

Installation instruction

Power analyzer for three-phase and two-phase systems

Istruzioni per l'installazione

Analizzatore di potenza per sistemi trifase e bifase

Installationsanweisung

Leistungsanalyse für Drei- und Zweiphasensysteme

Instructions pour l'installation

Analyseur de puissance pour systèmes triphasé et biphasé

Instrucciones para la instalación

Analizador de potencial para sistemas trifásicos y bifásicos

Vejledning til installation

Analyseapparat effekt til trøfasede og tofasede systemer

EN

Operating temperature From -25 to +55 °C/from -13 to +131 °F

Storage temperature From -25 to +70 °C/-from -13 to +158 °F

Protection degree (not UL evaluated) IP40 and IP51 (just in a distribution board with IP51 degree)

Overvoltage/Measurement category III, 4kV rated Impulse voltage

Protective class II

Altitude Max 2000 m

Consumption <1.3 W/2.6 VA (W value not UL evaluated)

Digital output V_{ON} 2.5 V ac/dc, max 100 mA.V_{OFF} 42 V ac/dc max

Digital input Contact measuring voltage: 5 V dc +/- 5%.

Contact measuring current: 5 mA max

Weight 180 g

Note: R.H. < 90 % non-condensing @ 40 °C / 104 °F.

IT

Temperatura di esercizio Da -25 a +55 °C/-da -13 a +131 °F

Temperatura di stoccaggio Da -25 a +70 °C/-da -13 a +158 °F

Grado di protezione (non valutato UL) IP40 e IP51 (solo in un quadro di distribuzione con grado IP51)

Categoria di sovrattensione/misura III, tensione impulsiva nominale 4kV

Classe di protezione II

Altitudine Max 2000 m

Consumo <1.3 W/2.6 VA (il valore W non è stato verificato da UL)

Uscita digitale V_{ON} 2.5 V ca/cc, max 100 mA.V_{OFF} 42 V ca/cc max

Ingresso digitale Tensione misura contatto: 5 V cc +/- 5%.

Corrente misura contatto: max 5 mA

Peso 180 g

Nota: U.R. < 90 % senza condensa @ 40 °C / 104 °F.

DE

Betriebstemperatur -25 bis +55 °C/-13 bis +131 °F

Lagertemperatur -25 bis +70 °C/-13 bis +158 °F

Schutzklasse (nicht UL-geprüft) IP40 und IP51 (nur in einer Verteilertafel mit IP51-Schutzklasse)

Überspannung-Messungskategorie III, 4 kV bemessene Impulsspannung

Schutzklasse II

Höhe Max 2000 m

Verbrauch <1.3 W/2.6 VA (W-Wert nicht von UL verifiziert)

Digitalausgang V_{ON} 2.5 V ac/dc, max 100 mA.V_{OFF} 42 V ac/dc

Digitaleingang Kontakt für Spannungsmessung: 5 V DC +/- 5%.

Kontakt für Strommessung: 5 mA max.

Gewicht 180 g

HINWEIS: R.L. < 90 % nicht kondensierend @ 40 °C / 104 °F.

FR

Température de fonctionnement De -25 à +55 °C/-de -13 à +131 °F

Température de stockage De -25 à +70 °C/-de -13 à +158 °F

Indice de protection (UL non évaluée) IP40 et IP51 (uniquement dans un tableau de distribution avec indice IP51)

Catégorie de surtension/mesure III, tension nominale de choc de 4kV

Classe de protection II

Altitude Max 2000 m

Consumption <1.3 W/2.6 VA (valeur W non vérifiée par UL)

Sortie logique V_{ON} 2.5 V ca/cc, max 100 mA. V_{OFF} 42 V ca/cc

Contact mesurant la tension : 5 V dc +/- 5%.

Entrée logique Contact mesurant le courant : 5 mA max

Poids 180 g

Note : U.R. < 90 % sans condensation @ 40 °C / 104 °F.

ES

Temperatura de funcionamiento De -25 a +55 °C/-de -13 a +131 °F

Temperatura de almacenamiento De -25 a +70 °C/-de -13 a +158 °F

Grado de protección (sin evaluación UL) IP40 e IP51 (solo en un cuadro de distribución con grado IP51)

Categoría de sobretensión/medida III, tensión de pulso nominal 4 kV

Clase de protección II

Altitud Máx 2000 m

Consumo <1.3 W/2.6 VA (el valor de W no está verificado por UL)

Salida digital V_{ON} 2.5 V ca/cc, max 100 mA. V_{OFF} 42 V ca/cc

Entrada digital Tensión de medición del contacto: 5 V CC +/- 5%.

Intensidad de medición del contacto: 5 mA máx.

Peso 180 g

Nota: U.R. < 90 % sin condensación @ 40 °C / 104 °F.

DA

Driftstemperatur Fra -25 til +55 °C/fra -13 til +131 °F

Opbevaringsstemperatur Fra -25 til +70 °C/fra -13 til +158 °F

Beskyttelsesgrad (ikke UL evalueret) IP40 og IP51 (kun i et fordelingstavle med IP51-grad)

Overspændings-målekategori Kat. III, 4kV nominel impulsoverspænding

Beskyttelsesklasse II

Højde Maks. 2000 m

Forbrug <1.3 W/2.6 VA (W-værdien er ikke bekræftet af UL)

Digitale udgang V_{ON} 2.5 V ac/dc, max 100 mA.V_{OFF} 42 V ac/dc

Digitale indgang Målespænding for kontakt: 5 V dc +/- 5%

Målestørrelse for kontakt: 5 mA max

Vægt 180 g

Bemærk: R.F. < 90 % uden kondens @ 40 °C / 104 °F.

ENGLISH**Warnings****DANGER!** Live parts. Heart attack, burns and other injuries.

- Disconnect the power supply and loads before connecting/disconnecting the electrical wires and installing or servicing current transformers.
- Only use the analyzer at the specified voltage and current.
- The analyzer should only be installed by qualified personnel experienced in working in safety.
- Access to the terminals is reserved for qualified personnel for maintenance operations.

NOTICE: The system installer is liable for the safety of any system that includes the analyzer**NOTICE:** Always use electrical wires according to all applicable local and international regulations.**NOTICE:** only use the analyzer at the specified voltage and current to avoid permanent damage.**NOTICE:** no one is authorized to open the analyzer. This operation is reserved exclusively for CARLO GAVAZZI technical service personnel. Protection may be impaired if the instrument is used in a manner not specified by the manufacturer.

This manual is an integral part of the product. It must be consulted for analyzer installation. It must be kept in good condition and in a clean location accessible to all operators.

Cleaning
Use a slightly dampened cloth to clean the display. Do not use abrasives or solvents.**Responsibility for disposal**

The product must be disposed of at the relative recycling centers specified by the government or local public authorities. Correct disposal and recycling will contribute to the prevention of potentially harmful consequences to the environment and persons.

Service and warranty

In the event of malfunction, fault, requests for information or to purchase accessory modules, contact the CARLO GAVAZZI branch or distributor in your country.

Installation and use of analyzers other than those indicated in the provided instructions void the warranty.

Notes

The instrument must be installed taking care of leaving the external disconnecting device easily accessible.

The current transformers may not be installed in equipment where they exceed 75 percent of the wiring space of any cross-sectional area within the equipment.

Restrict installation of current transformer in an area where it would block ventilation openings.

Restrict installation of current transformer in an area of breaker arc venting.

Secure current transformer and route conductors so that they do not directly contact live terminals or bus.

An external switch or circuit-breaker that must be mounted near the instrument is required.

For use with Current Sensors rated for basic insulation.

To be used in a pollution degree 2 or better environment only.

Auxiliary inputs/outputs (Digital input, Digital output, RS485, M-Bus) must be connected only to Limited-Energy Circuit in accordance with IEC/EN 61010-1.

The product is intended to be installed inside a certified fire/electrical enclosure.

Additional UL notes

For use with Listed or R/C Energy Monitoring Current Sensors rated for basic insulation.

Auxiliary inputs/outputs (Digital input, Digital output, RS485, M-Bus) must be connected only to Limited-Energy Circuit

in accordance with the National Electrical Code (NEC), NFPA 70, Clause 725.121 and Canadian Electrical Code (CEC), Part I, C22.1.

