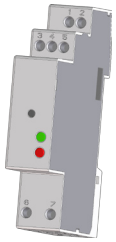
SENECA s.r.l.
Via Austria, 26 - 35127 - PADOVA - ITALY
Tel. +39.049.8705355 - 8705359 - Fax +39.049.8706287
e-mail: info@seneca.it - www.seneca.it

S500-MOD

Modulo di comunicazione RS485 - *RS485 communication module*

1MSNEC485001

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



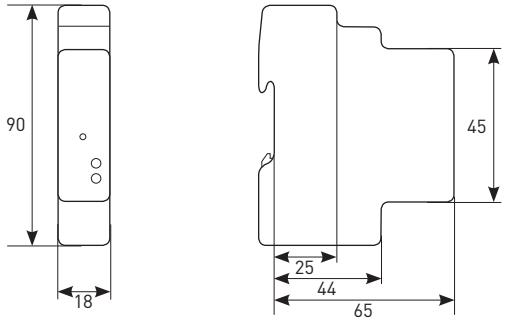
I - MANUALE D'USO

GB - USER MANUAL

⚠ ATTENZIONE!
L'installazione e l'utilizzo dello strumento devono essere effettuate esclusivamente da personale qualificato. Togliere la tensione prima di intervenire sullo strumento.

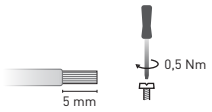
⚠ WARNING!
Device installation and use must be carried out only by qualified staff.
Switch off the voltage before device installation.

DIMENSIONI (mm)
SIZE (mm)



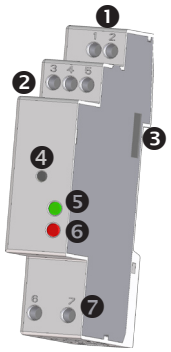
LUNGHEZZA SPELATURA DEI FILI
CABLE STRIPPING LENGTH

Collegamento morsetti
Terminals connection



Utilizzare un cacciavite a taglio 0,8x3,5 mm
Use a blade screwdriver with 0.8x3.5 mm size

PANORAMICA
OVERVIEW



I ITALIANO

1. Morsetti da ponticellare per abilitare la resistenza di terminazione (RT)
2. Morsetti per collegamento RS485
3. Porta ottica di comunicazione
4. Tasto SET DEFAULT
5. LED di alimentazione
6. LED di comunicazione
7. Morsetti per alimentazione

GB ENGLISH

1. *Terminals to be jumpered for termination resistor (RT) enabling*
2. *RS485 connection terminals*
3. *Optical COM port*
4. *SET DEFAULT key*
5. *Power supply LED*
6. *Communication LED*
7. *Power supply terminals*

FUNZIONE SET DEFAULT
SET DEFAULT FUNCTION

I ITALIANO

La funzione SET DEFAULT consente di riportare sul modulo le impostazioni di default (es. in caso l'indirizzo MODBUS venga dimenticato).
Per ripristinare le impostazioni di default, tenere premuto per almeno 5 s il tasto SET DEFAULT, il LED di comunicazione lampeggierà verde/rosso per 5 s. Dopo che il modulo ha effettuato la procedura di SET DEFAULT il LED di comunicazione si accenderà rosso continuo per indicare di rilasciare il tasto.

* 8N1=modalità RTU; 7E2=modalità ASCII

GB ENGLISH

SET DEFAULT function allows to restore on the module default settings (e.g. in case of MODBUS address forgotten).
To restore default settings, keep SET DEFAULT key pressed for at least 5 s, communication LED will blink green/red for 5 s. At the end of SET DEFAULT procedure, communication LED will be red continuously indicating to release the key.

** 8N1=RTU mode; 7E2=ASCII mode*

IMPOSTAZIONI ***SETTINGS***	**VALORI DI DEFAULT** ***DEFAULT VALUES***
Velocità di comunicazione RS485 *RS485 communication speed*	38400 bps
Modalità RS485 *RS485 mode*	8N1*
Indirizzo MODBUS *MODBUS address*	01

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FUNZIONAMENTO DEI LED
LEDS FUNCTIONALITY

I due LED sono presenti sul pannello frontale del modulo e consentono di segnalarne lo stato di alimentazione e comunicazione.
Two LEDs are available on the module front panel to provide power supply and communication status.

