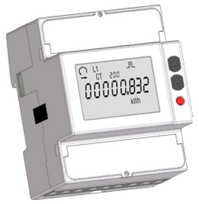
**SENECA s.r.l.**
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e-mail: info@seneca.it - www.seneca.it

# S534-6
# S504C-6

Contatore di energia 6A trifase - *6A three phase energy counter*

1MSNEM15X001

Soggetto a modifiche senza preavviso.
*Subject to change without prior notice.*



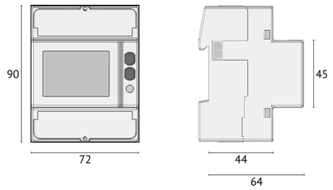
**I** - MANUALE D'USO

**GB** - USER MANUAL

**⚠ ATTENZIONE!**
**L'installazione, la configurazione del circuito in cui è inserito il dispositivo e la sigillatura dei coprimorsetti deve essere eseguita da figure professionalmente qualificate. Togliere la tensione prima di intervenire sullo strumento.**

***⚠ WARNING!***
***Device installation, wiring configuration and terminal cover sealing must be carried out only by qualified professional staff. Switch off the voltage before device installation.***

## DIMENSIONI (mm)
## *SIZE (mm)*

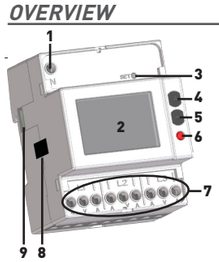



## MODELLI DISPONIBILI
## *AVAILABLE MODELS*

| **Nome** *Name* | **Modello/Porta** *Model/Port* | **Inserzioni possibili** (es. 3.4.3=3fasi,4fili,3TA) *Available wirings (e.g. 3.4.3=3phases,4wires,3CTs)* 3.4.3 | 3.3.3 | 3.3.2 | **Ingr. tariffa** *Tariff in.* | **Uscite S0** *S0 outputs* | **Cert. MID** *MID cert.* |
|---|---|---|---|---|---|---|---|
| S534-6 | IR | ● | ● | ● | 1 | 2 | |
| S504C-6-MBU | M-BUS | ● | ● | ● | 1 | 1 | |
| S504C-6-MOD | RS485 MODBUS | ● | | | 1 | 1 | |
| S504C-6-ETH | ETHERNET | ● | | | | 1 | |
| S534-6-MID | IR | ● | ● | ● | 1 | 2 | ● |
| S504C-6-MBU-MID | M-BUS | ● | ● | ● | 1 | 1 | ● |
| S504C-6-MOD-MID | RS485 MODBUS | ● | | | 1 | 1 | ● |
| S504C-6-ETH-MID | ETHERNET | ● | | | | 1 | ● |

I contatori parziali sono azzerabili su tutti i modelli.
*In all device models partial counters are resettable.*

## PANORAMICA
## *OVERVIEW*



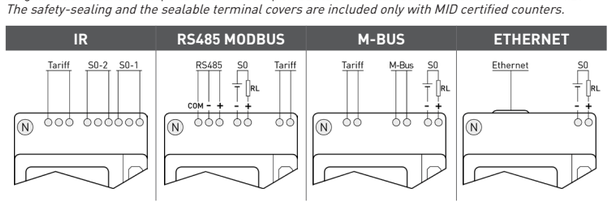

**I** - ITALIANO

1. Morsetto di neutro
2. Display LCD retroilluminato
3. Tasto SET
4. Tasto SU
5. Tasto ENTER
6. LED metrologico
7. Morsetti di corrente e tensione
8. Sigillo antieffrazione (NON RIMUOVERE)
9. Porta IR **- solo mod. IR**

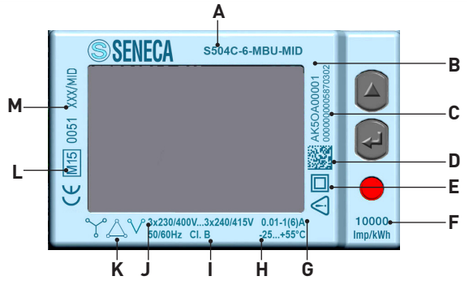
**GB** - ENGLISH

1. *Neutral terminal*
2. *Backlight LCD display*
3. *SET key*
4. *UP key*
5. *ENTER key*
6. *Metrological LED*
7. *Current and voltage terminals*
8. *Safety-sealing (DO NOT REMOVE)*
9. *IR port* ***- only IR model***

Il sigillo antieffrazione e la copertura dei morsetti piombabile sono inclusi solo con i contatori certificati MID.
*The safety-sealing and the sealable terminal covers are included only with MID certified counters.*




## SIMBOLOGIA SUL PANNELLO FRONTALE (ESEMPIO)
## *SYMBOLS ON FRONT PANEL (EXAMPLE)*




**I** - ITALIANO

A. Nome dispositivo
B. Numero seriale
C. Indirizzo secondario per modello M-BUS.
Per modello IR o RS485 MODBUS: campo vuoto
Per modello ETHERNET: indirizzo MAC
D. Data Matrix
E. Classe di protezione
F. Costante d'integrazione (LED metrologico)
G. Corrente base (corrente massima)
H. Temperatura di funzionamento
I. Classe di precisione
J. Tensione/frequenza nominale
K. Tipo di collegamento: ⅄ =3fasi 4fili 3TA, △=3fasi 3fili 3TA, V=3fasi 3fili 2TA
L. Simboli di approvazione MID
M. Certificato di approvazione del tipo

Se il dispositivo è versione NO MID, "CL.1 EN 62053-21" sostituirà i campi I, L e M.

**GB** - ENGLISH

A. *Device name*
B. *Serial number*
C. *Secondary address for M-BUS model.*
*For IR or RS485 MODBUS model: field empty*
*For ETHERNET model: MAC address*
D. *Data Matrix*
E. *Protection class*
F. *Meter constant (metrological LED)*
G. *Base current (max current)*
H. *Working temperature*
I. *Accuracy class*
J. *Nominal voltage/frequency*
K. *Wiring type:* ⅄ =3phases 4wires 3CTs, △=3phases 3wires 3CTs, V=3phases 3wires 2CTs
L. *MID approval symbols*
M. *Type approval certification*

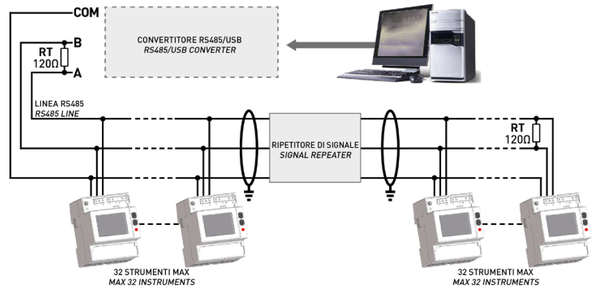
*If the device is NO MID version, "CL.1 EN 62053-21" will be shown instead of I, L and M fields.*

## PORTA RS485
## *RS485 PORT*

La porta RS485 è disponibile a seconda del modello di dispositivo.
*The RS485 port is available according to the device model.*

La porta RS485 consente la gestione del dispositivo tramite protocollo MODBUS RTU/ASCII. Per il collegamento del dispositivo alla rete, montare una resistenza di terminazione (RT=120...150 Ω) sul lato del convertitore RS485 e sull'ultimo dispositivo connesso alla linea. La massima lunghezza raccomandata per un collegamento è di circa 1200m a 9600 bps. Per lunghezze superiori è consigliabile utilizzare valori più bassi di velocità (bps), cavi con bassa attenuazione o ripetitori di segnale. Fare riferimento allo schema seguente.

*The RS485 port allows to manage the device by MODBUS RTU/ASCII protocol. For device network connection, install a terminal resistance (RT=120...150 Ω) on the RS485 converter side and another one on the last device connected on the line. The maximum recommended distance for a connection is 1200m at 9600 bps. For longer distances, lower communication speed (bps), low-attenuation cables or signal repeaters are needed. Refer to the following scheme.*

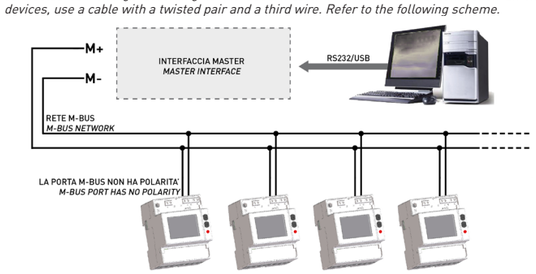



## PORTA M-BUS
## *M-BUS PORT*

La porta M-BUS è disponibile a seconda del modello di dispositivo.
*The M-BUS port is available according to the device model.*

La porta M-BUS consente la gestione del dispositivo tramite protocollo M-Bus. Tra il PC e la rete M-Bus è richiesta un'interfaccia master per adattare la porta RS232/USB alla rete. Il numero di dispositivi collegabili dipende dall'interfaccia master utilizzata. Per il collegamento tra i diversi dispositivi, utilizzare un cavo schermato con i due conduttori di segnale "twistati". Fare riferimento allo schema seguente.

*The M-BUS port allows to manage the device by M-BUS protocol. A master interface is required between PC and the M-Bus network to adapt RS232/USB port to network. The maximum number of devices to be connected can change according to the used master interface. For the connection among the different devices, use a cable with a twisted pair and a third wire. Refer to the following scheme.*



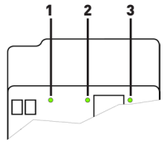

**Il dispositivo comunica solo se almeno 2 fasi di tensione sono collegate.**
***The device can communicate when at least 2 voltage phases are connected.***

## PORTA ETHERNET
## *ETHERNET PORT*

La porta ETHERNET è disponibile a seconda del modello di dispositivo.
*The ETHERNET port is available according to the instrument device.*

**Installare la ferrite (in dotazione) sul cavo Ethernet ad un distanza massima di 5cm dal dispositivo. Assicurarsi di far fare un doppio giro al cavo Ethernet all'interno della ferrite.**
La porta ETHERNET consente la gestione del dispositivo da un qualsiasi PC connesso sulla rete ETHERNET/Internet. Nel campo d'indirizzo web del browser digitare **192.168.1.249**, verrà visualizzato il Web server. Web server è stato progettato per due tipi di utenza, **Amministratore** per l'accesso completo alle funzioni del dispositivo (**username: admin, password: admin**), e **Utente** per l'accesso limitato alle funzioni del dispositivo (**username: user, password: user**).

***Install the included ferrite on the Ethernet cable at a maximum 5 cm distance from the device. Make sure that the Ethernet cable is rolled twice inside the ferrite.***
*The ETHERNET port gives the possibility to manage the device by any PC connected on the ETHERNET/Internet network. In the browser web address field type **192.168.1.249**, the device Web server will be displayed. Web server has been designed for two user type, **Administrator** for full device access **(username: admin, password: admin)**, and **User** for limited device access **(username: user, password: user)**.*




**I** - ITALIANO

1. **LED STATO**: stato della comunicazione; LAMPEGGIANTE LENTO=com. interna ok, ON=accensione o aggiornamento in corso, LAMPEGGIANTE VELOCE=errore com. interna
2. **LED SPD**: velocità di comunicazione; OFF=10 Mbps, ON=100 Mbps
3. **LED LINK**: link activity; ON=link ok, LAMPEGGIANTE=link activity

**GB** - ENGLISH

1. ***STATUS LED****: communication status; SLOW BLINKING=internal comm. ok, ON=switching on or upgrading in progress, FAST BLINKING=internal comm. error*
2. ***SPD LED****: communication speed; OFF=10 Mbps, ON=100 Mbps*
3. ***LINK LED****: link activity; ON=link ok, BLINKING=link activity*

## INGRESSO TARIFFA
## *TARIFF INPUT*

L'ingresso tariffa è disponibile a seconda del modello di dispositivo.
*The tariff input is available according to the device model.*

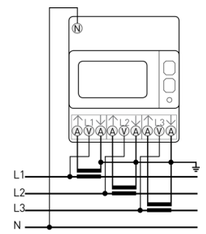
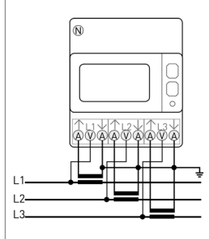
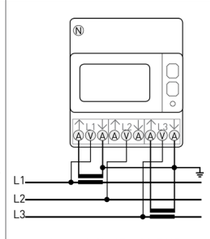
Per la gestione della tariffa, collegare all'ingresso tariffa un apparecchio esterno che genererà un segnale verso lo strumento. Il segnale verrà interpretato come segue:
- quando l'ingresso tariffa rileva un segnale senza tensione (0 V), lo strumento incrementa i contatori di tariffa 1
- quando l'ingresso tariffa rileva un segnale con tensione (fare riferimento alle Caratteristiche tecniche), lo strumento incrementa i contatori di tariffa 2

Nota: i contatori totali continuano ad incrementare indipendentemente dallo stato dell'ingresso tariffa.

