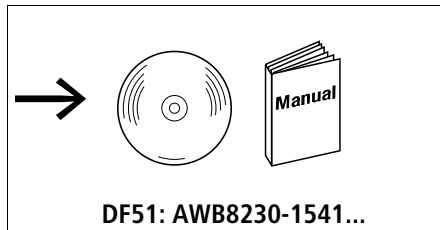


**DF51-320**  
**DF51-322**  
**DF51-340**


**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.

**¡Corriente eléctrica! ¡Peligro de muerte!**

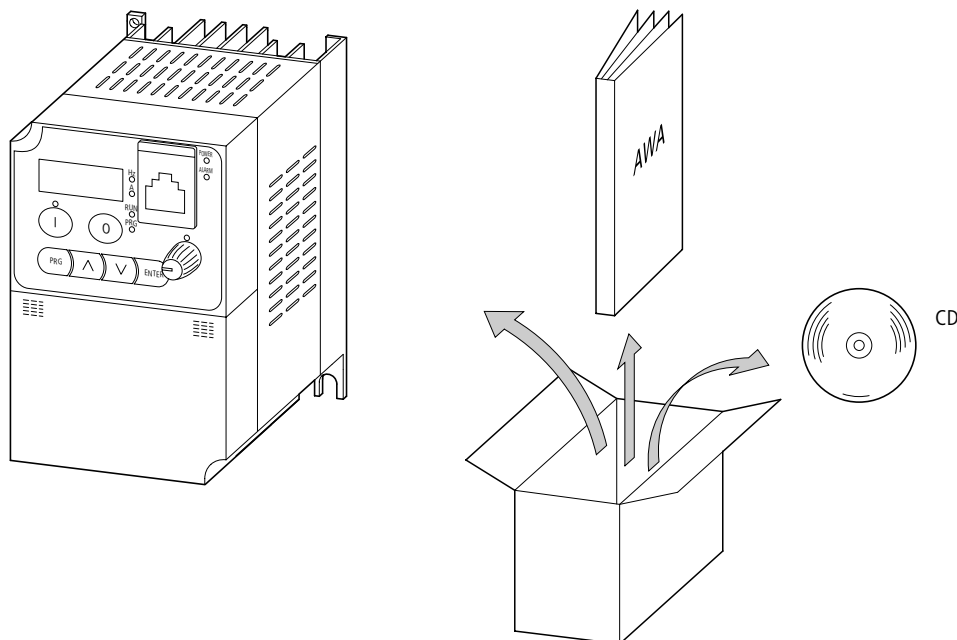
El trabajo a continuación descrito debe ser realizado por personas cualificadas y advertidas.

**Электрический ток! Опасно для жизни!**

Только специалисты или проинструктированные лица могут выполнять следующие операции.

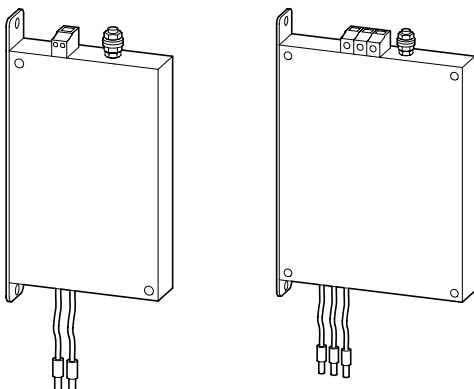
**触电危险！**

只允许专业人员 and 受过专业训练的人员进行下列工作。

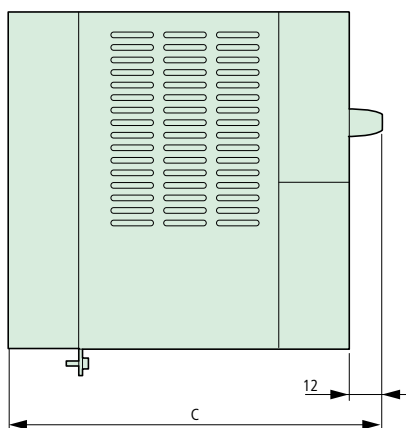
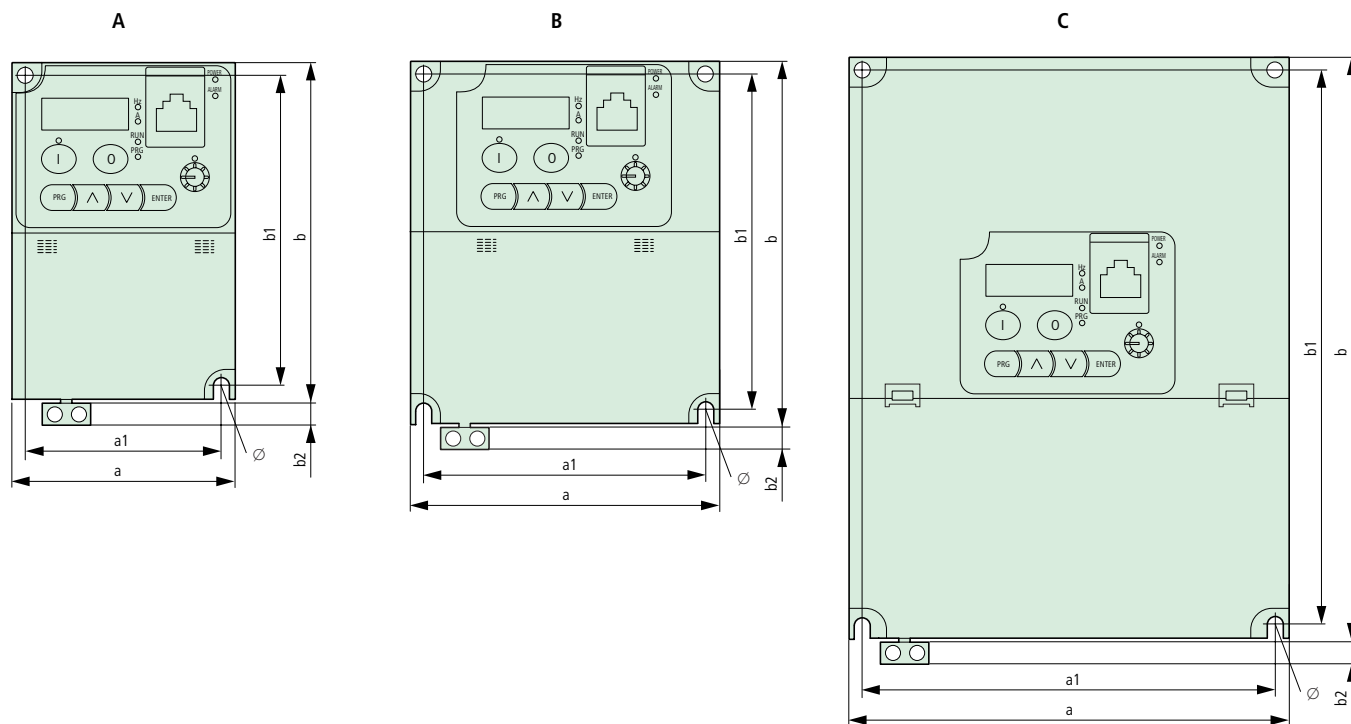



**Option EMV-Filter – Option EMC filter – Option filtre CEM – Opzione filtro EMC – Opción filtro CEM –  
 Вариант Фильтр электромагнитной совместимости – 备选 EMV 滤光片**

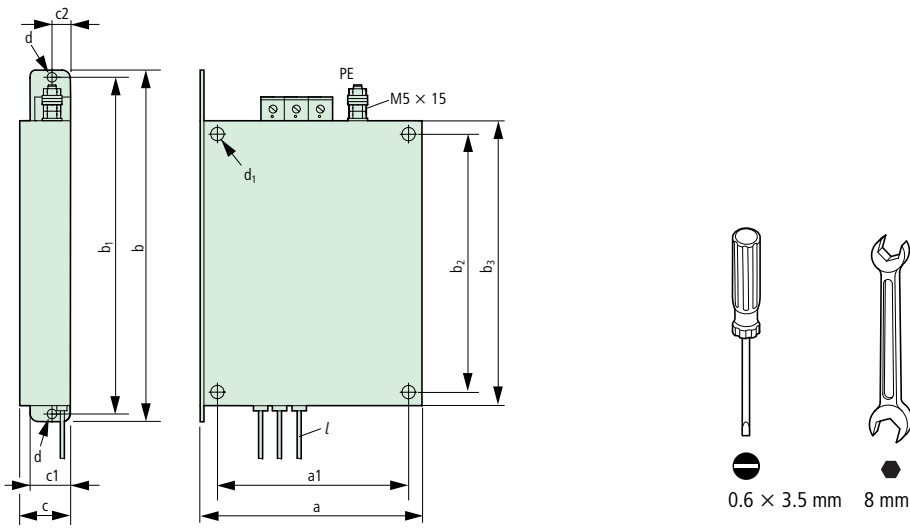
DE51-LZ-...V..., DE51-LZ3-...V...



