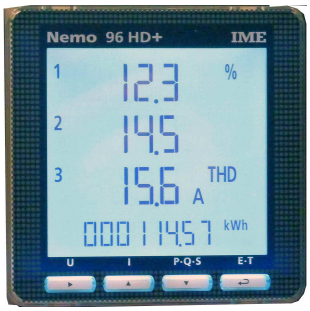
Nemo MD

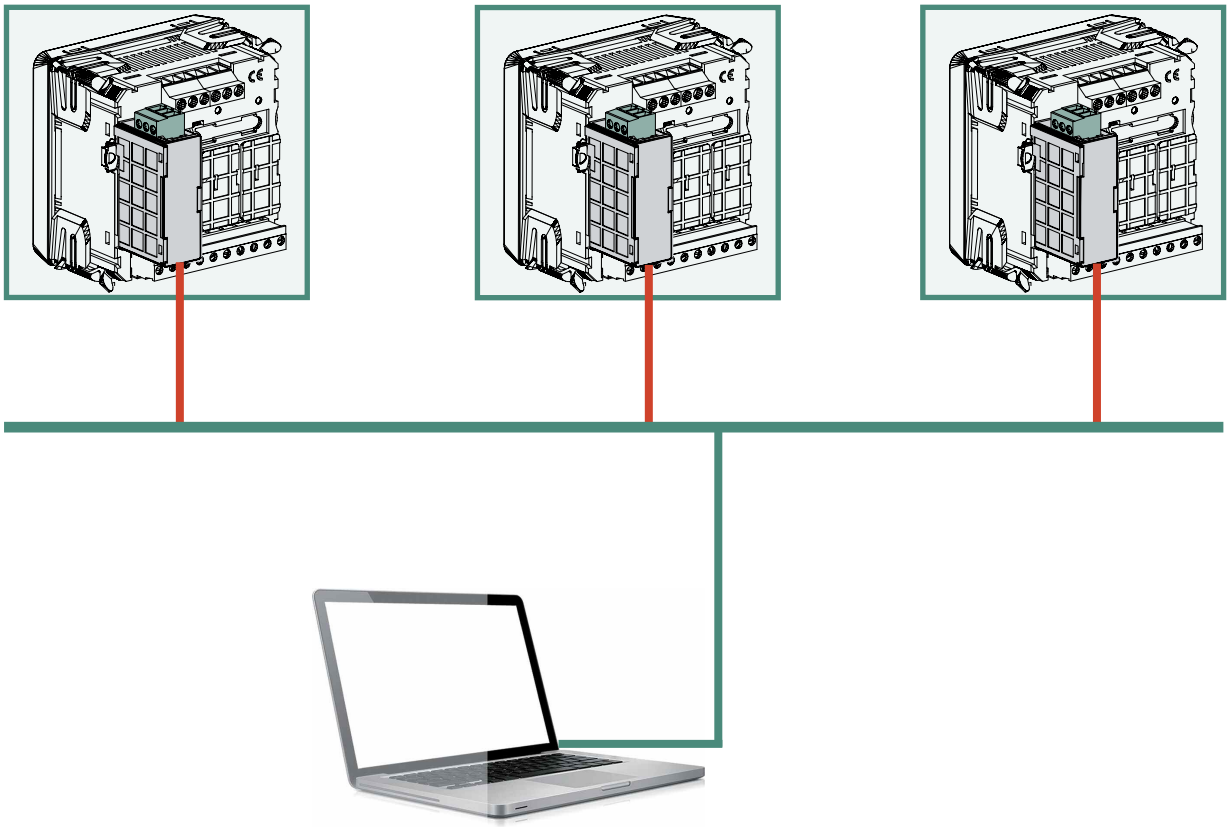
Interfaccia Memoria + RS485 per la serie Nemo 96

Il modulo **IF96012** abbinato a strumenti della serie **Nemo 96** ne rende disponibili tramite comunicazione **RS485** tutti i dati riguardanti le misure effettuate ed i parametri di configurazione
Grazie alla memoria interna, permette la memorizzazione dei conteggi di energia e dei principali parametri misurati.
Tramite comunicazione RS485 è possibile interrogare il dispositivo accedendo ai dati memorizzati.