*The tariff management is carried out by connecting an external device to tariff input, which is providing a signal to the energy counter. The tariff signal is managed as follows:*
- *if the tariff input detects a voltage free signal (0 V), the device will increase the tariff 1 counters group*
- *if the tariff input detects a voltage signal (see Technical features), the device will increase the tariff 2 counters group*

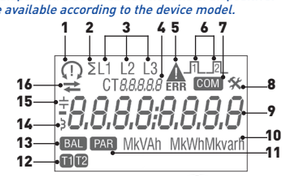
*Note: Total counters increase continuously regardless from the tariff input status.*

## SCHEMI D'INSERZIONE
## *WIRING DIAGRAMS*

| **3 FASI, 4 FILI, 3 TA** *3 PHASES, 4 WIRES, 3 CTS* | **3 FASI, 3 FILI, 3 TA** *3 PHASES, 3 WIRES, 3 CTS* | **3 FASI, 3 FILI, 2 TA** *3 PHASES, 3 WIRES, 2 CTS* |
|---|---|---|
|  |  |  |
| | **solo modello IR o M-BUS** ***only IR or M-BUS model*** | **solo modello IR o M-BUS** ***only IR or M-BUS model*** |

## SIMBOLOGIA A DISPLAY
## *SYMBOLS ON DISPLAY*

I simboli a display sono disponibili a seconda del modello di dispositivo.
*The display symbols are available according to the device model.*




**I** - ITALIANO

1. Ordine delle fasi:
corretto (123)
errato (132)
non definito (es. manca una o più fasi)
2. Valore di sistema
3. Numero di fase del valore
4. Significati diversi a seconda della scritta visualizzata:
- **CT** XXXX: valore rapporto TA
- **SEC**: valore secondario visualizzato nell'area principale
- **SEtUP**: pagina di Programmazione
- **InFO**: pagina Info
5. Parametri metrologici corrotti (Code: XX). Contatore inutilizzabile, da restituire al Produttore
6. Stato attivo dell'uscita S0-1 / S0-2
7. Stato attivo della comunicazione
8. Pagina di Programmazione
9. Area principale
10. Area unità di misura
11. Valore di un contatore parziale. Lampeggiante=contatore fermo
12. Valore di un contatore tariffa 1 o 2
13. Valore di un contatore di bilancio
14. Valore induttivo
15. Valore capacitivo
16. Valore di potenza o energia importata (→), esportata (←)

**GB** - ENGLISH

1. *Phase sequence:*
*correct (123)*
*wrong (132)*
*not defined (e.g. one or more phases are missing)*
2. *System value*
3. *Value phase number*
4. *Different meanings according to the shown item:*
- ***CT XXXX****: CT ratio value*
- ***SEC****: secondary value shown in the main area*
- ***SEtUP****: Setup page*
- ***InFO****: Info page*
5. *Metrological parameters corrupted (Code: XX). Useless counter, to be returned to the Manufacturer*
6. *S0-1 / S0-2 output active status*
7. *Communication active status*
8. *Setup page*
9. *Main area*
10. *Measuring unit area*
11. *Partial counter value. Flashing=stopped counter*
12. *1 or 2 tariff counter value*
13. *Balance counter value*
14. *Inductive value*
15. *Capacitive value*
16. *Imported (→), exported (←) energy or power value*

## MISURE
## *MEASUREMENTS*

I parametri sono disponibili a seconda del modello di dispositivo.
*The parameters are available according to the device model.*

| | **SIMBOLO** *SYMBOL* | **UNITÀ DI MISURA** *MEASURE UNIT* | **DISPLAY** *DISPLAY* | **PORTA** *PORT* |
|---|---|---|---|---|
| **VALORI ISTANTANEI** ***INSTANTANEOUS VALUES*** | | | | |
| Tensione *Voltage* | V∑, V1, V2, V3 | V | | ● |
| Tensione di linea *Line voltage* | V12, V23, V31 | V | | ● |
| Corrente *Current* | I∑, I1, I2, I3, IN | A | | ■ |
| Fattore di potenza *Power factor* | PF∑, PF1, PF2, PF3 | | | ● |
| Potenza apparente *Apparent power* | S∑, S1, S2, S3 | VA | ■ | ■ |
| Potenza attiva *Active power* | P∑, P1, P2, P3 | W | ■ | ■ |
| Potenza reattiva *Reactive power* | Q∑, Q1, Q2, Q3 | var | ■ | ■ |
| Frequenza *Frequency* | f | Hz | | ● |
| Ordine delle fasi *Phase sequence* | CW / CCW | | ● | ● |
| Direzione della potenza *Power direction* | →<br>← | | ● | |
| **DATI MEMORIZZATI** ***RECORDED DATA*** | | | | |
| Energia totale attiva *Total active energy* | ∑, L1, L2, L3 | Wh | ■ | ■ |
| Energia totale reattiva ind. e cap. *Total ind. and cap. reactive energy* | ∑, L1, L2, L3 | varh | ■ | ■ |
| Energia totale apparente ind. e cap. *Total ind. and cap. apparent energy* | ∑, L1, L2, L3 | VAh | ■ | ■ |
| Contatori di energia tariffe T1/T2 (NO modello ETHERNET) *T1/T2 tariff energy counters (NO ETHERNET model)* | ∑, L1, L2, L3 | Wh, varh, VAh | ■ | ■ |
| Contatori di energia parziali azzerabili Resettable partial energy counters | ∑ | Wh, varh, VAh | ■ | ■ |
| Bilancio energetico *Energy balance* | ∑ | Wh, varh, VAh | ■ | ■ |

**In caso di modello ETHERNET, possono essere memorizzati tutti i parametri.**
*In case of ETHERNET model, all parameters can be recorded.*

| **ALTRE INFORMAZIONI** ***OTHER INFORMATION*** | **SIMBOLO** *SYMBOL* | **VALORE/STATO** *VALUE/STATUS* | **DISPLAY** *DISPLAY* | **PORTA** *PORT* |
|---|---|---|---|---|
| Tariffa in uso (NO modello ETHERNET) *Present tariff (NO ETHERNET model)* | T | 1/2 | | ● |
| Valori secondari *Secondary values* | SEC | ON/OFF | ● | ● |
| Rapporto TA *CT ratio* | CT | Valore impostato Set value | ● | ● |
| Tensione sopra/sotto il limite *Undervoltage/overvoltage* | VOL, VUL | ON/OFF | | ● |
| Corrente sotto/sopra il limite *Undercurrent/overcurrent* | IOL, IUL | ON/OFF | | ● |
| Frequenza fuori range *Frequency out of range* | $f_{out}$ | ON/OFF | | ● |
| Contatori parziali *Partial counters* | PAR | START/STOP | ● | ● |
| Stato dell'uscita S0 *S0 output status* |  | Active/Not active | ● | |

**Legenda:** ● = Standard ■ = Valore bidirezionale
***Legend:*** ● = *Standard* ■ = *Bidirectional value*

L'unità di misura può essere visualizzata con il moltiplicatore k (kilo) oppure M (Mega). Il contatore sceglie il moltiplicatore automaticamente in base al valore di rapporto TA impostato. Tutti i contatori di sistema (Wh∑, varh∑, VAh∑) possono essere associati all'uscita S0. In caso di 2 uscite S0 (modello IR), non è possibile impostare lo stesso contatore per entrambe le uscite.
**NOTA: in caso di inserzione 3 fili, i parametri di tensioni fase-neutro, corrente di neutro, potenze di fase, fattore di potenza di fase e tutti i contatori di fase non saranno disponibili.**

*The measuring unit can be displayed with k (kilo) or M (Mega) multiplier. The used multiplier is automatically selected by the counter according to the set CT ratio. All the system counters (Wh∑, varh∑, VAh∑) can be associated to S0 output. In case of 2 S0 outputs (IR model), it is not allowed to set the same counter for both outputs.*
***NOTE: in case of 3 wire connection, phase-neutral voltages, neutral current, phase powers, phase power factors parameters and all phase counters are not available.***

## CALCOLO PER I VALORI DEI CONTATORI DI BILANCIO
## *BALANCE COUNTER VALUE CALCULATION*

| **CONTATORE DI BILANCIO** ***BALANCE COUNTER*** | **FORMULA** ***FORMULA*** |
|---|---|
| kWh | (→kWh T1) – (←kWh T1) + (→kWh T2) – (←kWh T2) |
| kVAh ind | (→kVAh ind T1) – (←kVAh ind T1) + (→kVAh ind T2) – (←kVAh ind T2) |
| kVAh cap | (→kVAh cap T1) – (←kVAh cap T1) + (→kVAh cap T2) – (←kVAh cap T2) |
| kvarh ind | (→kvarh ind T1) – (←kvarh ind T1) + (→kvarh ind T2) – (←kvarh ind T2) |
| kvarh cap | (→kvarh cap T1) – (←kvarh cap T1) + (→kvarh cap T2) – (←kvarh cap T2) |

## FUNZIONI DEI TASTI
## *KEY FUNCTIONS*

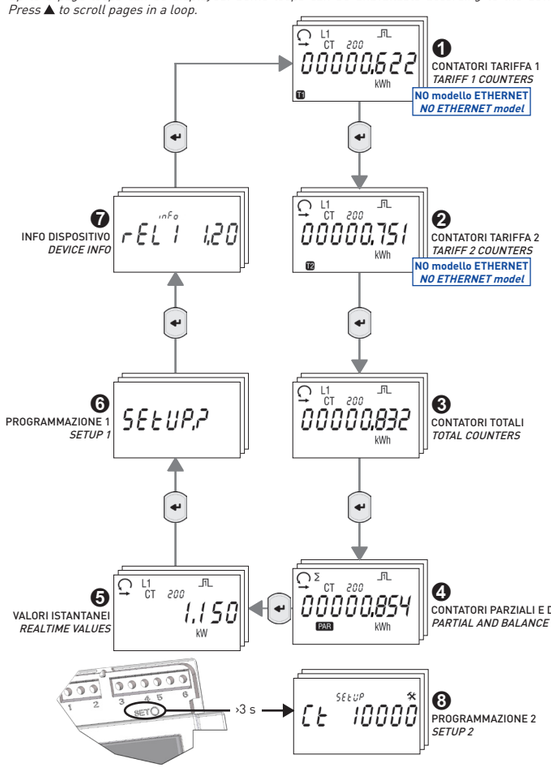
| **FUNZIONALITA'** ***HOW TO*** | **DOVE** ***WHERE*** | **TASTO** *KEY* | **PRESSIONE** *PRESS TIME* |
|---|---|---|---|
| Scorrere i gruppi *Scroll loops* | Qualsiasi pagina eccetto Programmazione 1/2 *Any page except for Setup 1/2* | ↵ | Istantanea *Instantaneous* |
| Scorrere le pagine all'interno di un gruppo *Scroll pages in a loop* | Qualsiasi pagina dei gruppi *Any loops page* | ▲ | Istantanea *Instantaneous* |
| Visualizzare il valore secondario per 10 s *Display secondary value for 10 s* | Qualsiasi pagina dei contatori di energia *Any energy counter page* | ↵ | >3 s |
| Accedere alle pagine di Programmazione 1 *Access Setup 1 pages* | Pagina "Setup?" *"Setup?" page* | ↵ | >3 s |
| Accedere alle pag. di Programmazione 2 *Access Setup 2 pages* | Qualsiasi pagina eccetto Programmazione 1 *Any page except for Setup 1* | SET | >3 s |
| Cambiare un valore/digit *Change a value/digit* | Pagine di Programmazione 1/2 *Setup 1/2 pages* | ▲ | Istantanea *Instantaneous* |
| Confermare un valore/digit *Confirm a value/digit* | Pagine di Programmazione 1/2 *Setup 1/2 pages* | ↵ | Istantanea *Instantaneous* |
| Uscire dalle pagine di Programmazione 1/2 *Exit Setup 1/2 pages* | Pagine di Programmazione 1/2 *Setup 1/2 pages* | ↵ | >3 s |
| Avviare/fermare il contatore parziale visualizzato *Start/stop the displayed partial counter* | Pagine contatori parziali *Partial counters pages* | ↵+▲ | Istantanea *Instantaneous* |
| Azzerare il valore del contatore parziale visualizzato Reset the displayed partial counter value | Pagine contatori parziali *Partial counters pages* | ↵+▲ | >3 s |
| Test del display *Display test* | Qualsiasi pagina eccetto Programmazione 1/2 *Any page except for Setup 1/2* | ↵+▲ | >10 s |

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## STRUTTURA PAGINE
## *PAGE STRUCTURE*

Possono essere visualizzati fino a 8 gruppi di pagine. Alcuni gruppi potrebbero non essere disponibili a seconda del modello di dispositivo. Per scorrere le pagine all'interno di un gruppo premere ▲.

