
ISTRUZIONI PER L'UTILIZZO DEL PROTOCOLLO LONWORKS
INSTRUCTIONS FOR USE OF THE LONWORKS PROTOCOL
INSTRUCTIONS POUR L'UTILISATION DU PROTOCOLE LONWORKS
BEDIENUNGSANLEITUNG FÜR DAS LONWORKS-PROTOKOLL
GEBRUIKSAANWIJZING VOOR HET LONWORKS-PROTOCOL
INSTRUCCIONES PARA EL USO DEL PROTOCOLO LONWORKS
NAVODILA ZA UPORABO PROTOKOLA LONWORKS
ИНСТРУКЦИИ ЗА ПОЛЗБА НА ПРОТОКОЛА LONWORKS
HASZNÁLATI ÚTMUTATÓ A LONWORKS PROTOKOLHOZ

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1. INTRODUZIONE

Questo documento ha lo scopo di illustrare come poter utilizzare la periferica Modbus presente nei prodotti Evoplus per interfacciarsi ad una Rete Lon , mediante l'utilizzo di interfacce Modbus-Lon presenti sul mercato.

Il documento prevede una conoscenza base delle reti LON e Modbus da parte dell'utente.

Il Circolatore Evoplus fornisce all'utente una periferica **MODBUS RTU**, con interfaccia RS485. Tramite alcuni moduli presenti in commercio è possibile rendere disponibile il circolatore anche ad una rete LonWorks , e quindi il suo status e la possibilità di variare i parametri del circolatore, leggendo o modificando i registri come descritto nel Manuale "Istruzioni per l'utilizzo del Protocollo Modbus ", disponibile all'indirizzo "<http://www.dabpumps.it/evoplus>".

2. GATEWAY MODBUS-LONWORKS

Per interfacciare una rete Modbus con una di tipo LonWorks, occorre interporre fra le due reti un gateway. In commercio ne esistono di vari tipi, in particolare consigliamo il BabelBuster485. Sotto vengono riportare le caratteristiche del convertitore:

Interfaccia	LonWorks TP/FT-10 - ModbusRtu Rs485
Comunicazione	Bidirezionale
Alimentazione	10-30 VDC ; 12-24 VAC
Consumo di potenza	0.1 A @ 24 VDC
Montaggio	Barra DIN
Dimensioni	100mm H x 70mm W x 60mm D
Condizioni di utilizzo	Temperatura -40 + 85 °C , Umidità 5- 90 %

Tabella 1: Caratteristiche Babel Buster 485

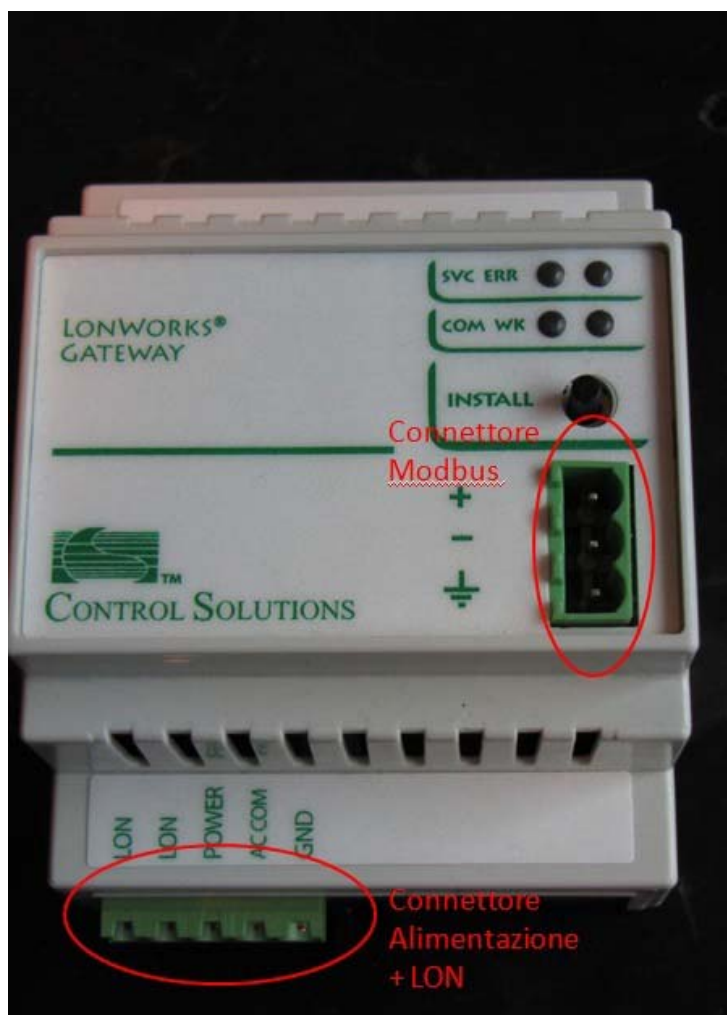


Figura 1: Babel Buster 485

Per quando riguarda la connessione al bus MODBUS, connettere correttamente il terminale non invertente **A** al pin + ed il terminale invertente **B** al pin - del connettore Modbus. Collegare il segnale **Y** al terminale comune.

Per le connessioni A, B e Y su Evoplus fare riferimento al manuale di installazione del prodotto.

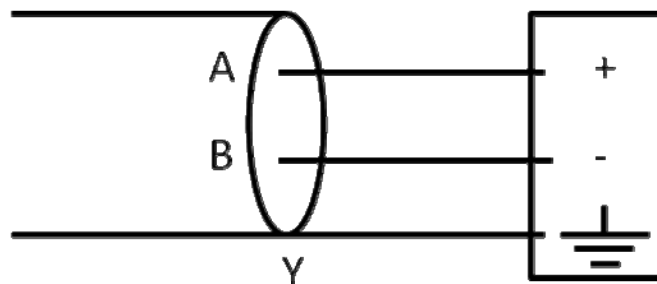


Figura 2: Connessione modbus Babel Buster 485 - Evoplus

Connettere il bus LONBUS (cavo TP/FT-10) ai due terminali LON.

Per alimentare il Babel Buster 485 in tensione continua fornire una tensione compresa tra 10 V e 30V DC tra i connettori POWER e GND. Non connettere il terminale ACCOM.

Per alimentare in tensione AC connettere i due terminali di alimentazione tra POWER e ACCOM.

Per ulteriori informazioni: http://www.csimn.com/CSI_pages/BB485.html

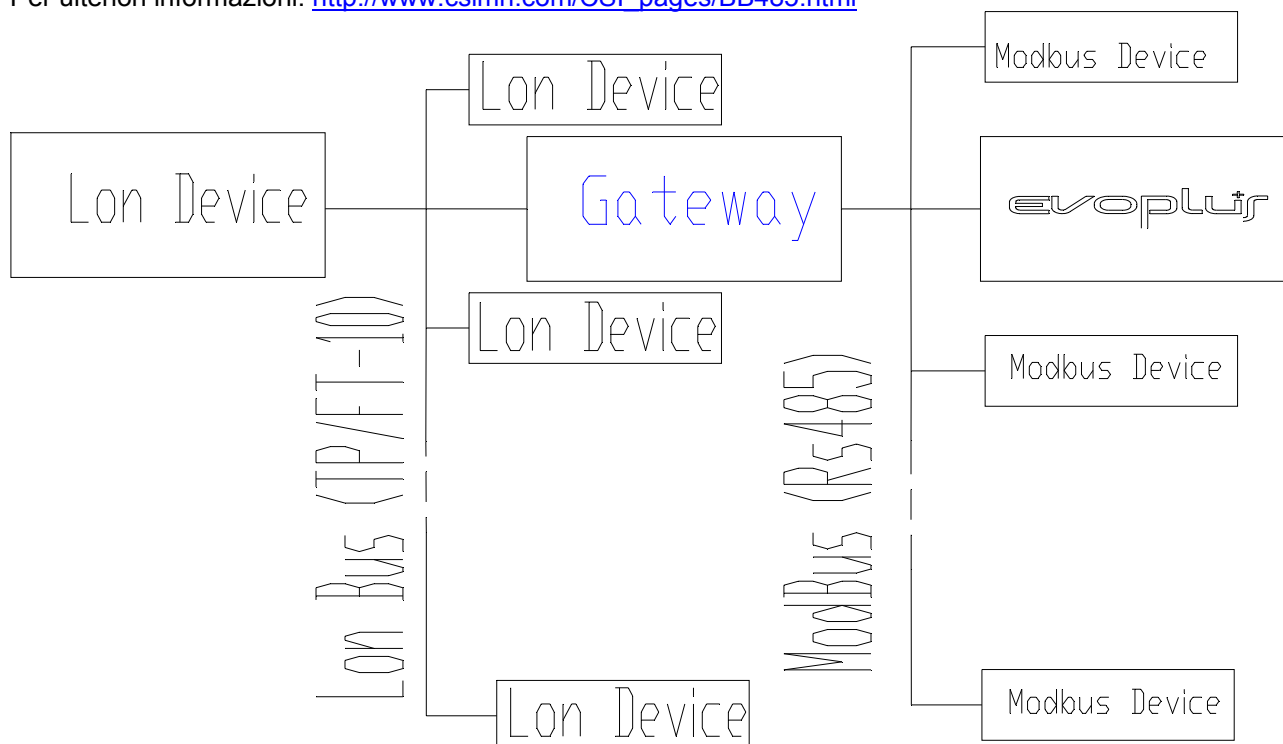


Figura 3: Schema topologia Rete Ibrida Modbus - Lon

3. COME CONFIGURARE IL BABEL BUSTER 485

Di seguito verranno descritte le operazioni necessarie a configurare correttamente il dispositivo:

1. Collegare il dispositivo al PC tramite una rete LON, alimentare il dispositivo.
2. Avviare l'applicazione Babel Buster Configuration Tool, disponibile sul Cd fornito assieme al Babel Buster 485.
3. Scegliere la porta di comunicazione LON e premere "Connect".

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40110	0000	0000	☐

Location: 1U40110 @MaxRpmPerCent

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0.0	0.0000	60.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT

SNVT_count_f

Change Type

Node Object Configuration Properties

Baud Rate: 19200

Swapped Doubles: ☐

Node Location String: @

Major Ver: 1

Minor Ver: 10

Third -->

Get All CP's

Get Node CP's

Send All CP's

Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0

Master: ☒

Slave Response: 500 mSec

Slave ID:

Use Fn Codes 5/6: ☐

My IP Address:

My Subnet Mask:

My Gateway:

Remote Server:

Read CP's from File

Save CP's to File

Node Identity

Neuron ID: 02-47-37-E5-01-00

Subnet: 1

Node: 1

Domain: 0

Program ID: 80:00:17:46:00:81:04:06

Wink

Configure

Second... Press Service Pin, then click here -->

Get ID

Reset

Unconfig

Network Interface Configuration

Subnet: 1

Node: 126

Domain Length and Value: 0

Configure

Fetch Cfg

First -->

Connect

Disconnect

Network Interface: LON1

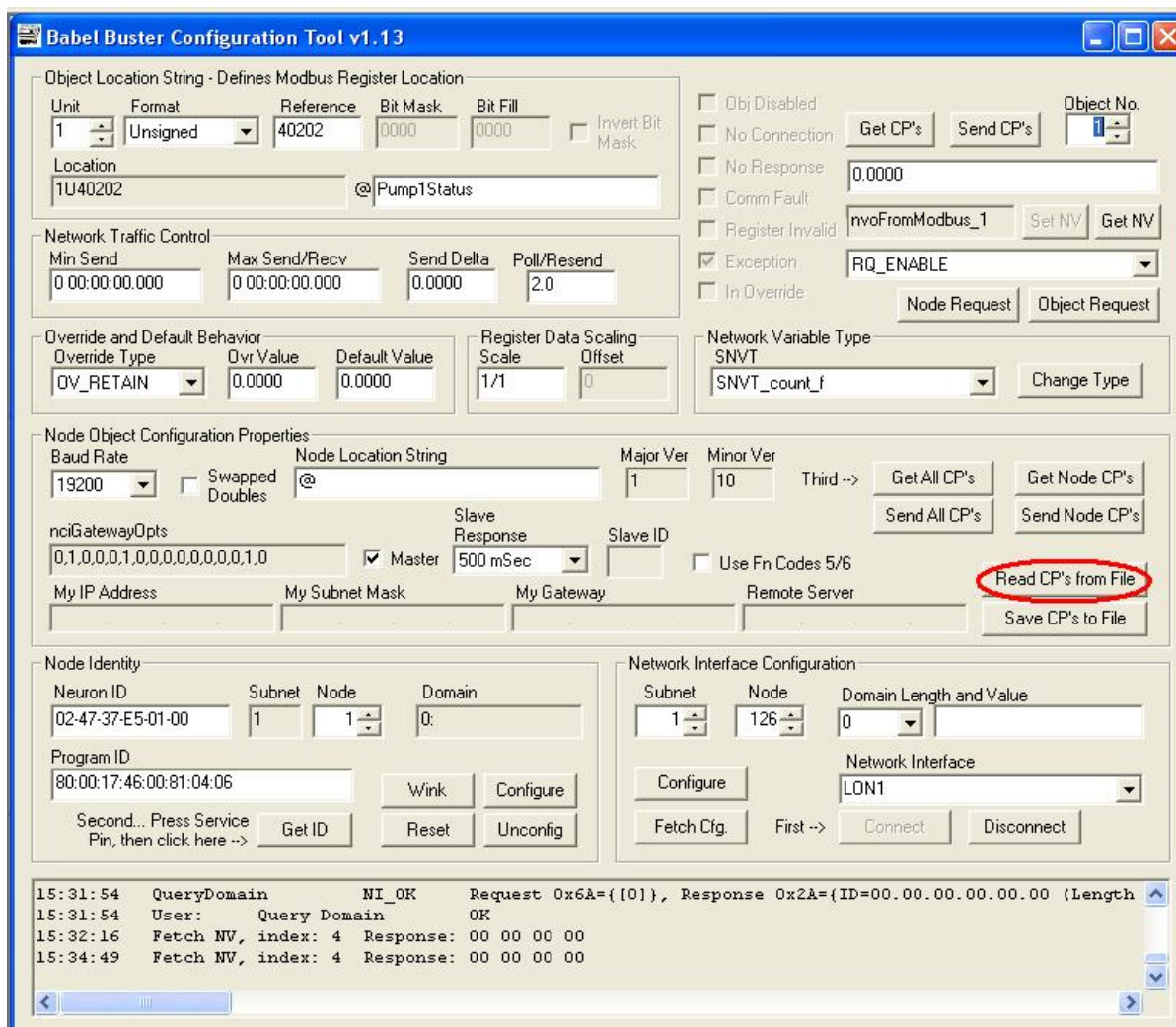
14:14:13 Fetch NV, index: 35 Response: 42 20 00 00

14:14:15 Fetch NV, index: 35 Response: 42 20 00 00

14:14:17 NV updated.