Interface Memory + RS485 for Nemo 96 series

Module **IF96012** combined with meters of **Nemo 96** series makes available, by **RS485** communication, all the data relevant to carried out measurement as well as the configuration parameters.
Thanks to the internal storage, it is possible to store the energy counts of the main measured parameters.
By the RS485 communication it is possible to query the device having access to the stored data.





CODICI DI ORDINAZIONE *ORDERING CODE*	
IF96012	Memoria + comunicazione RS485 / *Memory + RS485 communication*

MEMORIA

Le misure vengono salvate in memoria con finestra scorrevole (i dati più vecchi vengono cancellati da quelli più recenti).
La memoria permette di leggere i dati precedenti a quelli attuali con una profondità di tempo variabile in funzione della quantità di dati salvati e dell'intervallo di salvataggio.
La tabella 1 riporta la quantità di dati salvati in funzione del tipo scelto.
La tabella 2 indica la profondità di lettura dati (espressa in ore) in funzione del tipo di salvataggio selezionato e dell'intervallo di salvataggio scelto.
Es. dati tipo 0 intervallo 2 min
Sarà possibile accedere ai dati salvati fino alle 960 ore precedenti.
Le misure di energia, indipendentemente dal tipo dati e dall'intervallo di tempo selezionato, vengono salvate ogni 5 - 10 - 15 min/programmabili.
La capacità di memoria permette di leggere i dati dell'energia riguardanti un anno.
La tabella 3 indica le energie e i massimi tempi di durata dei dati prima di saturare la memoria.

MEMORY

The measurements are saved in a sliding-window memory (the oldest data are deleted by the newest).
The memory allows to read in the former data with a time depth which may vary according to the saved data quantity as well as the saving interval.
***Table 1** reports the saved data quantity based on the chosen type.*
***Table 2** shows the data reading depth (expressed in hours) based on the selected saving type and the chosen saving interval.*
Ex.: data type 0 interval 2 minutes
It will be possible to have access to the saved data up to the 960 previous hours.
The energy measurements, regardless of the type of data and the selected time interval, are saved every 5 - 10 - 15 min/programmable.
The memory size allows to read in the energy data regarding a whole year.
***Table 3** shows the energies as well as the highest data duration times before saturating the memory.*

PARAMETRI PROGRAMMABILI - MEMORIA

Orologio: ora, minuti, secondi
Data: giorno, mese, anno
Ora legale: data e ora inizio, data e ora fine
Tempo di intervallo tra i salvataggi dei dati: 2-5-10-30-60s-2-5-10min
Dati salvati: tipo 0 / 1 / 2 / 3 **vedi TAB.1**
Azzeramento dati salvati

PROGRAMMABLE PARAMETERS - MEMORY

***Clock:** hour, minutes, seconds*
***Date:** day, month, year*
***Daylight saving time:** starting date and time, ending date and time*
***Time interval between the data backup:** 2-5-10-30-60 seconds – 2-5-10 minutes*
Saved data:** type 0-1-2-3 **see TAB.1
Reset saved data