*Up to 8 page loops can be displayed. Some loops can be unavailable according to the device model. Press ▲ to scroll pages in a loop.*




**NOTA: in caso di inserzione 3 fili, le pagine con i valori di fase non saranno disponibili.**
***NOTE: in case of 3 wire connection, pages showing phase values are not available.***

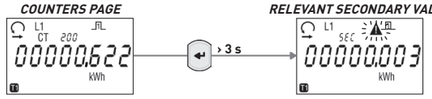
## VISUALIZZAZIONE VALORE SECONDARIO DEL CONTATORE
## *HOW TO DISPLAY THE COUNTER SECONDARY VALUE*

Funzione disponibile solo sulle pagine dei contatori. Mediante la pressione del tasto ↵ per 3 s, è possibile visualizzare a display i valori dei registri di energia misurati al secondario del TA. Per scorrere i registri di energia, vedere paragrafo "Struttura delle pagine". Dopo un periodo di inattività della tastiera pari a 10 s, il contatore tornerà a visualizzare i dati relativi al primario del TA.

*Feature available only on counter pages. By pressing ↵ key for 3 s, CT secondary measurements will be shown on display. To scroll energy values, refer to section "Page structure". After 10 s keyboard idle, the counter will shown again CT primary data.*

**PAGINA CONTATORI**
***COUNTERS PAGE***

**VALORE SECONDARIO RELATIVO**
***RELEVANT SECONDARY VALUE***

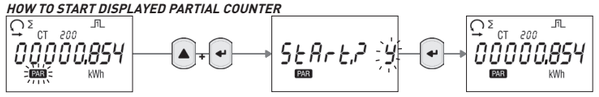



Sulla pagina del valore secondario verrà visualizzato **SEC** al posto del valore rapporto TA.
*On the secondary value page, **SEC** is displayed instead of CT ratio value.*

## AVVIARE / FERMARE / AZZERARE I CONTATORI PARZIALI
## *HOW TO START / STOP / RESET PARTIAL COUNTERS*

Funzione disponibile solo sulle pagine dei contatori parziali.
*Feature available only on partial counter pages.*

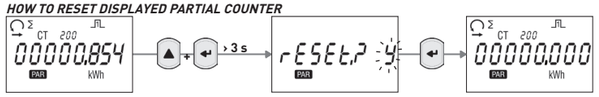
**AVVIARE IL CONTATORE PARZIALE VISUALIZZATO**
***HOW TO START DISPLAYED PARTIAL COUNTER***



**FERMARE IL CONTATORE PARZIALE VISUALIZZATO PRECEDENTEMENTE AVVIATO**
***HOW TO STOP DISPLAYED PARTIAL COUNTER PREVIOUSLY STARTED***



**AZZERARE IL CONTATORE PARZIALE VISUALIZZATO**
***HOW TO RESET DISPLAYED PARTIAL COUNTER***




Nelle pagine **START?**, **STOP?**, **RESET?**, i valori selezionabili sono: **Y**=per confermare, **N**=per annullare. Cambiare valore con ▲.
*In **START?**, **STOP?**, **RESET?** pages, selectable items are: **Y**=to confirm, **N**=to cancel. To change item, press ▲.*

## PAGINE PROGRAMMAZIONE 1
## *SETUP 1 PAGES*

| | **I** - ITALIANO | **GB** - ENGLISH |
|---|---|---|
| SEtuP,? | **PAGINA PER L'ACCESSO A PROGRAMMAZIONE 1** | ***SETUP 1 ACCESS PAGE*** |
| ›3 s | | |
| SEtuP Addr 01 | **INDIRIZZO MODBUS (01...F7 Hex)**<br>**Disponibile solo in caso di comunicazione MODBUS**<br>1. Premere ↵, il primo digit inizierà a lampeggiare.<br>2. Premere ▲ per cambiare valore.<br>3. Confermare con ↵.<br>4. Ripetere i punti 2 e 3 per il digit successivo. | ***MODBUS ADDRESS (01...F7 Hex)***<br>***Available only in case of MODBUS communication***<br>1. *Press ↵, the first digit will start to flash.*<br>2. *Press ▲ to change the value.*<br>3. *Confirm with ↵.*<br>4. *Repeat points 2 and 3 for the next digit.* |
| SEtuP APri 250 | **INDIRIZZO PRIMARIO M-BUS (0...250)**<br>**Disponibile solo in caso di comunicazione M-BUS**<br>1. Premere ↵, il primo digit inizierà a lampeggiare.<br>2. Premere ▲ per cambiare valore.<br>3. Confermare con ↵.<br>4. Ripetere i punti 2 e 3 per gli altri digit. | ***M-BUS PRIMARY ADDRESS (0...250)***<br>***Available only in case of M-BUS communication***<br>1. *Press ↵, the first digit will start to flash.*<br>2. *Press ▲ to change the value.*<br>3. *Confirm with ↵.*<br>4. *Repeat points 2 and 3 for the other digits.* |
| SEtuP ASEC ... | **INDIRIZZO SECONDARIO M-BUS (0...99999999)**<br>**Disponibile solo in caso di comunicazione M-BUS**<br>1. Premere ↵, il primo digit dell'indirizzo secondario inizierà a lampeggiare.<br>2. Premere ▲ per cambiare il valore lampeggiante.<br>3. Confermare con ↵.<br>4. Ripetere i punti 2 e 3 per gli altri digit. | ***M-BUS SECONDARY ADDRESS (0...99999999)***<br>***Available only in case of M-BUS communication***<br>1. *Press ↵, the first digit of the secondary address will start to flash.*<br>2. *Press ▲ to change the flashing value.*<br>3. *Confirm with ↵.*<br>4. *Repeat points 2 and 3 for the other digits.* |
| SEtuP 00000001 | | |
| SEtuP bAud 38,4 k | **VELOCITA' DI COMUNICAZIONE**<br>**Disponibile solo in caso di comunicazione MODBUS o M-BUS**<br>1. Premere ↵, il valore inizierà a lampeggiare.<br>2. Premere ▲ per cambiare valore.<br>3. Confermare con ↵. | ***COMMUNICATION SPEED***<br>***Available only in case of MODBUS or M-BUS communication***<br>1. *Press ↵, the value will start to flash.*<br>2. *Press ▲ to change the value.*<br>3. *Confirm with ↵.* |
| SEtuP CONF rtu | **MODALITA' MODBUS (RTU=8N1, ASCII=7E2)**<br>**Disponibile solo in caso di comunicazione MODBUS**<br>1. Premere ↵, la modalità inizierà a lampeggiare.<br>2. Premere ▲ per cambiare modalità.<br>3. Confermare con ↵. | ***MODBUS MODE (RTU=8N1, ASCII=7E2)***<br>***Available only in case of MODBUS communication***<br>1. *Press ↵, the item will start to flash.*<br>2. *Press ▲ to change the item.*<br>3. *Confirm with ↵.* |
| SEtuP Eth SdEF | **RIPRISTINO DEI PARAMETRI ETHERNET AI VALORI DI DEFAULT (Parametri di default: IP=192.168.1.249, Username=admin, Password: admin)**<br>**Disponibile solo in caso di modello ETHERNET**<br>1. Premere ↵, verrà visualizzata una nuova pagina di conferma.<br>2. Premere ▲ per cambiare il valore lampeggiante, **Y** per confermare il reset, **N** per annullare.<br>3. Confermare con ↵. | ***ETHERNET PARAMETERS SET DEFAULT (Default parameters: IP=192.168.1.249, Username=admin, Password: admin)***<br>***Available only in case of ETHERNET model***<br>1. *Press ↵, a new page for confirmation will be displayed.*<br>2. *Press ▲ to change the flashing value, **Y** to confirm the reset, **N** to cancel.*<br>3. *Confirm with ↵.* |
| SEtuP ConF,? Y | | |
| SEtuP S0-1 kWh | **CONTATORE ABBINATO ALL'USCITA S0**<br>1. Premere ↵, gli elementi che identificano il contatore (es. →, kWh) inizieranno a lampeggiare.<br>2. Premere ▲ per cambiare contatore da abbinare all'uscita S0-1.<br>3. Confermare con ↵.<br>4. In caso di 2 uscite S0 (modello IR), premere ▲ per visualizzare la pagina S0-2 e ripetere la stessa procedura fatta per l'uscita S0-1. | ***COUNTER ASSIGNED TO S0 OUTPUT***<br>1. *Press ↵, the items which identify the counter (e.g. →, kWh) will start to flash.*<br>2. *Press ▲ to change the counter to be assigned to the S0-1 output.*<br>3. *Confirm with ↵.*<br>4. *In case of 2 S0 outputs (IR model), press ▲ to display the S0-2 page and repeat the same procedure made for S0-1 output.* |
| SEtuP rES ALL PAR | **RESET DI TUTTI I CONTATORI PARZIALI**<br>1. Premere ↵, verrà visualizzata una nuova pagina di conferma.<br>2. Premere ▲ per cambiare il valore lampeggiante, **Y** per confermare il reset, **N** per annullare.<br>3. Confermare con ↵. | ***ALL PARTIAL COUNTERS RESET***<br>1. *Press ↵, a new page for confirmation will be displayed.*<br>2. *Press ▲ to change the flashing value, **Y** to confirm the reset, **N** to cancel.*<br>3. *Confirm with ↵.* |
| SEtuP ConF,? Y | | |
| ›3 s | **SU QUALSIASI PAGINA DI PROGRAMMAZIONE 1** | ***ON ANY SETUP 1 PAGE*** |
| SEtuP SAVE,? Y | **USCITA DA PROGRAMMAZIONE 1**<br>1. Premere ▲ per cambiare il valore lampeggiante, **Y** per uscire e salvare le impostazioni, **N** per uscire senza salvare, **C** per continuare a scorrere le pagine di Programmazione 1.<br>2. Confermare con ↵. | ***EXIT FROM SETUP 1***<br>1. *Press ▲ to change the flashing value, **Y** to exit and save the settings, **N** to exit without saving, **C** to continue scrolling Setup 1 pages.*<br>2. *Confirm with ↵.* |

