



**(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 ηλεκροτεχνίτες.



**(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) Eluhtlik! Elektrilöögiht!**

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 elektrotehniskām 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!**

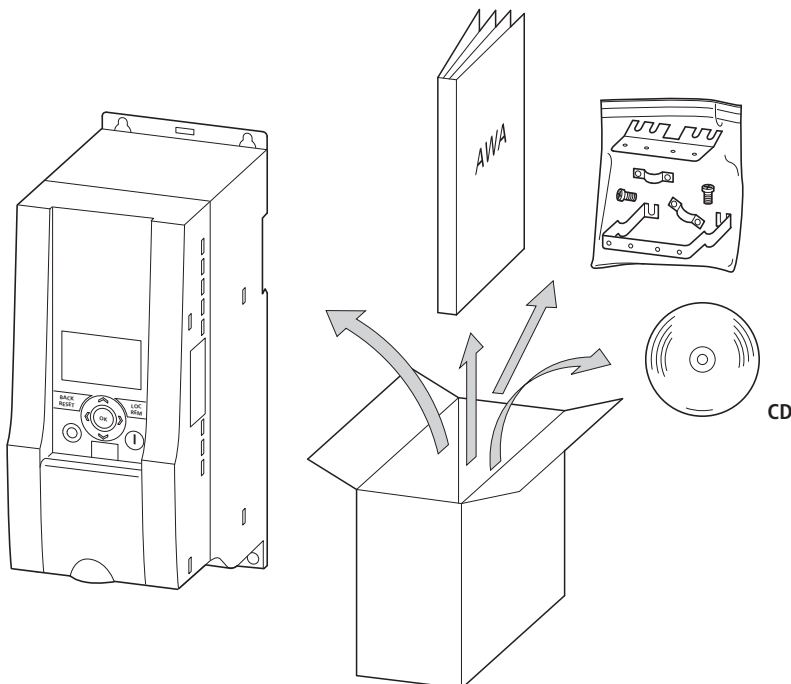
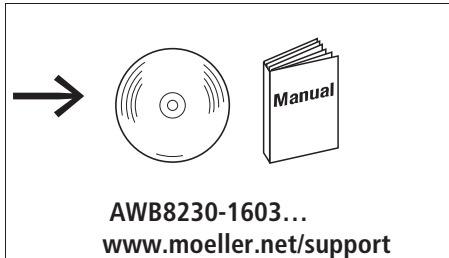
Операциите, описани в следващите раздели, могат да се извършват само от специалисти-електротехници и инструктиран електротехнически персонал.

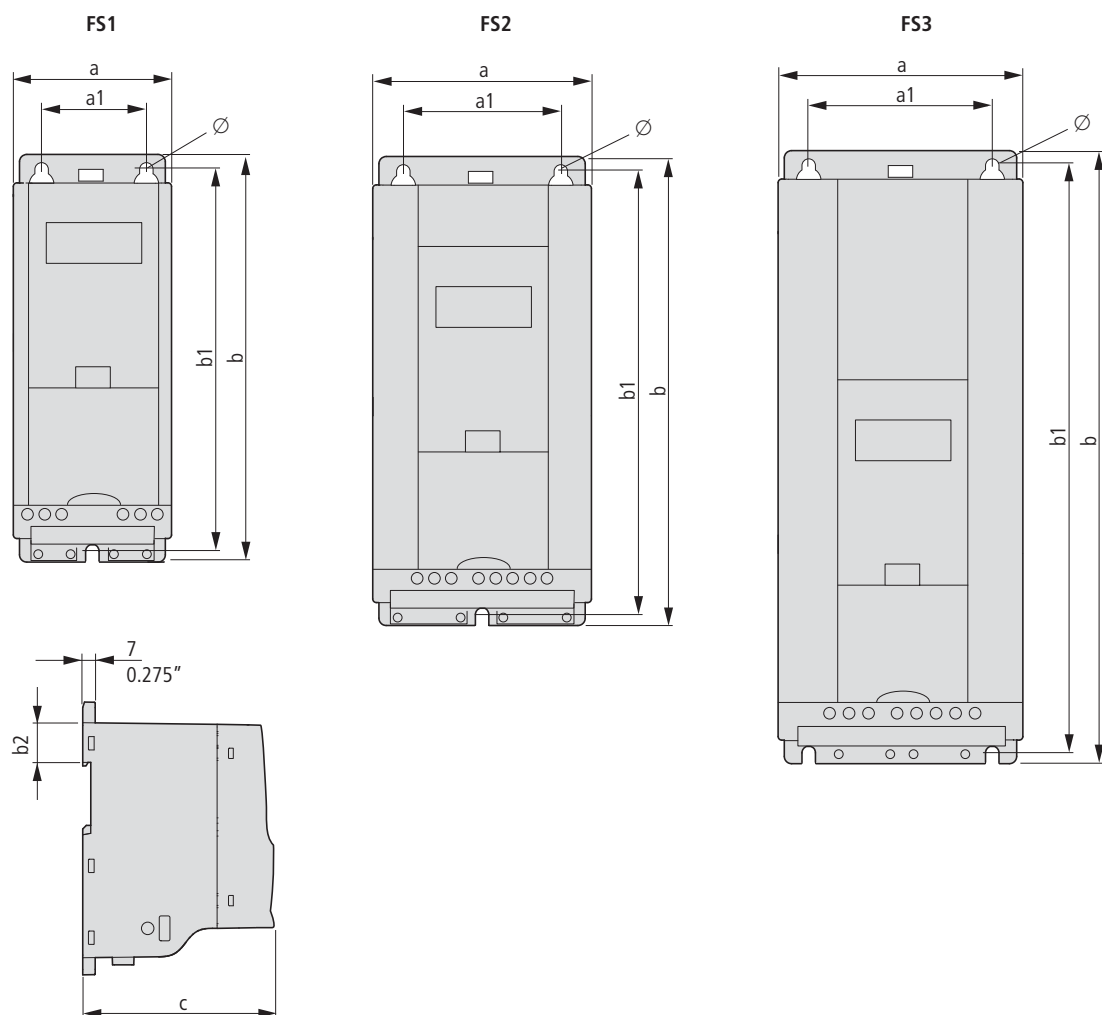


**(ro) Atenție! Pericol electric!**

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

MMX11  
MMX12  
MMX32  
MMX34

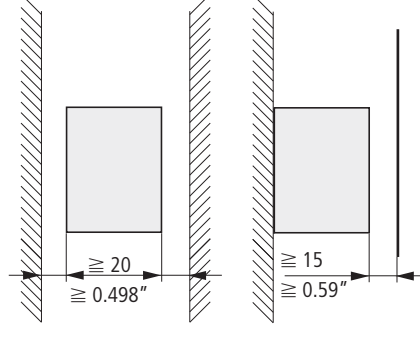
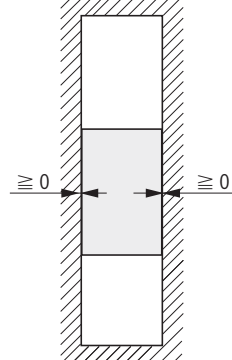
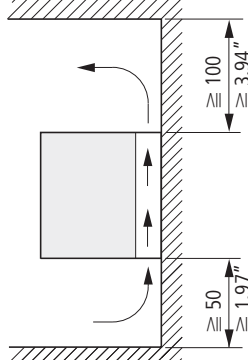
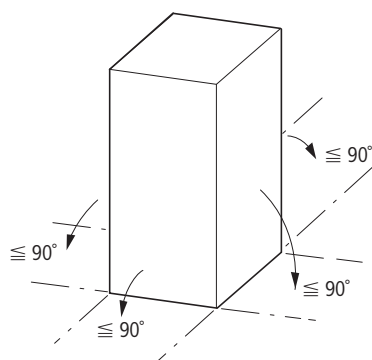
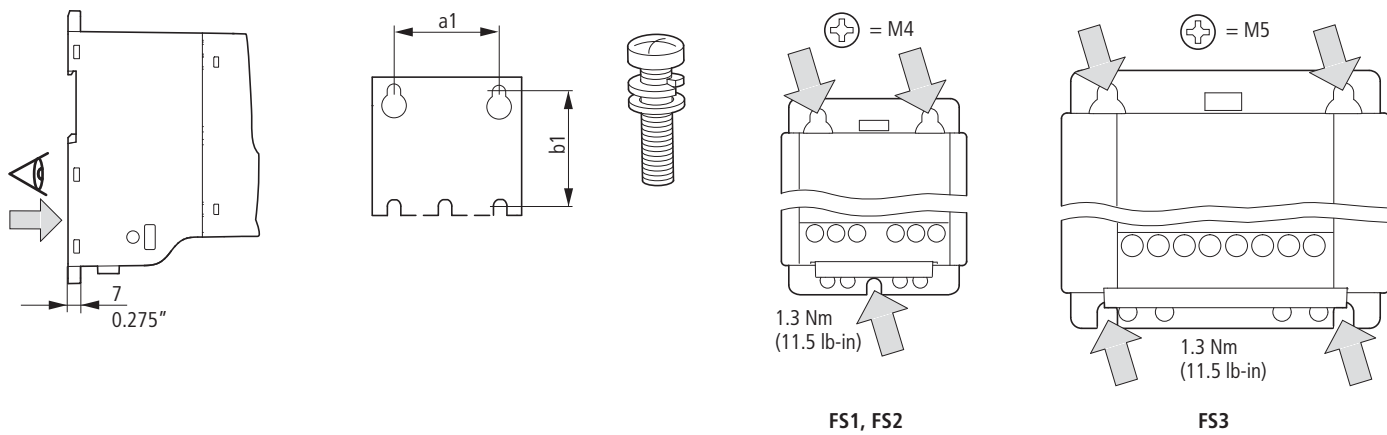




