



**(en) Electric current! Danger to life!**  
Installation, commissioning and maintenance work must be carried out by qualified personnel only.



**(de) Lebensgefahrdurch elektrischen Strom!**  
Arbeiten bzw. Montage an diesem Produkt dürfen nur von Elektrofachkräften und elektrotechnisch unterwiesenen Personen ausgeführt werden.



**(fr) Tension électrique dangereuse !**  
L'installation de l'appareil, ainsi que tous les travaux effectués sur celui-ci, doivent être réalisés par un électricien qualifié ou par un personnel spécialement formé.



**(es) ¡Corriente eléctrica! ¡Peligro de muerte!**  
La instalación del dispositivo, así como todos los trabajos en él, deben ser realizados por un electricista calificado o por personal especialmente capacitado.



**(it) Tensione elettrica: Pericolo di morte!**  
L'installazione e il lavoro sul dispositivo devono essere effettuati da un elettricista qualificato o da personale specializzato.



**(zh) 触电危险!**  
設備的安裝，以及所有工作，必須由合格的電工或經過專門培訓的人員完成。



**(ru) Электрический ток! Опасно для жизни!**  
Установка и эксплуатация устройства должны выполняться квалифицированным электриком или специально обученным персоналом.



**(nl) Levensgevaar door elektrische stroom!**  
Installatie van het apparaat en alle werkzaamheden eraan, mogen uitsluitend door een gekwalificeerd elektricien of speciaal opgeleid vakpersoneel worden uitgevoerd.



**(da) Livsfare på grund af elektrisk strøm!**  
Arbejde i forbindelse med installation, opstart og vedligehold må kun udføres af kvalificeret personale.



**(el) Προσοχή, κίνδυνος ηλεκτροπληξίας!**  
Η εγκατάσταση, εκκίνηση και συντήρηση θα πρέπει να πραγματοποιείται μόνο από εξειδικευμένο προσωπικό.

**(pt) Perigo de vida devido a corrente eléctrica!**  
A instalação do dispositivo, bem como todos os trabalhos devem ser realizados por um electricista qualificado ou por pessoal especialmente formado.

**(sv) Livsfara genom elektrisk ström!**  
Installation, idrifttagande och underhållsarbete får endast utföras av behörig personal.

**(fi) Hengenvaarallinen jännite!**  
Laitteen asennus ja käyttö ainoastaan sähköasentajan tai siihen perehdytetyn henkilön toimesta.

**(cs) Nebezpečí úrazu elektrickým proudem!**  
Instalace zařízení a veškeré práce na něm musí být provedeny kvalifikovaným elektrikářem nebo speciálně vyškoleným personálem.

**(et) Eluhtlik! Elektrilöögiht!**  
Paigaldus-, kasutus- ja hooldustööd peab läbi viima ainult kvalifitseeritud personal.

**(hu) Életveszély az elektromos áram révén!**  
Az eszköz felszerelését, valamint az ehhez kapcsolódó összes munkát szakképzett villanyszerelővel vagy szakképzett személynél kell elvégeznie.

**(lv) Elektriskā strāva apdraud dzīvību!**  
Uzstādīšana, nodošana ekspluatācijā un apkopes darbi jāveic tikai kvalificētam personālam.

**(lt) Pavojus gyvybei dėl elektros srovės!**  
Įrengimo, paleidimo ir techninės priežiūros darbus turi atlikti tik kvalifikuotas personalas.

**(pl) Porażenie prądem elektrycznym stanowi zagrożenie dla życia!**  
Instalacja urządzenia, jak również prace nad nim, muszą być wykonywane przez wykwalifikowanego elektryka lub specjalnie wyszkolony personel.

**(sl) Življenska nevarnost zaradi električnega toka!**  
Dela montaže, zagona in vzdrževanja morajo izvajati samo usposobljeno osebeje.

**(sk) Nebezpečnost ohrozenia života elektrickým prúdom!**  
Inštalácia prístroja, ako aj všetky práce na ňom musia byť vykonané kvalifikovaným elektrotechnikom alebo špeciálne vyškoleným personálom.

**(bg) Опасност за живота от електрически ток!**  
Инсталирането на устройството, както и всяка работа по него, трябва да бъде извършвано от квалифициран електротехник или от специално обучен персонал.

**(ro) Atenție! Pericol electric!**  
Montajul și lucrul cu acest aparat trebuie făcute numai de un electrician calificat sau de personal tehnic specializat.

**(hr) Opasnost po život uslijed električne struje!**  
Radove ugradnje, puštanja u pogon i održavanja mora vršiti samo kvalificirano osoblje.

**(tr) Elektrik akımı! Hayati tehlike!**  
Bu ürünün çalıştırılması veya kurulumu sadece elektroteknik eğitimleri almış olan ehliyetli elektrikçiler ve kişiler tarafından yapılmalıdır.

**(sr) Električna struja! Opasnost po život!**  
Instalaciju, puštanje u rad i održavanje sme da obavlja isključivo kvalifikovano osoblje.

**(no) Elektrisk strøm! Livsfare!**  
Installasjon av enheten, samt arbeid på den, skal kun utføres av kvalifisert personell, eller av de som er spesielt opplært til dette arbeidet.

**(uk) Електричний струм! Небезпечно для життя!**  
Встановлення пристрою, так само, як і робота з ним, повинні виконуватись кваліфікованим електриком або персоналом, що пройшов спеціальну підготовку.

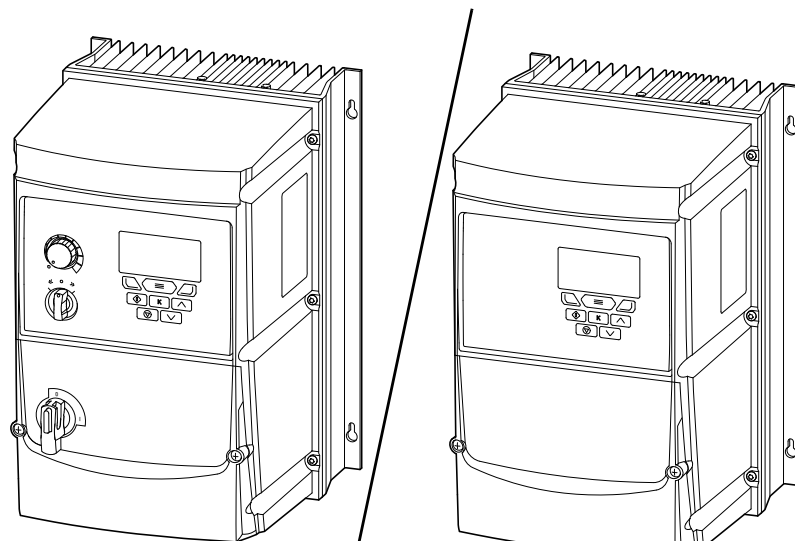
**(ar) تحذير! تيار كهربائي! خطر موت الشبكت والتكليف و أعمال الصيانة يجب أن تقام فقط من طرف الموظفين المؤهلين**

DA1-12...-B6x0

DA1-32...-B6x0

DA1-34...-B6x0

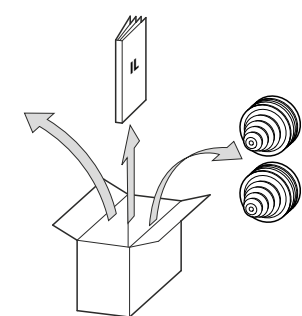
DA1-35...-B6x0



Eaton.com/documentation  
MN040063... DA1

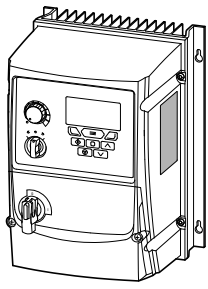


Eaton.com/EcoDesign-VFD  
MZ040046EN



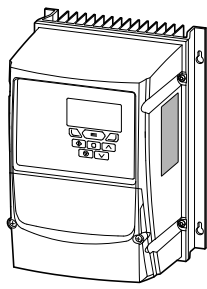
DA1-...-B6S0

6S = IP66, switched



DA1-...-B660

66 = IP66



DA1-x y zzz F N- A 66 N

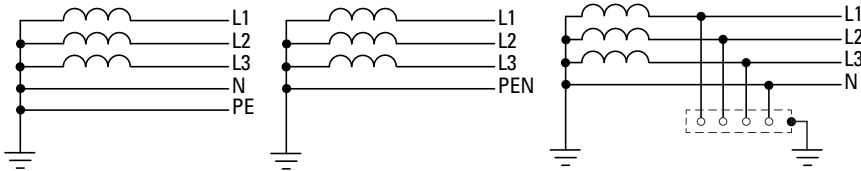
N = Basic device  
 C = Coated printed circuit board  
 O = Coated Board, Outdoor  
 66 = IP66, NEMA 4x  
 6S = IP66, NEMA 4x switched  
 A = LED Display  
 B = Graphical  
 B = Brake chopper (DC+, BR)  
 N = No Brake chopper  
 F = EMC Filter (RFI)  
 N = No EMC Filter

$I_e$   
 2D2 = 2.2 A  
 024 = 24 A

$U_{LN}$  (Mains), 50/60 Hz  
 2 = 230 V (200 - 240 V  $\pm 10$  %)  
 4 = 400 V (380 - 480 V  $\pm 10$  %)  
 5 = 500 V (500 - 600 V  $\pm 10$  %)

Mains  $\rightarrow$  Motor  
 1 = 1 AC  $\rightarrow$  3 AC  
 3 = 3 AC  $\rightarrow$  3 AC

Mains (TN, TT)

