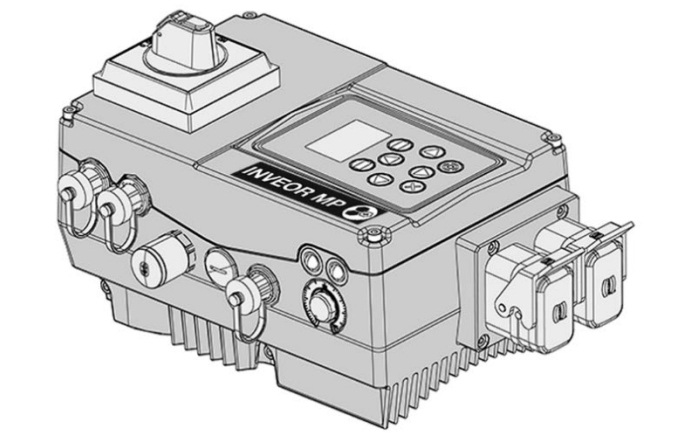




12062955-0003



Kurzanleitung

INVEOR MP Modular

DE

DOC02252409-0003

Legal notice

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General note on gender equality

KOSTAL Industrie Elektrik GmbH is aware of the importance of language with regard to the equality of women and men and always makes an effort to reflect this in the documentation. Nevertheless, for the sake of readability we are unable to use non-gender-specific terms throughout and use the masculine form instead.

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Bestimmungsgemäße Verwendung

Beim Antriebsregler INVEOR handelt es sich um ein Gerät für die Drehzahlregelung von Dreiphasen-Drehstrommotoren. Vor Installation und Benutzung des INVEOR muss dieses Dokument gelesen und verstanden worden sein. Verwenden Sie den Antriebsregler grundsätzlich bestimmungsgemäß. Das Gerät darf nur innerhalb des vorgesehenen Leistungsbereiches und unter den zulässigen Umgebungsbedingungen verwendet werden. Der Antriebsregler ist nicht zum Betrieb in explosionsgefährdeten Bereichen zugelassen. Der erlaubte Betriebsbereich, aller Komponenten, muss jederzeit eingehalten werden. Setzen Sie das Produkt ausschließlich nach den Angaben der ausführlichen Dokumentation (https://kostal-drives-technology.com/betriebsanleitung_mp_mod_de) und gemäß der vor Ort gültigen Normen und Richtlinien ein. Die in den technischen Daten gemachten Angaben sind unbedingt einzuhalten. Bei unsachgemäßer Verwendung können Schäden am Gerät und an anderen Sachwerten entstehen. Der Antriebsregler darf nur für den vorgesehenen Verwendungszweck eingesetzt werden.

!

WICHTIGE INFORMATION

Der Einsatz von Antriebsreglern in nicht ortsfesten Ausrüstungen gilt als außergewöhnliche Umweltbedingung und ist nur nach den jeweils vor Ort gültigen Normen und Richtlinien zulässig.

- Lassen Sie die Montage und Demontage nur von entsprechend qualifiziertem Personal vornehmen.
- Setzen Sie nur Personal ein, das hinsichtlich Aufstellung, Installation, Inbetriebnahme und Bedienung geschult ist.
- Nehmen Sie keine Änderungen am Antriebsregler vor.
- Beachten Sie Allgemeine und nationale Sicherheits- und Unfallverhütungsvorschriften
- Beim INVEOR können Berührungsströme > 3.5 mA auftreten. Bringen Sie aus diesem Grund, gemäß DIN EN 61800-5-1, einen zusätzlichen Schutzerdungsleiter mit demselben Querschnitt wie der ursprüngliche Schutzerdungsleiter an. Die Möglichkeit zum Anschluss eines zweiten Schutzerdungsleiters befindet sich unterhalb der Netzzuführung (mit Massesymbol gekennzeichnet) an der Außenseite des Gerätes. Im Lieferumfang der Adapterplatte befindet sich eine zum Anschluss geeignete M6 x 12 Schraube (Drehmoment 4,0 Nm).
- Beim Einsatz von Drehstrom-Frequenzumrichter sind herkömmliche FI-Schutzschalter vom Typ A, auch RCD (residual current-operated protective device) genannt, zum Schutz vor direkter oder indirekter Berührung nicht zugelassen! Der FI-Schutzschalter muss, gem. DIN VDE 0160 und EN 50178 ein allstromsensitiver FI-Schutzschalter (RCD Typ B) sein!
- Bei Geräten der BG. A - C (0,55 bis 5,5 kW) gilt es zwischen aufeinander folgenden Netzzuschaltungen mindestens 3 Sek. Pause einzuhalten
- Bei Geräten der BG. D (11 bis 30 kW) gilt es zwischen aufeinander folgenden Netzzuschaltungen mindestens 1 bis 2 min. Pause einzuhalten.

Kennzeichnungen

Am Gehäuse des Antriebsreglers sind Schilder und Kennzeichnungen angebracht. Diese Schilder und Kennzeichnungen dürfen nicht verändert oder entfernt werden.

Symbol	Bedeutung
	Gefahr durch Stromschlag und elektrische Entladung
	Gefahr
	Verbrennungsgefahr
	Gefahr durch Stromschlag und elektrische Entladung. Nach dem Ausschalten zwei Minuten warten (Entladezeit der Kondensatoren)
	Zusätzlicher Erdschluss
	Betriebsanleitung beachten und lesen
	Typenschild mit den wichtigsten technischen Daten und Seriennummer

1 | SICHERHEITSHINWEISE

GEFAHR!
LEBENSGEFAHR DURCH STROMSCHLAG UND ELEKTRISCHE ENTLADUNG!
TOD ODER SCHWERE VERLETZUNGEN
Im Antriebsregler liegen lebensgefährliche Spannungen an. Nur eine Elektrofachkraft darf das Gerät öffnen und daran arbeiten. Antriebsregler bei Montage, Wartung und Reparaturen immer spannungsfrei schalten und gegen Wiedereinschalten sichern. Folgende Klemmen können auch bei Motorstillstand gefährliche Spannungen führen:

- Netzanschlussklemmen X1: L1, L2, L3
- Motoranschlussklemmen X2: U, V, W

GEFAHR!
LEBENSGEFAHR DURCH STROMSCHLAG UND ELEKTRISCHE ENTLADUNG!
TOD ODER SCHWERE VERLETZUNGEN
Erden Sie das Gerät grundsätzlich nach DIN EN 61140; VDE 0140, NEC und sonstigen einschlägigen Normen. Der Antriebsregler muss vorschriftsmäßig zusammen mit dem Motor geerdet werden. Andernfalls können Tod oder schwerwiegende Verletzungen die Folge sein. Sollten bei Montage der Adapterplatte keine Federelemente verwendet werden, muss zur Herstellung einer korrekten Schutzleiterverbindung eine zusätzliche Verbindung zwischen Motor und Antriebsregler hergestellt werden. Nicht genutzte offene Kabelenden im Motoranschlusskasten müssen isoliert werden. Verwenden Sie geeignete Leitungsschutzschalter mit dem vorgeschriebenen Nennstrom zwischen Netz und Antriebsregler. Schadhafte Teile oder Bauteile grundsätzlich nur durch Originalteile ersetzen

2 min

Gefahr durch Stromschlag und elektrische Entladung. Nach dem Ausschalten zwei Minuten warten (Entladezeit der Kondensatoren)

VORSICHT!
VERBRENNUNGSGEFAHR DURCH HEISSE OBERFLÄCHEN!
SCHWERE VERBRENNUNGEN DER HAUT DURCH HEISSE OBERFLÄCHEN!
Lassen Sie den Kühlkörper des Antriebsreglers ausreichend abkühlen.

GEFAHR!
LEBENSGEFAHR DURCH WIEDER ANLAUFENDE MOTOREN UND UMLAUFEENDE MECHANISCHE TEILE!
TOD ODER SCHWERE VERLETZUNGEN!
Das Nichtbeachten kann zum Tod, schweren Körperverletzungen oder erheblichem Sachschaden führen! Bestimmte Parametereinstellungen und das Ändern von Parametereinstellungen während des Betriebes können bewirken, dass der Antriebsregler INVEOR nach einem Ausfall der Versorgungsspannung automatisch wieder anläuft, bzw. dass es zu unerwünschten Veränderungen des Betriebsverhaltens kommt.

Montagefläche und nähere Umgebung (nur bei Wandmontage)

Die Montagefläche und deren nähere Umgebung müssen folgende Eigenschaften aufweisen: Ortsfest, senkrecht, eben, nicht leicht entflammbar, nicht dauerhaft vibrierend. Die Montagefläche muss Halt für Befestigungsschrauben bieten.

Transport und Lagerung

Sachschäden möglich
Beschädigungsgefahr des Antriebsreglers!
Gefahr der Beschädigung des Antriebsreglers durch nicht sachgerechten Transport, Lagerung, Aufstellung und Montage!
Transportieren Sie den Antriebsregler generell sachgerecht in der Originalverpackung auf einer Palette.
Lagern Sie den Antriebsregler grundsätzlich fachgerecht.
Lassen Sie die Aufstellung und Montage nur von qualifiziertem Personal vornehmen.

Vollständige Betriebsanleitung

Eine ausführliche Betriebsanleitung zum INVEOR Antriebsregler finden Sie im Internet unter: https://kostal-drives-technology.com/betriebsanleitung_mp_mod_de

EU-Konformitätserklärung

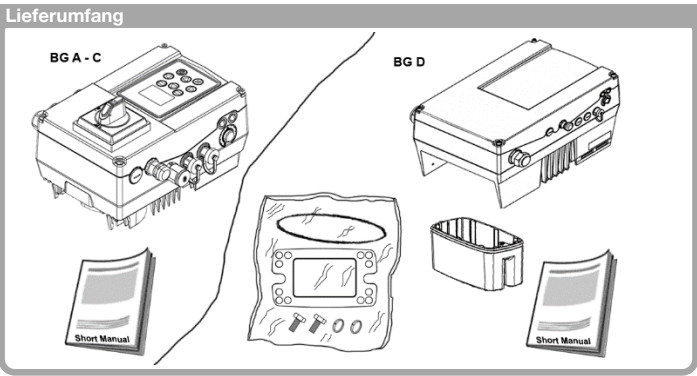
Die Antriebsregler erfüllen die grundlegenden Anforderungen gemäß EU-Konformitätserklärung (siehe <https://www.kostal-drives-technology.com/download>)

Kontaktdaten und Service

Bei technischen Fragen, wenden Sie sich bitte an unsere Service Hotline.

Land	Telefon	E-mail
Deutschland und andere Länder	+49 (0)2331 80 40-848	INVEOR-service@kostal.com

2 | INSTALLATION



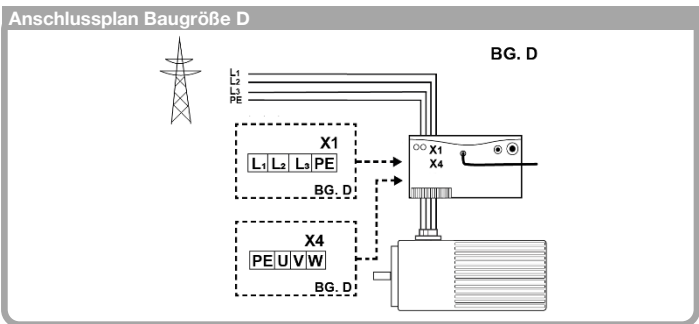
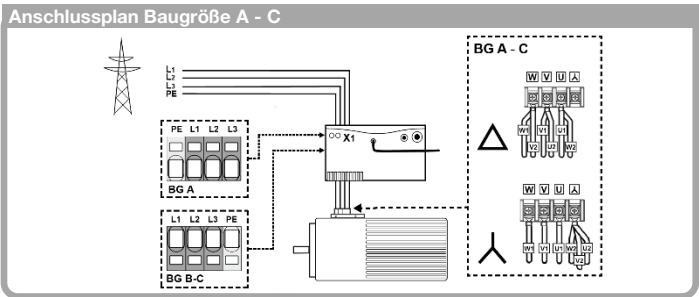
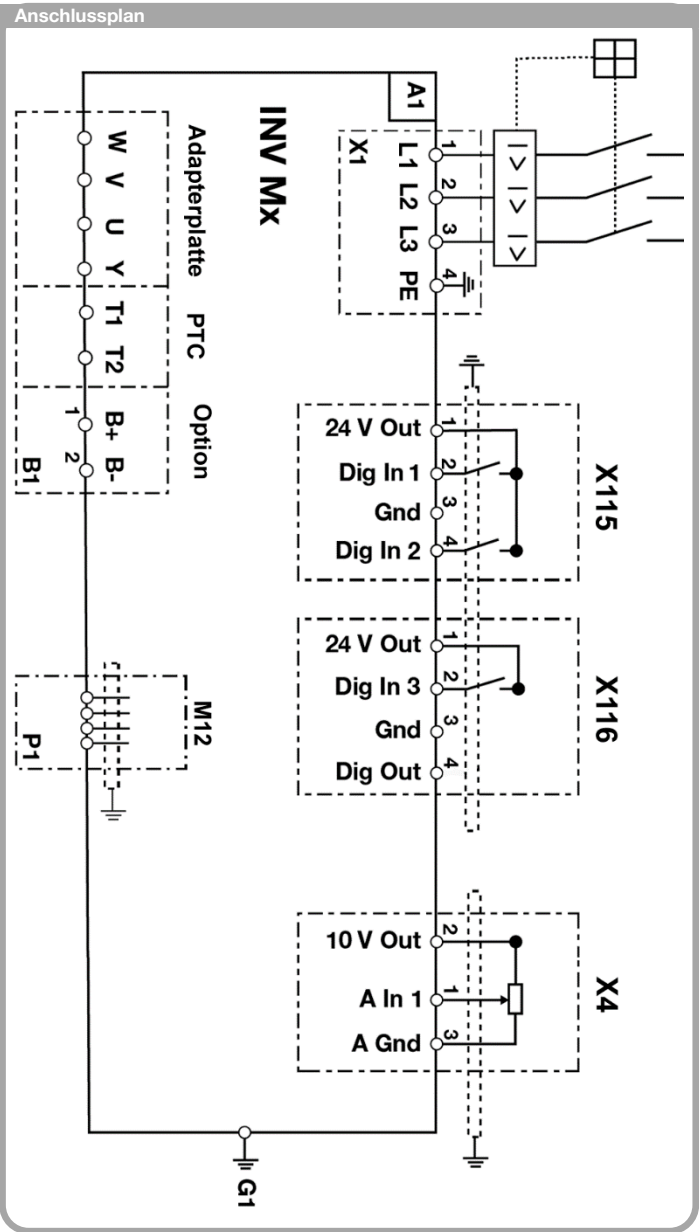
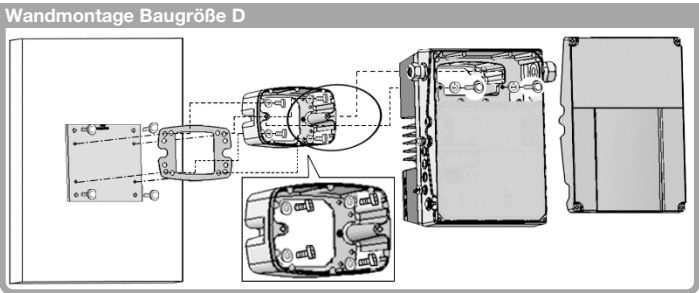
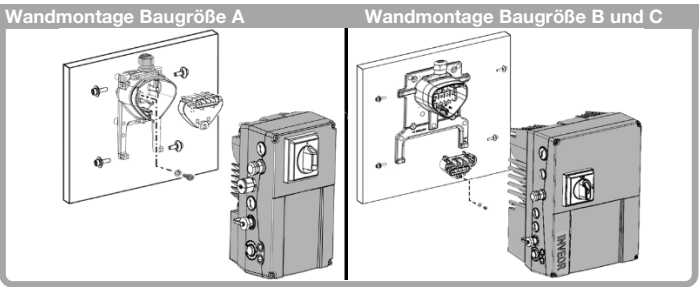
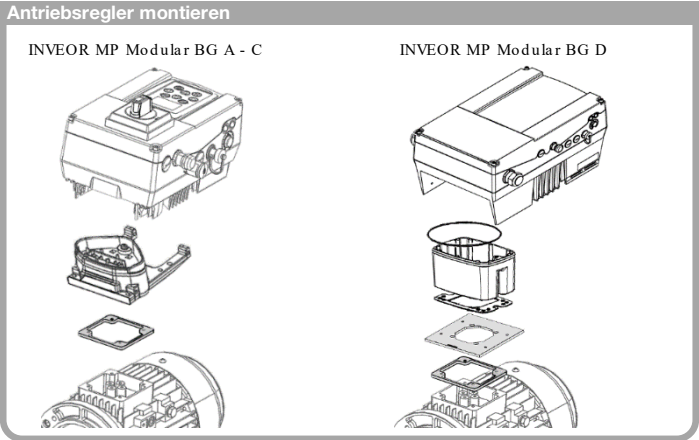
Montageort

max. 2000 m

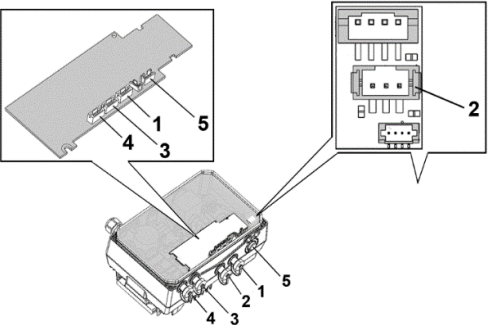
200 200 200

≤ 96 %

- 40...+ 50 °C
- 40...+ 122 °F

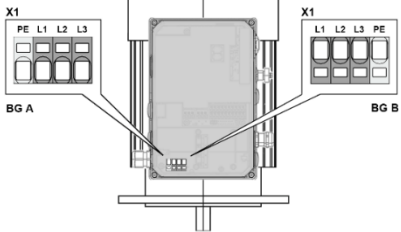


Belegung IO Modul / Belegung Schnittstellen

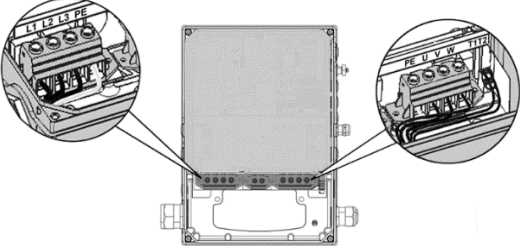


Belegung Schnittstellen		
1	X107	Modbus
2	X108	CANopen
3	X15	IO 1
4	X16	IO 2
5	X4	Poti

Leistungsanschlüsse Baugröße A - C

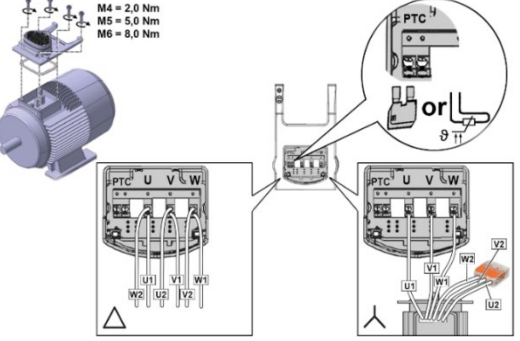


Leistungsanschlüsse Baugröße D

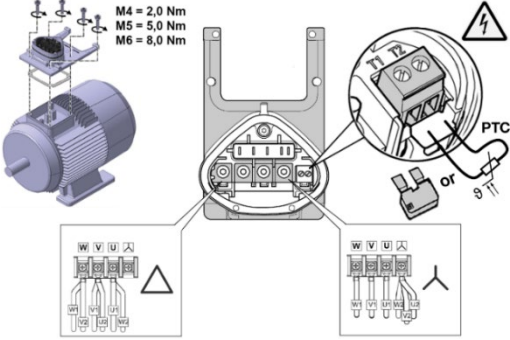


3 | GERÄT ANSCHLIESSEN MOTORMONTAGE

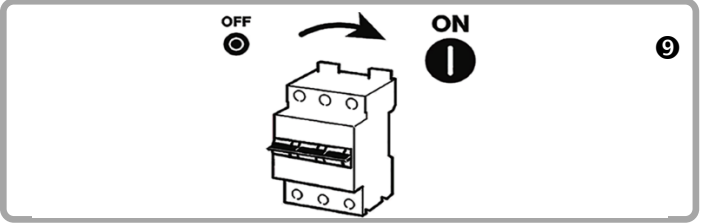
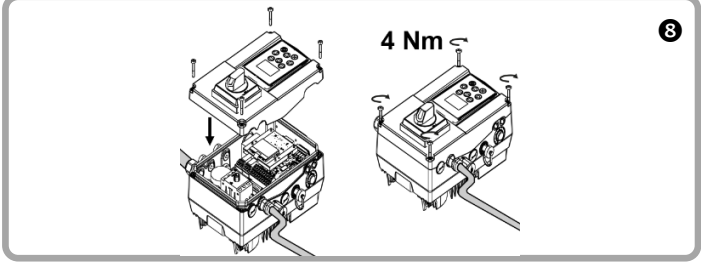
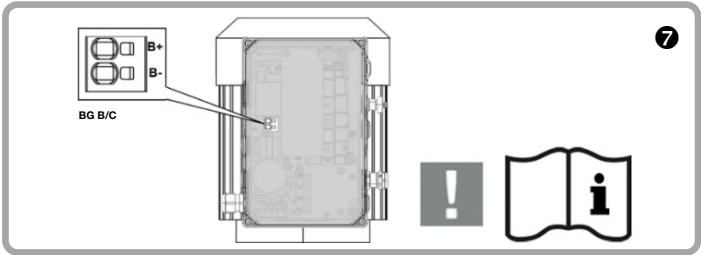
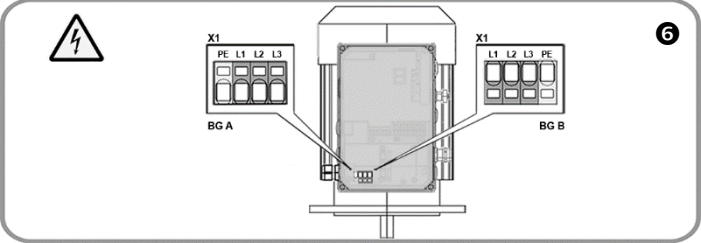
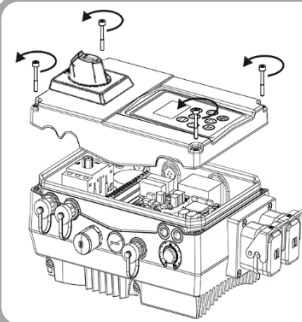
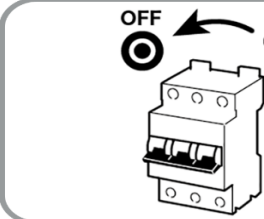
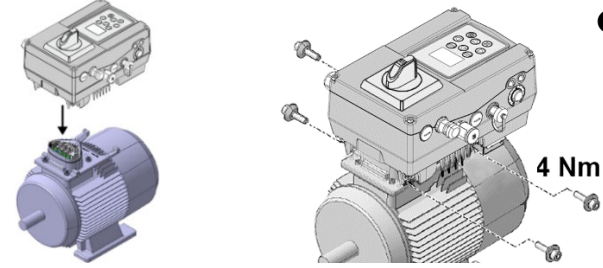
INVEOR Baugröße A