Evaluated as open type device; it is intended to be installed inside a dedicated NRTL certified fire/electrical enclosure (overall enclosure) or inside end-product equipment enclosure; it is not intended for retrofit installations in the enclosure of switchgears or panel boards.

Display icons

| Symbol | Description |
|--------|---|
| | ALARM (blinking icon): the value of the variable has exceeded the threshold set. |
| | WIRING ERROR (steady icon): a wiring fault has been detected, the control operates correctly if the selected system is 3Pn and for each phase: |
| | the power is positive (imported), PF > 0.7 L or PF > 0.96 C. For problem solutions, see "EM500 IM wiring solutions" |
| | Serial communication state (reception / transmission) |
| | The association of the phase terminal or the direction of the currents have been modified via UCS software to correct virtually a wiring fault. To view the current setup of the terminals, access the info screens (MENU > INFO > TERMINAL). |

Rx Tx**Q**

The association of the phase terminal or the direction of the currents have been modified via UCS software to correct virtually a wiring fault. To view the current setup of the terminals, access the info screens (MENU > INFO > TERMINAL).

Rx Tx**Q**

The association of the phase terminal or the direction of the currents have been modified via UCS software to correct virtually a wiring fault. To view the current setup of the terminals, access the info screens (MENU > INFO > TERMINAL).

ITALIANO**Avvertenze****PERICOLO!** Parti sotto tensione. Arresto cardiaco, bruciature e altre lesioni.

- Collegare l'alimentazione e i carichi prima di collegare/scollare i cavi elettrici e installare o riparare i trasformatori di corrente.
- Utilizzare l'analizzatore solo alla tensione e corrente specificate.
- L'installazione degli analizzatori deve essere eseguita solo da personale specializzato.
- L'accesso ai terminali è riservato a personale specializzato per operazioni di manutenzione.

NOTICE: The system installer is liable for the safety of any system that includes the analyzer**NOTICE:** Always use electrical wires according to all applicable local and international regulations.**NOTICE:** only use the analyzer at the specified voltage and current to avoid permanent damage.**NOTICE:** no one is authorized to open the analyzer. This operation is reserved exclusively for CARLO GAVAZZI technical service personnel. Protection may be impaired if the instrument is used in a manner not specified by the manufacturer.

This manual is an integral part of the product. It must be consulted for analyzer installation. It must be kept in good condition and in a clean location accessible to all operators.

Cleaning
Use a slightly dampened cloth to clean the display. Do not use abrasives or solvents.**Pulizia**

Per mantenere pulito il display usare un panno leggermente inumidito. Non usare abrasivi o solventi.

Hinweise

Immer elektrische Kabel gemäß allen anwendbaren lokalen und internationalen Regulationen verwenden.

HINWEIS:</b

Installing EM530 / Installare EM530 / Installation des EM530 / Installer le EM530 / Instalar el EM530 / Installer EM530

- Mount EM530 on DIN rail.
- Open terminal caps.
- Complete measuring input connections.

- Montare EM530 su guida DIN.
- Aprire i coprimosetti.
- Eseguire i collegamenti degli ingressi di misura.

- EM530 auf DIN-Schiene montieren.
- Anschlussabdeckungen öffnen.
- Eingangsanschlüsse komplett durchmessen.

- Monter EM530 sur un rail DIN.
- Ouvrir les cache-bornes.
- Compléter la mesure des connexions d'entrée.

- Montar el EM530 en el carril DIN.
- Abre los tapones para terminales.
- Realizar las conexiones de las entradas de medición.

- Montér EM530 på DIN-skinne.
- Åbn klemmedæksler.
- Udfør måling af indgangsforbindelser.

Un (L-N) 120 ... 240 V

Un (L-L) 208...415 V

Voltage tolerance -20 +15%

Frequency 50...60 Hz

Note: for MID versions the voltage range is limited to 3x230 (400) V, frequency to 50Hz.

In 5 A

I_{max} 6 A

4. Close the terminal caps.

5. Seal the terminal caps (MID requirement).

6. Connect inputs and digital output, RS485 or M-Bus.

Note: Digital input, digital output, M-bus and RS485 port have reinforced insulation from mains circuit.

7. Turn on power and check correct operation.

8. Complete the MID programming (only PF version).

The CT ratio must be set before use. Once set, the CT ratio cannot be changed. Follow the guided procedure on the display to set the CT ratio.

9. Configure EM530.

Un (L-N) 120 ... 240 V

Un (L-L) 208...415 V

Tolleranza tensione -20 +15%

Frequenza 50...60 Hz

Hinweis: bei MID-Versionen ist der Spannungs-Bereich auf 3 x 230 (400) V und die Frequenz auf 50 Hz begrenzt.

In 5 A

I_{max} 6 A

4. Chiudere i coprimosetti.

5. Sigillare i coprimosetti (requisito MID).

6. Collegare ingressi e uscita digitale, RS485 o M-Bus.

Note: Input digitale, output digitale, M-Bus e porta RS485 hanno un isolamento rinforzato rispetto al circuito di mains.

7. Alimentare e verificare il corretto funzionamento.

8. Eseguire la programmazione MID (solo versione PF). Il rapporto CT deve essere programmato prima dell'uso. Una volta programmato, il rapporto TA non può essere modificato. Seguire la procedura guidata sul display per impostare il rapporto TA.

9. Configurare l' EM530.

Un (L-N) 120 ... 240 V

Un (L-L) 208...415 V

Spannungstoleranz -20 +15%

Frequenz 50...60 Hz

Hinweis: bei MID-Versionen ist der Spannungs-Bereich auf 3 x 230 (400) V und die Frequenz auf 50 Hz begrenzt.

In 5 A

I_{max} 6 A

4. Anschlussabdeckungen schließen.

5. Siegeln Sie die Anschlussabdeckungen (MID-Anforderung).

6. Eingänge und digitalen Ausgang, RS485 oder M-Bus.

Note: Input digitale, output digitale, M-Bus e porta RS485 hanno un isolamento rinforzato rispetto al circuito di mains.

7. Alimentare e verificare il corretto funzionamento.

8. Eseguire la programmazione MID (solo versione PF). Il rapporto CT deve essere programmato prima dell'uso. Una volta programmato, il rapporto TA non può essere modificato. Seguire la procedura guidata sul display per impostare il rapporto TA.

9. Konfigurieren Sie das EM530.

Un (L-N) 120 ... 240 V

Un (L-L) 208...415 V

Tolérance de tension -20 +15%

Fréquence 50...60 Hz

Remarque: pour les versions MID, la plage de tension est limitée à 3x230 (400) V et la fréquence à 50Hz.

In 5 A

I_{max} 6 A

4. Fermer les cache-bornes.

5. Scellez les cache-bornes (exigence MID).

6. Connecter les entrées et les sorties numériques, RS485 ou M-Bus.

Note: l'entrée numérique, la sortie numérique, le M-bus et le port RS485 ont une isolation renforcée du circuit secteur.

7. Alimentez et vérifiez le fonctionnement correct.

8. Programmation MID (seule version PF). Le rapport CT doit être programmé avant utilisation. Une fois programmé, le rapport CT ne peut être modifié. Suivez la procédure guidée sur l'afficheur pour programmer le rapport CT.

9. Configurer l' EM530.

Un (L-N) 120 ... 240 V

Un (L-L) 208...415 V

Spændingstolerance -20 +15%

Frekvens 50...60 Hz

Nota: para las versiones MID, el rango de tensión está limitado a 3x230 (400) V, la frecuencia a 50Hz.

In 5 A

I_{max} 6 A

4. Cerrar los tapones para terminales.

5. Forsegle klemmedæksler (MID krav).

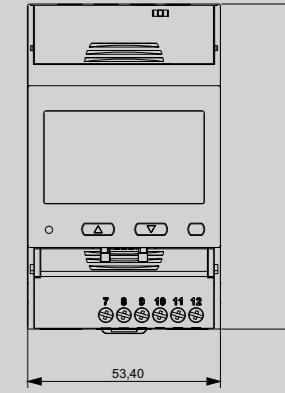
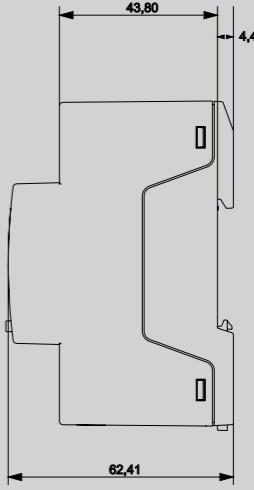
6. Tilslut indgange og digital udgang, RS485 eller M-Bus.