## PAGINE PROGRAMMAZIONE 2
## *SETUP 2 PAGES*

Per accedere alle pagine di programmazione 2, tenere premuto per almeno 3 secondi il tasto SET.
*To access setup 2 pages, keep SET key pressed for at least 3 seconds.*

| | **I** - ITALIANO | **GB** - ENGLISH |
|---|---|---|
| SEtuP Ct 10000 | **VALORE RAPPORTO TA (1...10000)**<br>1. Premere ↵, il primo digit inizierà a lampeggiare.<br>2. Premere ▲ per cambiare valore.<br>3. Confermare con ↵.<br>4. Ripetere i punti 2 e 3 per gli altri digit. | ***CT RATIO VALUE (1...10000)***<br>1. *Press ↵, the first digit will start to flash.*<br>2. *Press ▲ to change the value.*<br>3. *Confirm with ↵.*<br>4. *Repeat points 2 and 3 for the other digits.* |
| SEtuP FSA 5 | **VALORE DI FONDO SCALA TA (1, 5 A)**<br>1. Premere ↵, il valore inizierà a lampeggiare.<br>2. Premere ▲ per cambiare valore.<br>3. Confermare con ↵. | ***CT FULL SCALE VALUE (1, 5 A)***<br>1. *Press ↵, the value will start to flash.*<br>2. *Press ▲ to change the value.*<br>3. *Confirm with ↵.* |
| SEtuP UJir 3.4.3 | **MODALITA' D'INSERZIONE**<br>**Disponibile solo in caso di mod. IR o M-BUS**<br>**3.4.3 = 3 fasi, 4 fili, 3 TA**<br>**3.3.3 = 3 fasi, 3 fili, 3 TA**<br>**3.3.2 = 3 fasi, 3 fili, 2 TA**<br>1. Premere ↵, la modalità d'inserzione inizierà a lampeggiare.<br>2. Premere ▲ per cambiare modalità.<br>3. Confermare con ↵. | ***WIRING DIAGRAM***<br>***Available only in case of IR or M-BUS mod.***<br>***3.4.3 = 3 phases, 4 wires, 3 CTs***<br>***3.3.3 = 3 phases, 3 wires, 3 CTs***<br>***3.3.2 = 3 phases, 3 wires, 2 CTs***<br>1. *Press ↵, the wiring mode will start to flash.*<br>2. *Press ▲ to change the mode.*<br>3. *Confirm with ↵.* |
| ›3 s | **SU QUALSIASI PAGINA DI PROGRAMMAZIONE 2** | **ON ANY SETUP 2 PAGE** |
| SEtuP SAVE,? N | **USCITA DA PROGRAMMAZIONE 2**<br>1. Premere ▲ per cambiare il valore lampeggiante, **Y** per uscire e salvare le impostazioni, **N** per uscire senza salvare, **C** per continuare a scorrere le pagine di Programmazione 2.<br>2. Confermare con ↵. | **EXIT FROM SETUP 2**<br>1. Press ▲ to change the flashing value, **Y** to exit and save the settings, **N** to exit without saving, **C** to continue scrolling Setup 2 pages.<br>2. Confirm with ↵. |

## PAGINE INFO
## *INFO PAGES*

**I** - ITALIANO

Fino a 7 pagine visualizzabili con le informazioni seguenti:
1. Rel. firmware metrologico (rel1)
2. Rel. firmware interfaccia utente (rel2)
3. Checksum parte metrologica (CS1)
4. Checksum interfaccia utente (CS2)
5. Tipo di comunicazione
6. Valore di fondoscala del secondario TA (FSA)
7. Modalità d'inserzione impostata (solo mod. IR e M-BUS)

La quinta pagina, che mostra il tipo di comunicazione, cambia a seconda del modulo di comunicazione abbinato al dispositivo oppure a seconda del modello di dispositivo (vedi tabella). La quinta pagina non viene visualizzata in caso di modello IR senza modulo di comunicazione abbinato.

**GB** - ENGLISH

*Up to 7 pages can be displayed to show details about:*
1. *Metrological firmware release (rel1)*
2. *User interface firmware release (rel2)*
3. *Metrological part checksum (CS1)*
4. *User interface checksum (CS2)*
5. *Communication type*
6. *CT secondary full scale value (FSA)*
7. *Set wiring mode (only IR & M-BUS models)*

*The fifth page, which shows communication type, can change according to the communication module combined to the device or the device model (see table). The fifth page is not displayed in case of IR model not combined with communication module.*

| **COMUNICAZIONE** *COMMUNICATION* | **INFORMAZIONE VISUALIZZATA SULLA PAGINA INFO** *DETAIL DISPLAYED ON THE INFO PAGE* |
|---|---|
| RS485 MODBUS | Modbus |
| M-BUS | Mbus |
| ETHERNET | Lan → modulo LAN GATEWAY abbinato al dispositivo IR / *LAN GATEWAY module combined with IR device*<br>Eth → dispositivo con comunicazione ETHERNET integrata / *device with integrated ETHERNET communication* |

## CARATTERISTICHE TECNICHE
## *TECHNICAL FEATURES*

Le caratteristiche tecniche possono variare a seconda del modello di dispositivo.
*The technical features can change according to the device model.*

| **I** - ITALIANO | **GB** - ENGLISH | |
|---|---|---|
| **GENERALI** | ***GENERAL*** | |
| Custodia conforme alla normativa | *Housing in compliance with standard* | **DIN 43880** |
| Morsetti conformi alla normativa | *Terminals in compliance with standard* | **EN 60999** |
| **ALIMENTAZIONE** | ***POWER SUPPLY*** | |
| Autoalimentato, tensione derivata dal circuito di misura | *Power supplied from the voltage circuit* | **-** |
| Range di alimentazione | *Voltage range* | **3x230/400...3x240/415 V ±20%** |
| Consumo massimo (per fase) per modelli IR e M-BUS | *Max consumption (for each phase) for IR & M-BUS models* | **7,5 VA - 0,5 W** |
| Consumo massimo (per fase) per modelli RS485 MODBUS e ETHERNET | *Max consumption (for each phase) for RS485 MODBUS & ETHERNET models* | **3,5 VA - 1 W** |
| Carico TA (per fase) | *CT burden (for each phase)* | **0,04 VA** |
| Frequenza nominale | *Nominal frequency* | **50/60 Hz** |
| **CORRENTE** | ***CURRENT*** | |
| Corrente massima $I_{max}$ | *Maximum current $I_{max}$* | **6 A** |
| Corrente di riferimento $I_{ref}$ ($I_b$) | *Reference current $I_{ref}$ ($I_b$)* | **1 A** |
| Corrente di transizione $I_tr$ | *Transitional current $I_{tr}$* | **50 mA** |
| Corrente minima $I_{min}$ | *Minimum current $I_{min}$* | **10 mA** |
| Corrente di avviamento $I_{st}$ | *Starting current $I_{st}$* | **2 mA** |
| **TRASFORMATORE DI CORRENTE E FSA** | ***CURRENT TRANSFORMER AND FSA*** | |
| Rapporto TA minimo | *Minimum CT ratio* | **1** |
| Rapporto TA massimo | *Maximum CT ratio* | **10000** |
| FSA programmabile | *FSA programmable* | **1 or 5 A** |
| **PRECISIONE** | ***ACCURACY*** | |
| Energia attiva classe B conforme alla | *Active en. class B in compliance with* | **EN 50470-3 (MID)** |
| Energia attiva classe 1 conforme alla | *Active en. class 1 in compliance with* | **EN 62053-21 (NO MID)** |
| Energia reattiva classe 2 conforme alla | *Reactive en. class 2 in compliance with* | **EN 62053-23** |
| **COMUNICAZIONE** per modello RS485 MODBUS | ***COMMUNICATION for RS485 MODBUS model*** | |
| Conforme alla normativa | *In compliance with standard* | **EIA RS485** |
| Porta isolata | *Isolated port* | **RS485** |
| Unit load | *Unit load* | **1/8** |
| Protocolli | *Protocols* | **MODBUS RTU/ASCII** |
| Velocità di comunicazione | *Communication speed* | **300...57600 bps** |
| **COMUNICAZIONE** per modello M-BUS | ***COMMUNICATION for M-BUS model*** | |
| Conforme alla normativa | *In compliance with standard* | **EN 13757-1-2-3** |
| Porta isolata | *Isolated port* | **M-BUS** |
| Unit load | *Unit load* | **1** |
| Protocollo | *Protocol* | **M-BUS** |
| Velocità di comunicazione | *Communication speed* | **300...9600 bps** |
| **COMUNICAZIONE** per modello ETHERNET | ***COMMUNICATION for ETHERNET model*** | |
| Conforme alla normativa | *In compliance with standard* | **IEEE 802.3** |
| Porta isolata | *Isolated port* | **-** |
| Protocolli | *Protocols* | **MODBUS TCP, HTTP, NTP, DHCP** |
| Velocità di comunicazione | *Communication speed* | **10/100 Mbps** |
| **USCITE S0** | ***S0 OUTPUTS*** | |
| Optoisolate passive | *Passive optoisolated* | **-** |
| Valori massimi (conforme alla normativa EN 62053-31) per modello IR | *Max values (in compliance with EN 62053-31) for IR model* | **250 $V_{AC-DC}$ - 100 mA** |
| Valori massimi (conforme alla normativa EN 62053-31) per mod. RS485 MODBUS, M-BUS, ETHERNET | *Max values (in compliance with EN 62053-31) for RS485 MODBUS, M-BUS, ETHERNET mod.* | **27 $V_{DC}$ - 27 mA** |
| Costante del contatore a seconda del rapporto TA impostato. L'unità di misura (imp/kWh, imp/kvarh, imp/kVAh) cambia a seconda del contatore associato (kWh∑, kvarh∑, kVAh∑). | *Meter constant according to the set CT ratio. The measuring unit (imp/kWh, imp/kvarh, imp/kVAh) changes according to the assigned counter (kWh∑, kvarh∑, kVAh∑).* | **1000 → CT = 1...4**<br>**200 → CT = 5...24**<br>**40 → CT = 25...124**<br>**8 → CT = 125...624**<br>**1 → CT = 625...3124**<br>**0,1 → CT = 3125...10000** |
| Durata impulso | *Pulse length* | **50 ±2ms ON time**<br>**min. 30 ±2ms OFF time** |
| **INGRESSO TARIFFA** [NO modello ETHERNET] | ***TARIFF INPUT*** *[NO ETHERNET model]* | |
| Optoisolato attivo | *Active optoisolated* | **-** |
| Range di tensione per Tariffa 2 (T2) | *Voltage range for Tariff 2 (T2)* | **80...276 $V_{AC-DC}$** |
| **LED METROLOGICO** | ***METROLOGICAL LED*** | |
| Costante del contatore | *Meter constant* | **10000 imp/kWh** |
| **DIAMETRO FILO PER MORSETTI** | ***WIRE DIAMETER FOR TERMINALS*** | |
| Morsetti di misura [A & V] | *Measuring terminals [A & V]* | **1,5 ... 6 mm²** |
| Morsetti uscita S0 / tariffa | *S0 output / tariff terminals* | **0,14 ... 2,5 mm²** |
| **SICUREZZA SECONDO EN 50470-1** | ***SAFETY ACCORDING TO EN 50470-1*** | |
| Classe inquinamento | *Pollution degree* | **2** |
| Classe di protezione (EN 50470-1) | *Protective class (EN 50470-1)* | **II** |
| Prova tensione d'impulso | *Pulse voltage test* | **1,2/50µs 6kV** |
| Prova a tensione AC (EN 50470-3, 7.2) | *AC voltage test (EN 50470-3, 7.2)* | **4 kV** |
| Resistenza della custodia alla fiamma | *Housing material flame resistance* | **UL 94 class V0** |
| **CONDIZIONI AMBIENTALI** | ***ENVIRONMENTAL CONDITIONS*** | |
| Ambiente meccanico | *Mechanical environmental* | **M1** |
| Ambiente elettromagnetico | *Electromagnetic environmental* | **E2** |
| Temperatura di funzionamento | *Operating temperature* | **-25°C ... +55°C** |
| Temperatura di stoccaggio | *Storage temperature* | **-25°C ... +75°C** |
| Umidità relativa [senza condensa] | *Humidity [without condensation]* | **max 80%** |
| Ampiezza vibrazioni sinusoidali | *Sinusoidal vibration amplitude* | **50 Hz ±0,075 mm** |
| Grado di protezione parte frontale (garantito solo in caso di installazione in un quadro con almeno grado di protezione IP51) | *Protection degree - frontal part (granted only in case of installation in a cabinet with at least IP51 protection degree)* | **IP51** |
| Grado di protezione morsetti | *Protection degree - terminals* | **IP20** |
| USO INTERNO | *INTERNAL USE* | **-** |

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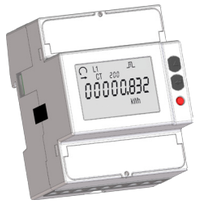
ISO 9001:2008

# S534-6
# S504C-6

6A Dreiphasiger Energiezähler - *6A three phase energy counter*

1MSOEM15X001

Änderungen vorbehalten.
*Subject to change without prior notice.*



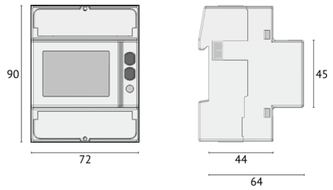
**D** - BEDIENUNGSANLEITUNG

**GB** - USER MANUAL

**⚠ ACHTUNG!**
**Geräte-Installation, Verdrahtung und Klemmenabdeckung Dicht dürfen nur durch qualifiziertes Fachpersonal durchgeführt werden. Vor jeder Tätigkeit am Gerät muß die Versorgung getrennt werden.**