|                                                                                                                                                                                                                           | a<br>mm<br>(inch) | a1<br>mm<br>(inch) | b<br>mm<br>(inch) | b1<br>mm<br>(inch) | b2<br>mm<br>(inch) | c<br>mm<br>(inch) | Ø<br>mm<br>(inch) | lbs   | kg   | Frame<br>Size |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|-------------------|--------------------|--------------------|-------------------|-------------------|-------|------|---------------|
| MMX12AA1D7...<br>MMX12AA2D4...<br>MMX12AA2D8...<br>MMX32AA1D7...<br>MMX32AA2D4...<br>MMX32AA2D8...<br>MMX34AA1D3...<br>MMX34AA1D9...<br>MMX34AA2D4...                                                                     | 66<br>(2.6")      | 38<br>(1.5")       | 160<br>(6.30")    | 147<br>(5.79")     | 32<br>(1.26")      | 102<br>(4.02")    | 4.5<br>(0.18")    | 1.213 | 0.55 | FS1           |
| MMX11AA1D7...<br>MMX11AA2D4...<br>MMX11AA2D8...<br>MMX11AA3D7...<br>MMX12AA3D7...<br>MMX12AA4D8...<br>MMX12AA7D0...<br>MMX32AA3D7...<br>MMX32AA4D8...<br>MMX32AA7D0...<br>MMX34AA3D3...<br>MMX34AA4D3...<br>MMX34AA5D6... | 90<br>(3.54")     | 62.5<br>(2.46")    | 195<br>(7.68")    | 182<br>(7.17")     | 32<br>(1.26")      | 105<br>(4.13")    | 5.5<br>(0.22")    | 1.543 | 0.7  | FS2           |
| MMX11AA4D8...<br>MMX12AA9D6...<br>MMX32AA9D6...<br>MMX34AA7D6...<br>MMX34AA9D0...<br>MMX34AA012...<br>MMX34AA014...                                                                                                       | 100<br>(3.94")    | 75<br>(2.95")      | 253<br>(9.96")    | 242<br>(9.53")     | 34<br>(1.34")      | 112<br>(4.41")    | 5.5<br>(0.22")    | 2.183 | 0.99 | FS3           |

→ 1 inch = 25.4 mm  
1 mm = 0.0394 inch  
1 inch = 1"

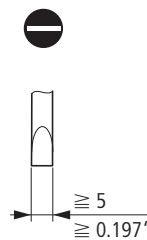
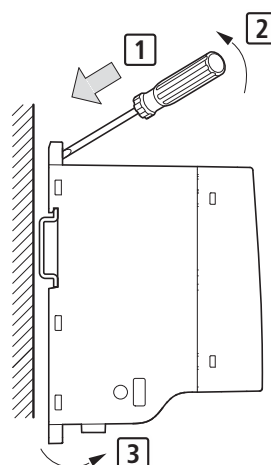
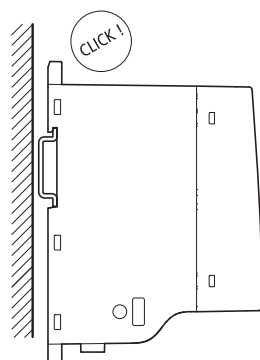
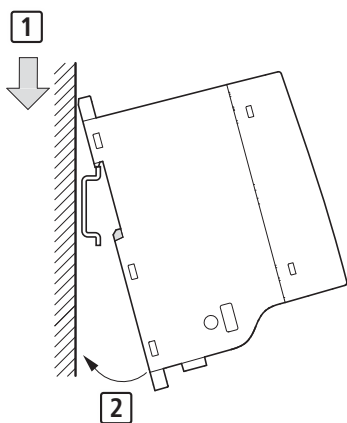
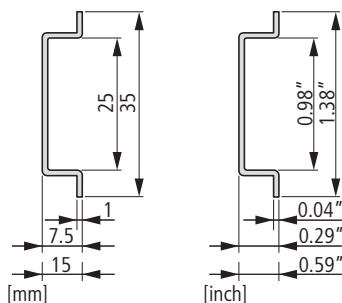
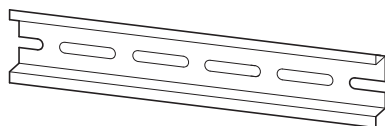
Mounting – Montage – Montaje – Montaggio – 安装 – Монтаж – Monter – Τοποθέτηση – Montagem – Asennus – Montáž – Paigaldamine – Felszerelés – Montáža – Montavimas – Montaż – Montaža – Montáž – Монтаж – Montarea



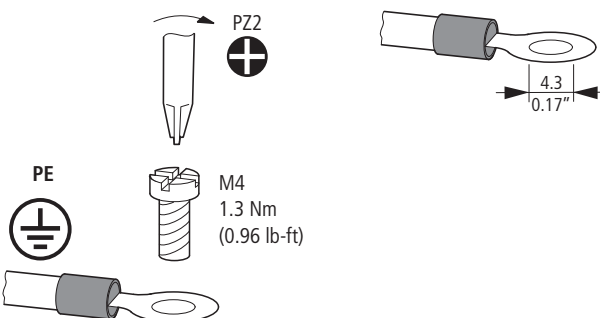
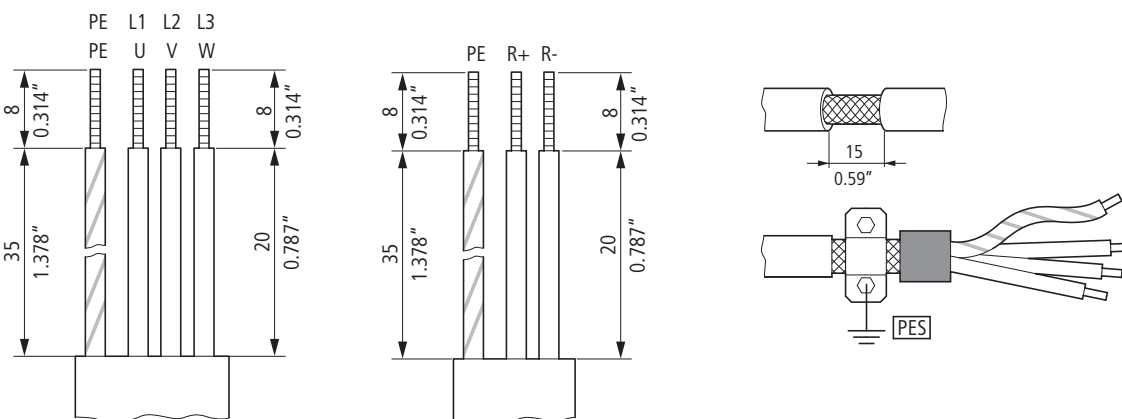
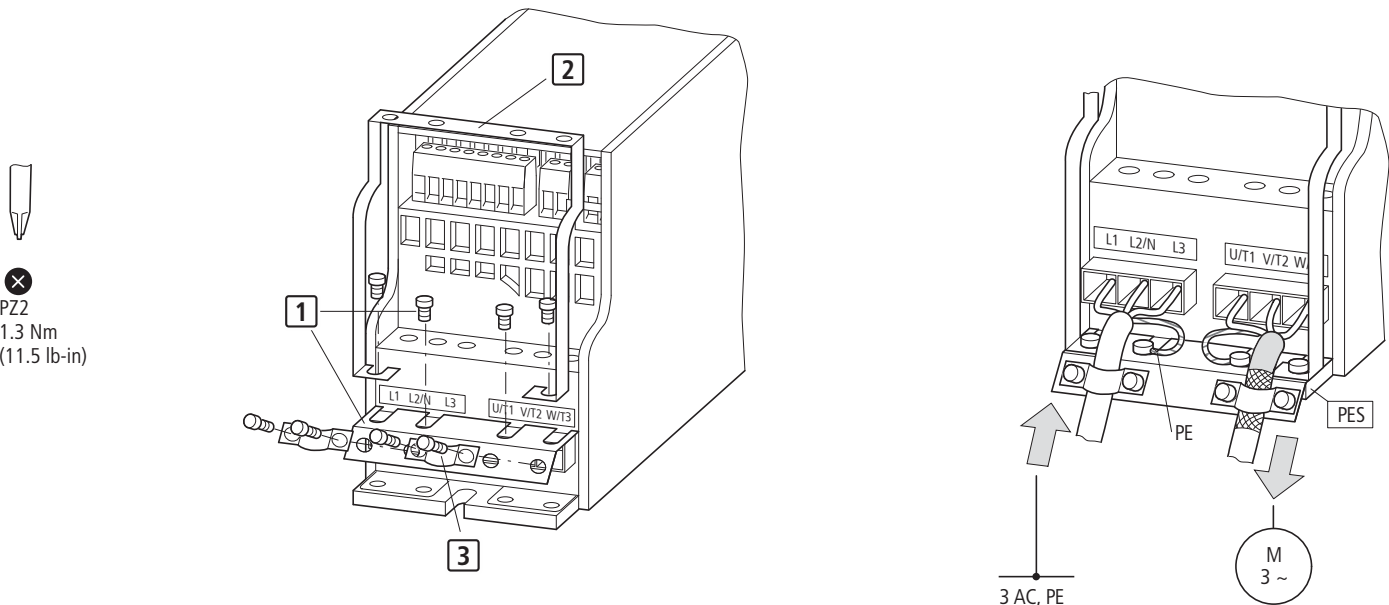
FS1, FS2: 10 m<sup>3</sup>/h  
FS3: 30 m<sup>3</sup>/h

