



Strumento multifunzione per reti bassa e media tensione 4 moduli

Network monitor for low and medium voltage 4 module

Linea trifase 80...480V (fase - fase)
Linea monofase 45...278V
Rapporto TA e TV esterni programmabile
Energia attiva cl.1

Three-phase network 80...480V (phase - phase)
Single-phase network 45...278V
Programmable external CT - VT ratio
Active energy cl.1

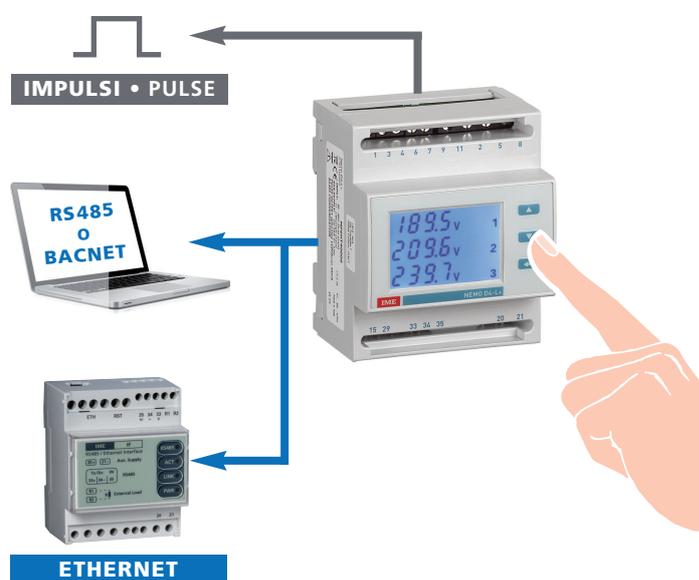
Uscita impulsi
Comunicazione RS485 protocollo ModBus RTU/TCP o BACNET

Pulse output
RS485 communication by ModBus RTU/TCP or BACNET protocols

Interfacce esterne (con RS485 ModBus):
Comunicazione Ethernet (NT801 - NT891)

External interfaces (by RS485 ModBus):
Ethernet communication (NT801 - NT891)

Nemo D4-L+



- ▶ **Tensione di fase e concatenata**
Phase and linked voltage
- ▶ **Corrente di fase e di neutro**
Neutral and phase current
- ▶ **Corrente media e valore max. corrente media**
Current demand and current max. demand
- ▶ **Distorsione armonica Corrente - Tensione**
Current - Voltage harmonic distortion
- ▶ **Frequenza**
Frequency
- ▶ **Fattore di potenza**
Power factor
- ▶ **Potenza attiva, reattiva apparente**
Active, reactive apparent power
- ▶ **Potenza attiva, reattiva di fase**
Active, reactive phase power
- ▶ **Potenza media e valore max. potenza media**
Power demand and power max. demand
- ▶ **Energia attiva e reattiva**
Active and reactive energy
- ▶ **Energia attiva parziale**
Partial active energy
- ▶ **Ore e minuti di funzionamento**
Working hours and minutes
- ▶ **Rilevazione sequenza fasi**
Voltage sequence diagnostic

COD.ORDINAZIONE ORDERING CODE	AL. AUSILIARIA AUX. SUPPLY	USCITA OUTPUT	COMUNICAZIONE COMMUNICATION	INGRESSO INPUT
MF6HTU0003	115V ca/ac	impulsi energia energy pulses	RS485 ModBus RTU	1 + 5A 45...260V monofase single-phase 80...450V trifase three-phase
MF6HTU0006	230 + 240V ca/ac			
MF6HTU000H	20...150Vcc/dc - 48Vca/ac			
MF6HT40003	115V ca/ac	RS485 Bacnet		
MF6HT40006	230 + 240V ca/ac			
MF6HT4000H	20...150V cc/dc - 48V ca/ac			
MF6HTB0003	115V ca/ac			
MF6HTB0006	230 + 240V ca/ac			
MF6HTB000H	20...150Vcc/dc - 48Vca/ac			

LEGENDA:

= Parametro Programmabile
 = Parametro Azzerabile

LEGEND:

= Programmable Parameter
 = Reset Parameter

VISUALIZZAZIONE

Tipo display: cristallo liquido retroilluminato

Contrasto display: 0...10

Punti di lettura: 10.000 (4 cifre)

Unità ingegneristica: visualizzazione automatica in funzione dei rapporti TA e TV impostati

Risoluzione: automatica

Punto decimale: automatico

Aggiornamento lettura: 1,2 secondi

Conteggio energia: numeratore 8 cifre

DISPLAY

Type of display: LCD backlight

Display contrast: 0...10

N° of reading points: 10.000 (4 digits)

Engineering units: automatic display according to the set VT and CT ratios

Resolution: automatic

Decimal point: automatic

Reading update: 1,2 seconds

Energy count: 8 digit counter

PROGRAMMAZIONE

Programmazione parametri: tastiera frontale, 3 tasti

Accesso alla programmazione: protetto da password

Menù programmazione: suddiviso su due livelli

LIVELLO 1

Azzeramenti (energia parziale, picco corrente e potenza media, contaore)

Connessione

Tempo integrazione corrente / potenza media

Comunicazione RS485

Impulsi energia

Contrasto display

LIVELLO 2

Rapporto TA e TV

PROGRAMMING

Parameters programming: front keyboard, 3 keys

Programming access: protected by password

Menu programming: subdivided over 2 levels

LEVEL 1

Resets (partial energy, peak current and power demand, run hour)

Connection

Current delay time and average power

RS485 communication

Energy pulse

Display contrast

LEVEL 2

CT and VT ratio

PAGINE VISUALIZZAZIONE • DISPLAY PAGES

pag.	Trifase 4 fili / Three-phase 4-wire S1000/310 - /358	Trifase 3 fili / Three-phase 3-wire S1000/306 - /307 - /308 - /309 - /357	Monofase / Single-phase S1000/305
1	tensione di fase phase voltage	tensione concatenata linked voltage	tensione + corrente voltage + current
2	corrente di fase phase current	corrente di fase phase current	potenza attiva, reattiva, apparente active, reactive, apparent power
3	tensione concatenata linked voltage	potenza trifase attiva, reattiva, apparente active, reactive, apparent three-phase power	frequenza + fattore di potenza frequency + power factor
4	potenza attiva di fase phase active power	frequenza + fattore di potenza trifase frequency + three-phase power factor	corrente media e media massima current demand and max. current demand
5	potenza reattiva di fase phase reactive power	corrente media di fase phase current demand	potenza media e media massima power demand and power max. demand
6	potenza trifase attiva, reattiva, apparente active, reactive, apparent three-phase power	corrente media massima di fase max. phase current demand	ore e minuti funzionamento working hours and minutes
7	corrente di neutro ¹ + frequenza + fattore di potenza trifase neutral current ¹ + frequency + three-phase power factor	potenza media e media massima power demand and power max. demand	energia attiva active energy
8	corrente media di fase phase current demand	ore e minuti funzionamento working hours and minutes	energia reattiva reactive energy
9	corrente media massima di fase max. phase current demand	energia attiva active energy	energia attiva parziale partial active energy
10	potenza media e media massima power demand and power max. demand	energia reattiva reactive energy	distorsione armonica tensione-corrente voltage-current distortion harmonic
11	ore e minuti funzionamento working hours and minutes	energia attiva parziale partial active energy	
12	distorsione armonica tensione-corrente voltage-current distortion harmonic	distorsione armonica tensione-corrente voltage-current distortion harmonic	
13	energia attiva active energy		
14	energia reattiva reactive energy		
15D	energia attiva parziale partial active energy		

