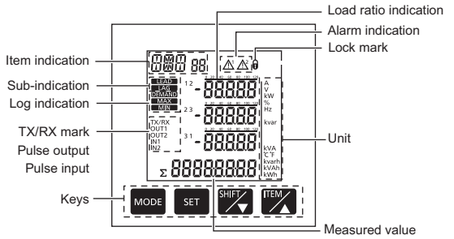
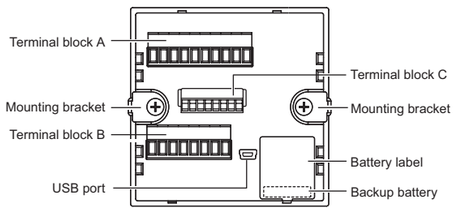
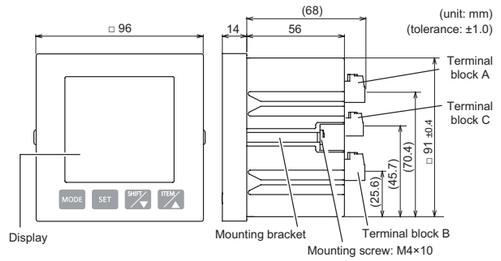
A Front view / Rear view



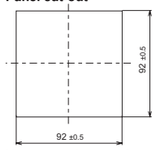


Please remove and throw away the battery according to the instruction of your area when throwing the product.

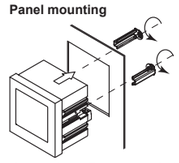
B Mounting



Panel cut-out



Panel mounting



1) Remove the mounting clips from the unit.
2) Insert the unit from the front of the panel.
3) Attach the mounting clips at the both side of the case and secure in place with the screws. (Tightening torque: app. 0.2 to 0.3 Nm)

Applicable panel thickness: 1 to 5 mm

Keep enough space for several mountings. Recommended space: 130mm the left, right, top and bottomfrom center of the unit.

C Electrical connections

Be sure to wire correctly in accordance with the terminal arrangement and wiring diagrams.
Please connect a fuse or a breaker to the power supply part for safety reasons and to protect the device.
It does not feature a built-in power switch, circuit breaker or fuse for measured voltage input parts. They should therefore be installed in the circuit near this unit.
Do not turn on the power supply or input until all wiring is completed.
Never remove the terminal block while applying current to load. It might cause electric shock or CT breakdown.

Terminal block A

Terminal no.	1	2	3	4	5	6	7	8	9	10
Functions	L +	N –	V1	V2	V3	Vn	NC	GND	D+	D-
	AUX (Power supply)		Measured voltage input				unassigned	RS485		

Terminal block B

Terminal no.	1	2	3	4	5	6	7	8
Functions	K	L	K	L	K	L	K	L
	CT1		CT2		CT3		CTn	
	Measured current input							

Terminal block C

Terminal no.	1	2	3	4	5	6	7	8
Functions	OUT1	COM1	OUT2	COM2	IN1+	IN1-	IN2+	IN2-
	Output 1		Output 2		Input 1		Input 2	

Input voltage to each terminal

Terminal	Phase and wire system	Terminal no.	Input voltage
Power supply	Single-phase two-wire	1 - 2	85 - 264 V AC 100 - 300 V DC
Measured voltage input	Single-phase two-wire	3 - 6	0 - 500 V AC
	Single-phase three-wire	3 - 5 - 6	
	Three-phase three-wire	3 - 5 - 6	
	Three-phase four-wire	3 - 4 - 5 - 6	

Applicable wire (crimp-type terminal is recommended)
Stripping length: 7 to 8 mm

	Power supply / Measured voltage / RS485 communication		CT Input (measured current)	Input / Output
Terminal block	A		B	C
Screw size	M2.5		M2.5	M2
Tightening torque	0.4 to 0.5 Nm		0.4 to 0.5 Nm	0.2 to 0.25 Nm
Terminal cross-section single/stranded wire	1 pc.	0.5 to 4 mm² (AWG20 to 12)	0.5 to 4 mm² (AWG20 to 12)	0.5 to 1.5 mm² (AWG20 to 16)
	2 pcs.	0.5 to 2 mm² (AWG20...14)		

NOTICE

- Use shielded cable for RS485 communication.
- Use applicable cable according to the measured current.

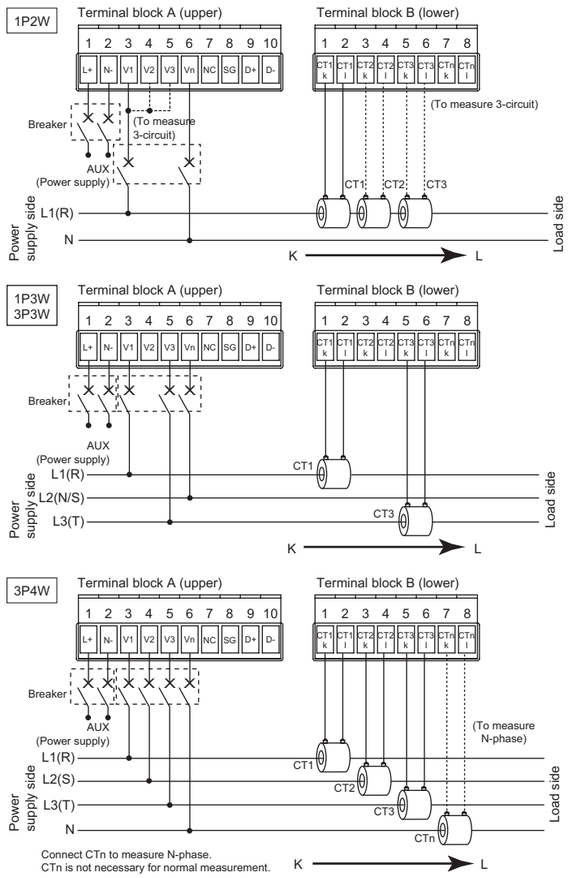
Applicable ferrules (by Weidmüller)

