



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

**(de) Lebensgefahr durch elektrischen Strom!**

Nur Elektrofachkräfte und elektrotechnisch unterwiesene Personen dürfen die im Folgenden beschriebenen Arbeiten ausführen.

**(fr) Tension électrique dangereuse !**

Seules les personnes qualifiées et averties doivent exécuter les travaux ci-après.

**(es) ¡Corriente eléctrica! ¡Peligro de muerte!**

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

**(it) Tensione elettrica: Pericolo di morte!**

Solo persone abilitate e qualificate possono eseguire le operazioni di seguito riportate.

**(zh) 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。

**(ru) Электрический ток! Опасно для жизни!**

Только специалисты или проинструктированные лица могут выполнять следующие операции.

**(nl) Levensgevaar door elektrische stroom!**

Uitsluitend deskundigen in elektriciteit en elektrotechnisch geïnstrueerde personen is het toegestaan, de navolgend beschreven werkzaamheden uit te voeren.

**(da) Livsfare på grund af elektrisk strøm!**

Kun uddannede el-installatører og personer der er instruerede i elektrotekniske arbejdsopgaver, må udføre de nedenfor anførte arbejder.

**(el) Προσοχή, κίνδυνος ηλεκτροπληξίας!**

Οι εργασίες που αναφέρονται στη συνέχεια θα πρέπει να εκτελούνται μόνο από ηλεκτρολόγους και ηλεκτροτεχνίτες.

**(pt) Perigo de vida devido a corrente eléctrica!**

Apenas electricistas e pessoas com formação electotécnica podem executar os trabalhos que a seguir se descrevem.

**(sv) Livsfara genom elektrisk ström!**

Endast utbildade elektriker och personer som undervisats i elektroteknik får utföra de arbeten som beskrivs nedan.

**(fi) Hengenvaarallinen jännite!**

Vain pätevät sähköasentajat ja opastusta saaneet henkilöt saavat suorittaa seuraavat työt.

**(cs) Nebezpečí úrazu elektrickým proudem!**

Níže uvedené práce smějí provádět pouze osoby s elektrotechnickým vzděláním.

**(et) Eluohutlik! Elektrilöögioht!**

Järgnevalt kirjeldatud töid tohib teostada ainult elektriala spetsialist või elektrotehnilise instrueerimise läbinud personal.

**(hu) Életveszély az elektromos áram révén!**

Csak elektromos szakemberek és elektrotechnikában képzett személyek végezhetik el a következőkben leírt munkákat.

**(lv) Elektriskā strāva apdraud dzīvību!**

Tālāk aprakstītos darbus drīkst veikt tikai elektrospeciālisti un darbam ar elektrotehnikām iekārtām instruētās personas!

**(lt) Pavojus gyvybei dėl elektros srovės!**

Tik elektrikai ir elektrotechnikos specialistai gali atlikti žemiau aprašytus darbus.

**(pl) Porażenie prądem elektrycznym stanowi zagrożenie dla życia!**

Opisane poniżej prace mogą przeprowadzać tylko wykwalifikowani elektrycy oraz osoby odpowiednio poinstruowane w zakresie elektrotechniki.

**(sl) Življenjska nevarnost zaradi električnega toka!**

Spodaj opisana dela smejo izvajati samo elektrostrokovnjaki in elektrotehnično poučene osebe.

**(sk) Nebezpečenstvo ohrozenia života elektrickým prúdom!**

Práce, ktoré sú nižšie opísané, smú vykonávať iba elektroodborníci a osoby s elektrotechnickým vzdelaním.

**(bg) Опасност за живота от електрически ток!**

Операциите, описани в следващите раздели, могат да се извършват само от специалисти-електротехници и инструктиран електротехнически персонал.

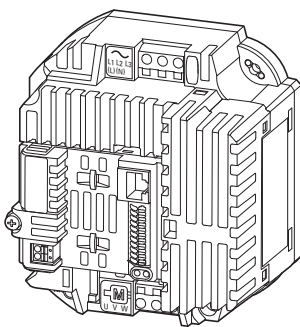
**(ro) Atenție! Pericol electric!**

Toate lucrările descrise trebuie efectuate numai de personal de specialitate calificat și de persoane cu cunoaștere profundă în electrotehnică.