***⚠ WARNING!***
***Device installation, wiring configuration and terminal cover sealing must be carried out only by qualified professional staff. Switch off the voltage before device installation.***

## ABMESSUNGEN (mm)
## *SIZE (mm)*

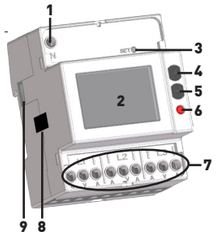



## VERFÜGBARE AUSFÜHRUNGEN
## *AVAILABLE MODELS*

| **Name** *Name* | **Modell/Port** *Model/Port* | **Verfügbare Anschluß** (z.B. 3.4.3=3Phasen,4Leiter,3IW) *Available wirings (e.g. 3.4.3=3phases,4wires,3CTs)* 3.4.3 | 3.3.3 | 3.3.2 | **Tarifeing.** *Tariff in.* | **S0 Ausg.** *S0 outputs* | **MID Eich.** *MID cert.* |
|---|---|---|---|---|---|---|---|
| S534-6 | IR | ● | ● | ● | 1 | 2 | |
| S504C-6-MBU | M-BUS | ● | ● | ● | 1 | 1 | |
| S504C-6-MOD | RS485 MODBUS | ● | | | 1 | 1 | |
| S504C-6-ETH | ETHERNET | ● | | | | 1 | |
| S534-6-MID | IR | ● | ● | ● | 1 | 2 | ● |
| S504C-6-MBU-MID | M-BUS | ● | ● | ● | 1 | 1 | ● |
| S504C-6-MOD-MID | RS485 MODBUS | ● | | | 1 | 1 | ● |
| S504C-6-ETH-MID | ETHERNET | ● | | | | 1 | ● |

In allen Modellen dürfen die Teilzähler rückgesetzt werden.
*In all device models partial counters are resettable.*

## ÜBERSICHT
## *OVERVIEW*




**D** - DEUTSCH

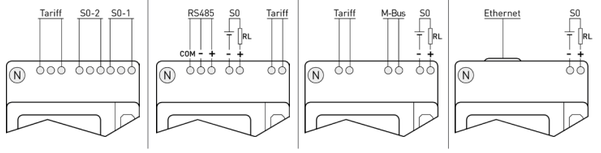
1. Neutralklemme
2. LCD Display Hintergrundbeleuchtung
3. SET Taste
4. UP Taste
5. ENTER Taste
6. Messtechnische LED
7. Strom- und Spannungsklemmen
8. Sicherheitsaufkleber (DARF NICHT ENTFERNT WERDEN)
9. IR Schnitt. - **nur bei IR Modell**

**GB** - ENGLISH

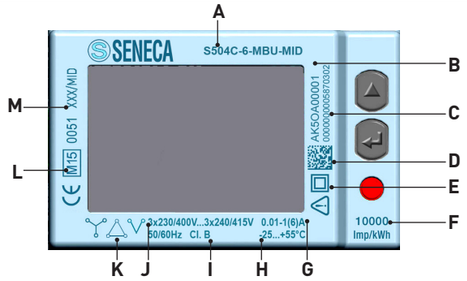
1. *Neutral terminal*
2. *Backlight LCD display*
3. *SET key*
4. *UP key*
5. *ENTER key*
6. *Metrological LED*
7. *Current and voltage terminals*
8. *Safety-sealing (DO NOT REMOVE)*
9. *IR port* - ***only IR model***

Die Sicherheitsaufkleber und die plombierbare Klemmenabdeckung sind nur mit MID-Zähler enthalten.
*The safety-sealing and the sealable terminal covers are included only with MID certified counters.*

| IR | RS485 MODBUS | M-BUS | ETHERNET |
|---|---|---|---|




## SYMBOLE AUF FRONTSEITE (BEISPIELE)
## *SYMBOLS ON FRONT PANEL (EXAMPLE)*




**D** - DEUTSCH

A. Gerätenamen
B. Seriennummer
C. Sekundäradresse für M-BUS Modell.
Für RS485 MODBUS Modell: Feld leer
Für ETHERNET Modell: MAC Adresse
D. Data Matrix
E. Schutzart
F. Integrationskonstante (Messtechnische LED)
G. Grundstromwert (Max Strom)
H. Arbeitstemperaturbereich
I. Genauigkeitsklasse
J. Nennspannung/Frequenz
K. Anschlußbild: Y =3Phasen 4Leiter 3IW, Δ =3Phasen 3Leiter 3IW, V=3Phasen 3Leiter 2IW
L. MID Eichung Symbol
M. Homologationsnummer

Bei den nicht MID zugelassenen Zählern werden die Felder I, L, und M durch "CL.1 EN 62053-21" ersetzt.

**GB** - ENGLISH

A. *Device name*
B. *Serial number*
C. *Secondary address for M-BUS model.*
*For IR or RS485 MODBUS model: field empty*
*For ETHERNET model: MAC address*
D. *Data Matrix*
E. *Protection class*
F. *Meter constant (metrological LED)*
G. *Base current (max current)*
H. *Working temperature*
I. *Accuracy class*
J. *Nominal voltage/frequency*
K. *Wiring type:* Y =3phases 4wires 3CTs, Δ =3phases 3wires 3CTs, V=3phases 3wires 2CTs
L. *MID approval symbols*
M. *Type approval certification*

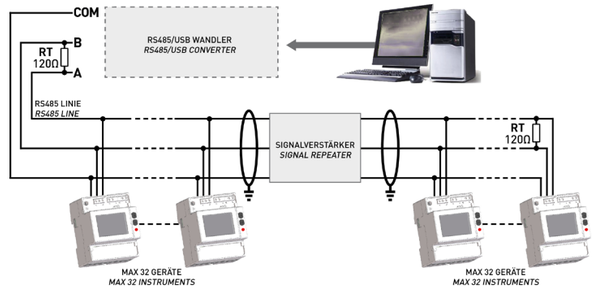
*If the device is NO MID version, "CL.1 EN 62053-21" will be shown instead of I, L and M fields.*

## RS485 SCHNITTSTELLE
## *RS485 PORT*

**Die RS485 Schnittstelle ist je nach Gerätetyp vorhanden.**
***The RS485 port is available according to the device model.***

Die RS485 Schnittstelle dient zur lokalen oder Fernverwaltung mit einem MODBUS RTU/ASCII Protokoll. In einem Gerätenetzwerk soll einen Endwiederstand (RT=120...150 Ω) an der RS485 Wandlerseite und einen anderen an dem letzen im Netz angeschlossenen Gerät angeschlossen werden. Die maximale empfohlene Länge ist 1200m auf 9600bps. Bei längeren Abständen werden eine langsamere Kommunikationsgeschwindigkeit (bps), oder Signalverstärker erfordert. Beziehen Sie sich auf das folgende Bild.

*The RS485 port allows to manage the device by MODBUS RTU/ASCII protocol. For device network connection, install a terminal resistance (RT=120... 150 Ω) on the RS485 converter side and another one on the last device connected on the line. The maximum recommended distance for a connection is 1200m at 9600 bps. For longer distances, lower communication speed (bps), low-attenuation cables or signal repeaters are needed. Refer to the following scheme.*

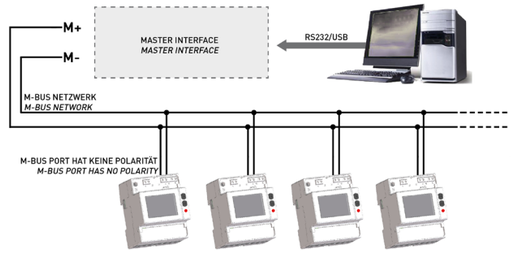



## M-BUS SCHNITTSTELLE
## *M-BUS PORT*

**Die M-BUS Schnittstelle ist je nach Gerätetyp vorhanden.**
***The M-BUS port is available according to the device model.***

Der M-BUS-Schnittstelle erlaubt es, das Gerät mit M-BUS-Protokoll zu verwalten. Zwischen PC und M-Bus Netzwerk ist ein Masterschnittstelle zur Anpassung der RS232/USB zum M-Bus Netzwerk erfordert. Die Anzahl der anzuschliessenden Geräte hängt von der angewendenten Master ab. Die Verdrahtung unter der verschiedenen Module soll mit geschilderten gedrehten Kabel durchgeführt werden. Beziehen Sie sich auf das folgende Bild.

*The M-BUS port allows to manage the device by M-BUS protocol. A master interface is required between PC and the M-Bus network to adapt RS232/USB port to network. The maximum number of devices to be connected can change according to the used master interface. For the connection among the different devices, use a cable with a twisted pair and a third wire. Refer to the following scheme.*



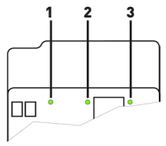

**Das Gerät kann kommunizieren, wenn mindestens 2 Spannungsphasen verbunden sind.**
***The device can communicate when at least 2 voltage phases are connected.***

## ETHERNET SCHNITTSTELLE
## *ETHERNET PORT*

**Die ETHERNET Schnittstelle ist je nach Gerätetyp vorhanden.**
***The ETHERNET port is available according to the instrument device.***

**Der mitgelieferte Ferrit auf dem Ethernetleiter max 5 cm vom Gerät entfernt einbauen. Achten Sie darauf, dass die Leiter 2 Mal auf den Ferrit gewindet wird.**
Die Ethernet Schnittstelle dient zur Verwaltung der Geräte mit allen an einem Ethernet / Internet angeschlossenen Netzwerk. In dem Browser Web Feld soll die Adresse **192.168.1.249** angegeben werden, dann wird die Weboberfläche des Gerätes dargestellt. Die Weboberfläche wurde für zwei unterschiedliche Zugangsniveau entwickelt: **Administrator**, der den ganzen Zugang zum Gerät hat (**Benutzername: admin, Passwort: admin**) und **Benutzer**, der einen beschränkten Zugang zum Gerät hat (**Benutzername: user, Passwort: user**).

***Install the included ferrite on the Ethernet cable at a maximum 5 cm distance from the device. Make sure that the Ethernet cable is rolled twice inside the ferrite.***
*The ETHERNET port gives the possibility to manage the device by any PC connected on the ETHERNET/Internet network. In the browser web address field type **192.168.1.249**, the device Web server will be displayed. Web server has been designed for two user type, **Administrator** for full device access **(username: admin, password: admin)**, and **User** for limited device access **(username: user, password: user)**.*




**D** - DEUTSCH

1. **LED STATUS**: Kommunikationsstatus; LANGSAM BLINKEND=interne Kommunikation ok, AN= laufendes Anschalten oder Upgrade, SCHNELL BLINKEND=interner Kommunikationsfehler
2. **LED SPD**: Kommunikationsgeschwindigkeit; AUS=10 Mbps, AN=100 Mbps
3. **LED LINK**: link activity; AN=link ok, BLINKEND=link activity

**GB** - ENGLISH

1. ***STATUS LED****: communication status; SLOW BLINKING=internal comm. ok, ON=switching on or upgrading in progress, FAST BLINKING=internal comm. error*
2. ***SPD LED****: communication speed; OFF=10 Mbps, ON=100 Mbps*
3. ***LINK LED****: link activity; ON=link ok, BLINKING=link activity*

## TARIFEINGANG
## *TARIFF INPUT*

**Der Tarifeingang ist je nach Gerätetyp vorhanden.**
***The tariff input is available according to the device model.***

Das Tarifmanagement wird durch den Anschluß eines externen Gerätes realisiert, dass ein Signal an den Zähler sendet. Das Signal kann am Tarifeingang folgendes bewirken:
- bei einem spannungsfreien Signal (0 V) erhöhen sich die Zählerstände am Tarif 1
- bei einem spannungsführenden Signal (der Wert wird bei den "Technische Daten" angegeben) erhöhen sich die Zählerstände am Tarif 2

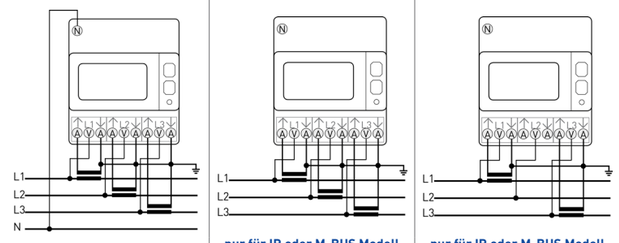
Bemerkung: Die Gesamtzählerstände erhöhen sich ständig unabhängig vom Status des Tarifeingangs.