¹Solo per S1000/310

¹Only for S 1000/310

PRECISIONE IN CONFORMITA' CONFORMITY ACCURACY WITH EN/IEC 61557-12			
Energia attiva	Active energy	Ea	cl.1
Energia reattiva	Reactive energy	Erv	cl.2
Tensione	Voltage	U	cl.0,5
Corrente	Current	I	cl.0,5
Potenza attiva	Active power	P	cl.0,5
Potenza reattiva	Reactive power	Qv	cl.0,5
Potenza apparente	Apparent power	Sv	cl.0,5
Frequenza	Frequency	f	± 0,1Hz
THD (fino a 31ª armonica) Singole armoniche	THD (up to 31 st harmonic) Harmonics single	THDu / THDi	cl.1

INGRESSO

Rete: monofase, trifase 3 e 4 fili

Simbolo Symbol	Linea Line	Carico Load	N° TA esterni N°CT external	Schema Wiring	Inserzione Connection
1N1E	Monofase Single-phase	-	1	S 1000/305	
3-1E	Trifase 3 fili 3-phase 3 wires	Equilibrato Balanced	1	S 1000/357	
3N1E	Trifase 4 fili 3-phase 4 wires	Equilibrato Balanced	1	S 1000/358	
3-2E	Trifase 3 fili 3-phase 3 wires	Squilibrato Unbalanced	2	S 1000/306	Aron L1 - L2
3-2E	Trifase 3 fili 3-phase 3 wires	Squilibrato Unbalanced	2	S 1000/307	Aron L1 - L3
3-2E	Trifase 3 fili 3-phase 3 wires	Squilibrato Unbalanced	2	S 1000/308	Aron L2 - L3
3-3E	Trifase 4 fili 3-phase 4 wires	Squilibrato Unbalanced	3	S 1000/309	
3N3E	Trifase 4 fili 3-phase 4 wires	Squilibrato Unbalanced	3	S 1000/310	

Tensione trifase nominale Un: 400V - 100V (fase-fase)

Tensione trifase: 80...480V (fase-fase)

Tensione monofase: 45...278V

Rapporto TV esterno: 1,0...400,0

Corrente nominale In: 1 e 5A

Sovraccarico istantaneo: 20 In/0,5 secondi

Rapporto TA esterno: 1...9999

Limite prodotto rapporti TA x VT: 100.000 (5A) - 400.000 (1A)

Frequenza nominale fn: 50Hz

Variazione ammessa: 47...63Hz

Tipo di misura: vero valore efficace

Contenuto armonico: in accordo con EN/IEC 61557-12 (fino alla 31ª armonica)

Tempo di avviamento (conteggio energia): < 5 secondi

Autoconsumo tensione: ≤ 1VA (per fase)

Autoconsumo corrente: ≤ 0,5VA (per fase)

POTENZA MEDIA / CORRENTE MEDIA

Potenza associata: attiva, reattiva, apparente

Tempo integrazione: 5,8,10,15,20,30,60 minuti

Il tempo selezionato, vale sia per la corrente che per la potenza media

VERIFICA SEQUENZA FASI

Controllo corretto collegamento delle voltmetriche

ALIMENTAZIONE AUSILIARIA

Valore nominale Uaux ca: 48 - 115 - 230V (monofase)

Variazione ammessa: 0,85...1,15Uaux - 40...60V (Uaux 48V)

Frequenza nominale: 50Hz

Frequenza di funzionamento: 47...63Hz

Autoconsumo: ≤ 5VA - 2,5W

Valore nominale Uaux cc: 20...150Vdc

Autoconsumo: ≤ 5W

Protezione contro l'inversione di polarità

COMUNICAZIONE ETHERNET (NT809 - NT891)

Realizzabile solo con i modelli dotati RS485 Modbus + interfaccia IF2E o IF4E (RS485/Ethernet)

INPUT

Network: Single and three-phase network 3 and 4-wire

Three-phase voltage rating: 400V-100V (phase-phase)

Three-phase voltage: 80...480V (phase-phase)

Single-phase voltage: 45...278V

External VT ratio: 1,0...400,0

Current rating In: 1 and 5A

Instantaneous overload: 20In/0,5 seconds

External CT ratio: 1...9999

Limit produced ratios CT x VT: 100.000 (5A) - 400.000 (1A)

Frequency rating fn: 50Hz

Tolerance: 47...63Hz

Type of measurement: true RMS value

Harmonic content: according to EN/IEC 61557-12 (up to 31st harmonic)

Start time (energy count): < 5 seconds

Voltage rated burden: ≤ 1VA (each phase)

Current rated burden: ≤ 0,5VA (each phase)

POWER DEMAND / CURRENT DEMAND

Associated power: attiva, reattiva, apparent

Delay time: 5,8,10,15,20,30,60 minutes

The selected time is valid both for the current and the average power

PHASE SEQUENCE CHECKING

Check the correct connection of the voltmetric

AUXILIARY SUPPLY

Rated value Uaux ac: 48 - 115 - 230V (single phase)

Tolerance: 0,85...1,15Uaux - 40...60V (Uaux 48V)

Rated frequency: 50Hz

Working frequency: 47...63Hz

Rated burden: ≤ 5VA - 2,5W

Rated value Uaux dc: 20...150Vdc

Rated burden: ≤ 5W

Protected against incorrect polarity

ETHERNET COMMUNICATION (NT809 - NT891)

By using only endowed models RS485 output + IF2E or IF4E (RS485/Ethernet) interface

COMUNICAZIONE RS485 MODBUS

Isolata galvanicamente da ingresso e ausiliaria

Standard: RS485 - 3 fili

Trasmissione: asincrona seriale

Protocollo: MODBUS RTU/TCP

 N°- indirizzo: 1...255

Numero bit: 8

Bit di stop: 1

 Bit di parità: nessuna - pari - dispari

 Tempo di attesa prima della risposta: 3...100ms

 Velocità di trasmissione: 4,8 - 9,6 - 19,2 kbit/s

N°- massimo dispositivi collegabili in rete: 32(fino a 255 con ripetitore RS485)

Distanza massima dal supervisore: 1200m

COMUNICAZIONE BACNET

Isolata galvanicamente da ingresso e ausiliaria

Standard: RS485 - 3 fili

Trasmissione: asincrona seriale

Protocollo: BACNET MS-TP

 N°- indirizzo: 0...127

Numero bit: 8

Bit di stop: 1

 Bit di parità: nessuna - pari - dispari

 Velocità di trasmissione: 9,6 - 19,2 - 38,4 - 76,8 kbit/s

 N°- indirizzo di rete: 0...4000

N°- massimo dispositivi collegabili in rete: 32(fino a 127 con ripetitore RS485)

Distanza massima dal supervisore: 1200m

USCITA IMPULSI ENERGIA

Uscita impulsi compatibile con SO EN/IEC 62053-31

Optorelè con contatto SPST-NO libero da potenziale

Portata contatti: 27Vcc/ca - 50mA

 Energia associata: attiva o reattiva

 Peso impulsi: 1 imp/0,1kWh(kvarh) - 1kWh(kvarh) - 10kWh(kvarh) - 100kWh(kvarh)