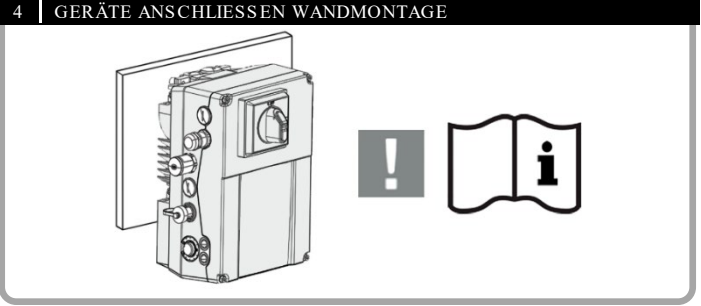
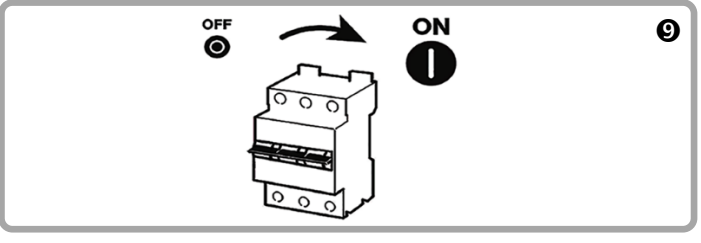
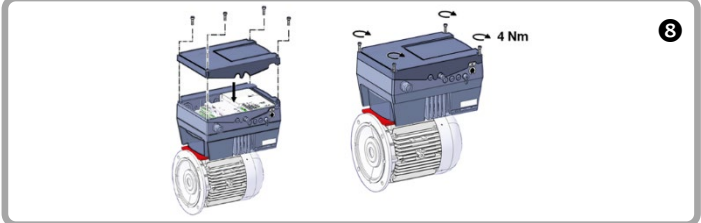
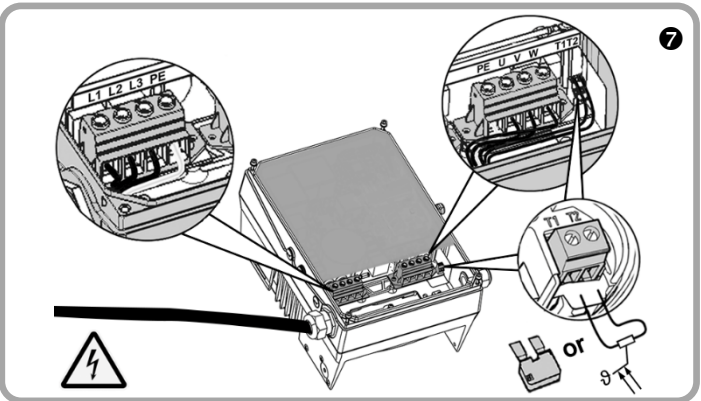
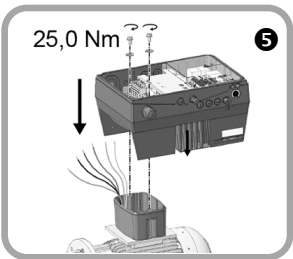
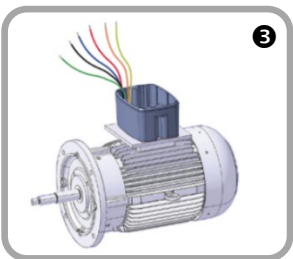
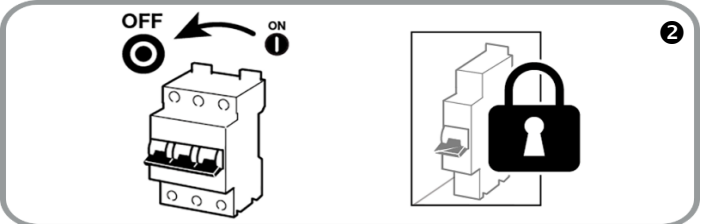
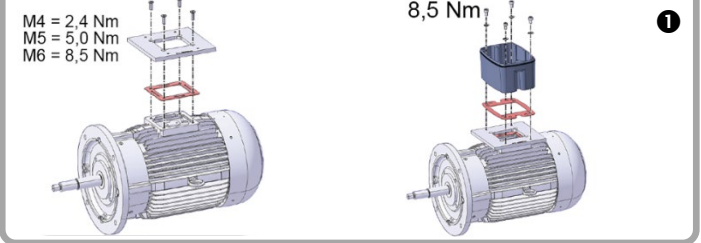
INVEOR Baugröße B - C



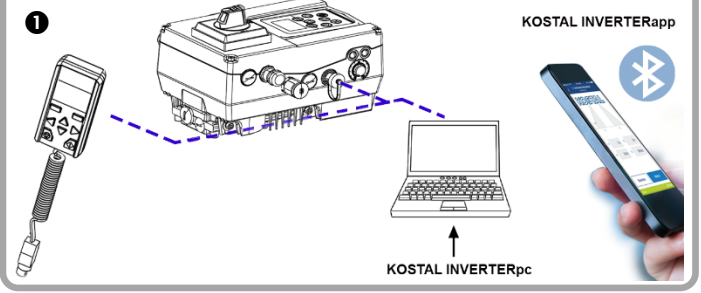
INVEOR Baugröße A - C



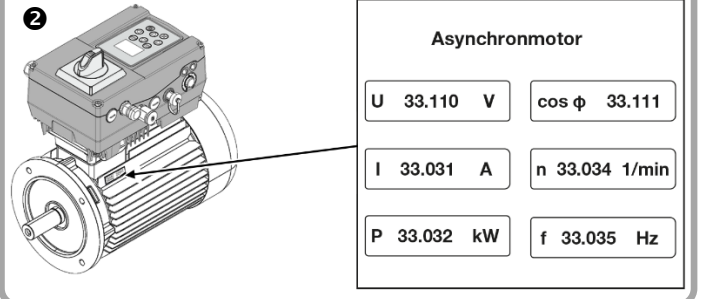
INVEOR Baugröße D



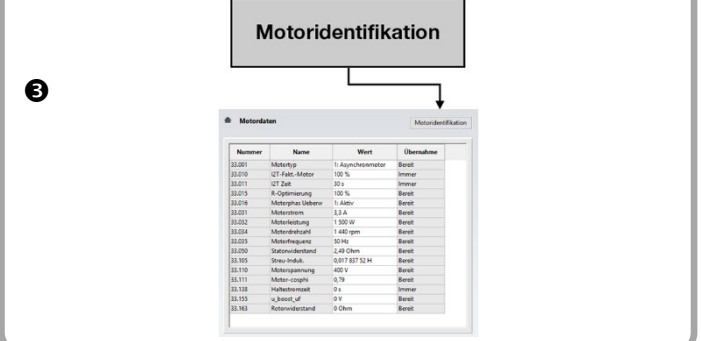
5 | SCHNELLINBETRIEBNAHME



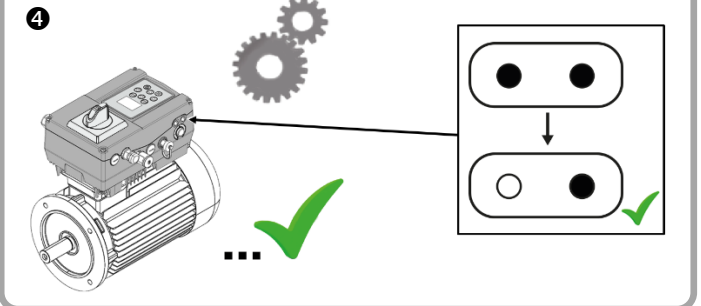
Parameter / Motordaten



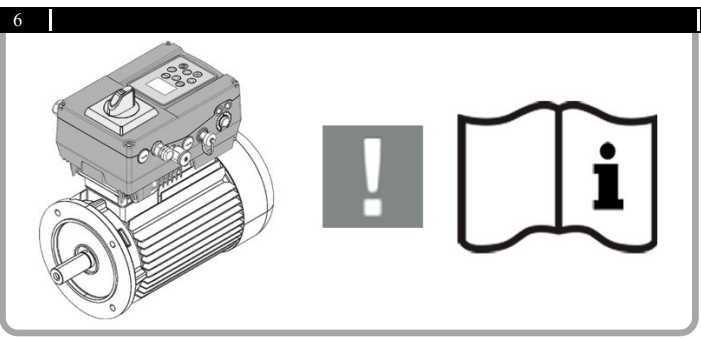
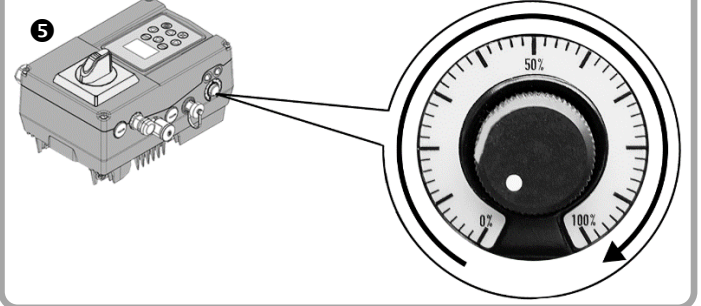
Motoridentifikation

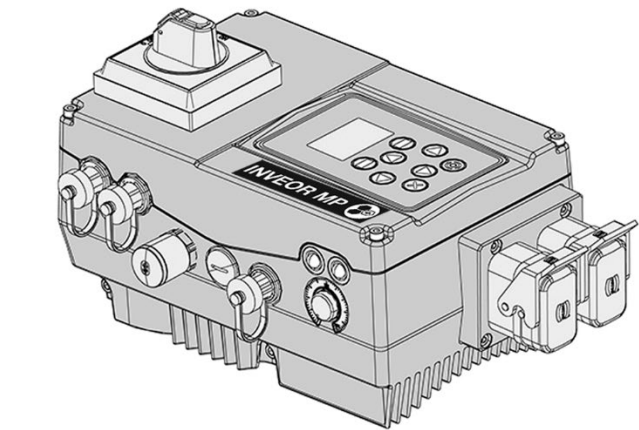


Motordaten werden berechnet



Drehzahleinstellung über Analogeingang





12062955-0003

Smart connections.

Short manual

INVEOR MP Modular

EN

DOC02252501-0003

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EN

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Proper use

The INVEOR drive controller is a device for the speed control of three-phase AC motors. Before installing and using the INVEOR, the operator must have read and understood this document. Always use the drive controller as intended. The device may only be used within the permissible power range and under the permissible ambient conditions. The drive controller may not be operated in areas where there is a danger of explosion. The permitted operating range of all components must be observed at all times. Only use the product in accordance with the information provided in the detailed documentation (https://kostal-drives-technology.com/betriebsanleitung_mp_mod_en) and in accordance with the standards and guidelines applicable on site. It is essential that the information provided in the technical data is observed.

Material damage to the device and other equipment may occur if used improperly. The drive controller may therefore only be used for its intended purpose.

! IMPORTANT INFORMATION

Using drive controllers in equipment that is not fixed is considered as an exceptional environmental condition and is only permitted if allowed by the standards and guidelines applicable on site.

- Only allow appropriately qualified staff to undertake assembly and disassembly.
- Only use staff who are trained in mounting, installation, commissioning and handling.
- Do not modify the drive controller.
- Observe general and national safety and accident prevention regulations
- The INVEOR may have touch currents of > 3.5 mA.
In accordance with DIN EN 61800-5-1, an extra protective grounding conductor of the same cross-section as the original protective grounding conductor should therefore be fitted. A second protective grounding conductor can be connected under the mains supply (position marked with a ground symbol) on the outside of the device. An M6 x 12 screw (4.0 Nm torque) suitable for this connection is provided with the adapter plate.
- If three-phase frequency inverters are used, the use of conventional type A FI protection switches, also known as RCDs (residual current-operated protective devices), is not permitted as protection against direct or indirect contact!
According to DIN VDE 0160 and EN 50178, the FI protection switch must be universal current sensitive (RCD type B).
- For devices of sizes A - C (0.55 to 5.5 kW), a pause of at least 3 sec. must be observed between consecutive grid connections.
- For devices of size D (11 to 30 kW), a pause of at least 1 to 2 minutes must be observed between consecutive grid connections.

Markings

Signs and labels are applied to the housing of the drive controller. These signs and labels may not be altered or removed.

Symbol	Meaning
	Danger due to electrical shock and discharge
	Danger
	Risk of burns
	Danger due to electrical shock and discharge. Wait two minutes (discharge time of the capacitors) after shut-down
	Additional earth connection
	Observe and read operating manual
	Type plate containing the most important technical data and serial number

1 | SAFETY INSTRUCTIONS

DANGER!
RISK OF DEATH DUE TO ELECTRICAL SHOCK AND DISCHARGE!
DEATH OR SERIOUS INJURY
Life-threatening voltages are present in the drive controller. Only a qualified electrician may open and perform work on the device. Always de-energise the drive controller during installation, maintenance and repairs, and secure it against being switched back on. The following terminals may carry dangerous voltages even when the motor is not running:

- Supply terminals X1: L1, L2, L3
- Motor connection terminals X2: U, V, W

DANGER!
RISK OF DEATH DUE TO ELECTRICAL SHOCK AND DISCHARGE!
DEATH OR SERIOUS INJURY
Always ground the device in accordance with DIN EN 61140; VDE 0140, NEC and other relevant standards. The drive controller must be grounded with the motor according to relevant regulations. Non-compliance may result in death or serious injury. If spring elements are not used when assembling the adapter plate, there must be an extra connection between the motor and drive controller to produce a correct protective conductor connection. Unused open cable ends in the motor connection box must be insulated. Use suitable line circuit breakers with the prescribed nominal current between the mains and drive controller. Only ever replace damaged parts or components with original parts

Danger due to electrical shock and discharge. Wait two minutes (discharge time of the capacitors) after shut-down

DANGER!
RISK OF DEATH DUE TO RESTARTING MOTORS AND REVOLVING MECHANICAL PARTS!
DEATH OR SERIOUS INJURY!
Non-observance may result in death, serious injury or damage. Certain parameter settings and changing parameter settings during operation may result in the INVEOR drive controller restarting automatically after the supply voltage has failed, or in undesirable changes in the operating behaviour.

Installation surface and immediate surroundings (only with wall mounting)

The installation surface and its immediate surroundings must display the following properties: fixed, vertical, level, not highly flammable, not permanently vibrating. The installation surface must provide a hold for retaining bolts.

Transport and storage

Damage to property possible
Risk of damage to drive controller!
Risk of damage to drive controller from improper transport, storage, installation and assembly!
In general, transport the drive controller correctly in its original packaging on a pallet. Always store the drive controller properly. Only allow qualified staff to undertake installation and assembly.

Complete operating manual

You will find a detailed operating manual for the INVEOR drive controller online at: https://kostal-drives-technology.com/betriebsanleitung_mp_mod_en

EU Declaration of Conformity

The drive controllers fulfil the basic requirements of the EU Declaration of Conformity (see <https://www.kostal-drives-technology.com/download>)

Contact details and service

If you have any technical questions, please contact our service hotline.

Country	Phone	E-mail
Germany and other countries	+49 (0)2331 80 40-848	INVEOR-service@kostal.com

2 | INSTALLATION

Scope of delivery

Sizes A - C

Size D

Installation site

Installing drive controller

INVEOR MP Modular sizes A - C

INVEOR MP Modular size D

Wall mounting, size A

Wall mounting, sizes B and C

Wall mounting, size D

Connection diagram

Adapter plate PTC Option

INV MX

X1

X15

X16

X4

G1

Connection diagram for sizes A - C

Size A

Sizes B - C

Sizes A - C

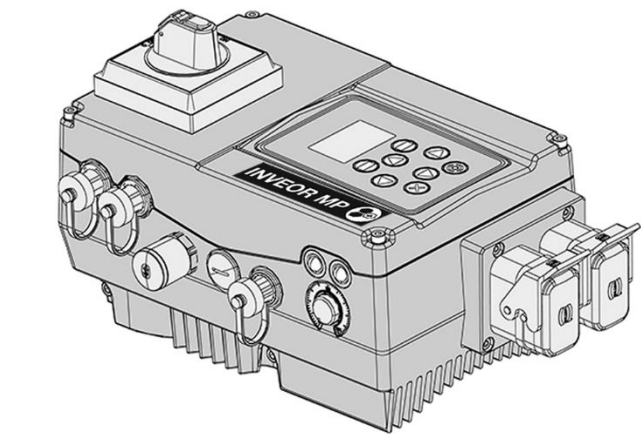
Connection diagram for size D

Size D

X1

X4

Size D



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General note on gender equality

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Utilizzo conforme alla destinazione d'uso

Il regolatore di velocità INVEOR un dispositivo per la regolazione del numero di giri di motori a corrente alternata trifase. Prima dell'installazione e dell'utilizzo dell'INVEOR è importante aver letto e compreso questo documento. Utilizzare il regolatore di velocità in conformità alla destinazione d'uso. Il dispositivo deve essere impiegato esclusivamente all'interno del range di potenza previsto e sulla base delle condizioni ambientali ammesse. Il regolatore di velocità non deve essere utilizzato in aree a rischio di esplosione. Il campo di funzionamento consentito di tutti i componenti deve essere rispettato in ogni momento. Utilizzare il prodotto solo in conformità con la documentazione dettagliata (https://kostal-drives-technology.com/betriebsanleitung_mp_mod_it) conformemente alle norme e direttive in vigore in loco. Le indicazioni riportate nei dati tecnici devono essere rispettate. In caso di utilizzo non conforme, potrebbero inoltre verificarsi danni al dispositivo e ad altri oggetti. Il regolatore di velocità deve essere utilizzato unicamente per lo scopo previsto.

!

INFORMAZIONE IMPORTANTE

L'uso di regolatori di velocità in attrezzature non fisse è da considerarsi condizione ambientale straordinaria ed è consentito soltanto in conformità alle norme e direttive vigenti in loco.

- Far eseguire l'installazione e la disinstallazione soltanto da personale qualificato.
- Impiegare esclusivamente personale istruito riguardo alla messa in opera, all'installazione, alla messa in servizio e all'uso.
- Non apportare modifiche al regolatore di velocità.
- Osservare le norme di sicurezza e antinfortunistica generali e nazionali
- Nell'INVEOR possono verificarsi correnti di contatto > 3.5 mA.
Per tale ragione, applicare un conduttore di protezione per la messa a terra supplementare con la stessa sezione trasversale del conduttore di protezione per la messa a terra originale, conformemente a DIN EN 61800-5-1. È possibile effettuare il collegamento di un secondo conduttore di protezione per la messa a terra al di sotto dell'alimentazione di rete (contrassegnato dal simbolo di massa) sul lato esterno del dispositivo. Nella fornitura della piastra adattatrice è presente una vite M6 x 12 adatta al collegamento (coppia 4,0 Nm).
- Quando si usano convertitori di frequenza a corrente trifase, non sono consentiti interruttori automatici FI tradizionali del tipo A, detti anche RCD (residual current-operated protective device), per la protezione da contatto diretto o indiretto!
L'interruttore automatico FI deve essere un interruttore automatico FI sensibile a tutte le correnti (RCD tipo B) conformemente a DIN VDE 0160 e EN 50178!
- Per i dispositivi di taglia A - C (da 0,55 a 5,5 kW) occorre rispettare una pausa di almeno 3 secondi tra attivazioni consecutive sulla rete
- Per i dispositivi di taglia D (da 11 a 30 kW) occorre rispettare una pausa di almeno 1-2 minuti tra le attivazioni consecutive della rete.

Signatura

Sull'involucro del regolatore di velocità sono applicati contrassegni e targhette. Tali contrassegni e targhette non devono essere modificati né eliminati.

Simbolo	Significato
	Pericolo per scossa e scarica elettrica
	Pericolo
	Pericolo di ustioni
	Pericolo per scossa elettrica e scarica elettrica. Dopo lo spegnimento, attendere due minuti (tempo di scarica dei condensatori)
	Collegamento a terra supplementare
	Leggere ed attenersi alle istruzioni per l'uso
	Le targhette del tipo devono avere i dati tecnici più importanti e il numero seriale

1 |

INDICAZIONI DI SICUREZZA

!