Abmessungen und Gewichte – Dimensions and weights – Dimensions et poids – Dimensioni e pesi – Dimensiones y pesos –  
Размеры и веса – 尺寸和重量 [mm]



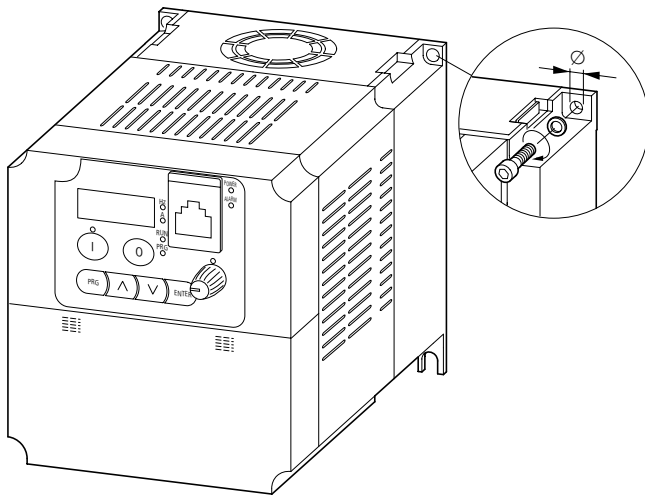
Typ – Référence – Type – Tipo – Тип – 型号	a	a1	b	b1	b2	c	Ø	[lbin]	 kg	
DF51-322-025	80	67	120	110	10	105	5	1.75	0.8	A
DF51-322-037	80	67	120	110	10	119	5	2.09	0.95	A
DF51-322-055	80	67	120	110	10	142	5	2.09	0.95	A
DF51-322-075	110	98	130	118	10	141	5	3.09	1.4	B
DF51-322-1K1	110	98	130	118	10	168	5	4.2	1.9	B
DF51-322-1K5	110	98	130	118	10	168	5	4.2	1.9	B
DF51-322-2K2	110	98	130	118	10	168	5	4.2	1.9	B
DF51-320-4K0	110	98	130	118	10	168	5	4.4	1.9	B
DF51-320-5K5	180	164	220	205	–	167	6	12.13	5.5	C
DF51-320-7K5	180	164	220	205	–	167	6	12.57	5.7	C
DF51-340-037	110	98	130	118	10	141	5	3.09	1.4	B
DF51-340-075	110	98	130	118	10	168	5	3.09	1.8	B
DF51-340-1K5	110	98	130	118	10	168	5	4.19	1.9	B
DF51-340-2K2										
DF51-340-3K0										
DF51-340-4K0										
DF51-340-5K5	180	164	220	205	–	167	6	12.13	5.5	C
DF51-340-7K5	180	164	220	205	–	167	6	12.57	5.7	C



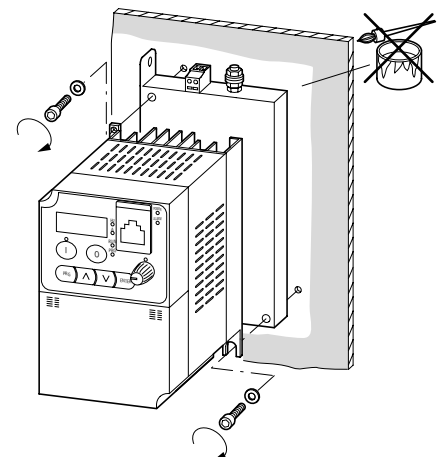
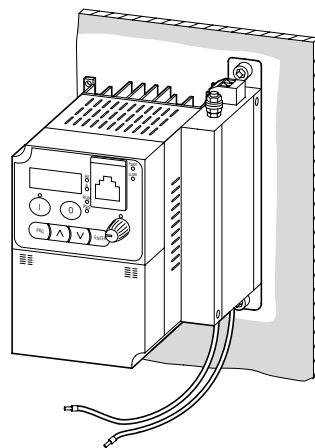
Typ	a mm	a1 mm	b mm	b1 mm	b2 mm	b3 mm	c mm	c1 mm	c2 mm	d mm	d1 mm	kg	l mm
DE51-LZ1-007-V2	80	67	170	160	110	120	27	20	13.5	5	2 × 6	0.45	160
DE51-LZ1-012-V2	110	98	180	170	118	130	35	28	17.5	5	4 × 6	0.5	180
DE51-LZ1-024-V2	110	98	180	170	118	130	35	28	17.5	5	4 × 6	0.67	180
DE51-LZ3-007-V4	110	98	180	170	118	130	35	28	17.5	5	4 × 6	0.7	180
DE51-LZ3-011-V4	110	98	180	170	118	130	35	28	17.5	5	4 × 6	0.75	180
DE51-LZ3-020-V4	180	164	285	269	205	220	40	31	20	6.3	4 × 6.5	1.2	250

Montage – Fitting – Montaggio – Montaje – Монтаж – 安装

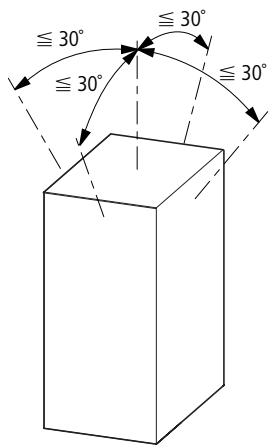
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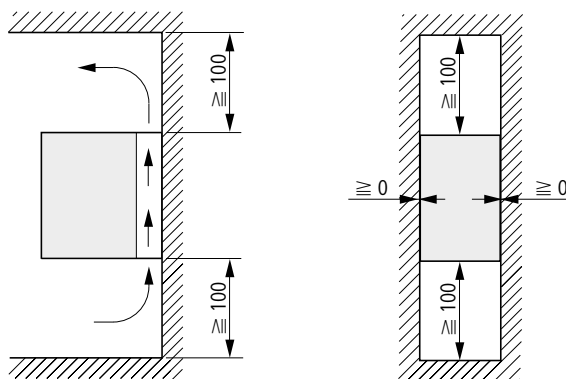
Ø [mm]			
5	M4	3 Nm	26 lbin



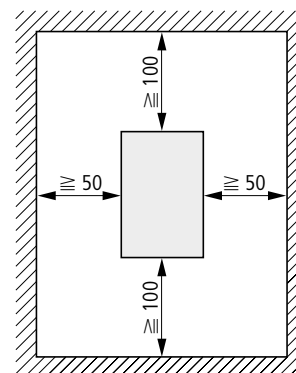
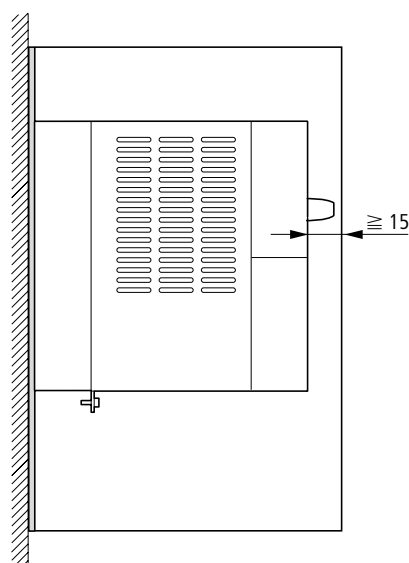
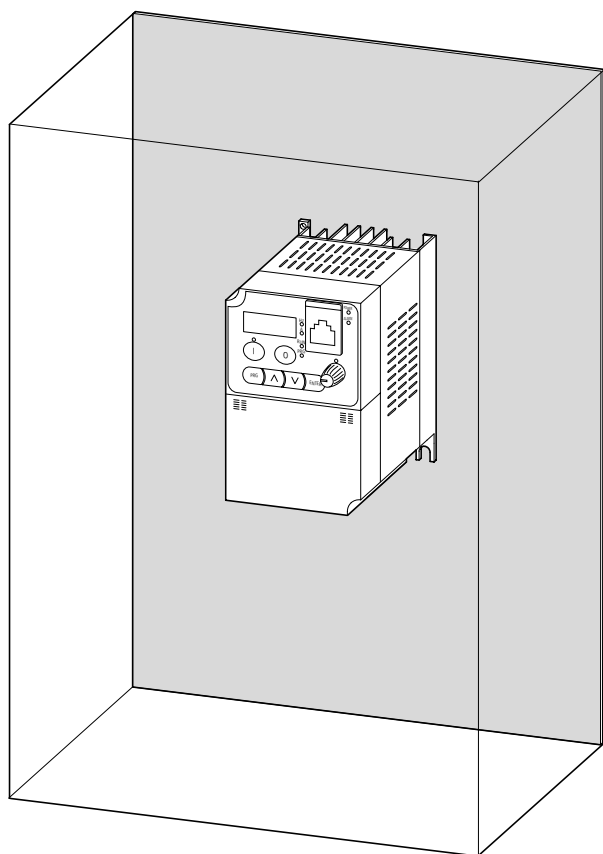
Einbaulage – Mounting position – Position de montage –  
 Posizione di montaggio – Posición de montaje –  
 Положение установки – 安装位置