14:14:18 Fetch NV, index: 35 Response: 42 20 00 00

4. Durante la prima accensione premere il pulsante "Install" sul Babel Buster.
5. Premere il pulsante "Read Cp's from file", utilizzando il file di configurazione EvoplusLON.xml.



Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit: 1, Format: Unsigned, Reference: 40202, Bit Mask: 0000, Bit Fill: 0000, Invert Bit Mask: ☐

Location: 1U40202, @Pump1Status

Network Traffic Control

Min Send: 0 00:00:00.000, Max Send/Recv: 0 00:00:00.000, Send Delta: 0.0000, Poll/Resend: 2.0

Override and Default Behavior

Override Type: OV_RETAIN, Ovr Value: 0.0000, Default Value: 0.0000

Register Data Scaling

Scale: 1/1, Offset: 0

Network Variable Type

SNVT, SNVT_count_f, Change Type

Node Object Configuration Properties

Baud Rate: 19200, Swapped Doubles: ☐ Node Location String: @, Major Ver: 1, Minor Ver: 10, Third -->

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0, Master: ☒ Slave Response: 500 mSec, Slave ID: , Use Fn Codes 5/6: ☐

My IP Address: , My Subnet Mask: , My Gateway: , Remote Server: , Read CP's from File (highlighted), Save CP's to File

Node Identity

Neuron ID: 02-47-37-E5-01-00, Subnet: 1, Node: 1, Domain: 0, Program ID: 80:00:17:46:00:81:04:06, Wink, Configure, Get ID, Reset, Unconfig

Network Interface Configuration

Subnet: 1, Node: 126, Domain Length and Value: 0, Network Interface: LON1, Fetch Cfg, First -->, Connect, Disconnect

Log:

```

15:31:54 QueryDomain NI_OK Request 0x6A={01}, Response 0x2A={ID=00.00.00.00.00.00 (Length
15:31:54 User: Query Domain OK
15:32:16 Fetch NV, index: 4 Response: 00 00 00 00
15:34:49 Fetch NV, index: 4 Response: 00 00 00 00

```

Il file di configurazione provvede a caricare sul device LON tutti i parametri utili alla conversione dei dati da LON a Modbus e viceversa.

In particolare contiene i parametri di comunicazione seriale del Modbus. La Tabella di seguito descrive i parametri settati dal File:

Configurazione device Modbus-LON	Master
Velocità trasmissione	19200 kb/s
Parità	No
Stop bit	1
Response timeout	1000 ms

Tabella 2: Configurazione Modbus

Importante: L'interfaccia Modbus presente sul circolatore Evoplus, deve essere configurata allo stesso modo descritto nella Tabella 2.

Nel caso si voglia cambiare alcuni parametri di comunicazione (es: velocità di trasmissione), occorrerà agire sul menù a tendina "Baudrate", oppure modificare manualmente il file .xml.

Sul file sono anche salvate tutte le informazioni in merito al collegamento tra registri MODBUS e registri LON.

Il file di configurazione descrive tutti gli oggetti LON. Di seguito un esempio:

```

<sensor_object>
  <ObjectIndex>1</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTminSndT>0,00:00:00.000</SCPTminSndT>

```



```

<SCPTmaxSndT>0,00:00:00.000</SCPTmaxSndT>
<SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
<SCPTovrValue>0.0000</SCPTovrValue>
<SCPTgain>1/1</SCPTgain>
<SCPTdefOutput>0.0000</SCPTdefOutput>
<SCPTsndDelta>0.0000</SCPTsndDelta>
<SCPTupdateRate>2.0</SCPTupdateRate>
<SCPTlocation>1U40202@Pump1Status</SCPTlocation>
</sensor_object>

```

ObjectIndex	Id dell'oggetto
SCPTnvType	StandardNetworkVariableType
SCPTminSndT	E' il minimo periodo prima che possa avvenire un refresh della variabile
SCPTmaxSndT	E' il massimo periodo che può intercorrere tra un update e l'altro della variabile
SCPTovrBehave	
SCPTovrValue	
SCPTgain	Costante moltiplicativa
SCPTdefOutput	
SCPTsndDelta	E' la minima variazione per cui la variabile viene aggiornata
SCPTupdateRate	E' l'intervallo di tempo in cui viene fatta una richiesta via Modbus
SCPTlocation	Definisce la locazione Modbus a cui l'oggetto è associato, in particolare Indirizzo Slave, tipo di registro (signed,unsigned, floating...) (holding register, input register), indirizzo del registro

Tabella 3: Descrizione Parametri associazione oggetti

```

<actuator_object>
  <ObjectIndex>31</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
  <SCPTovrValue>0.0000</SCPTovrValue>
  <SCPTgain>1/1</SCPTgain>
  <SCPTdefOutput>0.0000</SCPTdefOutput>
  <SCPTupdateRate>60.0</SCPTupdateRate>
  <SCPTlocation>1U40050@temp</SCPTlocation>
  <SCPTmaxRcvTime>0.0</SCPTmaxRcvTime>
</actuator_object>

```

Per ulteriori informazioni occorre far riferimento al datasheet del dispositivo, disponibile all'indirizzo http://www.csimn.com/CSI_pages/BB485.html.

6. Premere il tasto "Send All Cp's". Con questa operazione viene salvata in memoria la configurazione per l'associazione dei registri Modbus agli oggetti LON.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40202	0000	0000	☐

Location: 1U40202 @ Pump1Status

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0 00:00:00.000	0.0000	2.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT

SNVT_count_f

Change Type

Node Object Configuration Properties

Baud Rate: 19200

Swapped Doubles: ☐

Node Location String: @

Major Ver: 1

Minor Ver: 10

Third -->

Get All CP's

Get Node CP's

Send All CP's

Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0

Master: ☒

Slave Response: 500 mSec

Slave ID:

Use Fn Codes 5/6: ☐

Read CP's from File

Save CP's to File

My IP Address:

My Subnet Mask:

My Gateway:

Remote Server:

Node Identity

Neuron ID: 02-47-37-E5-01-00

Subnet: 1

Node: 1

Domain: 0

Program ID: 80:00:17:46:00:81:04:06

Wink

Configure

Second... Press Service Pin, then click here -->

Get ID

Reset

Unconfig

Network Interface Configuration

Subnet: 1

Node: 126

Domain Length and Value: 0

Configure

Fetch Cfg

First -->

Connect

Disconnect

Network Interface: LON1

15:31:54 User: Query Domain OK

15:32:16 Fetch NV, index: 4 Response: 00 00 00 00

15:34:49 Fetch NV, index: 4 Response: 00 00 00 00

15:34:58 Fetch NV, index: 4 Response: 00 00 00 00

7. Abilitare gli oggetti che si desidera modificare e/o leggere, impostando RQ_ENABLE.
8. Se si vuole cambiare l'associazione dei registri, modificare i parametri tramite il Babel Buster Configuration Tool (modificando i parametri del campo Object Location String e Network Traffic Control), oppure modificando il file .xml di configurazione, oppure utilizzando il programma LonMark.

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1. INTRODUCTION

The aim of this document is to illustrate how to use the Modbus peripheral supplied in Evoplus products to interface with a Lon network, using Modbus-Lon interfaces available on the market.

The document presumes that the user has a basic knowledge of LON and Modbus networks.

The Evoplus Circulator supplies the user with a **MODBUS RTU** peripheral, with RS485 interface. With some modules on the market it is possible to make the circulator available also to a LonWorks network, and therefore its status and the possibility of varying the circulator parameters, reading or modifying the registers as described in the Manual "Instructions for use of the Modbus Protocol" available at the address "<http://www.dabpumps.it/evoplus>".

2. MODBUS-LONWORKS GATEWAY

To interface a Modbus and a LonWorks network, a gateway must be placed between the two networks. There are various types on the market, in particular we recommend the BabelBuster485. The characteristics of the converter are listed below:

Interface	LonWorks TP/FT-10 - ModbusRtu Rs485
Communication	Bidirectional
Power supply	10-30 VDC ; 12-24 VAC
Power consumption	0.1 A @ 24 VDC
Assembly	DIN bar
Dimensions	100mm H x 70mm W x 60mm D
Conditions of use	Temperature -40 + 85 °C , Humidity 5- 90 %

Table 1: Characteristics Babel Buster 485

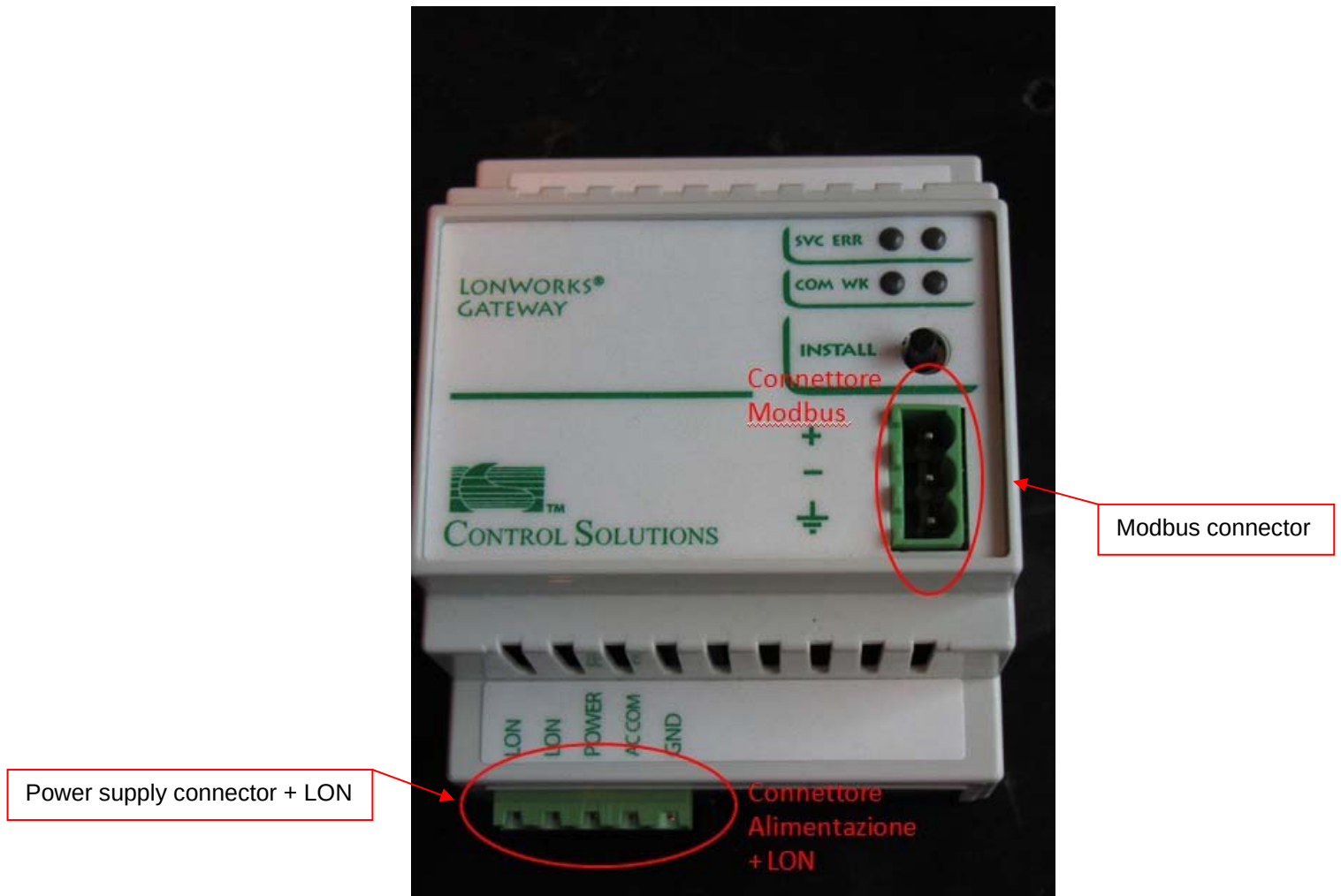


Figure 1: Babel Buster 485

As regards the connection to the MODBUS, connect the non inverting terminal **A** correctly to the + pin and the inverting terminal **B** to the - pin of the Modbus connector. Connect the **Y** signal to the common terminal. For the connections A, B and Y on Evoplus, refer to the product installation manual.

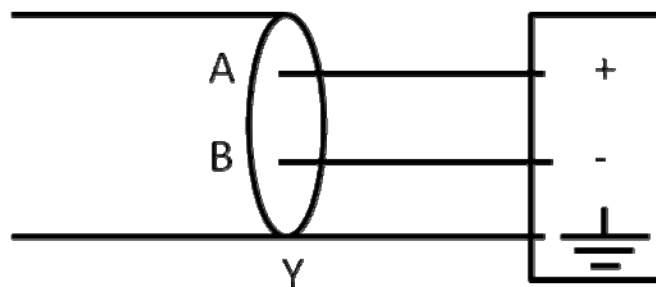


Figure 2: Babel Buster 485 – Evoplus modbus connection

Connect the LONBUS (cable TP/FT-10) to the two LON terminals.

To feed the Babel Buster 485 with direct current voltage, supply a voltage between 10 V and 30V DC between the POWER and GND connectors. Do not connect the ACCOM terminal.

To feed it with AC voltage, connect the two power supply terminals between POWER and ACCOM.

