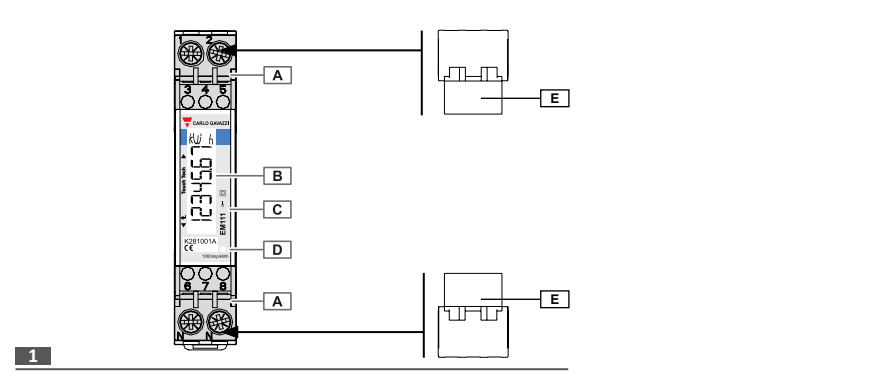


EM111

Installation and use instructions
45 A direct connection single-phase energy analyzer with Modbus, pulse or M-Bus interface
Codice 8021558

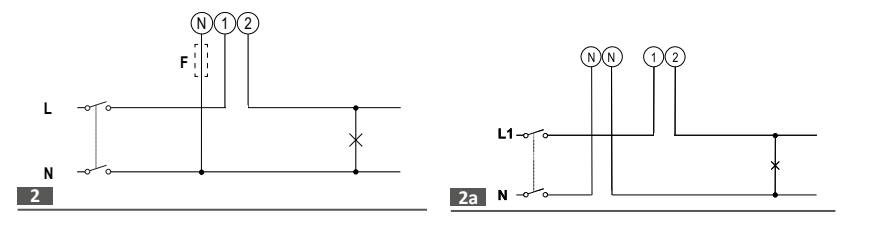
The analyzer measures active and reactive energy, summing (easy connection mode only) or separately (advanced mode) energy from imported energy. It manages two energy tariffs using a digital input or Modbus connection. It can be equipped with an option module to communicate measurements: pulse output, RS485 Modbus port or M-Bus port. It measures one kWh module, with backlit LCD display with sensitive touch screen areas for page scrolling and parameters setting.



Istruzioni installazione e uso

Analizzatore di energia monofase 45 A connessione diretta con interfaccia Modbus, Impuls o M-Bus
Codice 8021558

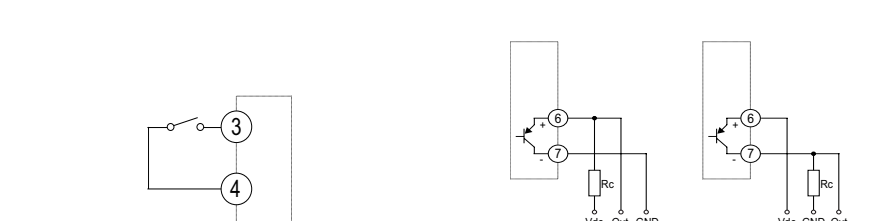
L'analizzatore misura l'energia attiva e reattiva, sommando (modalità easy connection attivata) oppure separando l'energia importata da quella esportata. Gestisce due tariffe di energia tramite ingresso digitale o comando Modbus. È dotato di uscita costolone per la comunicazione delle misure: uscita impulsiva, porta RS485 Modbus o porta M-Bus. Misura un kWh module, con display LCD retroilluminato con aree di comando touch per scorrere le pagine e impostare i parametri.



Installations- und Gebrauchsanweisung

Energieanalysator einphasig, 45 A, für den Direktanschluss mit Modbus, Impuls- oder M-Bus-Schnittstelle
Artikelnummer 8021558

Der Energieanalysator misst die Wirk- und Blindenergie und summiert (bei aktiviertem Modus easy connection) oder trennt bezogene und gelieferte Energie. Es werden zwei Energiertarife über Digitalingang oder Modbus-Befehl verwaltet. Das Gerät verfügt über einen optionales Ausgang für die Übermittlung der Messdaten: Impulsausgang, Modbus-Schnittstelle (RS485) oder M-Bus-Schnittstelle. Es ist mit einem Modul für die DIN-Schienenmontage sowie mit einem LCD-Display mit Hintergrundbeleuchtung und Touchbereich für die Navigation durch die Seiten und die Parametrierung ausgestattet.