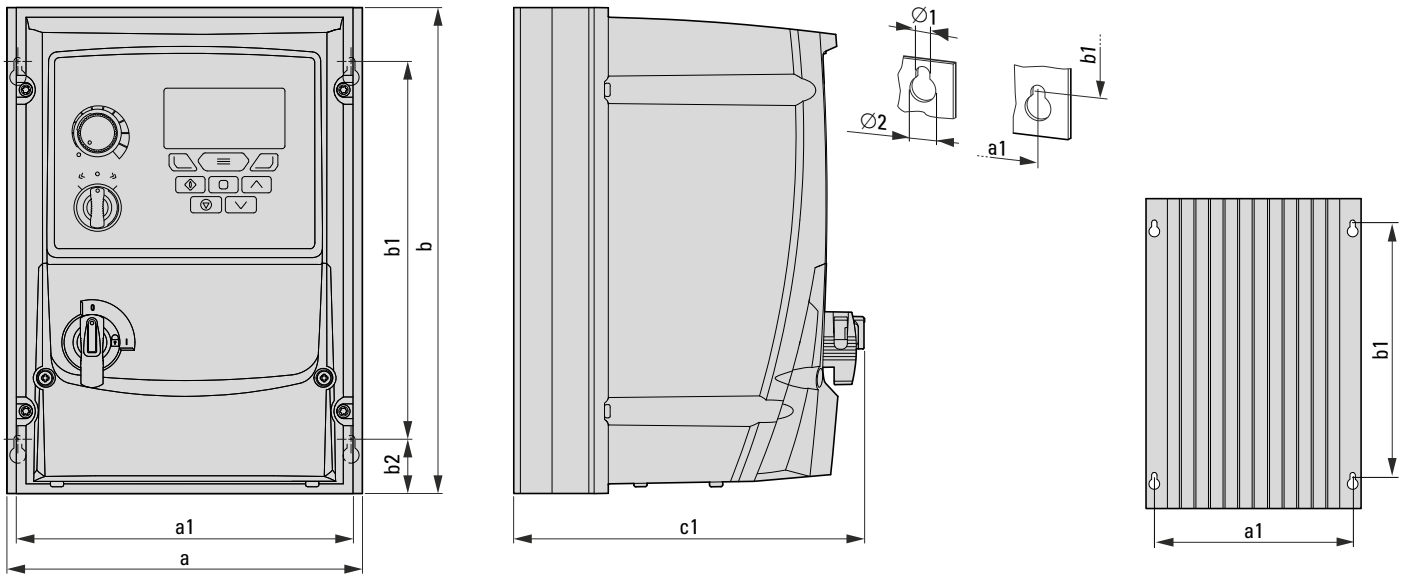


(en) Dimensions and weights  
 (de) Abmessungen und Gewichte  
 (fr) Encombrements et poids  
 (es) Dimensiones y pesos  
 (it) Dimensioni e pesi  
 (zh) 尺寸和重量  
 (ru) Размеры и вес


(nl) Afmetingen en gewichten  
 (da) Mål og vægt  
 (el) Διαστάσεις και βάρη  
 (pt) Medições e pesos  
 (sv) Dimensioner och vikter  
 (fi) Mitat ja painot  
 (cs) Rozměry a hmotnosti

(et) Mõõtmed ja kaalud  
 (hu) Méretek és Súly  
 (lv) Izmēri un svars  
 (lt) Matmenys ir svoriai  
 (pl) Wymiary i masy  
 (sl) Dimenzije in teže  
 (sk) Rozměry a hmotnosti

(bg) Размери и тегло  
 (ro) Dimensiuni și greutateți  
 (hr) Dimenzije i težina  
 (tr) Boyutlar ve ağırlıklar  
 (sr) Димензије и тежине  
 (no) Dimensjoner og vekter  
 (uk) Габаритні розміри й вага  
 (ar) الأبعاد والأوزان

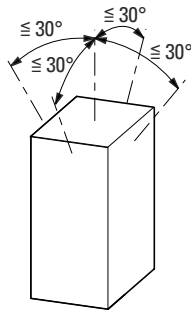
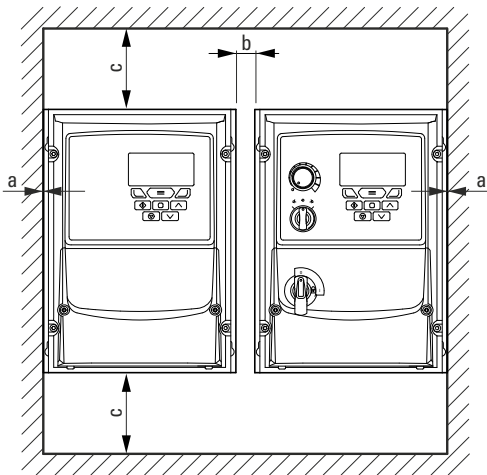


[mm (in)]

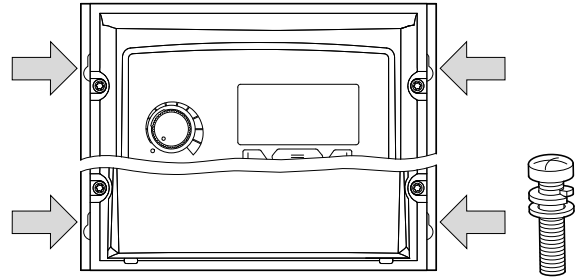
FS	a	a1	b	b1	b2	c	c1	Ø1	Ø2	 kg (lbs)
FS2	188 (7.4)	176 (6.93)	257 (10.12)	200 (7.87)	20 (0.79)	186 (7.32)	3.5 (0.14)	4.2 (0.16)	8.5 (0.33)	3.5 (7.72)
FS3	211 (8.29)	198 (7.78)	310 (12.2)	252 (9.9)	25 (0.98)	235 (9.25)	3.5 (0.14)	4.2 (0.16)	8.5 (0.33)	6.6 (14.55)
FS4	240 (9.45)	197 (7.76)	360 (14.17)	251 (9.88)	33.4 (1.31)	271 (10.67)	3.5 (0.14)	4.2 (0.17)	8.5 (0.33)	9.5 (20.95)

$\rightarrow$  1 inch = 25.4 mm  
 1 mm = 0.0394 inch  
 1 inch = 1"

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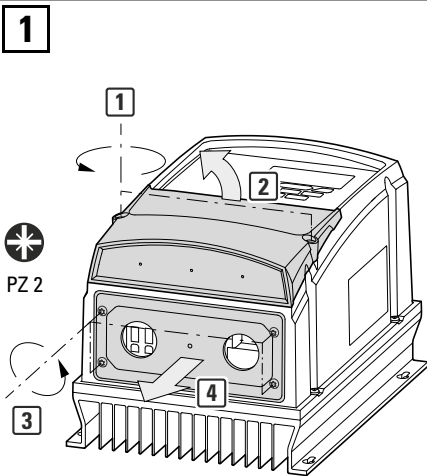


FS2, FS3, FS4 = 4 x M4  
1 Nm (8.85 lb-in)



[mm (in)]

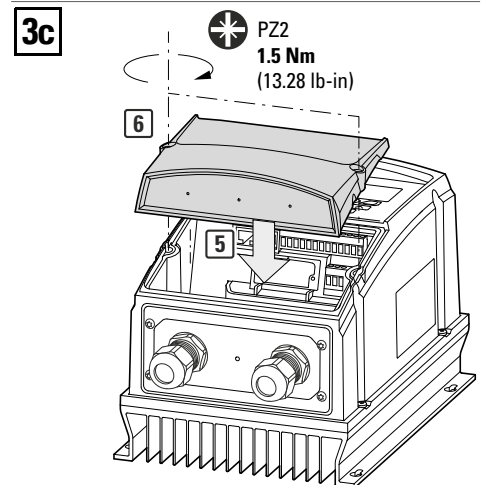
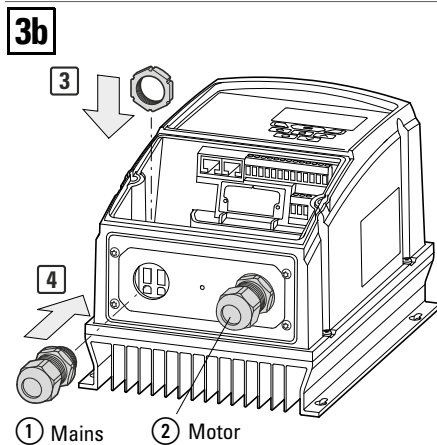
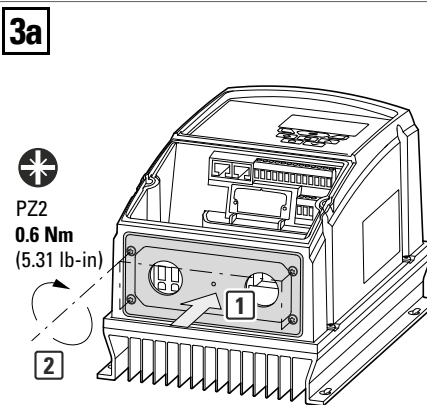
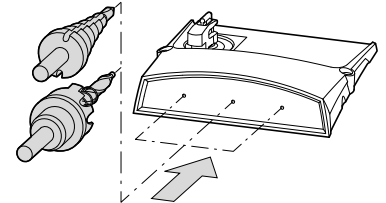
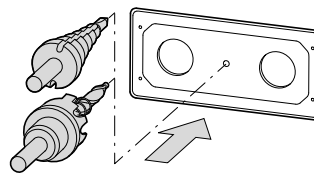
	a	b	c
FS2	0	12.0 (0.47)	200 (7.87)
FS3	0	13.0 (0.51)	200 (7.87)
FS4	0	42.5 (1.67)	200 (7.87)



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**2a** (en) optional – (de) optional – (fr) option – (ru) опция – (nl) optioneel – (da) valgfrit – (es) opcional – (it) opzionale – (zh) 可选 – (el) προαιρετικά – (pt) opcional – (sv) alternativ – (fi) valinnainen – (cs) volitelně – (et) lisavarustus – (hu) választható – (lv) pēc izvēles – (lt) pasirinktinai – (pl) opcjonalnie – (sl) opcijsko – (sk) voliteľné – (bg) опция – (ro) opțional – (hr) neobavezan – (tr) isteğe bağlı – (sr) опционо – (no) valgfritt – (uk) замовляється додатково – (ar) اختياري

**2b** (en) optional – (de) optional – (fr) option – (ru) опция – (nl) optioneel – (da) valgfrit – (es) opcional – (it) opzionale – (zh) 可选 – (el) προαιρετικά – (pt) opcional – (sv) alternativ – (fi) valinnainen – (cs) volitelně – (et) lisavarustus – (hu) választható – (lv) pēc izvēles – (lt) pasirinktinai – (pl) opcjonalnie – (sl) opcijsko – (sk) voliteľné – (bg) опция – (ro) opțional – (hr) neobavezan – (tr) isteğe bağlı – (sr) опционо – (no) valgfritt – (uk) замовляється додатково – (ar) اختياري