PERICOLO!
PERICOLO DI MORTE PER SCOSSA E SCARICA ELETTRICA!
MORTE O GRAVI LESIONI
Nel regolatore di velocità ci sono tensioni mortali. Solo un elettricista specializzato può aprire il dispositivo e operare su di esso. Durante l'installazione, la manutenzione o la riparazione, togliere sempre la tensione al regolatore di velocità e impedirne la riaccensione. Le seguenti morsettiere possono condurre tensioni pericolose anche a motore spento:

- Morsettiere di alimentazione dalla rete X1: L1, L2, L3
- Morsettiere di connessione del motore X2: U, V, W

!

PERICOLO!
PERICOLO DI MORTE PER SCOSSA E SCARICA ELETTRICA!
MORTE O GRAVI LESIONI
Collegare l'apparecchio a terra in base a DIN EN 61140; VDE 0140, NEC e alle altre norme pertinenti. Il regolatore di velocità deve essere collegato a terra insieme al motore, secondo quanto prescritto. In caso contrario possono verificarsi gravi lesioni o la morte. Se durante l'installazione della piastra adattatrice non viene utilizzato alcun elemento a molla, per la realizzazione di un collegamento corretto del conduttore di protezione deve essere realizzato un collegamento supplementare tra motore e regolatore di velocità. Le estremità aperte, non utilizzate, dei cavi nelle cassette di connessione del motore devono essere isolate. Tra rete e regolatore di velocità, utilizzare interruttori automatici appropriati alla corrente nominale prescritta. Sostituire le parti o i componenti danneggiati soltanto con ricambi originali

Pericolo per scossa elettrica e scarica elettrica. Dopo lo spegnimento, attendere due minuti (tempo di scarica dei condensatori)

!

CAUTELA!
PERICOLO DI USTIONI A CAUSA DI SUPERFICI ROVENTI!
GRAVI SCOTTATURE DELLA PELLE A CAUSA DI SUPERFICI ROVENTI!
Lasciare raffreddare sufficientemente il dissipatore di calore del regolatore di velocità.

!

PERICOLO!
PERICOLO DI MORTE PER MOTORI CHE SI RIAVVIANO E COMPONENTI MECCANICI IN MOVIMENTO!
MORTE O GRAVI LESIONI!
La mancata osservanza può causare la morte, gravi lesioni fisiche o consistenti danni materiali! Determinate impostazioni di parametri e la modifica di impostazioni di parametri durante il funzionamento possono causare il riavvio automatico del regolatore di velocità INVEOR dopo un tempo di assenza della tensione di alimentazione, oppure si possono verificare variazioni indesiderate del comportamento nel funzionamento.

Superficie di montaggio e immediate vicinanze (solo in caso di montaggio a parete)

La superficie di montaggio e le immediate vicinanze devono avere le seguenti caratteristiche: fissa, verticale, in piano, non facilmente infiammabile, non permanentemente vibrante. La superficie di montaggio deve fornire supporto per le viti di fissaggio.

Trasporto e stoccaggio

Sono possibili danni materiali
Rischio di danneggiamento del regolatore di velocità!
Pericolo di danni al regolatore di velocità a causa di trasporto, stoccaggio, installazione e montaggio impropri!
Trasportare il regolatore di velocità in modo appropriato nella confezione originale su un pallet.
Immagazzinare il regolatore di velocità a regola d'arte.
Fare eseguire l'installazione e il montaggio soltanto da personale qualificato.

Istruzioni per l'uso complete

Istruzioni per l'uso esaustive per il regolatore di velocità INVEOR sono disponibili in internet all'indirizzo:
https://kostal-drives-technology.com/betriebsanleitung_mp_mod_it

Dichiarazione di conformità UE

I regolatori di velocità soddisfano i requisiti fondamentali ai sensi della dichiarazione di conformità UE (vedere <https://www.kostal-drives-technology.com/download>.)

Contatti e assistenza

In caso di domande tecniche, si prega di rivolgersi alla nostra assistenza telefonica.

Paese	Telefono	E-mail
Germania e altri paesi	+49 (0)2331 80 40-848	INVEOR-service@kostal.com

2 | INSTALLAZIONE

Volume di fornitura

Taglia A – C

Taglia D

Luogo di installazione

max. 2000 m

200

200

200

≤ 96 %

- 40...+ 50 °C

- 40...+ 122 °F

Installazione del regolatore di velocità

INVEOR MP Modular taglia A - C

INVEOR MP Modular taglia D

Montaggio a parete taglia A

Montaggio a parete taglia B e C

Montaggio a parete taglia D

Schema dei collegamenti

INV MX

Piastra adattatrice

PTC

Opzione

X1

A1

L1 L2 L3 PE

1 2 3 4

24 V Out

Dig In 1

Gnd

Dig In 2

X115

1 2 3 4

24 V Out

Dig In 3

Gnd

Dig Out

X116

1 2 3 4

10 V Out

A In 1

A Gnd

X4

1 2 3

G1

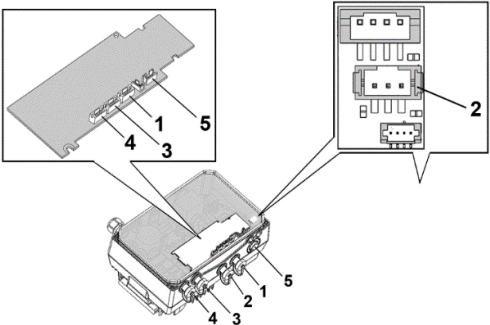
Schema collegamenti taglia A - C

Taglia A – C

Schema collegamenti taglia D

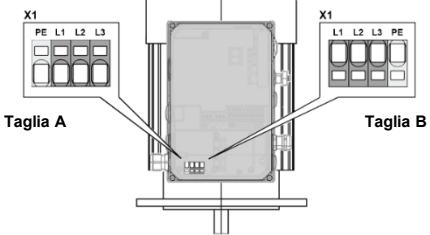
Taglia D

Occupazione modulo IO / Occupazione interfacce

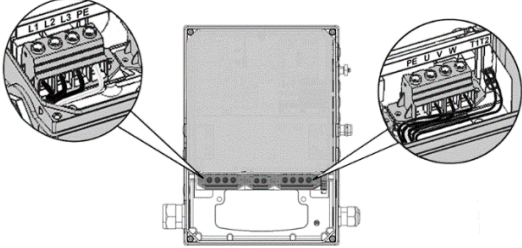


Occupazione interfacce		
1	X107	Modbus
2	X108	CANopen
3	X15	IO 1
4	X16	IO 2
5	X4	Potenzimetro

Connessioni di potenza taglia A - C

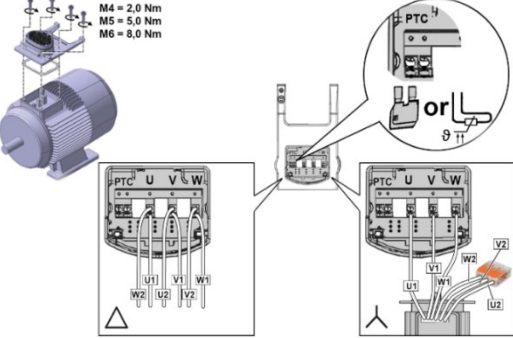


Connessioni di potenza taglia D

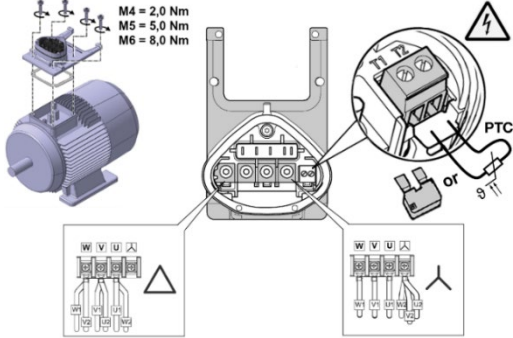


3 | COLLEGAMENTO DEL DISPOSITIVO MONTAGGIO MOTORE

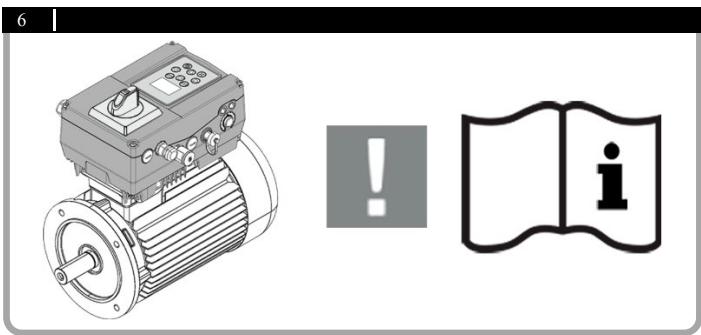
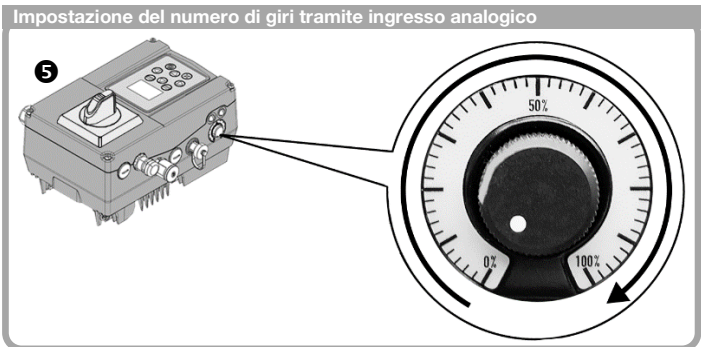
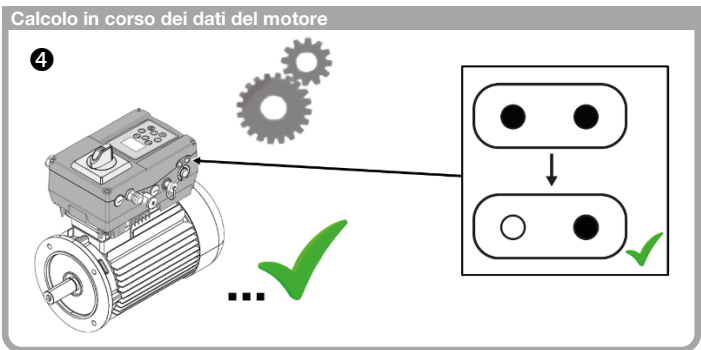
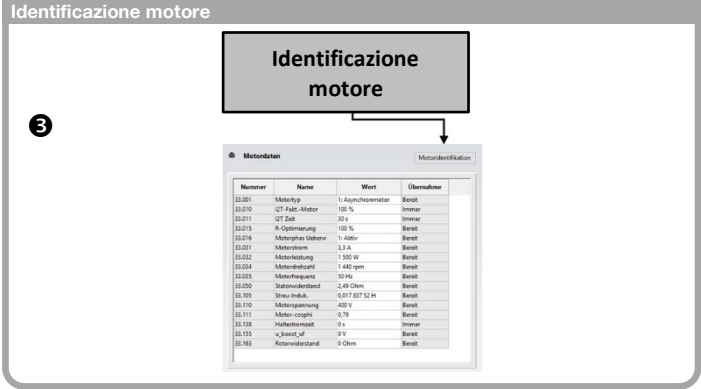
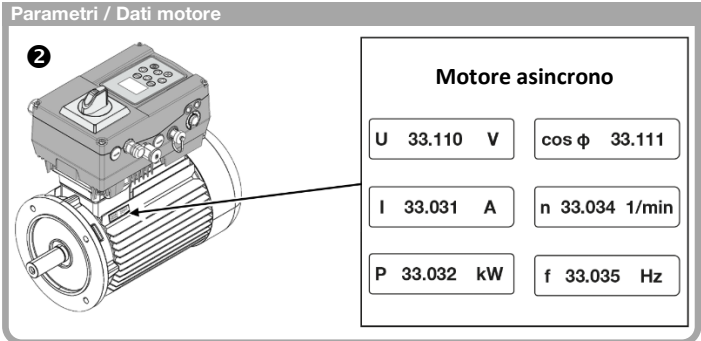
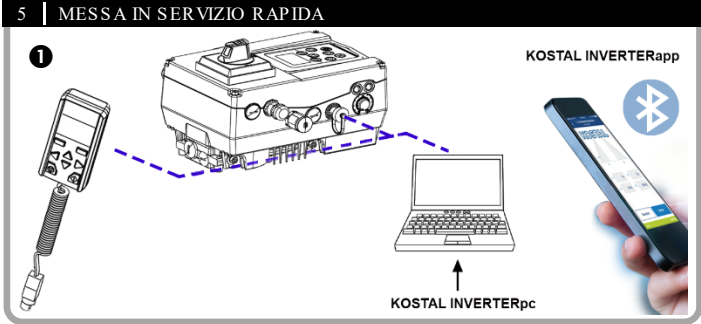
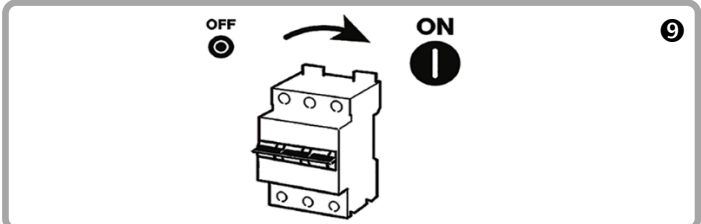
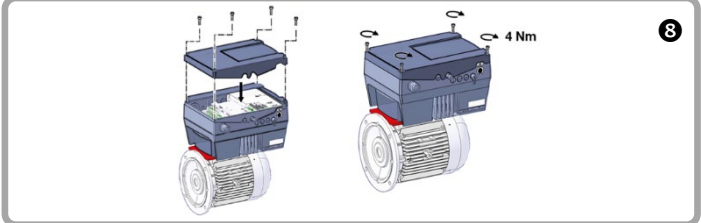
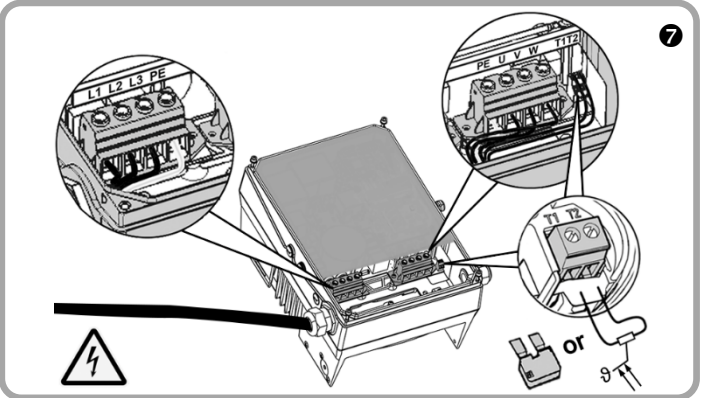
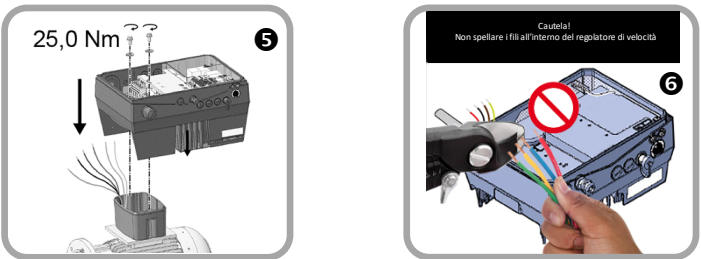
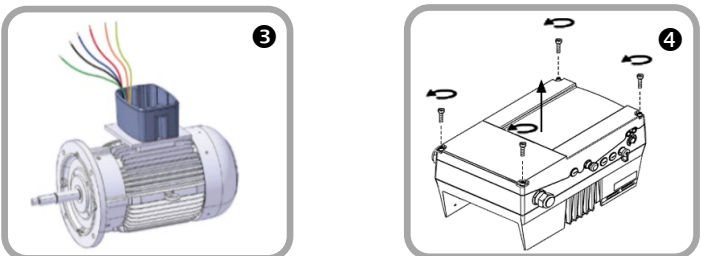
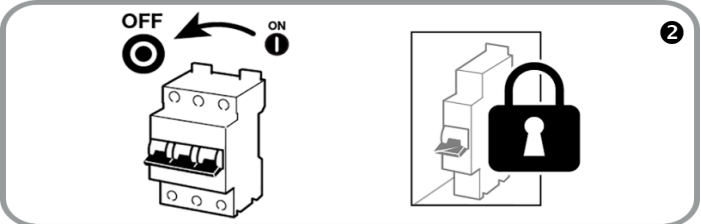
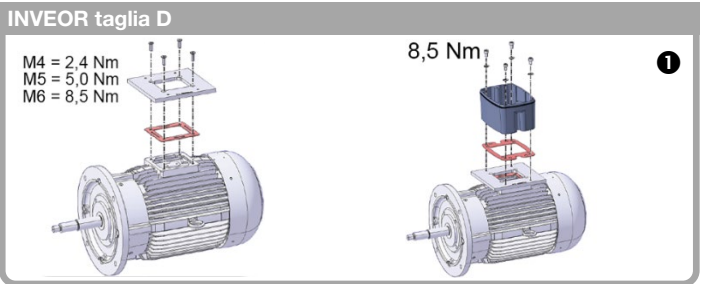
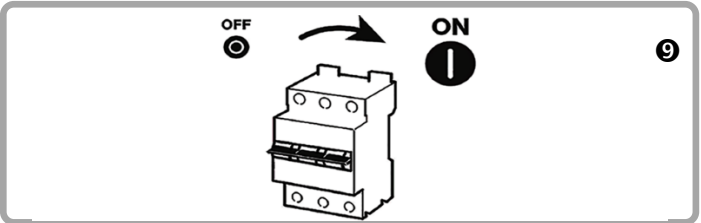
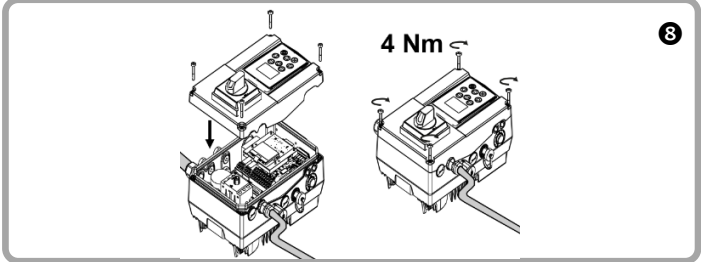
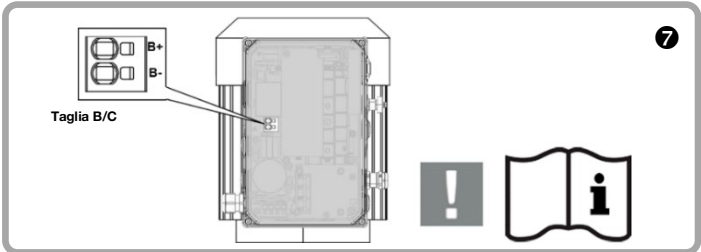
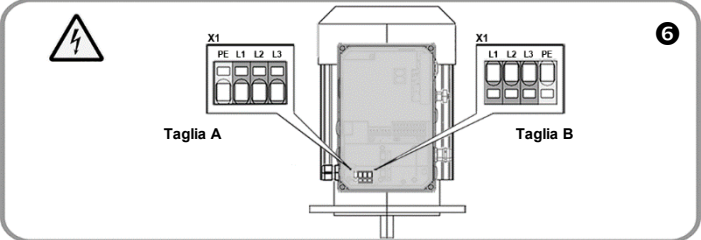
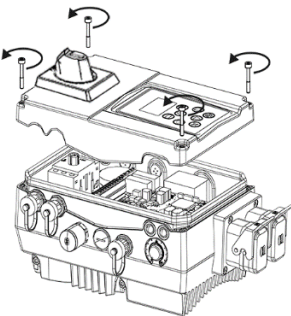
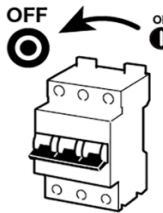
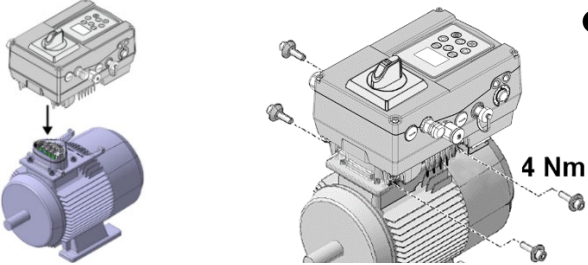
INVEOR taglia A

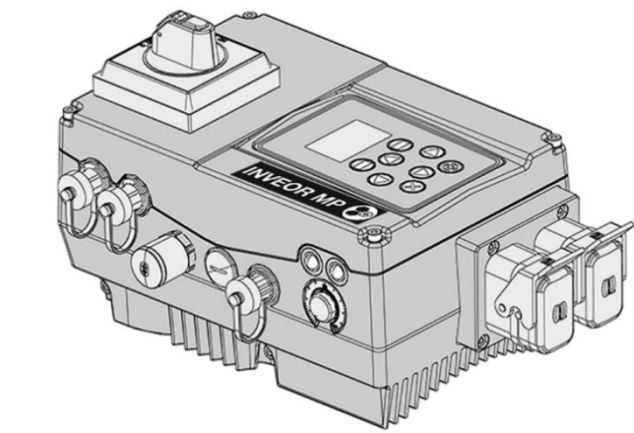


INVEOR taglia B - C



INVEOR taglia A - C





12062955-0003



Instrucciones breves

INVEOR MP Modular ES

DOC02252507-0003

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Uso adecuado

En el caso del regulador de accionamiento INVEOR se trata de un aparato para la regulación de velocidad de motores trifásicos. Antes de la instalación y el uso del INVEOR debe haberse leído y comprendido este documento. Utilice principalmente el regulador de accionamiento según el uso previsto. El equipo solo debe emplearse dentro del rango de potencia previsto y bajo las condiciones ambientales admisibles. El regulador de accionamiento no está autorizado para el funcionamiento en zonas con peligro de explosión. El margen de funcionamiento permitido de todos los componentes debe cumplirse en todo momento. Utilice únicamente el producto según los datos de la detallada documentación (https://kostal-drives-technology.com/betriebsanleitung_mp_mod_en) y según las normas y directivas válidas in situ. Las indicaciones de los datos técnicos deben cumplirse imprescindiblemente. En caso de uso no adecuado pueden producirse daños en el equipo y otros bienes materiales. El regulador de accionamiento debe utilizarse exclusivamente para el uso previsto.