EN: Features

Electrical specifications

Power Self-powered (via measured voltage)
 ± 1 W, 0.8 VA
 Base current 5 A
 Maximum current (continuous) 20 A
 Minimum current 0.25 A
 Rated current 45 A
 Working voltage AW: 230 V ac, from -30% to +20%
 AW7: (only X option): 120 V ac, from -30% to +20%
 50 Hz (PF Option)
 Accuracy Class 0.5 (EN 62053-21) / Class EN62047-3
 Reactive energy: Class 2 (EN 62053-23)

Environmental specifications

Working temperature From -25 to +55 °C / from -13 to +131 °F (PF Option)
 From -25 to +65 °C / from -13 to +149 °F (X Option)
 From -30 to +80 °C / from -22 to +176 °F (only X option)
 Environment Intended for indoor use only.

Storage temperature From -40 to +85 °C / from -40 to +185 °F (PF Option)
 From -40 to +95 °C / from -40 to +203 °F (X Option)
 From -30 to +125 °C / from -22 to +257 °F (only X option)
 Environment Intended for indoor use only.

For MID meters (PF Option only)
 The meter is intended to be installed in a Mechanical Environment M2 as per 2004/27/EC Directive. M2 class applies to instruments used in locations with significant or high levels of vibration and shock, e.g. transmitted from machines and piping vehicles in the vicinity or adjacent to heavy machinery, conveyor belts, etc. The meter is intended to be installed in Mechanical Environment M2 as per 2004/27/EC Directive. M2 class applies to instruments used in locations with electrodynamic disturbances corresponding to those likely to be found in industrial buildings.

Output specifications

Pulse output 1000 impulses/kWh. Proportional to measured active energy (EN62052-31)
 Modbus/RS485 port output Modbus RTU protocol, EN13757-1, 3 frames
 M-Bus port output M-Bus protocol, EN13757-1, 3 frames
NOTE: For further details, see relevant protocol available on our website. To set output parameters, see Parameters menu (Fig. 14).

LED specifications

Pulse weight 1000 impulses/kWh (EN62052-31)
 Duration 90 ms
 End of orange
 General features 1, 2, N: section 2.5-6 mm, torque 1.1 Nm
 3, 4: section 1.5 mm, torque 0.4 Nm
 Terminals Fr. 45-60 (EN 62053-21) / Class EN62047-3
 Dimensions See Fig. 16.

Cleaning
 Use a lightly dampened cloth to clean the instrument display; do not use abrasives on screens.

SERVICE AND WARRANTY
 In the event of malfunction, fault or for information on the warranty, contact the CARLO GAVAZZI branch or distributor in your country.

EN: Features

Power Self-powered (via measured voltage)
 ± 1 W, 0.8 VA
 Base current 5 A
 Maximum current (continuous) 20 A
 Minimum current 0.25 A
 Rated current 45 A
 Working voltage AW: 230 V ac, from -30% to +20%
 AW7: (only X option): 120 V ac, from -30% to +20%
 50 Hz (PF Option)
 Accuracy Class 0.5 (EN 62053-21) / Class EN62047-3
 Reactive energy: Class 2 (EN 62053-23)

Environmental specifications

Working temperature From -25 to +55 °C / from -13 to +131 °F (PF Option)
 From -25 to +65 °C / from -13 to +149 °F (X Option)
 From -30 to +80 °C / from -22 to +176 °F (only X option)
 Environment Intended for indoor use only.

Storage temperature From -40 to +85 °C / from -40 to +185 °F (PF Option)
 From -40 to +95 °C / from -40 to +203 °F (X Option)
 From -30 to +125 °C / from -22 to +257 °F (only X option)
 Environment Intended for indoor use only.

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 The meter is intended to be installed in a Mechanical Environment M2 as per 2004/27/EC Directive. M2 class applies to instruments used in locations with significant or high levels of vibration and shock, e.g. transmitted from machines and piping vehicles in the vicinity or adjacent to heavy machinery, conveyor belts, etc. The meter is intended to be installed in Mechanical Environment M2 as per 2004/27/EC Directive. M2 class applies to instruments used in locations with electrodynamic disturbances corresponding to those likely to be found in industrial buildings.