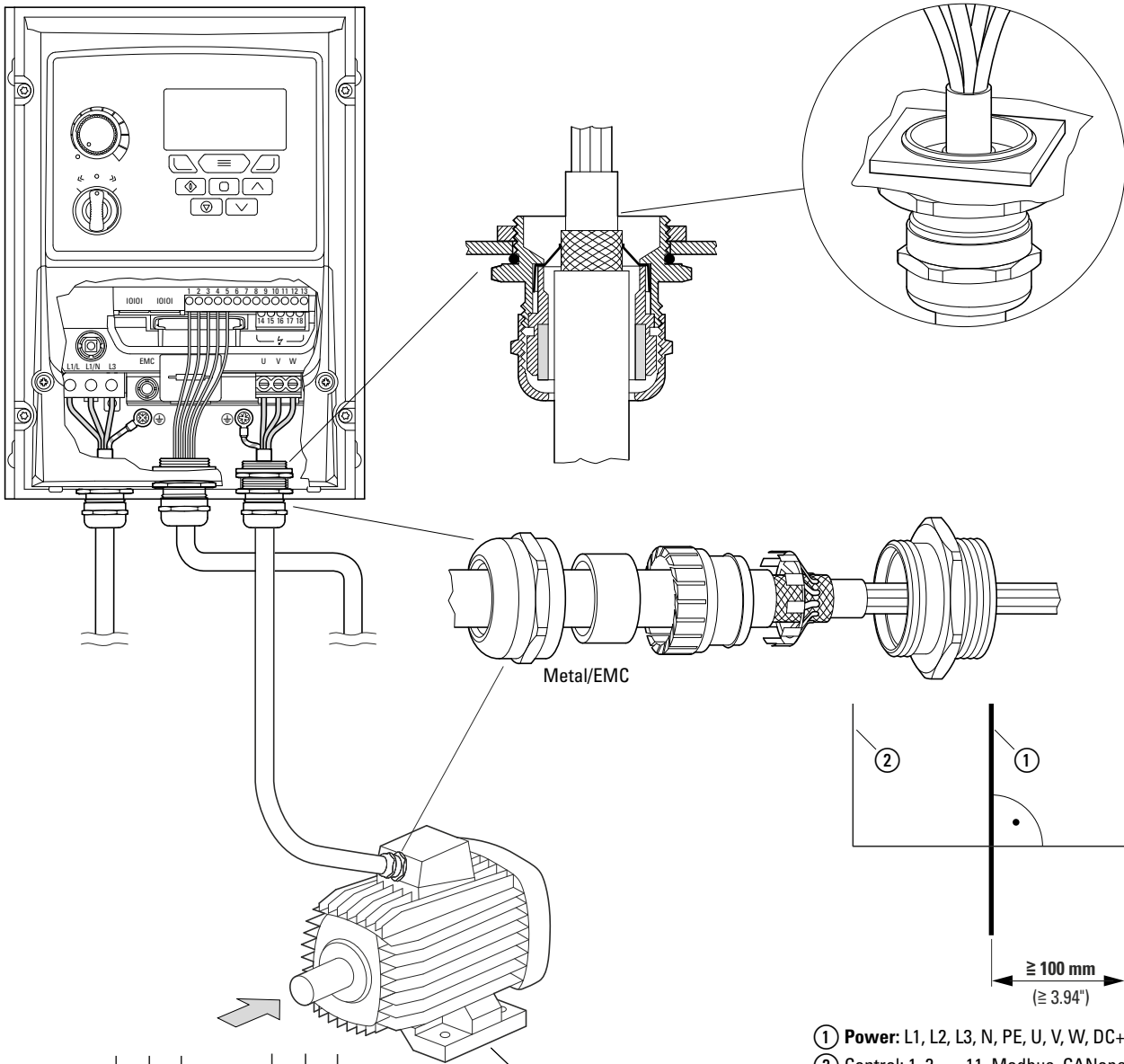


	FS	Ø mm (in)	PG	M
<b>Control</b>	FS2 FS3 FS4	2 x 20.4 (0.8)	2 x PG 13.5	2 x M20

	FS	Ø mm (in)	PG	M
<b>Power</b>	FS2 FS3 FS4	2 x 27 (1.06) 2 x 37 (1.46)	2 x PG 21 2 x PG 29	2 x M25/M32 2 x M40

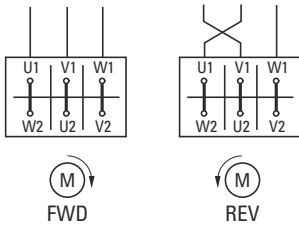
① (en) Plastic – (de) Kunststoff – (fr) Matière isolante – (es) Plástico – (it) Plastica – (zh) 塑料 – (ru) пластмасса – (nl) Kunststof – (da) Kunststof – (el) Πλαστικό – (pt) Plástico – (sv) Plast – (fi) Muovi – (cs) Plast – (et) Plastmaterjal – (hu) Műanyag – (lv) Plastmasa – (lt) Plastik – (pl) Tworzywo sztuczne – (sl) Umetna masa – (sk) Umelá hmota – (bg) Пластмаса – (ro) Plastic – (hr) Plastika – (tr) Plastik – (sr) Пластика – (no) Plast – (uk) зПластик – (ar) بلاستيك

② (en) Metal – (de) Metall – (fr) Métal – (es) Metal – (it) Metallo – (zh) 金属 – (ru) металл – (nl) Metaal – (da) Metal – (el) Μέταλλο – (pt) Metal – (sv) Metall – (fi) Metall – (cs) Kov – (et) Metall – (hu) Fém – (lv) Metāls – (lt) Metalas – (pl) Metal – (sl) Kovina – (sk) Kov – (bg) Метал – (ro) Metal – (hr) Metal – (tr) Metal – (sr) Метал – (no) Metall – (uk) Метал – (ar) معدن

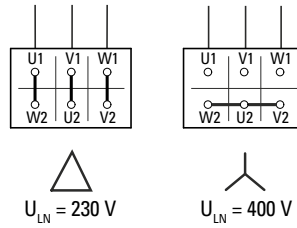


Metal/EMC

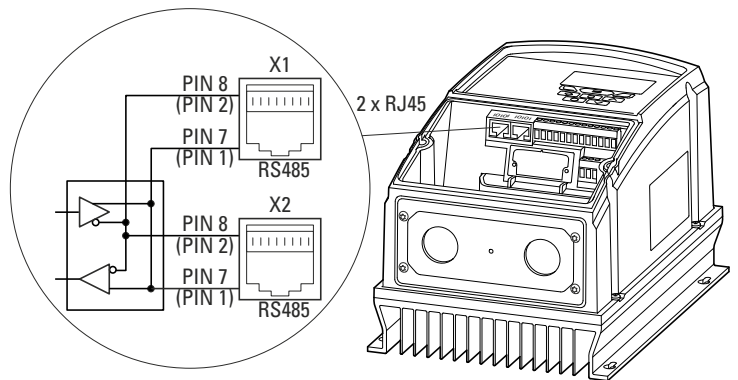
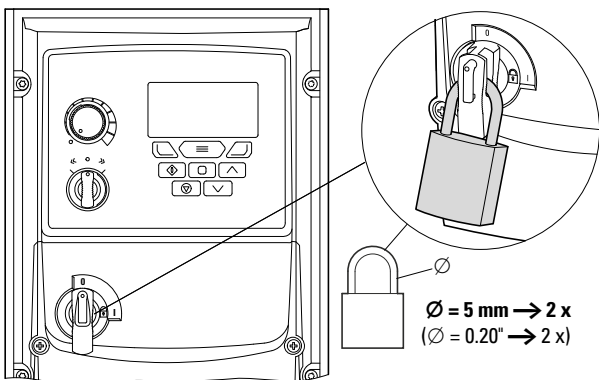
- ① Power: L1, L2, L3, N, PE, U, V, W, DC+, BR
- ② Control: 1, 2, ... 11, Modbus, CANopen



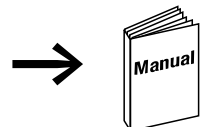
230/400 V	3.2/1.9 A
0,75 KW	cosφ 0.79
1410 mi n <sup>-1</sup>	50 Hz



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PIN 1	CANopen -
PIN 2	CANopen +
PIN 7	Modbus RTU -
PIN 8	Modbus RTU +





(en) **CAUTION**

Connect only in voltage-free state!

(de) **VORSICHT**

Nur im spannungsfreien Zustand anschließen!

(fr) **ATTENTION**

Raccordez l'appareil uniquement hors tension !

(es) **ATENCIÓN**

¡Conectar únicamente en estado sin tensión!

(it) **ATTENZIONE**

Collegare solo in assenza di tensione!

(zh) **注意**

必须在断电状态下进行连接!

(ru) **ВНИМАНИЕ**

Подключать только в обесточенном состоянии!

(nl) **VOORZICHTIG**

Alleen in spanningsloze toestand aansluiten!

(da) **FORSIGTIG**

Må kun tilsluttes i spændingsfri tilstand!

(el) **ΠΡΟΣΟΧΗ**

Συνδέστε μόνο όταν δεν επικρατεί τάση!

(pt) **CUIDADO**

Ligar apenas com a tensão desligada!

(sv) **OBSERVERA**

Får endast anslutas i spänningsfritt tillstånd!

(fi) **HUOMIO**

Kytke vain jännitteettömässä tilassa!

(cs) **UPOZORNĚNÍ**

Připojujte jen při zcela odpojeném napájení!

(et) **ETTEVAATUST**

Ühendada ainult pingevabas olekus!

(hu) **VIGYÁZAT**

Csak feszültségmentes állapotban csatlakoztassa!

(lv) **UZMANĪBU**

Pieslēgt tikai tad, kad nenotiek sprieguma padeve!

(lt) **PERSPĖJIMAS**

Prijungti tik tada, kai išjungta įtampa!

(pl) **PRZESTROGA**

Podłączać zawsze po uprzednim odłączeniu od zasilania elektrycznego!

(sl) **POZOR**

Napravo priključite le, ko ni pod napetostjo!

(sk) **UPOZORNENIE**

Napájať len v stave bez napätia!

(bg) **ВНИМАНИЕ**

Свързвайте само, когато уреда не е под напрежение!

(ro) **ATENȚIE**

Conectați doar când aparatul nu se află sub tensiune!

(hr) **PAZNJA**

Priključujte samo u beznaponskom stanju!

(tr) **DİKKAT**

Sadece gerilim sıfırken bağlayın!

(sr) **ОПРЕЗ**

Прикључујте само у стању без напона!

(no) **FORSIKTIG**

Tilkoble bare i spenningsfri tilstand!

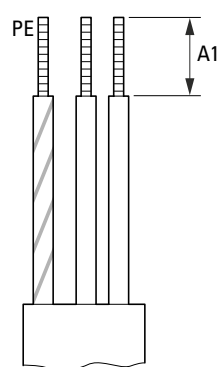
(uk) **УВАГА**

Підключати лише за відсутності напруги!

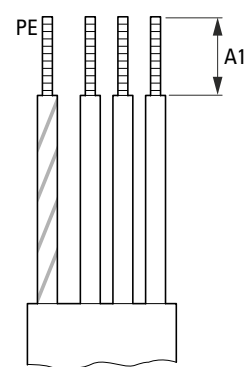
(ar) **انتباه**

التوصيل فقط في حال عدم الفولتية!

