

MEMO P200 - P01330825/P01330826



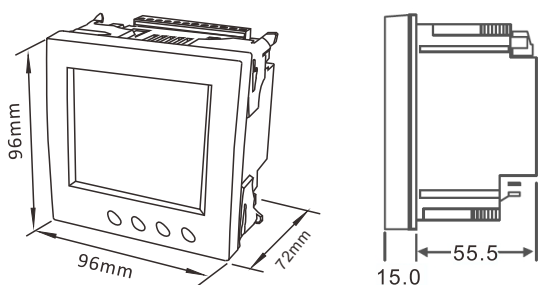
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92182 ANTONY Cedex - FRANCE
Tel. : (33) 01 75 60 10 30
http://www.enerdis.com



Fonctions / Functions

- fr**
- MEMO P200 (réf P01330825/P01330826) est une centrale de mesure pour réseaux BT ou MT 1P+N, 3P, 3P+N.
 - Fonctions de mesure :
 - valeurs instantanées (V, U, I, P, Pt, Q, Qt, S, St, FP, FPI, CF, F, THD V, THD I)
 - valeurs max (I moyen, Pt moyen, Qt moyen, St moyen)
 - index d'énergie cumulés (Ea import/export/total, Er import/export/total)
 - 4 Tarifs
 - Sortie impulsion (TOR) :
 - Mode impulsions (Kwh total, Kvarh total)

- en**
- MEMO P200 (P/N P01330825/P01330826) is a power monitor for LV and MV 1P+N, 3P, and 3P+N networks.
 - Measurement functions :
 - instantaneous values (V, U, I, P, Pt, Q, Qt, S, St, FP, FPI, CF, F, THD V, THD I)
 - max values (Imax DMD, Pt max DMD, Qtmax DMD, Stmax DMD)
 - 4 Tariffs
 - cumulative energy indexes (Ea import/export/total, Eq import/export/total)
 - Digital output (On/Off):
 - Pulse mode (Kwh total, Kvarh total)

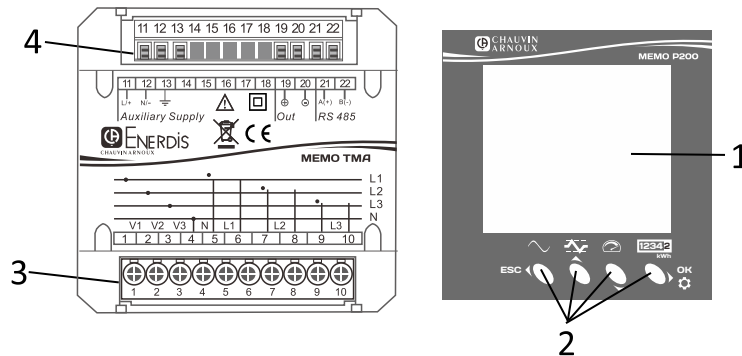


Caractéristiques / Characteristics

- fr**
- Entrées tension (AC) :**
 - TP Primaire : 100 V à 500 KV - TP Secondaire : 100 V à 480 V
 - Etendue de mesure : 5...120 %Un 50/60 Hz (Un = 100 / 400 V)
 - Sur-tension : 120% de 400 V (permanente) - 1 kV (0,5s)
 - Consommation : < 0,25 VA - Impédance d'entrée : 1 MΩ
 - Entrées courant (AC) :**
 - TC Primaire : 1 A à 10 000 A - TC Secondaire : 1 A à 5 A
 - Etendue de mesure : 1%In...120 %In (In = 5 A)
 - Surcharge transitoire : 120 A (0,5s) - Surcharge permanente 6 A
 - Consommation : < 0,1 VA
 - Précisions de mesure (@50Hz):**
 - Puissance et énergie active classe 0.5s (IEC62053-22 & IEC61557-12)
 - Puissance et énergie réactive classe 2 (IEC62053-23 & IEC61557-12)
 - Puissance apparente : 1% (IEC61557-12)
 - Tension : 0,5 - Courant : 0,5 (IEC61557-12)
 - Alim auxiliaire :**
 - P01330825: 85...275VAC - 120...380VDC (<2W) 50-60 Hz
 - P01330826: 21...28 VDC (2W)
 - Sortie TOR :**
 - Sortie comptage (kWh/kVarh) (CEI 62053-31)
 - Tension d'utilisation : 5...27 VDC
 - Courant max : 27 mA
 - Température d'utilisation :** -25°C à +55°C
 - Humidité relative :** 0 à 90%, sans condensation
 - Altitude :** jusqu'à 2000 m
 - Sécurité :**
 - Degré de pollution : 2 | Tenue au feu : UL94, sévérité V0
 - Catégorie d'installation : 3
 - Indice de protection : IP54 en face avant et IP20 en face arrière
 - Chocs mécaniques : IK02 (face avant) IK06 (face arrière)
 - Masse :** 350g
 - Raccordement :** 4mm² (entrées mesures) 2,5mm² (autres)

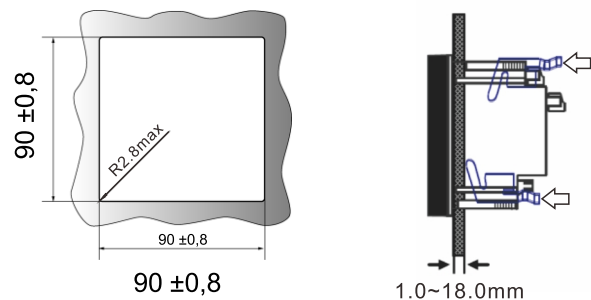
Description / Description

- fr**
- Ecran LCD
 - Touches de navigation
 - Bornier des entrées mesures
 - Bornier sortie TOR, RS485 & alimentation auxiliaire
- en**
- LCD screen
 - Navigation keys
 - Measurement inputs terminal block
 - Digital output, RS485 & Auxiliary power supply terminal block