INFORMACIÓN IMPORTANTE

- El uso de reguladores de accionamiento en equipamientos no fijos se considera una condición ambiental extraordinaria y solo se admite según las correspondientes normas y directivas vigentes in situ.
- Encargue el montaje y el desmontaje únicamente a personal cualificado de forma correspondiente.
 - Contrate solo a personal con la debida formación para el montaje, la instalación, la puesta en funcionamiento y el manejo.
 - No realice modificaciones en el regulador de accionamiento.
 - Tenga en cuenta las disposiciones de seguridad y de prevención de accidentes generales y nacionales
 - En el INVEOR pueden producirse corrientes de contacto > 3,5 mA. Por este motivo, según DIN EN 61800-5-1 instale un conductor protector de puesta a tierra adicional con la misma sección que el conductor protector de puesta a tierra original. La posibilidad de conectar un segundo conductor de protección por puesta a tierra se halla debajo de la alimentación de red (identificada con símbolo de masa) en la parte exterior del aparato. El volumen de suministro de la placa adaptadora incluye un tornillo M6 x 12 adecuado para la conexión (par de apriete 4,0 Nm).
 - ¡Al utilizar convertidores de frecuencia de corriente trifásica no se permiten interruptores protectores FI convencionales del tipo A, también denominados RCD (del inglés residual current-operated protective device o dispositivo protector accionado por corriente residual), para proteger frente a contacto directo o indirecto! ¡El interruptor protector FI debe ser según DIN VDE 0160 y EN 50178 un interruptor protector FI sensible a todo tipo de corrientes (RCD tipo B)!
 - En equipos de los tamaños A - C (0,55 a 5,5 kW) debe mantenerse una pausa de como mínimo 3 seg. entre conexiones de red consecutivas
 - En equipos del tamaño D (11 a 30 kW) debe mantenerse una pausa de como mínimo 1-2 min. entre conexiones de red consecutivas

Identificaciones

En la carcasa del regulador de accionamiento se han colocado rótulos e identificaciones. que no deben ser modificados ni retirados.

Símbolo	Significado
	Peligro debido a electrocución y descarga eléctrica
	Peligro
	Peligro de quemaduras
	Peligro debido a electrocución y descarga eléctrica. Después de la desconexión es necesario esperar dos minutos (tiempo de descarga de los condensadores)
	Conexión de tierra adicional
	Leer y respetar las instrucciones de uso
	Placa de características con los datos técnicos más importantes y el número de serie

1 | INDICACIONES DE SEGURIDAD

¡PELIGRO!
¡PELIGRO DE MUERTE DEBIDO A ELECTROCUCIÓN Y DESCARGA ELÉCTRICA!
MUERTE O LESIONES GRAVES
En el regulador de accionamiento hay tensiones peligrosas. Está permitido abrir el equipo y realizar trabajos en el mismo únicamente a un electricista profesional.
Desconecte siempre de la tensión el regulador de accionamiento durante el montaje, el mantenimiento y las reparaciones y asegúrelo contra reconexión. Los siguientes bornes también pueden conducir tensiones peligrosas durante la parada del motor:

- bornes de conexión de red X1: L1, L2, L3
- bornes de conexión del motor X2: U, V, W

¡PELIGRO!
¡PELIGRO DE MUERTE DEBIDO A ELECTROCUCIÓN Y DESCARGA ELÉCTRICA!
MUERTE O LESIONES GRAVES
Conecte a tierra el aparato según DIN EN 61140; VDE 0140, NEC y otras normas pertinentes.
El regulador de accionamiento debe conectarse a tierra conforme a lo prescrito junto con el motor. De lo contrario, la consecuencia puede ser la muerte o lesiones graves.
Si durante el montaje de la placa adaptadora no deben utilizarse elementos de resorte, para establecer una conexión correcta del conductor de protección debe establecerse una conexión adicional entre el motor y el regulador de accionamiento.
Los extremos de cable abiertos no utilizados en la caja de conexión del motor deben aislarse.
Utilice interruptores magnetotérmicos adecuados con la corriente nominal prescrita entre la red y el regulador de accionamiento.
Las piezas o los componentes defectuosos básicamente solo deben ser sustituidos por piezas originales

Peligro debido a electrocución y descarga eléctrica. Después de la desconexión es necesario esperar dos minutos (tiempo de descarga de los condensadores)

¡PRECAUCIÓN!
¡PELIGRO DE QUEMADURAS DEBIDO A SUPERFICIES CALIENTES!
¡QUEMADURAS GRAVES DE LA PIEL DEBIDO A SUPERFICIES CALIENTES!
Espere a que el elemento de refrigeración del regulador de accionamiento se haya enfriado lo suficiente.

¡PELIGRO!
¡PELIGRO DE MUERTE DEBIDO AL REARRANQUE DE MOTORES Y PIEZAS MECÁNICAS GIRATORIAS!
¡MUERTE O LESIONES GRAVES!
¡El incumplimiento puede provocar lesiones físicas graves o daños materiales considerables!
Algunos ajustes de parámetros concretos y la modificación de ajustes de parámetros durante el servicio pueden hacer que el regulador de accionamiento INVEOR vuelva a arrancar automáticamente tras una interrupción de la tensión de alimentación, y/o que se produzcan modificaciones no deseadas del estado de funcionamiento.

Superficie de montaje y entorno cercano (solo en caso de montaje mural)

La superficie de montaje y su entorno cercano deben poseer las siguientes propiedades: fijos, verticales, lisos, no fácilmente inflamables, no vibrantes de forma permanente. La superficie de montaje debe ofrecer sujeción para tornillos de fijación.

Transporte y almacenaje

Posibles daños materiales
¡Peligro de daños en el regulador de accionamiento!
¡Peligro de daños en el regulador de accionamiento a causa de un transporte, almacenamiento, instalación y montaje incorrectos!
Transporte el regulador de accionamiento en general de forma adecuada en el embalaje original sobre una paleta.
Almacene el regulador de accionamiento principalmente de forma técnicamente correcta. Encargue la instalación y el montaje únicamente a personal cualificado.

Instrucciones de uso completas

Encontrará las instrucciones de uso detalladas sobre el regulador de accionamiento INVEOR en Internet:
https://kostal-drives-technology.com/betriebsanleitung_mp_mod_en

Declaración de conformidad UE

Los reguladores de accionamiento cumplen los requisitos básicos según la declaración de conformidad UE (véase <https://www.kostal-drives-technology.com/download/>)

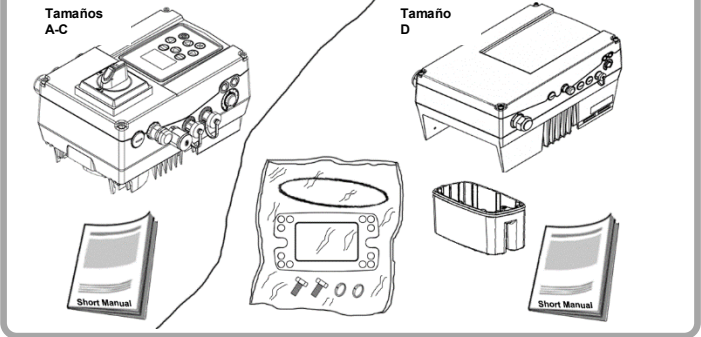
Datos de contacto y asistencia técnica

En caso de preguntas técnicas, diríjase a nuestra línea directa de atención al cliente.

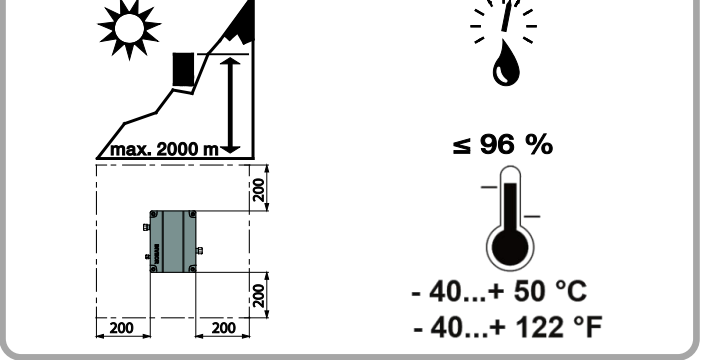
País	Teléfono	Correo electrónico
Alemania y otros países	+49 (0)2331 80 40-848	INVEOR-service@kostal.com

2 | INSTALACIÓN

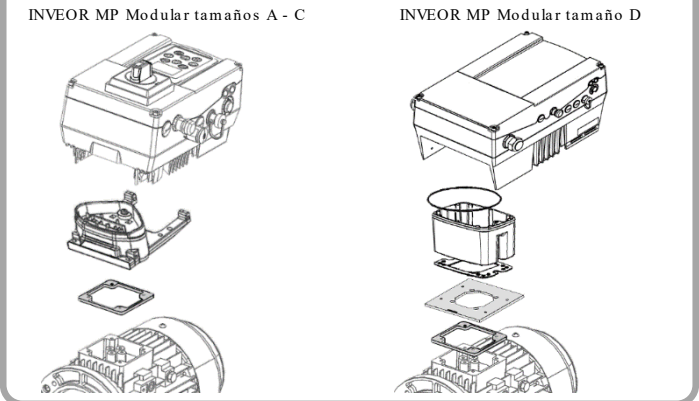
Volumen de suministro



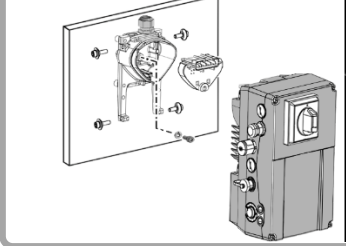
Lugar de montaje



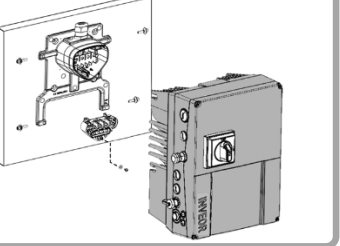
Montar el regulador de accionamiento



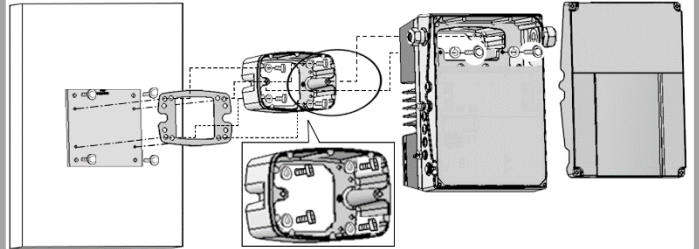
Montaje mural tamaño A



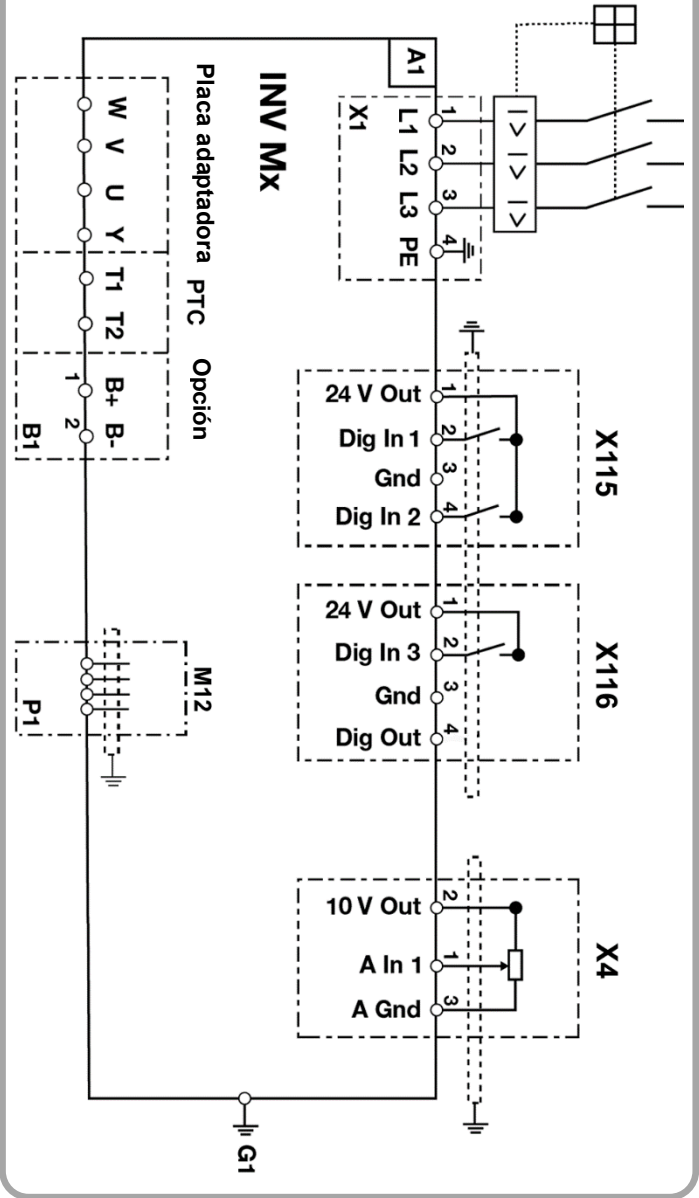
Montaje mural tamaños B y C



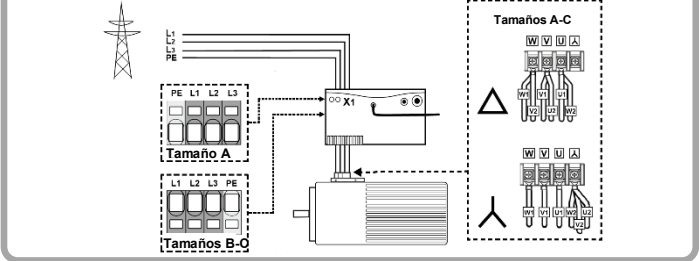
Montaje mural tamaño D



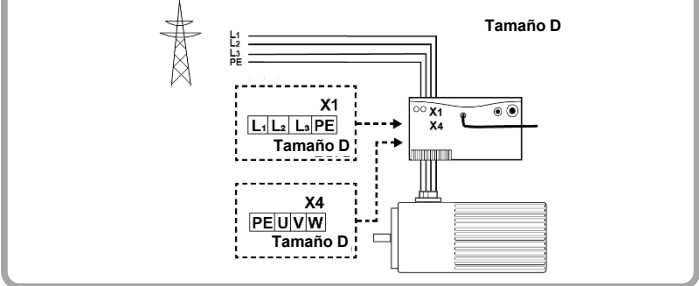
Esquema de conexiones



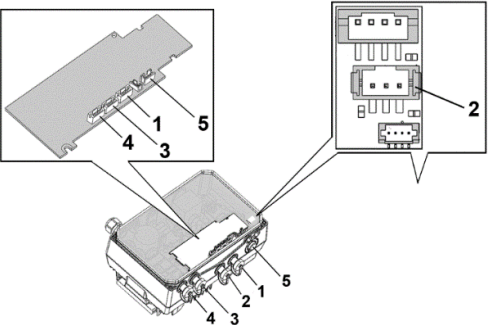
Área de conexión tamaños A-C



Área de conexión tamaño D



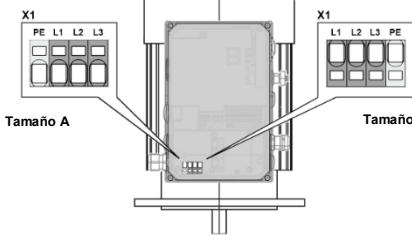
Ocupación del módulo de E/S / Ocupación de interfaces



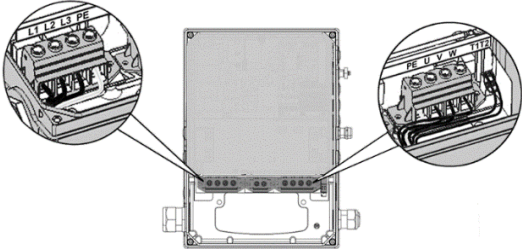
Ocupación de interfaces

1	X107	Modbus
2	X108	CANopen
3	X15	IO 1
4	X16	IO 2
5	X4	Potenciómetro

Conexiones de potencia tamaños A-C

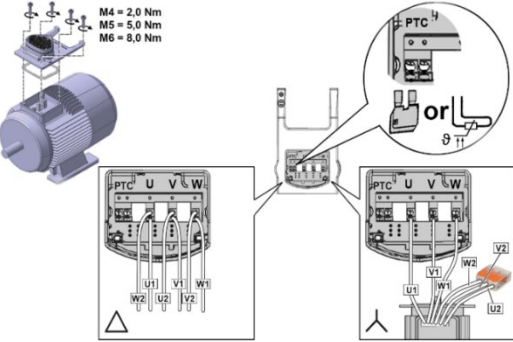


Conexiones de potencia tamaño D

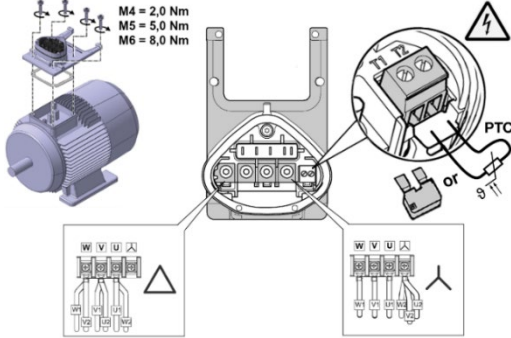


3 | CONECTAR EL EQUIPO MONTAJE DEL MOTOR

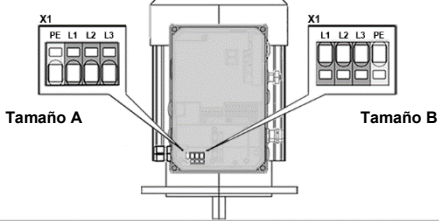
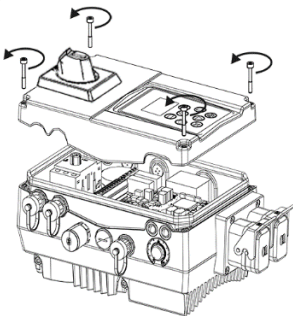
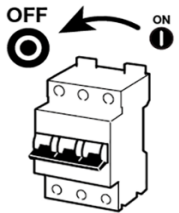
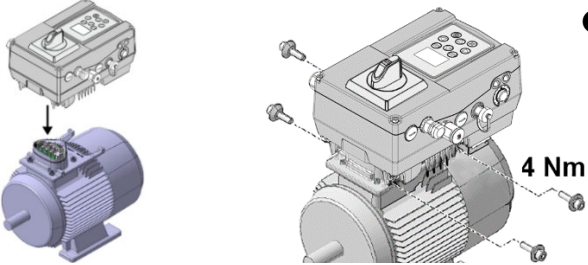
INVEOR tamaño A



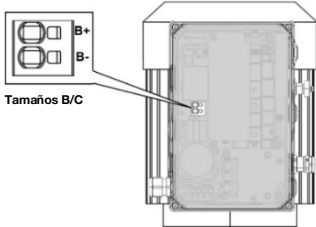
INVEOR tamaños B-C



INVEOR tamaño A-C



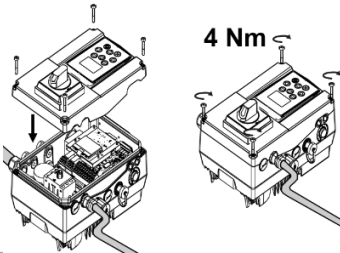
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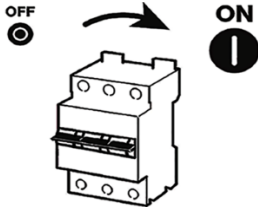
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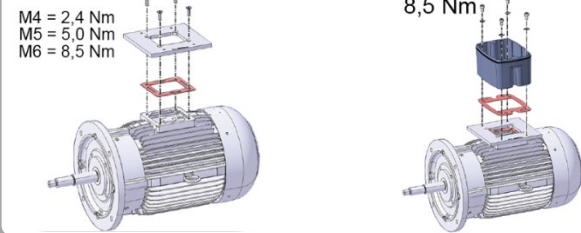


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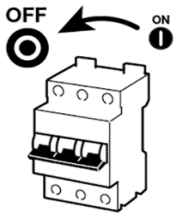


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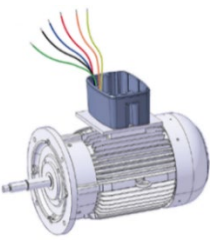
INVEOR tamaño D