Note: den entraña digital, la salida digital, el M-bus y el puerto RS485 cuentan con aislamiento reforzado frente a la red eléctrica.

7. Alimentar y comprobar el correcto funcionamiento.

8. Programación MID (sólo versión PF). La relación CT debe programarse antes del uso. Una vez programada, la relación CT no se puede modificar. Seguir el procedimiento guiado en el display para configurar la relación CT.

9. Konfigurerer EM530.



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User manual



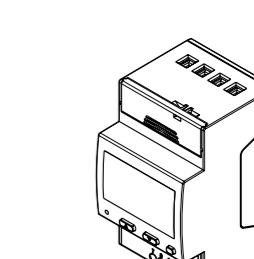
UCS Desktop



Keypad

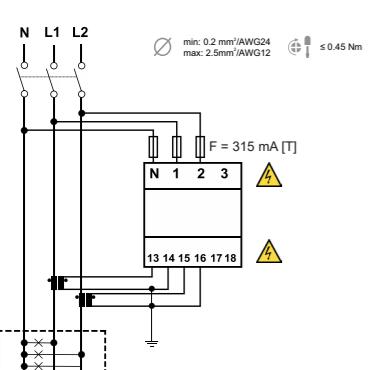


RS485



2P

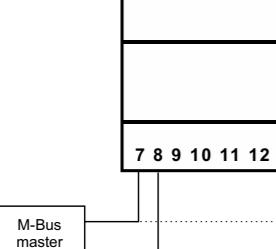
EN: two-phase system
IT: sistema bifase
DE: zweiphasiges System
FR: système biphasé
ES: sistema bifásico
DA: tofasesystem



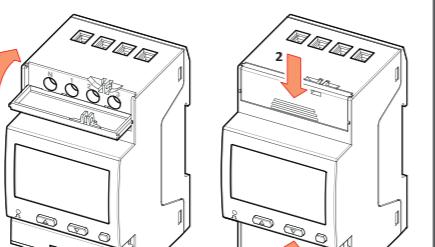
EN: M-Bus port (option M1) **FR:** Port M-Bus (option M1)
IT: Porta M-Bus (opzione M1) **ES:** Puerto M-Bus (opción M1)
DE: M-Bus Port (Option M1) **DA:** M-Bus-port (option M1)

min: 0.2 mm²/AWG24 max: 1.5 mm²/AWG14

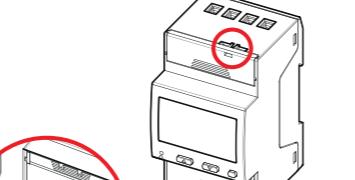
≤ 0.4 Nm



4

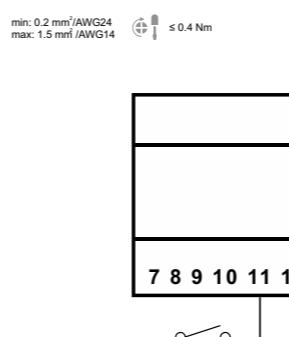


5

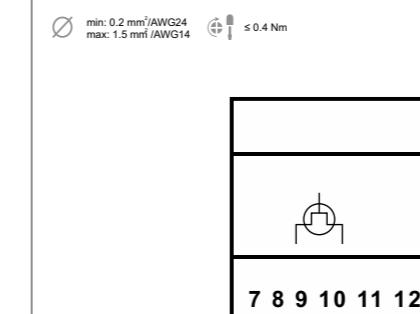


6

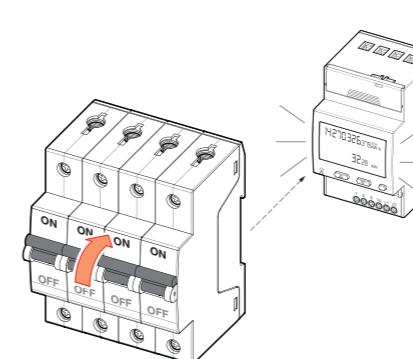
EN: Digital input **FR:** Entrée logique
IT: Ingresso digitale **ES:** Entrada digital
DE: Digitaleingang **DA:** Digital indgang



EN: Digital output (option O1) **FR:** Sortie logique (option O1)
IT: Uscita digitale (opzione O1) **ES:** Salida digital (opción O1)
DE: Digitalausgang (Option O1) **DA:** Digital udgang (option O1)



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User manual



https://www.gavazziautomation.com/images/PIM/MANUALS/ENG/EM530_IM_INST.pdf



UCS Desktop

https://www.gavazziautomation.com/images/PIM/OTHERSTUFF/ucs.zip



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EN - Installation instruction
Power analyzer for three-phase and two-phase systemsZH-SC - 安装说明
适用于三相和两相系统的功率分析仪ZH-TC - 安裝說明
適用於三相和雙相系統的功率分析儀

| EN |
|--|
| Operating temperature |
| Storage temperature |
| Protection degree (not UL evaluated) |
| Overvoltage/Measurement category |
| Protective class |
| Altitude |
| Consumption |
| Digital output |
| Digital input |
| Weight |
| Note: R.H. < 90 % non-condensing @ 40 °C / 104 °F. |

| ZH-SC |
|------------------------------------|
| 工作温度 |
| 存储温度 |
| 防护等级 (未经 UL 评估) |
| 过电压/测量类别 |
| 防护等级 |
| 海拔高度 |
| 功耗 |
| 数字输出 |
| 数字输入 |
| 重量 |
| 备注: 相对湿度< 90 % 非冷凝 @ 40°C / 104°F。 |

| ZH-TC |
|--------------------------------------|
| 作業溫度 |
| 保存溫度 |
| 防護等級 (未經 UL 評估) |
| 過電壓/量測類別 |
| 防護等級 |
| 海拔高度 |
| 消耗量 |
| 數位輸出 |
| 數位輸入 |
| 重量 |
| 備註: 相對濕度< 90 % 未凝結 @ 40 °C / 104 °F。 |

ENGLISH

Warnings

  **DANGER!** Live parts. Heart attack, burns and other injuries.

- Disconnect the power supply and loads before connecting/disconnecting the electrical wires and installing or servicing current transformers.
- Only use the analyzer at the specified voltage and current.
- The analyzer should only be installed by qualified personnel experienced in working in safety.
- Access to the terminals is reserved for qualified personnel for maintenance operations.

NOTICE: The system installer is liable for the safety of any system that includes the analyzer.
NOTICE: Always use electrical wires according to all applicable local and international regulations.

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Cleaning
Use a slightly dampened cloth to clean the display. Do not use abrasives or solvents.

Responsibility for disposal

 The product must be disposed of at the relative recycling centers specified by the government or local public authorities. Correct disposal and recycling will contribute to the prevention of potentially harmful consequences to the environment and persons.

Service and warranty

In the event of malfunction, fault, requests for information or to purchase accessory modules, contact the CARLO GAVAZZI branch or distributor in your country. Installation and use of analyzers other than those indicated in the provided instructions void the warranty.