For further information: http://www.csimn.com/CSI_pages/BB485.html

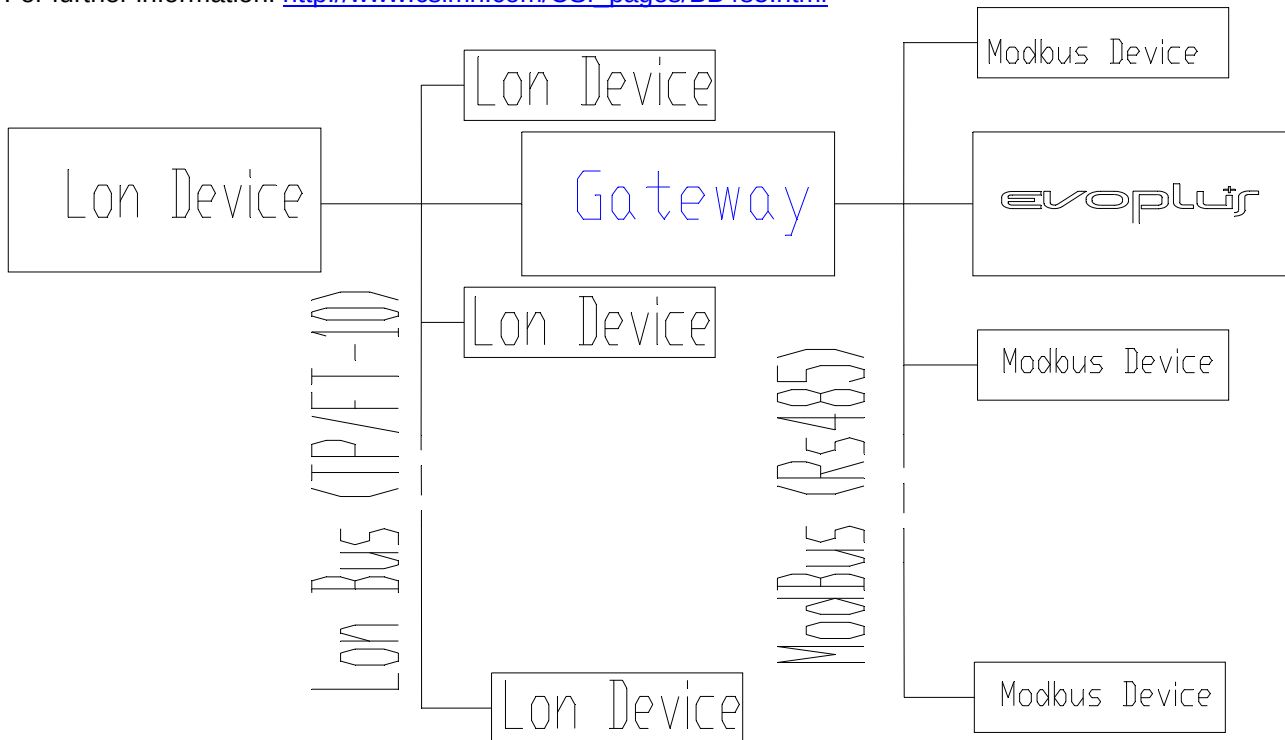


Figure 3: Hybrid Modbus – Lon Network layout diagram

3. HOW TO CONFIGURE THE BABEL BUSTER 485

The necessary operations for configuring the device correctly are described below:

1. Connect the device to the PC by means of a LON network, supply power to the device
2. Start the Babel Buster Configuration Tool application, available on the CD supplied with the Babel Buster 485.
3. Choose the LON communication port and press "Connect"

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40110	0000	0000	☐

Location: 1U40110 @ MaxRpmPerCent

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
00:00:00.000	0.0	0.0000	60.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT
SNVT_count_f Change Type

Node Object Configuration Properties

Baud Rate: 19200 ☐ Swapped Doubles Node Location String: @ Major Ver: 1 Minor Ver: 10 Third --> Get All CP's Get Node CP's Send All CP's Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,1,0 ☒ Master Slave Response: 500 mSec Slave ID: Use Fn Codes 5/6 Read CP's from File Save CP's to File

My IP Address: My Subnet Mask: My Gateway: Remote Server:

Node Identity

Neuron ID	Subnet	Node	Domain
02-47-37-E5-01-00	1	1	0:

Program ID: 80:00:17:46:00:81:04:06 Wink Configure

Second... Press Service Pin, then click here --> Get ID Reset Unconfig

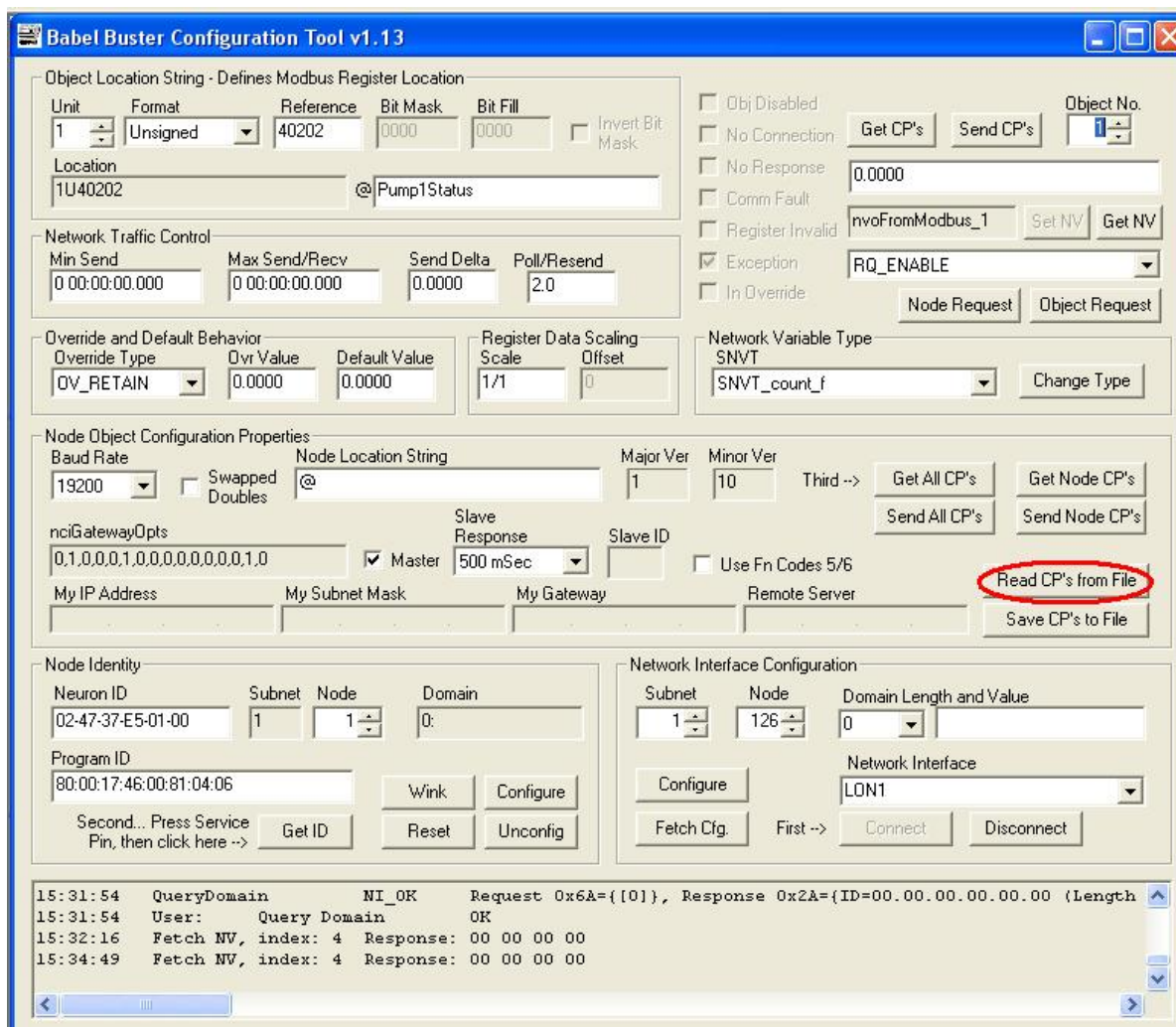
Network Interface Configuration

Subnet	Node	Domain Length and Value
1	126	0

Configure Fetch Cfg. Network Interface: LON1 First --> Connect Disconnect

14:14:13 Fetch NV, index: 35 Response: 42 20 00 00
 14:14:15 Fetch NV, index: 35 Response: 42 20 00 00
 14:14:17 NV updated.
 14:14:18 Fetch NV, index: 35 Response: 42 20 00 00

- During the first switch-on, press the "Install" button on the Babel Buster
- Press the button "Read Cp's from file", using the configuration file EvoplusLON.xml.



The configuration file loads on the LON device all the useful parameters for converting data from LON to Modbus and vice-versa.

In particular it contains the Modbus serial communication parameters. The Table below describes the parameters set by the File:

Modbus-LON device configuration	Master
Transmission speed	19200 kb/s
Parity	No
Stop bit	1
Timeout response	1000 ms

Table 2: Modbus Configuration

Important: The Modbus interface on the Evoplus circulator must be configured as described in Table 2. If you want to change any communication parameters (for example: transmission speed), you will have to open the "Baudrate" drop-down menu, or modify the .xml file by hand.

All the information concerning the connection between MODBUS registers and LON registers is also saved in the file.

The configuration file describes all the LON objects. See the following example:

```
<sensor_object>
  <ObjectIndex>1</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTminSndT>0,00:00:00.000</SCPTminSndT>
  <SCPTmaxSndT>0,00:00:00.000</SCPTmaxSndT>
  <SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
```



```

<SCPTovrValue>0.0000</SCPTovrValue>
<SCPTgain>1/1</SCPTgain>
<SCPTdefOutput>0.0000</SCPTdefOutput>
<SCPTsndDelta>0.0000</SCPTsndDelta>
<SCPTupdateRate>2.0</SCPTupdateRate>
<SCPTlocation>1U40202@Pump1Status</SCPTlocation>
</sensor_object>

```

ObjectIndex	Object ID
SCPTnvType	StandardNetworkVariableType
SCPTminSndT	The minimum period before the variable can be refreshed
SCPTmaxSndT	The maximum period that can pass between one update of the variable and the next
SCPTovrBehave	
SCPTovrValue	
SCPTgain	Multiplication constant
SCPTdefOutput	
SCPTsndDelta	Minimum variation for which the variable is updated
SPTupdateRate	The time interval in which a request is sent via Modbus
SCPTlocation	Defines the Modbus location with which the object is associated, in particular Slave Address, type of register (signed,unsigned, floating...) (holding register, input register), register address

Table 3: Description of object association parameters

```

<actuator_object>
  <ObjectIndex>31</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
  <SCPTovrValue>0.0000</SCPTovrValue>
  <SCPTgain>1/1</SCPTgain>
  <SCPTdefOutput>0.0000</SCPTdefOutput>
  <SCPTupdateRate>60.0</SCPTupdateRate>
  <SCPTlocation>1U40050@temp</SCPTlocation>
  <SCPTmaxRcvTime>0.0</SCPTmaxRcvTime>
</actuator_object>

```

For further information refer to the data sheet of the device, available at the address http://www.csimn.com/CSI_pages/BB485.html.

6. Press the button "Send All Cp's". This operation saves in the memory the configuration for associating the Modbus registers with LON objects.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40202	0000	0000	☐

Location: 1U40202 @ Pump1Status

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0 00:00:00.000	0.0000	2.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT

SNVT_count_f

Change Type

Node Object Configuration Properties

Baud Rate: 19200

Swapped Doubles: ☐

Node Location String: @

Major Ver: 1

Minor Ver: 10

Third -->

Get All CP's

Get Node CP's

Send All CP's

Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,1,0

Master: ☒

Slave Response: 500 mSec

Slave ID:

Use Fn Codes 5/6: ☐

Read CP's from File

Save CP's to File

My IP Address:

My Subnet Mask:

My Gateway:

Remote Server:

Node Identity

Neuron ID: 02-47-37-E5-01-00

Subnet: 1

Node: 1

Domain: 0:

Program ID: 80:00:17:46:00:81:04:06

Wink

Configure

Second... Press Service Pin, then click here -->

Get ID

Reset

Unconfig

Network Interface Configuration

Subnet: 1

Node: 126

Domain Length and Value: 0

Configure

Fetch Cfg

First -->

Connect

Disconnect

Network Interface: LON1

15:31:54 User: Query Domain OK

15:32:16 Fetch NV, index: 4 Response: 00 00 00 00

15:34:49 Fetch NV, index: 4 Response: 00 00 00 00

15:34:58 Fetch NV, index: 4 Response: 00 00 00 00

7. Enable the objects that you want to change and/or read, setting RQ_ENABLE.
8. If you want to change the association of the registers, modify the parameters using the Babel Buster Configuration Tool (modifying the parameters of the field Object Location String and Network Traffic Control), or modify the .xml configuration file, or use the LonMark program.

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1. INTRODUCTION

Ce document a pour but d'illustrer comment utiliser la périphérie Modbus présente dans les produits Evoplus pour s'interfacer avec un réseau LON, par le biais d'interfaces Modbus-Lon présentes sur le marché.

Le document prévoit une connaissance de base des réseaux LON et Modbus de la part de l'utilisateur.

Le Circulateur Evoplus fournit à l'utilisateur une périphérie **MODBUS RTU**, avec interface RS485. Par l'intermédiaire de modules présents dans le commerce, il est possible de rendre disponible le circulateur également pour un réseau LonWorks, et donc son état avec la possibilité de modifier les paramètres du circulateur, en lisant ou en modifiant les registres suivant les indications de Manuel « Instructions pour l'utilisation du Protocole Modbus », disponible à l'adresse <http://www.dabpumps.it/evoplus>".

2. GATEWAY MODBUS-LONWORKS

Pour interfacer un réseau Modbus avec un réseau de type LonWorks, il faut interposer entre les deux réseaux un gateway.

Il en existe de différents types dans le commerce, nous conseillons notamment le BabelBuster485.

Nous donnons ci-après les caractéristiques du convertisseur :

Interface	LonWorks TP/FT-10 - ModbusRtu Rs485
Communication	Bidirectionnelle
Alimentation	10-30 VCC ; 12-24 VCA
Consommation de puissance	0,1 A @ 24 VCC
Montage	Barre DIN
Dimensions	100 mm H x 70 mm W x 60 mm D
Conditions d'utilisation	Température -40 + 85 °C , Humidité 5- 90 %

Tableau 1: Caractéristiques Babel Buster 485

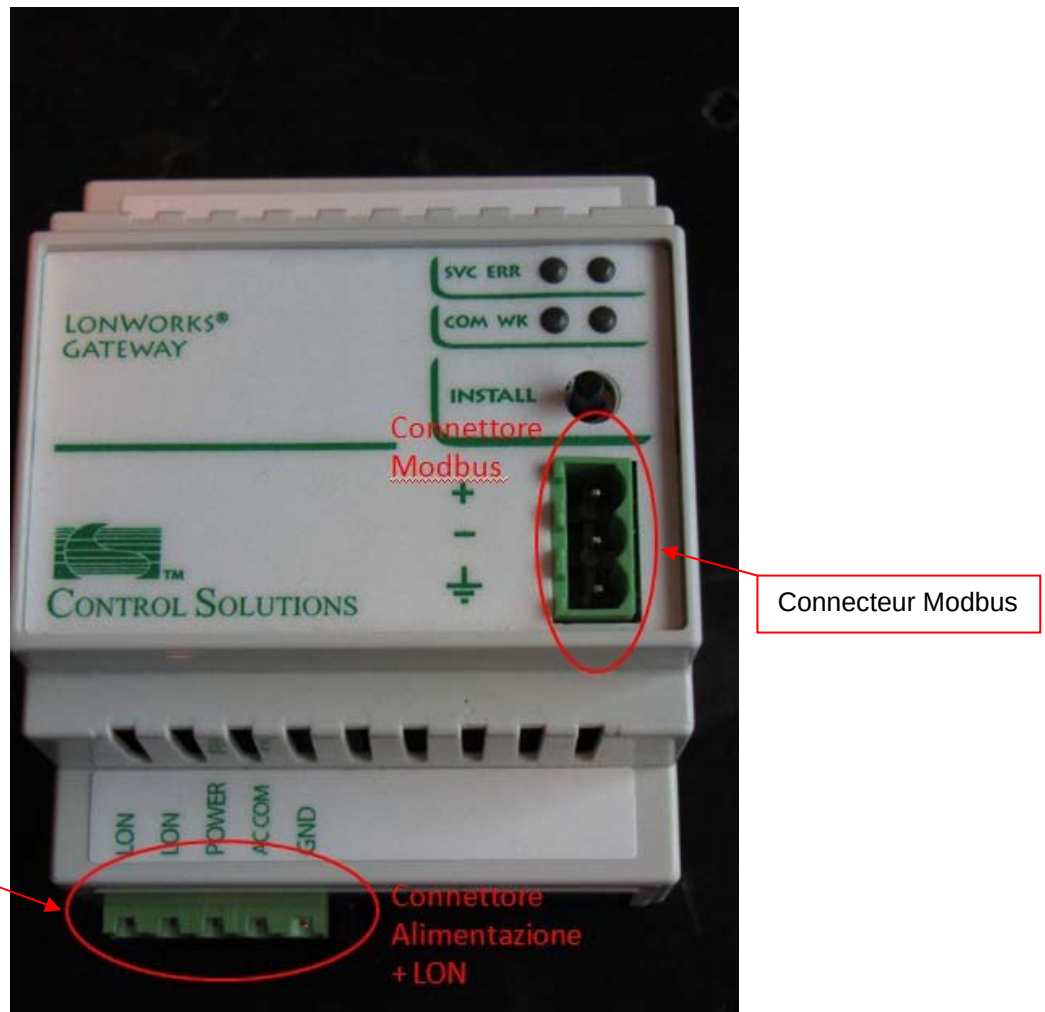


Figure 1: Babel Buster 485

En ce qui concerne la connexion au bus MODBUS, connecter correctement la borne non inverseuse **A** à la broche + et la borne inverseuse **B** à la broche - du connecteur Modbus. Connecter le signal **Y** à la borne commune.