Output specifications

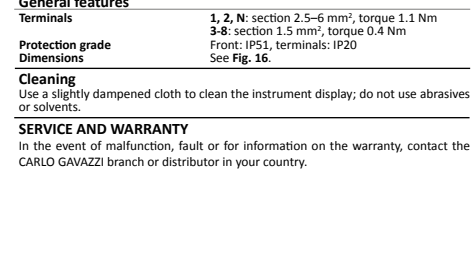
Pulse output 1000 impulses/kWh. Proportional to measured active energy (EN62052-31)
 Modbus/RS485 port output Modbus RTU protocol, EN13757-1, 3 frames
 M-Bus port output M-Bus protocol, EN13757-1, 3 frames
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EN: Features

Power Self-powered (via measured voltage)
 ± 1 W, 0.8 VA
 Base current 5 A
 Maximum current (continuous) 20 A
 Minimum current 0.25 A
 Rated current 45 A
 Working voltage AW: 230 V ac, from -30% to +20%
 AW7: (only X option): 120 V ac, from -30% to +20%
 50 Hz (PF Option)
 Accuracy Class 0.5 (EN 62053-21) / Class EN62047-3
 Reactive energy: Class 2 (EN 62053-23)

Environmental specifications

Working temperature From -25 to +55 °C / from -13 to +131 °F (PF Option)
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GENERAL WARNING

DANGER: Live parts. Heart attack, burns and other injuries. Disconnect the power supply and load before installing the analyzer.
 The energy analyzer should only be installed by qualified/authorized personnel.

These instructions are an integral part of the product. They should be consulted for all situations tied to installation and use. They should be kept within easy reach of operators, in a clean place and in good conditions.

Code key (analyzer side)

| EM111-DIN Model | AVX | AVx | 1 | 2 | X | a1 | X |
|-----------------|--|---|---------------------------------------|-------------------------------------|---|--------------------|--|
| EM111 | AVB: 230 V ac, 5(4)S, A, direct connection | AV7: (only X option): 120 V ac, 5(4)S, A, direct connection | Single-phase current system, two-wire | Self-powered (via measured voltage) | Output type: O1: pulse S1: Modbus RS485 port M1: M-Bus port | No option included | PF: only positive energy according to MID. |

Product (Fig. 1)

Description:
 A Current and communication connection terminals.
 B Backlit LCD display with sensitive touch screen areas.
 C Model, feature summary and serial number.
 D LED.
 E Sealeable terminal caps.

In case you want to mount the sealing terminal caps (Fig. 1) remember to lock them with the appropriate cable sealing.

Non caso si desideri montare le coperture sigillabili (Fig. 1) ricordarsi di bloccare con l'apposito cavo di sigillatura.

Se desea montar las cubiertas sellables (Fig. 1) recordar usar el cable de sellado apropiado.

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ENGLISH

PERICOLO: Parti sotto tensione. Arresto cardiaco, bruciature e altre lesioni. Scollegare l'alimentazione e il carico prima di installare l'analizzatore.
 L'installazione degli analizzatori d'energia deve essere eseguita solo da persone qualificate/autorizzate.

Queste istruzioni sono parte integrante del prodotto. Devono essere consultate per tutte le situazioni legate all'installazione e all'uso. Devono essere conservate in modo che siano accessibili agli operatori, in un luogo pulito e mantenuto in buone condizioni.

Legenda codice (lato analizzatore)

| EM111-DIN Model | AVX | AVx | 1 | 2 | X | a1 |
|-----------------|-----|-----|---|---|---|----|
|-----------------|-----|-----|---|---|---|----|

EM111

Instructions d'installation et d'utilisation
Analyseur d'énergie monophasé à branchement direct 45 A avec interface Modbus, impulsion ou M-Bus
 Code 8021558

L'analyseur mesure l'énergie active et réactive, en additionnant (mode easy connection activé) ou en séparant l'énergie importée de l'énergie exportée. Il gère les deux tarifs d'énergie à l'aide d'une entrée numérique ou de la commande Modbus. Il peut être équipé d'une sortie en option servant à communiquer les mesures : sortie d'impulsion, port RS485 Modbus ou port M-Bus. Il mesure un module DIN, avec affichage ACL rétroéclairé avec zones sensibles de l'écran tactile pour le défilement des pages et la définition des paramètres.