Montage / Mounting

- fr**
- Découpez votre porte avant d'armoire au format ci-dessous
 - Montez votre produit et équipez les 4 pattes de fixation
- en**
- Cut out your cabinet front door in the format below
 - Mount your product and equip the 4 holding plastic parts



Instructions de sécurité / Safety instructions

- fr**
- Messages et symboles de sécurité**
Lire soigneusement les consignes et examiner l'appareil afin de vous familiariser avec avant son utilisation et son entretien.
- Alerte de sécurité**
Ce symbole est le symbole d'alerte de sécurité. Il sert à prévenir l'utilisateur des risques de blessures et le renvoie à la documentation. Respectez toutes les consignes de sécurité données dans la documentation associée à ce symbole pour éviter toute situation susceptible de provoquer une blessure ou la mort. Cet appareil est destiné à être exclusivement utilisé par un **personnel habilité et préalablement formé**.

- Normes Européennes**
Ce symbole indique la conformité aux normes européennes, notamment DBT et CEM

- Directive DEEE**
Ce symbole indique que le produit fait l'objet d'une collecte sélective conformément à la directive DEEE. Ce matériel ne doit pas être traité comme un déchet ménager.

- Double Isolation**
Ce symbole indique la double isolation de l'appareil

- Réserve de responsabilité**
L'utilisateur a la responsabilité de s'assurer que les caractéristiques assignées du produit conviennent à son utilisation. L'utilisateur a la responsabilité de prendre connaissance des instructions de fonctionnement et des instructions d'installation avant la mise en route ou la maintenance, et de les appliquer. Le non-respect de ces instructions peut affecter le bon fonctionnement du produit et constituer un danger pour les personnes et les biens.

- en**
- Safety messages and symbols**
Read the instructions carefully and examine the device in order to familiarise yourself with it before using and servicing it.

- Safety alert**
This symbol is the symbol for a safety alert. It warns users of a risk of injury and refers them to the documentation. Observe all safety instructions in the documentation identified by this symbol to avoid situations likely to cause injury or death. This appliance is intended for use **only by authorized and trained personnel**.

- European Standards**
This symbol indicates compliance with European standards, in particular the LVD and EMC

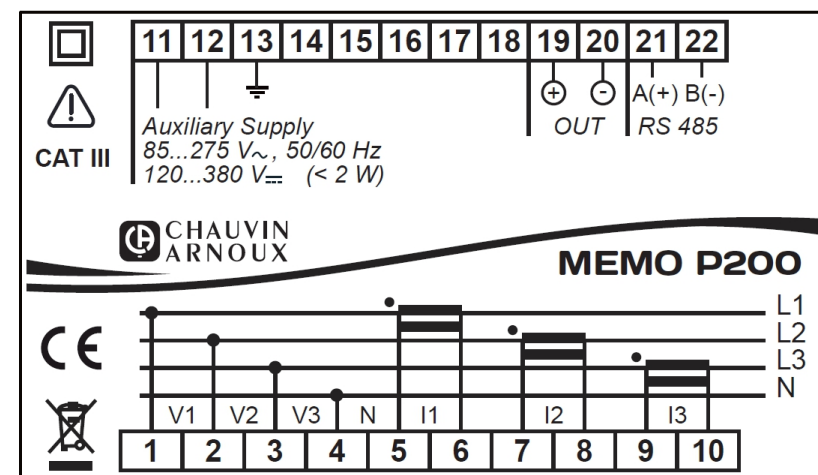
- WEE directive**
This symbol indicates that the product at end of life must be disposed of by collection in accordance with the WEEE directive. This equipment must not be treated as household waste

- Double insulation**
This symbol indicates that the product have the double insulation

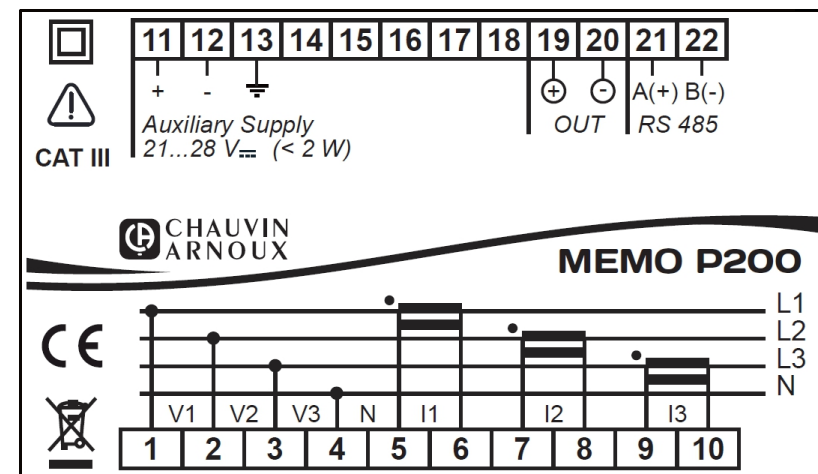
- Disclaimer of responsibility**
Users are responsible for making sure that the rated characteristics of the product are suitable for their applications. Users are responsible for familiarizing themselves with the operating instructions and installation instructions before start-up or servicing, and for applying them. Failure to observe these instructions may impair the operation of the product and endanger persons and property.

- fr**
- Attention, risque d'explosion, d'électrocution, ou d'arc électrique. Coupez toutes les alimentations avant de travailler sur ce produit. Le non respect de ces consignes entraînera la mort ou des blessures graves.** L'insertion de fusibles sur les entrées de mesure V et d'un système de court-circuitage sur les entrées de mesure I sont fortement recommandés. Les schémas de raccordement des entrées de mesure V et I au réseau électrique sont indiqués ci-après.