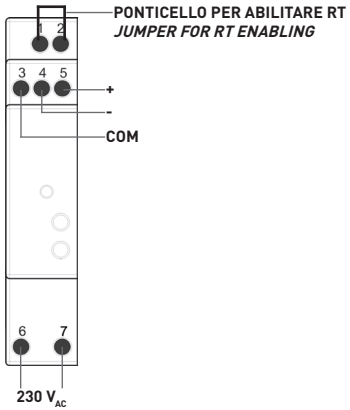
I ITALIANO

COLORE LED	**SEGNALAZIONE**	**SIGNIFICATO**
LED ALIMENTAZIONE		
-	Spento	Modulo spento
VERDE	Sempre acceso	Modulo acceso
LED COMUNICAZIONE		
-	Spento	Modulo spento
VERDE	Lampeggio lento (tempo spegnimento 2 s)	Comunicazione RS485=OK Comunicazione con il contatore=OK
ROSSO	Lampeggio veloce (tempo spegnimento 1 s)	Comunicazione RS485=fallita/mancante Comunicazione con il contatore=OK
ROSSO	Sempre acceso	Comunicazione con il contatore=fallita/mancante
VERDE/ROSSO	Colori alternati per 5 s	Procedura di SET DEFAULT in corso

GB ENGLISH

LED COLOUR	***SIGNALLING***	***MEANING***
POWER SUPPLY LED		
-	*Power OFF*	*The module is OFF*
GREEN	*Always ON*	*The module is ON*
COMMUNICATION LED		
-	*Power OFF*	*The module is OFF*
GREEN	*Slow blink (2 s OFF time)*	*RS485 communication=OK* *Counter communication=OK*
RED	*Fast blink (1 s OFF time)*	*RS485 communication=fault/missing* *Counter communication=OK*
RED	*Always ON*	*Counter communication=fault/missing*
GREEN/RED	*Alternating colours for 5 s*	*SET DEFAULT procedure in progress*

COLLEGAMENTI
CONNECTIONS



I ITALIANO

Tra il PC e la rete RS485 è richiesto un convertitore seriale per adattare la porta RS232/USB alla rete. Se i moduli da collegare sono più di 32, occorre inserire un ripetitore di segnale. Ogni ripetitore può gestire fino a 32 moduli.

Il tipo di collegamento mostrato nella figura utilizza un terzo conduttore collegato al morsetto, per assicurare lo stesso livello di riferimento a tutti i dispositivi di rete. In presenza di forti disturbi elettromagnetici, che possono compromettere la comunicazione, è consigliabile l'utilizzo di un apposito cavo schermato con i due conduttori di segnale "twistati". All'interno del modulo è integrata una resistenza di terminazione (**RT**) che può essere abilitata ponticellando i relativi morsetti. Montare una resistenza di terminazione sul PC ed abilitarla sull'ultimo modulo connesso sulla linea. L'impiego di queste resistenze riduce il segnale riflesso lungo la linea.

La massima lunghezza raccomandata per un collegamento è di circa 1200 m a 9600 bps. Per lunghezze superiori è consigliabile utilizzare baudrate più bassi, cavi con bassa attenuazione o ripetitori di segnale.

Dopo aver effettuato i collegamenti sulla rete RS485, abbinare ogni modulo RS485 ad un singolo contatore: avvicinarli e allinearli perfettamente in modo che le rispettive porte ottiche si fronteggino.

I parametri RS485 possono essere modificati direttamente sul contatore abbinato oppure inviando gli appositi comandi di protocollo MODBUS al modulo.