Notes

- The instrument must be installed taking care of leaving the external disconnecting device easily accessible.
- The current transformers may not be installed in equipment where they exceed 75 percent of the wiring space of any cross-sectional area within the equipment.
- Restrict installation of current transformer in an area where it would block ventilation openings.
- Restrict installation of current transformer in an area of breaker arc venting.
- Secure current transformer and route conductors so that they do not directly contact live terminals or bus.
- An external switch or circuit-breaker that must be mounted near the instrument is required.
- For use with Current Sensors rated for basic insulation.
- To be used in a pollution degree 2 or better environment only.
- Indoor use only

Display icons

| Symbol | Description |
|---|--|
|  | ALARM (blinking icon): the value of the variable has exceeded the threshold set. |
|   | WIRING ERROR (steady icons): a wiring fault has been detected, the control operates correctly if the selected system is 3Pn and for each phase: <ul style="list-style-type: none"> the power is positive (imported), PF > 0.7 L or PF > 0.96 C. For problem solutions, see "EM500 IM wiring solutions" |
|  | Serial communication state (reception / transmission) |
|  | The association of the phase terminal or the direction of the currents have been modified via UCS software to correct virtually a wiring fault. To view the current setup of the terminals, access the info screens (MENU > INFO > TERMINAL). |

SIMPLIFIED CHINESE

Warnings

 **DANGER!** Live parts. Heart attack, burns and other injuries.

- 在连接/断开电线之前，请先断开电源和所有负荷。
- 只可在规定电压和电流下使用分析仪。
- 分析仪只能由具备安全工作经验的合格人员安装。
- 只有合格人员才能使用端子，以进行维护操作。
- 系统安装人员负责保证任何包含分析仪的系统的安全性

注意: 只可在规定电压和电流下使用分析仪，以避免发生永久性损坏。

注意: 务必使用符合当地和国际规范要求的电气线材。

注意: 任何人都不得拆开分析仪。只有CARLO GAVAZZI的技术服务人员才可进行此项操作。如果以制造商未指定的方式使用仪器，可能会损害保护功能。

 本手册是产品不可或缺的一部分。安装分析仪时必须查阅本手册。必须将其妥善保存在所有操作人员都可轻松取得的显眼位置。

Cleaning
使用略微蘸湿的布清洁显示屏。请勿使用研磨剂或溶剂。

Responsibility for disposal

 本产品必须在政府或当地公共机构所指定的相关回收中心进行处置。正确处置和回收可以防止对环境和人身安全造成潜在危害。

Service and warranty

如果发生故障、错误，或需要了解信息或购买附属模块，请联系CARLO GAVAZZI在您所在国家/地区的分公司或经销商。若未按照附带说明书所载方式安装和使用分析仪，将导致保修失效。

注

- 仪表安装时必须注意保证相应外部断开装置处于方便操作的位置。
- 不得将电流互感器安装在其空间占用在设备内超过可用接线空间或任意横截面积的 75% 的设备之中。
- 应限制将电流互感器安装在会致其通风口受阻的位置。
- 应限制将电流互感器安装在会堵住通风口的区域。
- 固定电流互感器，并布置导线走向以确保不会直接接触带电端子或总线。
- 要求安装一个必须安装在仪器附近的外部开关或断路器。
- 用于搭配额定用于基础绝缘的电流传感器。
- 仅可用于污染等级 2 或条件更好的场所
- 仅可用于室内

显示图标

| 符号 | 说明 |
|---|--|
|  | 警报 (图标闪烁): 变量值超出设定的阈值。 |
|   | 接线错误 (图标稳定): 检测到接线故障，如果所选系统为 3Pn 且每一相均满足以下条件，则控制器可正常工作: <ul style="list-style-type: none"> 功率为正（输入）， PF > 0.7 L 或 PF > 0.96 C。 如需了解故障解决方案，请参见“EM500 IM 接线解决方案” |
|  | 串行通信状态 (接收/传输) |
|  | 已通过 UCS 软件修改相位端子的关联或电流方向，以便虚拟校正接线故障。如需查看端子的当前设置，请访问信息屏幕（菜单 > 信息 > 端子）。 |

TRADITIONAL CHINESE

警告

 **危險!** 帶電零件。可能導致心臟病發作、燒傷及其他傷害。

- 在連接/斷開電線之前，請先斷開電源和所有負載。
- 只可在規定電壓和電流下使用分析儀。
- 分析儀只能由具備安全工作經驗的合格人員安裝。
- 只有合格人員才能使用端子，以進行維護操作。
- 系統安裝人員負責保證任何包含分析儀的系統的安全性

注意: 只可在規定電壓和電流下使用分析儀，以避免發生永久性損害。

注意: 务必使用符合當地和國際規範要求的電氣線材。

注意: 任何人都不得拆開分析儀。只有CARLO GAVAZZI的技術服務人員才可進行此項操作。如果以製造商未指定的方式使用儀器，可能會損壞保護功能。

 本手冊是產品不可或缺的一部分。安裝分析儀時必須查閱本手冊。必須將其妥善保存在所有操作人員都可輕鬆取得的顯眼位置。

清潔
使用微濕抹布清潔顯示器。請勿使用研磨劑或溶劑。

處置責任

 必須將本產品交由政府或當地公共機關指定之相關回收中心進行廢棄。請按照正確方式廢棄和回收，避免對環境與個人造成潛在危害。

維修和保固

若功能異常、發生故障、需要資訊或購買配件模組，請聯絡您所在國家/地區的CARLO GAVAZZI分公司。
若未按照附帶說明書所載方式安裝和使用分析儀，將導致保固失效。

附註

- 安裝本儀器時，必須注意要易於接觸外部斷開裝置。

在比流器安裝所在的設備內，比流器不得超過設備內任何截面積接線空間的 75%。

限制將比流器安裝在會堵住通風口的區域。

限制將比流器安裝在斷路器電弧排氣的區域。

固定比流器並鋪設導線，使其不直接接觸帶電端子或匯流排。

需要在本儀器附近安裝外部開關或斷路器。

用於與額定基礎絕緣的電流感測器一起使用。

只能在污染等級為 2 或更好的環境中使用。

僅限室內使用

ADDITIONAL UL NOTES:

- For use with Listed or R/C Energy Monitoring Current Sensors rated for basic insulation.
- Auxiliary inputs/outputs (Digital input, Digital output, RS485, M-Bus) must be connected only to Limited-Energy Circuit in accordance with UL/CSA 61010-1 or Class 2 supply source which complies with the National Electrical Code (NEC), NFPA 70, Clause 725.121 and Canadian Electrical Code (CEC), Part I, C22.1.
- Evaluated as open type device; it is intended to be installed inside a dedicated NRTL certified fire/electrical enclosure (overall enclosure) or inside end-product equipment enclosure; it is not intended for retrofit installations in the enclosure of switchgears or panel boards.

额外 UL 备注:

- 用于搭配列出的或额定用于基础绝缘的 R/C 能耗监测电流互感器。
- 辅助输入/输出（数字输入、数字输出、RS485、M-Bus）必须仅连接至符合 UL/CSA 61010-1 要求的有限能量电路，或符合美国电气规范 (NEC) NFPA 70 第 725.121 条以及加拿大电气规范 (CEC) 第 I 部分 C22.1 要求的 2 级电源。
- 作为开放式设备评估：该设备设计应安装在经 NRTL 认证的专用防火电器机柜（整体柜）内或最终设备机柜内；该设备设计不可通过改造安装于开关设备或面板机柜内。

其他 UL 說明:

- 用於與額定基本絕緣的列名或 R/C 能量監測電流感測器一起使用。
- 幫助輸入/輸出（數位輸入、數位輸出、RS485、M-Bus）必須僅連接到符合 UL/CSA 61010-1 的限能電路或符合美國國家電工法規 (NEC) NFPA 70, 條款 725.121 和加拿大電工法規 (CEC), 第 I 部分 C22.1 的 2 級電源。
- 評估為開放式裝置：旨在安裝在經 NRTL 認證的專用防火/電氣外殼（整體外殼）或最終產品設備外殼內；不適用於在開關設備或配電盤外殼中進行改造安裝。

Installing EM530 / 安裝 EM530 / 安裝 EM530

- Mount EM530 on DIN rail.
- Open terminal caps.
- Complete measuring input connections.