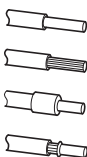
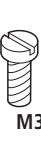
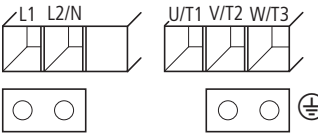
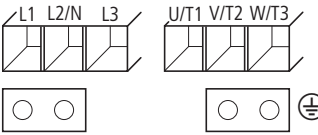
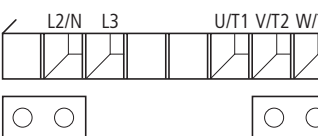
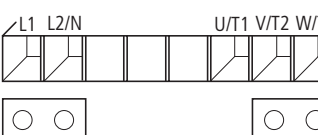
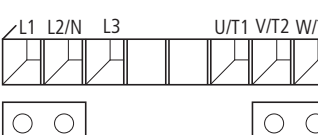
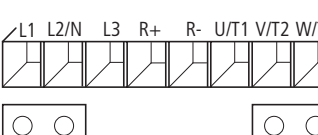
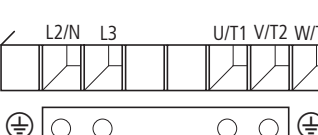
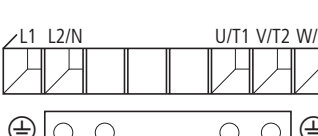
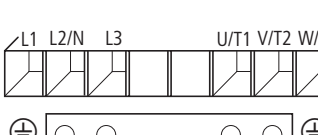
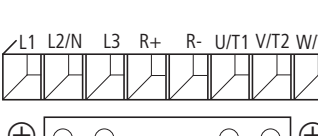
ϑ ≤ 40 °C, 104 °F  
f<sub>pwm</sub> ≤ 4 kHz (P10.9)

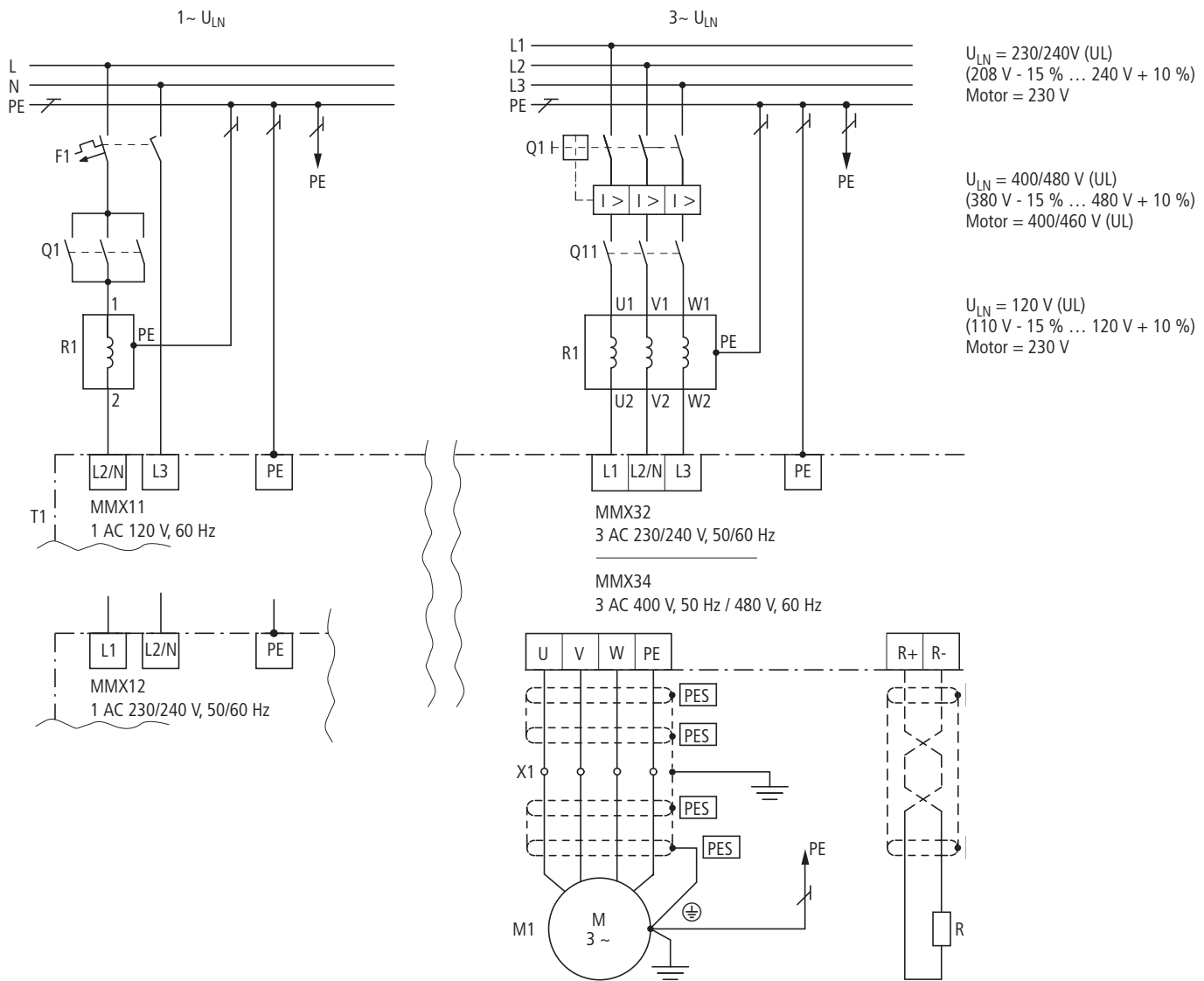
ϑ > 40 °C (max. 50 °C, 122 °F)  
f<sub>pwm</sub> > 4 kHz (P10.9)



|                                                                               |                                                                                             |                                                                                   |                                                                                                  |
|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
|                                                                               | <b>(en) Warning!</b><br>Connect only in voltage-free state!                                 | <b>(da) Advarsel!</b><br>Må kun tilsluttes i spændingsfri tilstand!               | <b>(lv) Brīdinājums!</b><br>Pieslēgt tikai tad, kad nenotiek sprieguma padeve!                   |
| <b>(de) Warnung!</b><br>Nur im spannungsfreien Zustand anschließen!           | <b>(el) Προειδοποίηση!</b><br>Συνδέστε μόνο όταν δεν επικρατεί τάση!                        | <b>(lt) Perspėjimas!</b><br>Prijungti tik tada, kai išjungta įtampa!              | <b>(pl) Ostrzeżenie!</b><br>Podłączyć zawsze po uprzednim odłączeniu od zasilania elektrycznego! |
| <b>(fr) Avertissement !</b><br>Raccordez l'appareil uniquement hors tension ! | <b>(pt) Atenção!</b><br>Ligar apenas com a tensão desligada!                                | <b>(sl) Opozorilo!</b><br>Napravo priključite le, ko ni pod napetostjo!           | <b>(sk) Varovanie!</b><br>Napájať len v stave bez napätia!                                       |
| <b>(es) ¡Advertencia!</b><br>¡Conectar únicamente en estado sin tensión!      | <b>(sv) Varning!</b><br>Får endast anslutas i spänningsfritt tillstånd!                     | <b>(bg) Предупреждение!</b><br>Свързвайте само, когато уреда не е под напрежение! | <b>(ro) Atenție!</b><br>Conectați doar când aparatul nu se află sub tensiune!                    |
| <b>(it) Avvertimento!</b><br>Collegare solo in assenza di tensione!           | <b>(fi) Varoitus!</b><br>Kytke vain jännitteettömässä tilassa!                              |                                                                                   |                                                                                                  |
| <b>(zh) 警告 !</b><br>必須在断电状态下进行连接 !                                            | <b>(cs) Varování!</b><br>Připojte jen při zcela odpojeném napájení!                         |                                                                                   |                                                                                                  |
| <b>(ru) Предупреждение!</b><br>Подключать только в обесточенном состоянии!    | <b>(et) Hoiatus!</b><br>Ühendada ainult pingevabas olekus!                                  |                                                                                   |                                                                                                  |
| <b>(nl) Waarschuwing!</b><br>Alleen in spanningsloze toestand aansluiten!     | <b>(hu) Figyelmeztetés! alterations</b><br>Csak feszültségmentes állapotban csatlakoztassa! |                                                                                   |                                                                                                  |