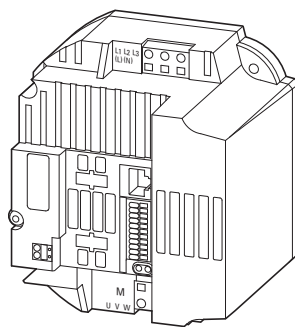
**(hr) Opasnost po život uslijed električne struje!**

Radove opisane u nastavku smiju obavljati samo stručni električari i osobe koje su prošle elektrotehničku obuku.

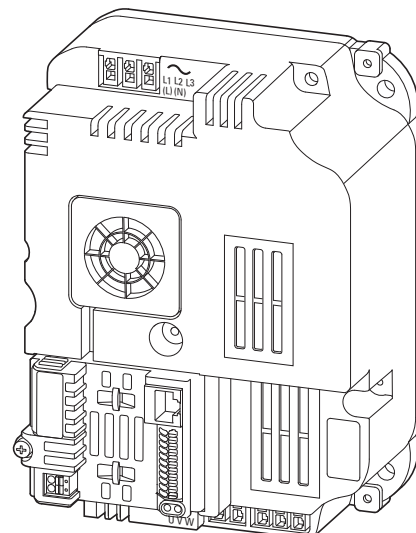
## DB1



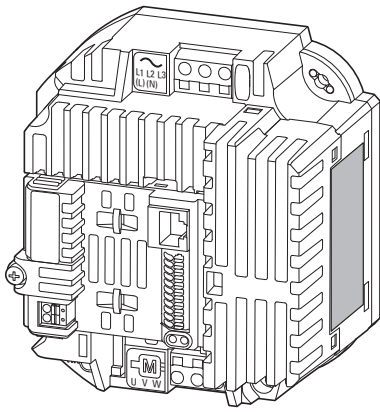
DB1-122D3...  
DB1-124D3...  
DB1-342D2...  
DB1-344D1...



DB1-1D3D2...  
DB1-127D0...



DB1-345D8...  
DB1-349D5...  
DB1-344D1...



DB1-x y zzz F B - N 2 C C

- C = Coated Board
- C = Coldplate
- 2 = IP20/NEMA 0
- N = No Keypad
- B = Brake Chopper
- N = No Brake Chopper
- F = EMC Filter
- $I_e$   
2D3 = 2.3 A
- $U_{LN}$  (Mains), 50/60 Hz
- 2 = 230 V (200 - 240 V  $\pm$ 10 %)
- 4 = 400 V (380 - 480 V  $\pm$ 10 %)
- D = Doubler: 115 V (Mains)  $\rightarrow$  230 V (Motor)
- Mains  $\rightarrow$  Motor
- 1 = 1 AC  $\rightarrow$  3 AC
- 3 = 3 AC  $\rightarrow$  3 AC

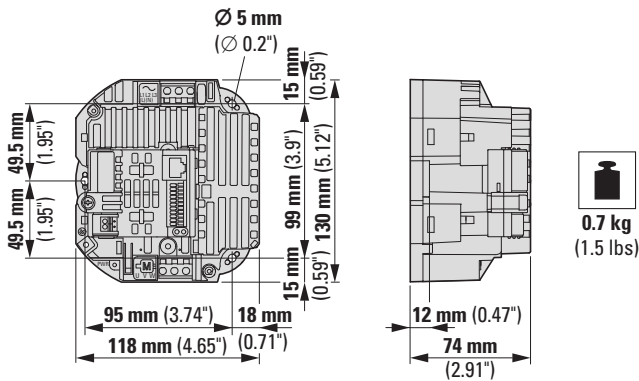
en **Dimensions and weights**  
 de **Abmessungen und Gewichte**  
 fr **Encombremets et poids**  
 es **Dimensiones y pesos**  
 it **Dimensioni e pesi**  
 zh **尺寸和重量**

ru **Размеры и вес**  
 nl **Afmetingen en gewichten**  
 da **Mål og vægt**  
 el **Διαστάσεις και βάρη**  
 pt **Medições e pesos**  
 sv **Dimensioner och vikter**