- en**
- Attention, risk of explosion, electrocution, or electric arc. Cut off all power supplies before working on this product. Failure to follow these instructions may result in death or severe injury.** The insertion of fuses on the V measurement inputs and of a short-circuiting system on the I measurement inputs is strongly recommended. Diagrams showing the connection of the V and I measurement inputs to the electrical network are included below.



P01330825



P01330826

MS01-7648 Edition 2

Contact Réparation /SAV - Aftersale Service Contact :

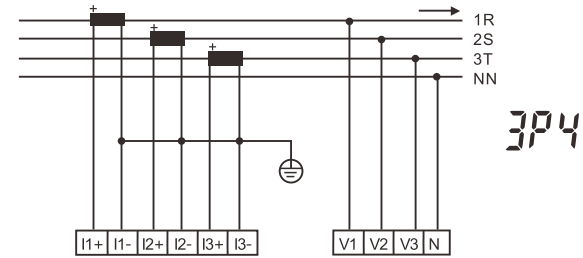
MANUMESURE
45 route de Saint Eugène
14130 REUX

Tel: 02 31 64 51 55
ct.reux@manumasure.fr

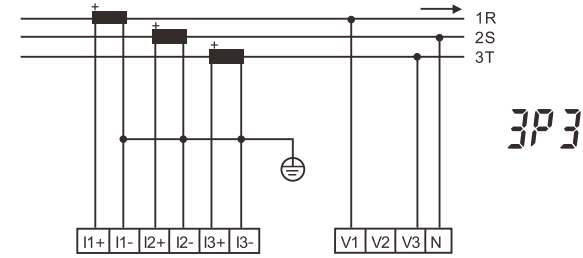
Installation / Installation



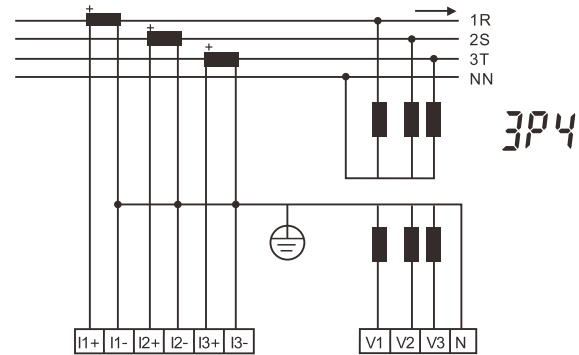
Montage triphasé non équilibré 4 fils – 3 TC (Réseau 3P4)
Unbalanced 4-wire 3-CT connection (3P4 network)



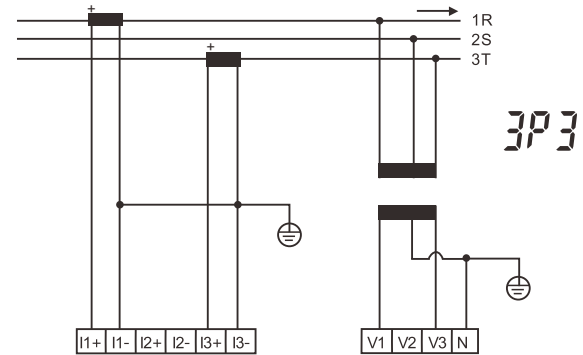
Montage triphasé non équilibré 3 fils – 3 TC (Réseau 3P3)
Unbalanced 3-wire 3-CT connection (3P3 network)



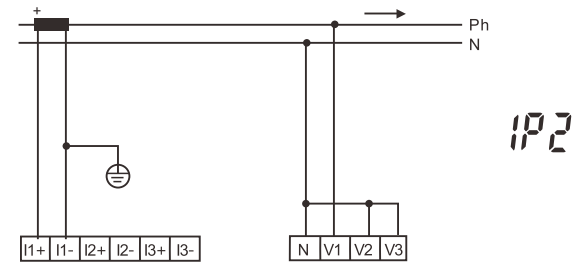
Exemple de raccordement sur TP – Montage étoile
Example of connection to PT – Wye connection



Exemple de raccordement sur TP – Montage triangle
Example of connection to PT – Delta connection



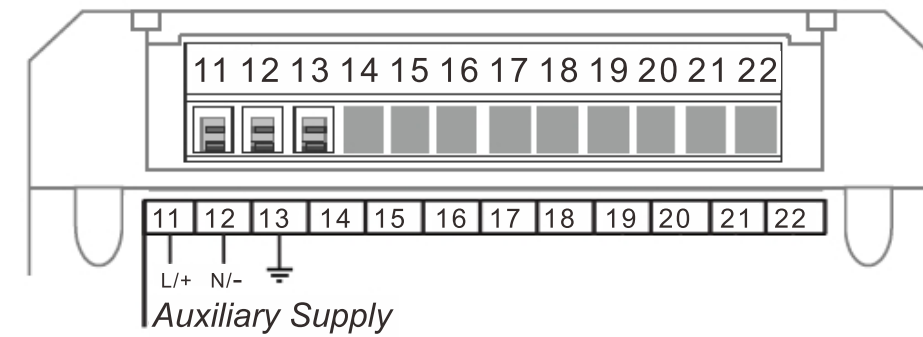
Montage monophasé (1P2)
Single-phase connection (1P2)