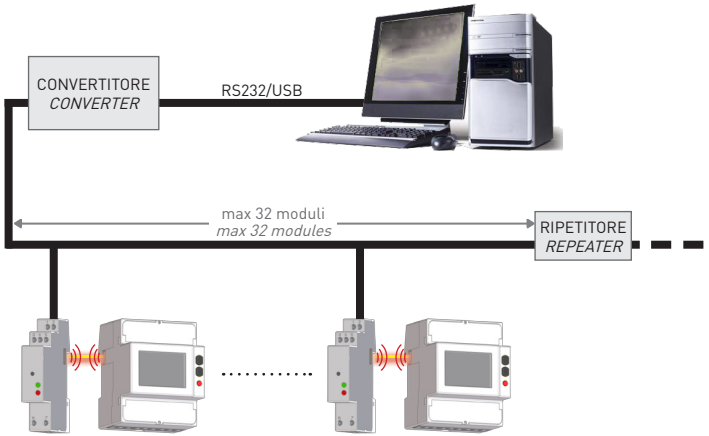
GB ENGLISH

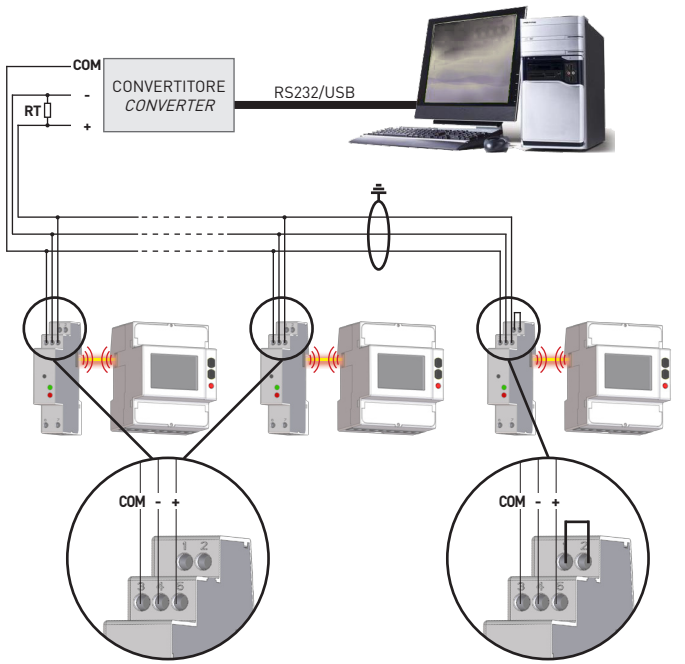
*A serial converter is required between PC and the RS485 network to adapt RS232/USB port to network. If there are more than 32 modules to be connected, insert a signal repeater. Each repeater can manage up to 32 modules. For the connection among the different modules, use a cable with a twisted pair and a third wire. The type of connection shown in the picture uses the third conductor to ensure that all the devices on the network have the same reference level and improve the reliability of communication. When there are strong electromagnetic disturbances, which may affect communication, a shielded cable should be used. The module is integrated with a termination resistor (**RT**) which can be enabled by jumpering the relevant terminals. The termination resistance must be installed on the PC and enabled on the last module connected along the line. Thanks to these resistances, the reflected signal along the line is reduced.*

The maximum recommended distance for a connection is 1200 m at 9600 bps. For longer distances, lower baud rates or low-attenuation cables or signal repeaters are needed.

After making RS485 connections, combine each RS485 module with a single counter: place them side by side, perfectly lined up, with module optical port facing the counter optical port.

RS485 parameters can be changed directly on the combined counter or by sending the proper MODBUS protocol commands to the module.





ABILITARE RT SULL'ULTIMO MODULO CONNESSO SULLA LINEA

ENABLE RT ON THE LAST MODULE CONNECTED TO THE LINE

CARATTERISTICHE TECNICHE
TECHNICAL FEATURES

I ITALIANO

Dati conformi alla normativa EIA RS485.

ALIMENTAZIONE
- Tensione nominale: 230 V_{CA} ±20% / 50 Hz
- Massima tensione ripetitiva: 300 V_{CA}
- Massima tensione di picco non ripetitiva: 320 V_{CA} (20 ms)
- Consumo: max 5 VA
- Fusibile: tipo T, 100 mA (da montare esternamente)

COMUNICAZIONE RS485
- Protocollo: MODBUS RTU (8N1) e ASCII (7E2)
- Porta: RS485
- Velocità di comunicazione: 300...57600 bps
- Resistenza di terminazione integrata nel modulo: 120 Ohm

COMUNICAZIONE SERIALE
- Tipo: porta ottica
- Velocità di comunicazione: 38400 bps

NORME DI CONFORMITA'
- EN61000-6-2 Immunità per ambienti industriali:
- EN61000-4-2 Compatibilità elettromagnetica, EN61000-4-3 Immunità a RF irradiata,
- EN61000-4-4 Immunità al burst/fast transient, EN61000-4-5 Immunità ai surge (Surge),
- EN61000-4-6 Immunità a RF condotta, EN61000-4-11 Immunità ai dips sull'alimentazione AC
- EN55011 classe A: emissioni irradiate, emissioni condotte
- Sicurezza: EN60950

DIAMETRO FILO PER MORSETTI DI CONNESSIONE
- Morsetti: 0,14...2,5 mm²

CONDIZIONI AMBIENTALI
- Temperatura di funzionamento: tra -15°C e +60°C
- Temperatura di stoccaggio: tra -25°C e +75°C
- Umidità relativa: 80% max senza condensa
- Grado di protezione: IP20

GB ENGLISH

Data in compliance with EIA RS485 standard.