Pour les connexions A, B et Y sur Evoplus se référer à la notice d'installation du produit.

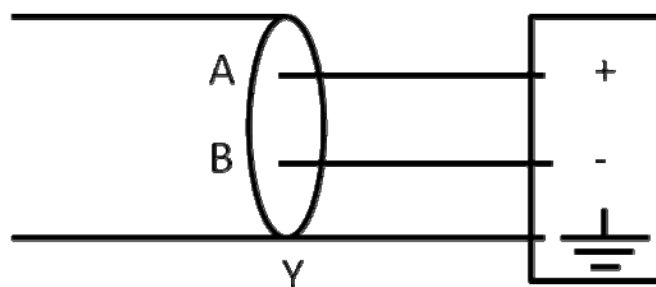


Figure 2: Connexion modbus Babel Buster 485 - Evoplus

Connecter le bus LONBUS (câble TP/FT-10) aux deux bornes LON.

Pour alimenter le Babel Buster 485 en tension continue fournir une tension comprise entre 10 V et 30V DC entre les connecteurs POWER et GND. Ne pas connecter la borne ACCOM.

Pour alimenter en tension AC connecter les deux bornes d'alimentation entre POWER et ACCOM.

Pour plus de détails : http://www.csimn.com/CSI_pages/BB485.html

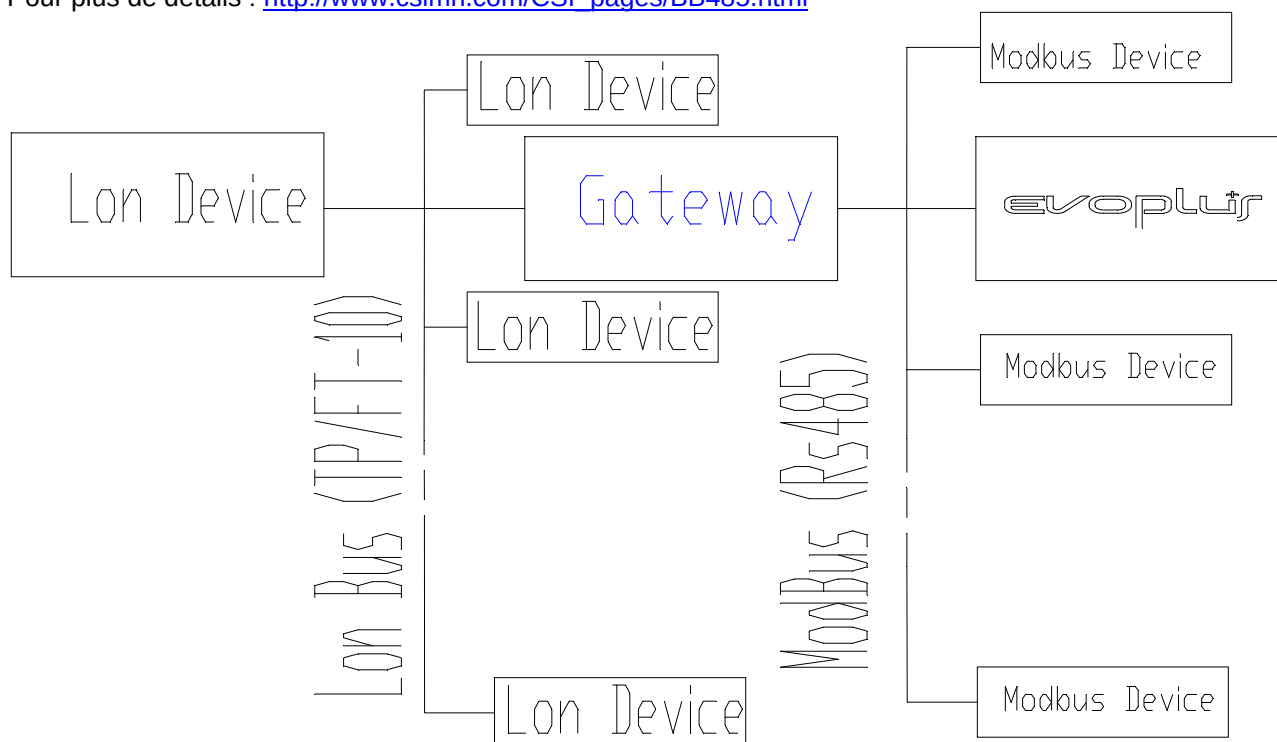


Figure 3: Schéma topologie Réseau hybride Modbus - LON

3. COMMENT CONFIGURER LE BABEL BUSTER 485

Nous décrivons ci-après les opérations servant à configurer correctement le dispositif :

1. Connecter le dispositif au PC par l'intermédiaire d'un réseau LON, alimenter le dispositif
2. Lancer l'application Babel Buster Configuration Tool, disponible sur le Cd fourni avec Babel Buster 485.
3. Choisir la porte de communication LON et appuyer sur « Connect »

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit: 1 Format: Unsigned Reference: 40110 Bit Mask: 0000 Bit Fill: 0000 ☐ Invert Bit Mask

Location: 1U40110 @MaxRpmPerCent

Network Traffic Control

Min Send: 0 00:00:00.000 Max Send/Recv: 0.0 Send Delta: 0.0000 Poll/Resend: 60.0

Override and Default Behavior

Override Type: OV_RETAIN Ovr Value: 0.0000 Default Value: 0.0000

Register Data Scaling

Scale: 1/1 Offset: 0

Network Variable Type

SNVT SNVT_count_f Change Type

Node Object Configuration Properties

Baud Rate: 19200 ☐ Swapped Doubles Node Location String: @ Major Ver: 1 Minor Ver: 10 Third --> Get All CP's Get Node CP's Send All CP's Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0 ☒ Master Slave Response: 500 mSec Slave ID: Use Fn Codes 5/6

My IP Address: My Subnet Mask: My Gateway: Remote Server: Read CP's from File Save CP's to File

Node Identity

Neuron ID: 02-47-37-E5-01-00 Subnet: 1 Node: 1 Domain: 0 Program ID: 80:00:17:46:00:81:04:06 Wink Configure

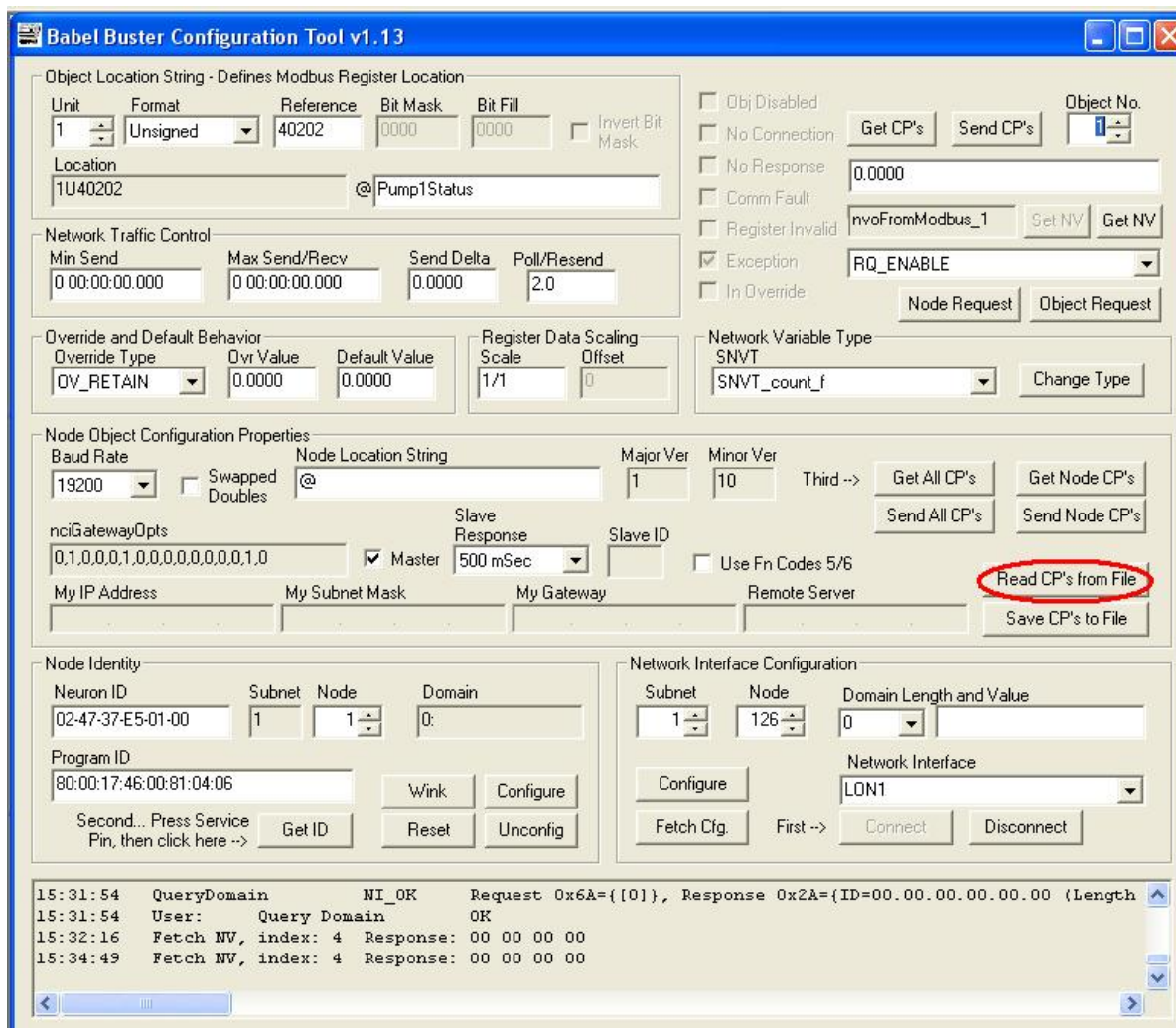
Second... Press Service Pin, then click here --> Get ID Reset Unconfig

Network Interface Configuration

Subnet: 1 Node: 126 Domain Length and Value: 0 Network Interface: LON1 Configure Fetch Cfg First --> **Connect** Disconnect

14:14:13 Fetch NV, index: 35 Response: 42 20 00 00
 14:14:15 Fetch NV, index: 35 Response: 42 20 00 00
 14:14:17 NV updated.
 14:14:18 Fetch NV, index: 35 Response: 42 20 00 00

4. Au premier allumage appuyer sur la touche « Install » sur le Babel Buster.
5. Appuyer sur la touche « Read Cp's from file », en utilisant le fichier de configuration EvoplusLON.xml.



Le fichier de configuration charge sur le dispositif LON tous les paramètres servant à la conversion des données de LON à Modbus et vice-versa.

En particulier il contient les paramètres de communication série du Modbus. Le Tableau ci-après décrit les paramètres configurés par le Fichier:

Configuration dispositif Modbus-LON	Master
Vitesse de transmission	19200 kb/s
Parité	Non
Bit d'arrêt	1
Délai d'attente de réponse	1000 ms

Tableau 2: Configuration Modbus

Important: L'interface Modbus présente sur le circulateur Evoplus doit être configurée de la même manière que celle décrite dans le Tableau 2.

Si l'on veut changer certains paramètres de communication (par ex. : vitesse de transmission), il faut agir sur le menu déroulant « Baudrate », ou bien modifier manuellement le fichier .xml.

Dans le fichier sont enregistrée également toutes les informations concernant la connexion entre les registres MODBUS et les registres LON.

Le fichier de configuration décrit tous les objets LON. Ci-après un exemple :

```
<sensor_object>
  <ObjectIndex>1</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTminSndT>0,00:00:00.000</SCPTminSndT>
  <SCPTmaxSndT>0,00:00:00.000</SCPTmaxSndT>
```



```

<SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
<SCPTovrValue>0.0000</SCPTovrValue>
<SCPTgain>1/1</SCPTgain>
<SCPTdefOutput>0.0000</SCPTdefOutput>
<SCPTsndDelta>0.0000</SCPTsndDelta>
<SCPTupdateRate>2.0</SCPTupdateRate>
<SCPTlocation>1U40202@Pump1Status</SCPTlocation>
</sensor_object>

```

ObjectIndex	Id de l'objet
SCPTnvType	StandardNetworkVariableType
SCPTminSndT	C'est la période minimum qui doit s'écouler avant d'actualiser la variable
SCPTmaxSndT	C'est la période maximum qui doit s'écouler entre deux actualisations de la variable
SCPTovrBehave	
SCPTovrValue	
SCPTgain	Constante de multiplication
SCPTdefOutput	
SCPTsndDelta	C'est la variation minimum pour laquelle la variable est actualisée
SPTupdateRate	C'est l'intervalle de temps pendant lequel une demande via Modbus est faite
SCPTlocation	Définit l'emplacement Modbus auquel l'objet est associé, en particulier adresse Slave, type de registre (signed, unsigned, floating...) (holding register, input register), adresse du registre

Tableau 3: Description Paramètres association objets

```

<actuator_object>
  <ObjectIndex>31</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
  <SCPTovrValue>0.0000</SCPTovrValue>
  <SCPTgain>1/1</SCPTgain>
  <SCPTdefOutput>0.0000</SCPTdefOutput>
  <SCPTupdateRate>60.0</SCPTupdateRate>
  <SCPTlocation>1U40050@temp</SCPTlocation>
  <SCPTmaxRcvTime>0.0</SCPTmaxRcvTime>
</actuator_object>

```

Pour plus de détails, se référer à la fiche de données du dispositif, disponible à l'adresse http://www.csimn.com/CSI_pages/BB485.html.