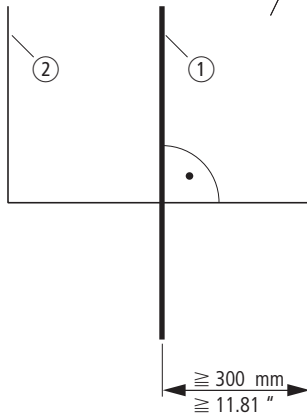
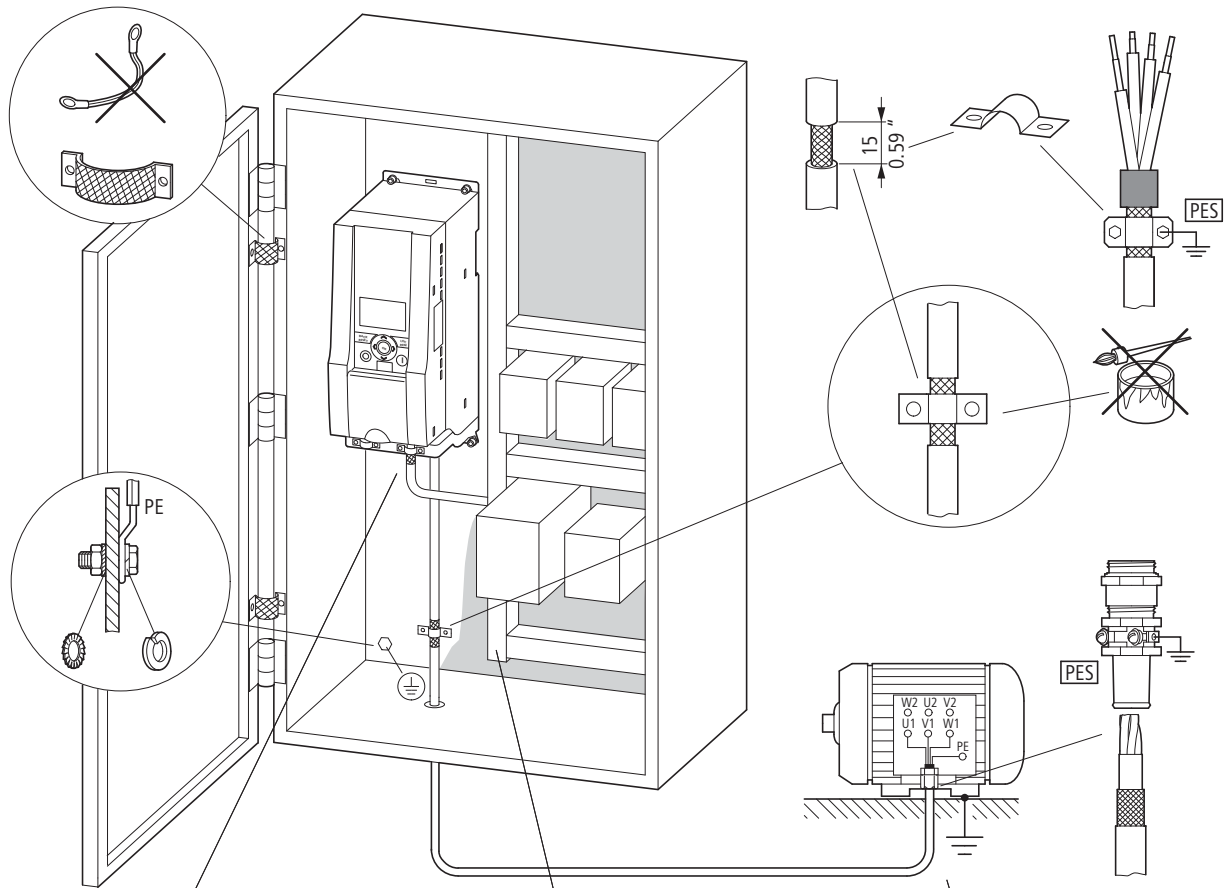


|                                                                  |  |  |  |  |  |             |           |                                                                                              |
|------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------|-----------|----------------------------------------------------------------------------------------------|
|                                                                  | mm <sup>2</sup>                                                                  | AWG                                                                              | mm                                                                               | inch                                                                             | Nm                                                                                | ft-lbs      | mm        |                                                                                              |
| MMX12AA1D7...<br>MMX12AA2D4...<br>MMX12AA2D8...                  | 0.2 - 2.5                                                                        | 24 - 12                                                                          | 8                                                                                | 0.31                                                                             | 0.5 - 0.6                                                                         | 0.37 - 0.44 | 0.6 x 3.5 | F51<br>   |
| MMX32AA1D7...<br>MMX32AA2D4...<br>MMX32AA2D8...                  | 0.2 - 2.5                                                                        | 24 - 12                                                                          | 8                                                                                | 0.31                                                                             | 0.5 - 0.6                                                                         | 0.37 - 0.44 | 0.6 x 3.5 | F51<br>   |
| MMX34AA1D3...<br>MMX34AA1D9...<br>MMX34AA2D4...                  | 0.2 - 2.5                                                                        | 24 - 12                                                                          | 8                                                                                | 0.31                                                                             | 0.5 - 0.6                                                                         | 0.37 - 0.44 | 0.6 x 3.5 | F52<br>   |
| MMX11AA1D7...<br>MMX11AA2D4...<br>MMX11AA2D8...<br>MMX11AA3D7... | 0.2 - 2.5                                                                        | 24 - 12                                                                          | 8                                                                                | 0.31                                                                             | 0.5 - 0.6                                                                         | 0.37 - 0.44 | 0.6 x 3.5 | F52<br>   |
| MMX12AA3D7...<br>MMX12AA4D8...<br>MMX12AA7D0...                  | 0.2 - 2.5                                                                        | 24 - 12                                                                          | 8                                                                                | 0.31                                                                             | 0.5 - 0.6                                                                         | 0.37 - 0.44 | 0.6 x 3.5 | F52<br>  |
| MMX32AA3D7...<br>MMX32AA4D8...<br>MMX32AA7D0...                  | 0.2 - 2.5                                                                        | 24 - 12                                                                          | 8                                                                                | 0.31                                                                             | 0.5 - 0.6                                                                         | 0.37 - 0.44 | 0.6 x 3.5 | F52<br> |
| MMX34AA3D3...<br>MMX34AA4D3...<br>MMX34AA5D6...                  | 0.2 - 2.5                                                                        | 24 - 12                                                                          | 8                                                                                | 0.31                                                                             | 0.5 - 0.6                                                                         | 0.37 - 0.44 | 0.6 x 3.5 | F52<br> |
| MMX11AA4D8...                                                    | 0.2 - 4                                                                          | 24 - 10                                                                          | 8                                                                                | 0.31                                                                             | 0.5 - 0.6                                                                         | 0.37 - 0.44 | 0.6 x 3.5 | F53<br> |
| MMX12AA9D6...                                                    | 0.2 - 4                                                                          | 24 - 10                                                                          | 8                                                                                | 0.31                                                                             | 0.5 - 0.6                                                                         | 0.37 - 0.44 | 0.6 x 3.5 | F53<br> |
| MMX32AA9D6...                                                    | 0.2 - 4                                                                          | 24 - 10                                                                          | 8                                                                                | 0.31                                                                             | 0.5 - 0.6                                                                         | 0.37 - 0.44 | 0.6 x 3.5 | F53<br> |
| MMX34AA7D6...<br>MMX34AA9D0...<br>MMX34AA012...<br>MMX34AA014... | 0.2 - 4                                                                          | 24 - 10                                                                          | 8                                                                                | 0.31                                                                             | 0.5 - 0.6                                                                         | 0.37 - 0.44 | 0.6 x 3.5 | F53<br> |