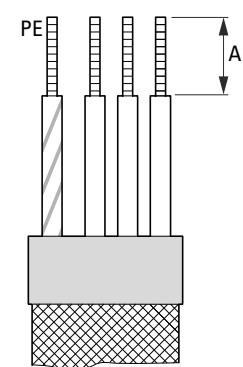
Mains 1 ~



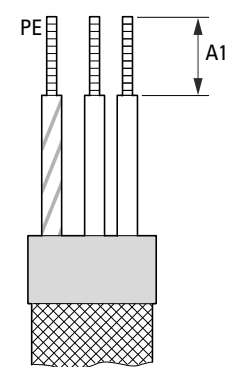
Mains 3 ~



Motor

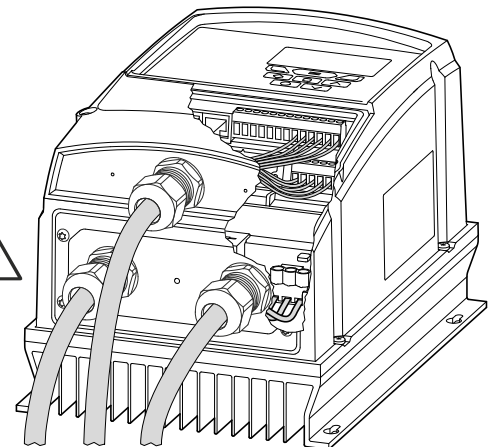
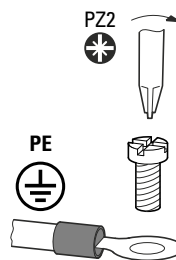
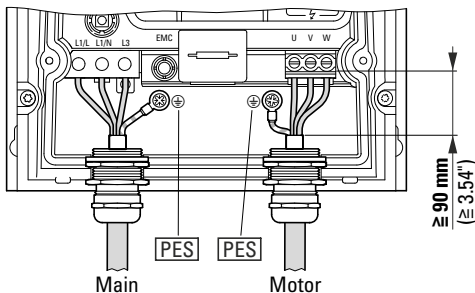


Brake Resistor



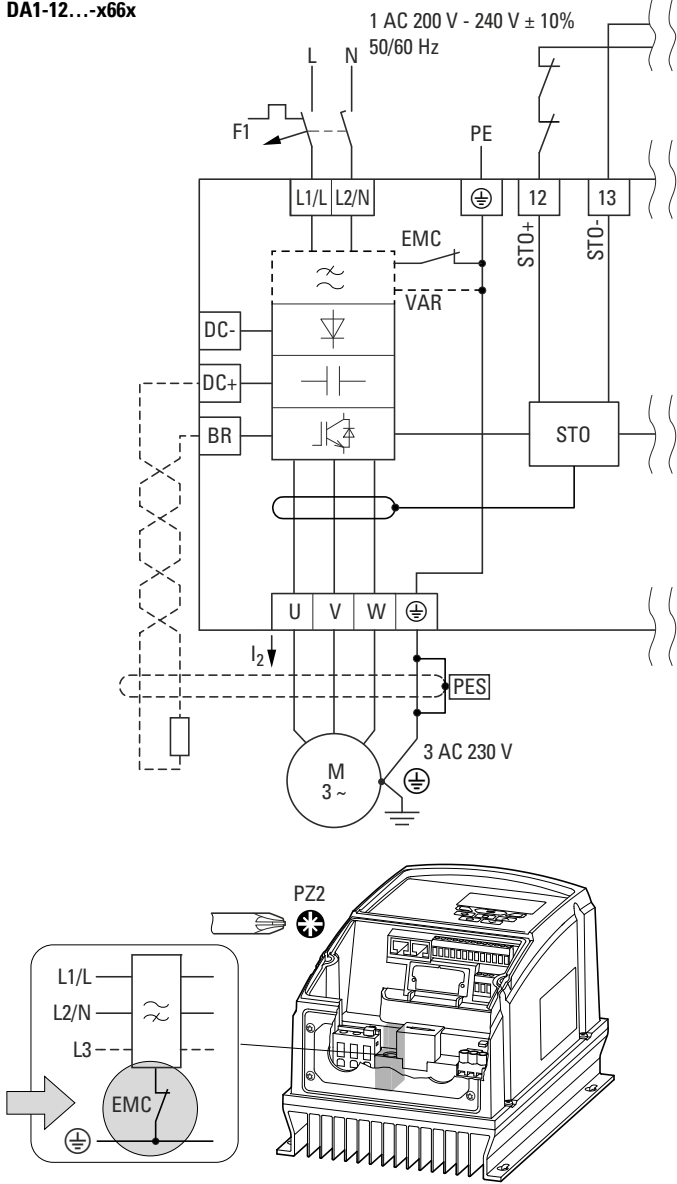
FS2, FS3, FS4  
A1 = 10 mm (0.39")

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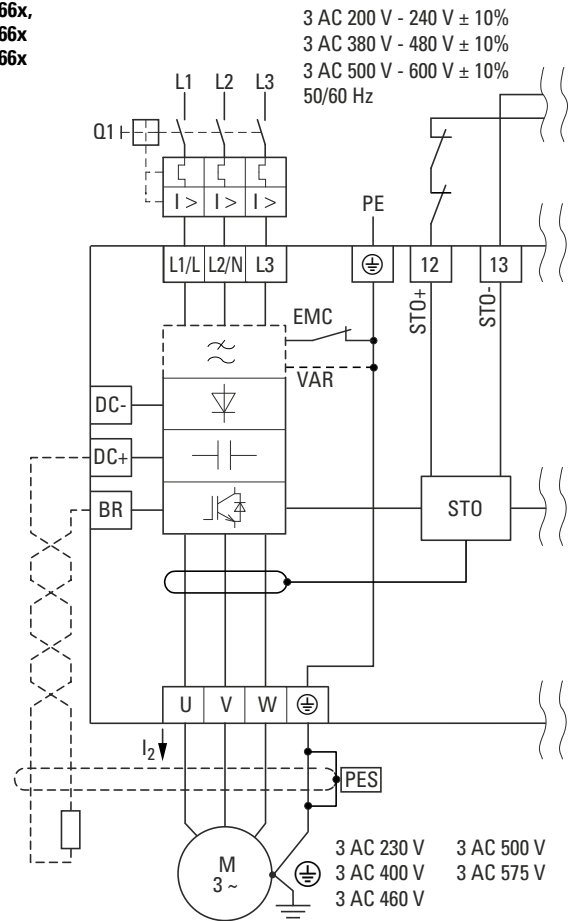


		DA1-...-B660	DA1-...-B6S60
Mains	FS2, FS3	1 Nm (8.85 lb-in)	0.8 Nm (7.08 lb-in)
	FS4	2.2 Nm (19.47 lb-in)	2 Nm (17.7 lb-in)
Motor, Brake Resistor	FS2, FS3	1 Nm (8.85 lb-in)	1 Nm (8.85 lb-in)
	FS4	2.2 Nm (19.47 lb-in)	2.2 Nm (19.47 lb-in)

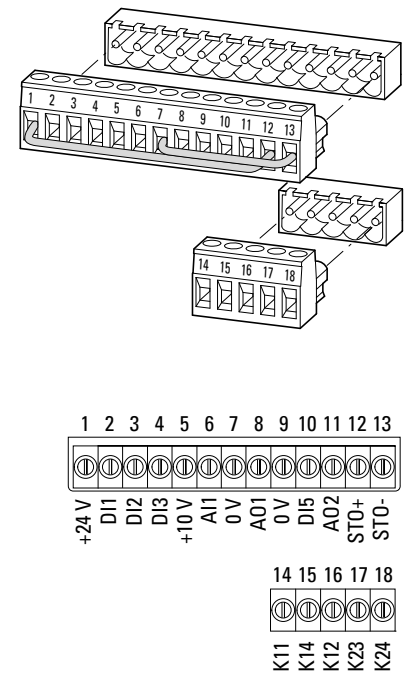
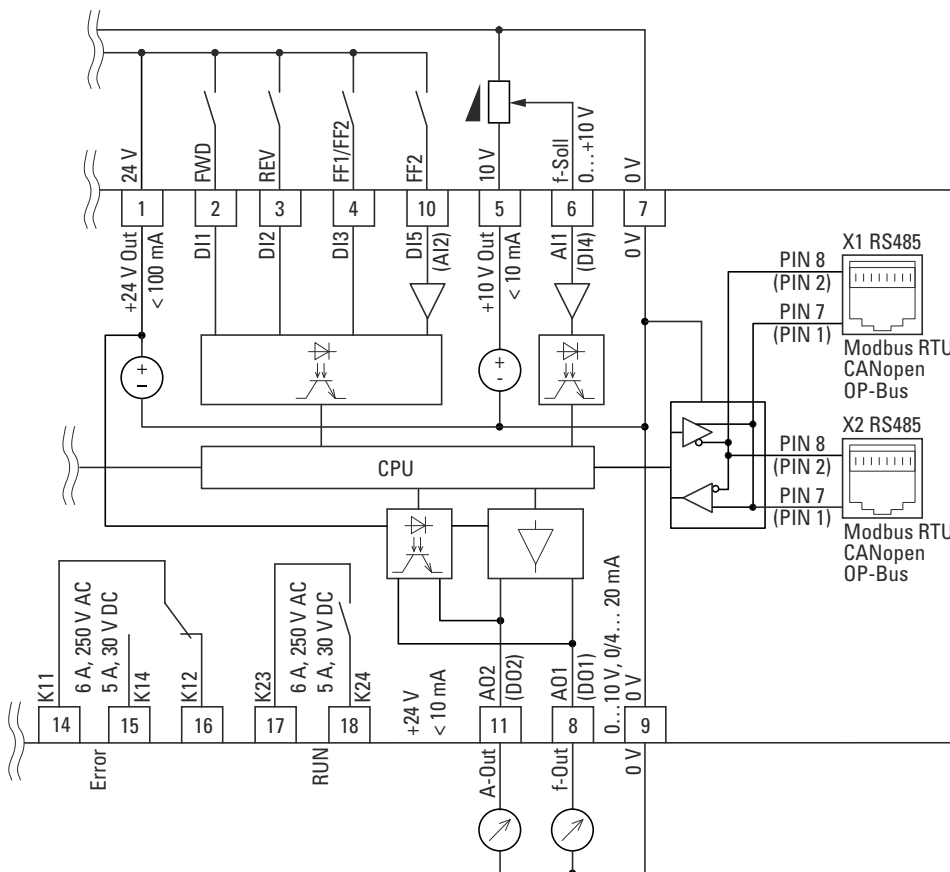
DA1-12...-x66x



