta – Blokada samopodtrzymania regulatora – Необслуживаемое устройство задержки срабатывания контроллера – 自持式控制器禁止

② Selbsthaltung STOP-Rampe – Self-maintaining STOP ramp – Maintien rampe d'arrêt – Rampa di STOP ad autotenuta – Samopodtrzymanie rampy zatrzymania – Необслуживаемое устройство останова рампы – 自持式停止斜坡

Soft-Start: Start – Démarrage – Arranque – Старт – 起动

Soft-Stop: Aus – Off – Arrêt – Paro – Выкл – 输出

FWD Rechtsdrehfeld – Clockwise rotating field – Champ tournant à droite – Campo di rotazione oraria – Kierunek obrotów w prawo – Прямое направление вращения – 右旋区

REV Linksdrehfeld – Anti-clockwise rotating field – Champ tournant à gauche – Campo di rotazione antioraria – Kierunek obrotów w lewo – Реверсивное направление вращения – 左旋区

F1, Q1 = Leitungsschutz
Q11 = Netzschütz (optional)
Q12 = Wendeschütz (optional)
Q22 = Bypass-Schütz (optional)
F2 = Überlastrelais (optional)
F3 = Halbleitersicherung für Zuordnungsart 2, zusätzlich zu F1, Q1
Q21 = Halbleiterschütz/Softstarter
E1 = Last (Heizung, Lampe)
M1 = Motor
S1 = Aus
S2 = Ein
S3 = Start/Stopp
① = Ansteuerzweig mit Q11 (optional)
② = Ansteuerzweig mit Q11/K2 (optional)
NOT-AUS

F1, Q1 = Protezione di linea
Q11 = Contattore di rete (opzionale)
Q12 = Teleinvertitore (opzionale)
Q22 = Contattore di bypass (opzionale)
F2 = Relè termico (opzionale)
F3 = Per avere la protezione del semiconduttore in coordinamento di tipo 2, è necessario un fusibile in aggiunta a F1, Q1
Q21 = Contactor semiconductor/softstarter
E1 = Carico (riscaldamento, lampada)
M1 = Motore
S1 = Off
S2 = On
S3 = Start/Stop
① = Il contattore di comando con Q11 (opzionale)
② = Il contattore di comando con Q11/K2 (opzionale)
ARRESTO D'EMERGENZA

F1, Q1 = 线路保护
Q11 = 网路接触器 (选装)
Q12 = 换向保护继电器 (选装)
Q22 = 旁路继电器 (选装)
F2 = 过载继电器 (选装)
F3 = 用于分配类型 2 的半导体保险丝，附加至 F1、Q1
Q21 = 软起动器触器
E1 = 负荷 (加热装置、灯)
M1 = 电动机
S1 = 输出
S2 = 输入
S3 = 起动/停止
① = 带 Q11 的控制支路 (选装)
② = 带 Q11/K2 的控制支路 (选装)
紧急关闭

F1, Q1 = Cable protection
Q11 = Mains contactor (optional)
Q12 = Reversing contactor (optional)
Q22 = Bypass contactor (optional)
F2 = Overload relay (optional)
F3 = Semiconductor fuse for Type "2" coordination, in addition to F1, Q1
Q21 = Semiconductor contactor/Soft starter
E1 = Load (heating, lamp)
M1 = Motor
S1 = Off
S2 = On
S3 = Start/Stop
① = Actuating branch circuit with Q11 (optional)
② = Actuating branch circuit with Q11/K2 (optional)
EMERGENCY-STOP

F1, Q1 = Protección de cable
Q11 = Contactor red (opcional)
Q12 = Contactor inversor (opcional)
Q22 = Protección bypass (opcional)
F2 = Relé de sobrecarga (opcional)
F3 = Fusible semiconductor para tipo de coordinación 2, adicionalmente a F1, Q1
Q21 = Contattore a semiconduttori/Arrancador suave
E1 = Carga (calefacción, lámpara)
M1 = Motor
S1 = Paro
S2 = Marcha
S3 = Arranque/Parada
① = Ramal de direccionamiento con Q11 (opcional)
② = Ramal de direccionamiento con Q11/K2 (opcional)
PARADA DE EMERGENCIA

F1, Q1 = Zabezpieczenie kabli
Q11 = Stycznik sieciowy (opcjonalnie)
Q12 = Stycznik nawrotny (opcjonalnie)
Q22 = Stycznik obejścia (opcjonalnie)
F2 = Przekaźnik przeciążeniowy (opcjonalnie)
F3 = Bezpiecznik półprzewodnikowy, koordynacja "2", dodatkowo dla F1, Q1
Q21 = Stycznik półprzewodnikowy/softstarter
E1 = Obciążenie (ogrzewanie, oświetlenie)
M1 = Silnik
S1 = Wył.
S2 = Zał.
S3 = Start/Stop
① = Gałąź sterująca z Q11 (opcjonalnie)
② = Gałąź sterująca z Q11/K2 (opcjonalnie)
WYŁĄCZENIE AWARYJNE