 Durata impulso: selezionabile 50 - 100 - 200 - 300ms

ISOLAMENTO

(EN/IEC 61010-1)

Categoria di installazione: III

Grado di inquinamento: 2

Tensione di riferimento per l'isolamento: 300V Fase/Neutro

Prova a tensione alternata 4kV valore efficace 50Hz/1min

Circuiti considerati: al. ausiliaria verso tutti gli altri circuiti

Prova a tensione alternata 4kV valore efficace 50Hz/1min

Circuiti considerati: tutti i circuiti e massa

PROVE DI COMPATIBILITA' ELETTROMAGNETICA

Prova di emissione in accordo con EN/IEC 61557-12

Prove di immunità in accordo con EN/IEC 61557-12

CONDIZIONI AMBIENTALI

Temperatura di riferimento: 23°C ± 2°C

Campo di funzionamento specificato: -5...55°C

Campo limite per l'immagazzinamento e trasporto: -25...70°C

Variatione indice di classe: ≤ 0,1% /°C

Adatto all'utilizzo in climi tropicali

Massima potenza dissipata¹: ≤ 6,8W

¹Per il dissipamento termico dei quadri

CUSTODIA

Custodia: 4 moduli DIN 43880

Conessioni: morsetti a vite

Portata morsetti amperometrici: cavo rigido min.0,05mm² / max. 4mm²

cavo flessibile min.0,05mm² / max. 2,5mm²

RS485 MODBUS COMMUNICATION

Galvanically insulated from input and aux. supply

Standard: RS485 - 3 wire

Transmission: serial asynchronous

Protocol: MODBUS RTU/TCP

 Address: 1...255

Bit number: 8

Stop bit: 1

 Parity bit: none - even - odd

 Waiting time before answer: 3...100ms

 Baud rate: 4,8 - 9,6 - 19,2 kbit/s

Meters that can be connected on the bus: 32(up to 255 with RS485 repeater)

Highest distance from supervisor: 1200m

BACNET COMMUNICATION

Galvanically insulated from input and aux. supply

Standard: RS485 - 3 wire

Transmission: serial asynchronous

Protocol: BACNET MS-TP

 Address: 0...127

Bit number: 8

Stop bit: 1

 Parity bit: none - even - odd

 Baud rate: 9,600 - 19,2 - 38,4 - 76,8 kbit/s

 Network address: 0...4000

Meters that can be connected on the bus: 32(up to 127 with RS485 repeater)

Highest distance from supervisor: 1200m

OUTPUT ENERGY PULSE

Pulse output compatible with SO EN/IEC 62053-31

Optorelay with potential-free SPST-NO

Contact range: 27Vdc/ac - 50mA

 Associated energy: active or reactive

 Weight pulses: 1 imp/0,1kWh(kvarh) - 1kWh(kvarh) - 10kWh(kvarh) - 100kWh(kvarh)

 Duration pulse: selectable 50 - 100 - 200 - 300ms

INSULATION

(EN/IEC 61010-1)

Installation category: III

Pollution degree: 2

Insulation voltage rating: 300V Phase/Neutral

A.C. voltage test 4kV r.m.s. 50Hz/1min

Considered circuits: auxiliary supply towards all other circuits

A.C. voltage test 4kV r.m.s. 50Hz/1min

Considered circuits: all circuits and earth

TESTS FOR ELETROMAMAGNETIC COMPATIBILITY

Emission tests according to EN/ IEC 61557-12

Immunity tests according to EN/IEC 61557-12

ENVIRONMENTAL CONDITIONS

Reference temperature: 23°C ± 2°C

Specified operating range: -5...55°C

Limit range for storage and transport: -25...70°C

Variation to the class index: ≤ 0,1% /°C

Suitable for tropical climates

Max. power dissipation¹: ≤ 6,8W

¹For switchboard thermal calculation

HOUSING

Housing: 4 moduli DIN 43880

Connections: screw terminals

Ammetric terminals capacity: rigid cable min.0,05mm² / max. 4mm²

flexible cable min.0,05mm² / max. 2,5mm²

Portata morsetti voltmetrici: cavo rigido min.0,05mm² / max. 4mm²
cavo flessibile min.0,05mm² / max. 2,5mm²

Montaggio: a incastro su profilato 35mm

Tipo profilato: a cappello TH35-15 (EN/IEC 60715)

Materiale custodia: policarbonato autoestinguente

Grado di protezione (EN/IEC 60529): IP52 frontale, IP20 morsetti

Peso: 300 grammi

PORTATA MORSETTI

INGRESSO MISURA

Cavo rigido: min.0,05mm² / max. 4,5mm²

Cavo flessibile: min.0,05mm² / max. 2,5mm²

Coppia serraggio consigliata: 0,5 - 0,8Nm

INGRESSO CORRENTE

Cavo rigido: min.0,05mm² / max. 6mm²

Cavo flessibile: min.0,05mm² / max. 4mm²

Coppia serraggio consigliata: 0,5 - 0,8Nm

ALIMENTAZIONE AUSILIARIA

Cavo rigido: min.0,05mm² / max. 4,5mm²

Cavo flessibile: min.0,05mm² / max. 2,5mm²

Coppia serraggio consigliata: 0,5 - 0,8Nm

USCITE

Cavo rigido: min.0,05mm² / max. 4,5mm²

Cavo flessibile: min.0,05mm² / max. 2,5mm²

Coppia serraggio consigliata: 0,5 - 0,8Nm

Volmetric terminals capacity: rigid cable min. 0,05mm² / max. 4mm²
flexible cable min.0,05mm² / max. 2,5mm²

Mounting: snap-on 35mm rail

Rail type: top hat TH35-15 (EN/IEC 60715)

Housing material: self-extinguishing polycarbonate

Protection degree (EN/IEC 60529): IP52 front frame, IP20 terminals

Weight: 300 grams

TERMINAL CAPACITY

MEASURE INPUT

Rigid cable: min.0,05mm² / max. 4,5mm²

Flexible cable: min.0,05mm² / max. 2,5mm²

Tightening torque advised: 0,5 - 0,8Nm

CURRENT INPUT

Rigid cable: min.0,05mm² / max. 6mm²

Flexible cable: min.0,05mm² / max. 4mm²

Tightening torque advised: 0,5 - 0,8Nm

AUX. SUPPLY

Rigid cable: min.0,05mm² / max. 4,5mm²

Flexible cable: min.0,05mm² / max. 2,5mm²

Tightening torque advised: 0,5 - 0,8Nm

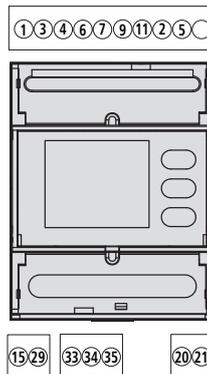
OUTPUT

Rigid cable: min.0,05mm² / max. 4,5mm²

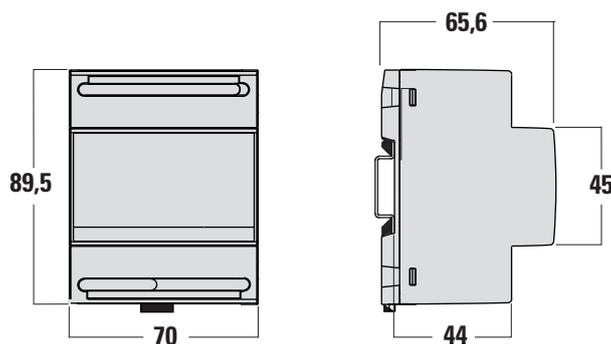
Flexible cable: min.0,05mm² / max. 2,5mm²