TAB.1

		Dati salvati *Saved data*				
Gruppo 1 Misure	***Group 1 Measure***	**0**	**1**	**2**	**3**	**4**
Tensione di fase	*Phase volage*	•	•		•	✘
Tensione concatenata	*Linked voltage*	•		•		✘
Potenza attiva e reattiva di fase	*Phase active and reactive power*	•	•			✘
Distorsione armonica tensione e corrente di fase	*Phase current and voltage harmonic distortion*	•				✘
Corrente di fase e di neutro	*Neutral and phase current*	•	•	•	•	✘
Potenza trifase attiva - reattiva - apparente	*Apparent - reactive - active 3-phase power*	•	•	•	•	✘
Fattore di potenza trifase	*3-phase power factor*	•	•	•	•	✘
Fattore di potenza di fase	*Phase power factor*	•	•			✘
Stato allarmi	*State of alarms*	•	•	•	•	✘
Frequenza	*Frequency*	•	•	•	•	✘
Gruppo 2 Energia - Potenza Media	***Group 2 Average Power - Energy***	**0**	**1**	**2**	**3**	**4**
Energi attiva positiva e negativa	*Negative and positive active energy*	•	•	•	•	•
Energi reattiva positiva e negativa	*Negative and positive reactive energy*	•	•	•	•	•
Potenza media e picco potenza media	*Average power and peak average power*	•	•	•	•	•

• = Dato sicuramente salvato
✘ = Dato salvato se richiesto (con programma Nemo Utility)

• = *Surely stored item*
✘ = *Item stored upon request (with Nemo Utility program)*

TAB.2

Tipo dati *Data type*	TEMPO INTERVALLO • *TIME INTERVAL*							
	2s	5s	10s	30s	60s	2min	5min	10min
0	15	40	80	240	480	960	2400	4800
1								
2	25	60	120	360	720	1440	2880	5760
3								

TAB.3

TEMPO SALVATAGGIO • *SAVING TIME*	CAPACITA' DI MEMORIA • *MEMORY SIZE*
5 min	4 mesi *months*
10 min	8 mesi *months*
15 min	12 mesi *months*

Una semplice formula che l'utente dovrebbe usare per ottenere massimo intervallo di tempo è:

$$T = \frac{\text{floor}\left(\frac{512}{\text{Rlength}}\right) 7000 * \text{time}_{sec}}{3600}$$

A simple formulas that the user should use in order to obtain the max saving interval is:

Rlength	**Reecorde lunghi in byte / *Recorde length in bytes***
Npages	**Numero pagine / *Number of pages***
Time sec	**Intervallo di tempo in secondi / *Time interval in seconds***
floor	**Funzione che restituisce la parte intera / *Function that takes only the integer quotient***

COMUNICAZIONE RS485

Isolata galvanicamente da ingressi misura e alimentazione (Nemo 96...)

Standard: RS485 - 3 fili

Trasmissione: asincrona seriale

Protocollo: compatibile JBUS/MODBUS

Numero bit: 8

Bit di stop: 1

Tempo di risposta a interrogazione: ≤ 200ms

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

Distanza massima dal supervisore: 1200m

RS485 COMMUNICATION

Galvanically insulated from input and aux. supply (Nemo 96..)

Standard: *RS485 - 3-wire*

Transmission: *serial asynchronous*

Protocol: *compatible JBUS/MODBUS*

Bit number: *8*

Stop bit: *1*

Required response time to request: *≤ 200ms*

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

Highest distance from supervisor: *1200m*

PARAMETRI PROGRAMMABILI - RS485

N° indirizzo: 1...255

Velocità trasmissione: 4.800 - 9.600 - 19.200 - 38.400bit/s

Bit di parità: nessuna - pari - dispari

PROGRAMMABLE PARAMETERS - RS485

Address: *1...255*

Baud rate: *4.800 - 9.600 - 19.200 - 38.400 bit/s*

Parity bit: *none - even - odd*

ALIMENTAZIONE AUSILIARIA

Valori riferiti all'abbinamento strumento multifunzione Nemo 96... e interfaccia IF96012

Autoconsumo: ≤ 5VA

AUXILIARY SUPPLY

Value referred to combination Nemo 96... multifunction meters + IF96012 interface

Rated burden: *≤ 5VA*

ISOLAMENTO (EN61010)

Valori riferiti all'abbinamento strumento multifunzione Nemo 96... e interfaccia IF96012

Prova a tensione alternata 2 kV valore efficace 50Hz/1min

Circuiti considerati: ingresso misura, alimentazione ausiliaria, comunicazione RS485

INSULATION (EN61010)

Value referred to combination Nemo 96... multifunction meters + IF96012 interface

A.C. voltage test 2 kV r.m.s. value 50Hz/1min

Considered circuits: *measure, aux. supply, RS485 communication*

CUSTODIA

Custodia: modulo con connettore per inserimento strumento Nemo 96...