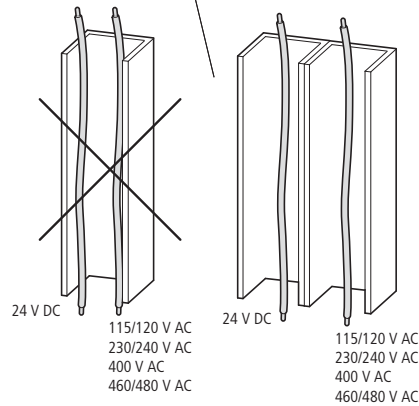


03/10 AWA8230-2416

|                                                                                                                                      | F1, Q1 =  |      | L1, L2/N, L3    |        | U, V, W         |        | R+, R-          |        | PE              |     |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|------|-----------------|--------|-----------------|--------|-----------------|--------|-----------------|-----|
|                                                                                                                                      | 1~                                                                                           | 3~   | mm <sup>2</sup> | AWG    | mm <sup>2</sup> | AWG    | mm <sup>2</sup> | AWG    | mm <sup>2</sup> | AWG |
| MMX12AA1D7...<br>MMX12AA2D4...<br>MMX12AA2D8...<br>MMX12AA3D7...                                                                     | 10 A                                                                                         | —    | 2 x 1.5         | 2 x 16 | 3 x 1.5         | 3 x 16 | —               | —      | 1.5             | 16  |
| MMX32AA1D7...<br>MMX32AA2D4...<br>MMX32AA2D8...<br>MMX32AA3D7...<br>MMX34AA1D3...<br>MMX34AA1D9...<br>MMX34AA2D4...<br>MMX34AA3D3... | —                                                                                            | 6 A  | 3 x 1.5         | 3 x 16 | 3 x 1.5         | 3 x 16 | —               | —      | 1.5             | 16  |
| MMX11AA1D7...<br>MMX11AA2D4...<br>MMX11AA2D8...<br>MMX11AA3D7...<br>MMX12AA4D8...<br>MMX12AA7D0...                                   | 20 A                                                                                         | —    | 2 x 2.5         | 2 x 14 | 3 x 2.5         | 3 x 14 | —               | —      | 2.5             | 14  |
| MMX32AA4D8...<br>MMX32AA7D0...                                                                                                       | —                                                                                            | 10 A | 3 x 1.5         | 3 x 16 | 3 x 1.5         | 3 x 16 | —               | —      | 1.5             | 16  |
| MMX34AA4D3...<br>MMX34AA5D6...                                                                                                       | —                                                                                            | —    | 3 x 1.5         | 3 x 16 | 3 x 1.5         | 3 x 16 | 2 x 1.5         | 2 x 16 | 1.5             | 16  |
| MMX11AA4D8...<br>MMX12AA9D6...                                                                                                       | 30 A                                                                                         | —    | 2 x 6           | 2 x 10 | 3 x 6           | 3 x 10 | —               | —      | 6               | 10  |
| MMX32AA9D6...<br>MMX34AA7D6...<br>MMX34AA9D0...<br>MMX34AA012...                                                                     | —                                                                                            | 20 A | 3 x 2.5         | 3 x 14 | 3 x 2.5         | 3 x 14 | 2 x 2.5         | 2 x 14 | 2.5             | 14  |
| MMX34AA014...                                                                                                                        | —                                                                                            | 25 A | 3 x 4           | 3 x 12 | 3 x 4           | 3 x 12 | 3 x 4           | 2 x 12 | 4               | 12  |

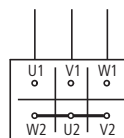
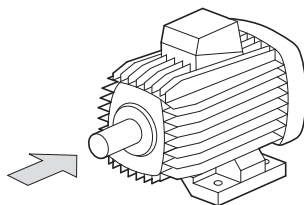


- ① L1, L2, L3, N, U, V, W, R+, R-  
② 1, 2, ... 26, A, B

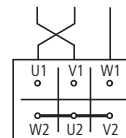


| M-Max | Motor |
|-------|-------|
| U/T1  | U1    |
| V/T2  | V1    |
| W/T3  | W1    |

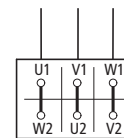
|                               |                 |
|-------------------------------|-----------------|
| 230 $\Delta$ / 400 $\nabla$ V | 38 / 22 A       |
| S1 11 kW                      | cos $\phi$ 0.67 |
| 1410 rpm                      | 50 Hz           |



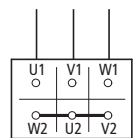
FWD



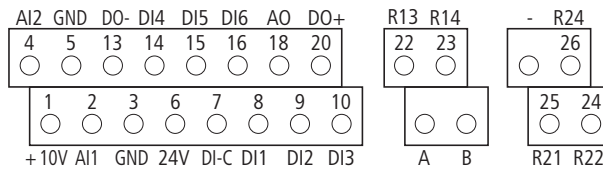
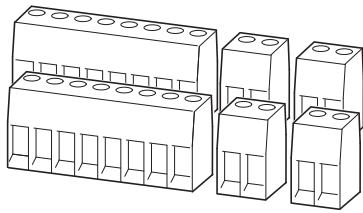
REV



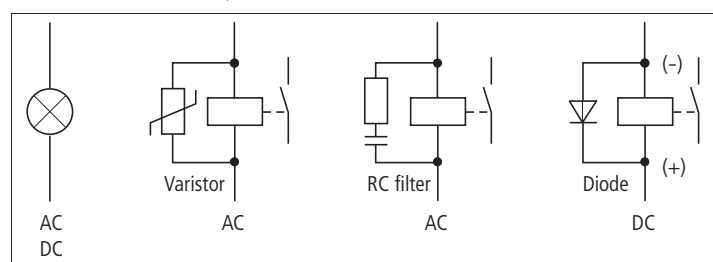
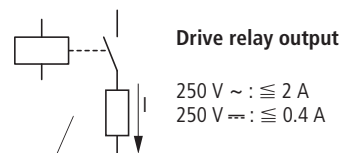
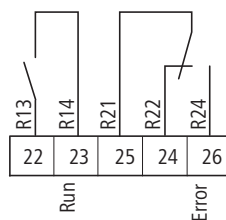
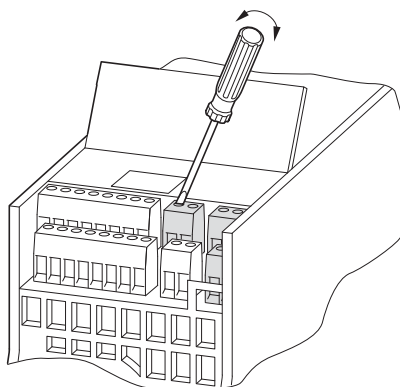
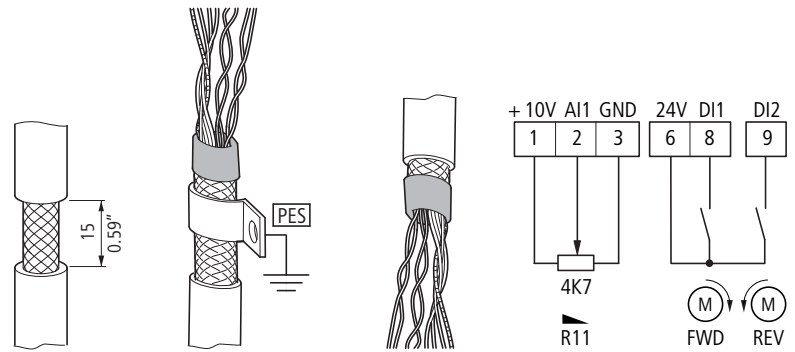
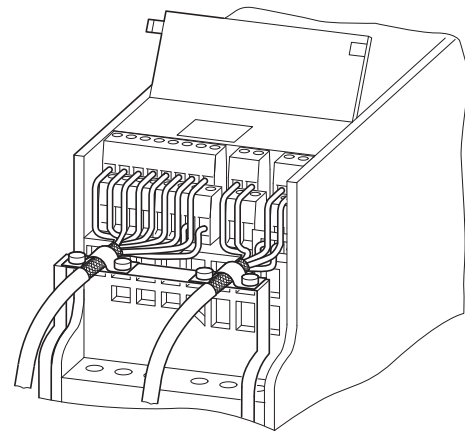
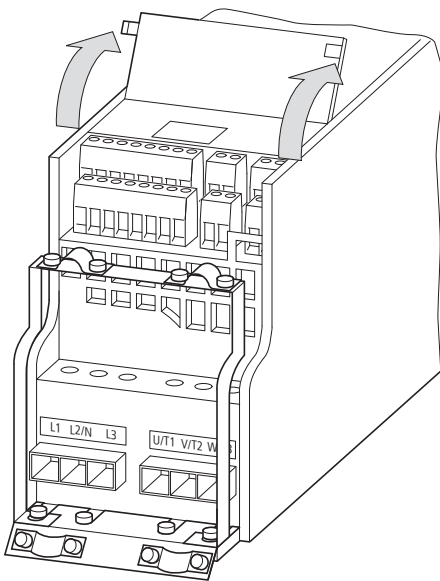
$U_{LN} = 230$  V



$U_{LN} = 400$  V

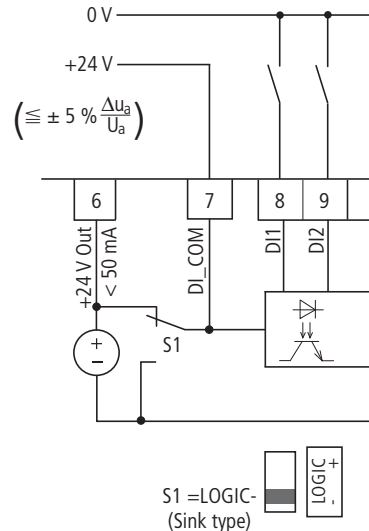
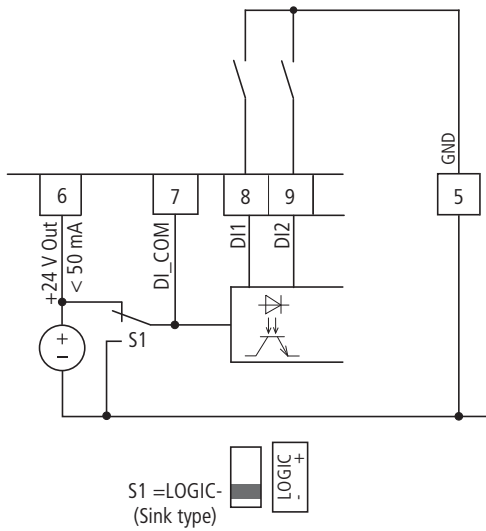
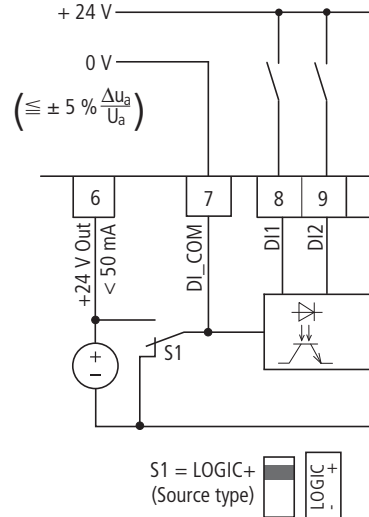
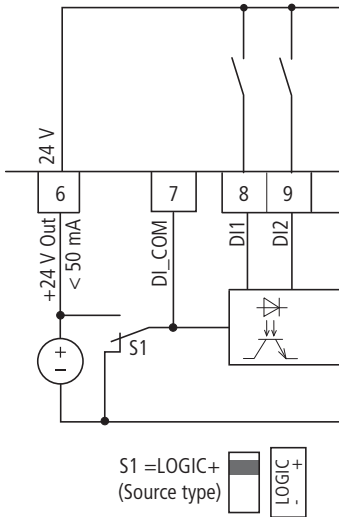
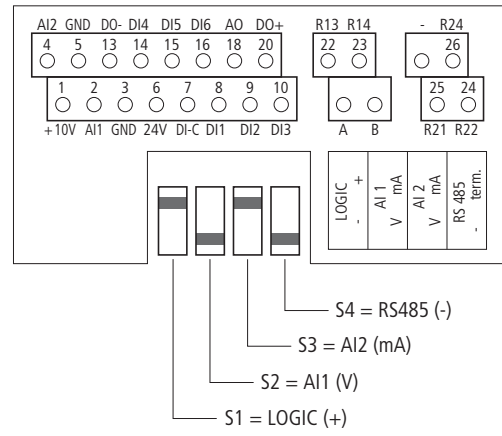
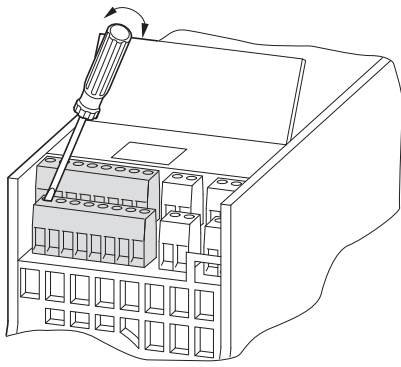