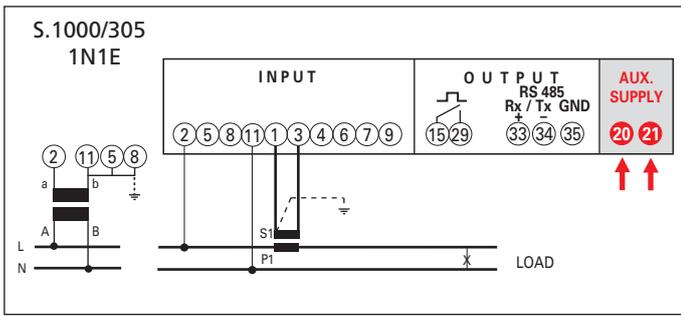
Tightening torque advised: 0,5 - 0,8Nm

POSIZIONE TERMINALI TERMINAL POSITION

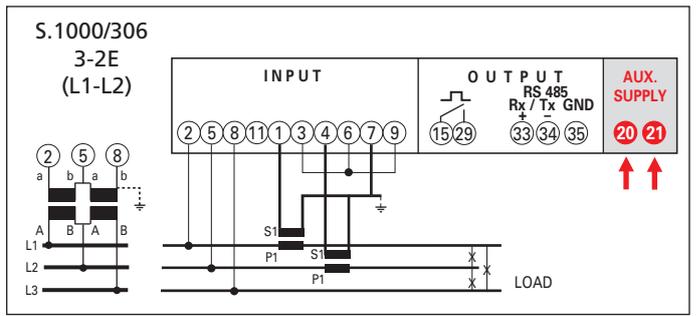


DIMENSIONI DIMENSIONS

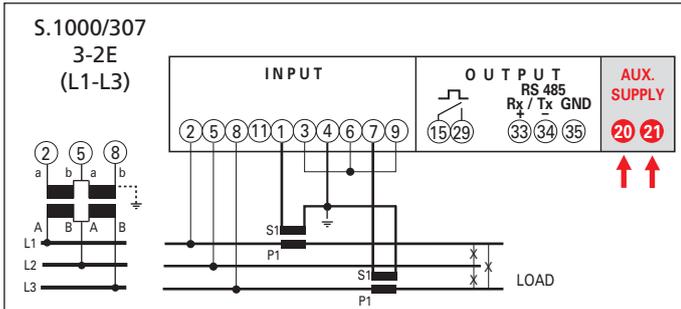




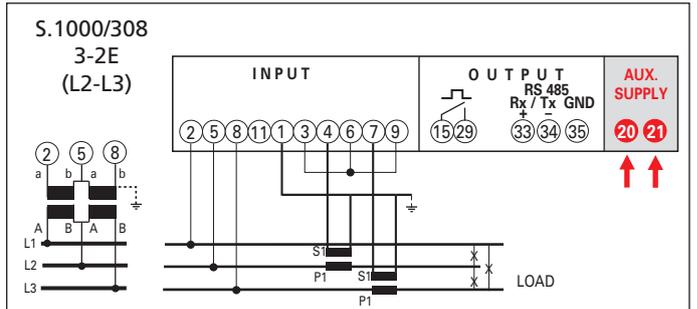
Linea monofase
Single phase network



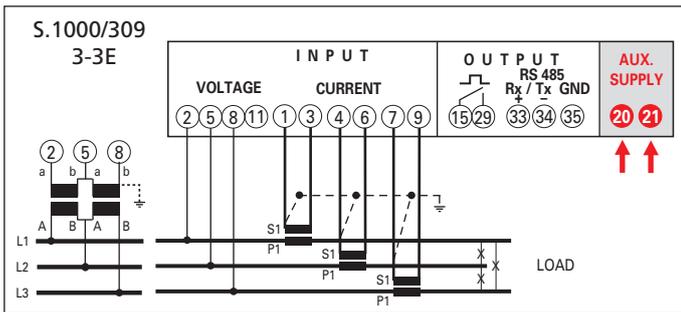
Linea trifase 3 fili, 2 sistemi
3-phase network, 3 wire, 2 systems



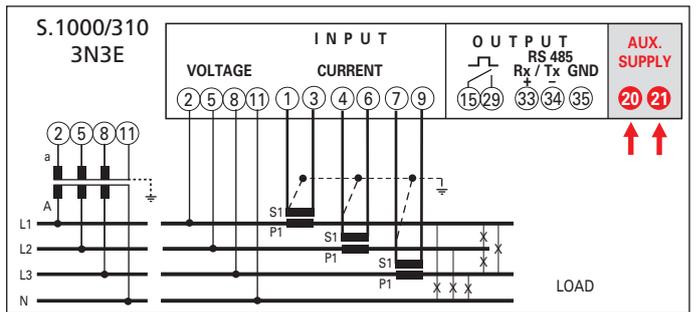
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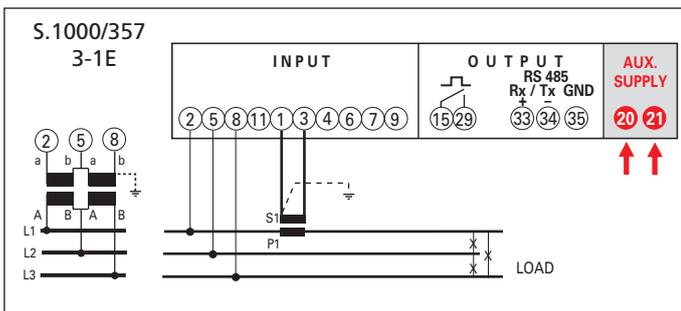
Linea trifase 3 fili, 2 sistemi
3-phase network, 3 wire, 2 systems



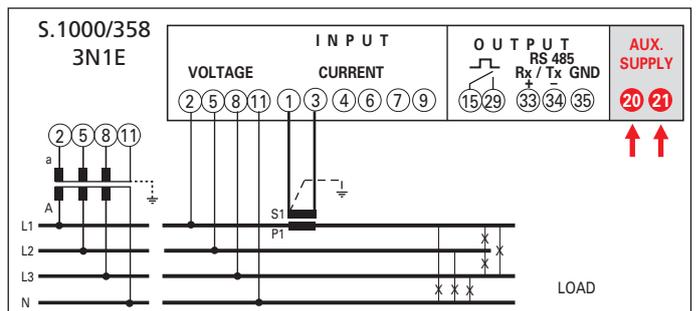
Linea trifase 3 fili, 2 sistemi
3-phase network, 3 wire, 2 systems



Linea trifase 4 fili, 3 sistemi
3-phase network, 4 wire, 3 systems



Linea trifase 3 fili, 1 sistema
3-phase network, 3 wire, 1 system



Linea trifase 4 fili, 1 sistema
3-phase network, 4 wire, 1 system

NOTA
Negli schemi sono sempre indicate le configurazioni con uscita impulsi e comunicazione RS485. Nelle versioni che non prevedono comunicazione RS485 non si deve tenere conto dei relativi collegamenti.