Einbaumaße – Fitting dimensions – Dimensions de montage –  
 Dimensioni di montaggio – Dimensiones de montaje –  
 монтажные размеры – 安装尺寸



Einbaumaße Gehäuse – Fitting dimensions – Cotes de montage de l'enveloppe –  
 Dimensioni di montaggio custodia –  
 Dimensiones de montaje del envoltente – Монтажные размеры Корпус – 壳体安装尺寸



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**Warnung!**  
Nur im spannungsfreien Zustand öffnen!

**Avvertimento!**  
Aprire solo se l'apparecchio è spento!

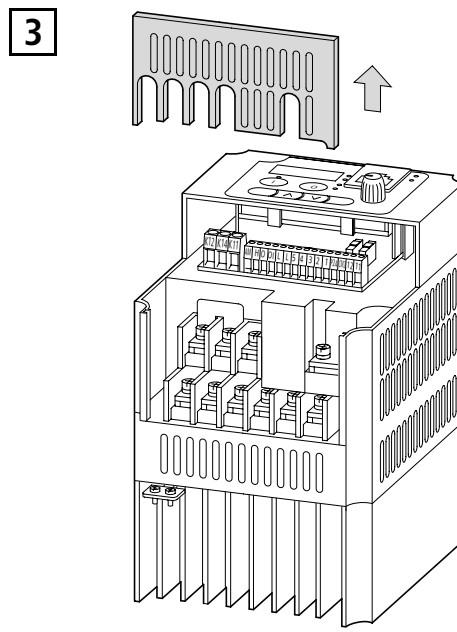
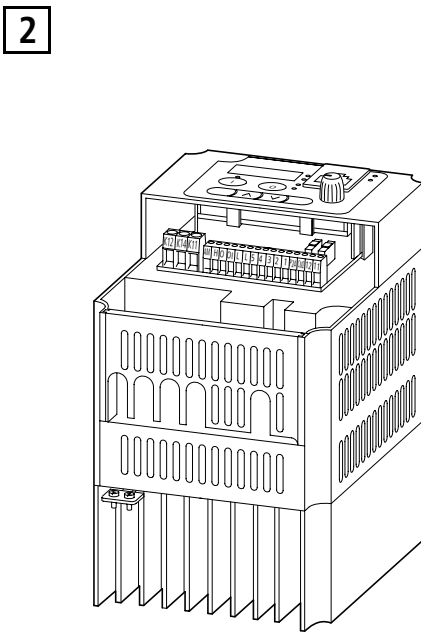
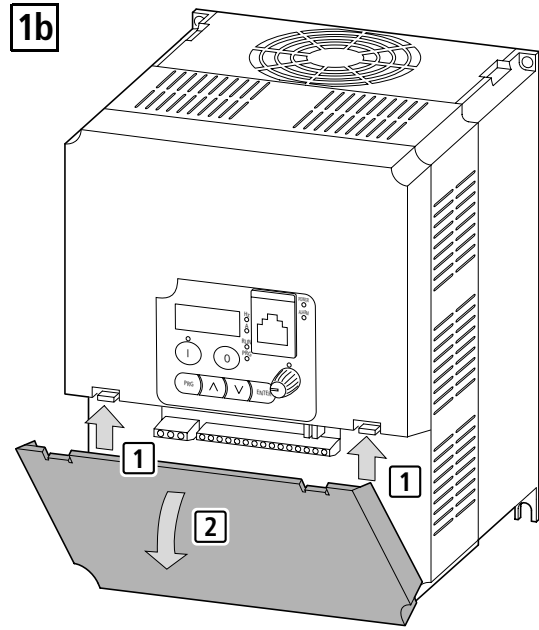
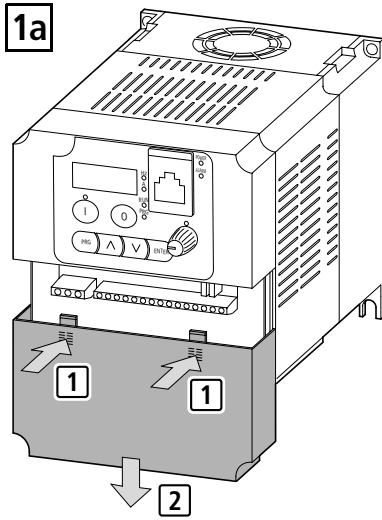
**警告!**  
只能在不通电的情况下打开!

**Warning!**  
Only open in de-energized state!

**¡Advertencia!**  
¡Sólo se debe abrir en ausencia de tensión!

**Avertissement !**  
N'ouvrir qu'en absence de tension !

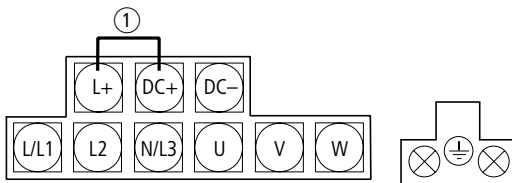
**Предупреждение!**  
Открывать только в свободном от напряжения состоянии!



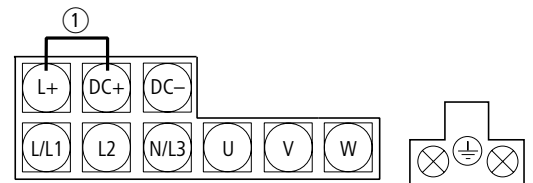
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**Leistungsklemmen – Power terminals – Bornes de puissance – Morsetti di potenza – Bornes de la etapa de potencia – Силовые зажимы – 功率接线柱**

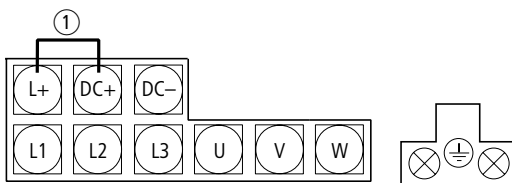
DF51-322-025  
DF51-322-037  
DF51-322-055



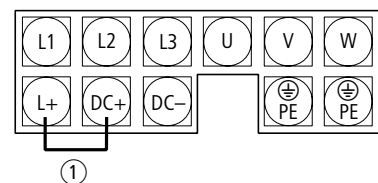
DF51-322-075  
DF51-322-1K1  
DF51-322-1K5  
DF51-322-2K2  
DF51-320-4K0



DF51-340-037  
DF51-340-075  
DF51-340-1K5  
DF51-340-2K2  
DF51-340-3K0  
DF51-340-4K0



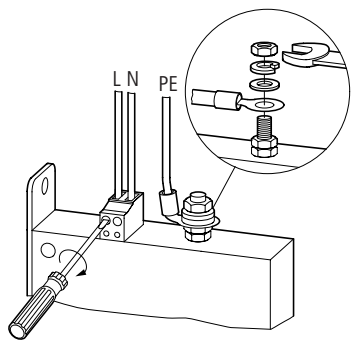
DF51-340-5K5  
DF51-340-7K5  
DF51-320-5K5  
DF51-320-7K5



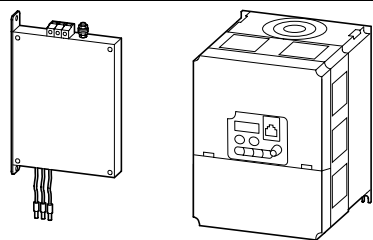
- ① Interne Verbindung. Beim Einsatz einer Zwischenkreisdrossel entfernen.
- ① Internal link. Remove link when an intermediate circuit choke is being used.
- ① Jonction interne. Oter en cas d'utilisation d'une inductance indirecte.
- ① Collegamento interno. Rimuovere il collegamento per l'inserimento dell'induttanza.