*The tariff management is carried out by connecting an external device to tariff input, which is providing a signal to the energy counter. The tariff signal is managed as follows:*
- *if the tariff input detects a voltage free signal [0 V], the device will increase the tariff 1 counters group*
- *if the tariff input detects a voltage signal [see Technical features], the device will increase the tariff 2 counters group*

*Note: Total counters increase continuously regardless from the tariff input status.*

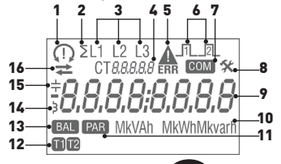
## ANSCHLUSSBILDER
## *WIRING DIAGRAMS*

| **3 PHASEN, 4 LEITER, 3 IW** *3 PHASES, 4 WIRES, 3 CTS* | **3 PHASEN, 3 LEITER, 3 IW** *3 PHASES, 3 WIRES, 3 CTS* | **3 PHASEN, 3 LEITER, 2 IW** *3 PHASES, 3 WIRES, 2 CTS* |
|---|---|---|




## ANZEIGENSYMBOLE
## *SYMBOLS ON DISPLAY*

**Die Anzeigensymbole sind je nach Gerätetyp vorhanden.**
***The display symbols are available according to the device model.***




**D** - DEUTSCH

1. Phasenfolge:
richtige (123)
falsche (132)
undefinierte (z.B. eine oder zwei Phasen fehlen)
2. Systemwerte
3. Phasenanzahl
4. Verschiedenen Bedeutungen gemäß der Anzeige:
- CT XXXX: Wert des Stromwandlerverhältnis
- SEC: im Hauptbereich angezeigt Sekundärwert
- SEtUP: Einstellseite
- InFO: Infoseite
5. Beschädigten metrologischen Parameter (Code: XX). Der Zähler ist unnutzbar und soll sofort an der Hersteller retouriert werden
6. Status des aktiven S0 Ausgangs S0-1 / S0-2
7. Laufende Kommunikation
8. Einstellseite
9. Hauptanzeigefeld
10. Messeinheitsfeld
11. Teilzählerwerte. Blinkend=Zähler gestoppt
12. Zählerwert der Tarif 1 oder 2
13. Symmetrischer Zählerwert
14. Induktivwert
15. Kapazitivwert
16. Bezogener (→), gelieferter (←) Leistungs- oder Energiewert

**GB** - ENGLISH

1. *Phase sequence:*
*correct (123)*
*wrong (132)*
*not defined (e.g. one or more phases are missing)*
2. *System value*
3. *Value phase number*
4. *Different meanings according to the shown item:*
- *CT XXXX: CT ratio value*
- *SEC: secondary value shown in the main area*
- *SEtUP: Setup page*
- *InFO: Info page*
5. *Metrological parameters corrupted (Code: XX). Useless counter, to be returned to the Manufacturer*
6. *S0-1 / S0-2 output active status*
7. *Communication active status*
8. *Setup page*
9. *Main area*
10. *Measuring unit area*
11. *Partial counter value. Flashing=stopped counter*
12. *1 or 2 tariff counter value*
13. *Balance counter value*
14. *Inductive value*
15. *Capacitive value*
16. *Imported (→), exported (←) energy or power value*

## MESSUNGEN
## *MEASUREMENTS*

**Die Parameter sind je nach Gerätetyp vorhanden.**
***The parameters are available according to the device model.***

| | **SYMBOL** *SYMBOL* | **MESSEINHEIT** *MEASURE UNIT* | **ANZEIGE** *DISPLAY* | **PORT** *PORT* |
|---|---|---|---|---|
| **ECHTZEITWERTE** *INSTANTANEOUS VALUES* | | | | |
| Spannung (Phase-Phase) *Voltage* | V∑, V1, V2, V3 | V | | ● |
| Außenleiterspannung (Phase-0) *Line voltage* | V12, V23, V31 | V | | ● |
| Strom *Current* | I∑, I1, I2, I3, IN | A | | ■ |
| Leistungsfaktor *Power factor* | PF∑, PF1, PF2, PF3 | | | ● |
| Scheinleistung *Apparent power* | S∑, S1, S2, S3 | VA | ■ | ■ |
| Wirkleistung *Active power* | P∑, P1, P2, P3 | W | ■ | ■ |
| Blindleistung *Reactive power* | Q∑, Q1, Q2, Q3 | var | ■ | ■ |
| Frequenz *Frequency* | f | Hz | | ● |
| Phasenfolge *Phase sequence* | CW / CCW | | ● | ● |
| Leistungsrichtung *Power direction* | → ← | | ● | |
| **GESPEICHERTEN ANGABEN** *RECORDED DATA* | | | | |
| Gesamtwirkenergie *Total active energy* | ∑, L1, L2, L3 | Wh | ■ | ■ |
| Gesamtblindenergie ind. und kap. *Total ind. and cap. reactive energy* | ∑, L1, L2, L3 | varh | ■ | ■ |
| Gesamtscheinenergie ind. und kap. *Total ind. and cap. apparent energy* | ∑, L1, L2, L3 | VAh | ■ | ■ |
| Energiezähler Tarif T1/T2 (NO ETHERNET Modell) *T1/T2 tariff energy counters (NO ETHERNET model)* | ∑, L1, L2, L3 | Wh, varh, VAh | ■ | ■ |
| Rücksetzbare Energieteilzähler Resettable partial energy counters | ∑ | Wh, varh, VAh | ■ | ■ |
| Energiebilanz *Energy balance* | ∑ | Wh, varh, VAh | ■ | ■ |

**In der ETHERNET Ausführung können alle Parameter gespeichert werden.**
***In case of ETHERNET model, all parameters can be recorded.***

| **WEITERE ANGABEN** *OTHER INFORMATION* | **SYMBOL** *SYMBOL* | **WERT/STAND** *VALUE/STATUS* | **ANZEIGE** *DISPLAY* | **PORT** *PORT* |
|---|---|---|---|---|
| Aktuelle Tarif (NO ETHERNET Modell) *Present tariff (NO ETHERNET model)* | T | 1/2 | | ● |
| Sekundärwerte *Secondary values* | SEC | ON/OFF | ● | ● |
| Stromwandlerverhältnis *CT ratio* | CT | Einstellter Wert Set value | ● | ● |
| Spannung über / unter der Grenze *Undervoltage/overvoltage* | VOL, VUL | ON/OFF | | ● |
| Strom über / unter der Grenze *Undercurrent/overcurrent* | IOL, IUL | ON/OFF | | ● |
| Frequenz außerhalb des Bereichs *Frequency out of range* | $f_{OUT}$ | ON/OFF | | ● |
| Teilzähler *Partial counters* | PAR | START/STOP | ● | ● |
| S0-Ausgang Status *S0 output status* | 1 2 | Active/Not active | ● | |

**Bedeutung:** ● = Standard ■ = Bidirektionalwert
***Legend:*** ● = *Standard* ■ = *Bidirectional value*

Der Messeinheit kann ein Multiplikator haben: k (kilo) oder M (Mega). Der Zähler wird es automatisch abhängig von dem eingestellten Stromwandlerverhältnis anzeigen. Alle Systemzähler [Wh∑, varh∑, VAh∑] an S0-Ausgang zugeordnet werden. In der Ausführung mit 2 S0-Ausgänge (IR Modell), ist es nicht möglich, den selben Zählerstand für beide Ausgänge auszuwählen.
**ANMERKUNG: bei einer 3 Leiter Anschluss werden die Werte der Ph-N Spannungen, der Neutralstrom, der Phasenleistungen, der Phasenleistungsfaktor und aller Zählerstände nicht angezeigt.**

*The measuring unit can be displayed with k (kilo) or M (Mega) multiplier. The used multiplier is automatically selected by the counter according to the set CT ratio. All the system counters [Wh∑, varh∑, VAh∑] can be associated to S0 output. In case of 2 S0 outputs (IR model), it is not allowed to set the same counter for both outputs.*
***NOTE: in case of 3 wire connection, phase-neutral voltages, neutral current, phase powers, phase power factors parameters and all phase counters are not available.***

## BILANZZÄHLERWERTE BERECHNUNG
## *BALANCE COUNTER VALUE CALCULATION*

| **BILANZZÄHLER** *BALANCE COUNTER* | **FORMEL** *FORMULA* |
|---|---|
| kWh | (→kWh T1) – (←kWh T1) + (→kWh T2) – (←kWh T2) |
| kVAh ind | (→kVAh ind T1) – (←kVAh ind T1) + (→kVAh ind T2) – (←kVAh ind T2) |
| kVAh cap | (→kVAh cap T1) – (←kVAh cap T1) + (→kVAh cap T2) – (←kVAh cap T2) |
| kvarh ind | (→kvarh ind T1) – (←kvarh ind T1) + (→kvarh ind T2) – (←kvarh ind T2) |
| kvarh cap | (→kvarh cap T1) – (←kvarh cap T1) + (→kvarh cap T2) – (←kvarh cap T2) |

## TASTENFUNKTIONEN
## *KEY FUNCTIONS*

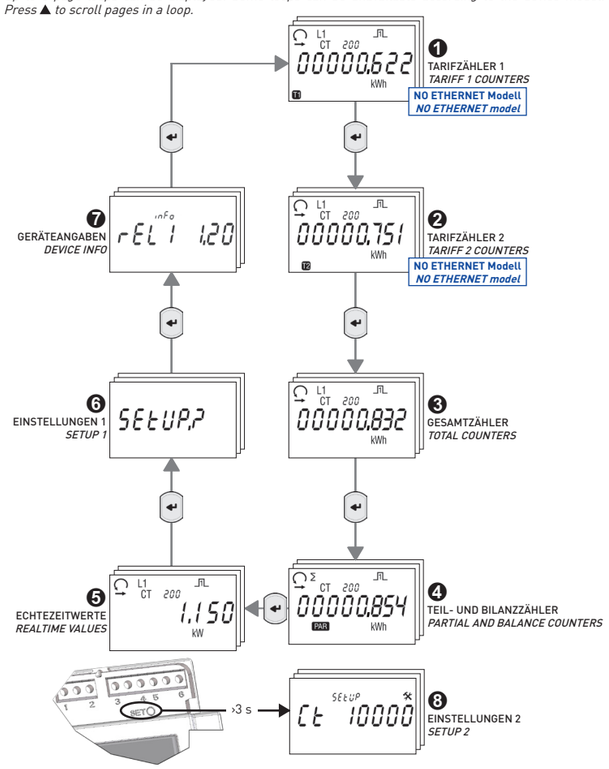
| **FUNKTION** *HOW TO* | **WO** *WHERE* | **TASTE** *KEY* | **WIE LANGE** *PRESS TIME* |
|---|---|---|---|
| Gruppe blättern *Scroll loops* | Jede Seite außer der Einstellung 1/2 *Any page except for Setup 1/2* | ↵ | Sofort *Instantaneous* |
| Die Seiten einer Gruppe blättern *Scroll pages in a loop* | Jede Seite einer Gruppe *Any loops page* | ▲ | Sofort *Instantaneous* |
| Sekundärwertanzeige für 10 s *Display secondary value for 10 s* | Jede Zählerseite *Any energy counter page* | ↵ | >3 s |
| Zugang zu den Einstellseiten 1 *Access Setup 1 pages* | "Setup?" Seite *"Setup?" page* | ↵ | >3 s |
| Zugang zu den Einstellseiten 2 *Access Setup 2 pages* | Jede Seite außer der Einstellung 1 *Any page except for Setup 1* | SET | >3 s |
| Einen Wert ändern *Change a value/digit* | Einstellseite 1/2 *Setup 1/2 pages* | ▲ | Sofort *Instantaneous* |
| Bestätigung eines Wertes / Anzahl *Confirm a value/digit* | Einstellseite 1/2 *Setup 1/2 pages* | ↵ | Sofort *Instantaneous* |
| Ausgang aus der Einstellseiten 1/2 *Exit Setup 1/2 pages* | Einstellseite 1/2 *Setup 1/2 pages* | ↵ | >3 s |
| Den angezeigten Teilzähler starten / sperren *Start/stop the displayed partial counter* | Teilzählerseiten *Partial counters pages* | ↵+▲ | Sofort *Instantaneous* |
| Den angezeigten Teilzähler rücksetzen Reset the displayed partial counter value | Teilzählerseiten *Partial counters pages* | ↵+▲ | >3 s |
| Displaytest *Display test* | Jede Seite außer der Einstellung 1/2 *Any page except for Setup 1/2* | ↵+▲ | >10 s |

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## ANZEIGE REIHENFOLGE
## *PAGE STRUCTURE*

Bis zu 8 Seitengruppe können angezeigt werden. Einige Gruppe können je nach Gerätetyp nicht vorhanden sein. Mit der Taste ▲ werden die Seiten einer Gruppe geblättert.