Profondità massima: 81mm (Nemo 96...+ e modulo)

Connessioni: morsetti fissaggio a vite

Portata morsetti: cavo rigido max. 4,5mm², cavo flessibile max. 2,4mm²

Materiale custodia: policarbonato autoestinguente

Peso: 30 grammi

HOUSING

Housing: *module with connector for connection Nemo 96... meter*

Max. depth: *81mm (Nemo 96...+ and module)*

Connections: *screw terminals*

Terminals range: *rigid cable max. 4,5mm², flexible cable max. 2,4mm²*

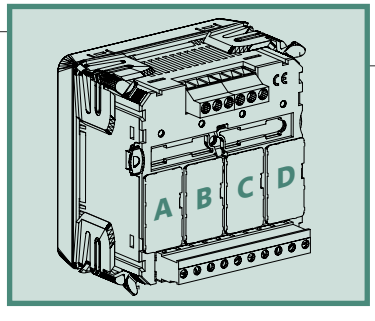
Housing material: *self-extinguishing policarbonate*

Weight: *30 grams*

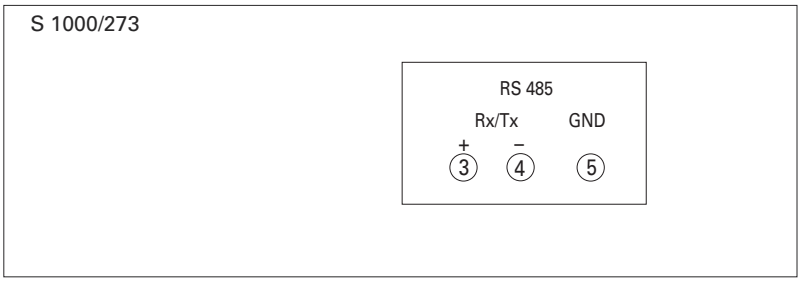
Modello / Model	N. Max.	Posizione / Position				Firmware[1]	Nota Tecnica / Technical Note
		A	B	C	D		
Nemo 96 HD	1	●				2.06	NT680
Nemo 96 HD+	1	●				2.06	NT681
Nemo 96 HDLe	1	●				2.5	NT854
Nemo 96 HDLe Rogowski	1	●				1.00	NT890

[1] **VERSIONE FIRMWARE:** in tabella viene indicata la versione dello strumento necessaria a supportare la funzione del modulo aggiuntivo.
Utilizzando un modulo comunicazione IF96001 (RS485) o IF96002 (RS232) o IF96015 (Ethernet) è possibile aggiornare la versione firmware direttamente in campo, con l'ausilio di un PC e del software necessario.

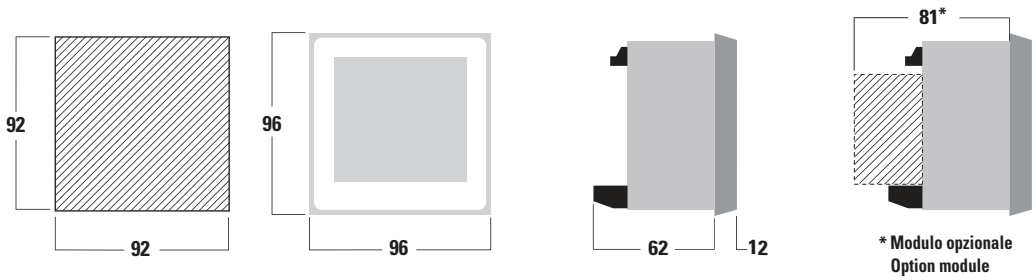
[1] ***FIRMWARE VERSION:*** *on the table it is shown the firmware version of the meter which is necessary to support the function of the extra module.*
By using an IF96001 (RS485) or IF96002 (RS232) or IF96015 (Ethernet) and communication module it is possible to update the firmware version directly on field, with the help of a PC and the necessary software.