POWER SUPPLY
- *Rated voltage: 230 V_{AC} ±20% / 50 Hz*
- *Max repetitive voltage: 300 V_{AC}*
- *Max non repetitive voltage peak: 320 V_{AC} (20 ms)*
- *Consumption: max 5 VA*
- *Fuse: T type, 100 mA (to be mounted externally)*

RS485 COMMUNICATION
- *Protocol: MODBUS RTU (8N1) and ASCII (7E2)*
- *Port: RS485*
- *Communication speed: 300...57600 bps*
- *Termination resistor (RT) integrated in the module: 120 Ohm*

SERIAL COMMUNICATION
- *Type: optical port*
- *Communication speed: 38400 bps*

STANDARDS COMPLIANCE
- *EN61000-6-2 Immunity for industrial environments:*
- *EN61000-4-2 Electrostatic discharge, EN61000-4-3 RF radiated disturbance,*
- *EN61000-4-4 Fast Transient (BURST), EN61000-4-5 Overvoltage (Surge),*
- *EN61000-4-6 RF conducted disturbance, EN61000-4-11 Voltage dips and short interruptions,*
- *EN55011 Class A: radiated emissions, conducted emissions*
- *Safety: EN60950*

DIAMETER WIRE FOR CONNECTION TERMINALS
- *Terminals: 0.14...2.5 mm²*

ENVIRONMENTAL CONDITIONS
- *Operating temperature: between -15°C and +60°C*
- *Storage temperature: between -25°C and +75°C*
- *Humidity: 80% max without condensation*
- *Protection degree: IP20*

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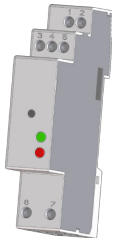
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e-mail: info@seneca.it - www.seneca.it

S500-MOD

RS485 Kommunikationsmodul - *RS485 communication module*

1MSOEC485001

Änderungen vorbehalten.
Subject to change without prior notice.



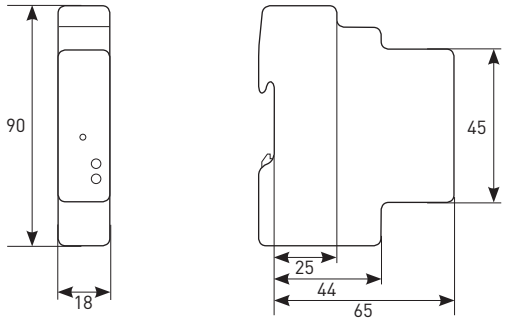
D - BEDIENUNGSANLEITUNG

GB - USER MANUAL

⚠ ACHTUNG!
Die Installation und Inbetriebsnahme des Moduls darf nur von ausgebildeten Fachkräften durchgeführt werden. Vor jeder Tätigkeit am Gerät muß die Versorgung getrennt werden.

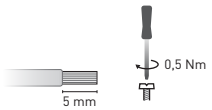
⚠ WARNING!
Device installation and use must be carried out only by qualified staff. Switch off the voltage before device installation.

ABMESSUNGEN (mm)
SIZE (mm)



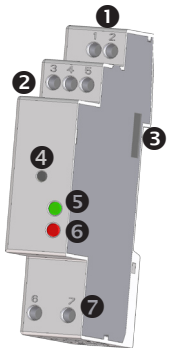
KABELABISOLIERE LÄNGE
CABLE STRIPPING LENGTH

Verdrahtung an den Klemmen
Terminals connection



Ein 0,8x3,5 mm Flachschraubendreher anwenden
Use a blade screwdriver with 0.8x3.5 mm size

ÜBERSICHT
OVERVIEW



D DEUTSCH

1. Klemmen brücken zum Einschlaten des Terminationswiederstandes (RT)
2. Klemmen zum RS485 Anschluss
3. Infrarot-Schnittstelle
4. Taste WERKSEINSTELLUNG
5. LED der Hilfsspannung
6. LED der Kommunikation
7. Hilfspannunsklemmen