F1, Q1 = Защита линий
Q11 = Сетевой контактор (по выбору)
Q12 = Реверсирующий пускатель (по выбору)
Q22 = Байпасный контактор (по выбору)
F2 = Реле защиты от перегрузки (по выбору)
F3 = Полупроводниковый предохранитель для вида соединения 2, дополнительно к F1, Q1
Q21 = Полупроводниковый пускатель/ Пусковое средство программы
E1 = Нагрузка (нагревательный элемент, лампа)
M1 = Двигатель
S1 = Выкл
S2 = Вкл
S3 = Старт/Стоп
① = Ветвь управления с Q11 (по выбору)
② = Ветвь управления с Q11/K2 (по выбору)
Аварийное выключение

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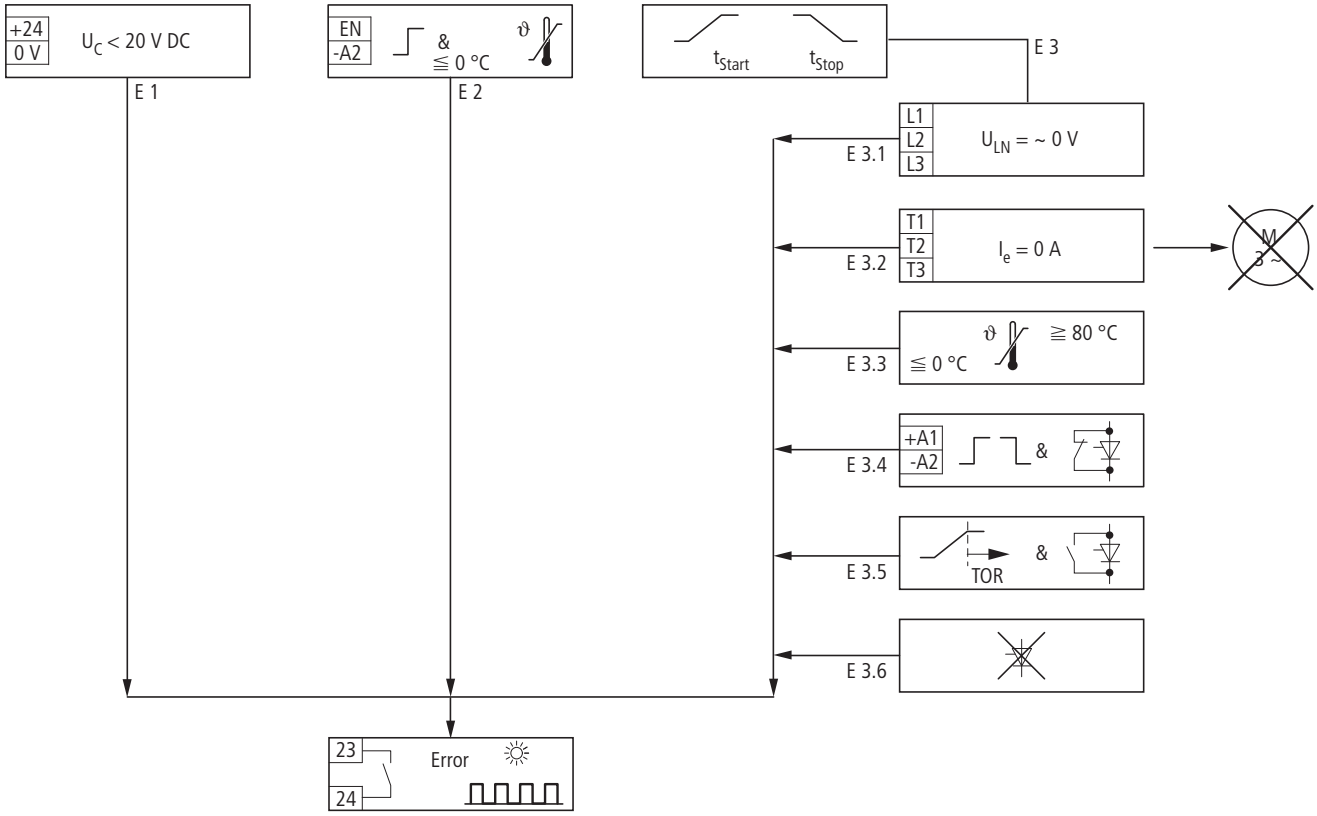
Emergency On Call Service: Local representative (http://www.moeller.net/address) or +49 (0) 180 5 223822 (de, en)