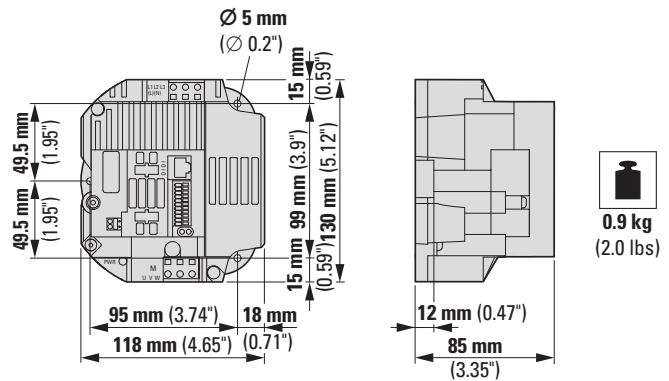
fi **Mitat ja painot**  
 cs **Rozměry a hmotnosti**  
 et **Mõõtmed ja kaalud**  
 hu **Méreték és Súly**  
 lv **Izmēri un svars**  
 lt **Matmenys ir svoriai**

pl **Wymiary i masy**  
 sl **Dimenzije in teže**  
 sk **Rozmery a hmotnosti**  
 bg **Размери и тегло**  
 ro **Dimensiuni și greutateți**  
 hr **Dimenzije i težina**