- ① Conexión interna. Retirar al aplicar una reactancia de circuito de frecuencia intermedia.
- ① Внутреннее соединение. Удалить при эксплуатации сглаживающего реактора звена постоянного тока.
- ① 内部跨接 在使用中间电路电抗器时去除

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



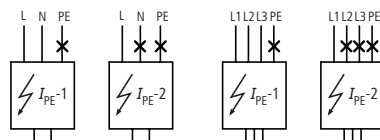
Typ	L, L1, L2, L3, N							
	mm <sup>2</sup>	AWG	mm	mm	Nm	mm	Nm	lbin
DE51-LZ1-007-V2	0.25 – 4	24 – 10	8	0.6 × 3.5	0.6 – 0.8	5.5	4	2.9
DE51-LZ1-012-V2	0.25 – 4	24 – 10	8	0.6 × 3.5	0.6 – 0.8	5.5	4	2.9
DE51-LZ1-024-V2	0.25 – 4	24 – 10	8	0.6 × 3.5	0.6 – 0.8	5.5	4	2.9
DE51-LZ3-007-V4	0.25 – 4	24 – 10	8	0.6 × 3.5	0.6 – 0.8	5.5	4	2.9
DE51-LZ3-011-V4	0.25 – 4	24 – 10	8	0.6 × 3.5	0.6 – 0.8	5.5	4	2.9
DE51-LZ3-020-V4	0.25 – 4	24 – 10	8	0.6 × 3.5	0.6 – 0.8	5.5	4	2.9



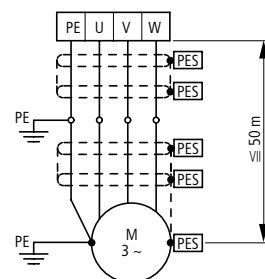
$U_e^{1)}$ V	$P_V$ W	$\frac{kg}{kg}$	$I_{PE}$ mA	$I_{PE-1}$ mA	$I_{PE-2}$ mA
-----------------	------------	-----------------	----------------	------------------	------------------

DE51-LZ1...

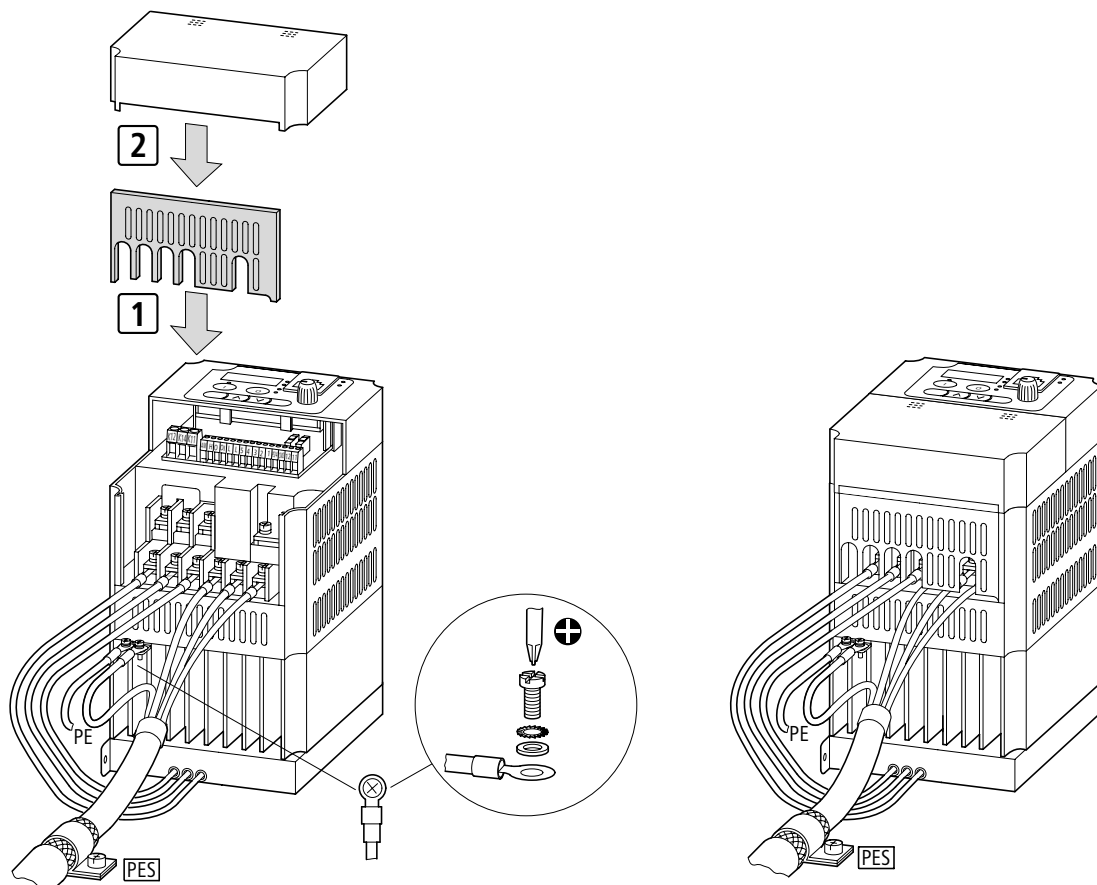
DE51-LZ3...

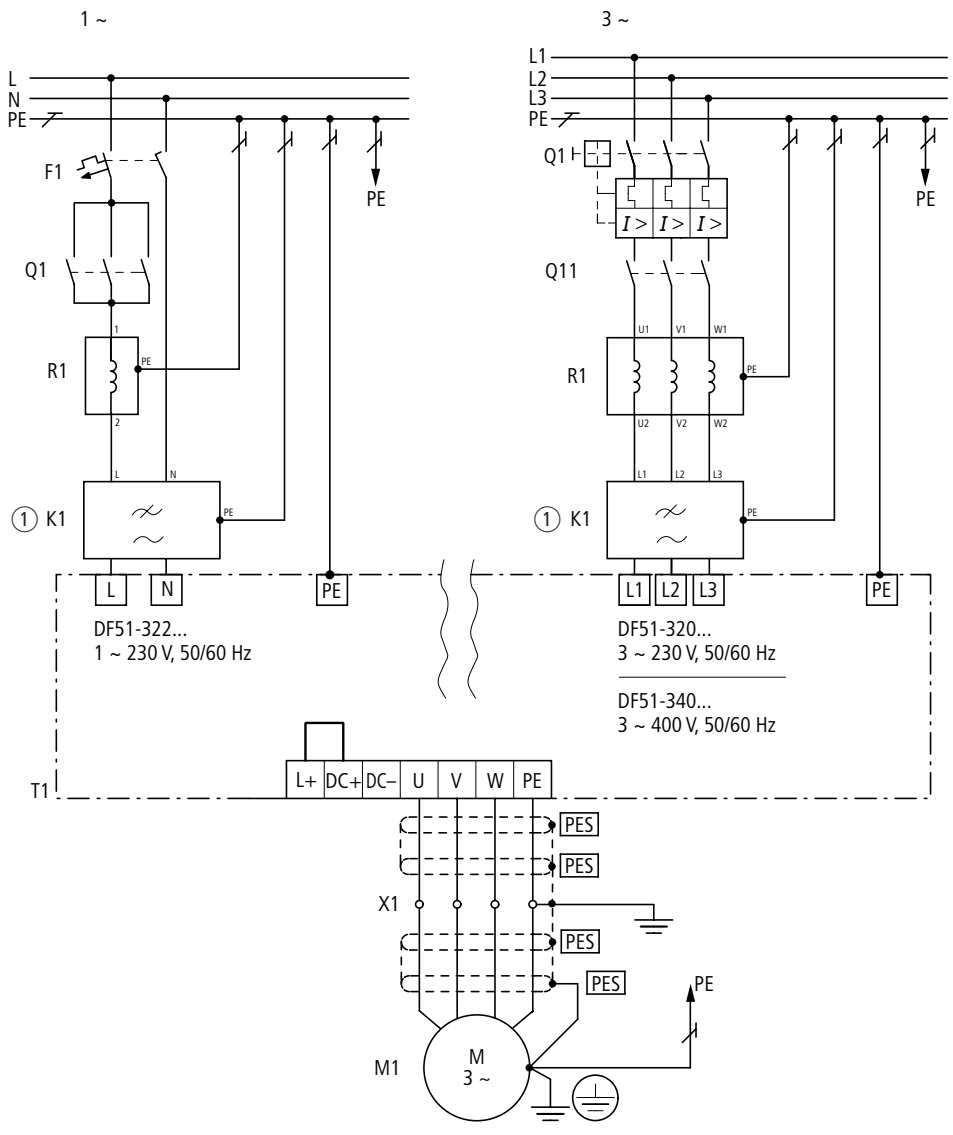


DE51-LZ1-007-V2	DF51-322-018 DF51-322-037 DF51-322-055	230 + 10 %	5	0.45	6	25	47
DE51-LZ1-012-V2	DF51-322-075 DF51-322-1K1		7	0.5	6	26	51
DE51-LZ1-024-V2	DF51-322-1K5 DF51-322-2K2		14	0.67	6	24	48
DE51-LZ3-007-V4	DF51-340-037 DF51-340-075 DF51-340-1K5 DF51-340-2K2	480 + 10 %	6	0.7	11	4	156
DE51-LZ3-011-V4	DF51-340-3K0 DF51-340-4K0		9	0.75	35	5	198
DE51-LZ3-020-V4	DF51-340-5K5 DF51-340-7K5		16	1.2	46	5.5	210