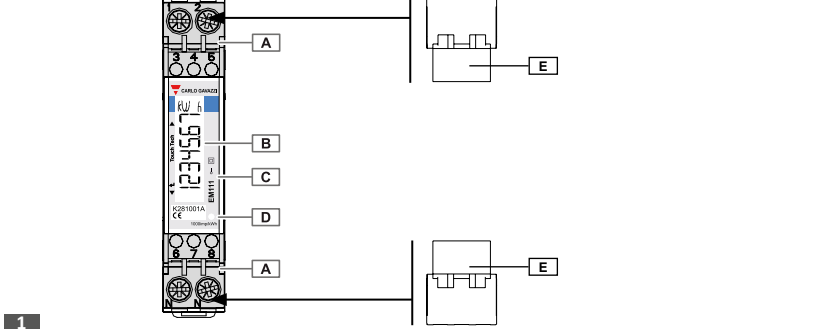


Fig. 1

Instrucciones de instalación y uso

Análizator de energía mono-fásico de conexión directa con interfaz Modbus, de impulsos o M-Bus, 45 A
 Código 8021558

El analizador mide la energía activa y reactiva, combinando modo (easy connection on) o separando las energías suministrada y consumida. Permite la medida según dos tarifas usando una entrada digital o un comando Modbus. Puede comunicarse con un módulo de comunicación de la medida: salida de pulso, puerto RS485 Modbus o puerto M-Bus. Mide un módulo DIN, con pantalla LCD retroiluminada con zonas táctiles para moverse por las páginas y fijar los valores de los parámetros.

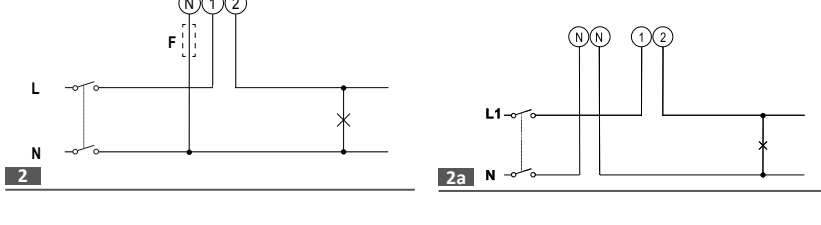


Fig. 2

Installations- og betjeningsvejledning

1-faset 45 A energianalysator med direkte tilslutning med Modbus, puls- eller M-bus-signaleffekte
 Code 8021558

Analysatoren måler aktiv og reaktiv energi ved at opsummere (easy connection modultilslutning til) eller separere importeret energi fra eksporteret energi. Kan håndtere to energitariffr via digital indgang eller Modbus-kommando. Kan udstyre med valgfri udgangsmeddelelse: pulsbredde, RS485 Modbus-port eller M-Bus-port. Den måler et DIN-modul med baggrundsløst LCD display med berøringfølsomme skærmområder, som kan rulle eller bruges til parameterindstilling.

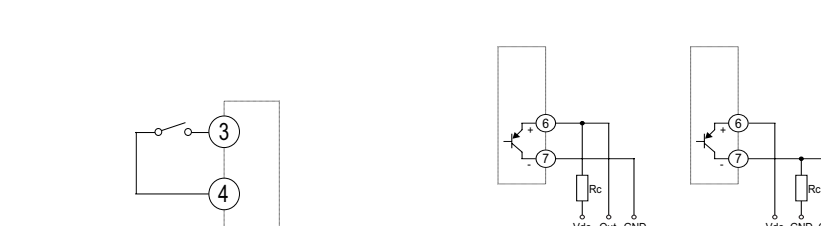


Fig. 3

FR: Caractéristiques

Spécifications électriques
 Alimentation Auto-alimenté (par la tension mesurée)
 Courant de base ≤ 1 V, 8 mA
 Courant maximal (continu) 45 A
 Courant maximal (court) 120 V c.a., 5(4)S A
 Courant de démarrage 0,2 A
 Tension de service 120 V c.a., de -30% à +20%
 AF (option 5 ou 10) 120 V c.a., de -30% à +20%