*Up to 8 page loops can be displayed. Some loops can be unavailable according to the device model. Press ▲ to scroll pages in a loop.*



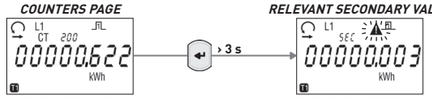

**ANMERKUNG: bei einer 3-Leiter Anschluss werden die Anzeigeseiten der Phasenwerte abwesend sein.**
***NOTE: in case of 3 wire connection, pages showing phase values are not available.***

## SEKUNDÄRWERTE ANZEIGEN
## *HOW TO DISPLAY THE COUNTER SECONDARY VALUE*

Funktion verfügbar nur in den Gruppen 1 bis 4 siehe Abbild oben. Durch Drücken der Taste ↵ für 3 s werden die gemessenen Stromwandlersekundärwerte im Display angezeigt. Zum Durchblättern der Energiewerte wird auf den Abschnitt "Anzeige Reihenfolge" verwiesen. Nach 10 s ohne Tastenbetätigung wird der Zähler die Stromwandlerprimärwerte nochmals anzeigen.

*Feature available only on counter pages. By pressing ↵ key for 3 s, CT secondary measurements will be shown on display. To scroll energy values, refer to section "Page structure". After 10 s keyboard idle, the counter will shown again CT primary data.*

**ZÄHLERSEITE** / ***COUNTERS PAGE*** — **ENSPRECHENDER SEKUNDÄRWERT** / ***RELEVANT SECONDARY VALUE***

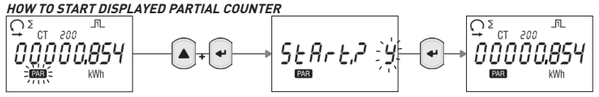



Auf der Seite mit dem Sekundärwert wird das Stromwandlerverhältnis durch **SEC** ersetzt.
*On the secondary value page, **SEC** is displayed instead of CT ratio value.*

## TEILZÄHLER STARTEN/SPERREN/RÜCKSETZEN
## *HOW TO START / STOP / RESET PARTIAL COUNTERS*

Die Funktion ist nur bei der Teilzähleranzeige verfügbar.
*Feature available only on partial counter pages.*

**DEN ANGEZEIGTEN TEILZÄHLER STARTEN**
***HOW TO START DISPLAYED PARTIAL COUNTER***




**SPERREN DER FRÜHER GESTARTETEN TEILZÄHLER**
***HOW TO STOP DISPLAYED PARTIAL COUNTER PREVIOUSLY STARTED***




**DEN ANGEZEIGTEN TEILZÄHLER RÜCKSETZEN**
***HOW TO RESET DISPLAYED PARTIAL COUNTER***




Bei den Seiten **START?**, **STOP?**, **RESET?**, können: **Y**=zur Bestätigung oder **N**=zum Beenden ausgewählt werden. Die Taste ▲ dient zur Wertände.
*In **START?**, **STOP?**, **RESET?** pages, selectable items are: **Y**=to confirm, **N**=to cancel. To change item, press ▲.*

## EINSTELLSEITEN 1
## *SETUP 1 PAGES*

| | **D** - DEUTSCH | **GB** - ENGLISH |
|---|---|---|
| SEtuP,? | **ZUGANGSSEITE ZUM MENÜ EINSTELLUNGEN 1** | ***SETUP 1 ACCESS PAGE*** |
| > 3 s | | |
| Addr 01 | **MODBUS ADRESSE (01...F7 Hex)**<br>**Verfügbar nur bei MODBUS Kommunikation**<br>1. Durch Drücken der Taste ↵ blinkt die erste Ziffer.<br>2. Die Taste ▲ zur Wertänderung drücken.<br>3. Mit der Taste ↵ bestätigen.<br>4. Die Punkte 2 und 3 zur Einstellung der darauffolgenden Stelle wiederholen. | ***MODBUS ADDRESS (01...F7 Hex)***<br>***Available only in case of MODBUS communication***<br>1. *Press ↵, the first digit will start to flash.*<br>2. *Press ▲ to change the value.*<br>3. *Confirm with ↵.*<br>4. *Repeat points 2 and 3 for the next digit.* |
| APri 250 | **M-BUS PRIMÄRADRESSE (0...250)**<br>**Verfügbar nur bei M-BUS Kommunikation**<br>1. Durch Drücken der Taste ↵ blinkt die erste Ziffer.<br>2. Die Taste ▲ zur Wertänderung drücken.<br>3. Mit der Taste ↵ bestätigen.<br>4. Die Punkte 2 und 3 zur Einstellung der darauffolgenden Stelle wiederholen. | ***M-BUS PRIMARY ADDRESS (0...250)***<br>***Available only in case of M-BUS communication***<br>1. *Press ↵, the first digit will start to flash.*<br>2. *Press ▲ to change the value.*<br>3. *Confirm with ↵.*<br>4. *Repeat points 2 and 3 for the other digits.* |
| ASEC ... | **M-BUS SEKUNDÄRADRESSE (0...99999999)**<br>**Verfügbar nur bei M-BUS Kommunikation**<br>1. Durch Drücken der Taste ↵ blinkt die erste Ziffer.<br>2. Die Taste ▲ zur Wertänderung drücken.<br>3. Mit der Taste ↵ bestätigen.<br>4. Die Punkte 2 und 3 zur Einstellung der darauffolgenden Stelle wiederholen. | ***M-BUS SECONDARY ADDRESS (0...99999999)***<br>***Available only in case of M-BUS communication***<br>1. *Press ↵, the first digit of the secondary address will start to flash.*<br>2. *Press ▲ to change the flashing value.*<br>3. *Confirm with ↵.*<br>4. *Repeat points 2 and 3 for the other digits.* |
| 00000001 | | |
| bAud 38,4 k | **KOMMUNIKATIONSGESCHWINDIGKEIT**<br>**Verfügbar nur bei MODBUS oder M-BUS Kommunikation**<br>1. Durch Drücken der Taste ↵ blinkt der Wert.<br>2. Die Taste ▲ zur Wertänderung drücken.<br>3. Mit der Taste ↵ bestätigen. | ***COMMUNICATION SPEED***<br>***Available only in case of MODBUS or M-BUS communication***<br>1. *Press ↵, the value will start to flash.*<br>2. *Press ▲ to change the value.*<br>3. *Confirm with ↵.* |
| COM rtu | **MODBUS MODUS (RTU=8N1, ASCII=7E2)**<br>**Verfügbar nur bei M-BUS Kommunikation**<br>1. Durch Drücken der Taste ↵ blinkt der Modus.<br>2. Die Taste ▲ zur Modusänderung drücken.<br>3. Mit der Taste ↵ bestätigen. | ***MODBUS MODE (RTU=8N1, ASCII=7E2)***<br>***Available only in case of MODBUS communication***<br>1. *Press ↵, the item will start to flash.*<br>2. *Press ▲ to change the item.*<br>3. *Confirm with ↵.* |
| Eth SdEF | **RÜCKSTELLEN DER ETHERNET AN DER WERKSEINSTELLUNGEN (Werkseinstellung: IP=192.168.1.249, Benutzername=admin, Passwort: admin)**<br>**Verfügbar nur bei ETHERNET Modell**<br>1. Durch Drücken der Taste ↵ wird eine Bestätigung angefordert.<br>2. Die Taste ▲ zur Änderung des blinkenden Wertes drücken: **Y** zur Bestätigung des rücksetzens und **N** zum beenden.<br>3. Mit der Taste ↵ bestätigen. | ***ETHERNET PARAMETERS SET DEFAULT (Default parameters: IP=192.168.1.249, Username=admin, Password: admin)***<br>***Available only in case of ETHERNET model***<br>1. *Press ↵, a new page for confirmation will be displayed.*<br>2. *Press ▲ to change the flashing value, **Y** to confirm the reset, **N** to cancel.*<br>3. *Confirm with ↵.* |
| ConF,? Y | | |
| Σ S0-1 kWh | **S0 ZUGEWIESENER ZÄHLERSTÄND**<br>1. Durch Drücken der Taste ↵ blinken die Zähleridentifizierung (z.B. →, kWh).<br>2. Die Taste ▲ zur Änderung der zugewiesenen Zählerstand drücken.<br>3. Mit der Taste ↵ bestätigen.<br>4. In der Ausführung mit 2 S0-Ausgänge (IR Modell), die Taste ▲ drücken, um die S0-2 Seite anzuzeigen. Das gleiche Verfahren von S0-1 Ausgang wiederholen. | ***COUNTER ASSIGNED TO S0 OUTPUT***<br>1. *Press ↵, the items which identify the counter (e.g. →, kWh) will start to flash.*<br>2. *Press ▲ to change the counter to be assigned to the S0-1 output.*<br>3. *Confirm with ↵.*<br>4. *In case of 2 S0 outputs (IR model), press ▲ to display the S0-2 page and repeat the same procedure made for S0-1 output.* |
| rES ALL PAR | **ALLE TEILZÄHLER ZU RÜCKSETZEN**<br>1. Durch Drücken der Taste ↵ wird eine Bestätigung angefordert.<br>2. Die Taste ▲ zur Änderung des blinkenden Wertes drücken: **Y** zur Bestätigung des rücksetzens und **N** zum beenden.<br>3. Mit der Taste ↵ bestätigen. | ***ALL PARTIAL COUNTERS RESET***<br>1. *Press ↵, a new page for confirmation will be displayed.*<br>2. *Press ▲ to change the flashing value, **Y** to confirm the reset, **N** to cancel.*<br>3. *Confirm with ↵.* |
| ConF,? Y | | |
| > 3 s | **IN ALLEN EINSTELLSEITE 1** | ***ON ANY SETUP 1 PAGE*** |
| SAUE,? Y | **AUSGANG AUS EINSTELLANZEIGEN 1**<br>1. Die Taste ▲ zur Änderung des blinkenden Wertes drücken: **Y** zum Verlassen mit Speicherung der Änderungen, **N** zum Verlassen ohne Speicherung und **C** zum weiter blättern im Menü Einstellungen 1.<br>2. Mit der Taste ↵ bestätigen. | ***EXIT FROM SETUP 1***<br>1. *Press ▲ to change the flashing value, **Y** to exit and save the settings, **N** to exit without saving, **C** to continue scrolling Setup 1 pages.*<br>2. *Confirm with ↵.* |