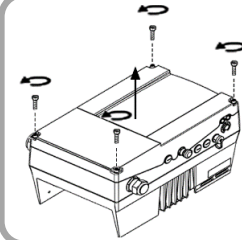
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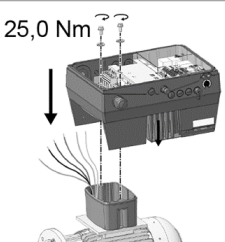
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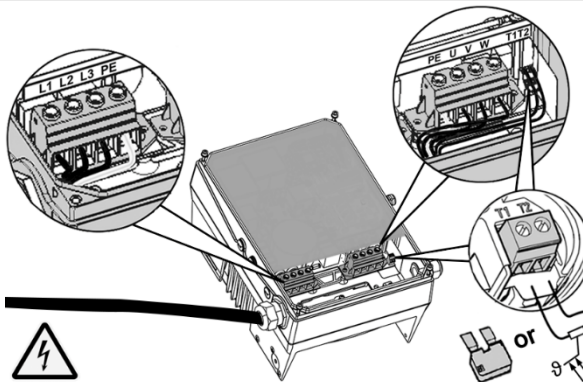
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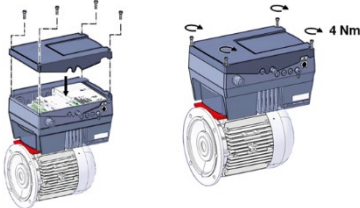
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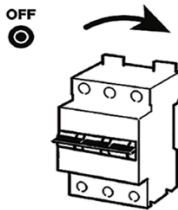
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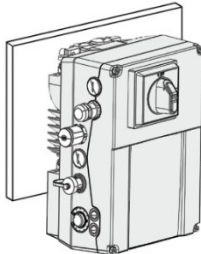


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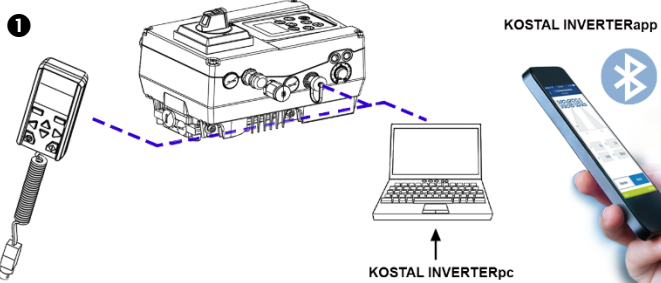


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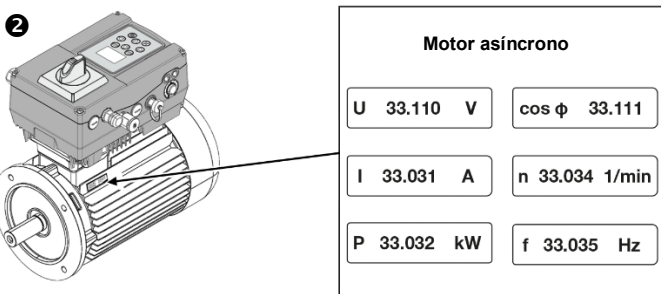
4 | CONECTAR EQUIPOS MONTAJE MURAL



5 | PUESTA EN FUNCIONAMIENTO RÁPIDA



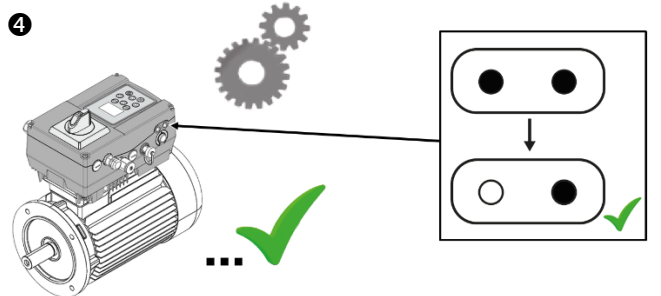
Parámetros/Datos del motor



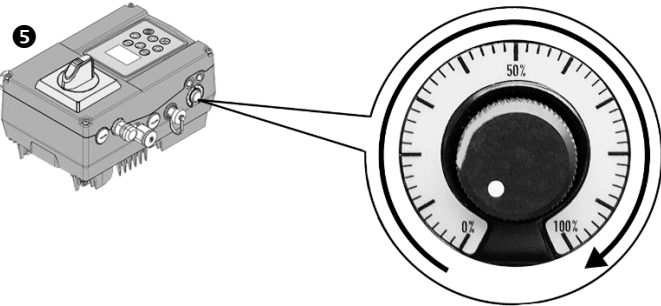
Identificación del motor



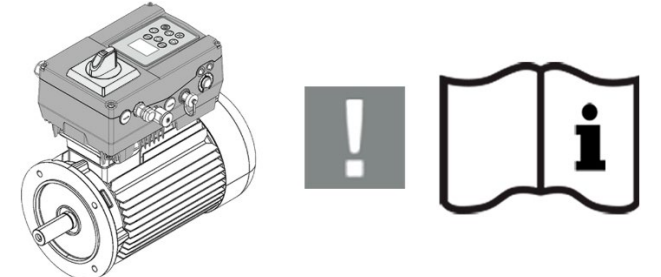
Se calculan los datos del motor

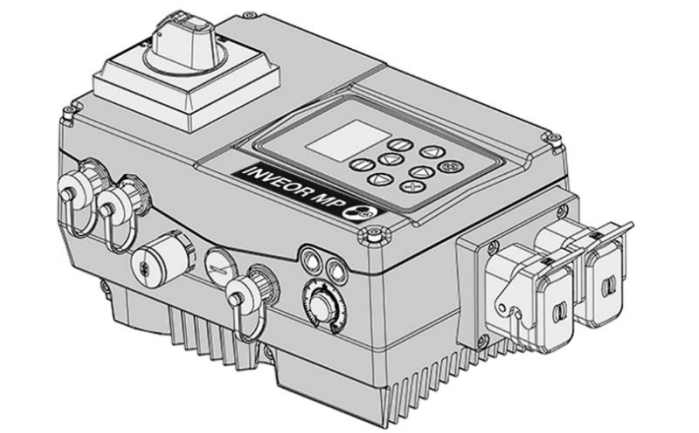


Ajuste de la velocidad mediante entrada analógica



6 | PUESTA EN FUNCIONAMIENTO RÁPIDA





12062955-0003

Smart connections.

FR

DOC02252505-0003

Legal notice

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General note on gender equality

KOSTAL Industrie Elektrik GmbH is aware of the importance of language with regard to the equality of women and men and always makes an effort to reflect this in the documentation. Nevertheless, for the sake of readability we are unable to use non-gender-specific terms throughout and use the masculine form instead.

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Utilisation conforme

Le variateur de vitesse INVEOR est un appareil de régulation de régime des moteurs à courant alternatif triphasés. Ce document doit être lu et compris avant d'installer et d'utiliser l'INVEOR. Toujours utiliser le variateur de vitesse dans le respect des consignes. L'appareil doit être utilisé uniquement dans la plage de puissance prévue et dans les conditions ambiantes autorisées. Le variateur de vitesse n'est pas prévu pour une utilisation dans des zones à risque d'explosion. La plage de fonctionnement autorisée de tous les composants doit être respectée en toutes circonstances. N'utilisez le produit que conformément à la documentation détaillée (https://kostal-drives-technology.com/betriebsanleitung_mp_mod_en) et conformément aux normes et directives en vigueur sur le lieu d'utilisation. Les informations fournies dans les données techniques doivent être strictement respectées. Une utilisation incorrecte peut entraîner des dommages à l'appareil et à d'autres biens matériels. Le variateur de vitesse ne doit être utilisé que dans le cadre de l'usage prévu.

! INFORMATION IMPORTANTE

L'utilisation de variateurs de vitesse dans un équipement non fixe est considérée comme une condition enviro nnante extraordinaire et n'est admissible que dans le respect des normes et directives en vigueur dans chaque lieu.

- Ne faites réaliser le montage et le démontage que par un personnel qualifié.
- Ne faites appel qu'à un personnel ayant reçu une formation sur le montage, l'installation, la mise en service et l'utilisation.
- N'effectuez aucune modification sur le variateur de vitesse.
- Respectez les réglementations générales et nationales en matière de sécurité et de prévention des accidents
- Des courants de contact > 3,5 mA peuvent se présenter sur l'INVEOR. Pour cette raison, un conducteur de mise à la terre de protection additionnel avec une section transversale identique à celle du conducteur de mise à la terre de protection initial doit être installé conformément à la norme DIN EN 61800-5-1. La possibilité de raccordement d'un deuxième conducteur de mise à la terre de protection se trouve au-dessous du câble d'alimentation (avec symbole de masse) sur la face extérieure de l'appareil. Une vis M6 x 12 (couple de 4,0 Nm) appropriée pour le raccordement est livrée avec la plaque d'adaptation.
- En cas d'utilisation de convertisseurs de fréquence triphasés, des disjoncteurs FI courants de type A, également appelés RCD (residual current-operated protective device), ne sont pas autorisés pour la protection contre les contacts directs ou indirects ! Il faut alors utiliser un disjoncteur FI sensible à tous les courants (RCD de type B), conformément aux normes DIN VDE 0160 et EN 50178 !
- Pour les appareils du modèle A - C (0,55 à 5,5 kW), il convient de respecter une pause d'au moins 3 secondes entre des mises sous tension successives.
- Pour les appareils du modèle D (11 à 30 kW), il convient de respecter une pause d'au moins 1 à 2 minutes entre des mises sous tension successives.

Marquages

Des plaques et des indications sont apposées sur le boîtier du variateur. Elles ne doivent pas être modifiées ni retirées.

Pictogramme	Signification
	Risque d'électrocution et de décharge électrique
	Danger
	Risque de brûlure
	Risque d'électrocution et de décharge électrique. Attendre deux minutes après la mise à l'arrêt (durée de déchargement des condensateurs)
	Prise de terre supplémentaire
	Consulter le mode d'emploi et respecter ses instructions
	Plaque signalétique avec les données techniques les plus importantes et le numéro de série

1 | CONSIGNES DE SÉCURITÉ

DANGER !
DANGER DE MORT PAR ÉLECTROCUTION ET DÉCHARGE ÉLECTRIQUE !
MORT OU BLESSURES GRAVES
Des tensions dangereuses sont présentes dans le variateur de vitesse. Seul un électricien est habilité à ouvrir l'appareil et à y effectuer des travaux. Débranchez toujours le variateur de vitesse de l'alimentation électrique et assurez-vous qu'il ne sera pas remis sous tension pendant le montage, la maintenance et les réparations.
Les bornes suivantes sont susceptibles de transporter des tensions dangereuses même lorsque le moteur est à l'arrêt :

- Bornes de raccordement au réseau X1 : L1, L2, L3
- Bornes de raccordement au moteur X2 : U, V, W

DANGER !
DANGER DE MORT PAR ÉLECTROCUTION ET DÉCHARGE ÉLECTRIQUE !
MORT OU BLESSURES GRAVES
Par principe, mettez l'appareil à la terre conformément à DIN EN 61140 ; VDE 0140, NEC et toute autre norme en vigueur.
Le variateur de vitesse doit être mis à la terre conjointement avec le moteur, conformément aux prescriptions. Si ce point n'est pas respecté, cela pourrait entraîner la mort ou des blessures graves.
Si des éléments à ressort ne sont pas utilisés lors du montage de la plaque d'adaptation, une connexion supplémentaire doit être établie entre le moteur et le variateur de vitesse pour que la connexion du conducteur de protection soit correcte.
Les extrémités de câble non utilisées du boîtier de raccordement du moteur doivent être isolées.
Utilisez des disjoncteurs de protection appropriés avec le courant nominal spécifié entre le réseau et le variateur de vitesse.
Remplacez les pièces ou les composants défectueux uniquement par des pièces d'origine

Risque d'électrocution et de décharge électrique. Attendre deux minutes après la mise à l'arrêt (durée de déchargement des condensateurs)

PRUDENCE !
RISQUE DE BRÛLURE DÙ À DES SURFACES BRÛLANTES !
BRÛLURES GRAVES DE LA PEAU DUES À DES SURFACES BRÛLANTES !
Laissez le radiateur du variateur de vitesse refroidir suffisamment.

DANGER !
DANGER DE MORT EN RAISON DU REDÉMARRAGE DES MOTEURS ET DE PIÈCES MÉCANIQUES EN ROTATION !
MORT OU BLESSURES GRAVES !
Le non-respect des consignes peut provoquer la mort, des blessures graves ou des dommages matériels considérables !
Certains réglages de paramètres et la modification de certains réglages de paramètres pendant le service peuvent avoir pour effet le redémarrage automatique du variateur de vitesse INVEOR après une panne de l'alimentation en courant, ou des modifications non souhaitées du comportement en service.

Surface de montage et environnement immédiat (uniquement pour montage mural)

La surface de montage et son environnement immédiat doivent présenter les caractéristiques suivantes :
Stationnaires, verticaux, plats, difficilement inflammables, ne vibrant pas en permanence.
La surface de montage doit supporter les vis de fixation.

Transport et stockage

Risque de dommages matériels
Risque d'endommagement du variateur de vitesse !
Risque d'endommagement du variateur de vitesse en cas d'exécution inappropriée du transport, du stockage, de l'installation et du montage !
Transportez toujours le variateur de vitesse correctement dans son emballage d'origine sur une palette.
Par principe, stockez toujours le variateur de vitesse de manière appropriée.
Ne faites réaliser l'installation et le montage que par un personnel qualifié.

Manuel d'utilisation complet

Le mode d'emploi détaillé du variateur de vitesse INVEOR se trouve sur Internet, à l'adresse : https://kostal-drives-technology.com/betriebsanleitung_mp_mod_en

Déclaration de conformité UE

Les variateurs de vitesse répondent aux exigences fondamentales conformément à la déclaration de conformité UE (voir <https://www.kostal-drives-technology.com/download>)

Coordonnées et service après-vente (SAV)

Pour toute question technique, veuillez contacter notre service d'assistance téléphonique.

Pays	Téléphone	E-mail
Allemagne et autres pays	+49 (0)2331 80 40-848	INVEOR-service@kostal.com

2 | INSTALLATION

Contenu de la livraison

Modèles A - C

Modèle D

Lieu de montage

Monter le variateur de vitesse

INVEOR MP Modular modèles A - C

INVEOR MP Modular modèle D

Montage mural modèle A

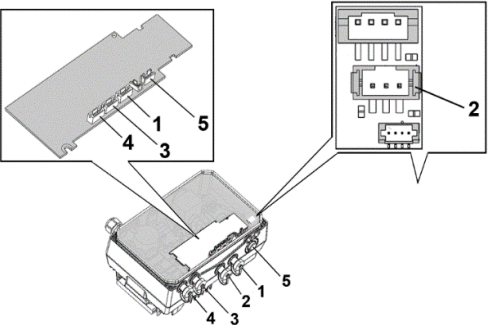
Montage mural modèles B et C

Montage mural modèle D

Schéma de raccordement

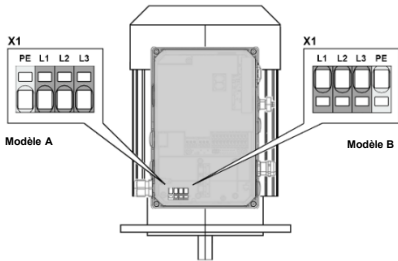
Plan de connexion modèles A - C

Plan de connexion modèle D

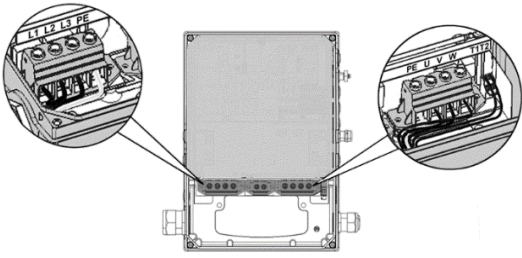


Interfaces d'affectation		
1	X107	Modbus
2	X108	CANopen
3	X15	E/S 1
4	X16	E/S 2
5	X4	Potentiomètre

Raccordements de puissance modèles A - C

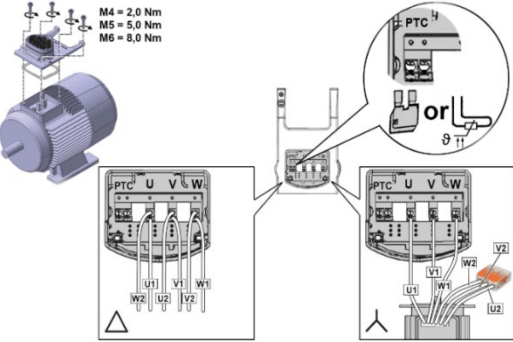


Raccordements de puissance modèle D

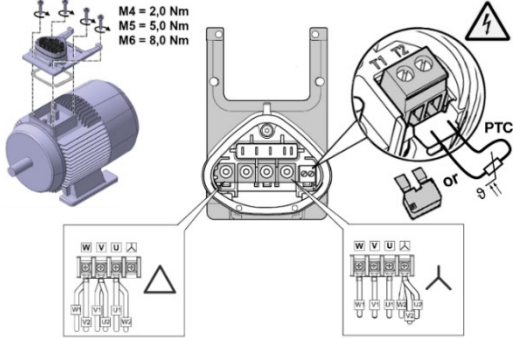


3 | RACCORDEMENT DE L'APPAREIL MONTAGE SUR MOTEUR

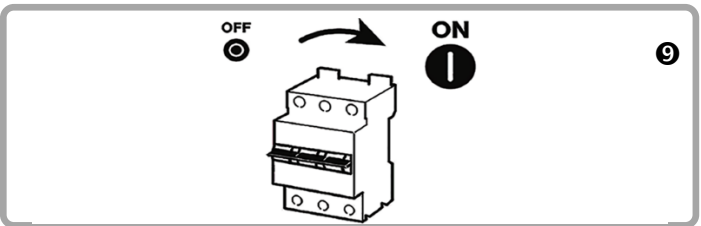
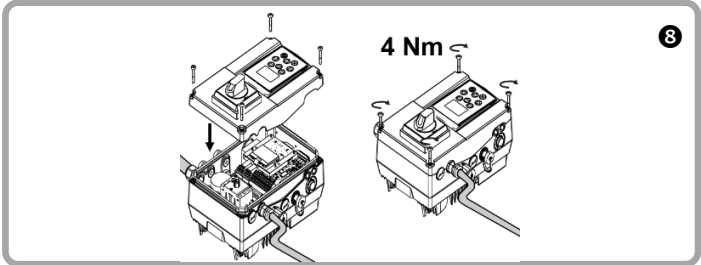
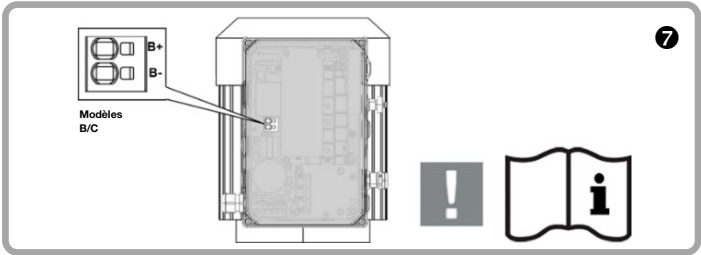
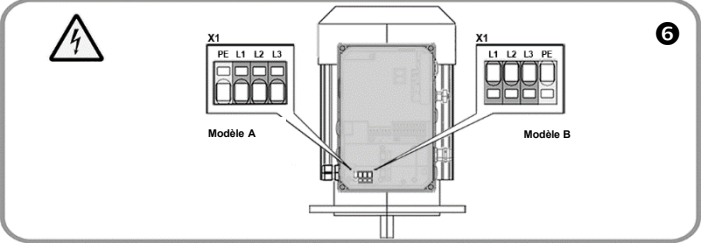
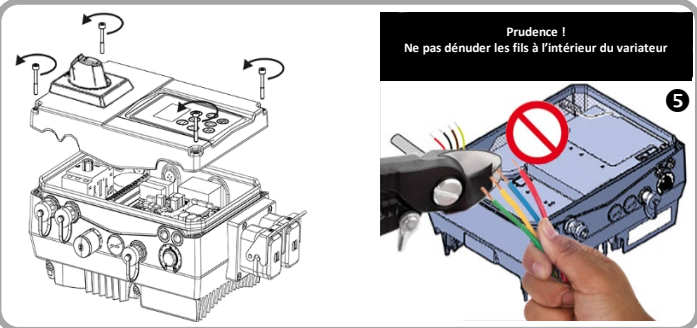
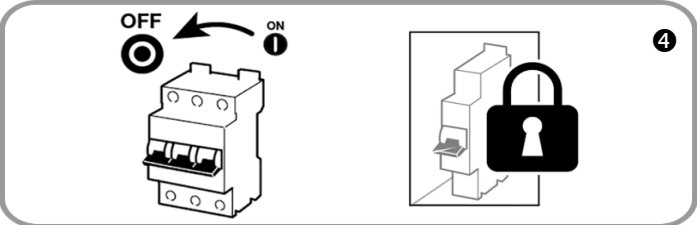
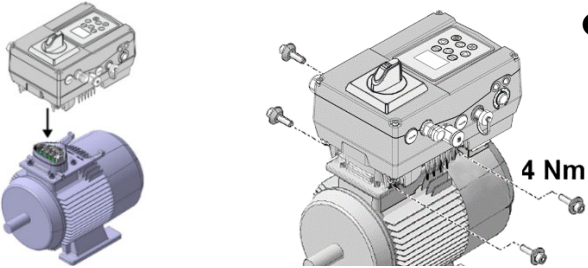
INVEOR modèle A