DA1-32...-x66x,  
DA1-34...-x66x  
DA1-35...-x66x

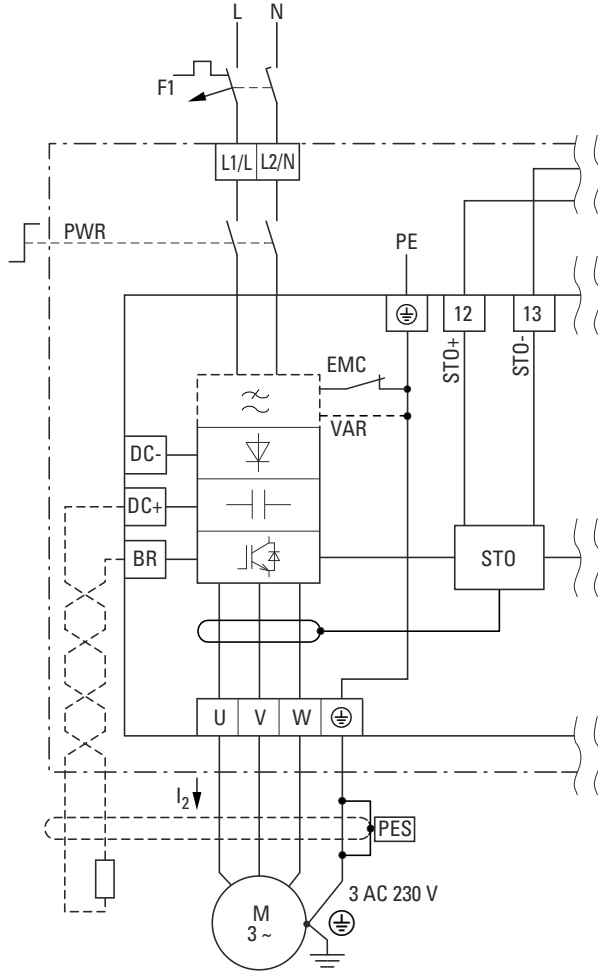


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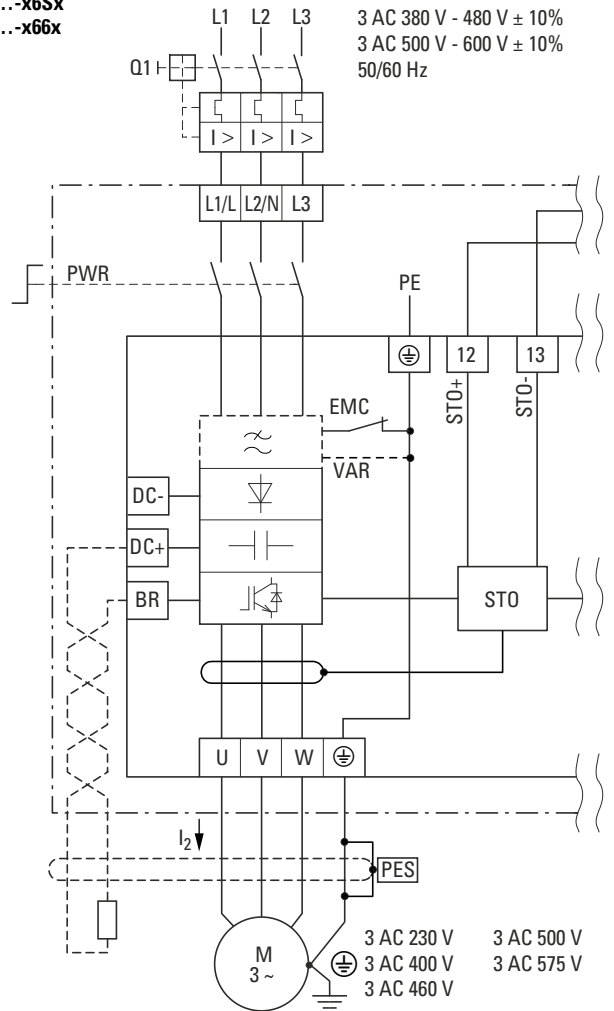
**DA1-12...-x6Sx**

1 AC 200 V - 240 V ± 10%  
50/60 Hz

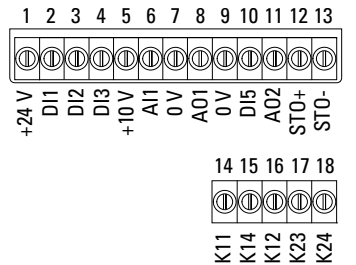
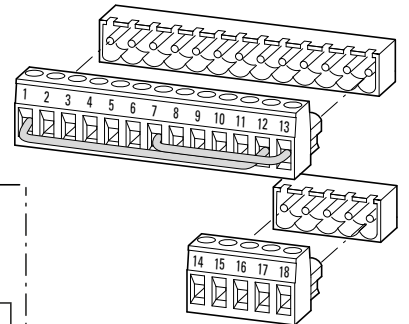
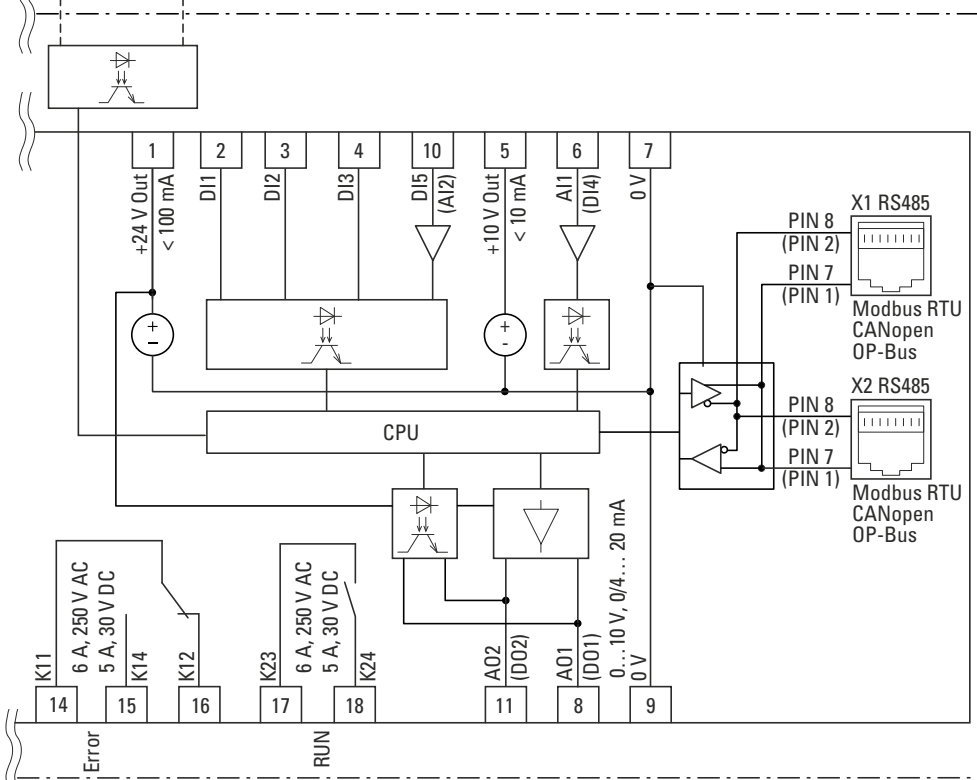
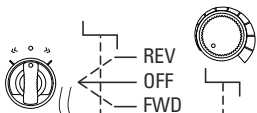


**DA1-32...-x6Sx**  
**DA1-34...-x6Sx**  
**DA1-35...-x66x**

3 AC 200 V - 240 V ± 10%  
3 AC 380 V - 480 V ± 10%  
3 AC 500 V - 600 V ± 10%  
50/60 Hz

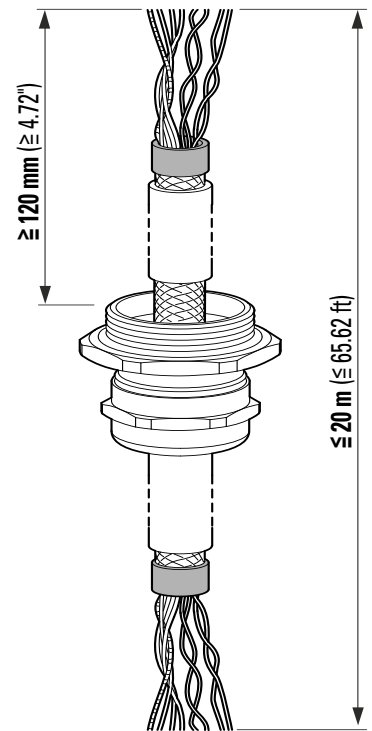
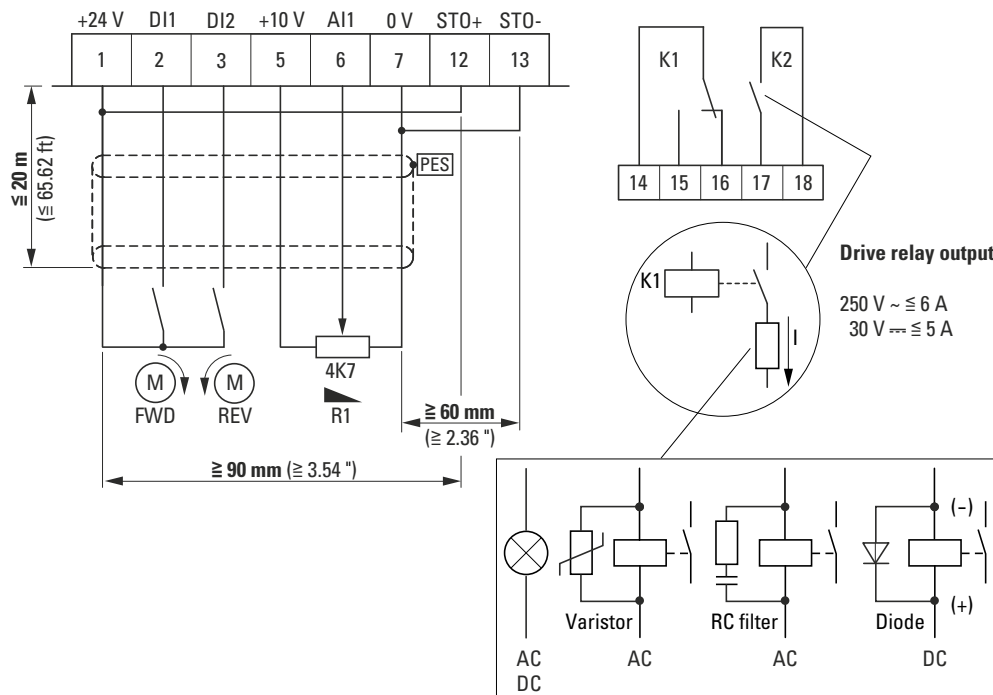