- Appuyer sur la touche « Send All Cp's M ». Cette opération enregistre dans la mémoire la configuration pour l'association des registres Modbus aux objets LON.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit: 1 Format: Unsigned Reference: 40202 Bit Mask: 0000 Bit Fill: 0000 ☐ Invert Bit Mask

Location: 1U40202 @ Pump1Status

Network Traffic Control

Min Send: 0 00:00:00.000 Max Send/Recv: 0 00:00:00.000 Send Delta: 0.0000 Poll/Resend: 2.0

Override and Default Behavior

Override Type: OV_RETAIN Ovr Value: 0.0000 Default Value: 0.0000

Register Data Scaling

Scale: 1/1 Offset: 0

Network Variable Type

SNVT SNVT_count_f Change Type

Node Object Configuration Properties

Baud Rate: 19200 Node Location String: @ Major Ver: 1 Minor Ver: 10 Third -->

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0 ☒ Master Slave Response: 500 mSec Slave ID: Use Fn Codes 5/6 ☐

My IP Address: My Subnet Mask: My Gateway: Remote Server:

Node Identity

Neuron ID: 02-47-37-E5-01-00 Subnet: 1 Node: 1 Domain: 0:

Program ID: 80:00:17:46:00:81:04:06

Second... Press Service Pin, then click here -->

Network Interface Configuration

Subnet: 1 Node: 126 Domain Length and Value: 0 Network Interface: LON1

15:31:54 User: Query Domain OK
 15:32:16 Fetch NV, index: 4 Response: 00 00 00 00
 15:34:49 Fetch NV, index: 4 Response: 00 00 00 00
 15:34:58 Fetch NV, index: 4 Response: 00 00 00 00

7. Valider les objets que l'on souhaite modifier et/ou lire en sélectionnant RQ_ENABLE.
8. Si l'on veut changer l'association des registres, modifier les paramètres à l'aide du Babel Buster Configuration Tool (en modifiant les paramètres du champ Object Location String et Network Traffic Control), ou bien en modifiant le fichier .xml de configuration, ou bien en utilisant le programme LonMark.

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1. VORWORT

Dieses Dokument beschreibt die Verwendung des in den Evoplus-Produkten enthaltenen Modbus-Geräts, das dazu dient, um mittels handelsüblichen LON-Modbus-Schnittstellen eine Verbindung an ein LON-Netzwerk herstellen zu können.

Zum besseren Verständnis werden Basiskenntnisse der LON- und Modbus-Netzwerke seitens des Benutzers vorausgesetzt.

Die Umwälzpumpe Evoplus stellt dem Benutzer ein Gerät **MODBUS RTU** mit RS485 Schnittstelle zur Verfügung.

Mit Hilfe einiger handelsüblichen Module kann die Umwälzpumpe auch in ein LonWorks-Netzwerk eingebunden werden, und folglich ihr Status und die Möglichkeit der Änderung der Parameter der Umwälzpumpe, indem die Register gelesen oder geändert werden, wie im Handbuch "Gebrauchsanweisung für das Lonworks-Protokoll", beschrieben, das hier einsehbar ist "<http://www.dabpumps.it/evoplus>".

2. GATEWAY MODBUS-LONWORKS

Um ein Modbus-Netzwerk mit einem LonWorks-Netzwerk verbinden zu können, muss zwischen den beiden Netzwerken ein Gateway geschaltet werden.

Im Handel sind verschiedene Typen erhältlich, wir empfehlen besonders den BabelBuster485.

Nachstehend sind die Merkmale des Konverters aufgeführt:

Schnittstelle	LonWorks TP/FT-10 - ModbusRtu Rs485
Kommunikation	Bidirektional
Versorgung	10-30 VDC ; 12-24 VAC
Leistungsverbrauch	0.1 A @ 24 VDC
Montage	DIN-Schiene
Abmessungen	100 mm H x 70 mm W x 60 mm D
Betriebsbedingungen	Temperatur -40 + 85 °C , Luftfeuchtigkeit 5- 90 %

Tabelle 1: Merkmale Babel Buster 485

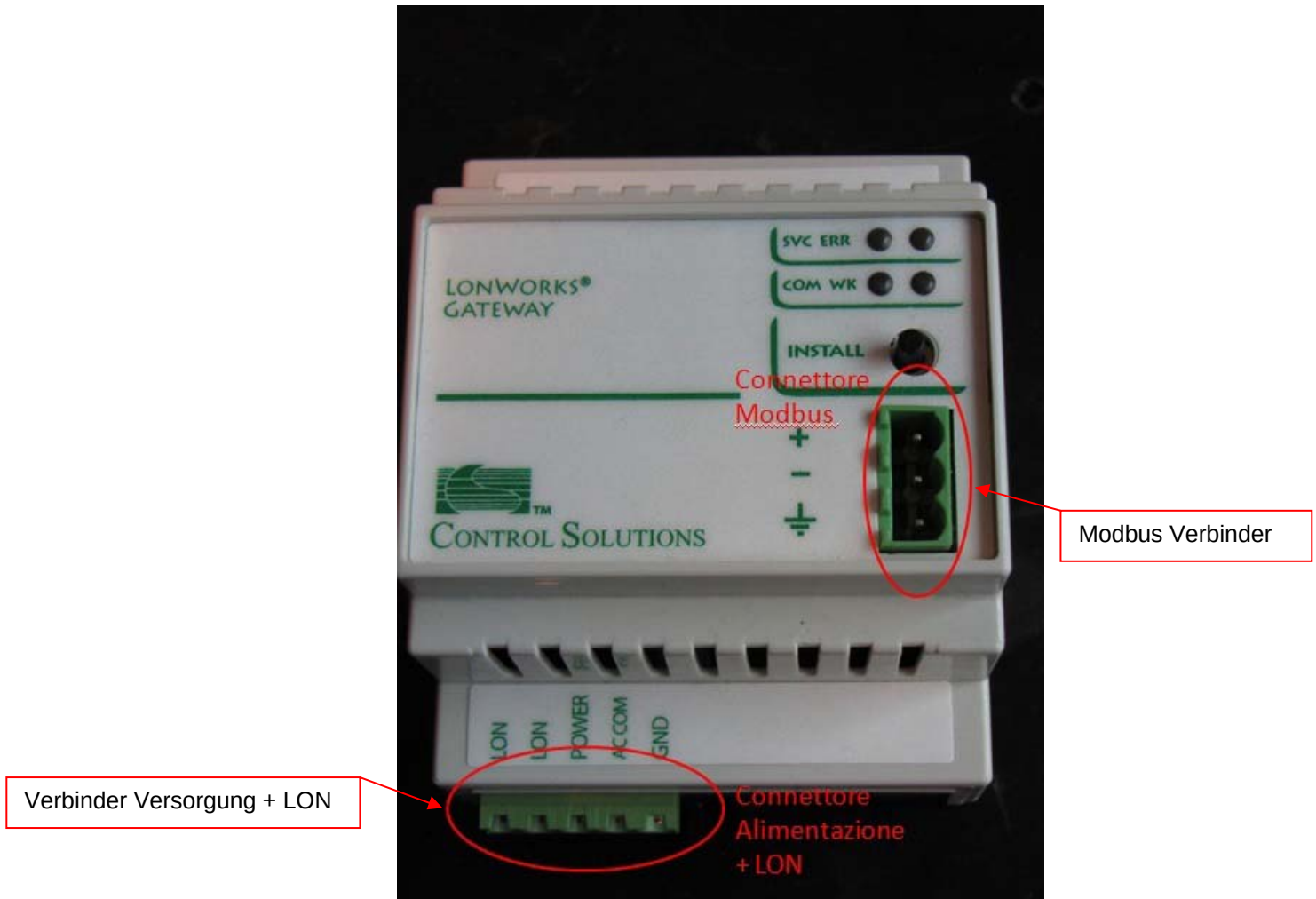


Abbildung 1: Babel Buster 485

Für die Verbindung mit dem Bus MODBUS die nichtinvertierende Anschlussklemme **A** korrekt an den Pin + und die invertierende Anschlussklemme **B** an den Pin - des Modbus-Verbinders anschließen. Das Signal **Y** an die gemeinsame Anschlussklemme anschließen.

Für die Verbindungen A, B und Y an Evoplus die Installationsanleitung des Produkt konsultieren.

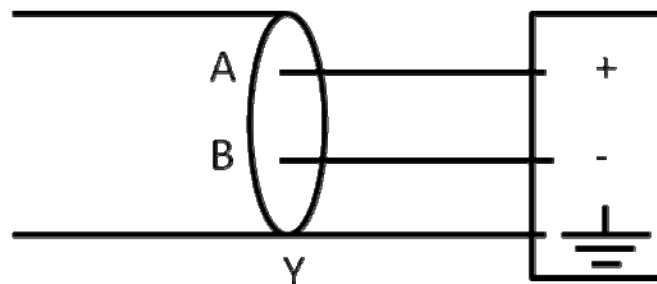


Abbildung 2: Verbindung Modbus Babel Buster 485 - Evoplus

Den Bus LONBUS (Kabel TP/FT-10) mit den beiden Anschlussklemmen LON verbinden.

Um den Babel Buster 485 mit Gleichspannung speisen zu können, muss zwischen den Verbindern POWER und GND eine Spannung von 10 V bis 30 V DC vorliegen. Die Anschlussklemme ACCOM nicht verbinden.

Um mit Wechselspannung speisen zu können, die beiden Versorgungsklemmen zwischen POWER und ACCOM verbinden.

Für weitere Informationen: http://www.csimn.com/CSI_pages/BB485.html

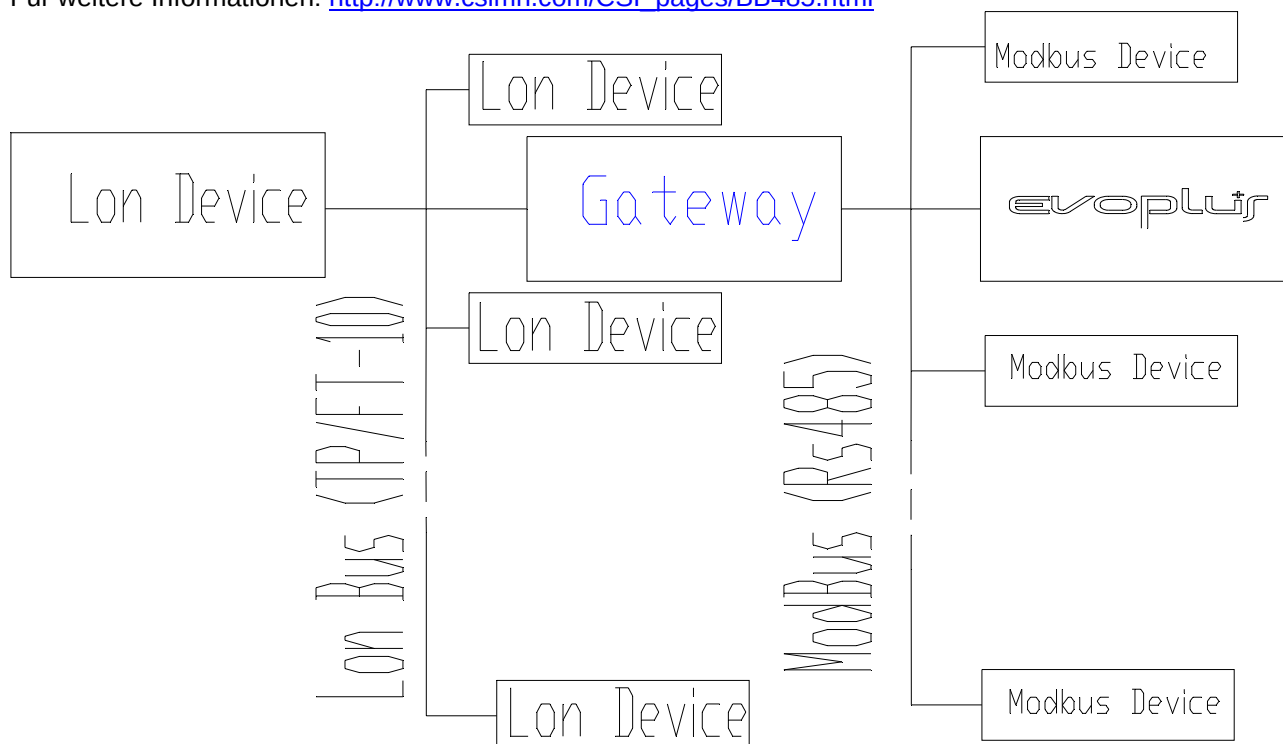


Abbildung 3: Topologisches Schema Hybrid-Netzwerk Modbus Lon

3. KONFIGURATION VON BABEL BUSTER 485

Nachstehend sind die Operationen aufgeführt, die für die korrekte Konfiguration der Vorrichtung erforderlich sind:

1. Die Vorrichtung über ein LON-Netzwerk an den PC anschließen und unter Spannung setzen.
2. Die Anwendung Babel Buster Configuration Tool starten, die auf der mit Babel Buster 485 gelieferten CD enthalten ist.
3. Den Kommunikationsport LON wählen und auf "Connect" klicken.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40110	0000	0000	☐

Location: 1U40110 @MaxRpmPerCent

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0.0	0.0000	60.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type: SNVT
SNVT_count_f Change Type

Node Object Configuration Properties

Baud Rate: 19200 Swapped Doubles: ☐ Node Location String: @ Major Ver: 1 Minor Ver: 10 Third --> Get All CP's Get Node CP's Send All CP's Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0 Master: ☒ Slave Response: 500 mSec Slave ID: Use Fn Codes 5/6: ☐ Read CP's from File Save CP's to File

My IP Address: My Subnet Mask: My Gateway: Remote Server:

Node Identity

Neuron ID: 02-47-37-E5-01-00 Subnet: 1 Node: 1 Domain: 0 Program ID: 80:00:17:46:00:81:04:06 Wink Configure Get ID Reset Unconfig