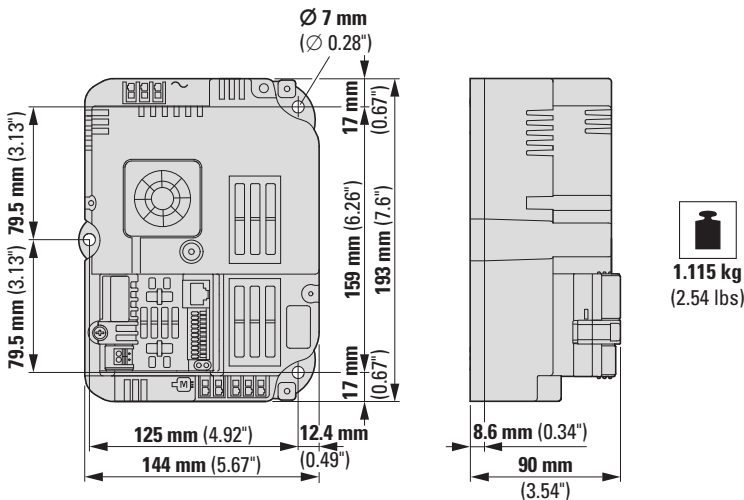
**FS1**



**FS1B**



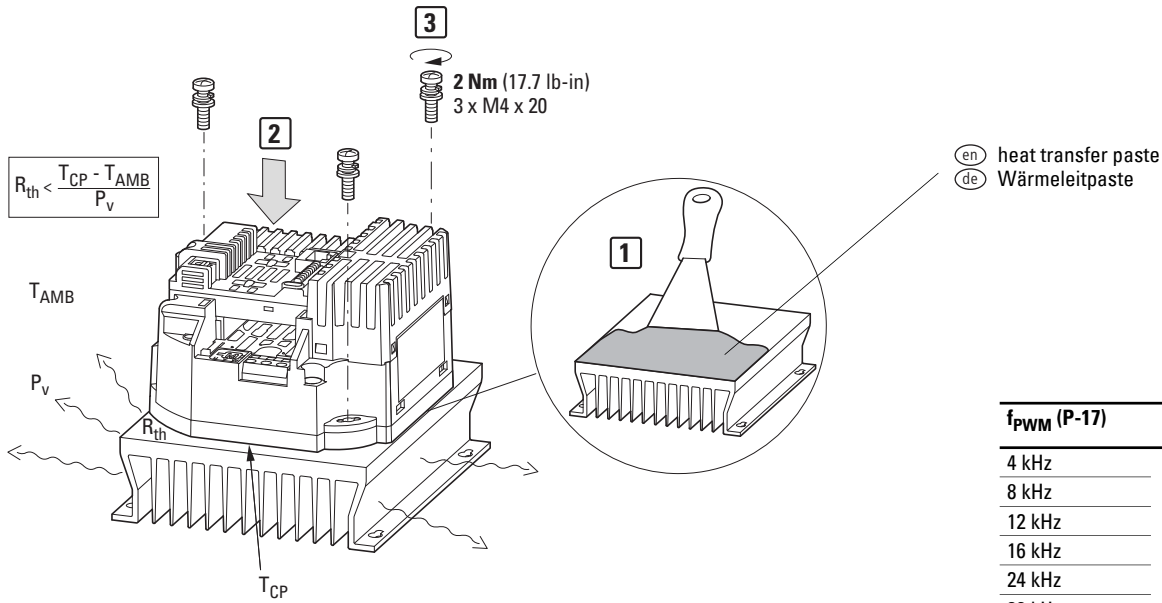
**FS2**



➔ 1 inch = 25.4 mm  
 1 mm = 0.0394 inch  
 1 inch = 1"

02/20 IL040044ZU

- (en) Mounting on metal plate (ru) Монтаж на металлической пластине (fi) Asennus metallilevyllä (pl) Montaż na metalowej płytce  
 (de) Montage auf Metallplatte (nl) Montage op metalen plaat (cs) Montáž na kovovou desku (sl) Montaža na kovinsko ploščo  
 (fr) Montage sur platine métallique (da) Montering på metalplade (et) Montáž na kovovú dosku (sk) Montáž na kovovú dosku  
 (es) Montaje sobre una placa de metal (el) Εγκατάσταση σε μεταλλικό έλασμα (hu) Szerelés fémlemezre (bg) Монтаж върху метална планка  
 (it) Montaggio su piastra metallica (pt) Montagem na placa de metal (lv) Montāža uz metāla plāksnes (ro) Montare pe placă metalică  
 (zh) 安装到金属板上 (sv) Montering på metallplatta (lt) Montavimas ant metalinės plokštės (hr) Montaža na metalnu ploču



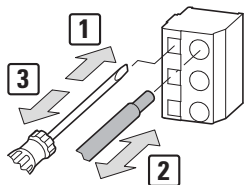
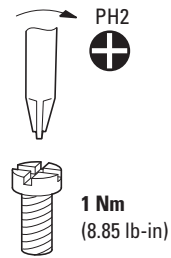
f <sub>PWM</sub> (P-17)	T <sub>cP</sub> max	
4 kHz	95 °C	203 °F
8 kHz	90 °C	194 °F
12 kHz	85 °C	185 °F
16 kHz	80 °C	176 °F
24 kHz	75 °C	167 °F
32 kHz	70 °C	158 °F