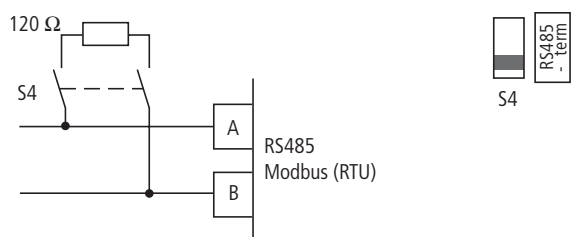
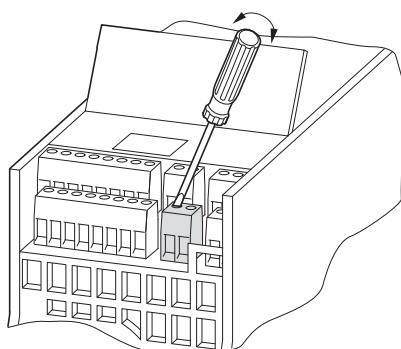
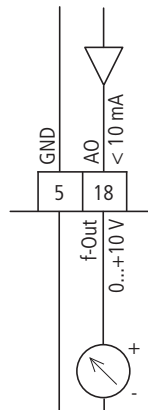
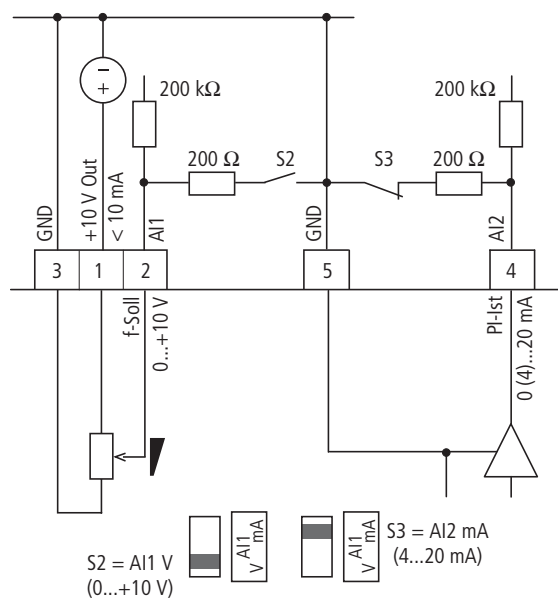
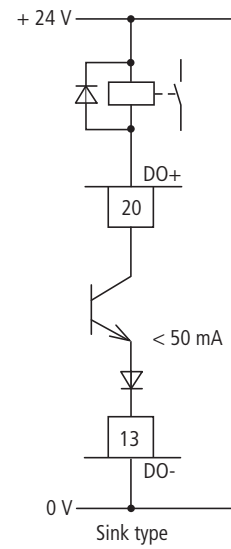
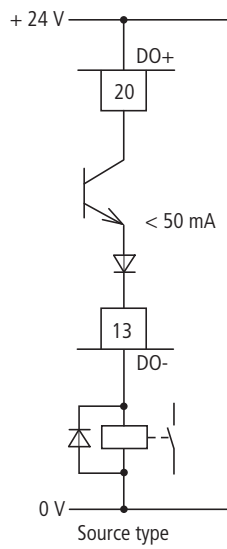
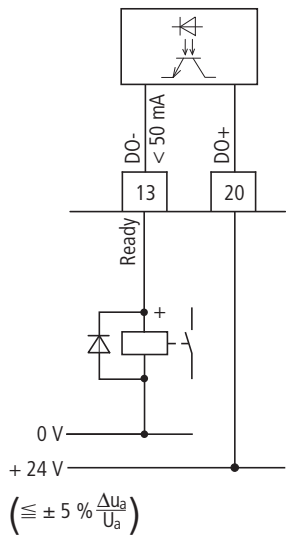
| mm <sup>2</sup> | mm <sup>2</sup> | AWG     | mm | inch | M3 | Nm          | ft-lbs      | mm        |
|-----------------|-----------------|---------|----|------|----|-------------|-------------|-----------|
| 0.25 - 0.5      | 0.14 - 1.5      | 26 - 16 | 5  | 0.2  |    | 0.22 - 0.25 | 0.16 - 0.18 | 0.4 x 2.5 |



03/10 AWA8230-2416









#### **(en) Caution !**

Within the scope of the EU Directives, the adjustable frequency drives 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.

#### **(de) Vorsicht!**

Im Geltungsbereich der EG-Richtlinien dürfen die Frequenzumrichter 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.

#### **(fr) 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.

#### **(es) ¡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.

#### **(it) 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.

#### **(zh) 注意！**

根据欧盟设备一致性规范，安装变频器及其配件时，应确保设备满足机器规范 89/392/EWG 中关于设备保护的要求。

[\[PES\]](#) 按照电磁兼容规范正确安装。应将控制电缆和电源电缆与电机电缆分开。大面积采用 PE 包裹电缆。

#### **(ru) 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 РЕ по большой площади.

#### **(nl) Voorzichtig!**

Binnen het geldigheidsgebied van de EC-richtlijnen mogen de frequentie-omvormers en de toebehoren daarvan alleen in bedrijf worden genomen, wanneer wordt vastgesteld, dat de machine aan de veiligheidsisen van de machinerichtlijn 89/392/EWG voldoet.

EMC-conforme constructie. Besturings- en netkabels ruimtelijk gescheiden van de motorkabel leggen. [\[PES\]](#) Kabelafscherming over groot oppervlak met PE verbinden.

#### **(da) Forsigtig!**

I det område, hvor EF-direktiverne er gældende, må frekvensomformerne og deres tilbehør kun tages i anvendelse, hvis det konstateres, at maskinen opfylder beskyttelseskravene i maskindirektivt 89/392/EØF.

EMC-korrekt installation. Træk styre- og netledninger rumligt adskilt fra motorledningen.

[\[PES\]](#) Sørg for en stor kontaktflade mellem PES ledningsafskærmning og PE.

#### **(el) Προσοχή!**

Στον πεδίο ισχύος των οδηγιών ΕΚ, οι μετατροπείς συχνότητας και τα παρελκόμενά τους επιτρέπεται να τίθενται σε λειτουργία μόνο εφόσον διαπιστωθεί ότι το μηχανήμα πληροί τις απαιτήσεις προστασίας της οδηγίας της ΕΚ για τα μηχανήματα 89/392/ΕΟΚ.

Κατασκευή σύμφωνα με τις απαιτήσεις ΗΜΣ. Εγκαθιστάτε τους αγωγούς ελέγχου και δικτύου ανεξάρτητα από τον αγωγό του κινητήρα. [\[PES\]](#) Συνδέετε τη θωράκιση των αγωγών σε μεγάλη επιφάνεια με τη γείωση.

#### **(pt) Cuidado!**

Na área de validade das directivas da CE, os conversores de frequência e os respectivos acessórios só podem ser postos em operação se for comprovado que a máquina atende às exigências de protecção da directiva de máquinas 89/392/CE.

Estrutura com compatibilidade electromagnética. Dispor os fios de comando e de rede separados do fio do motor. [\[PES\]](#) Ligar uma área grande da blindagem do cabo (PES) com o PE.

#### **(sv) Se upp!**

I giltighetsområdet för EG-direktiven får frekvensomformaren och dess tillbehör endast tagas i drift när man fastställt att maskinen uppfyller skyddskraven i maskindirektiv 89/392/EEC.