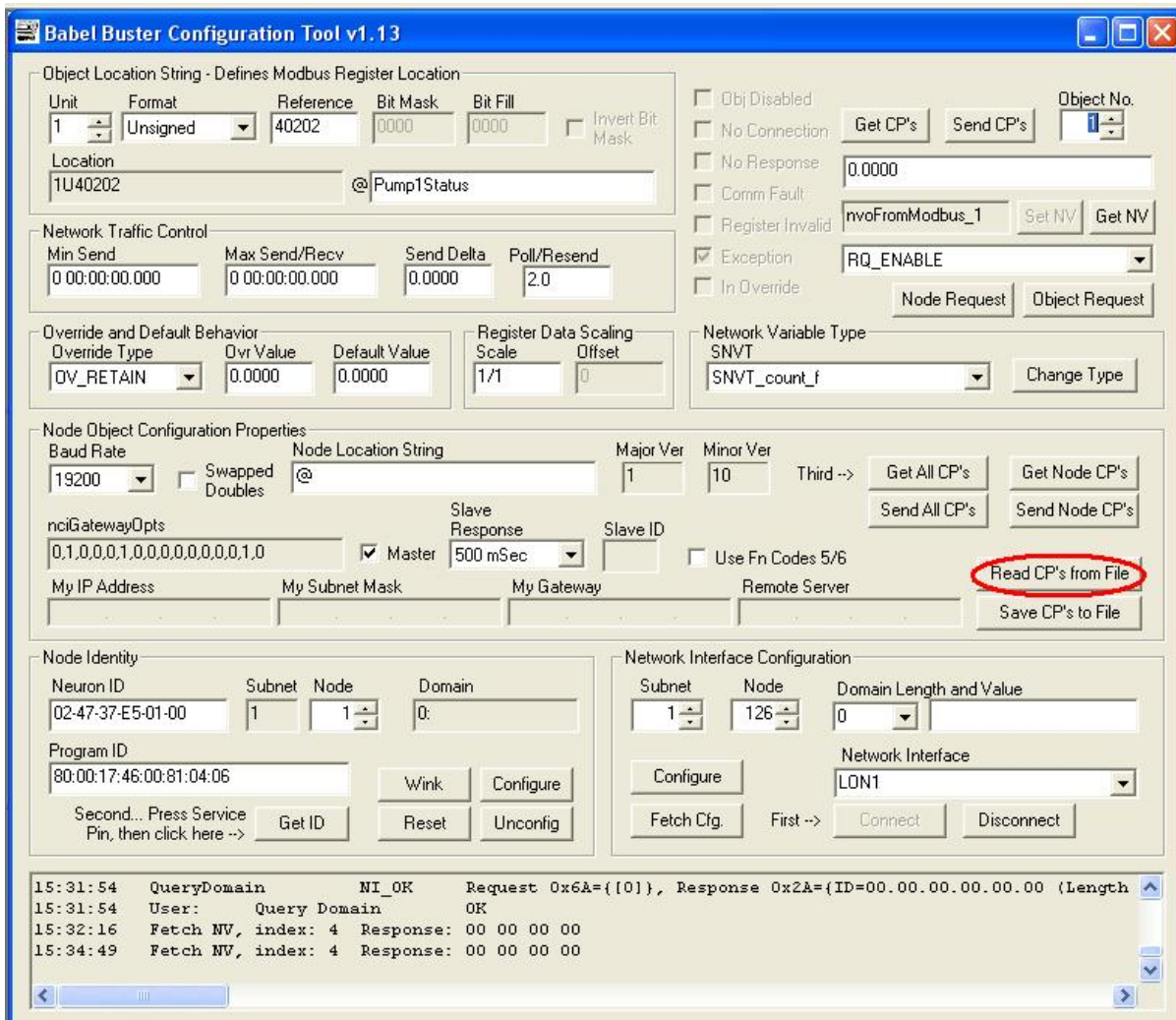
Second... Press Service Pin, then click here -->

Network Interface Configuration

Subnet: 1 Node: 126 Domain Length and Value: 0 Network Interface: LON1 Connect Disconnect

14:14:13 Fetch NV, index: 35 Response: 42 20 00 00
 14:14:15 Fetch NV, index: 35 Response: 42 20 00 00
 14:14:17 NV updated.
 14:14:18 Fetch NV, index: 35 Response: 42 20 00 00

4. Beim ersten Einschalten auf die Schaltfläche "Install" am Babel Buster klicken.
5. Auf die Schaltfläche "Read Cp's from file" klicken und die Konfigurationsdatei EvoplusLON.xml verwenden.



Die Konfigurationsdatei sorgt dafür, dass alle für die Konversion der Daten von LON zu Modbus in die LON Vorrichtung erforderlichen Parameter geladen werden und umgekehrt.

Im Besonderen enthält sie die Parameter der seriellen Kommunikation des Modbus. Die nachstehende Tabelle enthält die von Datei eingestellten Parameter:

Konfiguration Device Modbus-LON	Master
Übertragungsgeschwindigkeit	19200 kb/s
Parität	keine
Stopbit	1
Response timeout	1000 ms

Tabelle 2: Konfiguration Modbus

Wichtig: Die Modbus-Schnittstelle an der Umwälzpumpe Evoplus wird konfiguriert wie in Tabelle 1 gezeigt.

Sollen einige Kommunikationsparameter verändert werden (z.B. die Übertragungsgeschwindigkeit), kann dies über das Drop-Down-Menü „Baudrate“ oder durch manuelles Ändern der Datei .xml erfolgen.

In der Datei sind alle Informationen über die Verbindung zwischen den Registern MODBUS und den Registern LON gespeichert.

Die Konfigurationsdatei beschreibt alle LON-Objekte. Nachstehend ein Beispiel:

```
<sensor_object>
  <ObjectIndex>1</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTminSndT>0,00:00:00.000</SCPTminSndT>
  <SCPTmaxSndT>0,00:00:00.000</SCPTmaxSndT>
```

```

<SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
<SCPTovrValue>0.0000</SCPTovrValue>
<SCPTgain>1/1</SCPTgain>
<SCPTdefOutput>0.0000</SCPTdefOutput>
<SCPTsndDelta>0.0000</SCPTsndDelta>
<SCPTupdateRate>2.0</SCPTupdateRate>
<SCPTlocation>1U40202@Pump1Status</SCPTlocation>
</sensor_object>

```

ObjectIndex	ID des Objektes
SCPTnvType	StandardNetworkVariableType
SCPTminSndT	Der min. Zeitraum, bevor ein Refresh der Variablen erfolgen kann
SCPTmaxSndT	Der max. Zeitraum, der zwischen dem einen und dem nächsten Update der Variablen liegen muss
SCPTovrBehave	
SCPTovrValue	
SCPTgain	Multiplikationskontante
SCPTdefOutput	
SCPTsndDelta	Die min. Veränderung, auf die die Variable aktualisiert werden kann
SPTupdateRate	Der Zeitintervall, in dem eine Anfrage via Modbus erfolgen kann
SCPTlocation	Definiert den Modbus-Speicherplatz, dem das Objekt zugeordnet ist, im Besonderen Slave-Adresse, Typ des Registers (signed,unsigned, floating...) (holding register, input register), Register-Adresse

Tabelle 3: Beschreibung der Parameter für die Objektzuordnung

```

<actuator_object>
  <ObjectIndex>31</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
  <SCPTovrValue>0.0000</SCPTovrValue>
  <SCPTgain>1/1</SCPTgain>
  <SCPTdefOutput>0.0000</SCPTdefOutput>
  <SCPTupdateRate>60.0</SCPTupdateRate>
  <SCPTlocation>1U40050@temp</SCPTlocation>
  <SCPTmaxRcvTime>0.0</SCPTmaxRcvTime>
</actuator_object>

```

Für weitere Informationen das Datenblatt der Vorrichtungen konsultieren, das hier einsehbar ist http://www.csimn.com/CSI_pages/BB485.html.

6. Auf die Schaltfläche "Send All Cp's" klicken. Mit diesem Vorgang wird die Konfiguration für die Zuordnung der Modbus Register zu den Objekten LON im Speicher gesichert.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40202	0000	0000	☐

Location: 1U40202 @ Pump1Status

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0 00:00:00.000	0.0000	2.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT

SNVT_count_f

Change Type

Node Object Configuration Properties

Baud Rate: 19200

Swapped Doubles: ☐

Node Location String: @

Major Ver: 1

Minor Ver: 10

Third -->

Get All CP's

Get Node CP's

Send All CP's

Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0

Master: ☒

Slave Response: 500 mSec

Slave ID:

Use Fn Codes 5/6: ☐

Read CP's from File

Save CP's to File

My IP Address:

My Subnet Mask:

My Gateway:

Remote Server:

Node Identity

Neuron ID: 02-47-37-E5-01-00

Subnet: 1

Node: 1

Domain: 0:

Program ID: 80:00:17:46:00:81:04:06

Wink

Configure

Second... Press Service Pin, then click here -->

Get ID

Reset

Unconfig

Network Interface Configuration

Subnet: 1

Node: 126

Domain Length and Value: 0

Configure

Fetch Cfg

First -->

Connect

Disconnect

Network Interface: LON1

15:31:54 User: Query Domain OK

15:32:16 Fetch NV, index: 4 Response: 00 00 00 00

15:34:49 Fetch NV, index: 4 Response: 00 00 00 00

15:34:58 Fetch NV, index: 4 Response: 00 00 00 00

7. Um die Objekte freizugeben, die geändert und/oder gelesen werden sollen, RQ_ENABLE eingeben.
8. Soll die Zuordnung der Register verändert werden, können die Parameter mittels Babel Buster Configuration Tool verändert werden (indem die Parameter des Felds Object Location String und Network Traffic Control verändert werden), oder es wird die Konfigurationsdatei .xml geändert, oder das Programm LonMark verwendet.

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INHOUDSOPGAVE VAN AFBEELDINGEN

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1. INLEIDING

Dit document heeft tot doel te illustreren hoe uw Modbus randapparaat, dat aanwezig is in de Evoplus producten, kan worden gebruikt voor verbinding met een LON-netwerk door middel van op de markt verkrijgbare Modbus-Lon-interfaces.

In het document wordt ervan uitgegaan dat de gebruiker basiskennis bezit op het gebied van LON- en Modbus-netwerken.

De Evoplus circulatiepomp levert de gebruiker een **MODBUS RTU** randapparaat met RS485-interface. Door middel van enkele modules die in de handel verkrijgbaar zijn, is het mogelijk de circulatiepomp, en dus de status ervan en de mogelijkheid om de parameters van de circulatiepomp te veranderen, beschikbaar te maken in een LonWorks-netwerk. Dit is mogelijk door het lezen of wijzigen van registers zoals beschreven is in de handleiding "Instructies voor het gebruik van het Modbus-protocol", beschikbaar op het adres "<http://www.dabpumps.it/evoplus>".

2. GATEWAY MODBUS-LONWORKS

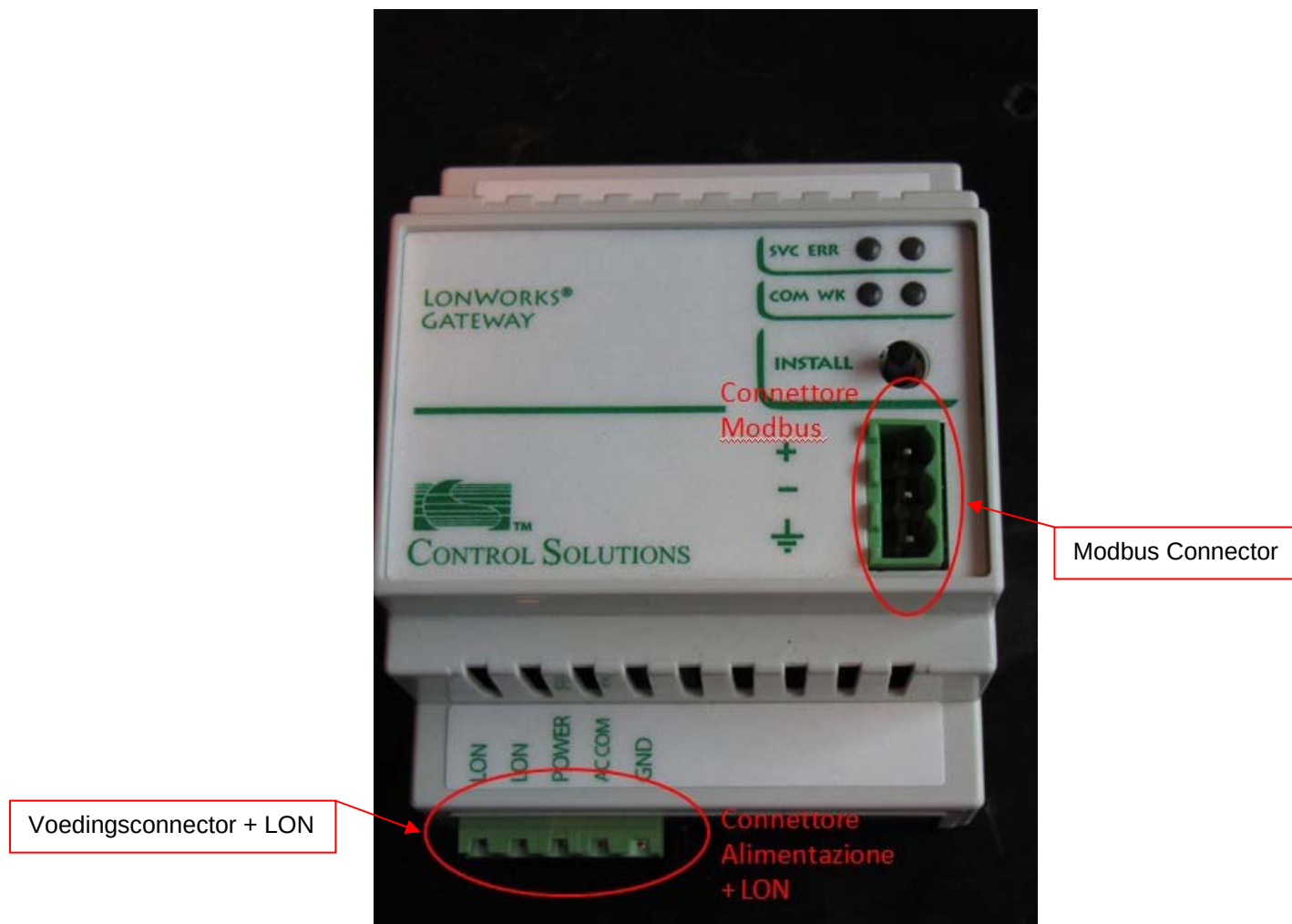
Om een Modbus-netwerk te verbinden met een netwerk van het type LonWorks moet er een gateway tussen de twee netwerken worden geplaatst.

Er zijn verschillende types in de handel verkrijgbaar, wij adviseren in het bijzonder BabelBuster485.