Wire size		0.75 mm²	1.25 mm²	2 mm² *
1 pc.	Name	H0.75/14D GR	H1.5/14D SW	H2.5/15D BL
	Part number	9019040000	9019120000	9019160000
2 pcs. *	Name	H0.75/14D ZH GR	H1.5/16D ZH SW	–
	Part number	9037410000	9037470000	

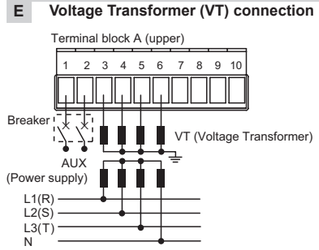
*Only for terminal block A and B. It can not be used for terminal block C.

D Wiring diagram

- Recommended breaker: 3 to 15 A
- Recommended fuse: Time-lag fuse rated current 2 A



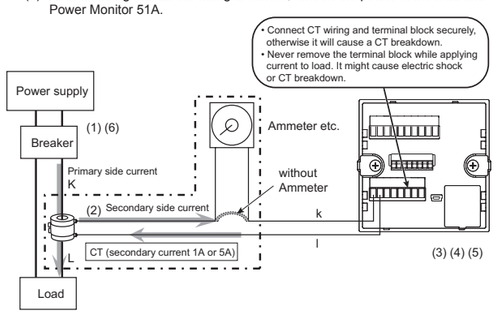
E Voltage Transformer (VT) connection



F Current Transformer (CT) connection

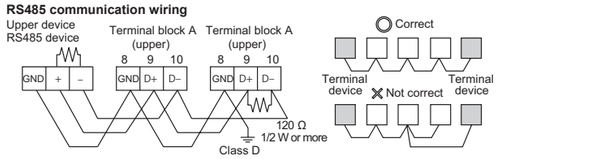
- Use a CT with a secondary side current of 5 A or 1 A, the rated burden 0.5 VA or more.
- One CT is needed for one unit when measuring 1P2W (2 CTs for 2 circuits, 3 CTs for 3 circuits). Two CTs are needed when measuring 1P3W/3P3W. Three CTs are needed when measuring 3P4W.
- Use the appropriate or it might cause a breakdown, burnout or electric shock.
- When connecting the CT, connect the secondary side to the terminal of the main unit first,then wire the primary side to a load electric wire. Not keeping to this sequence may cause an electric shock or CT breakdown.
- The CT has polarity. Wire correctly in accordance with the K and L marks. Wiring in the wrong direction will result in incorrect measurement.
- If harmonic or waveform distortion occurs, measurements may be inaccurate. Please check the current system before adopting it.
- Separate the wiring (strong electric part) of the measured voltage input terminal (operating power supply terminal) from the CT cable. It may not satisfy the accuracy requirements due to noise.

How to connect the CT
(1) Power off the measured devices.
(2) Install the appropriate CT.
(3) Remove terminal block of Power Monitor 51A.
(4) Connect the CT to the terminal block.
(5) Insert the terminal stand securely.
(6) After ensuring that all the wiring is correct, turn on the power of the load and Power Monitor 51A.



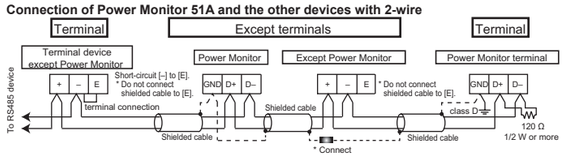
G RS485 connection

RS485 communication wiring



For terminal stations of both side including the upper device, termination resistors should be connected. Connect 120 Ω, ½ W or more termination resistor between [D+] and [D-] of the Power Monitor 51A that is connected to the end of RS485 transmission line.

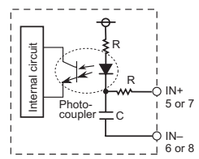
Connection of Power Monitor 51A and the other devices with 2-wire



H Input connection

Pulse input

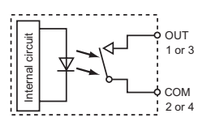
- Contact input
  Use highly reliable metal plated contacts. Since the contact's bounce time results directly in an error in the count value, use contacts with as short a bounce time as possible. In general, select 30 Hz for max. counting speed.
- Non-contact input (transistor input)
  Connect with an open collector. Use the transistor with the following specifications:
  $V_{CEO\ min}$ = 20 V / $I_{C\ min}$ = 20 mA / $I_{CBO\ max}$ = 6 µA
  Use transistors with a residual voltage of less than 3 V when the transistor is ON.
  Notes
  Short-circuit impedance should be less than 1 kΩ.
  Open-circuit impedance should be more than 100 kΩ.
  The short-circuit leakage current is about 10 mA.
- Input wiring
  Please wire as short as possible by using a shielded wire or a metallic electric wire tube individually.



I Output connection

PhotoMOS relay output

- It adopts PhotoMOS relay output, there is no polarity.
- Please wire less than 100 m for output.
- Output rated capacity: 30 V AC/DC, 0.1 A)



en **Operating instructions**
Power Monitor 51A

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Phone +49 (0) 5231 14-0
Fax +49 (0) 5231 14-292083
info@weidmueller.com
www.weidmueller.com

Power Monitor 51A 1470260000

1481410000/01/10.16

CE

en **Safety instructions**

NOTICE

- Read these instructions carefully to ensure proper installation.
- After installation, keep them in a safe place for future reference.
- Power Monitor 51A is designed primarily for managing energy-saving. It is neither intended nor can it be legally used for billing.
- Power Monitor 51A is designed to be installed in a control panel.