SCHEMA D'INSERZIONE *WIRING DIAGRAM*



DIMENSIONI *DIMENSIONS*



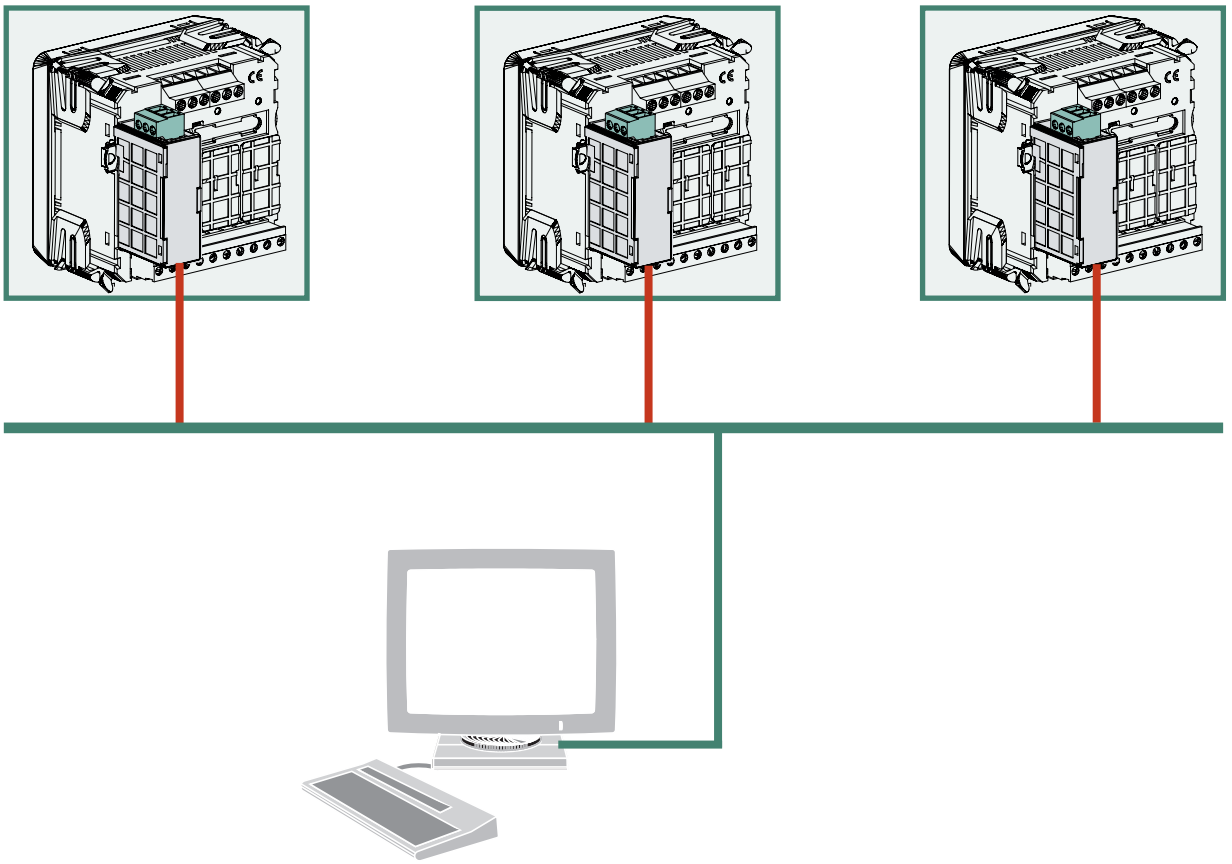
Nemo MD

Interface Mémoire + Communication RS485 pour la série Nemo 96

Le module **IF96012** raccordé aux centrales de mesure de la série **Nemo 96** permet de récupérer par communication **RS485** toutes les mesures effectuées ainsi que les paramètres de configuration.
La mémoire interne, permet d'enregistrer les comptages de l'énergie de tous les paramètres principaux mesurés.
Par la communication RS485, il est possible d'interroger le dispositif ayant accès aux données mémorisées.

Interface Memory + RS485 communication for Nemo 96 series

Module IF96012 combined with meters of Nemo 96 series makes available, by RS485 communication, all the data relevant to carried out measurement as well as the configuration parameters.
Thanks to the internal storage, it is possible to store the energy counts of the main measured parameters.
By the RS485 communication it is possible to query the device having access to the stored data.



REFERENCE *ORDERING CODE*	
9017 6051	Mémoire + communication RS485 / *Memory + RS485 communication*

MEMOIRE

Les mesures sont sauvegardées dans une mémoire à fenêtre glissante (les données les plus anciennes sont remplacées par les plus récentes).
La mémoire permet de lire les données anciennes avec une profondeur qui peut varier en fonction de la quantité de données sauvegardées ainsi que l'intervalle de sauvegarde.
Le tableau 1 rapporte la quantité de données sauvegardées en fonction du type sélectionné.
Le tableau 2 indique la profondeur de la lecture de données (exprimée en heures) en fonction du type de sauvegarde et de l'intervalle de sauvegarde sélectionnés.
Ex.: Donnée type 0 intervalle de 2 minutes
Il est possible d'accéder aux données sauvegardées jusqu'à H-960 heures.