Störung – Fault – Défaut – Guasto – ?¶a – Неисправность – 故障

Ausfall einer Phase – Failure of a phase – Manque de phase – Mancanza fase – Błąd fazy – Выпадение фазы – 相位错误



E1 = Steuerspannung U_c
E2 = EN und Kühlkörpertemperatur ≦ 0 °C
E3 = Fehlermeldungen während der Start-/Stopp-Rampenzeit (t_{start}/t_{stop})
E3.1 = Netzunterspannung U_{LN}
E3.2 = Motoranschluss unterbrochen (I_e = 0 A)
E3.3 = Kühlkörpertemperatur ≦ 0 °C/≧ 80 °C
E3.4 = Bypasskontakt geschlossen während der Start-/Stopp-Rampenzeit
E3.5 = Bypasskontakt nach Ablauf der Zeit t_{start} (= TOR) nicht geschlossen
E3.6 = Thyristorfehler

E1 = Control voltage U_c
E2 = EN and heat sink temperature ≦ 0 °C
E3 = Fault messages during the start/stop ramp time (t_{start}/t_{stop})
E3.1 = Mains undervoltage U_{LN}
E3.2 = Motor connection interrupted (I_e = 0 A)
E3.3 = Heat sink temperature ≦ 0 °C/≧ 80 °C
E3.4 = Bypass contact closed during start/stop ramp time
E3.5 = Bypass contact not closed after expiry of time t_{start} (= TOR)
E3.6 = Thyristor fault

E1 = Tension de commande U_c
E2 = EN et température du dissipateur de chaleur ≦ 0 °C
E3 = Messages d'erreur pendant le temps de rampe de démarrage/d'arrêt (t_{start}/t_{stop})
E3.1 = Sous-tension réseau U_{LN}
E3.2 = Connexion du moteur interrompue (I_e = 0 A)
E3.3 = Température du dissipateur de chaleur ≦ 0 °C/≧ 80 °C
E3.4 = Contact de dérivation fermé pendant le temps de rampe de démarrage/d'arrêt
E3.5 = Contact de dérivation après écoulement de t_{start} (= TOR) non fermé
E3.6 = Erreur thyristor

E1 = Tensione di comando U_c
E2 = EN e temperatura del dissipatore di calore ≦ 0 °C
E3 = Messaggi d'errore durante il tempo di rampa start/stop (t_{start}/t_{stop})
E3.1 = Sottotensione di rete U_{LN}
E3.2 = Collegamento motore interrotto (I_e = 0 A)
E3.3 = Temperatura del dissipatore di calore ≦ 0 °C/≧ 80 °C
E3.4 = Contatto di bypass chiuso durante il tempo di rampa start/stop
E3.5 = Contatto di bypass al termine del tempo t_{start} (= TOR) non chiuso
E3.6 = Guasto tiristore

E1 = Napięcie sterujące U_c
E2 = EN i termperatura radiatora ≦ 0 °C
E3 = Komunikaty błędu w trakcie rampy startu/zatrzymania (t_{start}/t_{stop})
E3.1 = Za niskie napięcie sieciowe U_{LN}
E3.2 = Przerwane połączenie z silnikiem (I_e = 0 A)
E3.3 = Temperatura radiatora ≦ 0 °C/≧ 80 °C
E3.4 = Styk obejścia został zamknięty w tracie rampy startu/zatrzymania
E3.5 = Styk obejścia nie został zamknięty po upływie czasu t_{start} (= TOR)
E3.6 = Błąd tyrystora

E1 = Управляющее напряжение U_c
E2 = Температура EN и охладителя ≦ 0 °C
E3 = Сообщения об ошибках во время рампы старт/стоп (t_{start}/t_{stop})
E3.1 = Минимальное напряжение сети U_{LN}
E3.2 = Подключение двигателя прервано (I_e = 0 A)
E3.3 = Температура охладителя ≦ 0 °C/≧ 80 °C
E3.4 = Обводной контакт закрыт во время рампы старт/стоп
E3.5 = Обводной контакт по истечении времени t_{start} (= TOR) не закрыт
E3.6 = Ошибка тиристора

E1 = 控制电压 U_c
E2 = EN 和 冷却体温度 ≦ 0 °C
E3 = 在起动 / 停止－斜坡时间 (t_{start}/t_{stop}) 发出的错误信息
E3.1 = 最小电源电压 U_{LN}
E3.2 = 断开发动机连接 (I_e = 0 A)
E3.3 = 冷却体温度 ≦ 0 °C/≧ 80 °C
E3.4 = 在起动 / 停止－斜坡时支路触点闭合
E3.5 = 在 t_{start} (= TOR) 时支路触点不闭合
E3.6 = 可控硅错误

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