Raccordements / Connections



Raccordement alimentation auxiliaire /Auxiliary supply connection



P01330825

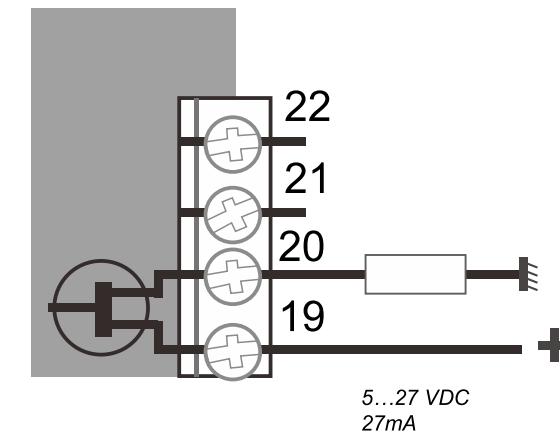
Alimentation: 85...275 Vac
120...380Vdc
Power supply : 85...275 Vac
120...380Vdc

P01330825

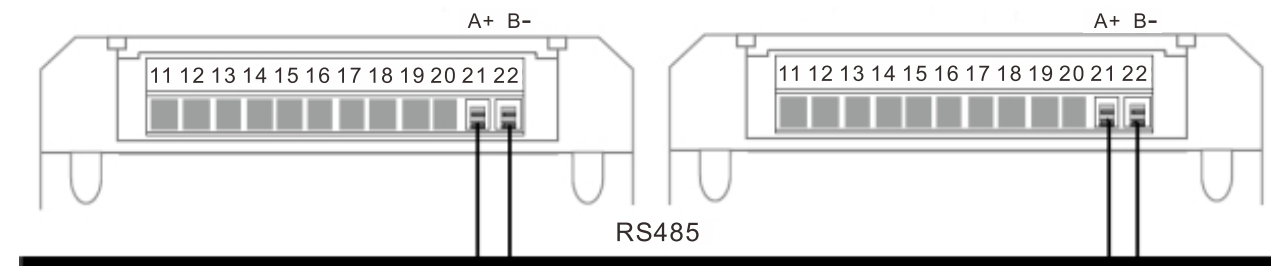
Alimentation: 18...27 Vdc
Power supply : 18...27 Vdc

**Respectez la polarité
Respect the polarity**

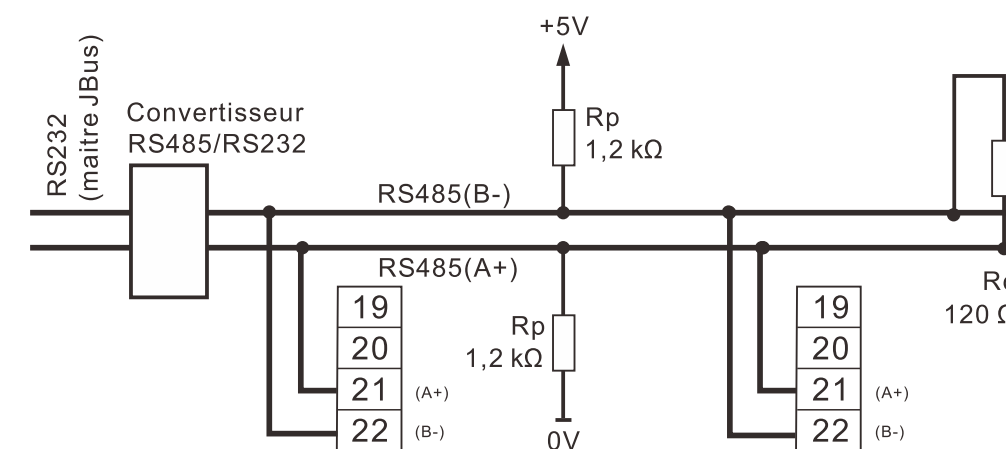
Raccordement de la sortie relais /Digital output connection



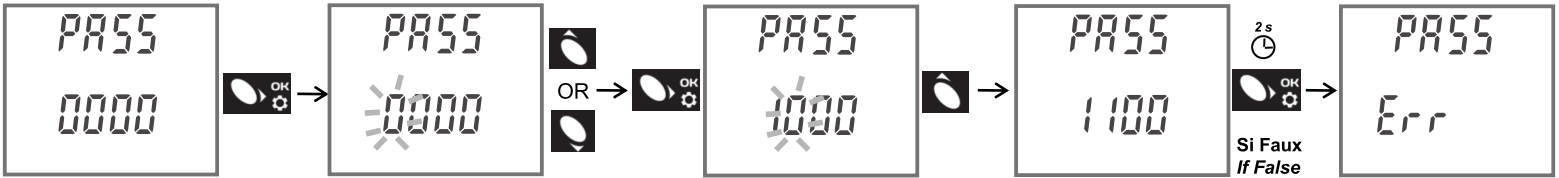
Raccordement RS485/RS485 connection



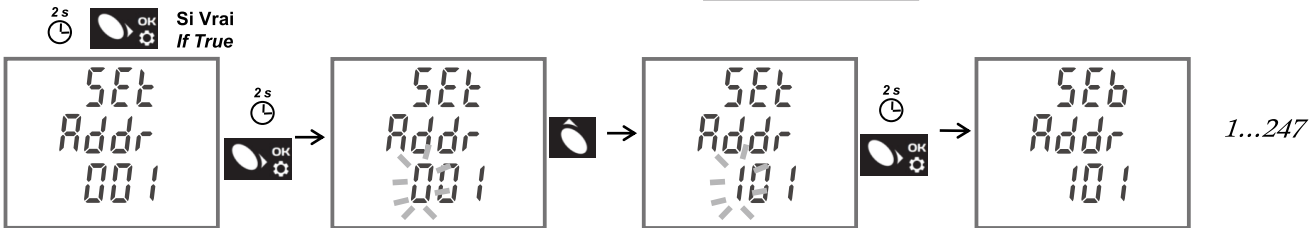
Pour le câblage d'un réseau RS485 consulter la norme en vigueur
Connection should be made using twisted pair screened cable. For the wiring of an RS485 network, look up for the standard in use.