02/20 IL040044ZU

- (en) **NOTICE**  
Connect only in voltage-free state!
- (de) **ACHTUNG**  
Nur im spannungsfreien Zustand anschließen!
- (fr) **ATTENTION**  
Raccordez l'appareil uniquement hors tension !
- (es) **CUIDADO**  
¡Conectar únicamente en estado sin tensión!
- (it) **AVVISO**  
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) **OPGELET**  
Alleen in spanningsloze toestand aansluiten!
- (da) **VIGTIGT**  
Må kun tilsluttes i spændingsfri tilstand!
- (el) **ΕΠΙΓΡΥΠΝΗΣΗ**  
Συνδέστε μόνο όταν δεν επικρατεί τάση!
- (pt) **ADVERTÊNCIA**  
Ligar apenas com a tensão desligada!
- (sv) **OBSERVERA**  
Får endast anslutas i spänningsfritt tillstånd!
- (fi) **ILMOITUS**  
Kytke vain jännitteettömässä tilassa!
- (cs) **UPOZORNĚNÍ**  
Připojujte jen při zcela odprojeném napájení!
- (et) **TÄHELEPANU**  
Ühendada ainult pingevabas olekus!
- (hu) **FIGYELEM**  
Csak feszültségmentes állapotban csatlakoztassa!
- (lv) **UZMANĪBU**  
Pieslēgt tikai tad, kad nenotiek sprieguma padeve!
- (lt) **DĖMESIO**  
Prijungti tik tada, kai išjungta įtampa!
- (pl) **UWAGA**  
Podłączać zawsze po uprzednim odłączeniu od zasilania elektrycznego!
- (sl) **POZOR**  
Napravo priključite le, ko ni pod napetostjo!
- (sk) **UPOZORNENIE**  
Napájat' len v stave bez napätia!
- (bg) **ПРЕДУПРЕЖДЕНИЕ**  
Свързвайте само, когато уреда не е под напрежение!
- (ro) **ATENȚIE**  
Conectați doar când aparatul nu se află sub tensiune!
- (hr) **POZOR**  
Priključujte samo u beznaponskom stanju!

# Mains TN, TT ~~(TT)~~

PE



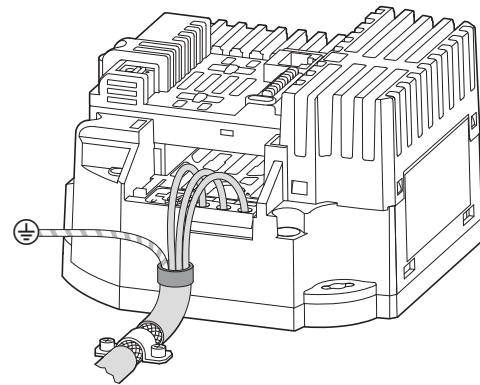
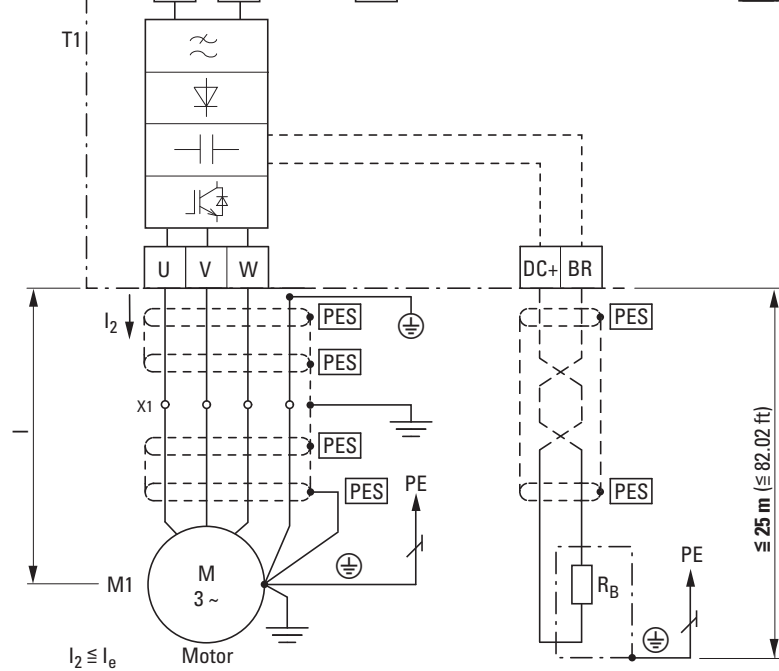
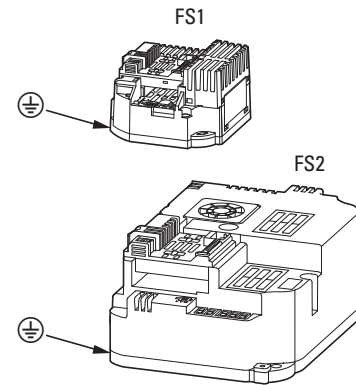
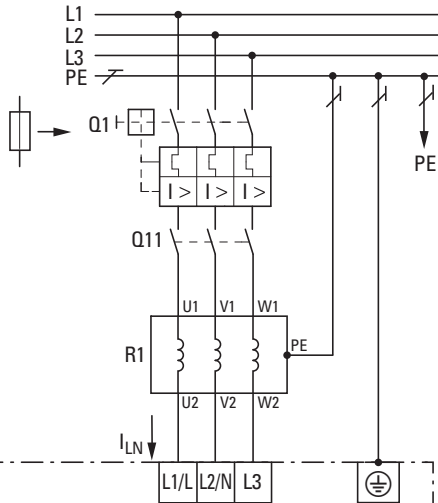
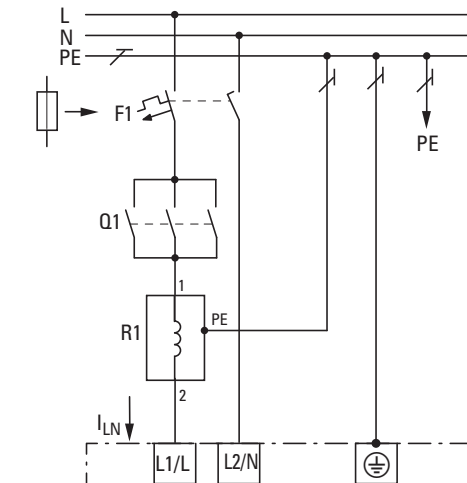
<b>Power</b>	FS1 $\leq 2.5 \text{ mm}^2$	-	$\leq \text{AWG14}$	<b>8 - 9 mm</b> (0.31 - 0.35")
<b>Power</b>	FS2 $\leq 6 \text{ mm}^2$	-	$\leq \text{AWG10}$	<b>10 - 12 mm</b> (0.39 - 0.47")