Les mesures de l'énergie, quel que soit le type de données et l'intervalle de temps sélectionnés, sont enregistrées toutes les 5 - 10 - 15 minutes (programmable).
La taille de la mémoire permet de lire dans les données de l'énergie sur une année entière.
Le tableau 3 indique les énergies ainsi que les données de durée max. avant la saturation de la mémoire.

MEMORY

The measurements are saved in a sliding-window memory (the oldest data are deleted by the newest).
The memory allows to read in the former data with a time depth which may vary according to the saved data quantity as well as the saving interval.
***Table 1** reports the saved data quantity based on the chosen type.*
***Table 2** shows the data reading depth (expressed in hours) based on the selected saving type and the chosen saving interval.*
Ex.: data type 0 interval 2 minutes
It will be possible to have access to the saved data up to the 960 previous hours.
The energy measurements, regardless of the type of data and the selected time interval, are saved every 5 - 10 - 15 minutes/programmable.
The memory size allows to read in the energy data regarding a whole year.
***Table 3** shows the energies as well as the highest data duration times before saturating the memory.*

PARAMETRES PROGRAMMABLE - MEMOIRE

Horloge: heure, minutes, secondes
Date: jour, mois, année
Heure d'été: date et heure début, date et heure fin
Intervalle entre la sauvegarde des données: 2-5-10-30-60 secondes - 2-5-10 minutes
Données sauvegardées: type 0-1-2-3 voir Tab.1
Reset des données sauvegardées

PROGRAMMABLE PARAMETERS - MEMORY

***Clock:** hour, minutes, seconds*
***Date:** day, month, year*
***Daylight saving time:** starting date and time, ending date and time*
***Time interval between the data backup:** 2-5-10-30-60 seconds – 2-5-10 minutes*
Saved data:** type 0-1-2-3 **see TAB.1
Reset saved data

TAB 1.