EMC-anpassad uppbyggnad. Styr- och nätledning dras avskilda från motorledningarna.

[\[PES\]](#) Förbind ledningsskärm över ett brett område med PE.

#### **(fi) Varo!**

EU-direktiivien voimassaoloalueella taajuusmuuttajan ja sen varusteet saa ottaa käyttöön vain silloin, kun todetaan, että kone täyttää konedirektiivin 89/392/ETY suojausvaatimukset.

EMC-mukainen rakenne. Ohjaus- ja verkkojohdot on asennettava tilalotitteisesti erotettuina. Johdonsuoja on liitettävä laajasti maadoitukseen [\[PES\]](#).

#### **(cs) Pozor!**

V souladu se směrnicemi EU je povoleno uvést frekvenční měniče a jejich příslušenství do provozu pouze po udělení schválení, že stroj splňuje bezpečnostní požadavky směrnice 89/392/EHS o strojních zařízeních.

Nástavba odpovídající směrnici EMC. Řídící a síťová vedení pokládejte prostorově oddělená od vedení motoru. [\[PES\]](#) Stínění vedení spojte velkoplošně s PE.

#### **(et) Ettevaatust!**

EU-direktiivi kehtivuspiirkonnas võib sagedusmuudureid ja nende lisaseadmeid kasutusele võtta ainult siis, kui on kindlaks tehtud, et masin vastab masinadirektiivi 89/392/EMÜ kaitse nõuetele.

Elektromagnetilisele ühilduvusele vastav ehitus. Juhtimis- ja võrgukaablid paigaldada mootori toitekaablist ruumiliselt eraldatuna. [\[PES\]](#) Kaabli kaitseekraan ühendada ulatuslikult talitlusmaandusega.

#### **(hu) Vigyázat!**

Az EU-irányelvek hatályának megfelelően, a frekvenciaváltót és tartozékait csak akkor szabad használatba venni, ha meggyőződött arról, hogy a gép megfelel a 89/392/EU számú gépek biztonságára irányulóknak.

Elektromágnesesen összeférhető kivitelt biztosítson. A motorvezetékektől térben elkülönítve vezesse vezérlő és hálózati vezetékeket. [\[PES\]](#) Nagy felületen csatlakoztassa a védőföldeléshez a vezetékmegkötést.

#### **(lv) Ievērot piesardzību!**

Valstis, kurās ir spēkā EK direktīvas, frekvenču pārveidotāju un to piederumu ekspluatāciju drīkst sākt tikai tad, ja ir konstatēta iekārtas atbilstība Mašīnu direktīvā 89/392/EEK ietvertajām aizsardzības prasībām.

EMS atbilstoša uzbūve. Vadības un tīkla kabelus izvietot atsevišķi no motora kabelja. [\[PES\]](#) Vada ekrānu plašā virsmā savienot ar PE.

#### **(lt) Atsargiai!**

EB direktyvų taikymo srityje dažnio keitiklius ir jų priedus galima pradėti eksploatuoti tik tada, kai nustatoma, kad mašina atitinka mašinų direktyvos 98/392/EEB saugos reikalavimus.

Montažas turi atitikti EMS reikalavimus. Valdymo ir duomenų tinklo kabelius išdėstyti atokiai nuo variklio kabelio. [\[PES\]](#) Kabelio ekraną dideliu paviršiumi sujungti su žeminiu.

#### **(pl) Ostrożnie!**

Na terenie obowiązywania dyrektyw WE przetwornice częstotliwości wraz z wyposażeniem można uruchamiać tylko po stwierdzeniu, że maszyna spełnia wymagania ochrony określone w dyrektywie maszynowej 89/392/EWG.

Konstrukcja zgodna z dyrektywą w sprawie kompatybilności elektromagnetycznej (EMC). Przewody sterowania i zasilania elektrycznego należy układać oddzielnie od przewodu silnika. [\[PES\]](#) Ekranowanie połączyć z przewodem uziemiającym na większej powierzchni.

#### **(sl) Pozor!**

Na območju veljavnosti direktiv ES je uporaba frekvenčnih pretvornikov in njihovega pribora dovoljena le tedaj, ko je bilo ugotovljeno, da stroj izpolnjuje zahteve Direktive o strojih 89/392/EGS glede zaščite.

Montaža v skladu z EMZ. Krmilne in omrežne vodnike napeljite ločeno od vodnikov motorja. [\[PES\]](#) Oklep vodnika na veliki površini povežite z zaščitnim vodnikom.

#### **(sk) Pozor!**

V oblastiach kde platia smernice EU, môžu byť frekvenčné meniče a ich príslušenstvo uvedené do prevádzky len vtedy, keď je zabezpečené, že zariadenie spĺňa bezpečnostné požiadavky smernice o strojových zariadeniach 89/392/EHS.

Montáž v súlade s požiadavkami elektromagnetickej kompatibility. Ovládacie a sieťové vedenia uložte v priestore oddelene od vedenia motora. [\[PES\]](#) Zabezpečte veľkú kontaktnú plochu medzi káblovým tienením a PE.

#### **(bg) Внимание!**

Спред Европейските директиви, честотните преобразуватели и принадлежностите им, трябва да се пускат в експлоатация само тогава, когато е установено, че машината отговаря на изискванията за безопасност на Директивата за машини 89/392/EWG.

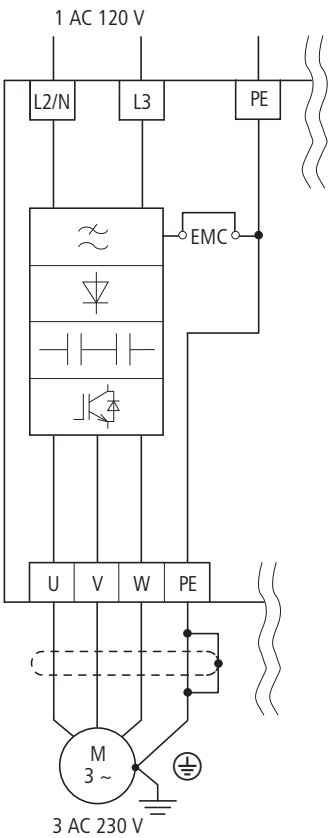
Монтаж с електромагнитна съвместимост. Полагане на контролните и мрежови проводници пространствено отделно от проводника на двигателя. [\[PES\]](#) Осигурете по-голяма конкатна площ между силовия екран и РЕ.

#### **(ro) Precauție!**

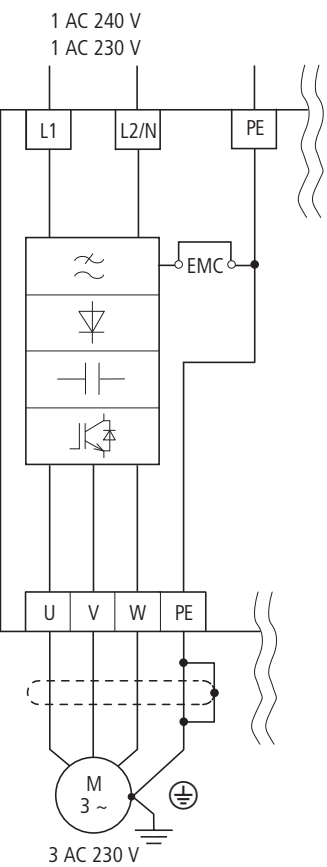
În cadrul sferei de aplicare a Directivelor UE, invertoarele de frecvență și accesoriile acestora au voie să fie puse în funcțiune doar dacă se stabilește că aparatul îndeplinește cerințele Directivei 89/392/CEE privind mașinile.

Montajul trebuie să fie compatibil EMC. Poziționati cablurile de control și de rețea la distanță de cablul motorului. [\[PES\]](#) Asigurați o suprafață de contact mare între izolația cablului și PE.