- 将 EM530 安裝於 DIN 导軌上。
- 打開端子蓋。
- 完成測量輸入連接。

| | | | |
|--|---------------|-----------------|---------------|
| Un (L-N) | 120 ... 240 V | Un (L-N) | 120 ... 240 V |
| Un (L-L) | 208...415 V | Un (L-L) | 208...415 V |
| Voltage tolerance | -20 +15% | 电压容差 | -20 +15% |
| Frequency | 50...60 Hz | 頻率 | 50...60 Hz |
| <i>Note: for MID versions the voltage range is limited to 3x230 (400) V, frequency to 50 Hz.</i> | | | |

In 5 A
Imax 6 A
4. Close the terminal caps.
5. Seal the terminal caps (MID requirement).
6. Connect inputs and digital output, RS485 or M-Bus.
Note: Digital input, digital output, M-bus and RS485 port have reinforced insulation from mains circuit.
7. Turn on power and check correct operation.
8. Complete the MID programming (only PF version). The CT ratio must be set before use. Once set, the CT ratio cannot be changed. Follow the guided procedure on the display to set the CT ratio.
9. Configure EM530.

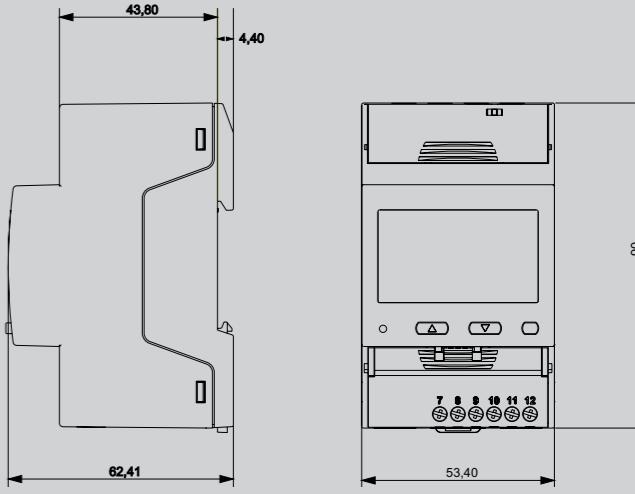
- 將 EM530 安裝於 DIN 導軌上。
- 打開端子蓋。
- 完成量測輸入連接。

| | | | |
|-----------------|---------------|-----------------|---------------|
| Un (L-N) | 120 ... 240 V | Un (L-N) | 120 ... 240 V |
| Un (L-L) | 208...415 V | Un (L-L) | 208...415 V |
| 電壓容差 | -20 +15% | 電壓公差 | -20 +15% |
| 頻率 | 50...60 Hz | 頻率 | 50...60 Hz |

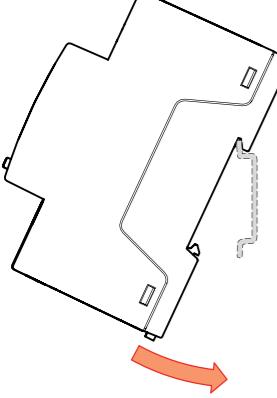
注意: 對於 MID 版本, 電壓範圍限制為 3x230 (400) V, 頻率限制為 50 Hz。

In 5 A
Imax 6 A
4. 关闭端子盖。
5. 密封端子盖 (MID 要求)。
6. 连接输入和数字输出、RS485 或 M-Bus。
Note: 数字输入、数字输出、M-bus 和 RS485 端口均配有加强绝缘保护以保证与主电源电路绝缘。
7. 打开电源，检查是否正常工作。
8. 完成 MID 编程 (仅 PF 版本)。使用前必须设置 CT 比。CT 比一经设置便无法更改。请按照显示屏上的指导步骤设置 CT 比。
9. 配置 EM530。

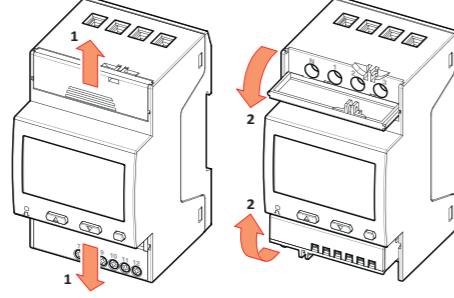
- 蓋上端子蓋。
- 密封端子蓋 (MID 規定)。
- 連接輸入與數位輸出：RS485 或 M-Bus。
- 附註：數位輸入、數位輸出、M-Bus 和 RS485 通訊均已加強與電源電路的絕緣。
- 打開電源，檢查是否正確運作。
- 完成 MID 程式化設定 (僅 PF 版本)。使用前必須先設定 CT 比率。設定完成後，不可變更 CT 比率。請遵循顯示器上的導引程序設定 CT 比率。
- 設定 EM530。



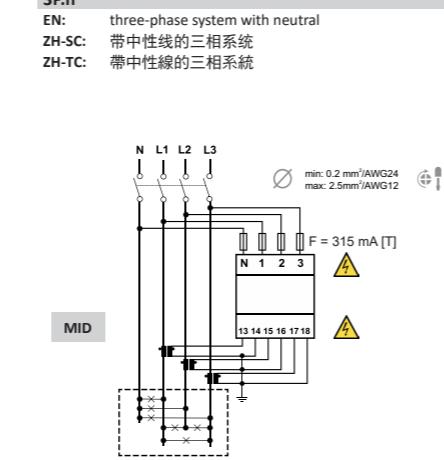
1



2

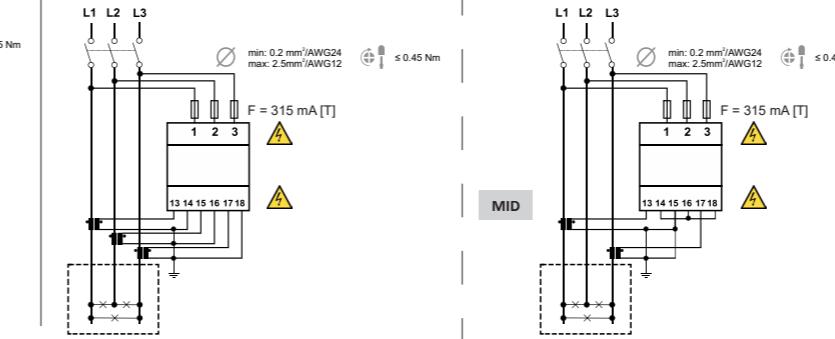


3



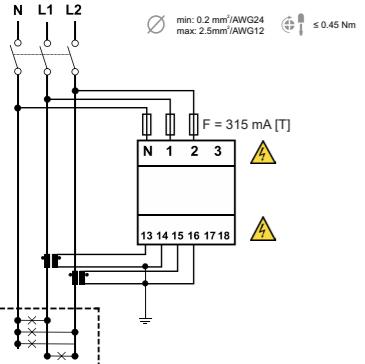
3P

EN: three-phase system without neutral
ZH-SC: 无中性线的三相系统
ZH-TC: 不帶中性線的三相系統

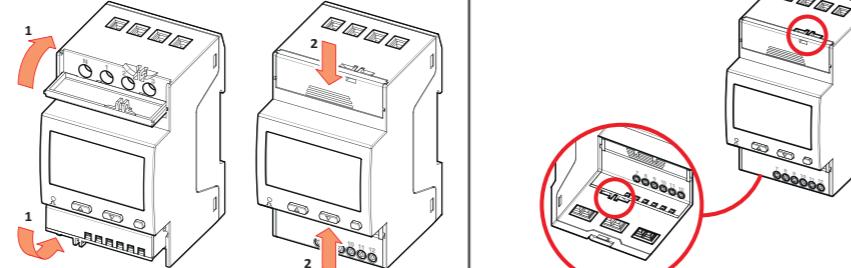


2P

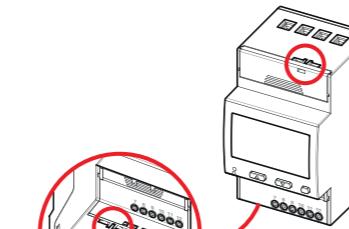
EN: two-phase system
ZH-SC: 双相系统
ZH-TC: 雙相系統