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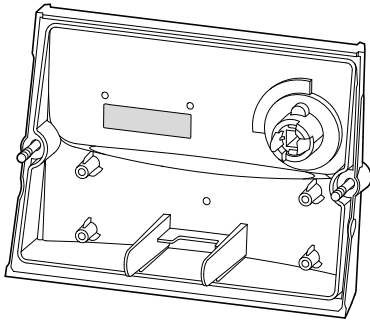
	Frame Size	I <sub>LN</sub> A	F1/Q1 MCB (type B) A	Mains		I <sub>e</sub> A	Motor		P		R <sub>B</sub> brake resistor		
				mm <sup>2</sup>	AWG		mm <sup>2</sup>	AWG	kW	HP	Ω	mm <sup>2</sup>	AWG
DA1-124D3...	2	4.3	16 (15)	2 x 8	2 x 8	8.6	3 x 8	3 x 8	0.75	1	100	8	8
DA1-127D0...	2	7	16 (17.5)	2 x 8	2 x 8	12.9	3 x 8	3 x 8	1.5	2	50	8	8
DA1-12011...	2	10.5	25 (25)	2 x 8	2 x 8	19.2	3 x 8	3 x 8	2.2	3	35	8	8
DA1-324D3...	2	4.3	10 (10)	3 x 8	3 x 8	5.7	3 x 8	3 x 8	0.75	1	100	8	8
DA1-327D0...	2	7	16 (15)	3 x 8	3 x 8	10.5	3 x 8	3 x 8	1.5	2	50	8	8
DA1-32011...	2	10.5	16 (17.5)	3 x 8	3 x 8	13.2	3 x 8	3 x 8	2.2	3	35	8	8
DA1-32018...	3	18	32 (30)	3 x 8	3 x 8	20.9	3 x 8	3 x 8	4	5	20	8	8
DA1-32024...	3	24	32 (35)	3 x 8	3 x 8	26.4	3 x 8	3 x 8	5.5	7.5	20	8	8
DA1-32030...	4	30	40 (40)	3 x 16	3 x 5	33.3	3 x 16	3 x 5	7.5	10	22	16	5
DA1-32046...	4	46	63 (70)	3 x 16	3 x 5	50.1	3 x 16	3 x 5	11	15	22	16	5
DA1-342D2...	2	2.2	6 (6)	3 x 8	3 x 8	3.5	3 x 8	3 x 8	0.75	1	400	8	8
DA1-344D1...	2	4.1	10 (10)	3 x 8	3 x 8	5.6	3 x 8	3 x 8	1.5	2	200	8	8
DA1-345D8...	2	5.8	10 (10)	3 x 8	3 x 8	7.5	3 x 8	3 x 8	2.2	3	150	8	8
DA1-349D5...	2	9.5	16 (15)	3 x 8	3 x 8	11.5	3 x 8	3 x 8	4	5	100	8	8
DA1-34014...	3	14	25 (25)	3 x 8	3 x 8	17.2	3 x 8	3 x 8	5.5	7.5	75	8	8
DA1-34018...	3	18	32 (30)	3 x 8	3 x 8	21.8	3 x 8	3 x 8	7.5	10	50	8	8
DA1-34024...	3	24	40 (35)	3 x 8	3 x 8	27.5	3 x 8	3 x 8	11	15	40	8	8
DA1-34030...	4	30	50 (45)	3 x 16	3 x 5	34.2	3 x 16	3 x 5	15	20	22	16	5
DA1-34039...	4	39	63 (60)	3 x 16	3 x 5	44.1	3 x 16	3 x 5	18.5	25	22	16	5
DA1-34046...	4	46	63 (70)	3 x 16	3 x 5	51.9	3 x 16	3 x 5	22	30	22	16	5
DA1-352D1...	2	2.1	10 (6)	3 x 8	3 x 8	2.5	3 x 8	3 x 8	0.75	1	600	8	8
DA1-353D1...	2	3.1	10 (6)	3 x 8	3 x 8	3.7	3 x 8	3 x 8	1.5	2	300	8	8
DA1-354D1...	2	4.1	10 (10)	3 x 8	3 x 8	4.9	3 x 8	3 x 8	2.2	3	200	8	8
DA1-356D5...	2	6.5	10 (10)	3 x 8	3 x 8	7.8	3 x 8	3 x 8	4	5	150	8	8
DA1-359D0...	2	9	16 (15)	3 x 8	3 x 8	10.8	3 x 8	3 x 8	5.5	7.5	100	8	8
DA1-35012...	3	12	16 (20)	3 x 8	3 x 8	14.4	3 x 8	3 x 8	7.5	10	80	8	8
DA1-35017...	3	17	25 (30)	3 x 8	3 x 8	20.6	3 x 8	3 x 8	11	15	50	8	8
DA1-35022...	3	22	32 (35)	3 x 8	3 x 8	26.7	3 x 8	3 x 8	15	20	33	8	8
DA1-35028...	4	28	40 (45)	3 x 16	3 x 5	34	3 x 16	3 x 5	18.5	25	33	16	5
DA1-35034...	4	34	50 (60)	3 x 16	3 x 5	41.2	3 x 16	3 x 5	22	30	22	16	5
DA1-35043...	4	43	63 (70)	3 x 16	3 x 5	49.5	3 x 16	3 x 5	30	40	22	16	5

mm <sup>2</sup>	mm <sup>2</sup>	AWG	mm	in	M2.5	lb-in	mm
0.2 - 2.5	0.2 - 1.5	24 - 12	5	0.2	0.5	4.43	0.4 x 2.5

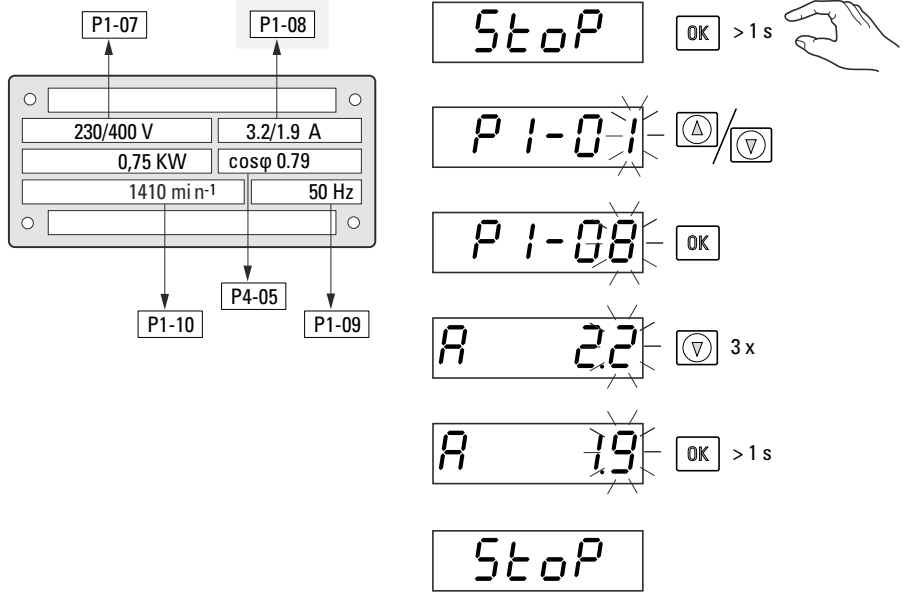


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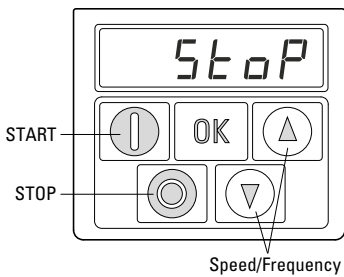




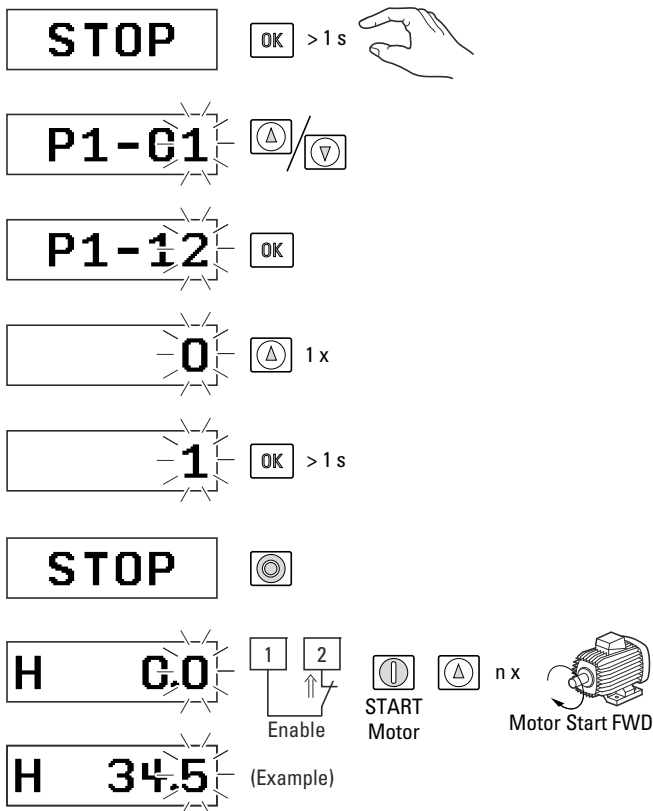
Further information available from [Eaton.com/documentation](http://Eaton.com/documentation)