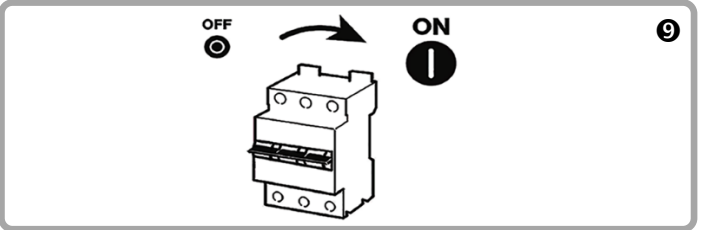
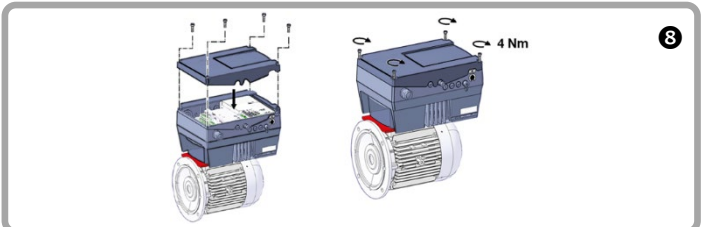
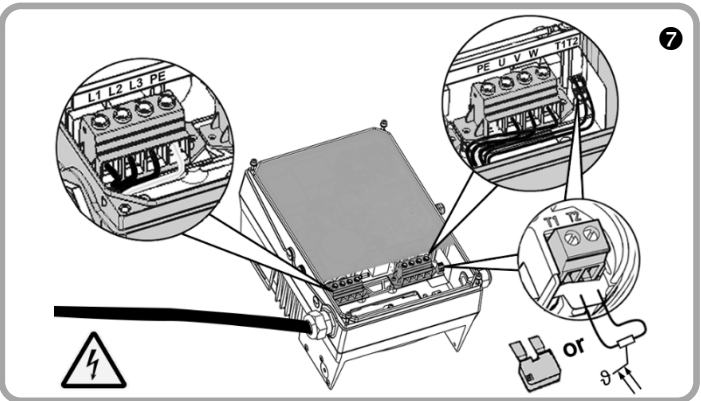
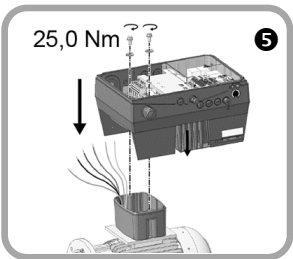
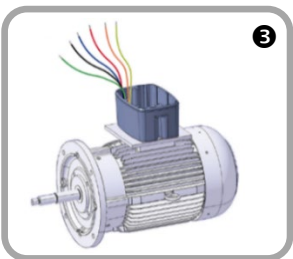
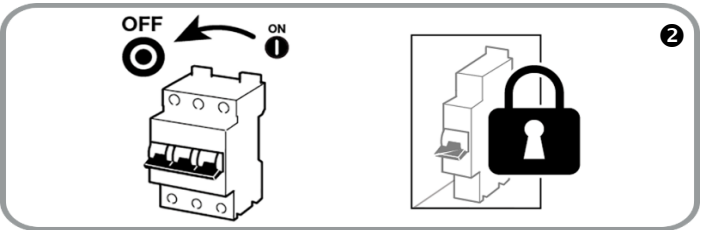
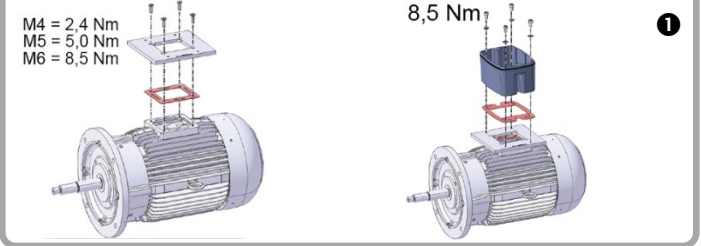
INVEOR modèle B - C



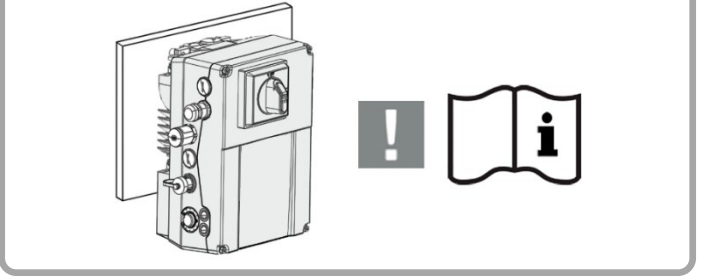
INVEOR modèle A - C



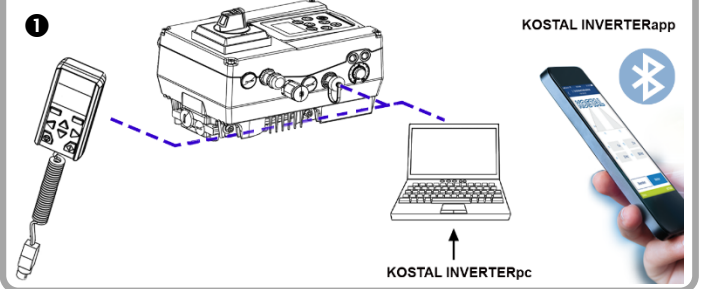
INVEOR modèle D



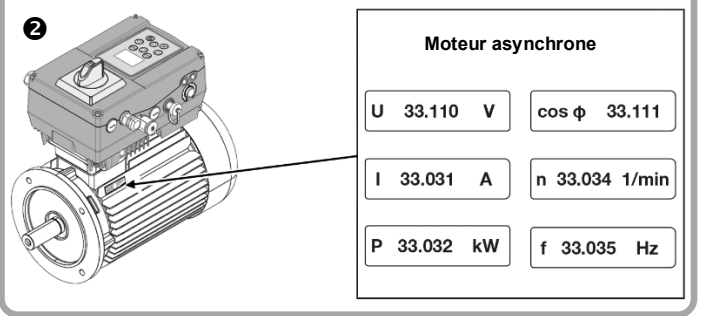
4 | RACCORDEMENT DE L'APPAREIL MONTAGE MURAL



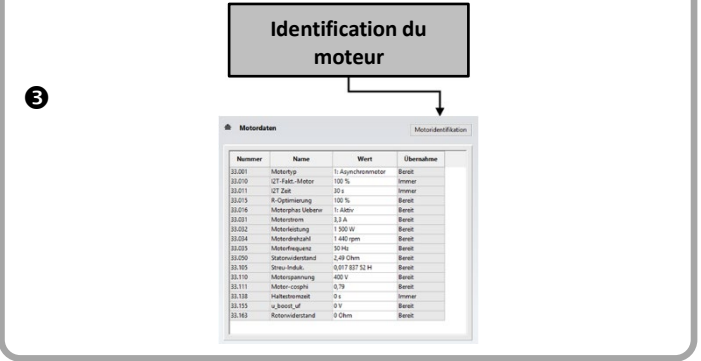
5 | MISE EN SERVICE RAPIDE



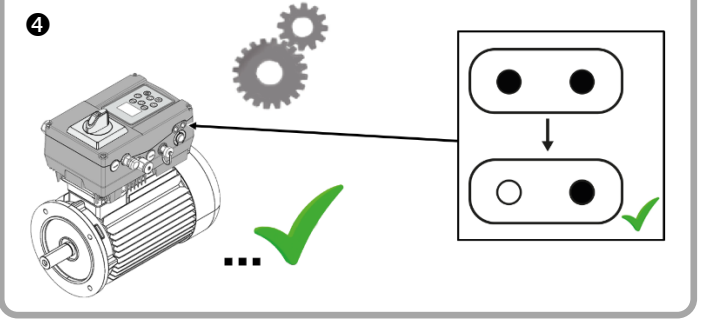
Paramètres / Données moteur



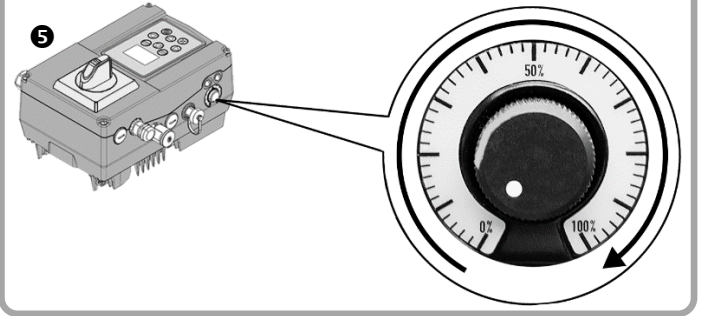
Identification du moteur



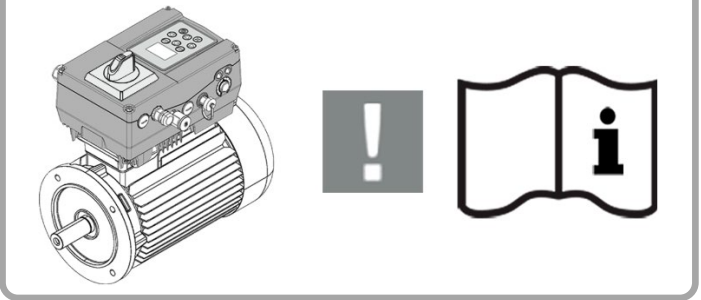
Les données moteur sont calculées

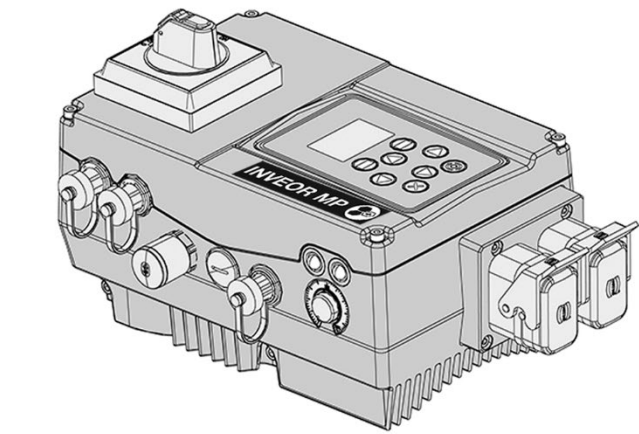


Réglage du régime par entrée analogique



6 | MISE EN SERVICE RAPIDE PMSM





12062955-0003

Smart connections.

DOC02252506-0003

Краткая инструкция
INVEOR MP Modular
RU

Legal notice

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EN

Exclusion of liability

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General note on gender equality

KOSTAL Industrie Elektrik GmbH is aware of the importance of language with regard to the equality of women and men and always makes an effort to reflect this in the documentation. Nevertheless, for the sake of readability we are unable to use non-gender-specific terms throughout and use the masculine form instead.

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Использование по назначению

Регулятор привода INVEOR — это устройство регулирования числа оборотов трехфазного электродвигателя. Перед установкой и использованием INVEOR необходимо изучить данный документ. Используйте регулятор привода только по назначению. Устройство можно использовать только в заданном диапазоне мощностей и при допустимых окружающих условиях. Запрещено использовать регулятор привода во взрывоопасных зонах. Нужно всегда придерживаться разрешенного рабочего диапазона всех компонентов. Эксплуатируйте изделие исключительно согласно данным детальной документации ([см. \[https://kostal-drives-technology.com/betriebsanleitung_mp_mod_en\]\(https://kostal-drives-technology.com/betriebsanleitung_mp_mod_en\)](https://kostal-drives-technology.com/betriebsanleitung_mp_mod_en)) и действующим местным стандартам и директивам. Обязательно соблюдайте указания по техническим данным. Использование не по назначению может привести к повреждению устройства и других предметов. Регулятор привода должен использоваться только по назначению.

! ВАЖНАЯ ИНФОРМАЦИЯ

Использование регулятора привода на нестационарном оборудовании считается исключительным внешним условием и допустимо только в соответствии с местными стандартами и директивами.

- Монтаж и демонтаж должен проводить только соответствующий квалифицированный персонал.
- К работе следует допускать только персонал, который прошел обучение по установке, монтажу, вводу в эксплуатацию и обслуживанию устройства.
- Не вносите изменений в конструкцию регулятора привода.
- Соблюдайте международные и национальные предписания по технике безопасности
- В регуляторе привода INVEOR могут возникать токи прикосновения > 3,5 mA. Поэтому в соответствии со стандартом DIN EN 61800-5-1 установите дополнительный провод защитного заземления такого же сечения, что и исходный провод защитного заземления. Присоединение для подключения второго провода защитного заземления находится под присоединением линии питания (отмечен символом заземления) с внешней стороны устройства. В комплект поставки переходной пластины входит подходящий для присоединения винт M6 x 12 (момент затяжки 4,0 Н·м).
- При использовании трехфазных преобразователей частоты обычные устройства дифференциального тока типа A (также называемые RCD (residual current-operated protective device)) для защиты от прямого или косвенного прикосновения не допускаются! Устройство дифференциального тока согласно DIN VDE 0160 и EN 50178 должно быть чувствительным ко всем видам тока (RCD типа B)!
- Для устройств типоразмеры A–C (0,55–5,5 кВт) между следующими друг за другом подключениями к сети должна быть выдержана пауза не менее 3 секунд.
- Для устройств типоразмера D (11–30 кВт) между следующими друг за другом подключениями к сети должна быть выдержана пауза не менее 1–2 минут.

Символ	Значение
	Опасность поражения током и электрическим разрядом
	Опасность
	Опасность ожога
	Опасность поражения током и электрическим разрядом. После выключения подождите две минуты (время разрядки конденсаторов)
	Дополнительное заземление
	Прочитайте и соблюдайте руководство по эксплуатации
	Заводская табличка с важными техническими данными и серийным номером

1 | УКАЗАНИЯ ПО ТЕХНИКЕ БЕЗОПАСНОСТИ

ОПАСНОСТИ!

ОПАСНОСТЬ ПОРАЖЕНИЯ ТОКОМ И ЭЛЕКТРИЧЕСКИМ РАЗРЯДОМ! ТЯЖЕЛЫЕ ИЛИ СМЕРТЕЛЬНЫЕ ПОВРЕЖДЕНИЯ

Регулятор привода находится под опасным для жизни напряжением. Только электротехнический персонал может открывать устройство и проводить работы над ним.

При монтаже, техническом обслуживании и ремонте необходимо обесточить регулятор привода и зафиксировать его от повторного включения.

Указанные ниже клеммы могут находиться под напряжением и после остановки двигателя.

- Клеммы подключения к сети питания X1: L1, L2, L3
- Клеммы подключения двигателя X2: U, V, W

ОПАСНОСТИ!

ОПАСНОСТЬ ПОРАЖЕНИЯ ТОКОМ И ЭЛЕКТРИЧЕСКИМ РАЗРЯДОМ! ТЯЖЕЛЫЕ ИЛИ СМЕРТЕЛЬНЫЕ ПОВРЕЖДЕНИЯ

Заземлите устройство согласно DIN EN 61140, VDE 0140, NEC и другим соответствующим стандартам.

Регулятор привода должен быть заземлен вместе с двигателем согласно инструкции. В противном случае можно получить тяжелые или смертельные повреждения.

Если при монтаже переходной пластины не используются пружинные элементы, необходимо установить дополнительное соединение между двигателем и регулятором привода для правильного соединения защитных проводов.

Открытые концы неиспользуемых проводов в клеммной коробке двигателя необходимо изолировать.

Используйте подходящий линейный защитный автомат с предписанным номинальным током между сетью и регулятором привода.

Поврежденные детали и компоненты заменяйте только на оригинальные

Опасность поражения током и электрическим разрядом. После выключения подождите две минуты (время разрядки конденсаторов)

ОСТОРОЖНО!

ОПАСНОСТЬ ПОЛУЧЕНИЯ ОЖОГА ПРИ КОНТАКТЕ С ГОРЯЧИМИ ПОВЕРХНОСТЯМИ!

ОПАСНОСТЬ ПОЛУЧЕНИЯ СЕРЬЕЗНЫХ ОЖОГОВ ПРИ КОНТАКТЕ С ГОРЯЧИМИ ПОВЕРХНОСТЯМИ!

Подождите, пока радиатор регулятора привода не остынет.

ОПАСНОСТИ!

ОПАСНОСТЬ ДЛЯ ЖИЗНИ ПРИ ВНЕЗАПНОМ ЗАПУСКЕ ДВИГАТЕЛЕЙ И ИЗ-ЗА ВРАЩАЮЩИХСЯ МЕХАНИЧЕСКИХ ДЕТАЛЕЙ! ТЯЖЕЛЫЕ ИЛИ СМЕРТЕЛЬНЫЕ ПОВРЕЖДЕНИЯ!

Несоблюдение требований может привести к тяжелым повреждениям, летальному исходу или существенному материальному ущербу!

Определенные настройки параметров и изменение настроек параметров во время работы могут привести к тому, что после сбоя электропитания регулятор привода INVEOR снова автоматически запустится или возникнут нежелательные изменения в режиме его работы.

Монтажная площадка и окружающие условия (при установке на стену)

Монтажная площадка и область вокруг нее должны быть: неподвижными, вертикальными, ровными, трудно воспламеняющимися, невибрирующими. Монтажная площадка должна обеспечить опору для крепежных винтов.

Транспортировка и хранение

Возможен материальный ущерб

Опасность повреждения регулятора привода!

Опасность повреждения регулятора привода из-за ненадлежащей транспортировки, хранения, установки и монтажа!

Транспортируйте регулятор привода надлежащим образом в оригинальной упаковке на поддоне.

Храните регулятор привода надлежащим образом.

Монтаж и установку должен проводить только квалифицированный персонал.

Полное руководство по эксплуатации

Подробная инструкция по эксплуатации регулятора привода INVEOR доступна в Интернете:
https://kostal-drives-technology.com/betriebsanleitung_mp_mod_en

Декларация соответствия ЕС

Регуляторы привода соответствуют основным требованиям согласно декларации соответствия нормам ЕС (см. <https://www.kostal-drives-technology.com/download>)

Контакты и сервисное обслуживание

По техническим вопросам обращайтесь на горячую линию сервисной службы.

Страна	Телефон	Эл. почта
Германия и другие страны	+49 (0)2331 80 40-848	INVEOR-service@kostal.com

2 | УСТАНОВКА

Комплект поставки

Типоразмеры A–C

Типоразмер D

Монтаж регулятора привода

INVEOR MP Modular типоразмеры A–C

INVEOR MP Modular типоразмера D

Установка на стену, типоразмер A

Установка на стену, типоразмеры B и C

Установка на стену, типоразмер D

Схема соединений

ИНV Mx

Переходная пластина TKS

Полож. Опция

X115

24 V Out

Dig In 1

Gnd

Dig In 2

X116

24 V Out

Dig In 3

Gnd

Dig Out

X4

10 V Out

A In 1

A Gnd

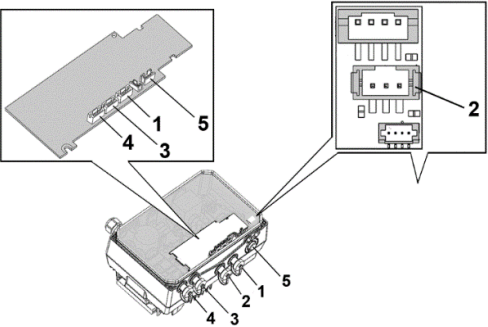
Схема соединений, типоразмеры A–C

Типоразмеры A–C

Схема соединений, типоразмер D

Типоразмер D

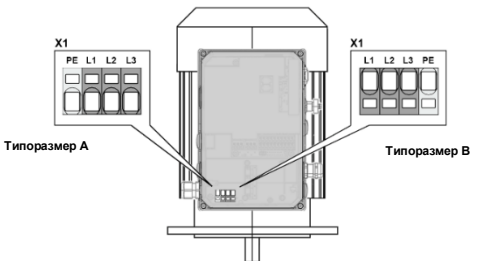
Раскладка контактов модуля входа/выхода/раскладка контактов интерфейсов