		Données sauvegardées / *Saved data*				
Groupe 1 mesure	***Group 1 Measure***	**0**	**1**	**2**	**3**	**4**
Tension simple	*Phase voltage*	●	●		●	✗
Tension composée	*Linked voltage*	●		●		✗
Puissance active et réactive par phase	*Phase active and reactive power*	●	●			✗
Distorsion harmonique courant et tension par phase	*Phase current and voltage harmonic distortion*	●				✗
Courant de phase et du neutre	*Neutral and phase current*	●	●	●	●	✗
Puissance triphasée active - réactive - apparente	*Apparent - reactive - active 3-phase power*	●	●	●	●	✗
Facteur de puissance triphasé	*3-phase power factor*	●	●	●	●	✗
Facteur de puissance par phase	*Phase power factor*	●	●			✗
Etat de l'alarme	*State of alarms*	●	●	●	●	✗
Fréquence	*Frequency*	●	●	●	●	✗
Groupe 2 ENERGIE - PUISSANCE MOYENNE	***Group 2 AVERAGE POWER - ENERGY***	**0**	**1**	**2**	**3**	**4**
Energie active positive et négative	*Negative and positive active energy*	●	●	●	●	●
Energie réactive positive et négative	*Negative and positive reactive energy*	●	●	●	●	●
Puissance moyenne et pic de la puis. moyenne	*Average power and peak average power*	●	●	●	●	●

● = Données sauvegardées assurément
✗ = Données enregistrées sur demande (avec le program. Nemo Utility)

● = *Surely stored item*
✗ = *Item strored upon request (with Nemo Utility program)*

TAB.2

	INTERVALLE DE TEMPS • TIME INTERVAL							
Donnée type *Data type*	2s	5s	10s	30s	60s	2min	5min	10min
0	15	40	80	240	480	960	2400	4800
1								
2	25	60	120	360	720	1440	2880	5760
3								

TAB.3

DUREE DE SAUVEGARDE • *SAVING TIME*	CAPACITÉ DE LA MEMOIRE • *MEMORY SIZE*
5 min	4 mois *months*
10 min	8 mois *months*
15 min	12 mois *months*

une formule simple que l'utilisateur devrait utiliser pour obtenir l'intervalle de temps maximum :

$$T = \frac{\text{floor}\left(\frac{512}{\text{Rlength}}\right) 7000 * \text{time}_{sec}}{3600}$$

A simple formulas that the user should use in order to obtain the max saving interval is :

Rlength	Longueur de l'enregistrement en bytes / *Records lenght in bytes*
Npages	Nombre de page / *Number of pages*
Time $_{sec}$	Intervalles de temps en secondes / *Time interval in seconds*
Floor	Fonction qui ne prend que le quotient entier / *Function that takes only the interger quotient*

COMMUNICATION RS485

Isolée galvaniquement de l'entrée et de l'alim. aux. (Nemo 96...)

Standard: RS485 - 3 fils

Transmission: asynchrone série

Protocole: compatible JBUS/MODBUS

Nombre de bit: 8

Bit de stop: 1

Temps de réponse à l'interrogation: ≤ 200ms

Nbre max. d'appareils raccordés sur le réseau: 32 (jusqu'à 255 avec répétiteur RS485)

Distance max. du superviseur: 1200m

RS485 COMMUNICATION

Galvanically insulated from input and aux. supply (Nemo 96...)

Standard: *RS485 - 3-wire*

Transmission: *serial asynchronous*

Protocol: *compatible JBUS/MODBUS*

Bit number: *8*

Stop bit: *1*

Required response time to request: *≤ 200ms*

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

Highest distance from supervisor: *1200m*

PARAMETRES PROGRAMMABLES - RS485

Nbre d'adresses: 1...255

Vitesse de transmission: 4.800 - 9.600 - 19.200 - 38.400[1] bit/s

Bit de parité: sans - pair - impair

PROGRAMMABLE PARAMETERS - RS485

Address: *1...255*

Baud rate: *4.800 - 9.600 - 19.200 - 38.400[1] bit/s*

Parity bit: *none - even - odd*

ALIMENTATION AUXILIAIRE

Valeur référée à la combinaison du Nemo 96... et interface IF96012

Autoconsommation: ≤ 5VA

AUXILIARY SUPPLY

Value referred to combination Nemo 96... multifunction meters + IF96012 interface