WARNING

- Please use Power Monitor 51A according to the specifications described. Otherwise, it may malfunction or cause fire and an electric shock.
  ◊ Connect Power Monitor 51A to the power supply in compliance with the rating.
  ◊ Refer to the wiring diagram to ensure proper wiring for the power supply, input and output.
  ◊ Use an electric wire that is appropriate for the rated current.
  ◊ Do not perform wiring or installation with a live line. This may result in circuit burnout or fire by way of the secondary CT side opening.
- Do not connect the voltage input, current input or pulse input wires parallel to high-voltage or power cables and avoid using the same conduit. Keep the length of shielded wires as short as possible.
- Do not turn on the power supply or input until all the wiring is completed.
- Do not use the secondary side circuit of inverter. It might cause exothermic heat or damage.
- If additional noise effects the power supply line, voltage input line or current input line, incorrect measurements may result.
- Installation and wiring electrical work or electric piping must be performed by specialist personnel.
- Please wipe dirt off the main unit using a soft cloth etc. Using thinner might result in deformation or discolouration of the unit.
- Do not add an excess power to the display. It might break the inner liquid crystal.
- For your safety ensure that the following conditions are met:
  ◊ Overvoltage category II and pollution degree 2
  ◊ Indoor use
  ◊ Ambient temperature of -25 to +55 °C
  ◊ Ambient non-condensing humidity of 30 to 85% RH (at 20 °C)
  ◊ Altitude of 2000 m or less
- Do not use in the following environments:
  ◊ Where it will be exposed to direct sunlight
  ◊ Where inflammable or corrosive gas might be produced
  ◊ Where it will be exposed to excessive airborne dust or metal particles
  ◊ Where it will be exposed to water, oil or chemicals
  ◊ Where direct vibration or shock might be transmitted
  ◊ In the vicinity of high-voltage cables, power lines or machinery where large switching surges may occur Always use current transformers for galvanic isolation to measure currents.
- Always use current transformers for galvanic isolation to measure currents.

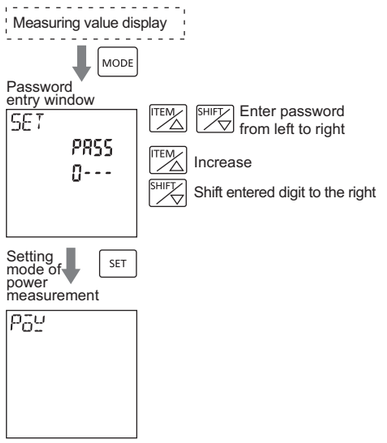
J Password

Entering a password

You must enter a password to switch to setting mode.
Enter [0000] and change to password setting mode when you set the password at the first time.

NOTICE

When setting a password, enter it carefully and remember to make a note of it.



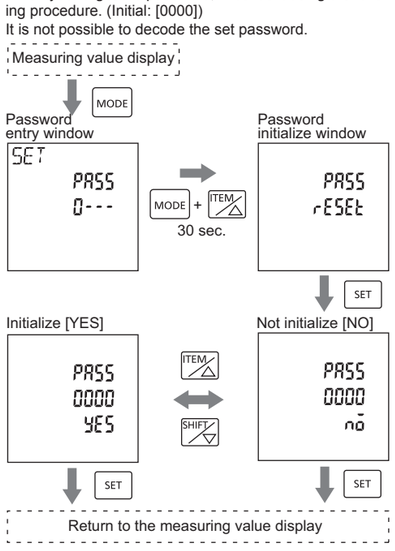
If the password is incorrect, [FAIL] is displayed and you return to the password entry window.

NOTICE

If you enter an incorrect password 5 times, you have to wait one hour before setting it again.

Initialise password

When you forget the password, initialise it using the following procedure. (Initial: [0000])
It is not possible to decode the set password.



K Parameter settings

Make setting before measuring

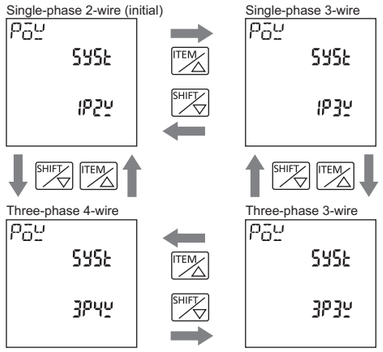
Select setting item with ITEM and press SET, the value will flash.

Set with ITEM and SHIFT.

Select [YES] in the confirmation window and press SET to confirm the setting values.

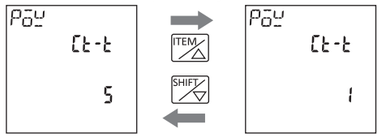
Phase / Wire

Select the phase/wire system to be measured.



CT type

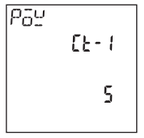
Select using CT type (secondary side current).



To use CT with secondary side current 5 A:[5] (initial)
To use CT with secondary side current 1 A:[1]

Primary side current of CT

Set the primary side current of CT used.
Enter the primary side current of CT that is set at CT type setting.



ITEM Increase

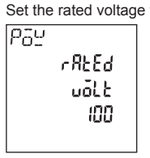
SHIFT Decrease

[Set range]:
1 to 65535 (initial: 5)

Primary side current of using CT is 400 A: [400]

Rated voltage

Set the rated voltage to be measured.