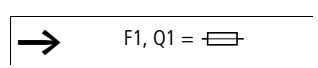
1) 50/60Hz



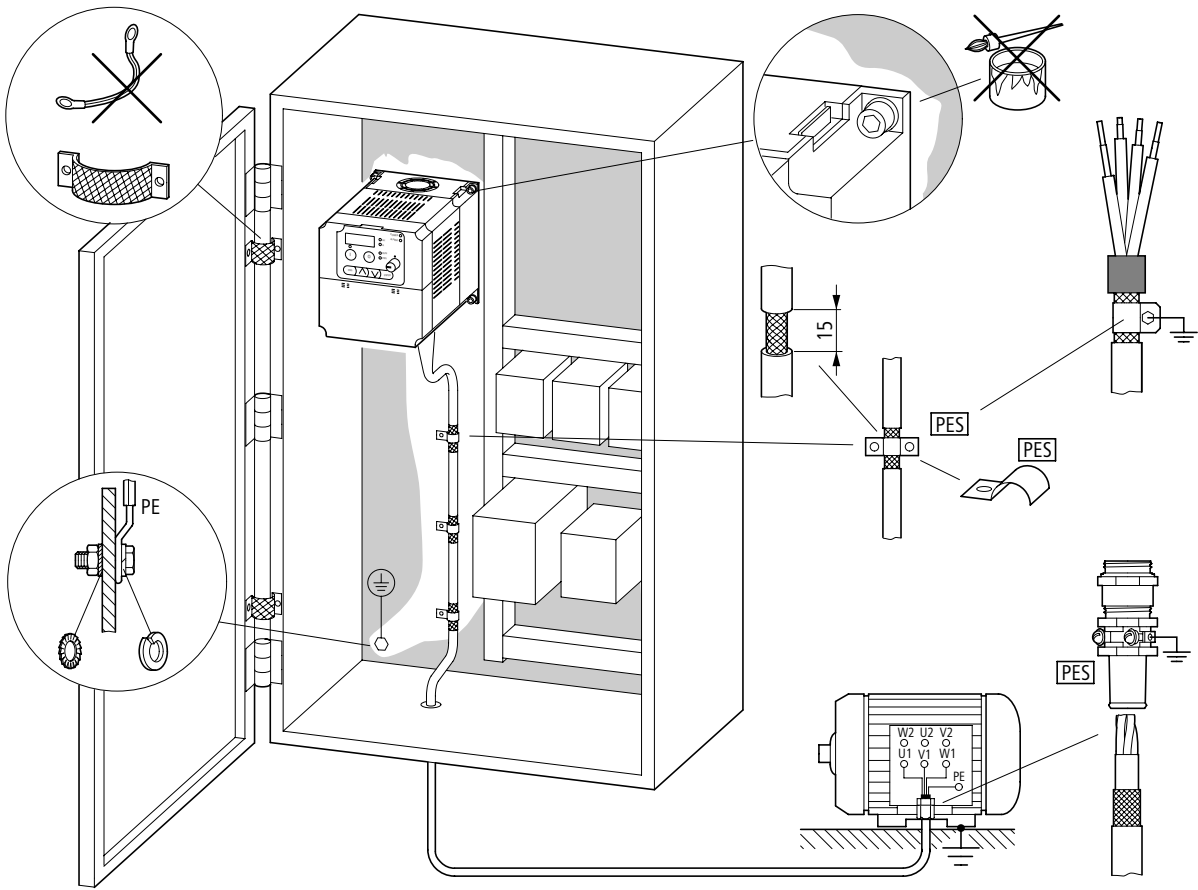


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① Option – optional – opzione – opción – вариант – 选装



Typ/Référence/Type Тіро/Тип/ 型号	1 ~	3 ~
DF51-322-025 DF51-322-037 DF51-322-055	10 A	10 A
DF51-322-075 DF51-322-1K1	15 A	15 A
DF51-322-1K5	20 A	15 A
DF51-322-2K2	30 A	20 A
DF51-320-3K7	–	30 A
DF51-320-5K5	–	40 A
DF51-320-7K5	–	50 A
DF51-340-037	–	3 A
DF51-340-075	–	6 A
DF51-340-1K5 DF51-340-2K2	–	10 A
DF51-340-3K0 DF51-340-4K0	–	15 A
DF51-340-5K5	–	20 A
DF51-340-7K5	–	25 A



#### Vorsicht!

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

EMV-gerechter Aufbau. Steuer- und Netzleitungen räumlich getrennt von der Motorleitung verlegen. [PES] Leitungsschirm großflächig mit PE verbinden.

#### Caution!

Within the scope of the EU Directives, the frequency inverters and their accessories may be commissioned only provided it is established that the machine fulfils the protective requirements of Machine Directive 89/392/EWG.

Ensure EMC-compliant installation. Lay control and communication cables spatially separated from the motor cable. Ensure a large contact area connection between [PES] cable screen and PE.

#### Attention !

En application des directives européennes, les convertisseurs de fréquence 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.

Montage conforme aux règles de la CEM. Eloigner les câbles de commande et de réseau des câbles puissance. Relier le blindage au PE en assurant de grandes surfaces de contact.

#### Attenzione!

Nel campo di validità delle direttive CEE i convertitori di frequenza 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.

Montaggio secondo CEM. Disporre i cavi comandi e di alimentazione separati dal cavo del motore. Collegare lo schermo del cavo [PES] con PE con un'ampia superficie.

#### ¡Atención!

En el campo de aplicación de la normativa CE, los convertidores de frecuencia y sus correspondientes accesorios sólo deberán ponerse en marcha cuando se asegure que la máquina cumple con las exigencias de seguridad de la normativa de máquinas 89/392/CE.

El montaje debe cumplir CEM. Los cables de mando y de conexión a red se deben instalar independientemente del cable de conexión al motor. El cable apantallado [PES] se debe conectar a masa utilizando una amplia superficie de contacto.

#### Осторожно!

На территории действия Предписаний ЕС преобразователи частоты 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.

Сборка соответственно электромагнитной совместимости. Линии управления и электросети прокладывать в пространственном отношении отдельно от линии двигателя. [PES] силовой экран соединять с PE по большой площади.

#### 小心!

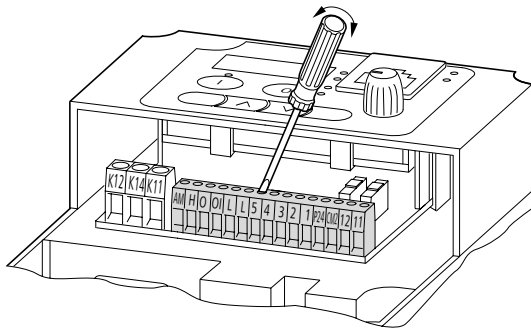
当确定机器设备满足了设备准则 89/392/EWG (欧共体旧称) 时, 变频器及其附件才能在 EG (欧共体) 原则的适用范围内投入使用。

具备电磁兼容性的结构。控制线和网络线空间上与马达导线分开敷设。PES (聚酯人造丝) 导线屏蔽用 PE (聚乙烯) 大面积缠绕。



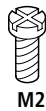
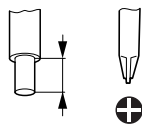
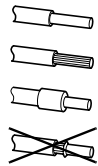
**Anschlüsse – Connections – Raccordements – Collegamenti – Conexiones – подсоединения – 接头**

Steuerklemmen – Control terminals – Bornes de commande – Morsetti circuito di comando – Bornes de mando – Зажимы цепи управления – 控制端子