## MMX11...

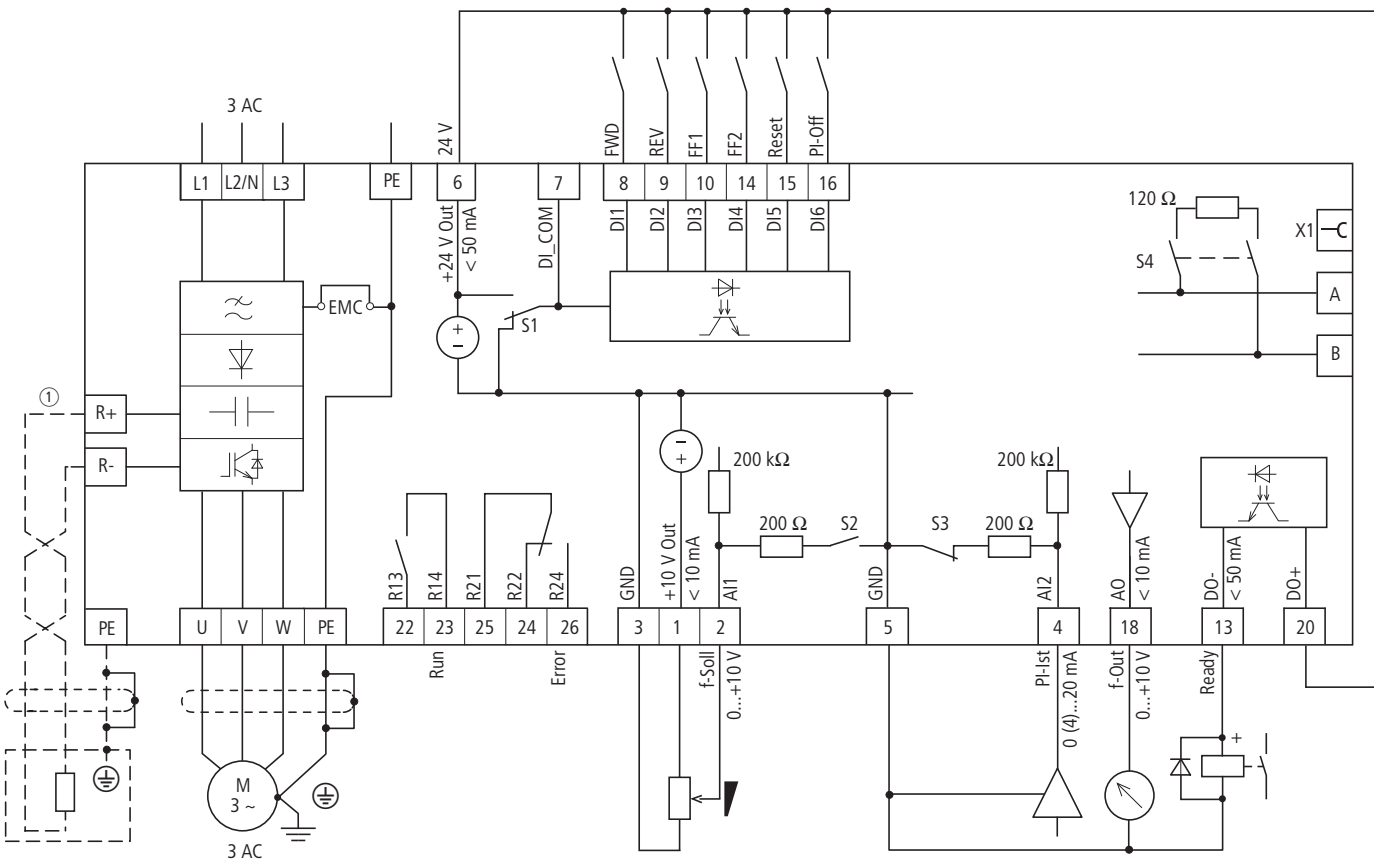


## MMX12...

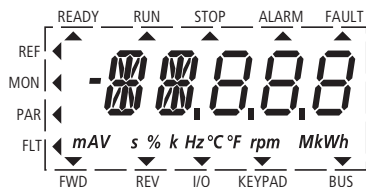


## MMX32...

## MMX34...



① MMX34...4D3..., MMX34...5D6..., MMX34...7D6..., MMX34...9D0..., MMX34...012..., MMX34...014...

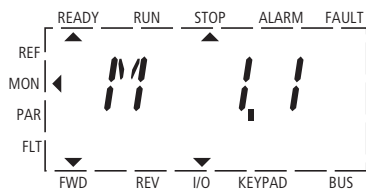


Self test, Set up

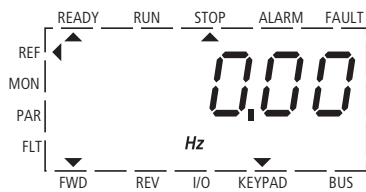
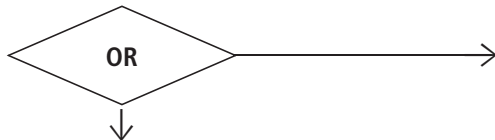


**Note!**

On startup for the first time, the MMX will enter a Startup Wizard and will prompt the user to set a few critical parameters.

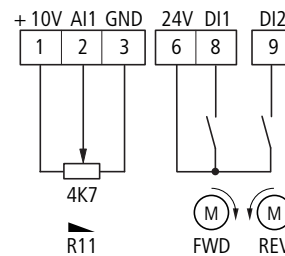


Ready to start



Start (Stop): ☐ FWD/REV → RUN

R11 = Frequency set value



Stop



Cursor, REV



Start → RUN



Stop  
0 Hz



Cursor, FWD



Set/Save



Frequency set value, ↗



Frequency set value, ↘

## 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:

- 120 V maximum for MMX11 models.
- 240 V maximum for MMX12 and MMX32 models.
- 480 V maximum for MMX34 models.

## Circuit Breaker and Fuse Sizes

The adjustable frequency drive'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 <sup>1)</sup> |    | Fuse/Breaker<br>(UL-rated, class J, 600 V)<br>A | Wiring Size Range<br><br>AWG | Torque |     |      |     |
|----------------|-----------------------|----------------------------|----|-------------------------------------------------|------------------------------|--------|-----|------|-----|
|                |                       | kW                         | HP |                                                 |                              | ft-lbs | Nm  |      |     |
| MMX11AA1D7...  | 115 V<br>Single Phase | 0.25                       | ⅓  | 20                                              | 14                           | 0.44   | 0.6 |      |     |
| MMX11AA2D4...  |                       | 0.37                       | ½  |                                                 |                              |        |     |      |     |
| MMX11AA2D8...  |                       | 0.55                       | ¾  |                                                 |                              |        |     |      |     |
| MMX11AA3D7...  |                       | 0.75                       | 1  |                                                 |                              |        |     |      |     |
| MMX11AA4D8...  |                       | 1.1                        | 1½ | 30                                              | 10                           |        |     |      |     |
| MMX12AA1D7...  | 230 V<br>Single Phase | 0.25                       | ⅓  | 10                                              | 16                           | 0.44   | 0.6 |      |     |
| MMX12AA2D4...  |                       | 0.37                       | ½  |                                                 |                              |        |     |      |     |
| MMX12AA2D8...  |                       | 0.55                       | ¾  |                                                 |                              |        |     |      |     |
| MMX12AA3D7...  |                       | 0.75                       | 1  | 20                                              | 14                           |        |     |      |     |
| MMX12AA4D8...  |                       | 1.1                        | 1½ |                                                 |                              |        |     |      |     |
| MMX12AA7D0...  |                       | 1.5                        | 2  |                                                 |                              |        |     |      |     |
| MMX12AA9D6...  | 2.2                   | 3                          | 30 | 10                                              |                              |        |     |      |     |
| MMX32AA1D7...  | 230 V<br>Three Phase  | 0.25                       | ⅓  | 6                                               | 16                           |        |     | 0.44 | 0.6 |
| MMX32AA2D4...  |                       | 0.37                       | ½  |                                                 |                              |        |     |      |     |
| MMX32AA2D8...  |                       | 0.55                       | ¾  |                                                 |                              |        |     |      |     |
| MMX32AA3D7...  |                       | 0.75                       | 1  |                                                 |                              |        |     |      |     |
| MMX32AA4D8...  |                       | 1.1                        | 1½ | 10                                              | 16                           |        |     |      |     |
| MMX32AA7D0...  |                       | 1.5                        | 2  | 20                                              | 14                           |        |     |      |     |
| MMX32AA9D6...  |                       | 2.2                        | 3  |                                                 |                              |        |     |      |     |
| MMX34AA1D3...  | 460 V<br>Three Phase  | 0.37                       | ½  | 6                                               | 16                           | 0.44   | 0.6 |      |     |
| MMX34AA1D9...  |                       | 0.55                       | ¾  |                                                 |                              |        |     |      |     |
| MMX34AA2D4...  |                       | 0.75                       | 1  |                                                 |                              |        |     |      |     |
| MMX34AA3D3...  |                       | 1.1                        | 1½ |                                                 |                              |        |     |      |     |
| MMX34AA4D3...  |                       | 1.5                        | 2  | 10                                              | 16                           |        |     |      |     |
| MMX34AA5D6...  |                       | 2.2                        | 3  |                                                 |                              |        |     |      |     |
| MMX34AA7D6...  |                       | 3                          | —  |                                                 |                              |        |     |      |     |
| MMX34AA9D0...  |                       | 4                          | 5  |                                                 |                              |        |     |      |     |
| MMX34AA012...  |                       | 5.5                        | 7½ |                                                 |                              |        |     |      |     |
| MMX34AA014...  |                       | 7.5                        | 10 | 25                                              | 12                           |        |     |      |     |

1) kW @ 230 V/400 V, 50 Hz, 1500 min<sup>-1</sup>  
HP @ 230 V/460 V 60 Hz, 1800 rpm



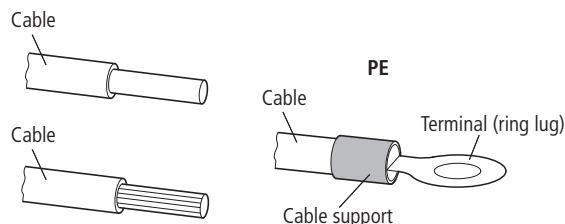
AWG = American Wire Gauge. Smaller numbers represent increasing wire thickness.  
MCM/kcmil = 1,000 circular mils, a measure of wire cross-sectional area  
mm<sup>2</sup> = square millimeters, a measure of wire cross-sectional area

## 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

MMX adjustable frequency drives provide solid-state motor overload protection, which depends on the proper setting of the following parameter: P7.2 "current limit".

Set the rated current [Amperes] of the motor(s) with the above parameters. The setting range is 0.2 \* rated current to 2 \* rated current, → manual AWB8230-1603.



### 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.