Rated burden: *≤ 5VA*

ISOLEMENT (EN61010)

Valeur référée à la combinaison du Nemo 96... et interface IF96012

Tension d'essai 2 kV valeur efficace 50Hz/1min

Circuits considétés: entrée mesure, alimentation auxiliaire, communication RS485

INSULATION (EN61010)

Value referred to combination Nemo 96... multifunction meters + IF96012 interface

A.C. voltage test 2 kV r.m.s. value 50Hz/1min

Considered circuits: *measure, aux. supply, RS485 communication*

BOITIER

Boîtier: module avec connecteur pour raccordement sur Nemo 96...

Profondeur max.: 81mm (Nemo 96... et module)

Raccordement: bornier à vis

Capacité des bornes: câble rigide max. 4,5mm², câble flexible max. 2,4mm²

Matériau du boîtier: polycarbonate autoextinguible

Poids: 30 gramme

HOUSING

Housing: *modulewith connector for connection Nemo 96... meter*

Max. depth: *81mm (Nemo 96... and module)*

Connections: *screw terminals*

Terminals range: *rigid cable max. 4,5mm², flexible cable max. 2,4mm²*

Housing material: *self-extinguishing policarbonate*

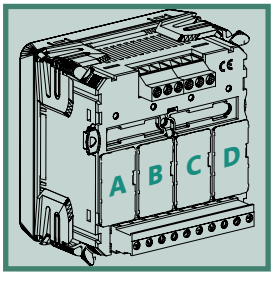
Weight: *30 grams*

Modèle *Modèle*	N.MAX	POSITION *POSITION* A	B	C	D	FIRMWARE[1]	Notice technique *Notice technique*
Nemo 96 HD	1	●				2.06	NT680
Nemo 96 HD+	1	●				2.06	NT681
Nemo 96 HDLe	1	●				2.5	NT854
Nemo 96 HDLe Rogowski	1	●				1.00	NT890

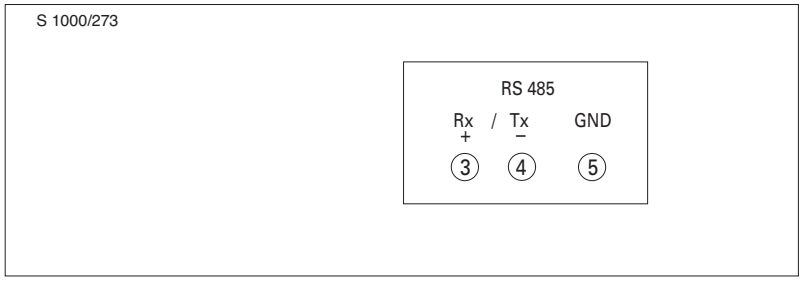
[1] **VERSION FIRMWARE:** sur le tableau figure la version firmware de la centrale nécessaire pour supporter la fonction du module supplémentaire. En utilisant un module de communication IF96001 (RS485) ou IF96002 (RS232) ou IF96015 (Ethernet) il est possible de mettre à jour la version firmware directement en façade, l'aide d'un PC et du logiciel approprié.

[1] ***FIRMWARE VERSION:*** *on the table it is shown the firmware version of the meter which is necessary to support the function of the extra module.*

By using an IF96001 (RS485) or IF96002 (RS232) or IF96015 (Ethernet) and communication module it is possible to update the firmware version directly on field, with the help of a PC and the necessary software.



SCHEMA DE RACCORDEMENT *WIRING DIAGRAM*



DIMENSIONS *DIMENSIONS*