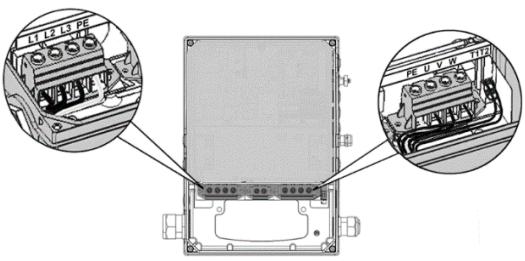
Раскладка контактов интерфейсов

1	X107	Modbus
2	X108	CANopen
3	X15	Вход-выход 1
4	X16	Вход-выход 2
5	X4	Потенциометр

Силовые соединения, типоразмеры А – С

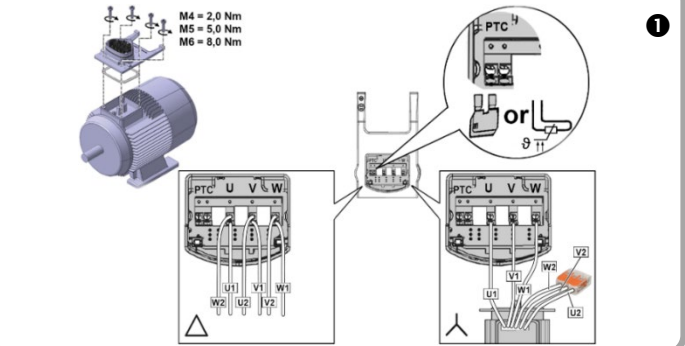


Силовые подключения, типоразмер D

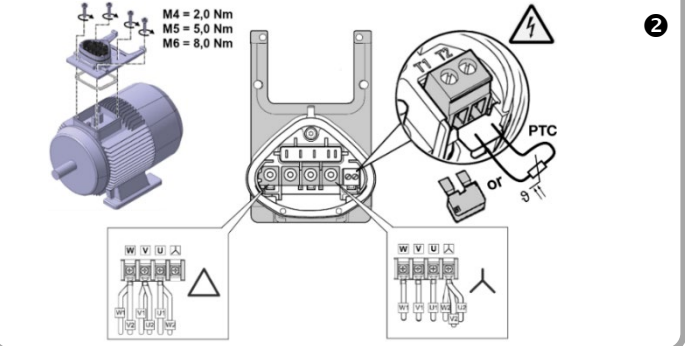


3 | ПОДКЛЮЧЕНИЕ УСТРОЙСТВА, МОНТАЖ ДВИГАТЕЛЯ

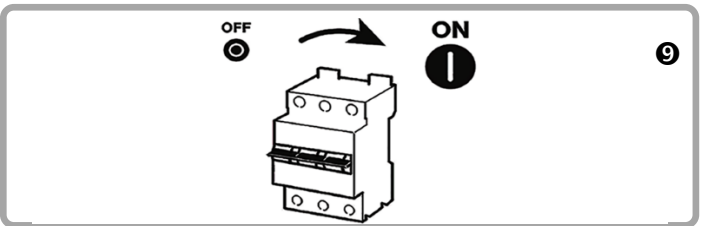
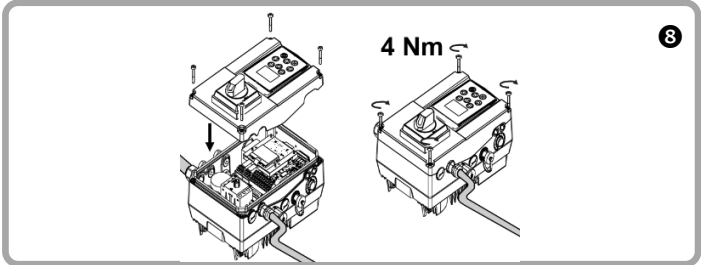
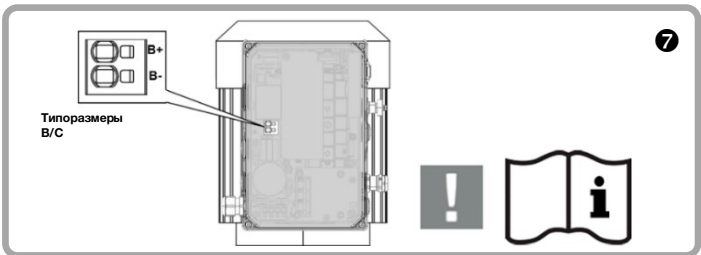
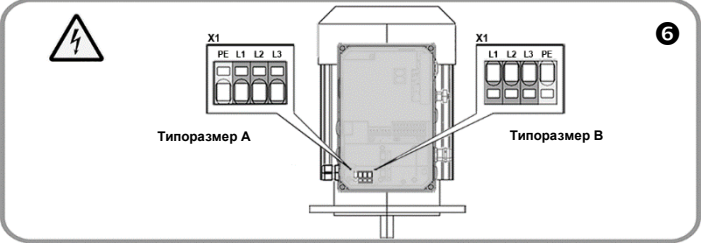
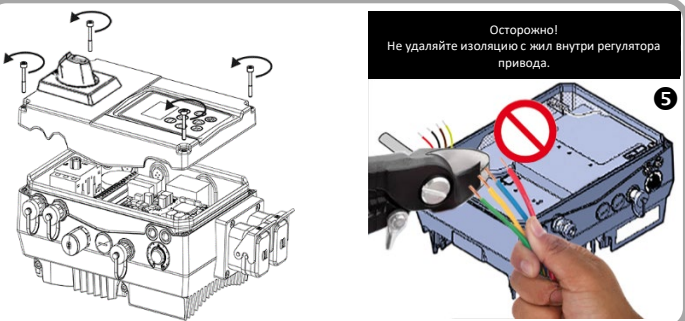
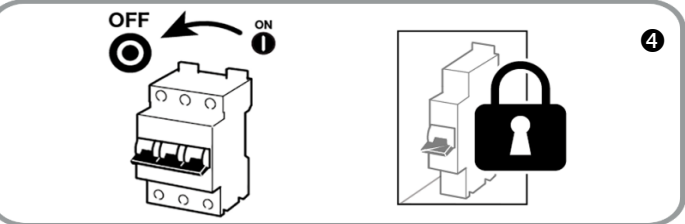
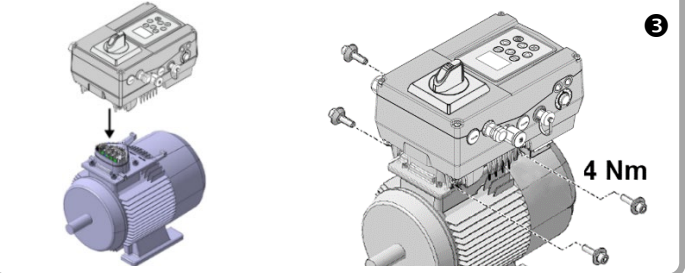
INVEOR, размер конструкции А



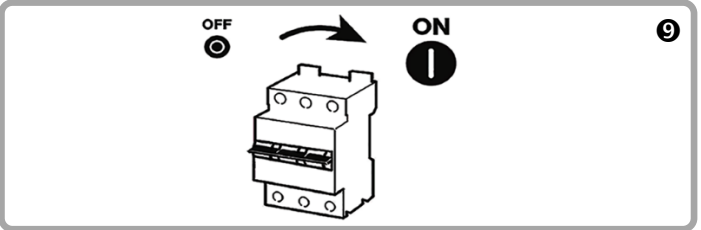
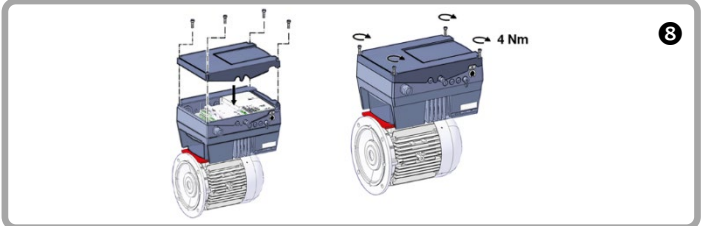
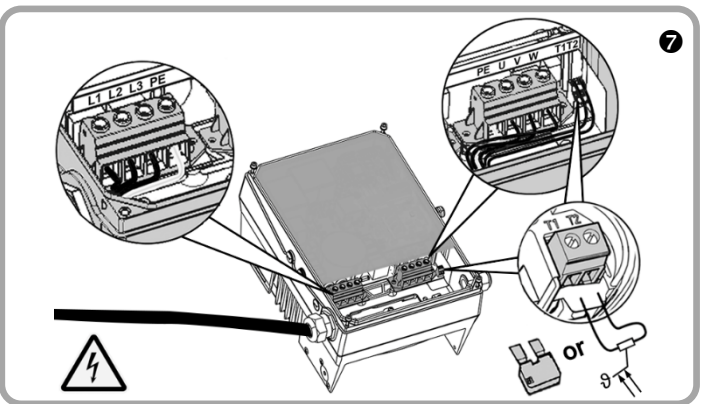
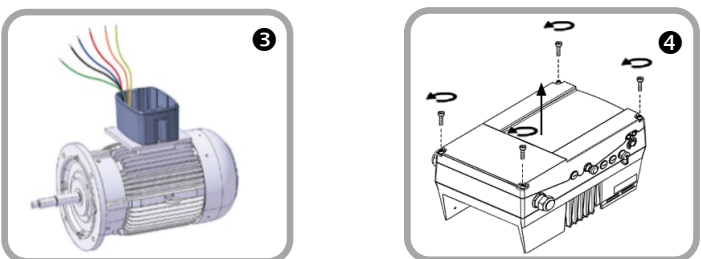
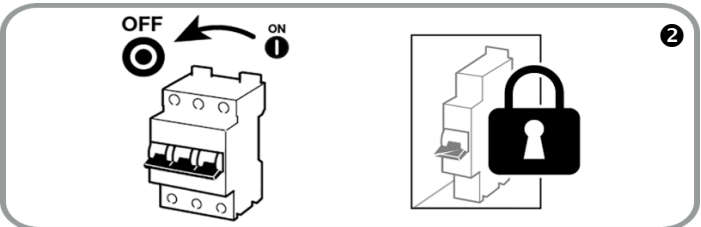
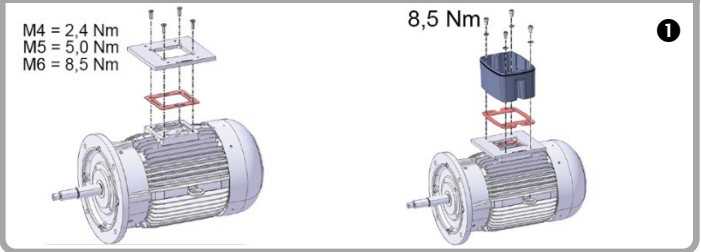
INVEOR, типоразмер В-С



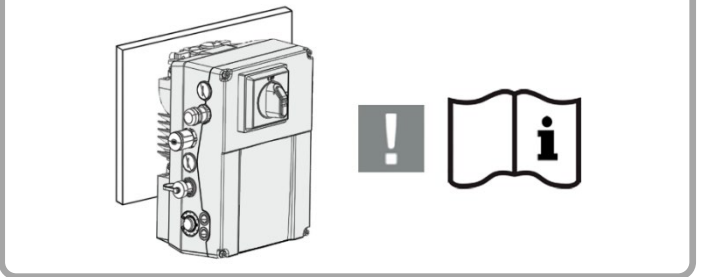
INVEOR, типоразмер А - С



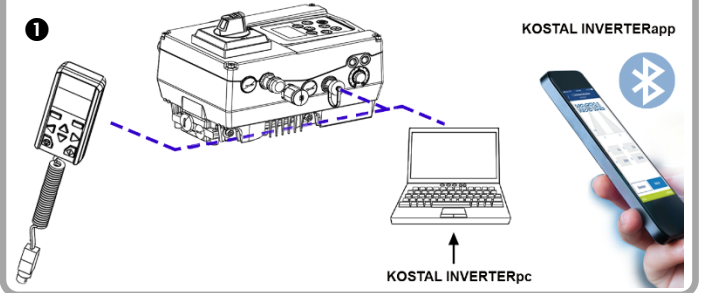
INVEOR , типоразмер D



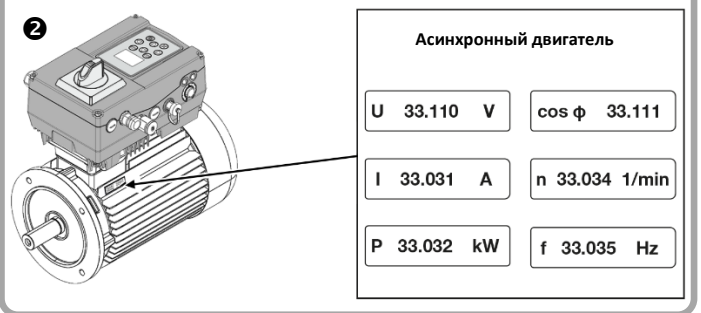
4 | ПОДКЛЮЧЕНИЕ УСТРОЙСТВ, УСТАНОВКА НА СТЕНУ



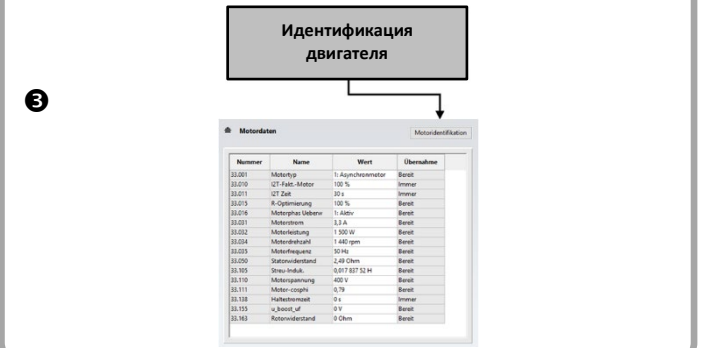
5 | УСКОРЕННЫЙ ВВОД В ЭКСПЛУАТАЦИЮ



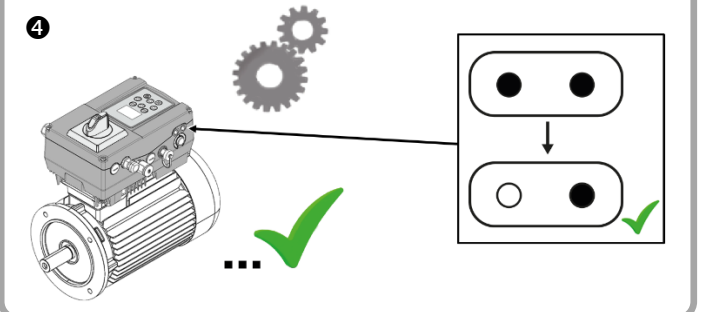
Параметры/данные двигателя



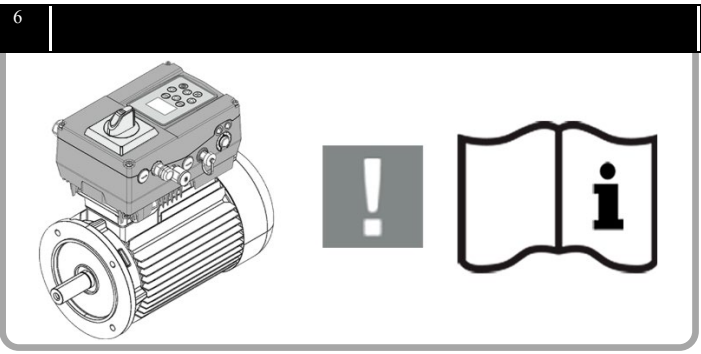
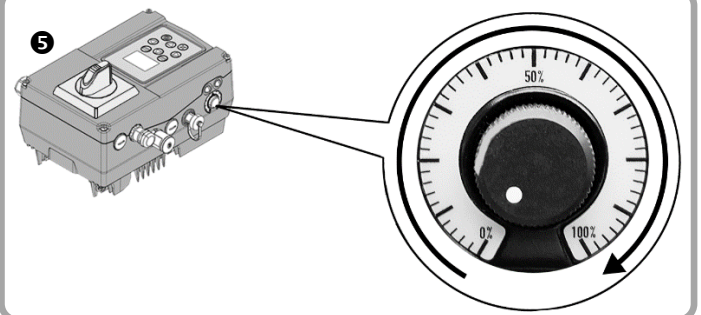
Идентификация двигателя

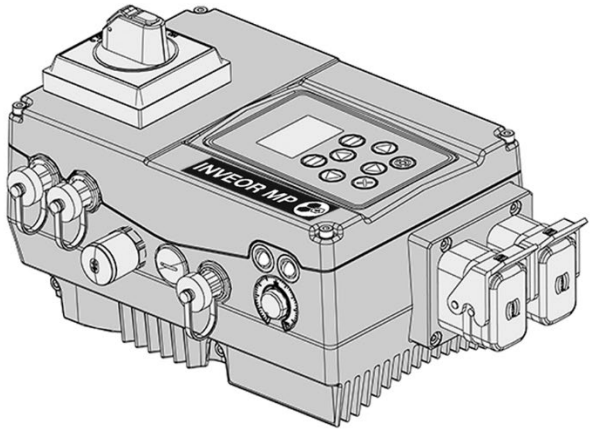


Данные двигателя вычисляются



Регулировка числа оборотов через аналоговый вход





12062955-0003

Smart connections.

Özet kılavuz

INVEOR MP Modular

TR

DOC02252508-0003

Legal notice

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Exclusion of liability

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General note on gender equality

KOSTAL Industrie Elektrik GmbH is aware of the importance of language with regard to the equality of women and men and always makes an effort to reflect this in the documentation. Nevertheless, for the sake of readability we are unable to use non-gender-specific terms throughout and use the masculine form instead.

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Amacına uygun kullanım

INVEOR sürücü denetleyici, üç fazlı AC motorların devir sayısı kontrolüne yönelik bir cihazdır. INVEOR'un kurulumunu yapmadan ve kullanmadan önce, bu belge okunmuş ve anlaşılmış olmalıdır. Sürücü denetleyiciyi temel olarak amacına uygun şekilde kullanın. Cihaz yalnızca öngörülen güç aralığı dahilinde ve izin verilen ortam koşullarında kullanılabilir. Sürücü denetleyici, patlama tehlikesi olan alanlarda kullanım için onaylanmamıştır. Tüm bileşenlerin izin verilen çalışma aralığına her zaman uyulmalıdır. Ürünü sadece ayrıntılı belgelerdeki bilgilere uygun olarak (bkz. https://kostal-drives-technology.com/betriebsanleitung_mp_mod_en) ve yerel olarak geçerli standartlar ve direktifler uyarınca kullanın. Teknik verilerde belirtilen bilgilere mutlaka uyulmalıdır. Usulüne uygun olmayan kullanım durumunda, cihazda ve diğer maddi değerlerde hasarlar oluşabilir. Sürücü denetleyici yalnızca öngörülen kullanım amacı için kullanılabilir.



ÖNEMLİ BİLGİ

Sürücülerin sabit olmayan ekipmanlarda kullanılması, olağan dışı bir çevre koşulu olarak kabul edilir ve sadece yerel olarak geçerli standartlara ve direktiflere uygun olarak kullanılmasına izin verilir.

- Montaj ve sökme işlerini sadece uygun şekilde kalifiye personele yaptırın.
- Sadece kurulum, tesisat, işletme alma ve kullanım konusunda eğitimli personel kullanın.
- Sürücüde herhangi bir değişiklik yapmayın.
- Genel ve ulusal, güvenlik ve kaza önleme yönetmeliklerine uyun
- INVEOR sürücü denetleyicide > 3.5 mA temas akımları ortaya çıkabilir. Bu nedenle, DIN EN 61800-5-1 standardı uyarınca, orijinal koruyucu topraklama iletkeni ile aynı kesite sahip ilave bir koruyucu topraklama iletkeni takın. İkinci bir koruyucu topraklama iletkeni bağlama olanağı, cihazın dış tarafındaki şebeke beslemesinin (topraklama sembolüyle işaretlidir) altında bulunmaktadır. Adaptör plakasının teslimat kapsamında bağlantı için uygun bir M6 x 12 vida (4,0 Nm sıkma torque) bulunmaktadır.
- Üç fazlı frekans dönüştürücüler kullanıldığında, doğrudan veya dolaylı temasa karşı korunma için, RCD (artık akımlı çalışan koruyucu düzenekler) olarak da bilinen geleneksel Tip A kaçak akım koruma şalterlerinin kullanılmasına izin verilmez! DIN VDE 0160 ve EN 50178 standartları uyarınca, kaçak akım koruma şalteri, tüm akımlara karşı duyarlı bir kaçak akım koruma şalteri (RCD Tip B) olmalıdır!
- Boyutlar A - C cihazlarda (0,55 ilâ 5,5 kW), birbirini izleyen şebeke bağlantıları arasında en az 3 saniye bekleme süresine uyulmalıdır.
- Boyut D cihazlarda (11 ilâ 30 kW), birbirini izleyen şebeke bağlantıları arasında en az 1 ilâ 2 dakika bekleme süresine uyulmalıdır.

İşaretlemeler

Sürücü gövdesi üzerine etiketler ve işaretlemeler yerleştirilmiştir.

Bu etiket ve işaretlemeler değiştirilmemeli ya da çıkarılmamalıdır.

Sembol	Anlamı
	Elektrik çarpması ve elektrik deşarjı nedeniyle tehlike
	Tehlike
	Yanma tehlikesi
	Elektrik çarpması ve elektrik deşarjı nedeniyle tehlike. Cihazı kapattıktan sonra iki dakika bekleyin (kondansatörlerin deşarj süresi)
	İlave topraklama bağlantısı
	İşletim kılavuzunu dikkate alın ve okuyun
	En önemli teknik verilerin ve seri numarasının bulunduğu tip etiketi

1 | GÜVENLİK BİLGİLERİ



TEHLİKE!

ELEKTRİK ÇARPMASI VE ELEKTRİKSEL DEŞARJ NEDENİYLE ÖLÜM TEHLİKESİ!
ÖLÜM VEYA AĞIR YARALANMALAR

Sürücü denetleyici içerisinde ölümcül gerilimler bulunur. Sadece bir uzman elektrikçi cihazı açabilir ve cihazda çalışabilir. Montaj, bakım ve onarım çalışmaları sırasında daima sürücü denetleyicinin gerilimini kesin ve tekrar açılmaya karşı emniyete alın. Aşağıdaki terminallerde, motor durur haldeyken bile tehlikeli gerilimler bulunabilir:

- X1 şebeke bağlantı terminalleri: L1, L2, L3
- X2 motor bağlantı terminalleri: U, V, W



TEHLİKE!

ELEKTRİK ÇARPMASI VE ELEKTRİKSEL DEŞARJ NEDENİYLE ÖLÜM TEHLİKESİ!
ÖLÜM VEYA AĞIR YARALANMALAR

Cihazı temel olarak DIN EN 61140; VDE 0140, NEC ve diğer ilgili standartlara göre topraklayın. Sürücü denetleyici, kurallara göre motorla birlikte topraklanmalıdır. Aksi takdirde, ölüm veya ağır yaralanmalara neden olan sonuçlar ortaya çıkabilir. Adaptör plakasının montajı sırasında yay elemanları kullanılmaması durumunda, doğru bir koruyucu iletken bağlantısı oluşturmak için, motor ile sürücü denetleyici arasında ilave bir bağlantı oluşturulmalıdır. Motor bağlantı kutusundaki kullanılmayan açık kablo uçları, izole edilmelidir. Şebeke ile sürücü denetleyici arasında, belirtilen nominal akıma sahip uygun devre kesici kullanın. Hasarlı parçaları veya bileşenleri prensip olarak sadece orijinal parçalarla değiştirin



Elektrik çarpması ve elektrik deşarjı nedeniyle tehlike. Cihazı kapattıktan sonra iki dakika bekleyin (kondansatörlerin deşarj süresi)

DİKKAT!



SICAK YÜZEYLER NEDENİYLE YANIK TEHLİKESİ!
SICAK YÜZEYLER NEDENİYLE ÇILTTE AĞIR YANIKLAR MEYDANA GELEBİLİR!
Sürücü denetleyicinin soğutma elemanını yeterince soğumaya bırakın.



TEHLİKE!

YENİDEN ÇALIŞMAYA BAŞLAYAN MOTORLAR VE DÖNEN MEKANİK PARÇALAR NEDENİYLE ÖLÜM TEHLİKESİ!
ÖLÜM VEYA AĞIR YARALANMALAR!