GB ENGLISH

1. *Terminals to be jumpered for termination resistor (RT) enabling*
2. *RS485 connection terminals*
3. *Optical COM port*
4. *SET DEFAULT key*
5. *Power supply LED*
6. *Communication LED*
7. *Power supply terminals*

FUNKTION WERKSEINSTELLUNG
SET DEFAULT FUNCTION

D DEUTSCH

Die Funktion WERKSEINSTELLUNG dient zum Rücksetzen aller Einstellungen und stellt die Werkseinstellungen ein (z.B. wenn die MODBUS Adresse vergessen wird).
Um die Werkseinstellung durchzuführen soll die Taste WERKSEINSTELLUNG mindestens 5 s ausgedrückt werden, dann wird das Kommunikationsled Grün/Rot für 5 s blinken. Nach der Werkseinstellung wird das Kommunikationsled ständig Rot sein, damit die Taste erlösen wird.

* 8N1=RTU Modus; 7E2=ASCII Modus

GB ENGLISH

SET DEFAULT function allows to restore on the module default settings (e.g. in case of MODBUS address forgotten).
To restore default settings, keep SET DEFAULT key pressed for at least 5 s, communication LED will blink green/red for 5 s. At the end of SET DEFAULT procedure, communication LED will be red continuously indicating to release the key.

** 8N1=RTU mode; 7E2=ASCII mode*

EINSTELLUNGEN ***SETTINGS***	**WERKSEINSTELLUNGEN** ***DEFAULT VALUES***
RS485 Kommunikationsgeschwindigkeit *RS485 communication speed*	19200 bps
RS485 Modus *RS485 mode*	8N1*
MODBUS Adresse *MODBUS address*	01

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LED FUNKTION
LEDS FUNCTIONALITY

Die zwei LED befinden sich auf die Frontseite des Moduls zur Anzeige des Versorgungs- und Kommunikationsstandes.
Two LEDs are available on the module front panel to provide power supply and communication status.

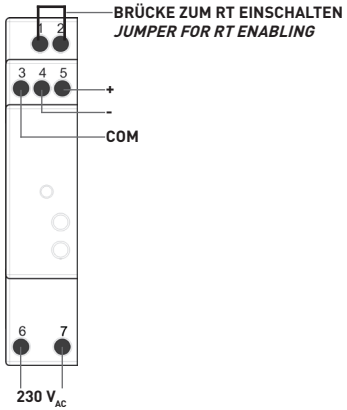
D DEUTSCH

LED FARBE	**MELDUNG**	**BEDEUTUNG**
LED DER HILFSSPANNUNG		
-	Ausgeschaltet	Ausgeschaltetes Modul
GRÜN	Immer angeschaltet	Eingeschaltetes Modul
LED DER KOMMUNIKATION		
-	Ausgeschaltet	Ausgeschaltetes Modul
GRÜN	Langsam blinkend (jede 2 s aus)	RS485 Kommunikation=OK Kommunikation zum Zähler=OK
ROT	Schnell blinkend (jede 1 s aus)	RS485 Kommunikation=fehlende/fehlerhaft Kommunikation zum Zähler=OK
ROT	Immer angeschaltet	Kommunikation zum Zähler=fehlende/fehlerhaft
GRÜN/ROT	Wechselfarben für 5 s	Laufende Werkseinstellung

GB ENGLISH

LED COLOUR	***SIGNALLING***	***MEANING***
POWER SUPPLY LED		
-	*Power OFF*	*The module is OFF*
GREEN	*Always ON*	*The module is ON*
COMMUNICATION LED		
-	*Power OFF*	*The module is OFF*
GREEN	*Slow blink (2 s OFF time)*	*RS485 communication=OK Counter communication=OK*
RED	*Fast blink (1 s OFF time)*	*RS485 communication=fault/missing Counter communication=OK*
RED	*Always ON*	*Counter communication=fault/missing*
GREEN/RED	*Alternating colours for 5 s*	*SET DEFAULT procedure in progress*

VERDRAHTUNG
CONNECTIONS



D DEUTSCH

Zwischen PC und RS485 Netzwerk ist ein Schnittstellenwandler zur Anpassung der RS232/USB zum Netzwerk erfordert. Wenn die anzuschlissenden Module mehr als 32 sind, ist ein Signalrepeater erfordert. Jeder repeter kann bis 32 Geräte verwalten.