Hieronder worden de kenmerken van de omzetter vermeld:

Interface	LonWorks TP/FT-10 - ModbusRtu Rs485
Communicatie	Bidirectioneel
Voeding	10-30 V gelijkstroom; 12-24 V wisselstroom
Vermogensverbruik	0,1 A @ 24 V gelijkstroom
Montage	DIN-rail
Afmetingen	100mm H x 70mm B x 60mm D
Gebruiksomstandigheden	Temperatuur -40 + 85 °C , Vochtigheid 5- 90%

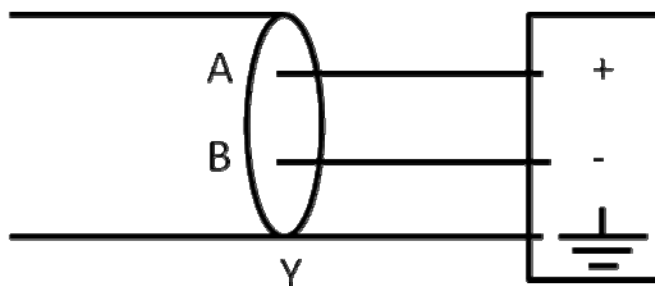
Tabel 1: Kenmerken van Babel Buster 485



Afbeelding 1: Babel Buster 485

Voor wat betreft de verbinding met de MODBUS-bus, moet de niet-inverterende klem **A** worden verbonden met de "+" pin en de inverterende klem **B** met de "-" pin van de Modbus connector. Verbind het **Y**-signaal met de gemeenschappelijke klem.

Voor de verbindingen A, B en Y op Evoplus, zie de installatiehandleiding van het product.



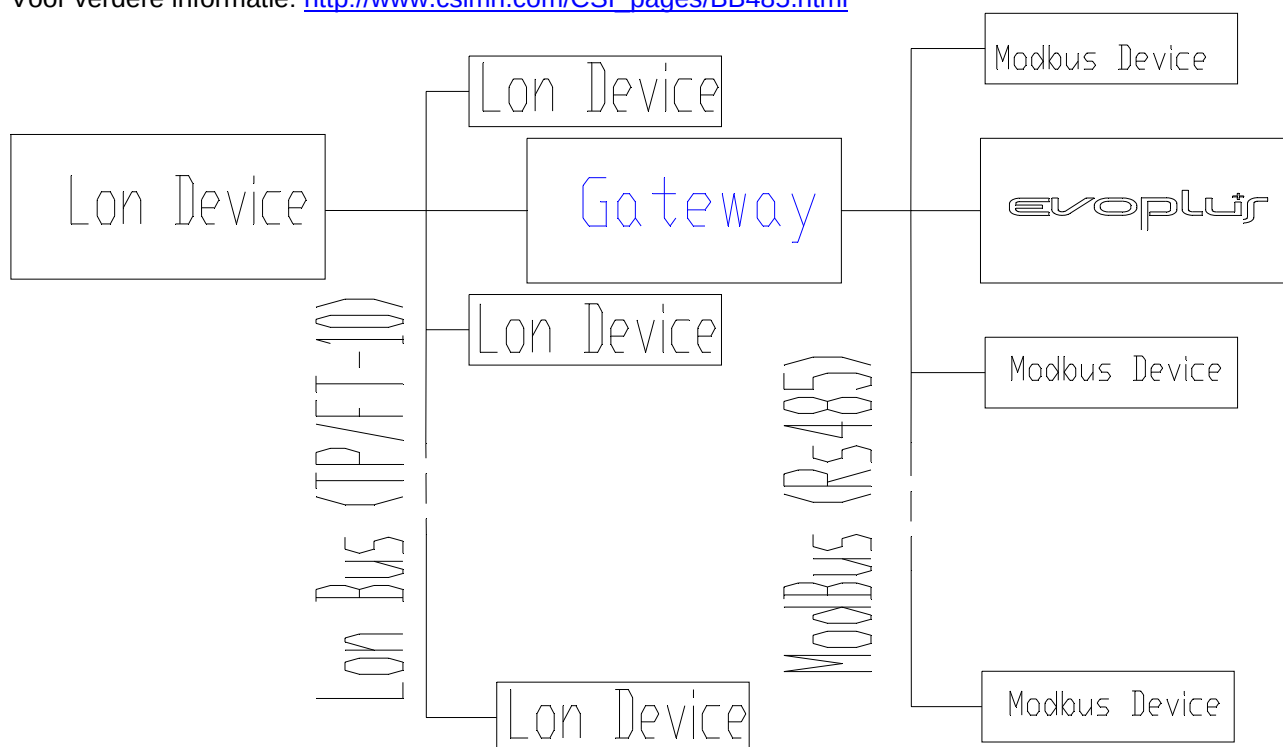
Afbeelding 2: Modbus-aansluiting Babel Buster 485 - Evoplus

Verbind de LONBUS-bus (kabel TP/FT-10) met de twee LON-klemmen.

Om de Babel Buster 485 met gelijkspanning te voeden, moet een spanning worden geleverd van tussen 10 V en 30V DC tussen de POWER- en GND-connector. De ACCOM-klem niet verbinden.

Om met wisselstroom te voeden, moeten de twee voedingsklemmen tussen POWER en ACCOM worden verbonden.

Voor verdere informatie: http://www.csimn.com/CSI_pages/BB485.html



Afbeelding 3: Topologieschema hybride Modbus - Lon-netwerk

3. DE BABEL BUSTER 485 CONFIGUREREN

Hieronder worden de handelingen beschreven die nodig zijn om het apparaat correct te configureren:

1. Het apparaat verbinden met de pc via een LON-netwerk, de voeding van het apparaat inschakelen
2. De toepassing Babel Buster Configuration Tool starten, deze is te vinden op de cd die bij de Babel Buster 485 geleverd is.
3. De LON communicatiepoort kiezen en op "Connect" drukken

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40110	0000	0000	☐

Location: 1U40110 @MaxRpmPerCent

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0.0	0.0000	60.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT

SNVT_count_f

Change Type

Node Object Configuration Properties

Baud Rate: 19200 ☐ Swapped Doubles

Node Location String: @

Major Ver: 1 Minor Ver: 10 Third -->

Get All CP's Get Node CP's

Send All CP's Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0

☒ Master Slave Response: 500 mSec Slave ID:

☐ Use Fn Codes 5/6

Read CP's from File

Save CP's to File

My IP Address: My Subnet Mask: My Gateway: Remote Server:

Node Identity

Neuron ID: 02-47-37-E5-01-00 Subnet: 1 Node: 1 Domain: 0

Program ID: 80:00:17:46:00:81:04:06

Wink Configure

Second... Press Service Pin, then click here --> Get ID Reset Unconfig

Network Interface Configuration

Subnet: 1 Node: 126 Domain Length and Value: 0

Configure

Fetch Cfg

First -- Connect Disconnect

14:14:13 Fetch NV, index: 35 Response: 42 20 00 00

14:14:15 Fetch NV, index: 35 Response: 42 20 00 00

14:14:17 NV updated.

14:14:18 Fetch NV, index: 35 Response: 42 20 00 00

4. Tijdens de eerste inschakeling op de knop "Install" op de Babel Buster drukken
5. Op de knop "Read Cp's from file" drukken, gebruik makend van het configuratiebestand EvoplusLON.xml.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit: 1, Format: Unsigned, Reference: 40202, Bit Mask: 0000, Bit Fill: 0000, Invert Bit Mask: ☐

Location: 1U40202, @Pump1Status

Network Traffic Control

Min Send: 0 00:00:00.000, Max Send/Recv: 0 00:00:00.000, Send Delta: 0.0000, Poll/Resend: 2.0

Override and Default Behavior

Override Type: OV_RETAIN, Ovr Value: 0.0000, Default Value: 0.0000

Register Data Scaling

Scale: 1/1, Offset: 0

Network Variable Type

SNVT, SNVT_count_f, Change Type

Node Object Configuration Properties

Baud Rate: 19200, Swapped Doubles: ☐ Node Location String: @, Major Ver: 1, Minor Ver: 10, Third -->

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,1,0, Master: ☒ Slave Response: 500 mSec, Slave ID: , Use Fn Codes 5/6: ☐

My IP Address: , My Subnet Mask: , My Gateway: , Remote Server: , Read CP's from File (highlighted), Save CP's to File

Node Identity

Neuron ID: 02-47-37-E5-01-00, Subnet: 1, Node: 1, Domain: 0, Program ID: 80:00:17:46:00:81:04:06, Wink, Configure, Get ID, Reset, Unconfig

Network Interface Configuration

Subnet: 1, Node: 126, Domain Length and Value: 0, Network Interface: LON1, Fetch Cfg, First --> Connect, Disconnect

Log:

```

15:31:54 QueryDomain NI_OK Request 0x6A={01}, Response 0x2A={ID=00.00.00.00.00.00 (Length
15:31:54 User: Query Domain OK
15:32:16 Fetch NV, index: 4 Response: 00 00 00 00
15:34:49 Fetch NV, index: 4 Response: 00 00 00 00
    
```

Het configuratiebestand zorgt dat in het LON-apparaat alle parameters worden geladen die nuttig zijn voor de conversie van LON-gegevens in Modbus-gegevens en omgekeerd.

In het bijzonder bevat het bestand de parameters voor seriële communicatie van de Modbus. In onderstaande tabel worden de door het bestand ingestelde parameters vermeld:

Configuratie Modbus-LON-apparaat	Master
Transmissiesnelheid	19200 kb/s
Pariteit	Nee
Stopbit	1
Respons-time-out	1000 ms

Tabel 2: Modbus-configuratie

Belangrijk: de Modbus-interface op de Evoplus circulatiepomp moet op dezelfde manier worden geconfigureerd als beschreven is in Tabel 2.

Als men communicatieparameters wil veranderen (bv. de transmissiesnelheid), moet het vervolgkeuzemenu "Baudrate" worden gebruikt of moet het .xml-bestand handmatig worden gewijzigd.

In het bestand is ook alle informatie omtrent de verbinding tussen MODBUS-registers en LON-registers opgeslagen.

Het configuratiebestand beschrijft alle LON-objecten. Hier volgt een voorbeeld:

```

<sensor_object>
  <ObjectIndex>1</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTminSndT>0,00:00:00.000</SCPTminSndT>
  <SCPTmaxSndT>0,00:00:00.000</SCPTmaxSndT>
    
```

```

<SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
<SCPTovrValue>0.0000</SCPTovrValue>
<SCPTgain>1/1</SCPTgain>
<SCPTdefOutput>0.0000</SCPTdefOutput>
<SCPTsndDelta>0.0000</SCPTsndDelta>
<SCPTupdateRate>2.0</SCPTupdateRate>
<SCPTlocation>1U40202@Pump1Status</SCPTlocation>
</sensor_object>

```

ObjectIndex	Id van het object
SCPTnvType	StandardNetworkVariableType
SCPTminSndT	Dit is de kortste periode voordat er een refresh van de variabele kan plaatsvinden
SCPTmaxSndT	Dit is de langste periode die kan verstrijken tussen de ene update van de variabele en een andere
SCPTovrBehave	
SCPTovrValue	
SCPTgain	Vermenigvuldigingsconstante
SCPTdefOutput	
SCPTsndDelta	Dit is de geringste verandering die tot gevolg heeft dat de variabele wordt bijgewerkt
SPTupdateRate	Dit is het tijdsinterval waarin een verzoek via Modbus wordt gedaan
SCPTlocation	Definieert de Modbus-locatie waaraan het object gekoppeld is, in het bijzonder het Slave-adres, type register (signed,unsigned, floating...) (holding register, input register), adres van het register

Tabel 3: Beschrijving van aan het object gekoppelde parameters

```

<actuator_object>
  <ObjectIndex>31</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
  <SCPTovrValue>0.0000</SCPTovrValue>
  <SCPTgain>1/1</SCPTgain>
  <SCPTdefOutput>0.0000</SCPTdefOutput>
  <SCPTupdateRate>60.0</SCPTupdateRate>
  <SCPTlocation>1U40050@temp</SCPTlocation>
  <SCPTmaxRcvTime>0.0</SCPTmaxRcvTime>
</actuator_object>

```

Raadpleeg voor verdere informatie het datasheet van het apparaat, te vinden op het adres http://www.csimn.com/CSI_pages/BB485.html.

6. Druk op de toets "Send All Cp's". Hiermee wordt de configuratie voor koppeling van de Modbus-registers aan LON-objecten opgeslagen in het geheugen.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40202	0000	0000	☐

Location: 1U40202 @ Pump1Status

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0 00:00:00.000	0.0000	2.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT

SNVT_count_f

Change Type

Node Object Configuration Properties

Baud Rate: 19200

Swapped Doubles: ☐

Node Location String: @

Major Ver: 1

Minor Ver: 10

Third -->

Get All CP's

Get Node CP's

Send All CP's

Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0

Master: ☒

Slave Response: 500 mSec

Slave ID:

Use Fn Codes 5/6: ☐

Read CP's from File

Save CP's to File

My IP Address:

My Subnet Mask:

My Gateway:

Remote Server:

Node Identity

Neuron ID: 02-47-37-E5-01-00

Subnet: 1

Node: 1

Domain: 0:

Program ID: 80:00:17:46:00:81:04:06

Wink

Configure

Second... Press Service Pin, then click here -->

Get ID

Reset

Unconfig

Network Interface Configuration

Subnet: 1

Node: 126

Domain Length and Value: 0

Configure

Fetch Cfg

First -->

Connect

Disconnect

Network Interface: LON1

15:31:54 User: Query Domain OK

15:32:16 Fetch NV, index: 4 Response: 00 00 00 00

15:34:49 Fetch NV, index: 4 Response: 00 00 00 00

15:34:58 Fetch NV, index: 4 Response: 00 00 00 00

7. Activeer de objecten die u wilt wijzigen en/of lezen door RQ_ENABLE in te stellen.
8. Als u de koppeling van de registers wilt veranderen, moeten de parameters worden gewijzigd via de Babel de Buster Configuration Tool (door de parameters te wijzigen van het veld Object Location String en Network Traffic Control), of door het .xml configuratiebestand te wijzigen, of door het programma LonMark te gebruiken.

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1. INTRODUCCIÓN

En este documento se explica cómo utilizar la pasarela Modbus incorporada en los productos Evoplus para la interconexión con una red Lon, utilizando para ello interfaces Modbus-Lon disponibles en el mercado.

Para la comprensión de dicho documento, el usuario deberá tener conocimientos básicos sobre las redes LON y Modbus.

El circulador Evoplus integra un periférico **MODBUS RTU** con interfaz RS485.

Mediante algunos módulos disponibles en comercios es posible también poner en conexión el circulador con una red LonWorks, con cambio del estado y posibilidad de variar los parámetros del circulador leyendo o modificando los registros como se indica en el manual: "Instrucciones para el uso del protocolo Modbus", disponible en la dirección web "<http://www.dabpumps.it/evoplus>".

2. PASARELA MODBUS-LONWORKS

Para la interconexión de una red Modbus con otra de tipo LonWorks es necesario interponer entre las dos una pasarela.

Hay de varios tipos en el mercado, pero aconsejamos sobre todo BabelBuster485.