ITEM Increase

SHIFT Decrease

[Set range]:
100 to 500 (initial: 100)

VT ratio

Select the voltage input method, input voltage directly or use a voltage transformer (VT: secondary side rating 110V) and set VT ratio.

ITEM Increase

SHIFT Decrease

[Set range]:
1.00 to 600.00 (initial: 1.00)

Input directly without VT: [1.00]
Use VT: [1.01 to 600.00]

Over Voltage / Over Voltage 2

Set a ratio of voltage for rated voltage used for threshold to determine overvoltage and to clear the over voltage.
At this [over volt] window, set a ratio of voltage to determine overvoltage.

ITEM Increase

SHIFT Decrease

[Set range]:
100.0 to 120.0 % (initial: 105.0)

Press SET and [over volt 2] is displayed.
At this window, set a ratio of voltage to clear overvoltage.

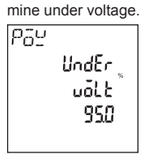
ITEM Increase

SHIFT Decrease

[Set range]:
100.0 to 120.0 % (initial: 105.0)

Under Voltage / Under Voltage 2

Set a ratio of voltage for rated voltage used for threshold to determine under voltage and to clear the under voltage.
At the [under volt] window set a ratio of voltage to determine under voltage.



ITEM Increase

SHIFT Decrease

[Set range]:
5.0 to 100.0 % (initial: 95.0)

Press SET and [under volt2] is displayed.
At this window, set a ratio of voltage to clear under voltage.

ITEM Increase

SHIFT Decrease

[Set range]:
5.0 to 100.0 % (initial: 95.0)

Over Current / Over Current 2

Set a ratio of current for rated current used for threshold to determine over current and to clear the over current.
At the [over curr] window set a ratio of current to determine over current.

ITEM Increase

SHIFT Decrease

[Set range]:
0.1 to 120.0 % (initial: 100.0)

Press SET and [over curr2] is displayed.
At this window, set a ratio of current to clear over current.

ITEM Increase

SHIFT Decrease

[Set range]:
0.1 to 120.0 % (initial: 100.0)

Under Current / Under Current 2

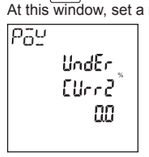
Set a ratio of current for rated current used for threshold to determine under current and to clear the under current.
At the [under curr] window set a ratio of current to determine under current.

ITEM Increase

SHIFT Decrease

[Set range]:
0.0 to 100.0 % (initial: 0.0)

Press SET and [under curr2] is displayed.
At this window, set a ratio of current to clear under current.



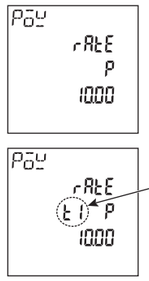
ITEM Increase

SHIFT Decrease

[Set range]:
0.0 to 100.0 % (initial: 0.0)

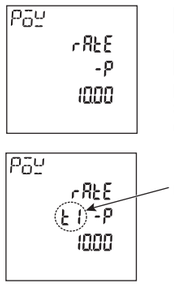
Conversion rate (P)

Set the conversion rate per integral active power 1 kWh.
You can set 5 kinds of rate for each time zone, all-time, time zone 1, time zone 2, time zone 3 and time zone 4.
Rate for all-time is used when time program is not set.
When you set one or more time programs, the rates for time zone 1, 2, 3 and 4 are used. Rate for all-time is not used.



Conversion rate (-P)

Set the conversion rate per integral export power (-P) 1 kWh.