4

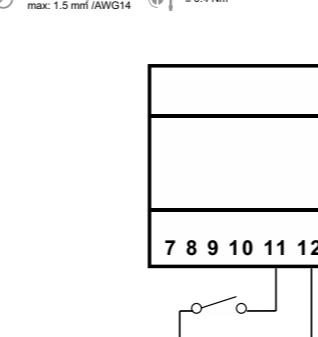


5

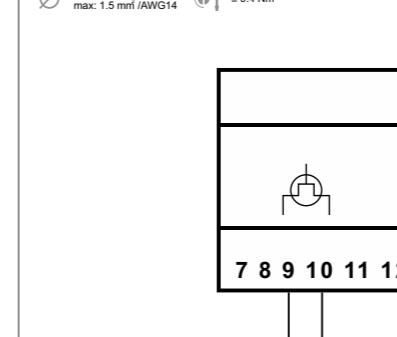


6

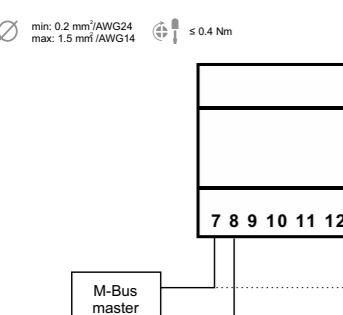
EN: Digital input
ZH-SC: 数字输入
ZH-TC: 數位輸入



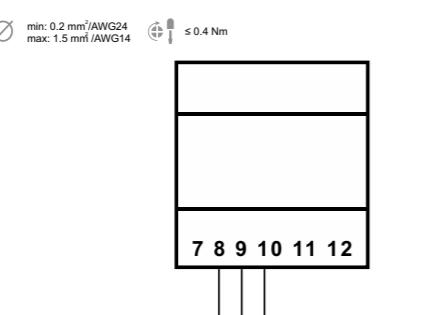
EN: Digital output (option O1)
ZH-SC: 数字输出 (选项 O1)
ZH-TC: 數位輸出 (選項 O1)



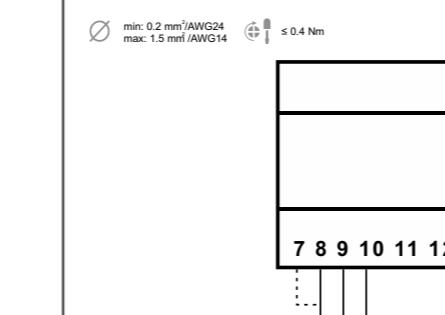
EN: M-Bus port (option M1)
ZH-SC: M-Bus 端口 (选项 M1)
ZH-TC: M-Bus 連接埠 (選項 M1)



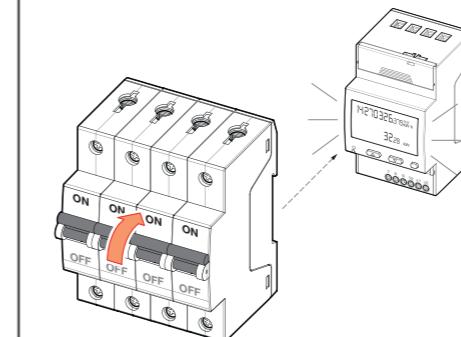
EN: RS485 port (option S1)
ZH-SC: RS485 端口 (选项 S1)
ZH-TC: RS485 連接埠 (選項 S1)



EN: RS485 termination. Last device on RS485
ZH-SC: RS485 终端化。RS485 上最后一个设备
ZH-TC: RS485 終端化。在 RS485 上的最後一個裝置



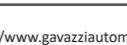
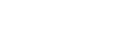
7



8



9



EM530 - EM540

ADDITIONAL NOTES FOR MID COMPLIANCE - NOTE AGGIUNTIVE PER CONFORMITÀ ALLA DIRETTIVA MID - ZUSÄTZLICHE HINWEISE ZUR MID-KONFORMITÄT MID 合規性補充說明

ENGLISH

ITALIANO

DEUTSCH

繁體中文

MID notes:

- Electromechanical environmental condition : E2
- Mechanical environmental condition: M2

Reference standards:

EN 50470-3:2022
EN IEC 62052-11:2021/A11:2022
(Emissions according to CISPR 32:2015, class B)
EN IEC 62052-31:2016

Supplementary metrology marking:

- EM530 model (Fig. 1a)
- EM540 model (Fig. 1b)

Installation notice.

Check the integrity of the seal:
• EM530 model (Fig. 2a)
• EM540 model (Fig. 2b)

Seal the terminal caps before use:

Note: the seal is applied by the user and not by the manufacturer. The seal shown is for illustration purpose only.

- EM530 model (Fig. 3a)
- EM540 model (Fig. 3b)

Note: For EM530 only, the following table reports the optical test output pulse weight, proportional to energy consumption and depending on the CT ratio (16 Hz maximum frequency):

| Weight (kWh per pulse) | CT ratio |
|------------------------|--------------------|
| 0.001 | <=7 |
| 0.01 | From 7.1 to 70 |
| 0.1 | From 70.1 to 700 |
| 1 | From 700.1 to 2000 |

Note sulla MID:

- Condizione dell'ambiente elettromagnetico : E2
- Condizione dell'ambiente meccanico: M2

Standard di riferimento:

EN 50470-3:2022
EN IEC 62052-11:2021/A11:2022
(Emissioni in accordo con CISPR 32:2015, classe B)
EN IEC 62052-31:2016

Marcatura metrologica supplementare:

- Modello EM530 (Fig. 1a)
- Modello EM540 (Fig. 1b)

Nota sull'installazione.

Controllare l'integrità del sigillo:
• Modello EM530 (Fig. 2a)
• Modello EM540 (Fig. 2b)

Sigillare i coprimorsetti prima dell'uso:

Note: il sigillo è applicato dall'utente e non dal produttore. Il sigillo mostrato è solo a scopo illustrativo.

- Modello EM530 (Fig. 3a)
- Modello EM540 (Fig. 3b)

Note: solo per EM530, la seguente tabella riporta il peso dell'impulso dell'uscita ottica di prova, proporzionale al consumo di energia e in base al rapporto CT (frequenza massima 16 Hz):

| Peso (kWh per impulso) | Rapporto CT |
|------------------------|-----------------|
| 0.001 | <=7 |
| 0.01 | Da 7.1 a 70 |
| 0.1 | Da 70.1 a 700 |
| 1 | Da 700.1 a 2000 |

MID-Hinweise:

- Elektromechanische Umgebungsbedingung: E2
- Mechanische Umgebungsbedingung: M2

Standard normen:

EN 50470-3:2022
EN IEC 62052-11:2021/A11:2022
(Emissionen gemäß CISPR 32:2015, Klasse B)
EN IEC 62052-31:2016

Ergänzende Metrologiemarkierung:

- EM530-Modell (Abb. 1a)
- EM540-Modell (Abb. 1b)

Installationshinweis.

Unversehrtheit der Versiegelung prüfen:

- EM530-Modell (Abb. 2a)
- EM540-Modell (Abb. 2b)

Die Anschlusskappen vor Gebrauch versiegeln:

Hinweis: Die Versiegelung wird vom Benutzer angebracht und nicht vom Hersteller. Die gezeigte Versiegelung dient nur zur Illustration.

- EM530-Modell (Abb. 3a)
- EM540-Modell (Abb. 3b)

Hinweis: Nur für EM530 gibt die folgende Tabelle das optische Testausgangsimpulsge wicht, proportional zum Energieverbrauch und abhängig vom CT-Verhältnis an (16 Hz maximale Frequenz):

| Gewichtung (kWh pro Impuls) | CT-Verhältnis |
|-----------------------------|----------------|
| 0.001 | <=7 |
| 0.01 | 7,1 bis 70 |
| 0.1 | 70,1 bis 700 |
| 1 | 700,1 bis 2000 |

MID 注意事項 :

- 機電環境條件 : E2
- 機械環境條件 : M2

標準:

EN 50470-3:2022
EN IEC 62052-11:2021/A11:2022
(排放符合 CISPR 32:2015，等級 B)
EN IEC 62052-31:2016

充度量衡標示 :

- EM530 機型 (圖 1a)
- EM540 機型 (圖 1b)

安裝注意事項。

檢查密封完整性 :

- EM530 機型 (圖 2a)
- EM540 機型 (圖 2b)