Der im Abbild angezeigten Anschluss verfügt über einen dritten Leiter an der Klemme, der das selben Bezugniveau an allen Geräten auf den Netwerk gewährleistet. Bei staken elektromagnetischen Störungen , die die Kommunikation beeinträgtigen können, wird die Anwendung ein zwei geschildeten gedrehten Leiterkabel empfohlen. Das Modul ist mit einem Terminationswiederstand (**RT**) ausgestattet, der beim Brücken der entsprecheden Klemmen eingeschaltet wird. Ein Terminationswiderstamd am PC einbauen, und auf das letze an der Linie angeschlossenen Modul einschalten.

Die maximal empfohlene Länge der Drahte ist 1200 m mit 9600bps. Für längere Netwerke ist es ratsam, einen niedrigeren Baudrate, Kabel mit gerimgerem Dämpfung oder Signalrepeater.

Nachdem das Netwerk verdraht worden ist, jedes RS485 Modul mit den ensprechendem Zähler ankoppeln: die zwei nähern und einreihen, damit die Infrarot-Schnittstelle gegenüber stehen.

Die RS485 Parameter können sowohl am angeschlossenen Zähler als auch beim Versenden der entsprecheden MODBUS Befehle verändert werden.

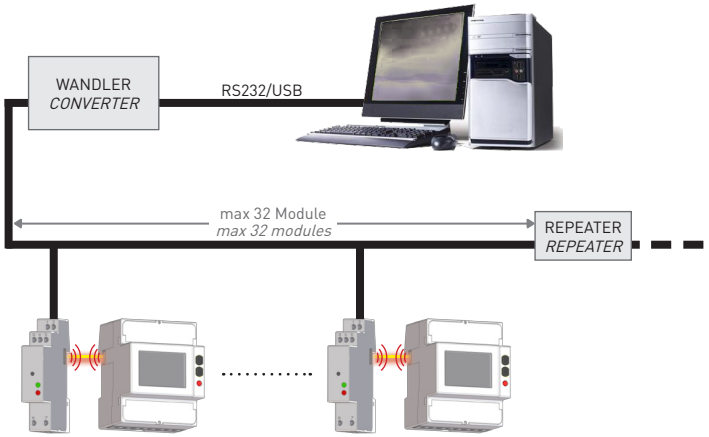
GB ENGLISH

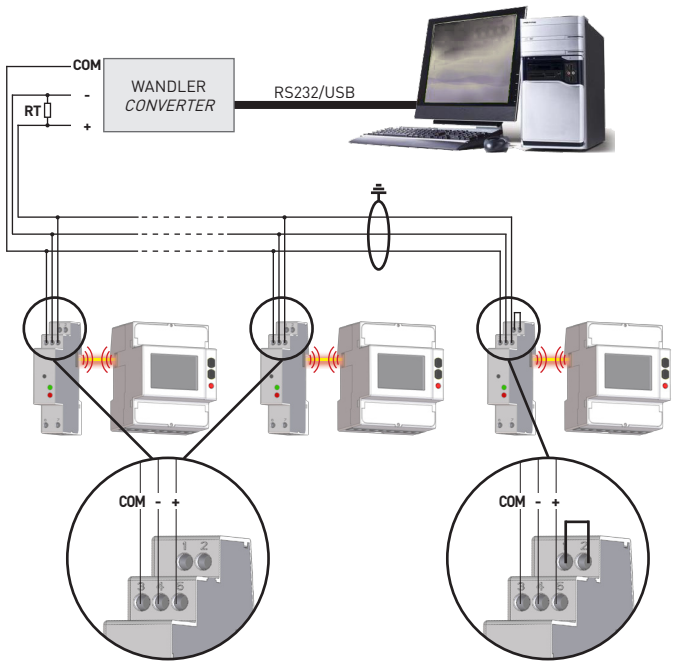
*A serial converter is required between PC and the RS485 network to adapt RS232/USB port to network. If there are more than 32 modules to be connected, insert a signal repeater. Each repeater can manage up to 32 modules. For the connection among the different modules, use a cable with a twisted pair and a third wire. The type of connection shown in the picture uses the third conductor to ensure that all the devices on the network have the same reference level and improve the reliability of communication. When there are strong electromagnetic disturbances, which may affect communication, a shielded cable should be used. The module is integrated with a termination resistor (**RT**) which can be enabled by jumpering the relevant terminals. The termination resistance must be installed on the PC and enabled on the last module connected along the line. Thanks to these resistances, the reflected signal along the line is reduced.*

The maximum recommended distance for a connection is 1200 m at 9600 bps. For longer distances, lower baud rates or low-attenuation cables or signal repeaters are needed.