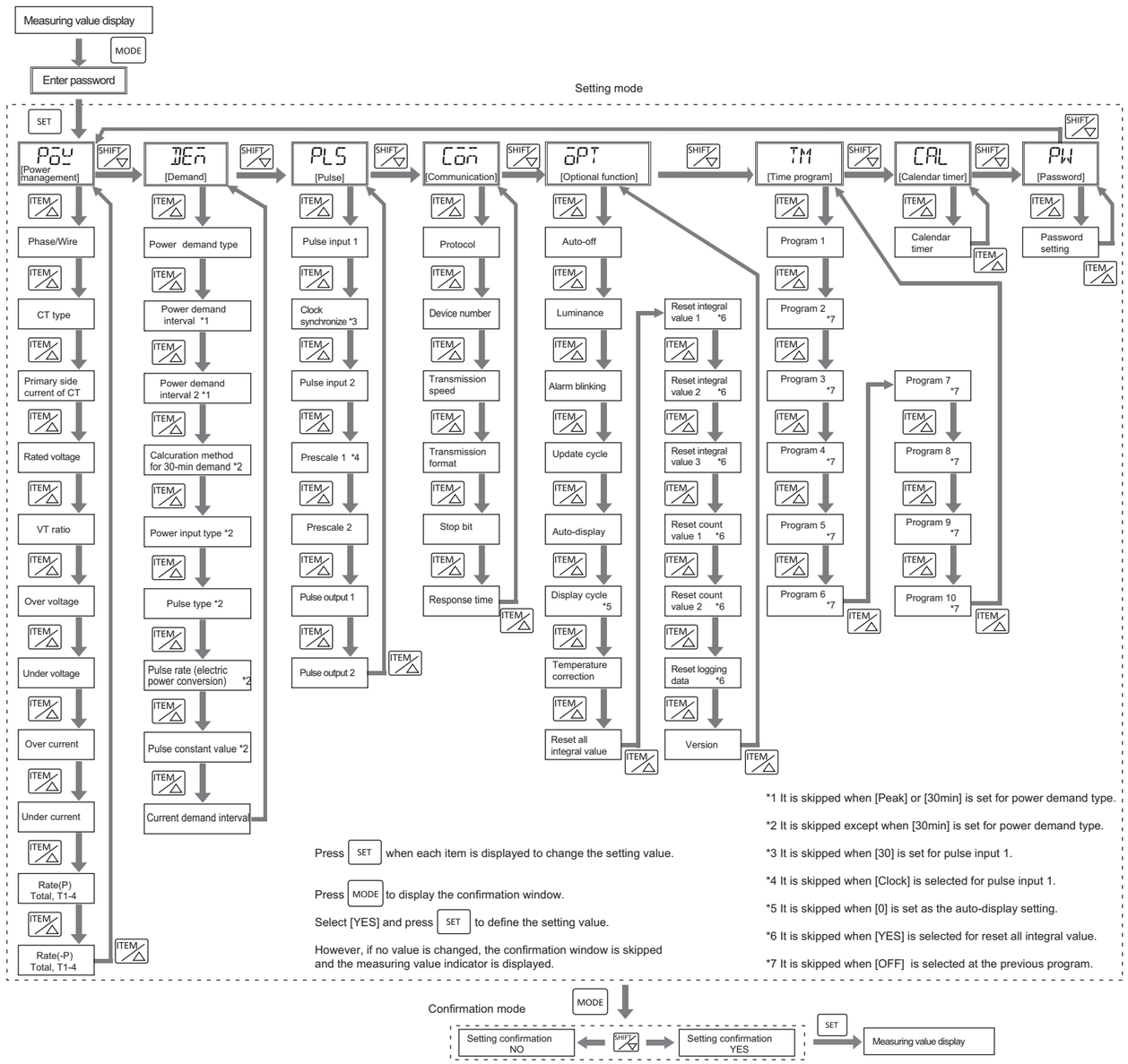


Calendar timer

Set the date and time.

In order to use the logging function, set the date and time.

L Flow chart



de Sicherheitshinweise

HINWEIS

- Lesen Sie die vorliegenden Anweisungen sorgfältig durch, um eine ordnungsgemäße Installation zu gewährleisten.
- Bewahren Sie die Anleitung nach der Installation an einem sicheren Ort auf, um im Bedarfsfall darauf zurückgreifen zu können.
- Der Power Monitor 51A ist in erster Linie für das Management von Energieeinsparungen konzipiert. Er ist weder für Abrechnungszwecke bestimmt noch kann er aus rechtlichen Gründen hierfür verwendet werden.
- Der Power Monitor 51A ist für die Schaltschrankinstallation ausgelegt.

WARNUNG

- Verwenden Sie den Power Monitor 51A gemäß den beschriebenen Spezifikationen. Andernfalls können Fehlfunktionen, Brände oder Stromschläge nicht ausgeschlossen werden.
  - ◊ Schließen Sie den Power Monitor 51A gemäß den Bemessungsdaten an die Stromversorgung an.
  - ◊ Nehmen Sie das Schaltbild zur Hand, damit eine korrekte Verdrahtung von Stromversorgung, Eingang und Ausgang gewährleistet ist.
  - ◊ Verwenden Sie einen elektrischen Leiter, der für den Nennstrom geeignet ist.
  - ◊ Montage oder Verdrahtung dürfen nur im spannungslosen Zustand erfolgen.
  - ◊ Ansonsten kann an der Sekundärseite des Stromwandlers bei Kurzschluss oder bei offenen Kabelenden Funken/Schäden entstehen.
- Verlegen Sie die Leiter von Spannungseingang, Stromeingang oder Impulseingang nicht parallel zu Hochspannungs- oder Leistungskabeln und verwenden Sie nicht den gleichen Kabelkanal. Halten Sie die Länge der geschirmten Kabel so kurz wie möglich.
- Die Energieversorgung oder der Eingang darf erst eingeschaltet werden, nachdem die Verdrahtung komplett abgeschlossen ist.
- Verwenden Sie nicht die Schaltung des Wechselrichters auf der Sekundärseite. Andernfalls kann es zu einer Temperaturerhöhung oder Beschädigung kommen.
- Wenn zusätzliche Störeffekte auf Energiezuleitung, Spannungseingangsleitung oder Stromeingangsleitung einwirken, kann es zu Fehlmessungen kommen.
- Die Installation und Verdrahtung sowie das Verlegen elektrischer Leitungen darf nur von Fachpersonal durchgeführt werden.
- Entfernen Sie Verunreinigungen mit einem weichen Tuch o. ä. Eine Verwendung von Verdünner kann zu einer Verformung oder Verfärbung des Gehäuses führen.
- Üben Sie keinen übermäßigen Druck auf das Display aus. Andernfalls kann die innere Flüssigkristallschicht brechen.
- Achten Sie zu Ihrer eigenen Sicherheit darauf, dass die folgenden Bedingungen erfüllt sind:
  - ◊ Überspannungskategorie II und Verschmutzungsgrad 2
  - ◊ Verwendung in Innenräumen
  - ◊ Umgebungstemperatur von -25 bis +55 °C
  - ◊ Keine betauende Luftfeuchtigkeit von 30 bis 85 % r. F. (bei 20 °C)
  - ◊ Aufstellungshöhe von max. 2000 m über NN
- Nicht in den folgenden Umgebungen verwenden:
  - ◊ Orte, die direktem Sonnenlicht ausgesetzt sind
  - ◊ Orte, an denen brennbare oder ätzende Gase hergestellt werden
  - ◊ Orte mit übermäßigem Aufkommen an Staub oder Metallpartikeln
  - ◊ Orte, an denen das Produkt mit Wasser, Öl oder Chemikalien in Berührung kommen kann
  - ◊ Orte, an denen direkte Vibrationen oder Erschütterungen übertragen werden können
  - ◊ In der Nähe von Hochspannungsleitungen, Stromleitungen oder Maschinen, an denen große Schaltüberspannungen auftreten.
- Verwenden Sie zum Messen von Strömen stets Stromwandler mit galvanischer Trennung.

fr Consignes de sécurité

AVIS

- Lisez attentivement ces consignes pour garantir une installation correcte.
- Après installation, conservez-les en lieu sûr pour référence ultérieure.
- Le Power Monitor 51A est conçu à l'origine pour la maîtrise des économies d'énergie. Il n'est pas conçu ni ne peut être légalement utilisé à des fins de facturation.
- Le Power Monitor 51A est conçu pour être installé dans un panneau de commande.