## Mains

1 ~ 200 V - 240 V  $\pm 10\%$ , 50/60 Hz  
1 ~ 110 V - 115 V  $\pm 10\%$ , 50/60 Hz

## Mains

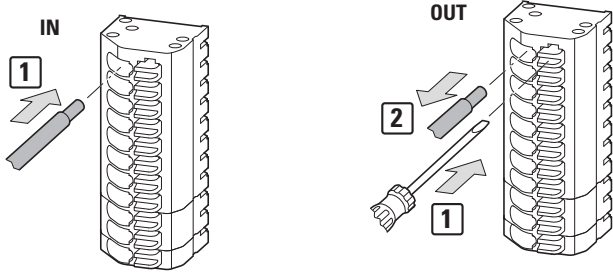
3 ~ 380 V - 480 V  $\pm 10\%$ , 50/60 Hz



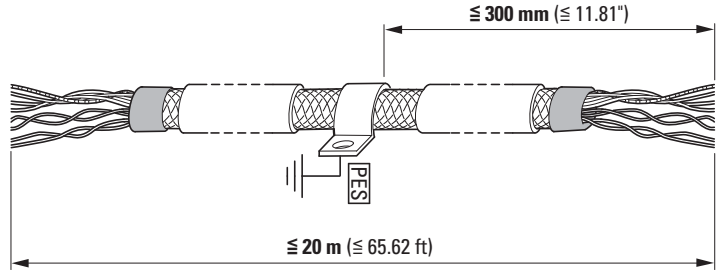
02/20 IL040044ZU

	Frame Size	$I_{LN}$	F1/Q1	Mains		$I_2$	Motor		P		$R_{B \text{ min}}$		
		A	MCB (type B) A	mm <sup>2</sup>	AWG	A	mm <sup>2</sup>	AWG	kW	HP	$\Omega$	mm <sup>2</sup>	AWG
DB1-1D3D2...	FS1B	11.2	16	2.5	14	3.2	2.5	14	0.55	0.25	-	-	-
DB1-122D3...	FS1	3.7	10 (6)	2.5	14	2.3	2.5	14	0.37	0.5	-	-	-
DB1-124D3...	FS1	7.5	10	2.5	14	4.3	2.5	14	0.75	1	-	-	-
DB1-127D0...	FS1B	14	20	2.5	14	2.3	2.5	14	1.5	2	-	-	-
DB1-342D2...	FS1	3.5	6	2.5	14	2.2	2.5	14	0.75	1	-	-	-
DB1-344D1FN...	FS1	5.6	10	2.5	14	4.1	2.5	14	1.5	2	-	-	-
DB1-344D1FB...	FS2	5.6	10	6	10	4.1	6	10	1.5	2	100	6	10
DB1-345D8...	FS2	7.5	16	6	10	5.8	6	10	2.2	3	100	6	10
DB1-349D5...	FS2	10.2	16	6	10	9.5	6	10	4.0	5	100	6	10