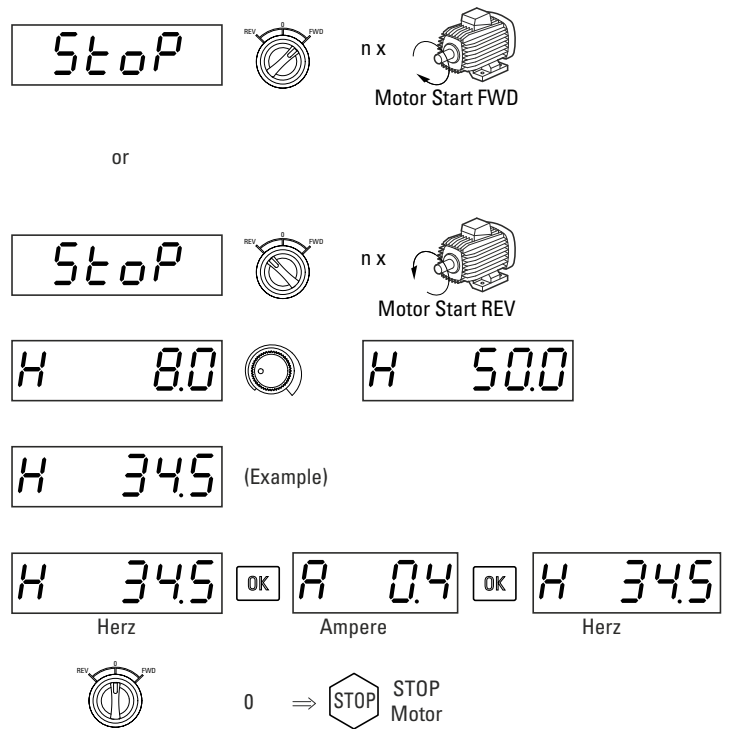
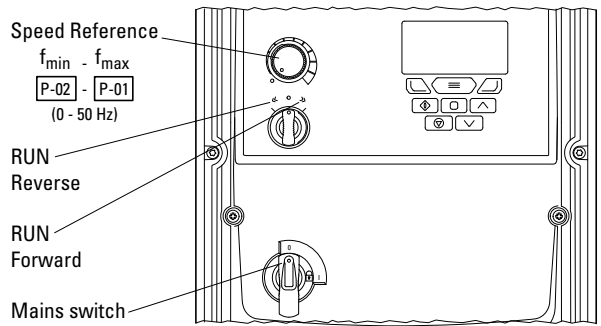
DA1-...-B6x0



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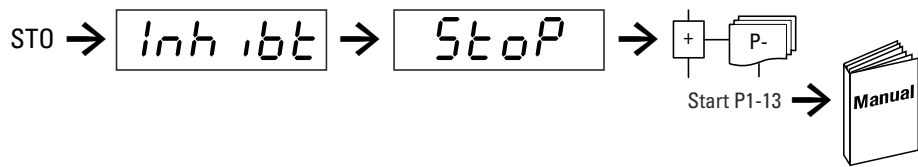
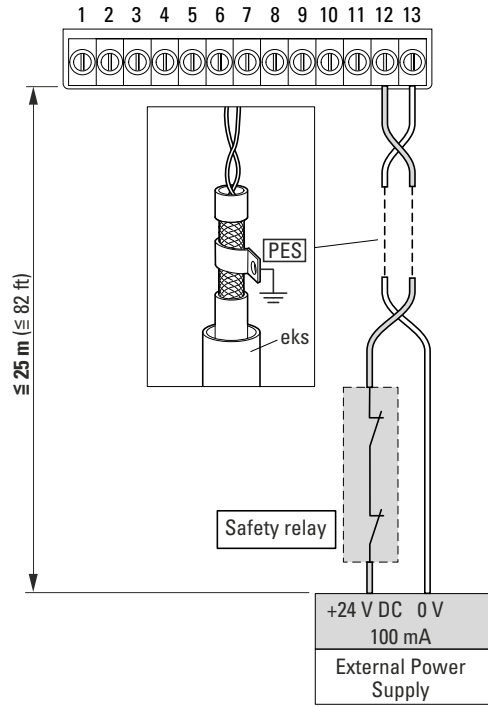
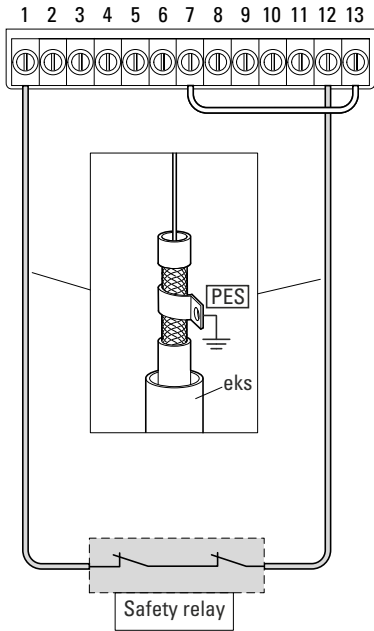
DA1-...-B6Sx



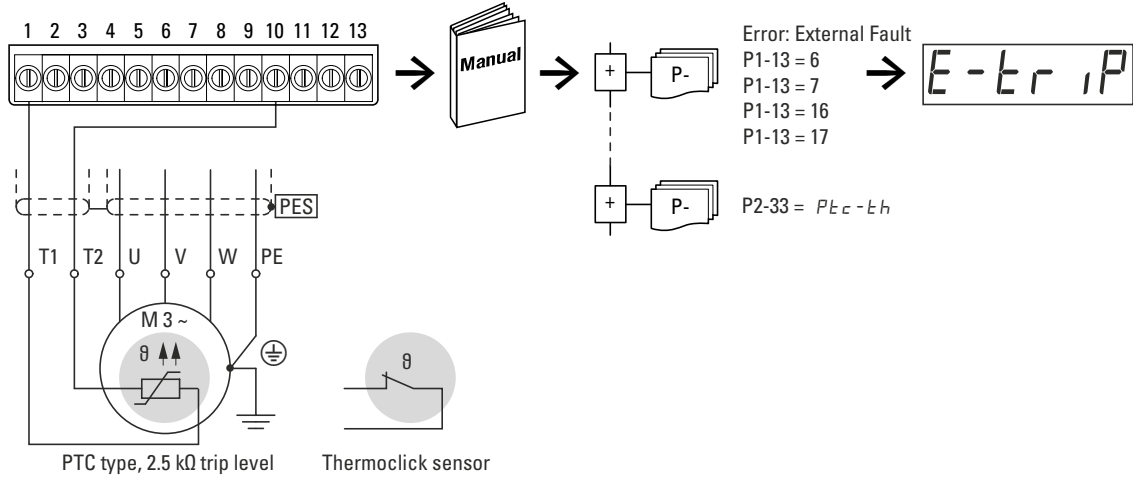
## STO (Safe Torque Off)

- (en) Shielded cable [PES] routed in an inherently short-circuit-proof and ground-fault-proof manner
- (de) Abgeschirmtes Kabel [PES] erd- und kurzschlussicher verlegen (eks)
- (fr) Câble blindé [PES] à poser avec protection contre courts-circuits/défauts à la terre
- (es) Tender el cable [PES] apantallado con seguridad de puesta a tierra y cortocircuito.
- (it) Posare il cavo [PES] schermato collegato a terra e protetto contro il cortocircuito
- (zh) 铺设接地防短路屏蔽电缆 [PES]
- (ru) Экранированный кабель [PES] прокладывается с защитой от замыкания на землю и коротких замыканий.
- (nl) Afgeschermde kabel [PES] geaard en kortsluitveilig installeren
- (da) Læg det afskærmede kabel [PES] jord- og kortslutningssikkert.
- (el) Τοποθετήστε το θωρακισμένο [PES] ο καλώδιο κατά τρόπον ώστε να είναι ασφαλές από βραχυκύκλωμα γείωσης και βραχυκύκλωμα.
- (pt) Dispor o cabo [PES] blindado com ligação à terra e protegido contra curto-circuito
- (sv) Dra den skärmede kabeln [PES] jordfels- och kortslutningssäkert.
- (fi) Sijoita suojaattu kaapeli [PES] maa- ja oikosulkusuojatusti (mos).
- (cs) Stíněný kabel [PES] položte tak, aby byl bezpečný proti uzemnění a zkratu (buz).
- (et) Paigaldage varjestatud kaabel [PES] maandus- ja lühiskaitstult (mlk).
- (hu) Árnyékolt kábelt [PES] földelvé és rövidzármntesen kell lefektetni.

- (lv) Izvilkt ekranētu kabeļi [PES], kas ir aizsargāts pret zemslēgumiem un īsslēgumiem.
- (lt) Ekranuotą kabeļį [PES] nutieskite apsaugotą nuo žemėjimo ir trumpojo jungimo.
- (pl) Kabel ekranowany [PES] ułożyć z zabezpieczeniem przed zwarciem i zwarciem doziemnym.
- (sl) Izoliran kabel [PES] speljite zavarovano pred zemljskim in kratkim stikom.
- (sk) Uložte tieněný kábel [PES], odolný voči skratu a náhodnému uzemneniu.
- (bg) Положете екраниран кабел [PES] и го заземете срещу късо съединение.
- (ro) Pozați cablul [PES] ecranat astfel încât să fie asigurată protecția la scurtcircuit și scurgeri la pământ.
- (hr) Zakrijljeni kabel [PES] postavite tako da bude zaštićen od uzemljenja i kratkog spoja.
- (tr) Korumalı kablo [PES], dođal olarak kısa devre ve topraklama arızası korumalı olarak yönlendirilir
- (sr) Oklopljeni kabl [PES] vođen na način otporan na kratke spojeve i kvarove uzemljenja
- (no) Panserkabel [PES] lagt på en måte som i seg selv er sikret mot kortslutning og jordfeil
- (uk) Екранований кабель [PES], прокладений з дотриманням правил захисту від коротких замикань і замикань на землю.
- (ar) في الأساس بطريقة تحمي من القصر [PES] تم توجه الكابل المحمي ومن الخطأ الأرضي



(en) Thermistor	(it) Termistore	(da) Thermistor	(fi) Termistori	(lv) Termistors	(sk) Termistor	(tr) Termistör
(de) Thermistor	(zh) 热敏电阻	(el) Θερμίστορ	(cs) Termistor	(lt) Termistorius	(bg) Термистор	(sr) Термистор
(fr) Thermistance	(ru) Термистор	(pt) Thermistance	(et) Termistor	(pl) Termistor	(ro) Termistor	(no) Termistor
(es) Termistor	(nl) Thermistor	(sv) Termistor	(hu) Termisztor	(sl) Termistor	(hr) Termistor	(uk) Термістор
						(ar) المقاوم الحراري



06/24 IL040061ZU



Doc. No.: CE2400026

# EU-Konformitätserklärung

EU declaration of conformity

Wir / We, Eaton Industries GmbH, 53105 Bonn, Germany,  
Hein-Moeller-Str. 7-11, 53115 Bonn, Germany

**erklären hiermit in alleiniger Verantwortung als Hersteller, dass das Produkt (die Produktfamilie)**  
declare under our sole responsibility as manufacturer that the product (family)

## Frequenzumrichter DA1 Frequency Converter DA1

**entsprechend der Auflistung auf Seite 2 den einschlägigen Bestimmungen der Richtlinie(n) des Rates entspricht:**

according to the list on page 2 complies with the provisions of Council directive(s):

2014/30/EU	<b>EMV-Richtlinie / EMC Directive</b>
2011/65/EU + 2015/863	<b>RoHS-Richtlinie / RoHS Directive</b>
2006/42/EG	<b>Maschinenrichtlinie / Machinery Directive</b>
2009/125/EG	<b>Ökodesignrichtlinie / Ecodesign Directive (Verordnung / Regulation 2019/1781)</b>