DF51

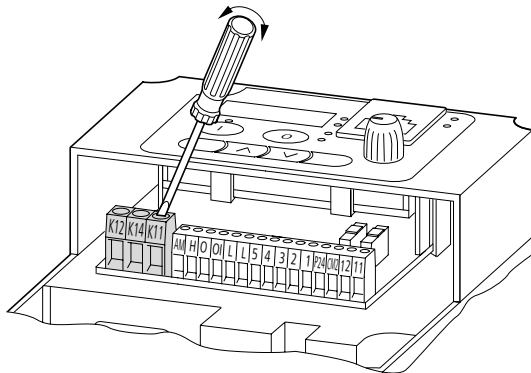
AM	H	O	OI	L	L	5	4	3	2	1	P24	CM2	12	11
----	---	---	----	---	---	---	---	---	---	---	-----	-----	----	----



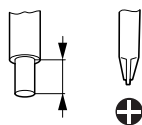
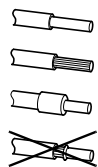
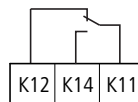
mm <sup>2</sup>	AWG	mm		Nm	ft-lbs
0.14 – 0.75	18 – 28	5	0	0.22 – 0.25	0.16

**Melderelais – Signalling relay – Relais à voyant – Relè di segnalazione – Relé de señalización – Сигнальное реле – 信号继电器**

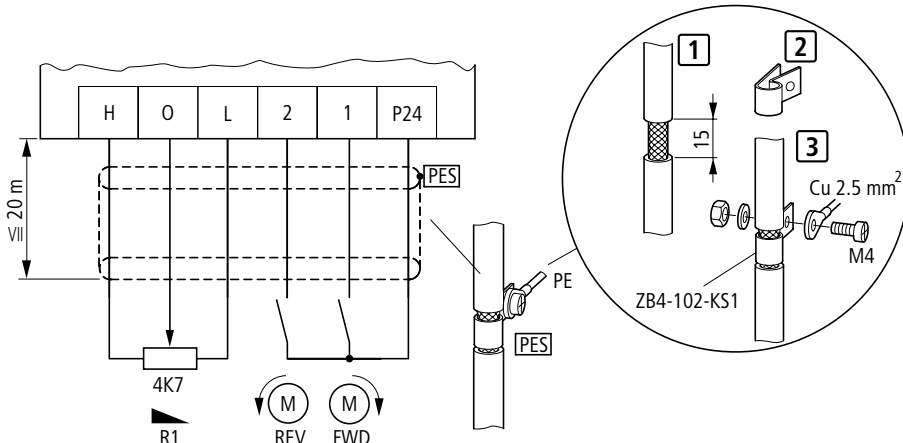
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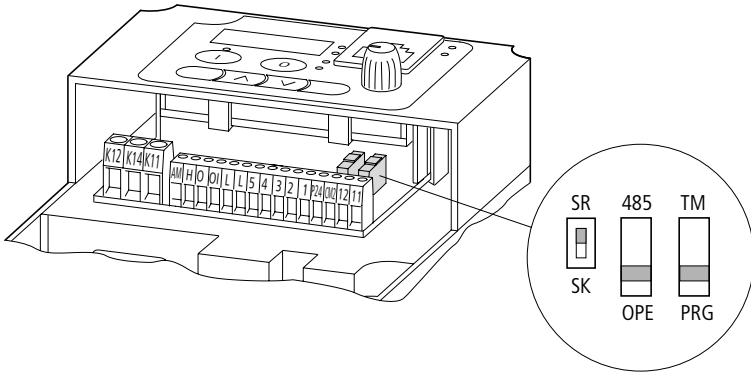
U	I		I <sub>min</sub>	U <sub>min</sub>
	(L)	(R)		
250 V ~	0.2 A	2.5 A	10 mA	100 V~
30 V ---	0.7 A	3 A	100 mA	5 V---



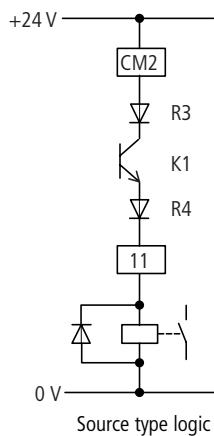
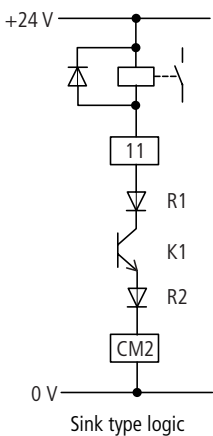
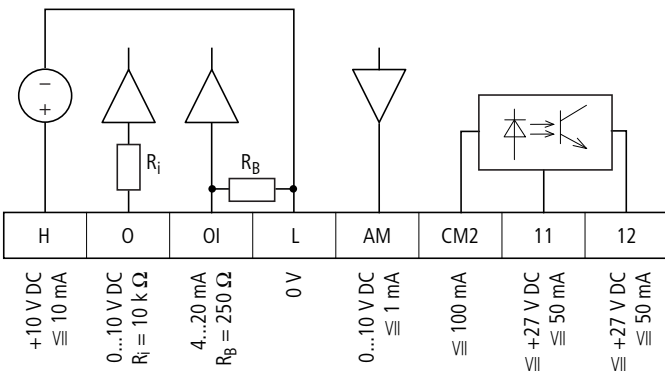
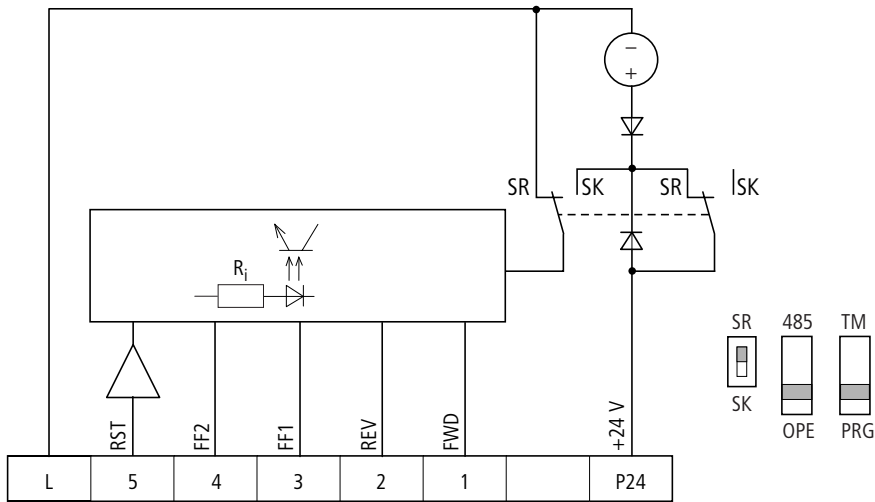
mm <sup>2</sup>	AWG	mm		Nm	ft-lbs
0.75	18	6	1	0.5 – 0.6	0.36



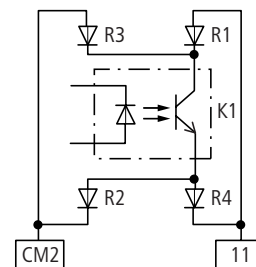
→ ZB4-102-KS1 muss separat bestellt werden.  
 ZB4-102-KS1 must be ordered separately.  
 ZB4-102-KS1 doit être commandé séparément.  
 ZB4-102-KS1 deve essere ordinata separatamente.  
 ZB4-102-KS1 debe adquirirse por separado.  
 ZB4-102-KS1 нужно заказывать отдельно.  
 ZB4-102-KS1 必须单独订购