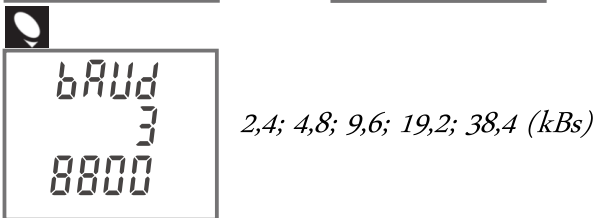
Mot de passe
Password



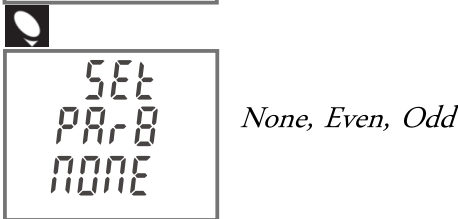
Adresse Modbus
Modbus address



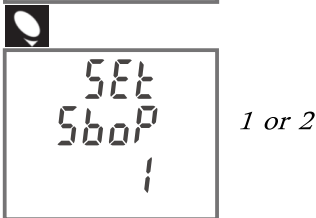
Vitesse de communication
Communication Speed



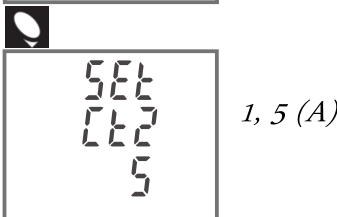
Parité
Parity



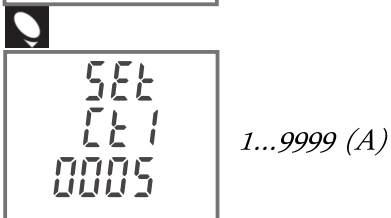
Bits de stop
Stop bits



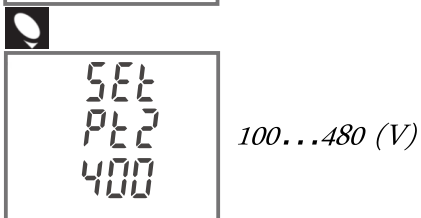
Secondaire TC
Secondary of CT



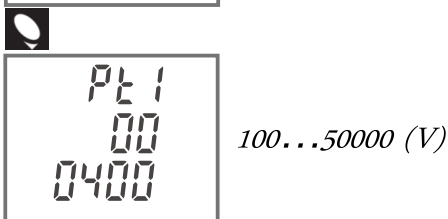
Primaire TC
Primary of CT



Secondaire TP (Ph-Ph)
Secondary of PT (Ph-Ph)



Primaire TP (Ph-Ph)
Primary of PT (Ph-Ph)



MAX
MIN
Deman

Indicateurs des grandeurs mesurées –
(Min – Max – Demand)
Quantities measured indicator–
(Min – Max – Demand)

A-B
N-Z

Indicateur de phase & Somme
Phase indicator & Sum

8.8.8.8

Valeurs des grandeurs mesurées
Values of the quantities measured

VKV
KWMW

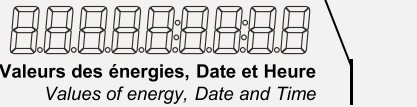
AKAPF
KvarMvar

THD%Hz
KVAMVA

Kwh
Kwrh

Unités des grandeurs mesurées
Units of the quantities measured

Légende des index d'énergie
Legend of Energy indexes



Fonctions des touches du MEMO P200
Function of the buttons for MEMO P200



Affichage des valeurs instantanées & THD
Display of instantaneous values & THD

Affichage des facteurs de puissance,
des valeurs max & de la fréquence
Display of power factor, max
demand, & frequency

Affichage des index d'énergies
Display of energy indexes

Affichage des puissances mesurées
Display of power Measurement

Menu de configuration: accès par appui long sur
Configuration menu: access by long press on

Touches dans le menu configuration
Configuration key



Changer de digit
Skip 1 digit



OR

Modifier une valeur ou passer au sous menu suivant
Change a value or go to the next sub-menu