**und mit den folgenden Normen übereinstimmt:**  
based on compliance with the following standard(s):

EN 61800-5-2:2017	EN 61508-1:2010
EN 61800-5-2:2007	EN 61508-2:2010
EN IEC 62061:2021 <sup>1)</sup>	EN 61508-4:2010
EN IEC 63000:2018	EN 61508-5:2010
EN ISO 13849-1:2015 <sup>2)</sup>	EN 61508-6:2010
EN ISO 13849-1:2023 <sup>3)</sup>	EN 61508-7:2010
	EN 61800-5-1:2007 + A1:2017 + A11:2021 <sup>4)</sup>

- 1) intended Application  
2) intended Application  
3) intended Application  
4) 4.3, 5.2.6

Bonn, 12.04.2024



i.A. Edgar Willems  
Manager Quality Business Line ICP  
Power Management & Control Components Division

i.A. Lars Gundlach  
Head of Product Line Management  
Controls & Automation

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Doc. No.: CE2400026

# Typen des Sortimentes

Types within the range

**Die Konformitätserklärung gilt für folgende Typen der Produktfamilie und in Kombination mit den darunter folgenden Produkten:**

The declaration of conformity applies to the following types within the product family and in combination with products listed below:

DA1...B..O

**Die Übereinstimmung eines Baumusters des bezeichneten Produktes mit der Richtlinie**

Consistency of a production sample with the marked product in accordance with the Directive

**Maschinenrichtlinie 2006/42/EG / Machinery Directive 2006/42/EC**

**wurde bescheinigt durch**  
has been certified by

**Notifizierte Stelle / Anschrift:** NB 0035-TÜV Rheinland, Am Grauen Stein, 51105 Köln/Germany  
Notified Agency / Address:

**Nummer der Bescheinigung:** 01/205/5962.00/24  
Certification Number:

**Ausstellungsdatum:** 2024-02-26  
Date of issue:

**Das bezeichnete Produkt stimmt mit dem geprüften Baumuster überein.**

The designated product is consistent with the examined type

**Bevollmächtigter zur Zusammenstellung der technischen Unterlagen / Authorised Person to compile the technical file:**  
Eaton Industries GmbH, Hein-Moeller-Str. 7-11, 53115 Bonn, Germany

Bonn, 12.04.2024



i.A. Edgar Willems  
Manager Quality Business Line ICP  
Power Management & Control Components Division

i.A. Lars Gundlach  
Head of Product Line Management  
Controls & Automation

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Doc. No.: UK2400020

# Declaration of conformity

We, Eaton Industries GmbH, 53105 Bonn, Germany,  
Hein-Moeller-Str. 7-11, 53115 Bonn, Germany

declare under our sole responsibility as manufacturer that the product (family)

## Frequency Converter DA1

according to the list on page 2 and provided that it is installed, maintained and used in the application intended for, with respect to the relevant manufacturer's instructions, installation standards and "good engineering practices", complies with the statutory requirements:

2016 No. 1091 *The Electromagnetic Compatibility Regulations 2016*  
2012 No. 3032 *RoHS in Electrical and Electronic Equipment Regulations 2012*  
2008 No. 1597 *The Supply of Machinery (Safety) Regulations 2008*

based on compliance with the following standard(s):

EN 61800-5-2:2017	EN 61508-7:2010
EN 61800-5-2:2007	EN 61800-5-1:2007 + A1:2017 + A11:2021 4)
EN IEC 62061:2021 1)	
EN IEC 63000:2018	
EN ISO 13849-1:2015 2)	
EN ISO 13849-1:2023 3)	
EN 61508-1:2010	
EN 61508-2:2010	
EN 61508-4:2010	
EN 61508-5:2010	
EN 61508-6:2010	

1) intended Application  
2) intended Application  
3) intended Application  
4) 4.3, 5.2.6

Bonn, 15.05.2024

i.A. Edgar Willems  
Manager Quality Business Line ICP  
Power Management & Control Components Division

i.A. Lars Gundlach  
Head of Product Line Management  
Controls & Automation

Doc. No.: UK2400020

# Types within the range

The declaration of conformity applies to the following types within the product family and in combination with products listed below:  
DA1...B..O

Consistency of a production sample with the marked product in accordance with the Directive  
**The Supply of Machinery (Safety) Regulations 2008 2008 No. 1597**  
has been certified by

**Notified Agency / Address:** TUV Rheinland UK Ltd., Friars Gate (Third Floor), 1011 Stratford Road,  
Shirley, Solihull B90 4, BN / United Kingdom

**Certification Number:** 01/205U/5962.00/24

**Date of issue:** 2024-04-02

The designated product is consistent with the examined type.

**Authorised Person to compile the technical file:**

Eaton Industries GmbH, Hein-Moeller-Str. 7-11, 53115 Bonn, Germany

Bonn, 15.05.2024

i.A. Edgar Willems  
Manager Quality Business Line ICP  
Power Management & Control Components Division

i.A. Lars Gundlach  
Head of Product Line Management  
Controls & Automation

# Additional Information for UL<sup>®</sup> Approved Installations

→ Refer to Manual MN040063EN

DA1 is designed to meet the UL requirements. In order to ensure full compliance, the following must be fully observed.

## Input Power Supply Requirements

<b>Supply Voltage</b>	DA1-12...	200 - 240 RMS Volts for 230 Volt rated units, ±10 % variation allowed. 240 Volt RMS Maximum		
	DA1-32...	200 - 240 RMS Volts for 230 Volt rated units, ±10 % variation allowed. 240 Volt RMS Maximum		
	DA1-34...	380 - 480 Volts for 400 Volt rated units, ±10 % variation allowed, Maximum 500 Volts RMS		
	DA1-35...	500 - 600 Volts for 600 Volt rated units, ±10 % variation allowed, Maximum 600 Volts RMS		
<b>Imbalance</b>	Maximum 3 % voltage variation between phase – phase voltages allowed All DA1 units have phase imbalance monitoring. A phase imbalance of > 3 % will result in the drive tripping. For input supplies which have supply imbalance greater than 3 % Eaton Drives recommends the installation of input line reactors.			
<b>Frequency</b>	50 - 60 Hz ±5 % Variation			
<b>Short Circuit Capacity</b>	<b>Voltage Rating</b>	<b>Min. kW (HP)</b>	<b>Max. kW (HP)</b>	<b>Maximum supply short-circuit current</b>
	All	All	All	100 kA rms (AC)

All the drives in the above table are suitable for use on a circuit capable of delivering not more than the above specified maximum short-circuit Amperes symmetrical with the specified maximum supply voltage.

## Incoming power supply connection

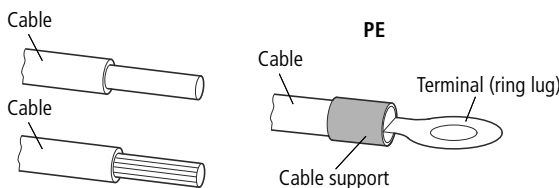
- For 3 phase supplies, power should be connected to L1, L2, and L3. Phase sequence is not important.
- For compliance with CE and C Tick EMC requirements, a symmetrical shielded cable is recommended.
- For compliance with CSA requirements, transient surge suppression shall be installed on the line side of this equipment and shall be rated 600 V (phase to ground), 600 V (phase to phase), suitable for overvoltage category III, and shall provide protection for a rated impulse withstand voltage peak of 4 kV or equivalent.
- A fixed installation is required according to IEC61800-5-1 with a suitable disconnecting device installed between the DA1 and the AC Power Source. The disconnecting device must conform to the local safety code/regulations (e. g. within Europe, EN60204-1, Safety of machinery).
- The cables should be dimensioned according to any local codes or regulations. Guideline dimensions are given on page 8/14.
- Suitable fuses to provide wiring protection of the input power cable should be installed in the incoming supply line, according to the data on page 8/14. The fuses must comply with any local codes or regulations in place. In general, type gG (IEC 60269) or UL type T fuses are suitable; however in some cases type aR fuses may be required. The operating time of the fuses must be below 0.5 seconds.
- Where allowed by local regulations, suitably dimensioned type B MCB circuit breakers of equivalent rating may be utilised in place of fuses, providing that the clearing capacity is sufficient for the installation.
- When the power supply is removed from the drive, a minimum of 30 seconds should be allowed before re-applying the power. A minimum of 5 minutes should be allowed before removing the terminal covers or connection.
- The maximum permissible short circuit current at the DA1 Power terminals as defined in IEC60439-1 is 100 kA.
- An optional Input Choke is recommended to be installed in the supply line for drives where any of the following conditions occur:
  - The incoming supply impedance is low or the fault level/short circuit current is high
  - The supply is prone to dips or brown outs
  - An imbalance exists on the supply (3 phase drives)
  - The power supply to the drive is via a busbar and brush gear system (typically overhead Cranes).
- In all other installations, an input choke is recommended to ensure protection of the drive against power supply faults.

## All DA1 units are intended for indoor installation within controlled environments which meet the condition limits.

<b>Ambient temperature range</b>	<b>Operational</b>	-10 °C to 50 °C
	<b>Storage and Transportation</b>	-40 °C to 60 °C
<b>Max. altitude for rated operation</b>	1000 m (Refer to Manual for Derating for Altitude Information). Installation above 2000 m is not UL approved.	
<b>Relative Humidity</b>	< 95 % (non condensing). Drive must be Frost and moisture free at all times.	

Branch circuit protection must be installed according to the relevant national codes. Fuse ratings and types are shown on page 8/14.

Suitable Power and motor cables should be selected according to the data.  
Power cable connections and tightening torques are shown on page 8/14.



## Motor Overload Protection

DA1 provides motor overload protection in accordance with the National Electrical Code (US).

- Where a motor thermistor is not fitted, or not utilised, Thermal Overload Memory Retention must be enabled by setting P4-12 = 1  
Set the parameters P1-08 „Current Limit“ on motor current.
- Where a motor thermistor is fitted and connected to the drive, connection must be carried out according to the information shown on page 10/14.

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- The maximum motor cable length stated applies to using a shielded motor cable. When using an unshielded cable, the maximum cable length limit may be increased by 50 %. When using the Eaton Drives recommended output choke, the maximum cable length may be increased by 100 %
  - The PWM output switching from any inverter when used with a long motor cable length can cause an increase in the voltage at the motor terminals, depending on the motor cable length and inductance. The rise time and peak voltage can affect the service life of the motor. Eaton Drives recommend using an output choke for motor cable lengths of 50 m or more to ensure good motor service life
  - For UL compliant installation, use Copper wire with a minimum insulation temperature rating of 70 °C, UL Class CC or Class J Fuses

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