ATTENZIONE! collegare alimentazione ausiliaria ai terminali 20 e 21

NOTE
The wiring diagrams, show the device complete with pulse output and RS485 interface. In case of version without of these features, the corresponding terminals must not be considered.

WARNING! auxiliary supply must be connected to terminals 20 and 21



Centrale de mesure multifonctions pour réseau basse et moyenne tension 4 modules

Network monitor for low and medium voltage 4 modules

Réseau triphasé 80...480V (phase - phase)
Réseau monophasé 45...278V
Rapport TC et TT externe programmable
Energie active cl.1

Three-phase network 80...480V (phase - phase)
Single-phase network 45...278V
Programmable external CT - VT ratio
Active energy cl.1

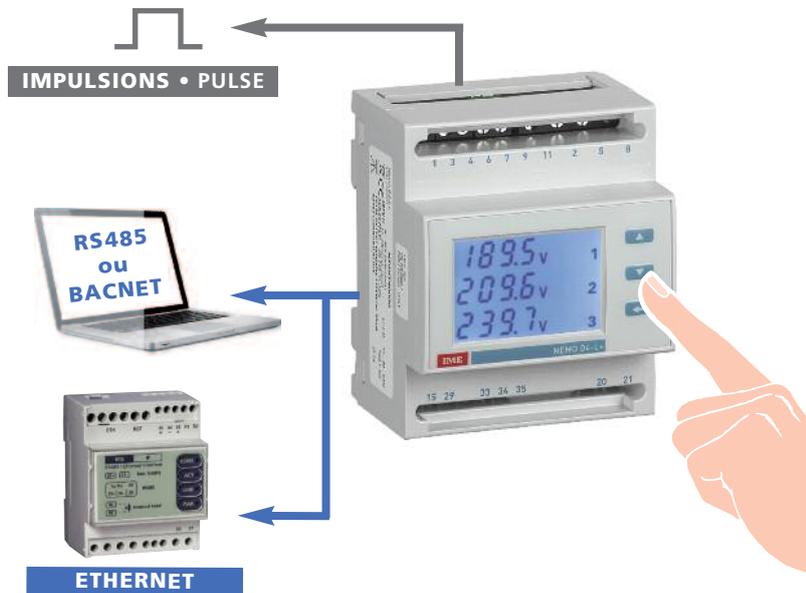
Sortie impulsions
Communication RS485 par protocole Modbus RTU/TCP ou BACNET

Pulse output
RS485 communication by ModBus RTU/TCP or BACNET protocole

Interfaces externes (avec RS485 Modbus) :
Communication Ethernet (NT801 - NT891)

External interfaces (by RS485 ModBus) :
Ethernet communication (NT801 - NT891)

Nemo D4-L+



DISPLAY



- ▶ Tension par phase et composée
Phase and linked voltage
- ▶ Courant par phase et du neutre
Neutral and phase current
- ▶ Courant moyen et valeur max. du courant moyen
Current demand and current max. demand
- ▶ Distorsion harmoniques Courant - Tension
Current - Voltage harmonic distortion
- ▶ Fréquence
Frequency
- ▶ Facteur de puissance
Power factor
- ▶ Puissance active, réactive, apparente
Active, reactive apparent power
- ▶ Puissance active, réactive par phase
Active, reactive phase power
- ▶ Puissance moyenne et valeur max. puissance moyenne
Power demand and power max. demand
- ▶ Energie active et réactive
Active and reactive energy
- ▶ Energie active partielle
Partial active energy
- ▶ Heures et minutes de fonctionnement
Working hours and minutes
- ▶ Diagnostic séquence de phase
Voltage sequence diagnostic

REFERENCE ORDERING CODE	ALIM. AUX. AUX. SUPPLY	SORTIE OUTPUT	COMMUNICATION COMMUNICATION	ENTREE INPUT
9017 7200	115Vac	impulsions énergie energy pulses	RS485 Modbus RTU	1 + 5A
9017 7250	230 + 240Vac			
9017 7300	20...150Vdc - 48Vac			
9017 7350	115Vac			
9017 7400	230 + 240Vac			
9017 7450	20...150Vdc - 48Vac			
	115Vac			
	230 + 240Vac			
	20...150Vdc - 48Vac			
				45...260V monophasé single-phase
				80...450V triphasé three-phase

LEGENGE : = Paramètres programmables
 = Reset Parameter

AFFICHAGE

Type d'affichage: cristaux liquides rétroéclairés (LCD)

Contraste affichage : 0...10

Nb de points d'affichage: 10-000 (4 chiffres)

Unité de mesure: affichage automatique en fonction des rapports TC et TT

Résolution: automatique

Point décimal: automatique

Echantillonnage: 1,2 secondes

Comptage de l'énergie: totalisateur 8 chiffres

PROGRAMMATION

Programmation des paramètres: 3 touches en face avant

Accès à la programmation: protégé par un code d'accès

Menu programmation: subdivisé en 2 niveaux

NIVEAU 1

Reset (énergie partielle, pic courant et puissance moyen., compteur horaire)

Raccordement

Temps d'intégration courant / puissance moyenne

Communication RS485

Impulsions énergie

Contraste affichage

NIVEAU 2

Rapports TC et TT

LEGENGE : = Paramètres programmables
 = Reset Parameter

DISPLAY

Type of display: LCD backlight

Display contrast: 0...10

N° of reading points: 10-000 (4 digits)

Engineering units: automatic display according to the set VT and CT ratios

Resolution: automatic

Decimal point: automatic

Reading update: 1,2 seconds

Energy count: 8 digit counter

PROGRAMMING

Parameters programming: front keyboard, 3 keys

Programming access: protected by password

Menu programming: subdivided over 2 levels

LEVEL 1

Resets (partial energy, peak current and power demand, run hour)

Connection

Current delay time and average power

RS485 communication

Energy pulse

Display contrast

LEVEL 2

CT and VT ratio

AFFICHAGE DES PAGES • DISPLAY PAGES			
pag.	Triphasé 4 fils / three-phase 4-wire S1000/310 - /358	Triphasé 3 fils / three-phase 3-wire S1000/306 - /307 - /308 - /309 - /357	Monophasé / Single-phase S1000/305
1	Tension par phase Phase voltage	tension composée linked voltage	tension + courant voltage + current
2	Courant par phase Phase current	courant par phase phase current	puissance active, réactive, apparente active, reactive, apparent power
3	Tension composée Linked voltage	puissance triphasée active, réactive, apparente active, reactive, apparent three-phase power	fréquence + facteur de puissance frequency + power factor
4	Puissance active par phase Phase active power	fréquence + facteur de puissance triphasé frequency + three-phase power factor	courant moyen et moyenne max. current demand and max. current demand
5	Puissance réactive par phase Phase reactive power	courant moyen par phase phase current demand	puissance moyenne et moyenne max. power demand and power max. demand
6	Puissance active, réactive, apparente triphasée Active, reactive, apparent three-phase power	courant moyen max. par phase max. phase current demand	heures et minutes de fonctionnement working hours and minutes
7	Courant du neutre ¹ + fréquence + facteur de puissance triphasé Neutral current ¹ + frequency + three-phase power factor	puissance moyenne et valeur max. power demand and power max. demand	énergie active active energy
8	courant moyen par phase phase current demand	heures et minutes de fonctionnement working hours and minutes	énergie réactive reactive energy
9	courant moyen max. par phase max. phase current demand	énergie active active energy	énergie active partielle partial active energy
10	puissance moyenne et puissance moyenne max. power demand and power max. demand	énergie réactive reactive energy	Distorsion harmonique tension-courant voltage-current distorsion harmonic
11	heures et minutes de fonctionnement working hours and minutes	énergie active partielle partial active energy	
12	Distorsion harmonique tension-courant voltage-current distorsion harmonic	Distorsion harmonique tension-courant voltage-current distorsion harmonic	
13	énergie active active energy		
14	énergie réactive reactive energy		
15D	énergie active partielle partial active energy		