AVERTISSEMENT

- Utilisez le Power Monitor 51A selon les spécifications décrites. Sinon, il risque de subir un dysfonctionnement, voire de provoquer un incendie ou un choc électrique.
  - ◊ Raccordez le Power Monitor 51A à l'alimentation électrique conformément aux caractéristiques nominales.
  - ◊ Reportez-vous au schéma pour garantir le raccordement correct à l'alimentation électrique (entrée et sortie).
  - ◊ Utilisez un câble électrique adapté au courant nominal.
  - ◊ N'effectuez aucun câblage ni aucune installation avec un câble sous tension.
  - ◊ Ceci pourrait entraîner le grillage du circuit ou un incendie via l'ouverture latérale du CT secondaire.
- Ne raccordez pas les câbles d'entrée de tension, de courant ou d'impulsions parallèlement aux câbles haute tension ou de puissance et évitez d'utiliser le même conduit.Les câbles blindés doivent rester aussi courts que possible.
- N'activez pas l'alimentation ou l'entrée tant que le câblage n'est pas entièrement terminé.
- N'utilisez pas le circuit latéral secondaire de l'onduleur. Il pourrait en résulter une chaleur exothermique ou des dommages.
- Si un bruit additionnel affecte le câble d'alimentation, d'entrée de tension ou d'entrée de courant, des mesures incorrectes peuvent en résulter.
- L'installation et les travaux de câblage ou de canalisation électrique doivent être effectués par du personnel spécialisé.
- L'unité principale doit être nettoyée avec un chiffon doux, etc. L'utilisation d'un diluant pourrait entraîner la déformation ou la décoloration de l'unité.
- Évitez toute pression excessive sur l'affichage.
- Le cristal liquide interne pourrait être endommagé. Pour votre sécurité, les conditions suivantes doivent être respectées :
  - ◊ Catégorie de surtension II et degré de pollution 2
  - ◊ Utilisation en intérieur
  - ◊ Température ambiante de -25 à +55 °C
  - ◊ Humidité ambiante sans condensation de 30 à 85 % HR (à 20 °C)
  - ◊ Altitude de 2 000 m maximum
- Ne pas utiliser dans les environnements suivants :
  - ◊ Exposition directe à la lumière du soleil
  - ◊ Production éventuelle de gaz inflammables ou corrosifs
  - ◊ Exposition excessive aux poussières en suspension ou aux particules métalliques
  - ◊ Exposition à l'eau, à l'huile ou à des produits chimiques
  - ◊ Transmission éventuelle de vibrations ou chocs directs
  - ◊ À proximité de câbles haute tension, de câbles d'énergie ou de machines, où de grandes surtensions peuvent apparaître.
- Utilisez systématiquement des transformateurs de courant pour l'isolation galvanique afin de mesurer des courants.

it Indicazioni di sicurezza

AVVISO

- Leggere attentamente le presenti istruzioni per garantire una corretta installazione.
- A installazione completata, conservarle in un luogo sicuro per futura consultazione.
- Il Power Monitor 51A è concepito principalmente per la gestione del risparmio di energia. Il suo eventuale utilizzo per la fatturazione è da considerarsi improprio ed è vietato per legge.
- Il Power Monitor 51A è concepito per essere installato in un pannello di controllo.

AVVERTENZA

- Utilizzare il Power Monitor 51A in conformità alle specifiche descritte. In caso contrario esso può non funzionare regolarmente o causare incendi e scosse elettriche.
  - ◊ Collegare il Power Monitor 51A all'alimentazione tenendo conto dei dati di dimensionamento.
  - ◊ Consultare lo schema elettrico per garantire il cablaggio corretto dell'alimentazione, dell'ingresso e dell'uscita.
  - ◊ Utilizzare un cavo elettrico adatto per la corrente nominale.
  - ◊ Non effettuare il cablaggio o l'installazione con cavi sotto tensione.
  - ◊ In caso contrario potrebbe verificarsi l'interruzione del circuito o un incendio a causa dell'apertura del lato secondario del trasformatore.
- Non collegare i cavi dell'ingresso di tensione, dell'ingresso di corrente o dell'ingresso a impulsi parallelamente ai cavi di alta tensione o di corrente; evitare inoltre di utilizzare la stessa guaina. Mantenere la minima lunghezza possibile dei cavi schermati.
- Inserire l'alimentazione elettrica o l'ingresso solamente a cablaggio ultimato.
- Non utilizzare il circuito secondario dell'inverter. Possono verificarsi calore esotermico o danneggiamenti.
- Eventuali disturbi sul cavo dell'alimentazione, quello dell'ingresso di tensione o dell'ingresso di corrente possono determinare errori di misurazione.
- L'installazione e i lavori di cablaggio elettrico o di canalizzazione devono essere effettuati da personale specializzato.
- Rimuovere la sporcizia dall'unità principale utilizzando un panno morbido o simili. L'eventuale utilizzo di solventi potrebbe deformare o scolorire l'unità.
- Non alimentare il display con una corrente eccessiva.
- In caso contrario i cristalli liquidi interni potrebbero rompersi. Per la sicurezza dell'utente accertarsi che vengano soddisfatti i seguenti requisiti:
  - ◊ Classe per installazione II e grado di lordura 2
  - ◊ Uso interno
  - ◊ Temperatura ambiente da -25 a +55 °C
  - ◊ Umidità relativa non condensante 30...85 % (a 20 °C)
  - ◊ Altitudine minore o uguale a 2000 m
- Non utilizzare nei seguenti ambienti:
  - ◊ Esposizione alla luce solare diretta
  - ◊ Produzione di gas infiammabili o corrosivi
  - ◊ Esposizione a una quantità eccessiva di polvere o di particelle metalliche trasportati dall'aria
  - ◊ Esposizione all'acqua, al petrolio o ad agenti chimici
  - ◊ In luoghi in cui si verificano trasmissioni dirette di vibrazioni o urti
  - ◊ In prossimità di cavi ad alta tensione, cavi per energia o macchinari dove possano verificarsi sovratensioni da commutazione.
- Utilizzare sempre convertitori di corrente con separazione galvanica per misurare la corrente.