## EINSTELLSEITEN 2
## *SETUP 2 PAGES*

Die Taste SET mindestens 3 s drücken, um das Menu Einstellungen 2 aufzurufen.
*To access setup 2 pages, keep SET key pressed for at least 3 seconds.*

| | **D** - DEUTSCH | **GB** - ENGLISH |
|---|---|---|
| Ct 10000 | **WANDLERFAKTORVERHÄLTNIS (1...10000)**<br>1. Durch Drücken der Taste ↵ blinkt die erste Ziffer.<br>2. Die Taste ▲ zur Wertänderung drücken.<br>3. Mit der Taste ↵ bestätigen.<br>4. Die Punkte 2 und 3 zur Einstellung der darauffolgenden Stelle wiederholen. | ***CT RATIO VALUE (1... 10000)***<br>1. *Press ↵, the first digit will start to flash.*<br>2. *Press ▲ to change the value.*<br>3. *Confirm with ↵.*<br>4. *Repeat points 2 and 3 for the other digits.* |
| FSA 5 | **SEKUNDÄRSTROM (1, 5 A)**<br>1. Durch Drücken der Taste ↵ blinkt der Wert.<br>2. Die Taste ▲ zur Wertänderung drücken.<br>3. Mit der Taste ↵ bestätigen. | ***CT FULL SCALE VALUE (1, 5 A)***<br>1. *Press ↵, the value will start to flash.*<br>2. *Press ▲ to change the value.*<br>3. *Confirm with ↵.* |
| UJir 3.4.3 | **ANSCHLUSSBILD**<br>**Verfügbar nur bei IR oder M-BUS Modell**<br>**3.4.3 = 3 Phasen, 4 Leiter, 3 IW**<br>**3.3.3 = 3 Phasen, 3 Leiter, 3 IW**<br>**3.3.2 = 3 Phasen, 3 Leiter, 2 IW**<br>1. Durch Drücken der Taste ↵ blinkt der Modus.<br>2. Die Taste ▲ zur Modusänderung drücken.<br>3. Mit der Taste ↵ bestätigen. | ***WIRING DIAGRAM***<br>***Available only in case of IR or M-BUS mod.***<br>***3.4.3 = 3 phases, 4 wires, 3 CTs***<br>***3.3.3 = 3 phases, 3 wires, 3 CTs***<br>***3.3.2 = 3 phases, 3 wires, 2 CTs***<br>1. *Press ↵, the wiring mode will start to flash.*<br>2. *Press ▲ to change the mode.*<br>3. *Confirm with ↵.* |
| > 3 s | **IN ALLEN EINSTELLSEITE 2** | **ON ANY SETUP 2 PAGE** |
| SAUE,? Y | **AUSGANG AUS EINSTELLANZEIGEN 2**<br>1. Die Taste ▲ zur Änderung des blinkenden Wertes drücken: **Y** zum Verlassen mit Speicherung der Änderungen, **N** zum Verlassen ohne Speicherung und **C** zum weiter blättern im Menü Einstellungen 2.<br>2. Mit der Taste ↵ bestätigen. | **EXIT FROM SETUP 2**<br>1. Press ▲ to change the flashing value, **Y** to exit and save the settings, **N** to exit without saving, **C** to continue scrolling Setup 2 pages.<br>2. Confirm with ↵. |

## INFO SEITEN
## *INFO PAGES*

**D** - DEUTSCH

Bis zu 7 Seiten können vorhanden sein:
1. Messtechnische Firmwarestand (rel1)
2. Benutzeroberfläche Firmwarestand (rel2)
3. Messtechnische Prüfsumme (CS1)
4. Benutzeroberfläche Prüfsumme (CS2)
5. Kommunikationstyp
6. Endskalenwert des Sekundärstromwandlers (FSA)
7. Eingestelltes Anschlussbild (nur für IR/M-BUS Modell)

Die fünfte Seite, die die Kommunikationseinstellungen betrifft, ändert sich abhängig von dem angekoppelten Gerät oder der Geräteausführung (siehe Tabelle). Die fünfte Seite ist nicht für IR-Modell ohne Kommunikationsmodul angezeigt.

**GB** - ENGLISH

*Up to 7 pages can be displayed to show details about:*
1. *Metrological firmware release (rel1)*
2. *User interface firmware release (rel2)*
3. *Metrological part checksum (CS1)*
4. *User interface checksum (CS2)*
5. *Communication type*
6. *CT secondary full scale value (FSA)*
7. *Set wiring mode (only IR & M-BUS models)*

*The fifth page, which shows communication type, can change according to the communication module combined to the device or the device model (see table). The fifth page is not displayed in case of IR model not combined with communication module.*

| **KOMMUNIKATION** / ***COMMUNICATION*** | **ANGABEN AUF DIE INFO SEITE** / ***DETAIL DISPLAYED ON THE INFO PAGE*** |
|---|---|
| RS485 MODBUS | Modbus |
| M-BUS | Mbus |
| ETHERNET | Lan → IR Modell mit LAN GATEWAY Module / *LAN GATEWAY module combined with IR device*<br>Eth → ETHERNET Modell / *device with integrated ETHERNET communication* |

## TECHNISCHE EIGENSCHAFTEN
## *TECHNICAL FEATURES*

**Die technischen Eigenschaften ändern sich je nach Gerätetyp.**
***The technical features can change according to the device model.***

| **D** - DEUTSCH | **GB** - ENGLISH | |
|---|---|---|
| **ALLGEMEIN** | *GENERAL* | |
| Gehäuse gemäß Richtlinie | *Housing in compliance with standard* | **DIN 43880** |
| Klemmen gemäß Richtlinie | *Terminals in compliance with standard* | **EN 60999** |
| **HILFSSPANNUNG** | *POWER SUPPLY* | |
| Hilfspannung wird vom Messkreis aufgenommen | *Power supplied from the voltage circuit* | **-** |
| Hilfspannungsbereich | *Voltage range* | **3x230/400...3x240/415 V ±20%** |
| Max Verbrauch (je Phase) für IR und M-BUS Modelle | *Max consumption (for each phase) for IR & M-BUS models* | **7,5 VA - 0,5 W** |
| Max Verbrauch (je Phase) für RS485 MODBUS und ETHERNET Modelle | *Max consumption (for each phase) for RS485 MODBUS & ETHERNET models* | **3,5 VA - 1 W** |
| Wandler Bürde (je Phase) | *CT burden (for each phase)* | **0,04 VA** |
| Nennfrequenz | *Nominal frequency* | **50/60 Hz** |
| **STROM** | *CURRENT* | |
| Maximalstrom $I_{max}$ | *Maximum current $I_{max}$* | **6 A** |
| Bezugstrom $I_{ref}$ ($I_b$) | *Reference current $I_{ref}$ ($I_b$)* | **1 A** |
| Übergangsstrom $I_t$ | *Transitional current $I_t$* | **50 mA** |
| Minimalstrom $I_{min}$ | *Minimum current $I_{min}$* | **10 mA** |
| Einschaltungsstrom $I_{st}$ | *Starting current $I_{st}$* | **2 mA** |
| **STROMWANDLER STROMENDSKALAWERT** | *CURRENT TRANSFORMER AND FSA* | |
| Mind. Stromwandlerverhältnis | *Minimum CT ratio* | **1** |
| Max. Stromwandlerverhältnis | *Maximum CT ratio* | **10000** |
| Einstellbarer Endskalawert | *FSA programmable* | **1 or 5 A** |
| **GENAUIGKEIT** | *ACCURACY* | |
| Wirkenergie Klasse B gemäß | *Active en. class B in compliance with* | **EN 50470-3 (MID)** |
| Wirkenergie Klasse 1 gemäß | *Active en. class 1 in compliance with* | **EN 62053-21 (NO MID)** |
| Blindenergie Klasse 2 gemäß | *Reactive en. class 2 in compliance with* | **EN 62053-23** |
| **KOMMUNIKATION für RS485 MODBUS Modell** | *COMMUNICATION for RS485 MODBUS model* | |
| Gemäß | *In compliance with standard* | **EIA RS485** |
| Isolierteschnittstelle | *Isolated port* | **RS485** |
| Unit load | *Unit load* | **1/8** |
| Protokolle | *Protocols* | **MODBUS RTU/ASCII** |
| Kommunikationsgeschwindigkeit | *Communication speed* | **300...57600 bps** |
| **KOMMUNIKATION für M-BUS Modell** | *COMMUNICATION for M-BUS model* | |
| Gemäß | *In compliance with standard* | **EN 13757-1-2-3** |
| Isolierteschnittstelle | *Isolated port* | **M-BUS** |
| Unit load | *Unit load* | **1** |
| Protokolle | *Protocol* | **M-BUS** |
| Kommunikationsgeschwindigkeit | *Communication speed* | **300...9600 bps** |
| **KOMMUNIKATION für ETHERNET Modell** | *COMMUNICATION for ETHERNET model* | |
| Gemäß | *In compliance with standard* | **IEEE 802.3** |
| Isolierteschnittstelle | *Isolated port* | **-** |
| Protokolle | *Protocols* | **MODBUS TCP, HTTP, NTP, DHCP** |
| Kommunikationsgeschwindigkeit | *Communication speed* | **10/100 Mbps** |
| **S0 AUSGÄNGE** | *S0 OUTPUTS* | |
| Passivoptoisolierte | *Passive optoisolated* | **-** |
| Max Werte (gemäß der Richtlinie EN 62053-31) für IR Modell | *Max values (in compliance with EN 62053-31) for IR model* | **250 $V_{AC-DC}$ - 100 mA** |
| Max Werte (gemäß der Richtlinie EN 62053-31) für RS485 MODBUS, M-BUS, ETHERNET Modelle | *Max values (in compliance with EN 62053-31) for RS485 MODBUS, M-BUS, ETHERNET mod.* | **27 $V_{DC}$ - 27 mA** |
| Zählerkonstante entsprechend der eingestellten Wandlerverhältnis. Die Messeinheit (imp/kWh, imp/kvarh, imp/kVAh) ändert sich entsprechend der zugeordneten Zähler (kWh∑, kvarh∑, kVAh∑). | *Meter constant according to the set CT ratio. The measuring unit (imp/kWh, imp/kvarh, imp/kVAh) changes according to the assigned counter (kWh∑, kvarh∑, kVAh∑).* | **1000 → CT = 1...4**<br>**200 → CT = 5...24**<br>**40 → CT = 25...124**<br>**8 → CT = 125...624**<br>**1 → CT = 625...3124**<br>**0,1 → CT = 3125...10000** |
| Impulsdauer | *Pulse length* | **50 ±2ms ON time**<br>**min. 30 ±2ms OFF time** |
| **TARIFEINGANG** (NO ETHERNET Modell) | ***TARIFF INPUT** (NO ETHERNET model)* | |
| Aktivoptoisolierte | *Active optoisolated* | **-** |
| Hilfspannungsbereich für Tarif 2 (T2) | *Voltage range for Tariff 2 (T2)* | **80...276 $V_{AC-DC}$** |
| **MESSTECHNISCHE PRÜF-LED** | *METROLOGICAL LED* | |
| Zählerkonstante | *Meter constant* | **10000 imp/kWh** |
| **ANSCHLIESSBARER LEITER** | *WIRE DIAMETER FOR TERMINALS* | |
| Messeingänge (A & V) | *Measuring terminals (A & V)* | **1,5 ... 6 mm²** |
| S0 / Tarifausgänge | *S0 output / tariff terminals* | **0,14 ... 2,5 mm²** |
| **SICHERHEIT GEMÄß EN 50470-1** | *SAFETY ACCORDING TO EN 50470-1* | |
| Verschmutzungsgrad | *Pollution degree* | **2** |
| Schutzklasse (EN 50470-1) | *Protective class (EN 50470-1)* | **II** |
| Impulsspannungsprüfung | *Pulse voltage test* | **1,2/50µs 6kV** |
| AC Spannungsprüfung (EN 50470-3, 7.2) | *AC voltage test (EN 50470-3, 7.2)* | **4 kV** |
| Gehäuse Flammbeständigkeit | *Housing material flame resistance* | **UL 94 class V0** |
| **UMGEBUNGSBEDINGUNGEN** | *ENVIRONMENTAL CONDITIONS* | |
| Mechanische Umgebungsbedingungen | *Mechanical environmental* | **M1** |
| Elektromagnetische Umgebungsbedingungen | *Electromagnetic environmental* | **E2** |
| Betriebstemperaturbereich | *Operating temperature* | **-25°C ... +55°C** |
| Lagertemperaturbereich | *Storage temperature* | **-25°C ... +75°C** |
| Relative Luftfeuchte (ohne Kondensation) | *Humidity (without condensation)* | **max 80%** |
| Sinusförmiger Vibrationsumfang | *Sinusoidal vibration amplitude* | **50 Hz ±0,075 mm** |
| Schutzgrad – Frontseite (gewährleistet nur bei Installation in einem Schaltschrank mit mindestens Schutzart IP51) | *Protection degree - frontal part (granted only in case of installation in a cabinet with at least IP51 protection degree)* | **IP51** |
| Klemmenschutzart | *Protection degree - terminals* | **IP20** |
| **INTERNE ANWENDUNG** | *INTERNAL USE* | **-** |

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