ESC

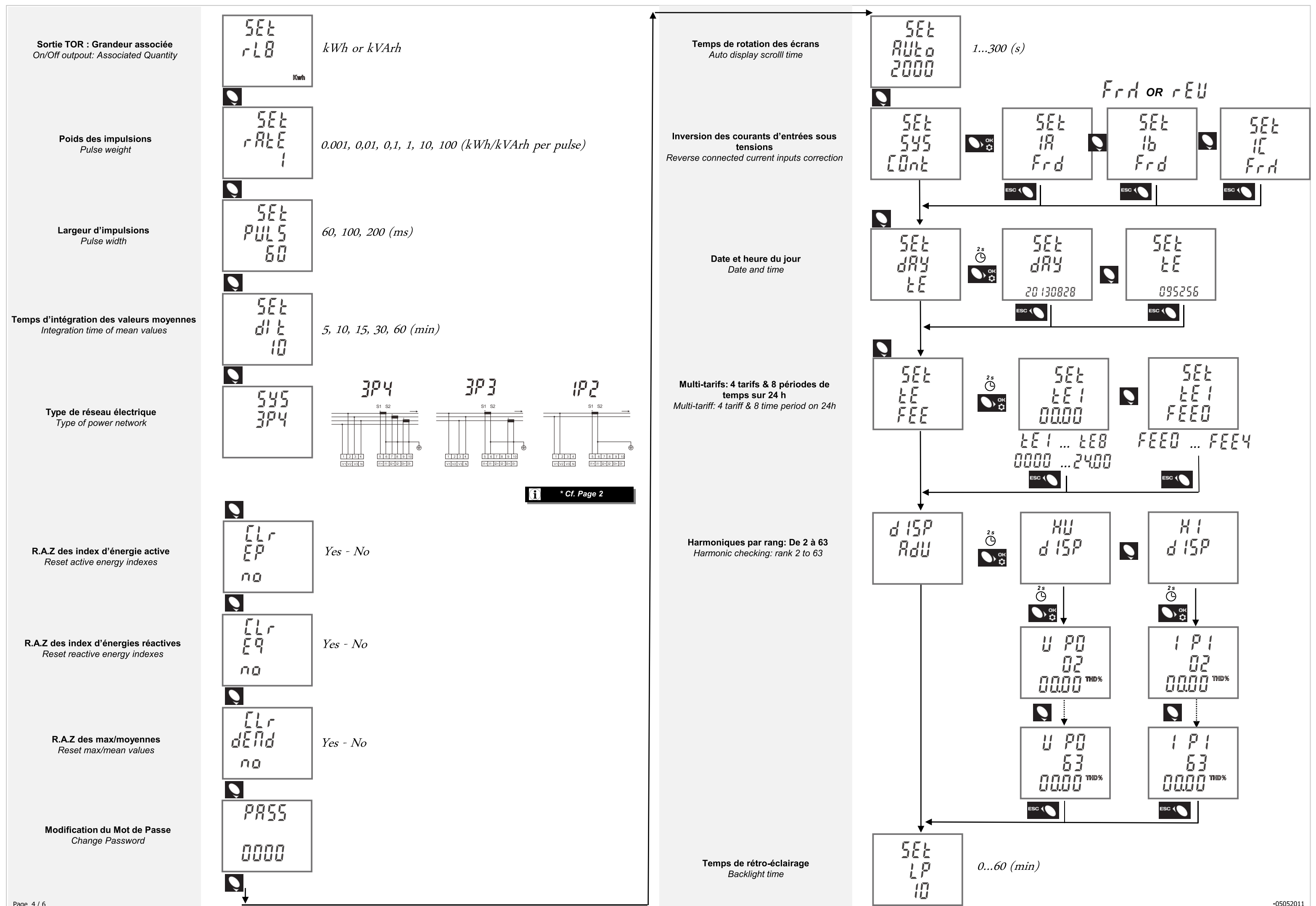
Retour dans la visualisation des valeurs ou sortir
d'un menu
Return to visualisation of values or out of one menu



Les paramètres par défaut sortie d'usine sont indiqués sur chaque écran de ce manuel
The factory default parameters are indicated on each screen of this manual



Pas de logiciel: Programmation rapide en face avant du produit
No Software: Quick programming on the front panel of the product



Visualisation / Display



Affichage des valeurs instantanées & THD
Display of instantaneous values & THD



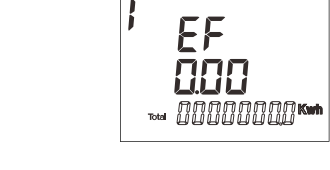
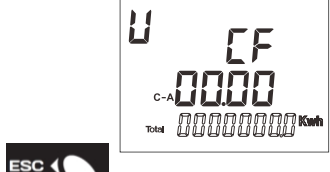
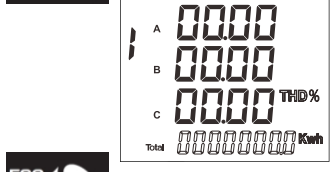
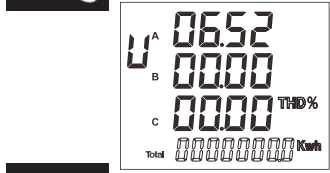
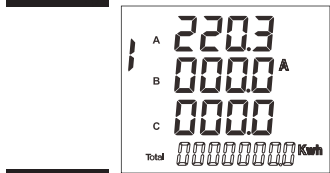
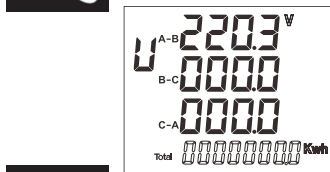
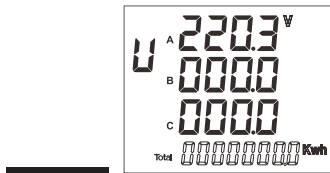
Affichage des facteurs de puissance,
des valeurs max & de la fréquence
Display of power factor, max
demand, & frequency



Affichage des puissances mesurées
Display of power Measurement



Affichage des index d'énergies
Display of energy indexes



CF = Crest Factor
(Upeak/Urms)

KF = K-Factor
(harmonic indicator)