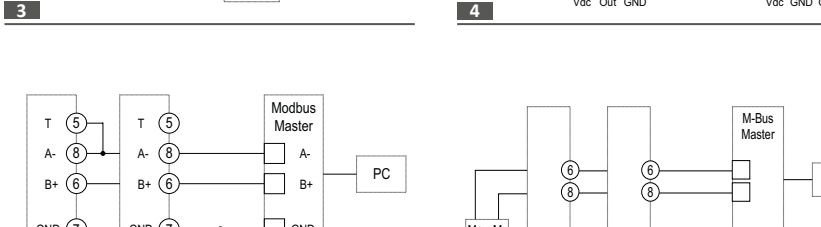


Fig. 4

Spécifications environnementales
 Température de fonctionnement De -25 à +55 °C (de -13 à +131 °F) (option PF)
 De -30 à +80 °C (de -22 à +176 °F) (option X)
 Température de stockage De 0 à 90% sans condensation @ 40°C
 Humidité Environnement

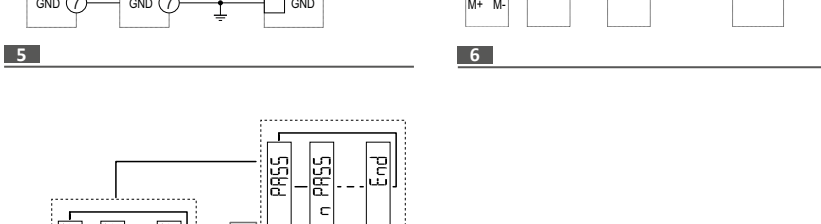


Fig. 5

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

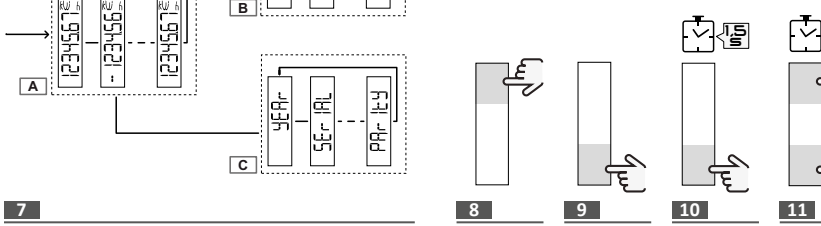


Fig. 6

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

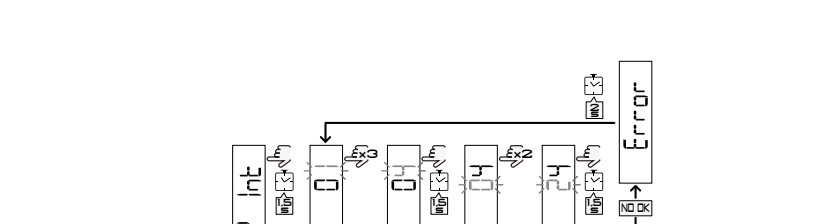


Fig. 7

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

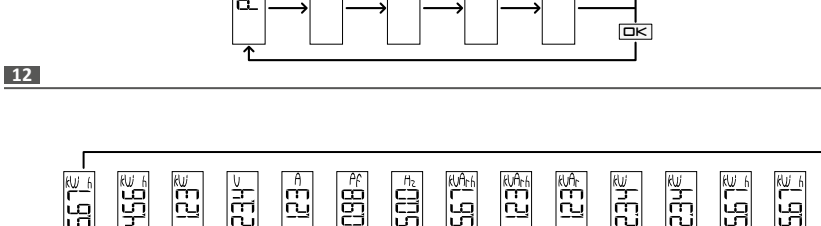


Fig. 8

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

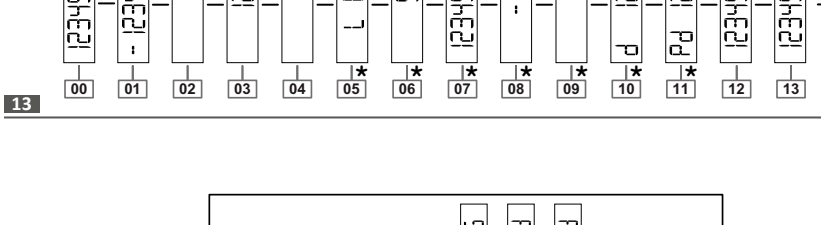


Fig. 9

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

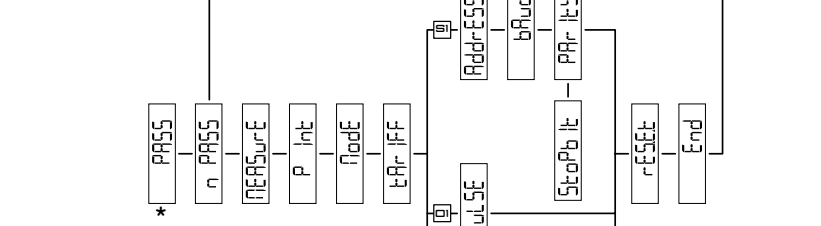


Fig. 10

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

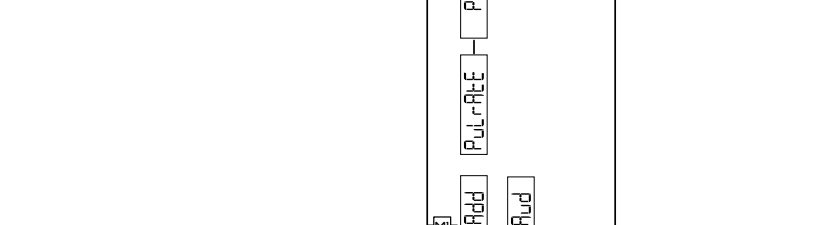


Fig. 11

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

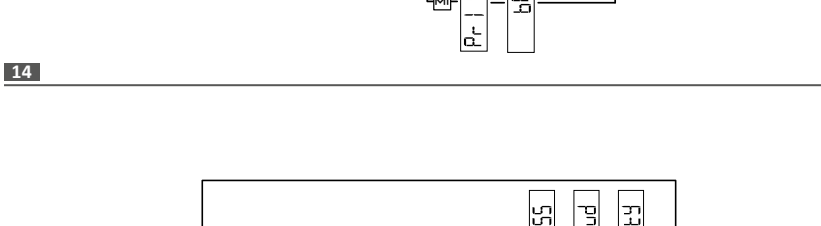


Fig. 12

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

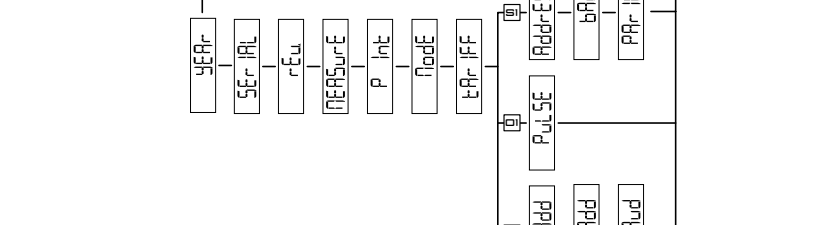


Fig. 13

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

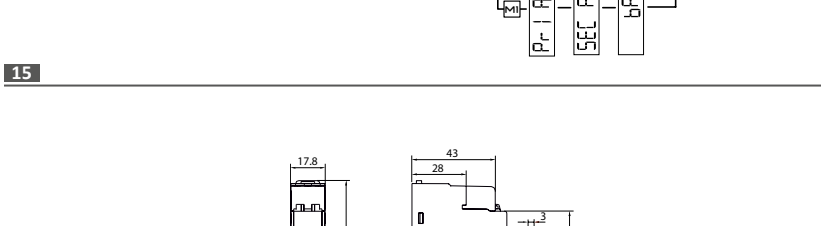


Fig. 14

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

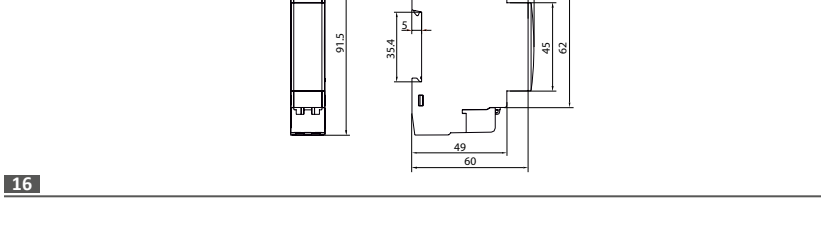


Fig. 15

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)



Fig. 16

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)



Fig. 17

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)



Fig. 18

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 19

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 20

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 21

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 22

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 23

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 24

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 25

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 26

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 27

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 28

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 29

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 30

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 31

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 32

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 33

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 34

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 35

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 36

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 37

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 38

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 39

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 40

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 41

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 42

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 43

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 44

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 45

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

Fig. 46

Spécifications de précision
 Classe de précision Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie active : Classe 1 (EN62053-21) / Classe B (EN62053-22)
 Energie réactive : Classe 2 (EN62053-23)