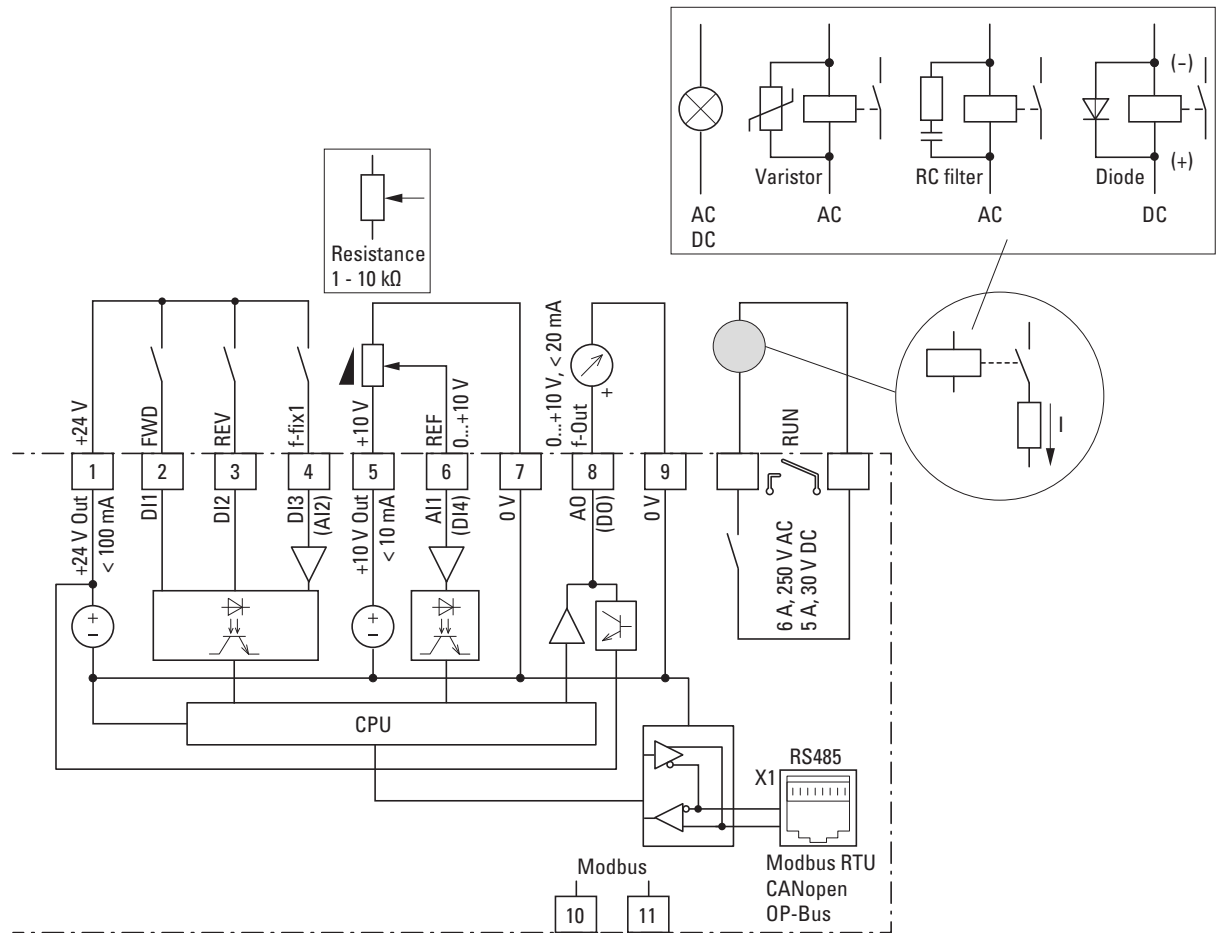
# Control



<b>Control</b>	≤ 0.5 mm <sup>2</sup>	-	≤ AWG20	<b>6 - 7 mm</b> (0.24 - 0.28")
<b>Relay</b>	≤ 1.5 mm <sup>2</sup>	-	≤ AWG16	<b>8 - 9 mm</b> (0.31 - 0.35")

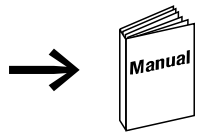


02/20 IL040044ZU



### RJ45 (CANopen, Modbus RTU)

PIN 1	CANopen -
PIN 2	CANopen +
PIN 3	0 V
PIN 4	OP-Bus -
PIN 5	OP-Bus +
PIN 6	+24 V
PIN 7	Modbus RTU (A), RS485 -
PIN 8	Modbus RTU (B), RS485 +



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

→ Refer to Manual MN040031EN and MN040034EN.

DB1 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>	DB1-1D...	110 - 115 RMS Volts for 115 Volt rated units, ±10 % variation allowed. 115 Volt RMS Maximum		
	DB1-12...	200 - 240 RMS Volts for 230 Volt rated units, ±10 % variation allowed. 240 Volt RMS Maximum		
	DB1-34...	380 - 480 Volts for 400 Volt rated units, ±10 % variation allowed, Maximum 500 Volts RMS		
<b>Imbalance</b>	Maximum 3 % voltage variation between phase – phase voltages allowed All DB1 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 (48 - 62 Hz)			
<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>
	115 V	0.55 (0.25)	0.55 (0.25)	100 kA rms (AC)
	230 V	0.37 (0.5)	1.5 (2)	100 kA rms (AC)
	400/460 V	0.75 (1)	4 (5)	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 1 phase supply, power should be connected to L1/2 and L2/N.
- 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.
- A fixed installation is required according to IEC61800-5-1 with a suitable disconnecting device installed between the DB1 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 4.