After making RS485 connections, combine each RS485 module with a single counter: place them side by side, perfectly lined up, with module optical port facing the counter optical port.

RS485 parameters can be changed directly on the combined counter or by sending the proper MODBUS protocol commands to the module.





RT AUF DAS LETZTE AN DER LINIE ANGESCHLOSSENE MODUL EINSCHALTEN

ENABLE RT ON THE LAST MODULE CONNECTED TO THE LINE

TECHNISCHE EIGENSHAFTEN
TECHNICAL FEATURES

D DEUTSCH

Angaben gemäß der Richtlinie EIA RS485.

HILFSSPANNUNG
- Nennspannung: 230 V_{AC} ±20% / 50 Hz
- Max Wiederholspannung: 300 V_{AC}
- Max nicht Wiederholspannung Spitzenwert: 320 V_{AC} (20 ms)
- Verbrauch: max 5 VA
- Vorsicherung: Typ T, 100 mA (extern zu installieren)

RS485 KOMMUNIKATION
- Protokoll: MODBUS RTU (8N1) und ASCII (7E2)
- Schnittstelle: RS485
- Kommunikationsgeschwindigkeit: 300÷115200 bps
- Terminationswiederstan im Modul eingebaut: 120 Ohm

BUSLINIE
- Typ: Infrarot-Schnittstelle
- Kommunikationsgeschwindigkeit: 38400 bps

KONFORMITÄTSERKLÄRUNG
- EN61000-6-2 Störfestigkeit (Industriebereich):
- EN61000-4-2 Elektromagnetische Verträglichkeit, EN61000-4-3 Abgestrahlte RF Störung,
- EN61000-4-4 schnelle Transienten (Burst), EN61000-4-5 Stoßspannungen (Surge),
- EN61000-4-6 leitungsgeführte RF-Signale, EN61000-4-11 Spannungseinbrüche am AC Hilfspannung
- EN55011 Klasse A: Angestrahlte und Ausgeführte Ausstoß
- Sicherheitsbestinnungen: EN60950

ANSCHLIESSBARER LEITER
- Klemmen: 0,14÷2,5 mm^2

UMWELTBEDIENGUNGEN
- Arbeitstemperaturbereich: zwischen -15°C und +60°C
- Lagertemperaturbereich: zwischen -25°C und +75°C
- Relative Luftfeuchte: 80% max ohne Kondensation
- Schutzgrad: IP20

GB ENGLISH

Data in compliance with EIA RS485 standard.

POWER SUPPLY
- *Rated voltage: 230 V_{AC} ±20% / 50 Hz*
- *Max repetitive voltage: 300 V_{AC}*
- *Max non repetitive voltage peak: 320 V_{AC} (20 ms)*
- *Consumption: max 5 VA*
- *Fuse: T type, 100 mA (to be mounted externally)*

RS485 COMMUNICATION
- *Protocol: MODBUS RTU (8N1) and ASCII (7E2)*
- *Port: RS485*
- *Communication speed: 300÷115200 bps*
- *Termination resistor (RT) integrated in the module: 120 Ohm*

SERIAL COMMUNICATION
- *Type: optical port*
- *Communication speed: 38400 bps*

STANDARDS COMPLIANCE
- *EN61000-6-2 Immunity for industrial environments:*
- *EN61000-4-2 Electrostatic discharge, EN61000-4-3 RF radiated disturbance,*
- *EN61000-4-4 Fast Transient (BURST), EN61000-4-5 Overvoltage (Surge),*
- *EN61000-4-6 RF conducted disturbance, EN61000-4-11 Voltage dips and short interruptions,*
- *EN55011 Class A: radiated emissions, conducted emissions*
- *Safety: EN60950*

WIRE DIAMETER FOR CONNECTION TERMINALS
- *Terminals: 0.14÷2.5 mm^2*

ENVIRONMENTAL CONDITIONS
- *Operating temperature: between -15°C and +60°C*
- *Storage temperature: between -25°C and +75°C*
- *Humidity: 80% max without condensation*
- *Protection degree: IP20*

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