Bu uyarının dikkate alınmaması, ölüme, ağır yaralanmalara veya ciddi maddi hasarlara neden olabilir! Belirli parametre ayarları ve işletim sırasında parametre ayarlarının değiştirilmesi, besleme geriliminde meydana gelen bir kesintiden sonra sürücü denetleyici INVEOR'un otomatik olarak yeniden çalışmaya başlamasına veya işletim karakteristiğine istenmeyen değişiklikler oluşmasına yol açabilir.

Montaj yüzeyi ve yakın çevresi (sadece duvar montajında)

Montaj yüzeyi ve yakın çevresi, aşağıdaki özelliklere sahip olmalıdır:

Sabit, dikey, düz, kolay tutuşmayan, kalıcı titreşimsiz.

Montaj yüzeyi, sabitleme vidaları için destek sunmalıdır.

Taşıma ve depolama



Maddi hasarlar oluşabilir

Sürücü denetleyicinin hasar görme tehlikesi!

Doğru şekilde yapılmayan taşıma, depolama, kurulum ve montaj nedeniyle, sürücü denetleyicinin hasar görme tehlikesi!

Genel olarak sürücü denetleyiciyi bir palet üzerindeki orijinal ambalajı içerisinde, doğru şekilde taşıyın.

Prensip olarak sürücü denetleyiciyi tekniğine uygun şekilde depolayın.

Kurulum ve montaj işlerini sadece uygun şekilde kalifiye personele yaptırın.

Tam işletim kılavuzu

INVEOR sürücü denetleyici ile ilgili ayrıntılı bir işletim kılavuzunu, internette şu adreste bulabilirsiniz:

https://kostal-drives-technology.com/betriebsanleitung_mp_mod_en

AB Uygunluk Beyanı

Sürücüler, AB Uygunluk Beyanı uyarınca temel gereklilikleri yerine getirmektedir (bkz. <https://www.kostal-drives-technology.com/download>)

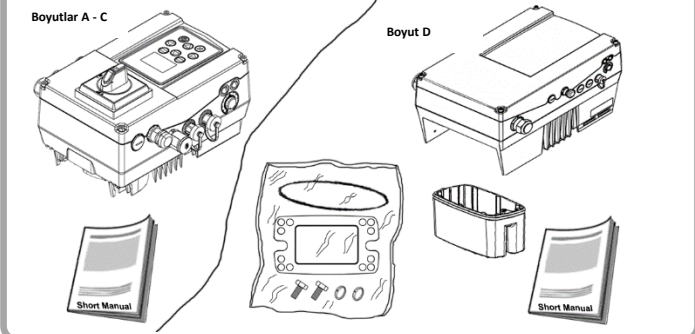
İletişim bilgileri ve servis

Teknik sorularınızda, lütfen Servis Destek Hattımıza başvurun.

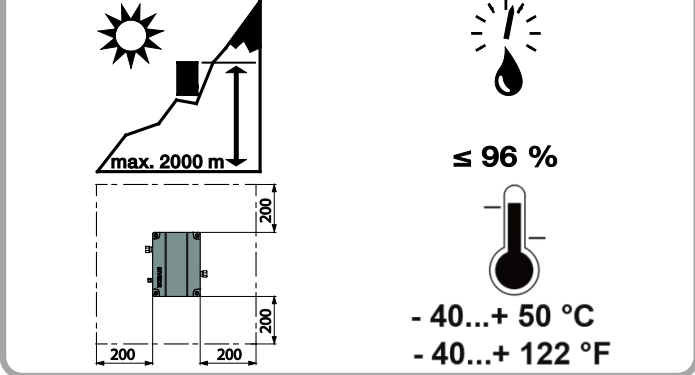
Ülke	Telefon	E-posta
Almanya ve diğer ülkeler	+49 (0)2331 80 40-848	INVEOR-service@kostal.com

2 | KURULUM

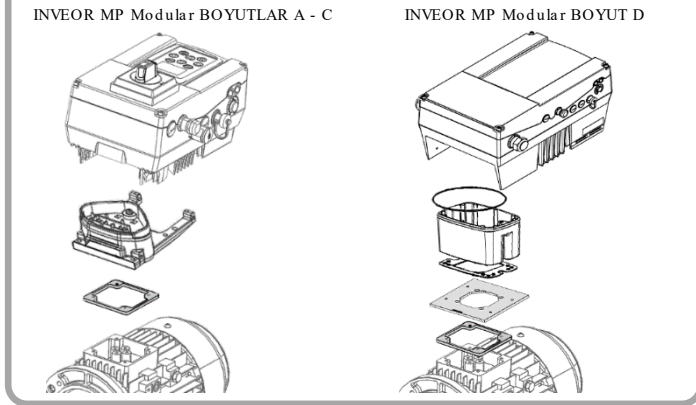
Teslimat kapsamı



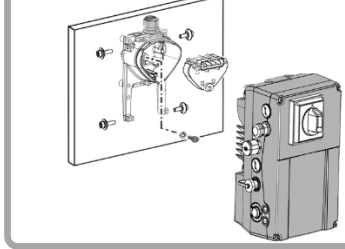
Montaj yeri



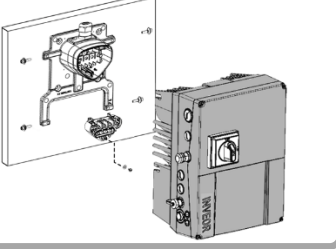
Sürücü denetleyicinin monte edilmesi



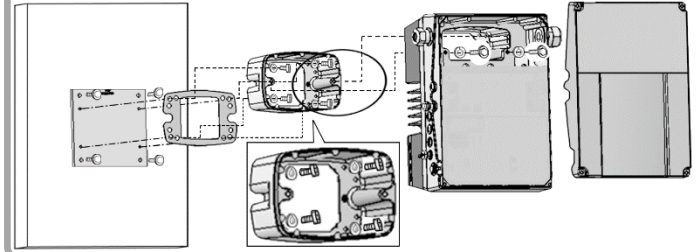
Boyut A duvar montajı



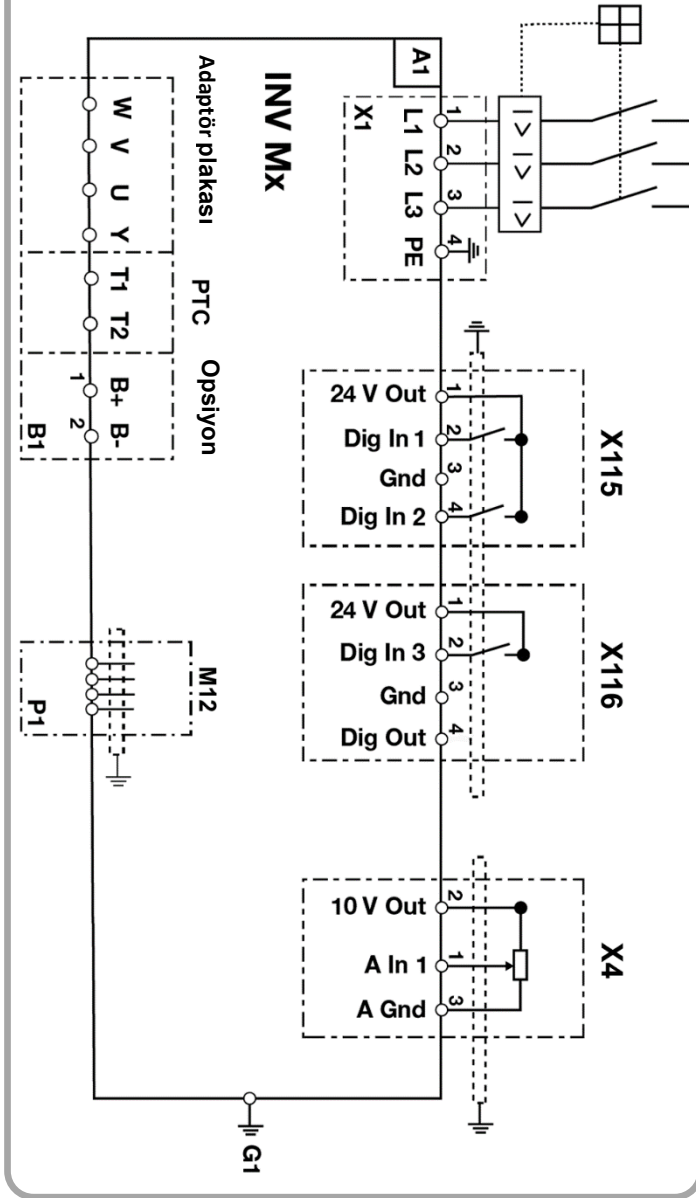
Boyut B ve C duvar montajı



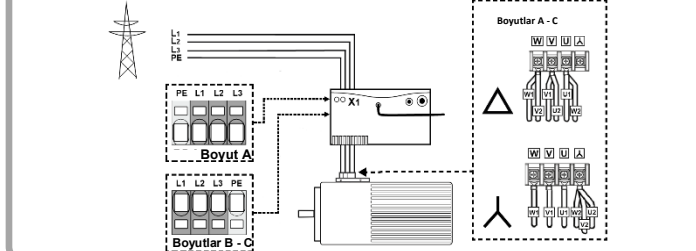
Boyut D duvar montajı



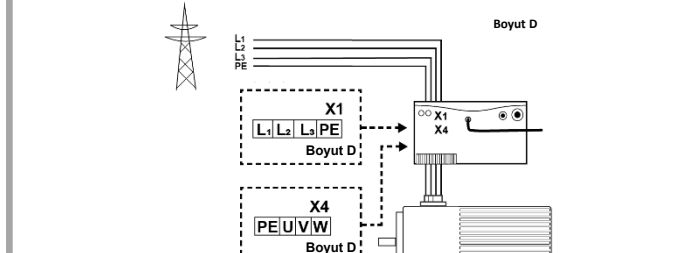
Bağlantı şeması



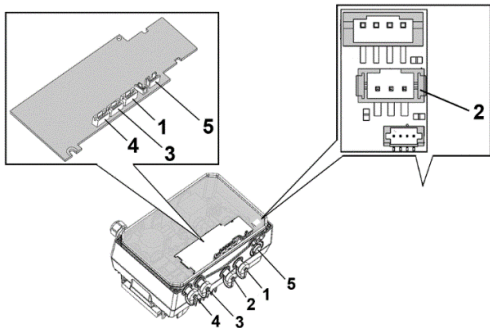
Boyutlar A - C bağlantı şeması



Boyut D bağlantı şeması



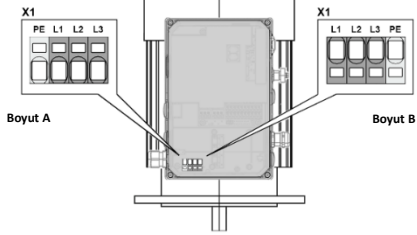
IO modülü ataması / Ara birimlerin ataması



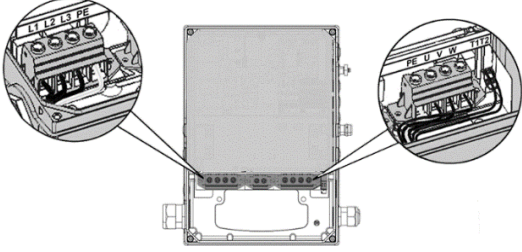
Ara birimlerin ataması

1	X107	Modbus
2	X108	CANopen
3	X15	IO 1
4	X16	IO 2
5	X4	Potansiyometre

Boyut A - C güç bağlantıları

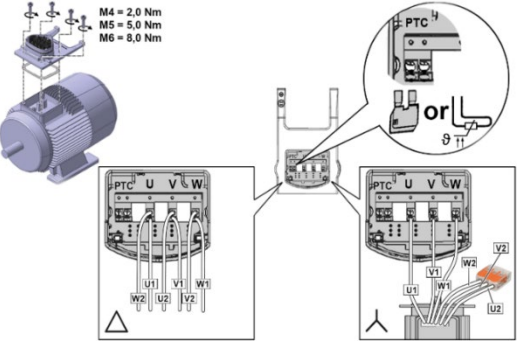


Boyut D güç bağlantıları

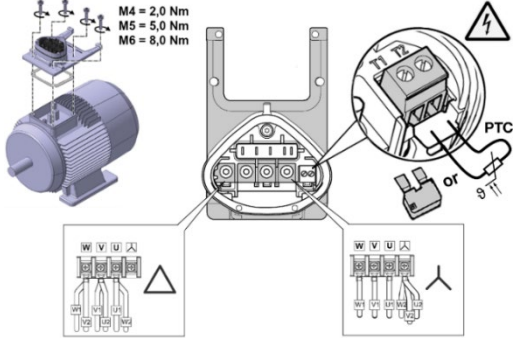


3 | CİHAZIN BAĞLANMASI, MOTOR MONTAJI

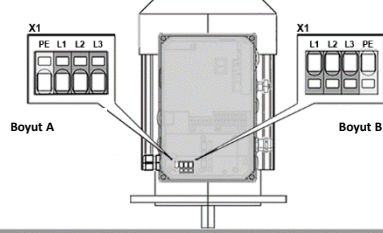
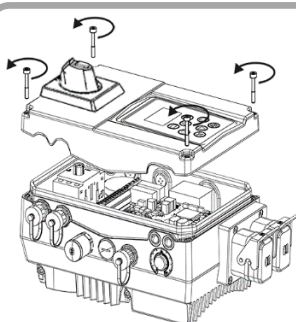
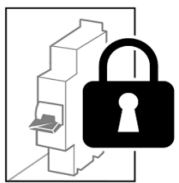
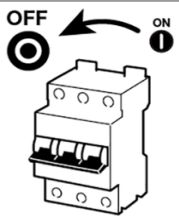
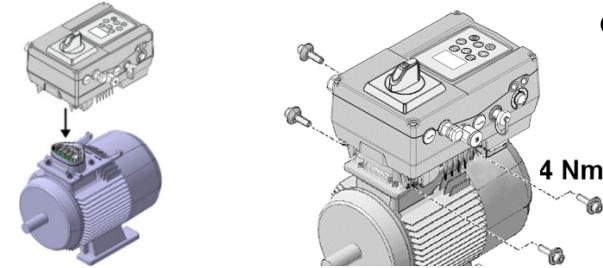
INVEOR boyut A



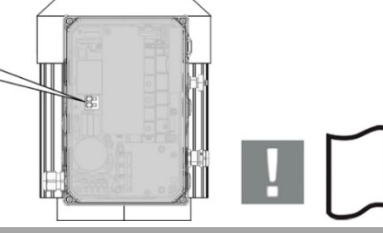
INVEOR boyut B - C



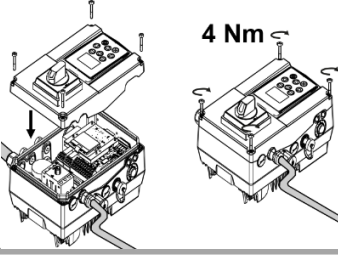
INVEOR boyut A - C



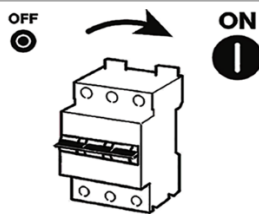
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7

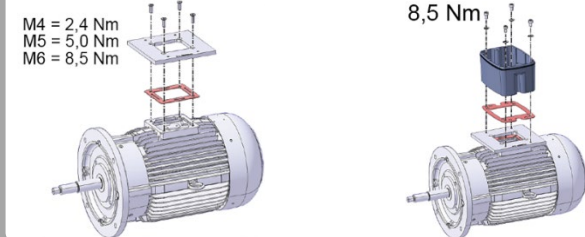


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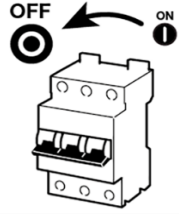


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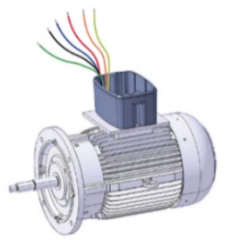
INVEOR boyut D



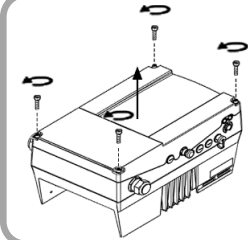
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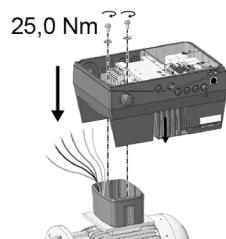
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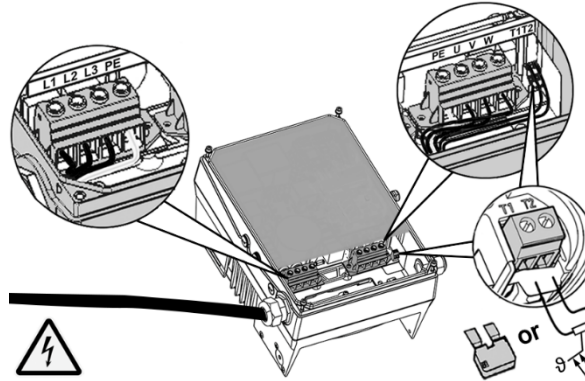
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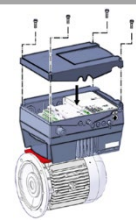
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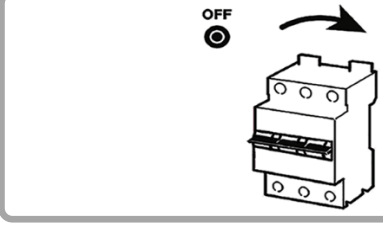
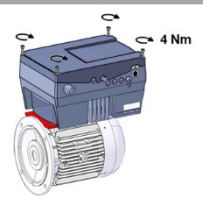
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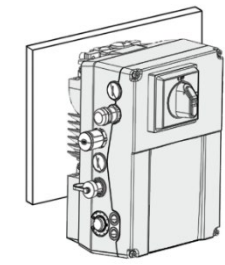


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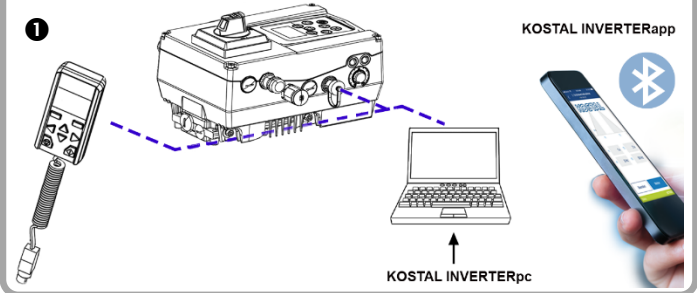


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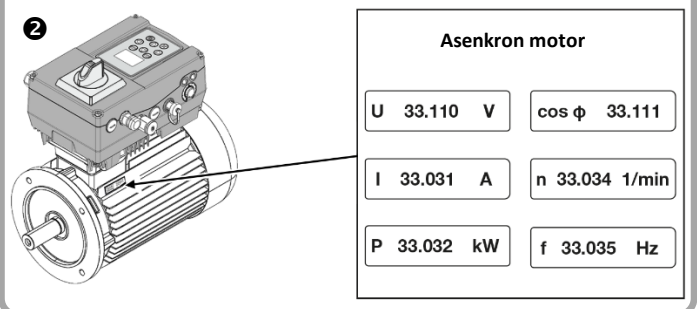
4 | CİHAZIN BAĞLANMASI, DUVAR MONTAJI



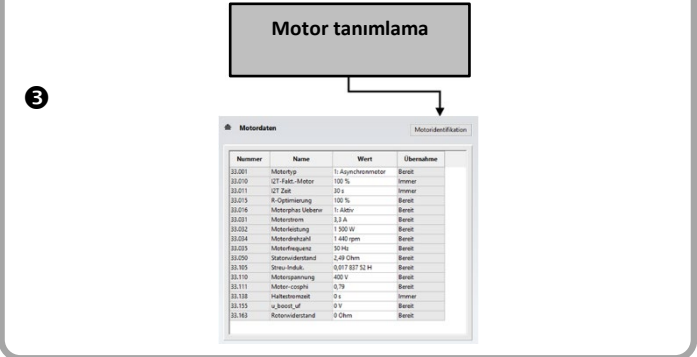
5 | HIZLI İŞLETİME ALMA



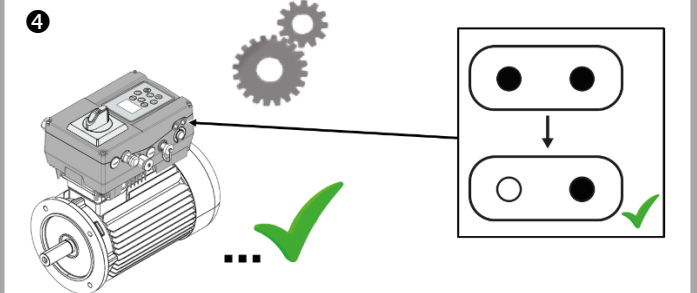
Parametreler / Motor verileri



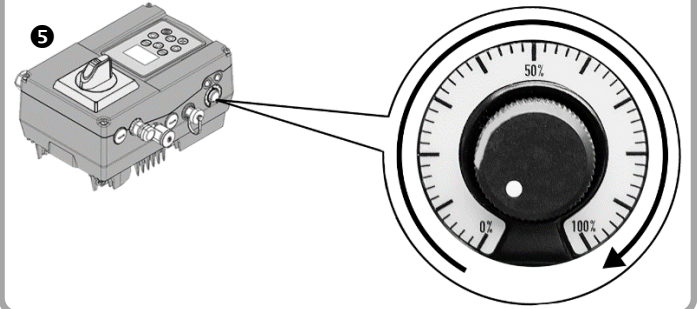
Motor tanımlama



Motor verileri hesaplanıyor



Analog giriş üzerinden devir sayısı ayarı



6 | HIZLI İŞLETİME ALMA PMSM