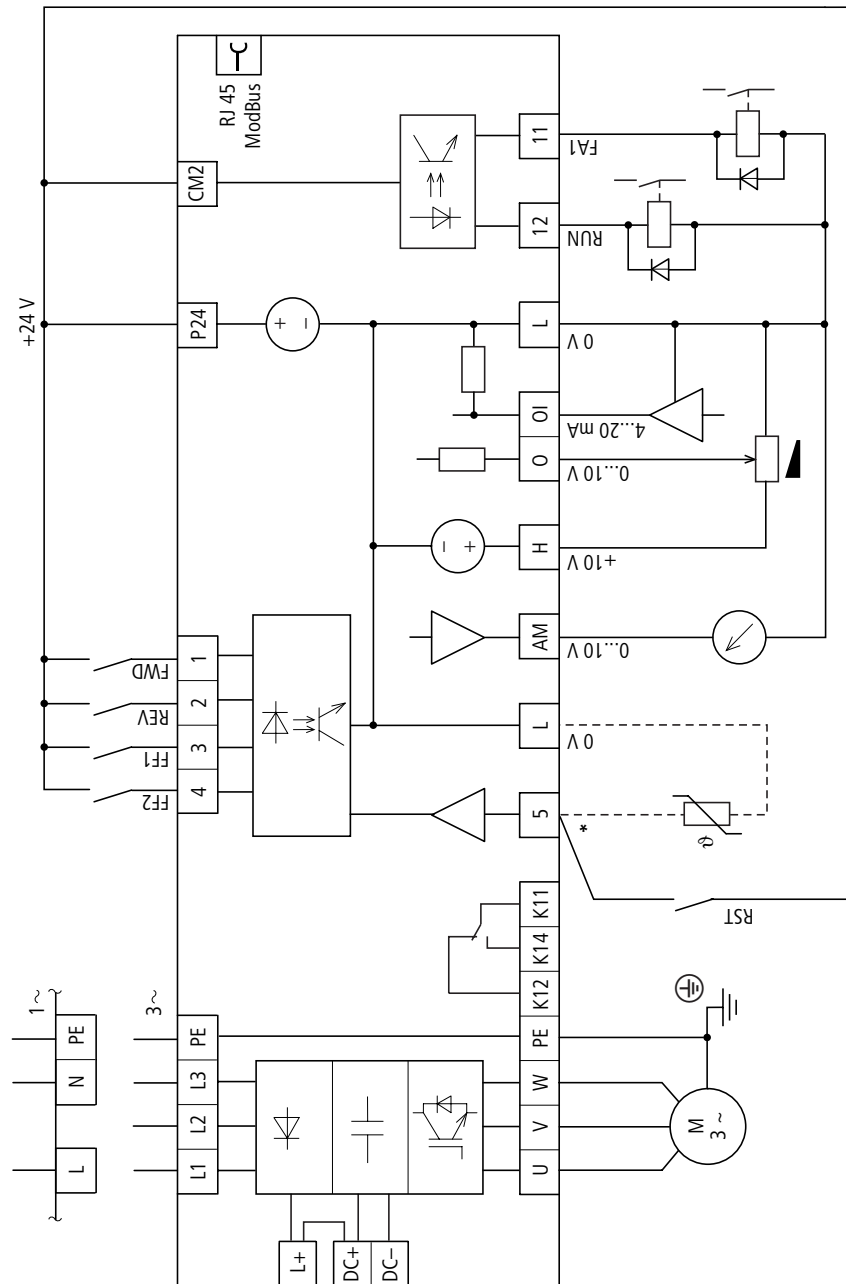
Blockschaltbild Steuerklemmen – Block diagram control terminals – Schéma fonctionnel des bornes de commande – Schema a blocchi morsetti di comando – Pantalla de esquema modular bornes de mando – Структурная схема Зажимы цепей управления – 控制接线柱方块图



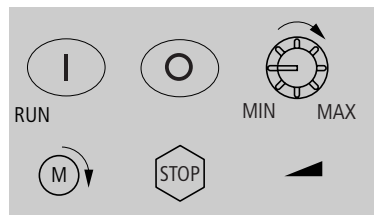
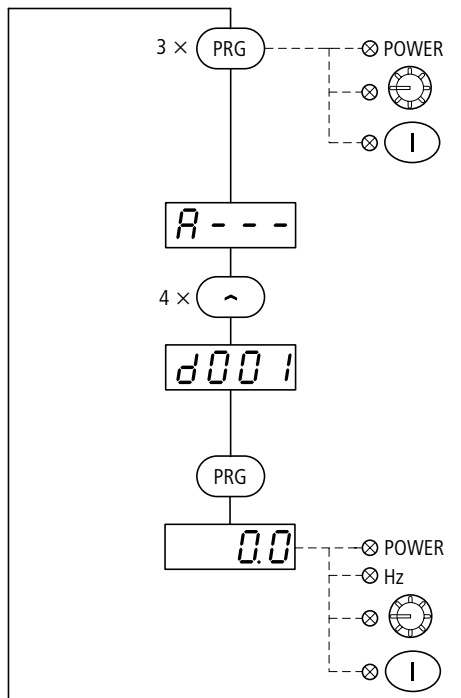
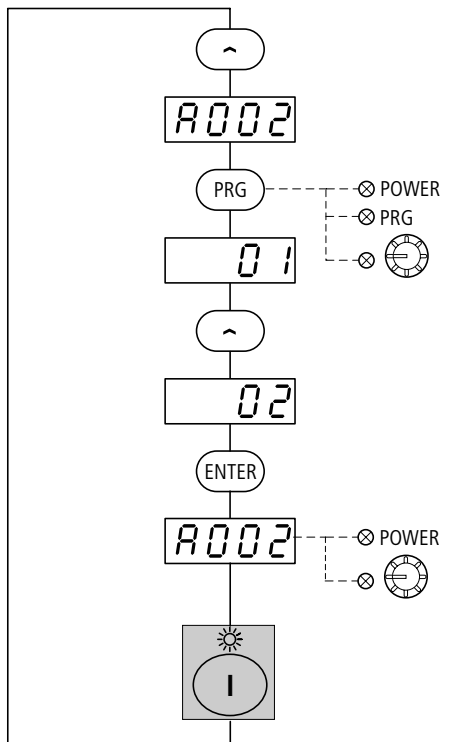
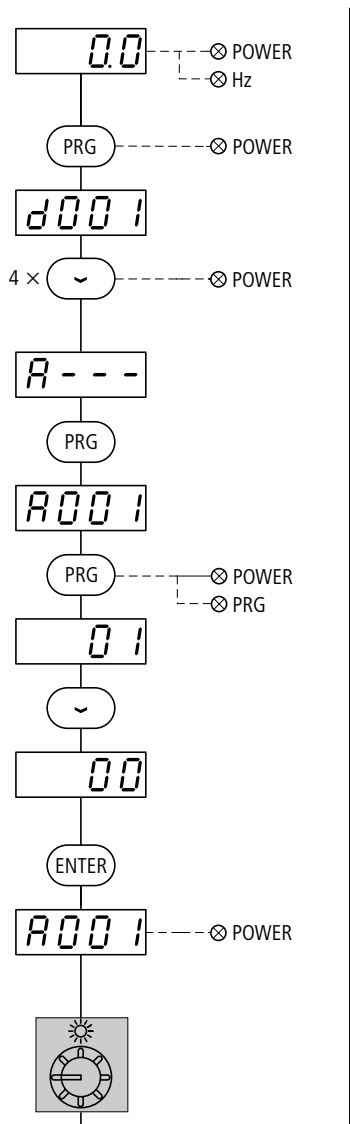
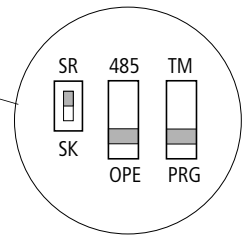
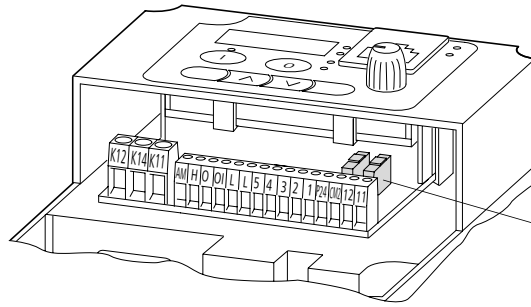
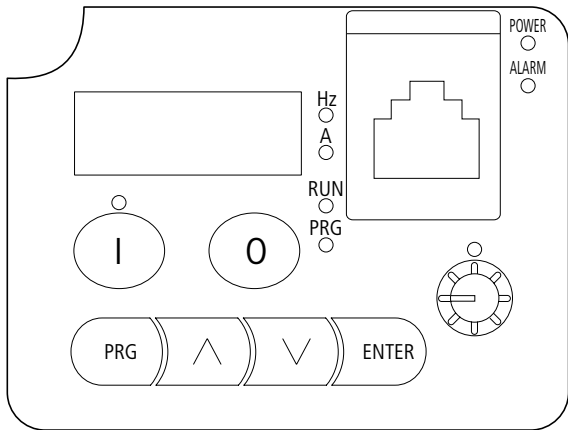
Transistor-Ausgang – Transistor output – Sortie à transistors – Uscite a transistor – Salida de transistor – Выход транзистора – 晶体管输出



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\* PNU C005 = 19 (PTC)



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Parameter – Paramètres – Parametro – Parámetro – Параметр – 参数

ANZEIGE	
d001	Ausgangsfrequenz
d002	Ausgangsstrom
d000	Gesamtzahl Störungen
d081	Störung 1
d082	Störung 2
d083	Störung 3