PRÉCISION EN CONFORMITE AVEC / CONFORMITY ACCURACY WITH EN/IEC 61557-12			
Energie active / Active energy		Ea	cl.1
Energie réactive / Reactive energy		Erv	cl.2
Tension / Voltage		U	cl.0,5
Courant / Current		I	cl.0,5
Puissance active / Active power		P	cl.0,5
Puissance réactive / Reactive power		Qv	cl.0,5
Puissance apparente / Apparent power		Sv	cl.0,5
Fréquence / Frequency		f	± 0,1Hz
THD (jusqu'au rang 31) / Harmonique simple THD (up to 31 st harmonic) Harmonics single		THDu / THDi	cl.1

ENTREE

 **Réseau** : réseau monophasé et triphasé 3 fils et 4 fils

Symbole / Symbol	Réseau / Line	Charge / Load	N° TC externe / N°CT external	Schéma / Wiring	Raccordement / Connection
1N1E	Monophasé / Single-phase	-	1	S 1000/305	
3-1E	Triphasé 3 fils / 3-phase 3 wires	Equilibré / Balanced	1	S 1000/357	
3N1E	Triphasé 4 fils / 3-phase 4 wires	Equilibré / Balanced	1	S.1000/358	
3-2E	Triphasé 3 fils / 3-phase 3 wires	Non équilibré / Unbalanced	2	S.1000/306	Aron L1-L2
3-2E	Triphasé 3 fils / 3-phase 3 wires	Non équilibré / Unbalanced	2	S.1000/307	Aron L1-L3
3-2E	Triphasé 3 fils / 3-phase 3 wires	Non équilibré / Unbalanced	2	S.1000/308	Aron L2-L3
3-3E	Triphasé 4 fils / 3-phase 4 wires	Non équilibré / Unbalanced	3	S.1000/309	
3N3E	Triphasé 4 fils / 3-phase 4 wires	Non équilibré / Unbalanced	3	S.1000/310	

Tension triphasée nominale: 400V-100V (phase-phase)

Tension triphasée: 80...480V (phase-phase)

Tension monophasée : 45...278V

 **Rapport TT externe:** 1,0...400,0

Courant nominal In: 1 et 5A

Surcharge instantanée: 20In/0,5 secondes

 **Rapport CT externe:** 1...9999

Limite rapports produits TC x TT: 100.000 (5A) - 400.000 (1A)

Fréquence nominale fn: 50Hz

Tolérance: 47...63Hz

Type de mesure: valeur efficace vraie RMS

Contenu harmoniques: selon EN/IEC 61557-12 (jusqu'au rang 31)

Temps de démarrage (comptage énergie): < 5 secondes

Autoconsommation tension: ≤ 1VA (par phase)

Autoconsommation courant: ≤ 0,5VA (par phase)

COURANT MOYEN - PUISSANCE MOYENNE

 **Puissance associée:** active, réactive, apparente

 **Temps d'intégration:** 5, 8, 10, 15, 20, 30, 60 minutes

Le temps sélectionné est valable tant pour le courant que pour la puissance moyenne

VERIFICATION DE LA SEQUENCE DE PHASE

Vérifie la connexion voltétrique

ALIMENTATION AUXILIAIRE

Valeur nominale Uaux ca: 48 - 115 - 230V (monophasé)

Variation admissible: 0,85...1,15Uaux - 40...60V (Uaux 48V)

Fréquence nominale: 50Hz

Fréquence de fonctionnement: 47...63Hz

Autoconsommation: ≤ 5VA - 2,5W

Valeur nominale Uaux cc: 20...150Vdc

Autoconsommation: ≤ 5W

Protection contre l'inversion de polarité

COMMUNICATION ETHERNET (NT809 - NT891)

Réalisable uniquement avec les modèles pourvus d'une sortie RS485 Modbus + interface **IF2E** ou **IF4E** (RS485/Ethernet)

INPUT

 **Network:** Single and three-phase network 3 and 4-wire

Three-phase voltage rating: 400V-100V (phase-phase)

Three-phase voltage: 80...480V (phase-phase)

Single-phase voltage: 45...278V

 **External VT ratio:** 1,0...400,0

Current rating In: 1 and 5A

Instantaneous overload: 20In/0,5 seconds

 **External CT ratio:** 1...9999

Limit produced ratios CT x VT: 100.000 (5A) - 400.000 (1A)

Frequency rating fn: 50Hz

Tolerance: 47...63Hz

Type of measurement: true RMS value

Harmonic content: according to EN/IEC 61557-12 (up to 31st harmonic)

Start time (energy count): < 5 seconds

Voltage rated burden: ≤ 1VA (each phase)

Current rated burden: ≤ 0,5VA (each phase)

POWER DEMAND - CURRENT DEMAND

 **Associated power:** active, reactive, apparent

 **Delay time:** 5, 8, 10, 15, 20, 30, 60 minutes

The selected time is valid both for the current and the average power

PHASE SEQUENCE CHECKING

Check the correct connection of the voltmetric

AUXILIARY SUPPLY

Rated value Uaux ac: 48 - 115 - 230V (single phase)

Tolerance: 0,85...1,15Uaux - 40...60V (Uaux 48V)

Rated frequency: 50Hz

Working frequency: 47...63Hz

Rated burden: ≤ 5VA - 2,5W

Rated value Uaux dc: 20...150Vdc

Rated burden: ≤ 5W

Protected against incorrect polarity

ETHERNET COMMUNICATION (NT809 - NT891)

By using only mod. with communication RS485 + **IF2E** or **IF4E** (RS485/Ethernet) interface

COMMUNICATION RS485 MODBUS

Isolée galvaniquement de l'entrée et de l'alimentation auxiliaire

Standard: RS485 - 3 fils

Transmission: asynchrone série

Protocole: MODBUS RTU/TCP

Adresses: 1...255,

Nombre bit: 8

Bit de stop: 1

Adresses: sans - pair - impair

Temps de réponse à l'interrogation: 3...100ms

Vitesse de transmission: 4,8 - 9,6 - 19,2 kbit/s

N° max. d'appareils raccordés en réseau: 32 (jusqu'à 255 avec répéteur RS485)

Distance max. du superviseur: 1200m

COMMUNICATION BACNET

Isolée galvaniquement de l'entrée et de l'alimentation auxiliaire

Standard: RS485 - 3 fils

Transmission: asynchrone série

Protocole: BACNET MS-TP

Adresses: 1...127

Nombre bit: 8

Bit de stop: 1

Adresses: sans - pair - impair

Vitesse de transmission: 9,600 - 19,2 - 38,4 - 76,8 kbit/s

Adresses réseau: 0...4000

N° max. d'appareils raccordés en réseau: 32 (jusqu'à 255 avec répéteur RS485)