使用前，請密封端子蓋：

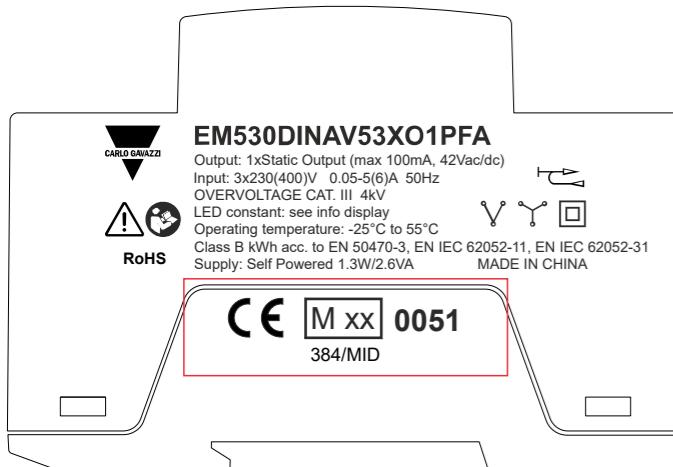
注意事項：密封應由使用者而非製造商進行。如圖所示的密封僅供說明之用。

- EM530 機型 (圖 3a)
- EM540 機型 (圖 3b)

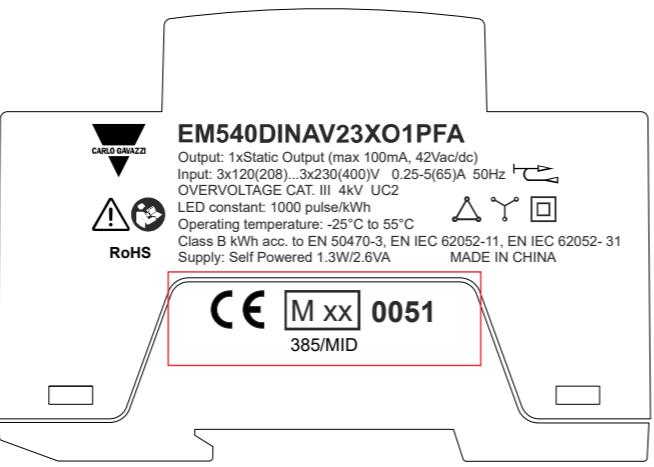
附註: 僅對於 EM530，下表報告了光性試驗輸出脈衝權重，與能耗成正比，並取決於 CT 比例 (16 Hz 最大頻率) :

| 權重(每脈衝kWh) | CT 比率 |
|------------|--------------|
| 0.001 | <=7 |
| 0.01 | 從7.1 至70 |
| 0.1 | 從70.1 至700 |
| 1 | 從700.1 至2000 |

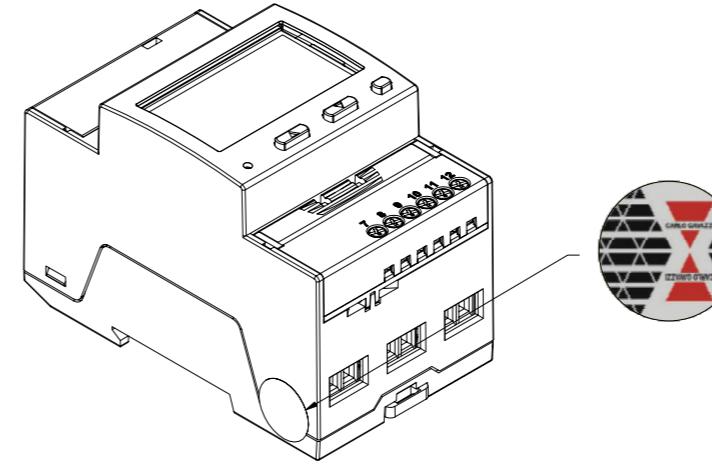
1a



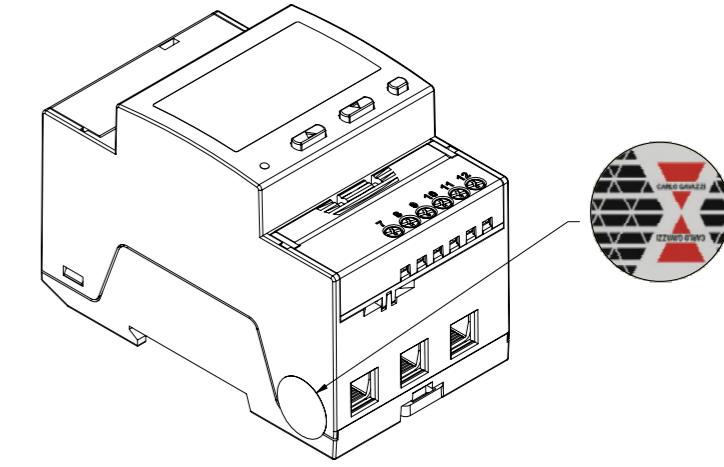
1b



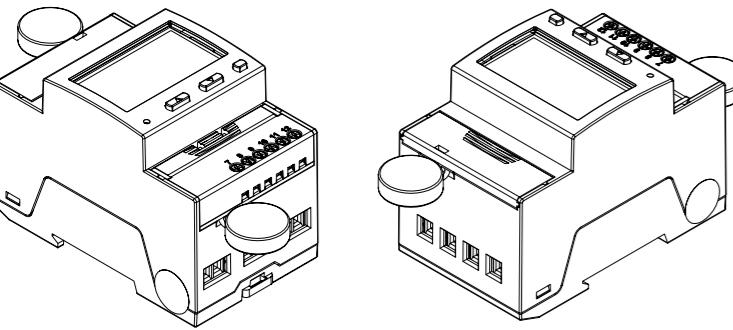
2a



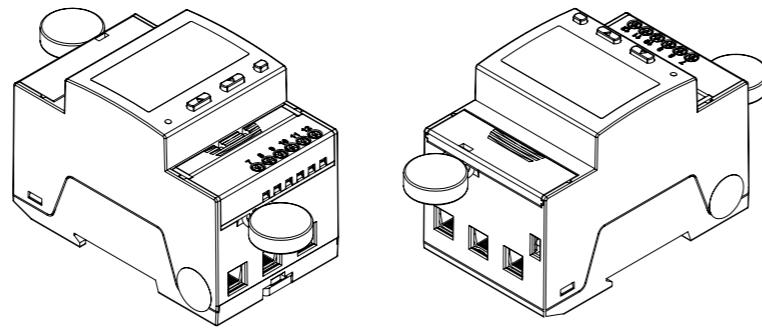
2b



3a



3b



FRANçAIS

ESPAÑOL

DANSK

简体中文

Remarques MID :

- Condition environnementale électromécanique : E2
- Condition environnementale mécanique : M2

Normes de référence:

EN 50470-3:2022
EN IEC 62052-11:2021/A11:2022
(Émissions selon CISPR 32:2015, classe B)
EN IEC 62052-31:2016

Marquage complémentaire de métrologie :

- Modèle EM530 (Fig. 1a)
- Modèle EM540 (Fig. 1b)

Avis d'installation.

Contrôler l'intégrité du joint:

- Modèle EM530 (Fig. 2a)
- Modèle EM540 (Fig. 2b)

Sceller les cache-bornes avant l'emploi :

Remarque : le joint est posé par l'utilisateur et pas par le fabricant. Le joint est montré à titre purement indicatif.

- Modèle EM530 (Fig. 3a)
- Modèle EM540 (Fig. 3b)

Note: Pour EM530 uniquement, le tableau suivant mentionne le poids d'impulsion de la sortie d'essai optique, proportionnel à la consommation d'énergie et en fonction du rapport du transformateur de courant (fréquence maximale 16 Hz) :

| Poids (kWh par impulsion) | Produit du CT |
|---------------------------|-----------------|
| 0.001 | <=7 |
| 0.01 | De 7,1 à 70 |
| 0.1 | De 70,1 à 700 |
| 1 | De 700,1 à 2000 |

Notas MID:

- Condiciones ambientales electromecánicas: E2
- Condiciones ambientales mecánicas: M2

Normativas de referencia:

EN 50470-3:2022
EN IEC 62052-11:2021/A11:2022
(Emisiones según CISPR 32:2015, clase B)
EN IEC 62052-31:2016

Marcado de metrología complementario:

- Modelo EM530 (Fig. 1a)
- Modelo EM540 (Fig. 1b)

Aviso de instalación.