- 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 4. The fuses must comply with any local codes or regulations in place. In general, type gG (IEC 60269) or UL Class CC or Class J 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. The max. voltage rating for fuses is 600 V.
- 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. The max. voltage rating for breakers is 480 V.
- 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 DB1 Power terminals as defined in IEC61439-1 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).
- In all other installations, an input choke is recommended to ensure protection of the drive against power supply faults.

## All DB1 units are intended for indoor installation within controlled environments which meet the condition limits.

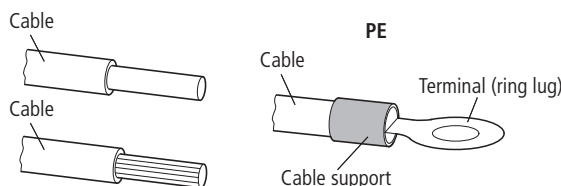
<b>Ambient temperature range</b>	<b>Operational</b>	-10 °C to 60 °C (14 °F to 140 °F) depending on the cooling.
	<b>Storage and Transportation</b>	-40 °C to 60 °C (-40 °F to 140 °F)
<b>Max. altitude for rated operation</b>	1000 m (Refer to Manual for Derating for Altitude Information). Installation above 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 4.

Suitable Power and motor cables should be selected according to the data.

Power cable connections and tightening torques are shown on page 4.

Only a single conductor type is allowed in each field wiring terminal when connected in group installation arrangement.



## Motor Overload Protection

DB1 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 P-51 = 0. Set the parameters P-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, refer to Manual.

- 
- Ratings shown above apply to 60 °C (140 °F) Ambient temperature. For derating information, refer to Manual.
  - 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 75 °C (167 °F), UL Class CC or Class J fuses.

02/20 IL040044ZU