es Indicaciones de seguridad

AVISO

- Lea estas instrucciones detenidamente para garantizar una instalación correcta.
- Una vez completada la instalación, guárdelas en un lugar seguro para consultarlas en un futuro.
- El Power Monitor 51A está diseñado principalmente para la gestión del ahorro energético. No está ni diseñado para utilizarlo con fines de facturación, ni tampoco lo permite la legislación vigente.
- El Power Monitor 51A está diseñado para instalarlo en un panel de control.

ADVERTENCIA

- Utilice el Power Monitor 51A según las especificaciones descritas. De lo contrario, podría funcionar incorrectamente o provocar incendios y descargas eléctricas.
  - ◊ Conecte el Power Monitor 51A a la alimentación eléctrica respetando los valores nominales.
  - ◊ Consulte el esquema de conexiones para garantizar un cableado correcto a la fuente de alimentación, a la entrada y a la salida.
  - ◊ Utilice un cable eléctrico adecuado para la corriente nominal.
  - ◊ No realice las tareas de cableado ni de instalación con una línea con corriente.
  - ◊ Si lo hace, podrían producirse quemaduras o incendios en el circuito debido a la abertura lateral del transformador de carga secundario.
- No conecte los cables de entrada de tensión, de corriente de entrada ni de entrada de impulsos en paralelo con los cables de alta tensión o de alimentación, y evite utilizar el mismo conducto. Mantenga la longitud de los cables apantallados al mínimo posible.
- No active la alimentación eléctrica ni la entrada hasta que no haya completado todas las tareas de cableado.
- No utilice el circuito lateral secundario del inversor. Si lo hace, podría provocar calor exotérmico o daños.
- Si existe ruido adicional que afecta a la línea de alimentación eléctrica, a la línea de entrada de tensión o a la línea de entrada de corriente, podrían producirse mediciones incorrectas.
- La instalación y el cableado del tendido eléctrico y de los conductos eléctricos deberán ser realizados por personal cualificado.
- Retire la suciedad de la unidad principal utilizando un paño suave o similar. El uso de disolvente podría traducirse en la deformación o la decoloración de la unidad.
- No aplique presión excesiva a la pantalla.
- Si lo hace, podría romper la pantalla de cristal líquido interior. Por su seguridad, asegúrese de que se cumplan las siguientes condiciones:
  - ◊ Categoría II de sobretensión y grado de contaminación 2
  - ◊ Uso en interiores
  - ◊ Temperatura ambiente de -25 a +55 °C
  - ◊ Humedad ambiente sin condensación del 30 al 85 % de humedad relativa (a 20 °C)
  - ◊ Altitud máxima de 2000 m
- No utilizar en los siguientes entornos:
  - ◊ Entornos en los que la unidad estará expuesta a la luz solar directa.
  - ◊ Entornos en los que puedan generarse gases inflamables o corrosivos.
  - ◊ Entornos en los que la unidad esté expuesta a una cantidad excesiva de partículas de polvo o metálicas en el aire.
  - ◊ Entornos en los que la unidad esté expuesta a agua, aceite o productos químicos.
  - ◊ Entornos en los que puedan transmitirse vibración directa o golpes.
  - ◊ Entornos en los que la unidad esté cerca de cables de alta tensión, líneas eléctricas o maquinaria en los que puedan producirse picos de conmutación de gran magnitud.
- Para medir corrientes, utilice siempre convertidores de corriente con separación galvánica.

pt Indicações de segurança

AVISO

- Leia estas instruções cuidadosamente para garantir uma instalação correta.
- Após a instalação, conserve-as num local seguro, para consulta futura.
- O Power Monitor 51A foi principalmente concebido para gerir a poupança de energia. Não se destina, nem pode ser utilizado legalmente para faturação.
- O Power Monitor 51A foi concebido para instalação num painel de controlo.