MONITOR	
d001	Output frequency
d002	Output Current
d000	Trip counter
d081	Trip monitor 1
d082	Trip monitor 2
d083	Trip monitor 3

AFFICHEUR	
d001	Fréquence de sortie
d002	Courant de sortie
d000	Nombre total de défaillances
d081	Défaillance 1
d082	Défaillance 2
d083	Défaillance 3

VISUALIZZAZIONE	
d001	Frequenza d'uscita
d002	Corrente d'uscita
d000	Totale guasti
d081	Guasto 1
d082	Guasto 2
d083	Guasto 3

VISUALIZACIÓN	
d001	Frecuencia de salida
d002	Intensidad de salida
d000	Total averías
d081	Avería 1
d082	Avería 2
d083	Avería 3

Показание	
d001	Выходная частота
d002	Выходной ток
d000	Общая численность помех
d081	Помеха 1
d082	Помеха 2
d083	Помеха 3

显示	
d001	输出频率
d002	输出电流
d000	故障总数
d081	故障 1
d082	故障 2
d083	故障 3

BASIS FUNKTIONEN	
F001	Frequenz-Sollwert
F002	Beschleunigungszeit
F003	Verzögerungszeit
F004	Drehrichtung FWD/REV
A001	Sollwertvorgabe
A002	Startbefehl
A003	Eckfrequenz
A004	Endfrequenz

BASIC FUNCTION	
F001	Output frequency
F002	Acceleration time
F003	Deceleration time
F004	Sense of rotation FWD/REV
A001	Frequency source
A002	Run command source
A003	Base frequency
A004	Maximum frequency

FONCTIONS DE BASE	
F001	Consigne de fréquence
F002	Rampe d'accélération
F003	Rampe de décélération
F004	Sens de rotation FWD/REV
A001	Indication de la consigne
A002	Ordre de démarrage
A003	Fréquence limite
A004	Fréquence finale

FUNZIONI BASE	
F001	Valore rif. Frequenza
F002	Tempo accelerazione
F003	Tempo ritardo
F004	Direzione rotazione FWD/REV
A001	Impostazione valore rif.
A002	Comando di avvio
A003	Frequenza limite
A004	Frequenza finale

FUNCIONES BASE	
F001	Valor de consigna de frecuencia
F002	Tiempo de aceleración
F003	Tiempo de retardo
F004	Sentido de giro FWD/REV
A001	Definición punto de consigna
A002	Orden de inicio
A003	Frecuencia límite
A004	Frecuencia final

База Функции	
F001	Заданное значение частоты
F002	Время ускорения
F003	Время задержки
F004	Направление вращения FWD/REV
A001	Начальная установка заданного значения
A002	Команда запуска
A003	Угловая граничная частота
A004	Конечная частота

基础功能	
F001	频率额定值
F002	加速时间
F003	减速时间
F004	旋转方向 FWD/REV
A001	给定的额定值
A002	开始命令
A003	角频率
A004	终端频率

FEHLERMELDUNGEN	
E 01	Überstrom (Konst.)
E 02	Überstrom (Beschl.)
E 03	Überstrom (Verz.)
E 05	Überlast
E 07	Überspannung
E 09	Unterspannung
E 14	Erdschluss
E 21	Übertemperatur

ERROR	
E 01	Overcurrent (Const.)
E 02	Overcurrent (Decel.)
E 03	Overcurrent (Accel.)
E 05	Overload
E 07	Overvoltage
E 09	Undervoltage
E 14	Ground fault
E 21	Thermal trip

SIGNALISATIONS DE DÉFAUT	
E 01	Surintensité (const.)
E 02	Surintensité (accélér.)
E 03	Surintensité (décélér.)
E 05	Surcharge
E 07	Sur tension
E 09	Sous-tension
E 14	Défaut à la terre
E 21	Echauffement

SEGNALAZIONI DI GUASTO	
E 01	Sovracorrente (cost.)
E 02	Sovracorrente (acc.)
E 03	Sovracorrente (rit.)
E 05	Sovraccarico
E 07	Sovratensione
E 09	Sottotensione
E 14	Guasto a terra
E 21	Sovratemperatura

SEÑALIZACIÓN DE DEFECTOS	
E 01	Sobreintensidad (const.)
E 02	Sobreintensidad (acel.)
E 03	Sobreintensidad (ret.)
E 05	Sobrecarga
E 07	Sobretensión
E 09	Tensión mínima
E 14	Defecto a tierra
E 21	Sobretemperatura

Сообщение об ошибке	
E 01	Сверхток (пост.)
E 02	Сверхток (ускор.)
E 03	Сверхток (задерж.)
E 05	Перегрузка
E 07	Перенапряжение
E 09	Минимальное напряжение
E 14	Короткое замыкание на землю
E 21	Температура перегрева

故障信息	
E 01	过电流 (恒定)
E 02	过电流 (加速)
E 03	过电流 (减速)
E 05	过载
E 07	过压
E 09	欠压
E 14	接地
E 21	过温

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### Wiring Warnings for Electrical Practices and Wire Sizes

The Cautions, Warnings, and instructions in this section summarize the procedures necessary to ensure an inverter installation complies with Underwriters Laboratories® guidelines.

**Warning!**  
Use 60/75 °C Cu wire only or equivalent.

**Warning!**  
Open Type Equipment.

**Warning!**  
Suitable for use on a circuit capable of delivering not more than 5,000 rms symmetrical amperes:

- 240 V maximum for DF51-322 and DF51-320 models.
- 480 V maximum for DF51-340 models.

**Warning!**  
“Suitable for use on a circuit capable of delivering not more than 5,000 rms symmetrical amperes, 480 V maximum.”  
For DF51 models.

### Circuit Breaker and Fuse Sizes

The inverter’s connections to input power must include UL Listed inverse time circuit breakers with 600 V rating, or UL Listed fuses as shown in the table below.

### Terminal Tightening Torque and Wire Size

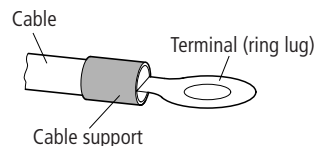
The wire size range and tightening torque for field wiring terminals are presented in the table below.

Inverter Model	Input Voltage	Motor Output		Fuse (UL-rated, class J, 600 V) A	Wiring Size Range AWG	Torque	
		kW	HP			ft-lbs	Nm
DF51-322-025	200 V	0.2	¼	10	16	0.6	0.8
DF51-322-037		0.4	½	10	16	0.6	0.8
DF51-322-055		0.55	¾	10	16	0.6	0.8
DF51-322-075		0.75	1	15	14	0.9	1.2
DF51-322-1K1		1.1	1 ½	15	14	0.9	1.2
DF51-322-1K5		1.5	2	20 (single ph.) 15 (three ph.)	12	0.9	1.2
DF51-322-2K2		2.2	3	30 (single ph.) 20 (three ph.)	10	0.9	1.2
DF51-320-4K0		4	5	30	12	0.9	1.2
DF51-320-5K5		5.5	7 ½	40	10	1.8	2.5
DF51-320-7K5		7.5	10	50	8	1.8	2.5
DF51-340-037	400 V	0.4	½	3	16	0.9	1.2
DF51-340-075		0.75	1	6	16	0.9	1.2
DF51-340-1K5		1.5	2	10	16	0.9	1.2
DF51-340-2K2		2.2	3	10	16	0.9	1.2
DF51-340-3K0		3	4	15	14	0.9	1.2
DF51-340-4K0		4	5	15	14	0.9	1.2
DF51-340-5K5		5.5	7 ½	20	12	1.8	2.5
DF51-340-7K5		7.5	10	25	12	1.8	2.5

➔ AWG = American Wire Gauge. Smaller numbers represent increasing wire thickness.  
kcmil = 1,000 circular mils, a measure of wire cross-sectional area  
mm² = square millimeters, a measure of wire cross-sectional area

### Wire Connectors

**Warning!**  
Field wiring connections must be made by a UL Listed and CSA Certified ring lug terminal connector sized for the wire gauge being used. The connector must be fixed using the crimping tool specified by the connector manufacturer.



### Motor Overload Protection

Moeller DF51 inverters provide solid state motor overload protection, which depends on the proper setting of the following parameters:

- B012 „ electronic overload protection“
- B212 „ electronic overload protection, 2<sup>nd</sup> motor“

Set the rated current [Amperes] of the motor(s) with the above parameters. The setting range is 0.2 \* rated current to 1.2 \* rated current.

**Warning!**  
When two or more motors are connected to the inverter, they cannot be protected by the electronic overload protection. Install an external thermal relay on each motor.

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