Distance max. du superviseur: 1200m

SORTIE IMPULSION ENERGIE

Sortie impulsion compatible avec SO EN/IEC 62053-21

Relais opto avec contact SPST-NO libre de potentiel

Pouvoir de coupure: 27Vdc/ac - 50mA

Grandeur associée: énergie active ou réactive

Poids de l'impulsion: 1 imp/0,1kWh(kvarh) - 1kWh(kvarh) - 10kWh(kvarh) - 100kWh(kvarh)

Durée de l'impulsion: sélectionnable 50 - 100 - 200 - 300ms

ISOLEMENT

(EN61010-1)

Catégorie de l'installation: III

Degré de pollution: 2

Tension de référence pour l'isolement: 300V Phase/Neutre

Tension d'essai 4kV valeur efficace 50Hz/1min

Circuits considérés: alim.aux. vers tous les autres circuits

Tension d'essai 4kV valeur efficace 50Hz/1min

Circuit considéré: tous les circuits et la masse

TEST DE COMPATIBILITE ELECTROMAGNETIQUE

Test d'émission selon la norme EN 61557-12

Test d'immunité selon la norme EN 61557-12

CONDITIONS D'EMPLOI

Température de référence: 23°C ± 2°C

Température de fonctionnement spécifique: -5...55°C

Température limite pour le stockage et le transport: -25...70°C

Variation de l'indice de classe: ≤ 0,1% /°C

Adapté pour les climats tropicaux

Puissance max. dissipée¹: ≤ 6,8W

¹Pour le dimensionnement thermique du coffret

BOITIER

Boîtier: 4 modules DIN 43880

Raccordement: bornier à vis

Capacité des bornes - entrée : fil rigide min.0,05mm² / max. 4mm²
fil souple min.0,05mm² / max. 2,5mm²

RS485 MODBUS COMMUNICATION

Galvanically insulated from input and aux. supply

Standard: RS485 - 3 wire

Transmission: serial asynchronous

Protocol: MODBUS RTU/TCP

Address: 1...255

Bit number: 8

Stop bit: 1

Parity bit: none - even - odd

Waiting time before answer: 3...100ms

Baud rate: 4,8 - 9,6 - 19,2 kbit/s

Meters that can be connected on the bus: 32(up to 255 with RS485 repeater)

Highest distance from supervisor: 1200m

BACNET COMMUNICATION

Galvanically insulated from input and aux. supply

Standard: RS485 - 3 wire

Transmission: serial asynchronous

Protocol: BACNET MS-TP

Address: 1...127

Bit number: 8

Stop bit: 1

Parity bit: none - even - odd

Baud rate: 9,600 - 19,2 - 38,4 - 76,8 kbit/s

Network address: 0...4000

Meters that can be connected on the bus: 32(up to 127 with RS485 repeater)

Highest distance from supervisor: 1200m

OUTPUT ENERGY PULSE

Pulse output compatible with SO EN/IEC 62053-21

Optorelay with potential-free SPST-NO

Contact range: 27Vdc/ac - 50mA

Associated energy: active or reactive

Weight pulses: 1 imp/0,1kWh(kvarh) - 1kWh(kvarh) - 10kWh(kvarh) - 100kWh(kvarh)

Duration pulse: selectable 50 - 100 - 200 - 300ms

INSULATION

(EN61010-1)

Installation category: III

Pollution degree: 2

Insulation voltage rating: 300V Phase/Neutral

A.C. voltage test 4kV r.m.s. 50Hz/1min

Considered circuits: auxiliary supply towards all other circuits

A.C. voltage test 4kV r.m.s. 50Hz/1min

Considered circuits: all circuits and earth

TESTS FOR ELETROMAGNETIC COMPATIBILITY

Emission tests according to EN 61557-12

Immunity tests according to EN 61557-12

ENVIRONMENTAL CONDITIONS

Reference temperature: 23°C ± 2°C

Specified operating range: -5...55°C

Limit range for storage and transport: -25...70°C

Variation to the class index: ≤ 0,1% /°C

Suitable for tropical climates

Max. power dissipation¹: ≤ 6,8W

¹For switchboard thermal calculation

HOUSING

Housing: 4 modules DIN 43880

Connections: screw terminals

Ammetric terminals capacity: rigid cable min.0,05mm² / max. 4mm²
flexible cable min.0,05mm² / max. 2,5mm²

Capacité des bornes - sortie : fil rigide min.0,05mm² / max. 4mm²
fil souple min.0,05mm² / max. 2,5mm²

Fixation: rail 35mm

Type de profil: TH35-15 (EN60715)

Matériau du boîtier: polycarbonate autoextinguible

Degré de protection (EN60529): IP52 face avant, IP20 bornes

Poids: 300 grammes

CAPACITE DES BORNES

ENTREE MESURE

Fil avec embout : min.0,05mm² / max. 4,5mm²

Fil souple: min.0,05mm² / max. 2,5mm²

Couple de serrage max.: 0,6Nm

ENTREE COURANT

Fil avec embout: min.0,05mm² / max. 6mm²

Fil souple: min.0,05mm² / max. 4mm²

Couple de serrage max: 1Nm

ALIMENTATION AUXILIAIRE

Fil avec embout: min.0,05mm² / max. 4,5mm²

Fil souple: min.0,05mm² / max. 2,5mm²

Couple de serrage max: 0,6Nm

SORTIE

Fil avec embout: min.0,05mm² / max. 4,5mm²

Fil souple: min.0,05mm² / max. 2,5mm²

Couple de serrage max: 0,6Nm

Volmetric terminals capacity: rigid cable min. 0,05mm² / max. 4mm²
flexible cable min.0,05mm² / max. 2,5mm²

Mounting: snap-on 35mm rail

Rail type: top hat TH35-15 (EN60715)

Housing material: self-extinguishing polycarbonate

Protection degree (EN60529): IP52 front frame, IP20 terminals

Weight: 300 grams

TERMINAL CAPACITY

MESURE INPUT

Rigid cable: min.0,05mm² / max. 4,5mm²

Flexible cable: min.0,05mm² / max. 2,5mm²

Tightening torque advised: 0,5 - 0,8Nm

CURRENT INPUT

Rigid cable: min.0,05mm² / max. 6mm²

Flexible cable: min.0,05mm² / max. 4mm²

Tightening torque advised: 0,5 - 0,8Nm

AUX. SUPPLY

Rigid cable: min.0,05mm² / max. 4,5mm²

Flexible cable: min.0,05mm² / max. 2,5mm²

Tightening torque advised: 0,5 - 0,8Nm

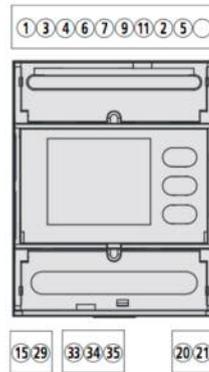
OUTPUT

Rigid cable: min.0,05mm² / max. 4,5mm²

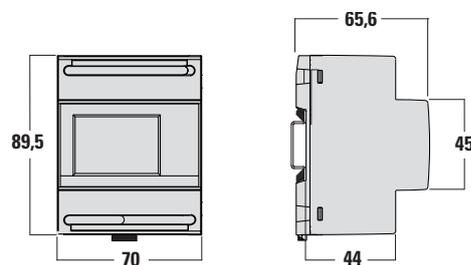
Flexible cable: min.0,05mm² / max. 2,5mm²