ATENÇÃO

- Utilize o Power Monitor 51A de acordo com as especificações descritas. Caso contrário, poderá não funcionar corretamente e provocar um incêndio e choque elétrico.
  - ◊ Ligue o Power Monitor 51A à corrente, em conformidade com a potência nominal.
  - ◊ Consulte o diagrama de cablagem para garantir a ligação correta à fonte de alimentação, entrada e saída.
  - ◊ Utilize um fio elétrico adequado para a corrente nominal.
  - ◊ Não realize a instalação ou ligação com a corrente ligada.
  - ◊ Tal poderia resultar na queima do circuito ou incêndio da abertura lateral de CT secundária.
- Não ligue os fios de entrada de tensão, entrada de corrente ou entrada de impulsos em paralelo a cabos de alta tensão ou de alimentação e evite utilizar a mesma conduta. O comprimento dos fios blindados deve ser o mais reduzido possível.
- Não ligue a alimentação ou entrada até concluir toda a ligação.
- Não utilize o circuito lateral secundário do inversor. Tal pode provocar calor exotérmico ou danos.
- Se o ruído adicional afetar a linha de alimentação, a linha de entrada de tensão ou a linha de entrada de corrente, poderá obter medições incorretas.
- A instalação e os trabalhos elétricos de cablagem ou tubagem elétrica devem ser realizados por técnicos especializados.
- Limpe a sujidade da unidade principal com um pano suave, etc. A utilização de um solvente pode resultar em deformação ou descoloração da unidade.
- Não adicione potência excessiva ao visor.
- Tal poderá quebrar o cristal líquido interior. Para a sua segurança, certifique-se de que cumpre as seguintes condições:
  - ◊ Categoria de sobretensão II e grau de poluição 2
  - ◊ Utilização no interior
  - ◊ Temperatura ambiente de -25 a +55 ºC
  - ◊ Humidade ambiente sem condensação de 30 a 85 % HR (a 20 °C)
  - ◊ Altitude de 2000 m ou inferior
- Não utilize nos seguintes ambientes:
  - ◊ Exposição a luz solar direta
  - ◊ Produção de gases inflamáveis ou corrosivos
  - ◊ Exposição a poeiras aéreas excessivas ou partículas metálicas
  - ◊ Exposição à água, óleo ou produtos químicos
  - ◊ Transmissão de vibração direta ou choque
  - ◊ Nas proximidades de cabos de alta tensão, ou de linhas de alimentação ou maquinaria onde possam ocorrer picos de corrente elevada
- Para medir as correntes, utilize sempre transformadores de corrente para isolamento galvanizado.

nl Veiligheidsinstructies

LET OP

- Lees deze instructies zorgvuldig om een correcte installatie te verzekeren.
- Na installatie op een veilige plaats bewaren voor toekomstige raadpleging.
- Power Monitor 51A is voornamelijk ontworpen voor het beheer van energiebesparing. Het is niet bedoeld voor, noch kan het rechtsgeldig worden gebruikt voor facturering.
- Power Monitor 51A is ontworpen om te worden geïnstalleerd in een controlepaneel.

WAARSCHUWING

- Gebruik Power Monitor 51A overeenkomstig de beschreven specificaties. Anders kan dit leiden tot slechte werking of brand en een elektrische schok veroorzaken.
  - ◊ Sluit Power Monitor 51A op de stroomvoorziening aan in overeenstemming met het nominaal vermogen.
  - ◊ Raadpleeg het bedradingsschema om een correcte bedrading voor de stroomvoorziening, ingang en uitgang te verzekeren.
  - ◊ Gebruik elektrische bedrading die geschikt is voor de nominale stroom.
  - ◊ Voer bedrading of installatie niet uit met een spanningvoerende kabel.
  - ◊ Dit kan leiden tot doorsmelting van het circuit of brand via de secundaire CT-zijopening.
- Verbind de spanningstoevoer-, stroomtoevoer- of pulstoevoerdraden parallel geschakeld aan de hoogspannings- of stroomkabels en vermijd het gebruik van dezelfde elektriciteitsbuis. Houd de lengte van afgeschermde draden zo kort mogelijk.
- Schakel de stroomvoorziening of toevoer niet in tot alle bedrading is voltooid.
- Gebruik het secundaire zijcircuit van de omvormer niet. Dat kan exotherme warmte of schade veroorzaken.
- Als er nog ruis op de voeding-, spanningstoevoer of stroomtoevoer zit, kan dit onjuiste metingen veroorzaken.
- Installatie en bedrading van elektrische arbeid of elektrische leidingen moet worden uitgevoerd door gespecialiseerd personeel.
- Veeg vuil van de hoofdunit met een zachte doek enz. Door gebruik van verdunningsmiddel kan de unit vervormen of verkleuren.
- Voeg geen vermogensoverschot aan het display toe.
- Hierdoor kunne de inwendige vloeibare kristallen breken. Zorg er voor uw veiligheid voor dat aan de volgende voorwaarden is voldaan:
  - ◊ Overspanning categorie II en vervuilingsgraad 2
  - ◊ Voor toepassingen binnen
  - ◊ Omgevingstemperatuur van -25 tot +55 °C
  - ◊ Omringende vochtigheidsgraad zonder condensatie van 30 tot 85 % RV (bij 20 °C)
  - ◊ Max. hoogte van 2000 m of minder
- Niet gebruiken in de volgende omgevingen:
  - ◊ Waar het wordt blootgesteld aan direct zonlicht
  - ◊ Waar ontvlambaar of corrosief gas kan worden geproduceerd
  - ◊ Waar het wordt blootgesteld aan overmatige stofdeeltjes of metaaldeeltjes in de lucht
  - ◊ Waar het wordt blootgesteld aan water, olie of chemicaliën
  - ◊ Waar directe trillingen of schokken kunnen worden overgedragen
  - ◊ In de nabijheid van hoogspanningskabels, voedingsleidingen of machinerie waar grote schakelschokken kunnen optreden
- Gebruik altijd stroomtransformatoren voor galvanische isolatie om stromen te meten.