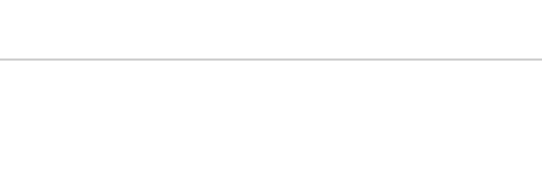
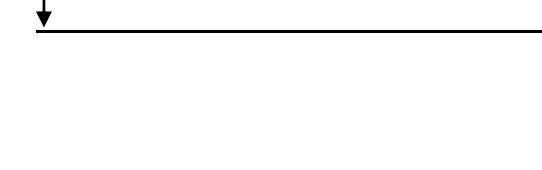
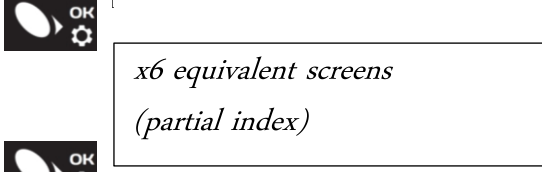
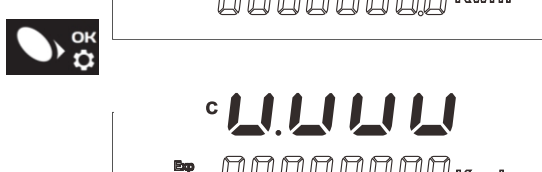
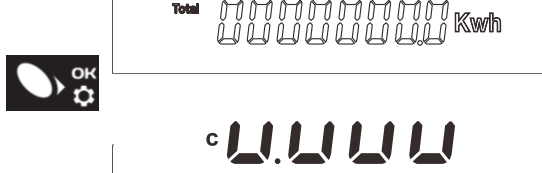
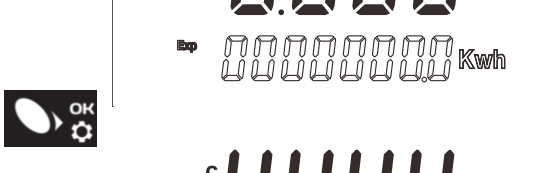
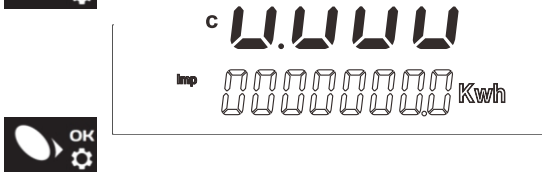
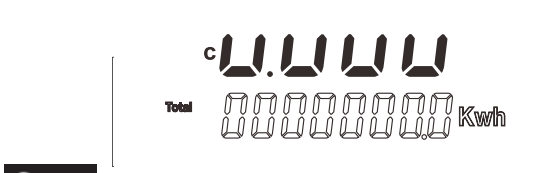
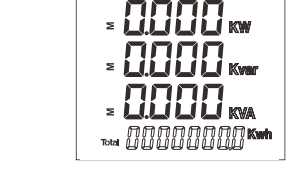
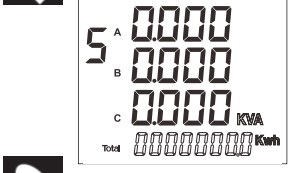
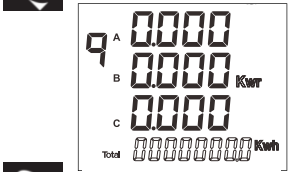
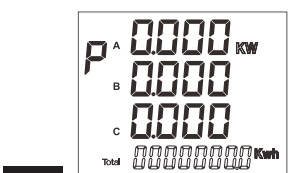
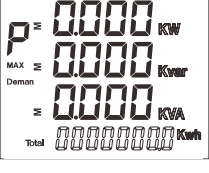
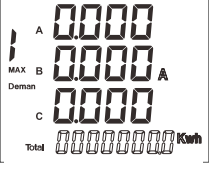
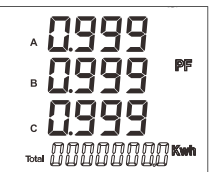
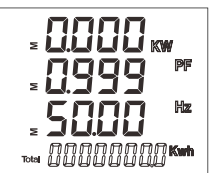


Table de communication Modbus / Mapping Modbus table

The data format for each byte in RTU mode:

Coding System: 8-bit per byte

Data Format: 4 bytes (2 registers) per parameter.
Floating point format (to IEEE 754)

Most significant register first (Default).

Error Check Field: 2 byte Cyclical Redundancy Check (CRC)

Framing: 1 start bit
8 data bits, least significant bit sent first
1 bit for even/odd parity (or no parity)
1 stop bit if parity is used; 1 or 2 bits if no parity

The data coding information:

All data values are transferred as 32 bit IEEE754 floating point numbers, each value is transferred using two Modbus Protocol 16 bit registers. Bytes arrangement is big-endian (4-3-2-1).
All register read requests must specify an even number of registers.

The MEMO P200 can transfer a maximum of 40 values in a single transaction; exceeding this limit prompts the product to generate an exception response.
Data transmission speed : 2400, 4800, 9600, 19200, 38400 baud.

Input registers:

The following table details the registers parameter and units ,and the values of the address bytes.
Modbus Protocol function code 04 is used to access all parameters.