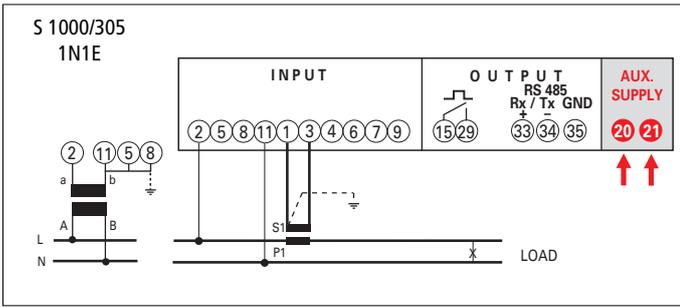
Tightening torque advised: 0,5 - 0,8Nm

POSITIONS DES BORNES TERMINALS POSITION

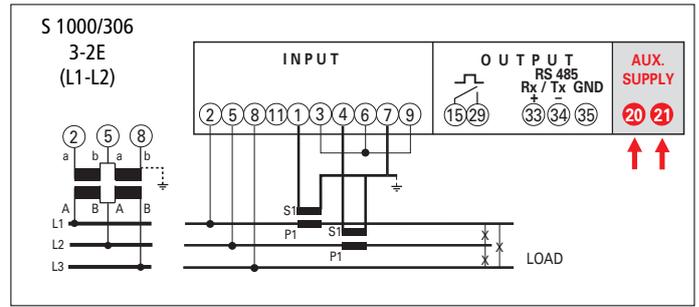


DIMENSIONS DIMENSIONS

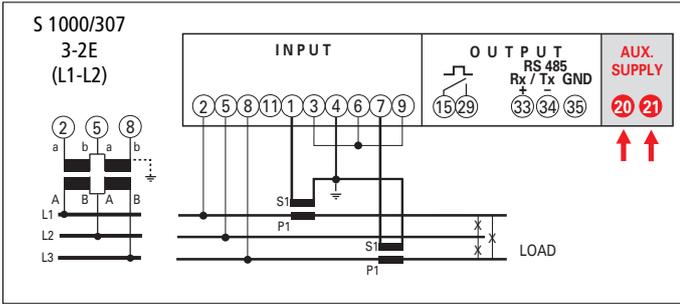




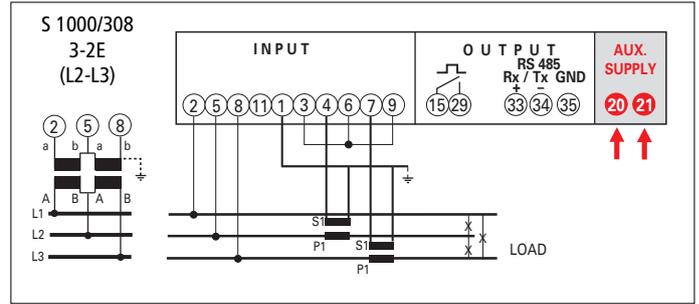
Réseau monophasé
Single phase network



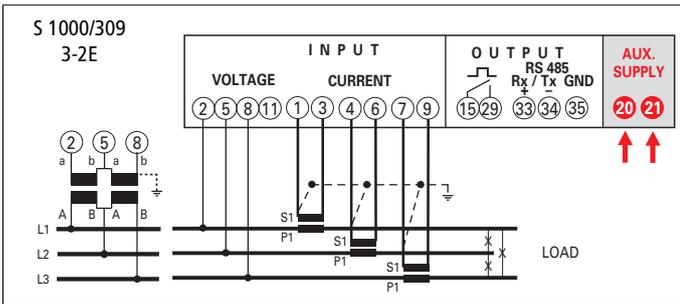
Réseau triphasé 3 fils, 2TC
3-Phase network, 3 wire, 2 systems



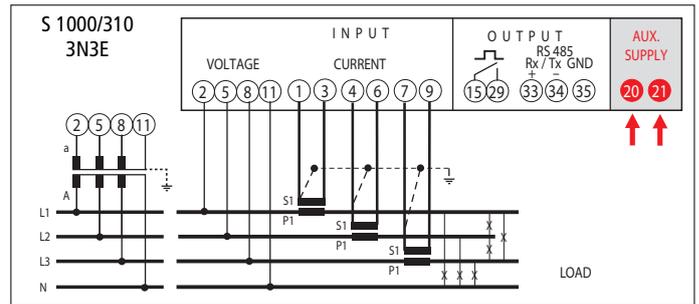
Réseau triphasé 3 fils, 2TC
3-Phase network, 3 wire, 2 systems



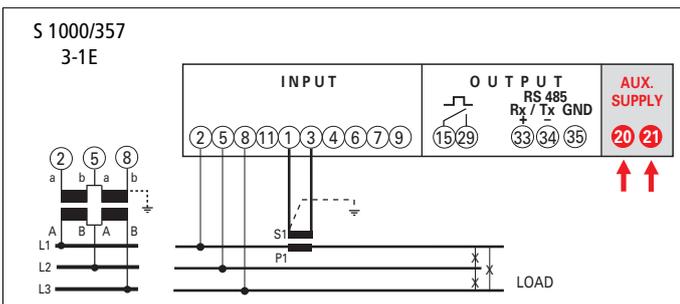
Réseau triphasé 3 fils, 2TC
3-Phase network, 3 wire, 2 systems



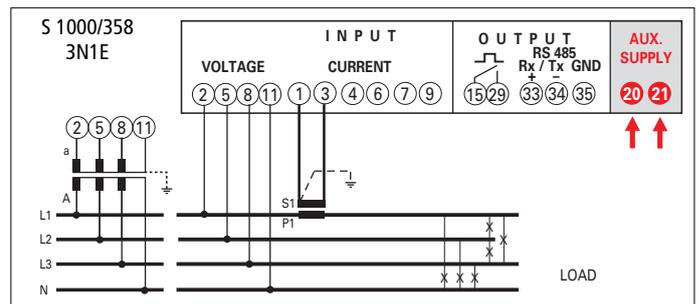
Réseau triphasé 3 fils, 2TC
3-Phase network, 3 wire, 2 systems



Réseau triphasé 4 fils, 3TC
3-Phase network, 4 wire, 2 systems



Réseau triphasé 3 fils, 1TC
3-Phase network, 3 wire, 1 systeme



Réseau triphasé 4 fils, 1TC
3-Phase network, 4 wire, 1 systeme

NOTE

Les schémas de raccordement se réfèrent aux centrales de mesure équipées de la sortie impulsions et communication RS485.

Pour les versions sans communication RS485, ne pas tenir compte des bornes de sortie concernées.

ATTENTION! l'alimentation auxiliaire doit être raccordée aux bornes 20 and 21

NOTE

The wiring diagrams, show the device complete with pulse output and RS485 interface.

In case of version without of these features, the corresponding terminals must not be considered.

WARNING! auxiliary supply must be connected to terminals 20 and 21

IMESYS se réserve le droit, à chaque moment de modifier les caractéristiques sans préavis écrit.