Compruebe la integridad del sello:

- Modelo EM530 (Fig. 2a)
- Modelo EM540 (Fig. 2b)

Selle los tapones para terminales antes de su uso:

Nota: es el usuario quien aplica el sello, no el fabricante. El sello se muestra con fines meramente ilustrativos.

- Modelo EM530 (Fig. 3a)
- Modelo EM540 (Fig. 3b)

Nota: Para EM530 exclusivamente, la tabla a continuación muestra el peso del pulso de salida de la prueba óptica, proporcional al consumo de energía y basado en la proporción CT (frecuencia máxima 16 Hz):

| Peso (kWh por pulso) | Relación del CT |
|----------------------|--------------------|
| 0.001 | <=7 |
| 0.01 | Desde 7,1 hasta 70 |
| 0.1 | From 70,1 to 700 |
| 1 | From 700,1 to 2000 |

Bemærkninger om MID:

- Elektromekanisk miljøbetegnelse: E2
- Mekanisk miljøbetegnelse: M2

Standarder:

EN 50470-3:2022
EN IEC 62052-11:2021/A11:2022
(Emissioner i henhold til CISPR 32:2015, klasse B)
EN IEC 62052-31:2016

Supplerende metrologisk mærkning:

- EM530-model (Fig. 1a)
- EM540-model (Fig. 1b)

Installationsmeddelelse.

Kontrollér forseglingens integritet:

- EM530-model (Fig. 2a)
- EM540-model (Fig. 2b)

Forsegling terminalhætterne før brug:

Bemærk: Forseglingen påføres af brugerne, ikke af producenten. Den viste forsegling er kun til illustrative formål.

- EM530-model (Fig. 3a)
- EM540-model (Fig. 3b)

Bemærk: Kun til EM530, følgende tabel viser impulsvegt for udgang for den optiske test i forhold til energiforbruget og afhængigt af CT-koefficienten (16 Hz maks. frekvens):

| Vægt (kWh pr. puls) | CT ratio |
|---------------------|--------------------|
| 0.001 | <=7 |
| 0.01 | Fra 7,1 til 70 |
| 0.1 | Fra 70,1 til 700 |
| 1 | Fra 700,1 til 2000 |

MID 备注:

- 机电环境条件: E2
- 机械环境条件: M2

标准:

EN 50470-3:2022
EN IEC 62052-11:2021/A11:2022
(排放符合 CISPR 32:2015, B 类)
EN IEC 62052-31:2016

补充计量标识:

- EM530 型号 (图 1a)
- EM540 型号 (图 1b)

安装注意事项。

检查密封的完整性:

- EM530 型号 (图 2a)
- EM540 型号 (图 2b)

使用前, 请密封端子盖:

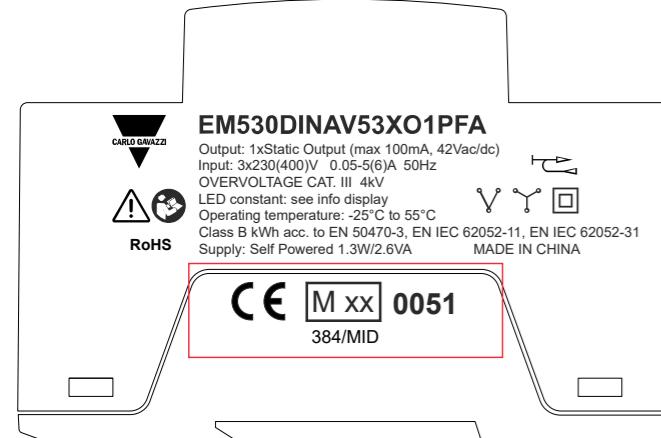
备注: 密封应由用户而非制造商进行。图中所示的密封仅用于说明目的。

- EM530 型号 (图 3a)
- EM540 型号 (图 3b)

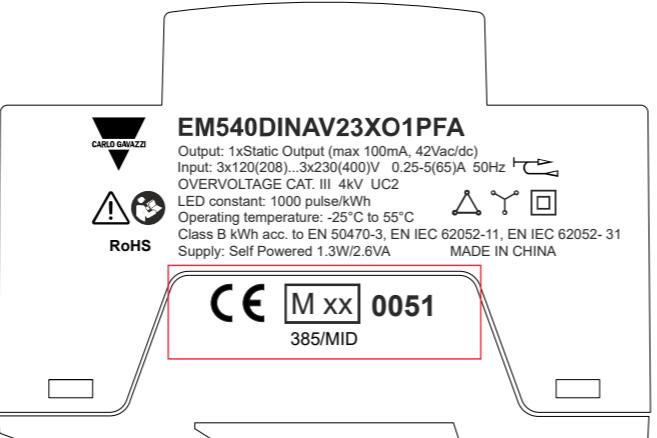
注: 仅对于 EM530, 下表给出了光学测试输出脉冲权重, 此数据与能耗成正比, 取决于 CT 比 (16 Hz 最大频率):

| 权重(kWh/脉冲) | CT 比 |
|------------|--------------|
| 0.001 | <=7 |
| 0.01 | 7.1 至 70 |
| 0.1 | 70.1 至 700 |
| 1 | 700.1 至 2000 |

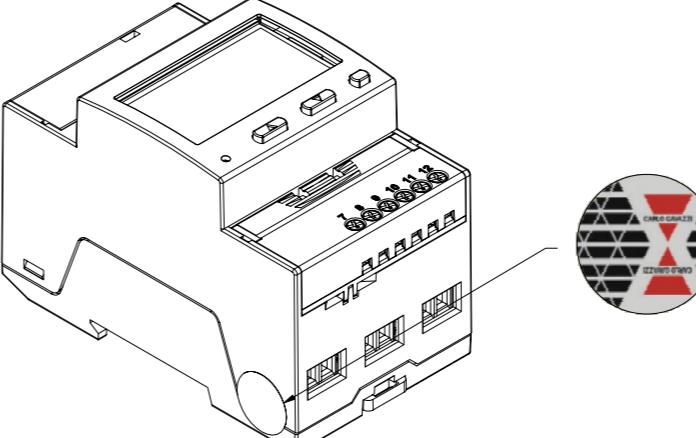
1a



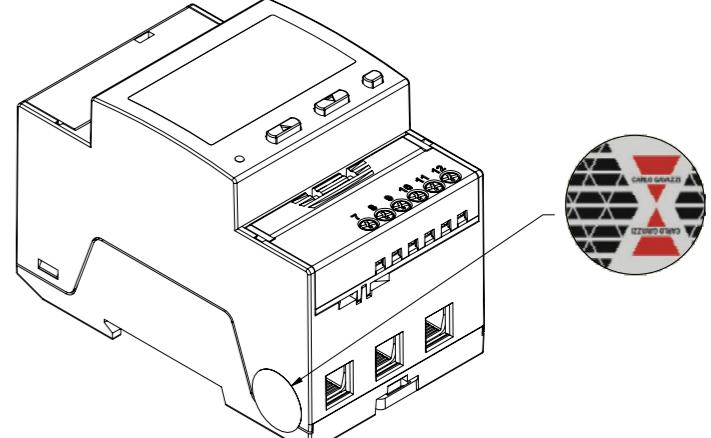
1b



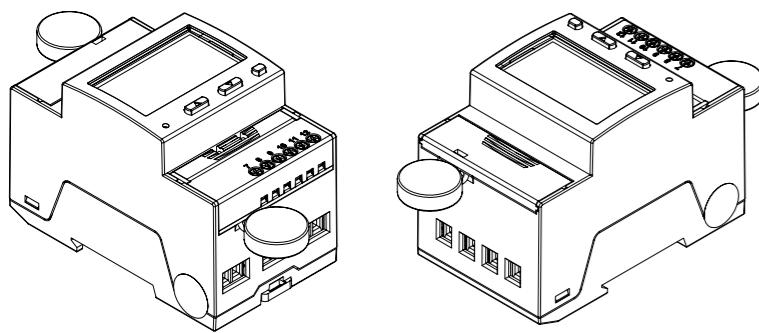
2a



2b



3a



3b