Parameter number	Register parameter (units)	Address Hex High	Address Hex Low	Parameter number	Register parameter (units)	Address Hex High	Address Hex Low	Parameter number	Register parameter (units)	Address Hex High	Address Hex Low
1	Phase 1 voltage line to neutral (Volts)	00	00	45	Line 3 to line 1 Voltage (Volts)	00	CC	89	Resettable import active energy (kWh)	01	84
2	Phase 2 voltage line to neutral (Volts)	00	02	46	Average line to line Voltage (Volts)	00	CE	90	Resettable export active energy (kWh)	01	86
3	Phase 3 voltage line to neutral (Volts)	00	04	47	Neutral current (Amps)	00	E0	91	Resettable import reactive energy (kVArh)	01	88
4	Phase 1 current (Amps)	00	06	48	Phase 1 L/N voltage THD (%)	00	EA	92	Resettable export reactive energy (kVArh)	01	8A
5	Phase 2 current (Amps)	00	08	49	Phase 2 L/N voltage THD (%)	00	EC	93	Current KF (1)	01	8E
6	Phase 3 current (Amps)	00	0A	50	Phase 3 L/N voltage THD (%)	00	EE	94	Voltage CF (1)	01	90
7	Phase 1 active power (Watts)	00	0C	51	Phase 1 current THD (%)	00	F0	95	Net total active energy (Imp-Exp) (kWh)	04	CE
8	Phase 2 active power (Watts)	00	0E	52	Phase 2 current THD (%)	00	F2	96	Net total reactive energy (Imp-Exp) (kVArh)	04	D0
9	Phase 3 active power (Watts)	00	10	53	Phase 3 current THD (%)	00	F4	97	Absolute total active energy (Imp+Exp) (kWh)	04	D2
10	Phase 1 apparent power (VA)	00	12	54	Average line to neutral Voltage THD (%)	00	F8	98	Absolute total reactive energy (Imp+Exp) (kVArh)	04	D4
11	Phase 2 apparent power (VA)	00	14	55	Average line current THD (%)	00	FA	99	TIME1 active energy total (kWh)	13	0C
12	Phase 3 apparent power (VA)	00	16	56	Total system power factor (degrees)	00	FE	100	TIME2 active energy total (kWh)	13	0E
13	Phase 1 reactive power (VAr)	00	18	57	Phase 1 current demand (Amps)	01	02	101	TIME3 active energy total (kWh)	13	10
14	Phase 2 reactive power (VAr)	00	1A	58	Phase 2 current demand (Amps)	01	04	102	TIME4 active energy total (kWh)	13	12
15	Phase 3 reactive power (VAr)	00	1C	59	Phase 3 current demand (Amps)	01	06	103	TIME1 active energy import (kWh)	13	14
16	Phase 1 power factor (1)	00	1E	60	Max phase 1 current demand (Amps)	01	08	104	TIME2 active energy import (kWh)	13	16
17	Phase 2 power factor (1)	00	20	61	Max phase 2 current demand (Amps)	01	0A	105	TIME3 active energy import (kWh)	13	18
18	Phase 3 power factor (1)	00	22	62	Max phase 3 current demand (Amps)	01	0C	106	TIME4 active energy import (kWh)	13	1A
19	Phase 1 phase angle (degrees)	00	24	63	Line 1 to line 2 voltage THD (%)	01	4E	107	TIME1 active energy export (kWh)	13	1C
20	Phase 2 phase angle (degrees)	00	26	64	Line 2 to line 3 voltage THD (%)	01	50	108	TIME2 active energy export (kWh)	13	1E
21	Phase 3 phase angle (degrees)	00	28	65	Line 3 to line 1 voltage THD (%)	01	52	109	TIME3 active energy export (kWh)	13	20
22	Average voltage line to neutral (Volts)	00	2A	66	Average line to line voltage THD (%)	01	54	110	TIME4 reactive energy export (kWh)	13	22
23	Average line current (Amps)	00	2E	67	Total active energy (kWh)	01	56	111	TIME1 reactive energy total (kVArh)	13	24
24	Sum of line currents (Amps)	00	30	68	Total reactive energy (kVArh)	01	58	112	TIME2 reactive energy total (kVArh)	13	26
25	Total system active power (Watts)	00	34	69	Phase 1 active energy import (kWh)	01	5A	113	TIME3 reactive energy total (kVArh)	13	28
26	Total system apparent power (VA)	00	38	70	Phase 2 active energy import (kWh)	01	5C	114	TIME4 reactive energy total (kVArh)	13	2A
27	Total system reactive power (VAr)	00	3C	71	Phase 3 active energy import (kWh)	01	5E	115	TIME1 reactive energy import (kVArh)	13	2C
28	Total system power factor	00	3E	72	Phase 1 active energy export (kWh)	01	60	116	TIME2 reactive energy import (kVArh)	13	2E
29	Total system phase angle	00	42	73	Phase 2 active energy export (kWh)	01	62	117	TIME3 reactive energy import (kVArh)	13	30
30	Frequency (Hertz)	00	46	74	Phase 3 active energy export (kWh)	01	64	118	TIME4 reactive energy import (kVArh)	13	32
31	Import active energy (kWh)	00	48	75	Phase 1 active energy total (kWh)	01	66	119	TIME1 reactive energy export (kVArh)	13	34
32	Export active energy (kWh)	00	4A	76	Phase 2 active energy total (kWh)	01	68	120	TIME2 reactive energy export (kVArh)	13	36
33	Import reactive energy (kVArh)	00	4C	77	Phase 3 active energy total (kWh)	01	6A	121	TIME3 reactive energy export (kVArh)	13	38
34	Export reactive energy (kVArh)	00	4E	78	Phase 1 reactive energy import (kVArh)	01	6C	122	TIME4 reactive energy export (kVArh)	13	3A
35	Total apparent energy (kVAh)	00	50	79	Phase 2 reactive energy import (kVArh)	01	6E				
36	Total cumulated current (Ah)	00	52	80	Phase 3 reactive energy import (kVArh)	01	70				
37	Total system active power demand (W)	00	54	81	Phase 1 reactive energy export (kVArh)	01	72				
38	Max total system active power demand (W)	00	56	82	Phase 2 reactive energy export (kVArh)	01	74				
39	Total system apparent power demand (VA)	00	64	83	Phase 3 reactive energy export (kVArh)	01	76				
40	Max total system apparent power demand (VA)	00	66	84	Phase 1 reactive energy total (kVArh)	01	78				
41	Neutral current demand (Amps)	00	68	85	Phase 2 reactive energy total (kVArh)	01	7A				
42	Max neutral current demand (Amps)	00	6A	86	Phase 3 reactive energy total (kVArh)	01	7C				
43	Line 1 to line 2 Voltage (Volts)	00	C8	87	Resettable total active energy (kWh)	01	80				
44	Line 2 to line 3 Voltage (Volts)	00	CA	88	Resettable total reactive energy (kVArh)	01	82				

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