A continuación figuran las características del conversor:

Interfaz	LonWorks TP/FT-10 - ModbusRtu Rs485
Comunicación	Bidireccional
Alimentación	10-30 VDC ; 12-24 VAC
Consumo de potencia	0.1 A @ 24 VDC
Montaje	Barra DIN
Dimensiones	100 mm Alt. x 70 mm Anch. x 60 mm D
Condiciones de uso	Temperatura -40 + 85 °C , humedad 5- 90 %

Tabla 1: Características de Babel Buster 485

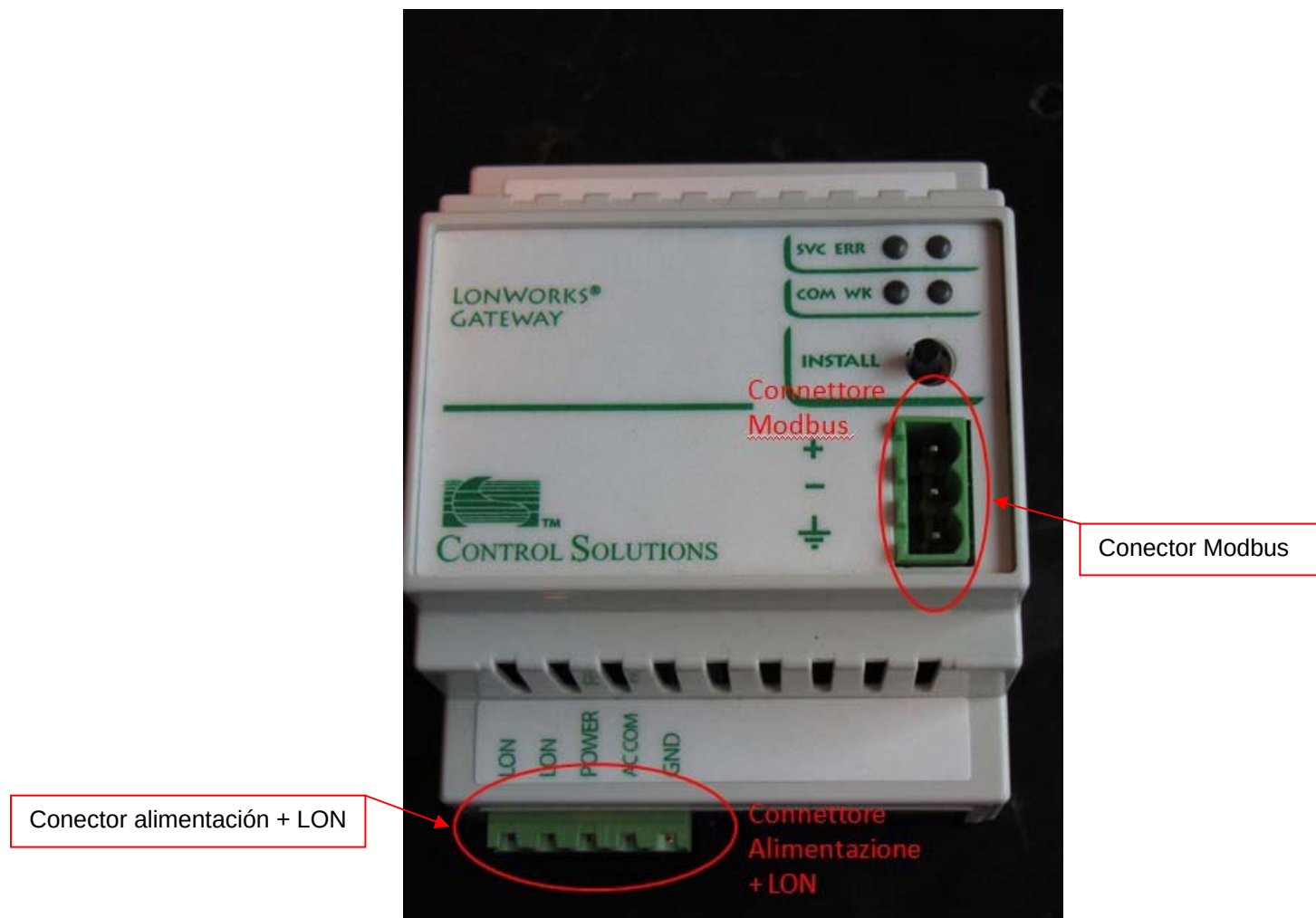


Figura 1: Babel Buster 485

Respecto a la conexión al bus MODBUS, conectar correctamente la terminal no inversora **A** al pin **+** y la terminal inversora **B** al pin **-** del conector Modbus. Conectar la señal **Y** al terminal común. Para las conexiones A, B e Y a Evoplus, tener como referencia el manual de instalación del producto.

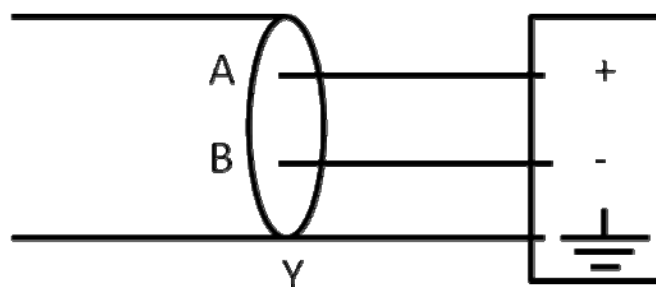


Figura 2: Conexión modbus Babel Buster 485 - Evoplus

Conectar el bus LONBUS (cable TP/FT-10) a las dos terminales LON.

Para alimentar Babel Buster 485 en tensión continua, suministrar una tensión comprendida entre 10 V y 30V DC entre los conectores POWER y GND. No conectar la terminal ACCOM.

Para alimentar en tensión AC, conectar las dos terminales de alimentación entre POWER y ACCOM.

Para más informaciones: http://www.csimn.com/CSI_pages/BB485.html

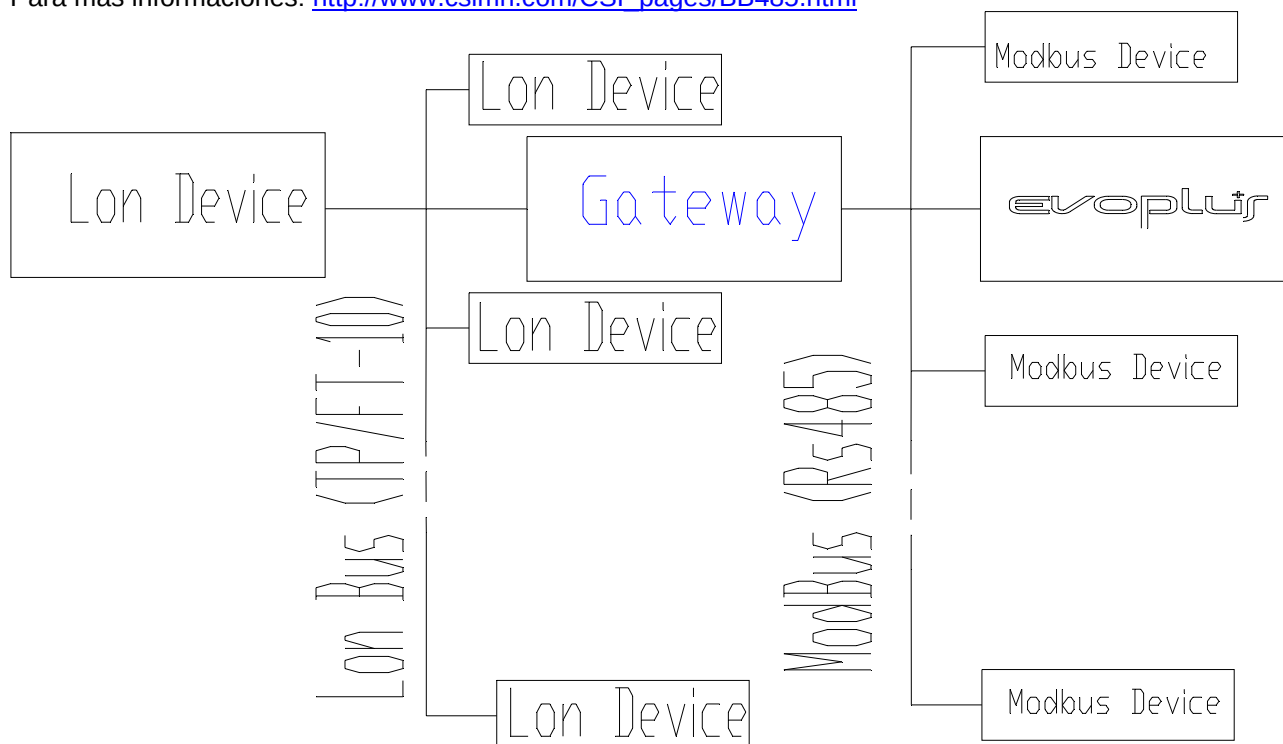


Figura 3: Esquema topología de la red híbrida Modbus - Lon

3. CÓMO CONFIGURAR BABEL BUSTER 485

A continuación se describen las operaciones necesarias para configurar el dispositivo correctamente:

1. Conectar el dispositivo al PC mediante una red LON. Alimentar el dispositivo
2. Iniciar la aplicación Babel Buster Configuration Tool disponible en el Cd entregado junto a Babel Buster 485.
3. Elegir la pasarela LON y pulsar "Connect"

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40110	0000	0000	☐

Location: 1U40110 @MaxRpmPerCent

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0.0	0.0000	60.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type: SNVT
SNVT_count_f Change Type

Obj Disabled ☐ No Connection ☐ No Response ☐ Comm Fault ☐ Register Invalid ☐ Exception ☒ In Override ☐

Object No. 32

Get CP's Send CP's Set NV Get NV

Node Request Object Request

Node Object Configuration Properties

Baud Rate: 19200 Swapped Doubles ☐ Node Location String: @ Major Ver: 1 Minor Ver: 10 Third --> Get All CP's Get Node CP's

Send All CP's Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0 Master ☒ Slave Response: 500 mSec Slave ID: Use Fn Codes 5/6 ☐

My IP Address: My Subnet Mask: My Gateway: Remote Server: Read CP's from File Save CP's to File

Node Identity

Neuron ID: 02-47-37-E5-01-00 Subnet: 1 Node: 1 Domain: 0

Program ID: 80:00:17:46:00:81:04:06 Wink Configure

Second... Press Service Pin, then click here --> Get ID Reset Unconfig

Network Interface Configuration

Subnet: 1 Node: 126 Domain Length and Value: 0

Configure Fetch Cfg First -- Connect Disconnect

Network Interface: LON1

14:14:13 Fetch NV, index: 35 Response: 42 20 00 00

14:14:15 Fetch NV, index: 35 Response: 42 20 00 00

14:14:17 NV updated.

14:14:18 Fetch NV, index: 35 Response: 42 20 00 00

4. Al encender por primera vez, presionar el pulsador "Install" de Babel Buster.
5. Presionar el pulsador "Read Cp's from file", utilizando el fichero de configuración EvoplusLON.xml.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit: 1, Format: Unsigned, Reference: 40202, Bit Mask: 0000, Bit Fill: 0000, Invert Bit Mask: ☐

Location: 1U40202, @Pump1Status

Network Traffic Control

Min Send: 0 00:00:00.000, Max Send/Recv: 0 00:00:00.000, Send Delta: 0.0000, Poll/Resend: 2.0

Override and Default Behavior

Override Type: OV_RETAIN, Ovr Value: 0.0000, Default Value: 0.0000

Register Data Scaling

Scale: 1/1, Offset: 0

Network Variable Type

SNVT, SNVT_count_f, Change Type

Node Object Configuration Properties

Baud Rate: 19200, Swapped Doubles: ☐ Node Location String: @, Major Ver: 1, Minor Ver: 10, Third -->

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,1,0, Master: ☒ Slave Response: 500 mSec, Slave ID: , Use Fn Codes 5/6: ☐

My IP Address: , My Subnet Mask: , My Gateway: , Remote Server: , Read CP's from File (highlighted), Save CP's to File

Node Identity

Neuron ID: 02-47-37-E5-01-00, Subnet: 1, Node: 1, Domain: 0, Program ID: 80:00:17:46:00:81:04:06, Wink, Configure, Get ID, Reset, Unconfig

Network Interface Configuration

Subnet: 1, Node: 126, Domain Length and Value: 0, Network Interface: LON1, Fetch Cfg, First -->, Connect, Disconnect

Log:

```

15:31:54 QueryDomain NI_OK Request 0x6A={01}, Response 0x2A={ID=00.00.00.00.00.00 (Length
15:31:54 User: Query Domain OK
15:32:16 Fetch NV, index: 4 Response: 00 00 00 00
15:34:49 Fetch NV, index: 4 Response: 00 00 00 00
    
```

El fichero de configuración procede a cargar en el dispositivo LON todos los parámetros útiles para la conversión de los datos de LON a Modbus y viceversa.

Contiene en especial los parámetros de comunicación serial de Modbus. En la tabla de abajo figuran los parámetros configurados del fichero:

Configuración del dispositivo Modbus-LON	Master
Velocidad de transmisión	19200 kb/s
Paridad	No
Bit de parada	1
Tiempo límite de respuesta	1000 ms

Tabla 2: Configuración de Modbus

Importante: hay que configurar la interfaz Modbus montada en el circulador Evoplus tal como se describe en la Tabla 2.

En el caso de querer cambiar algunos parámetros de comunicación (ej: velocidad de transmisión), se deberá utilizar el menú desplegable "Baudrate", o modificar manualmente el fichero .xml.

En dicho fichero también están guardadas todas las informaciones concernientes la conexión entre los registros MODBUS y los registros LON.

El fichero de configuración describe todos los objetos LON. Damos a continuación un ejemplo:

```

<sensor_object>
  <ObjectIndex>1</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTminSndT>0,00:00:00.000</SCPTminSndT>
  <SCPTmaxSndT>0,00:00:00.000</SCPTmaxSndT>
    
```

```

<SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
<SCPTovrValue>0.0000</SCPTovrValue>
<SCPTgain>1/1</SCPTgain>
<SCPTdefOutput>0.0000</SCPTdefOutput>
<SCPTsndDelta>0.0000</SCPTsndDelta>
<SCPTupdateRate>2.0</SCPTupdateRate>
<SCPTlocation>1U40202@Pump1Status</SCPTlocation>
</sensor_object>

```

ObjectIndex	Íd del objeto
SCPTnvType	Red estándar de tipo variable
SCPTminSndT	Es el periodo mínimo de regeneración de la variable
SCPTmaxSndT	Es el periodo máximo que puede transcurrir entre una actualización de la variable y la siguiente
SCPTovrBehave	
SCPTovrValue	
SCPTgain	Constante multiplicativa
SCPTdefOutput	
SCPTsndDelta	Es la variación mínima necesaria para la actualización de la variable
SPTupdateRate	Es el intervalo de tiempo en el que se efectúa una petición vía Modbus
SCPTlocation	Define la posición Modbus a la que está asociado el objeto, en especial la dirección Slave, tipo de registro (signed, unsigned, floating...) (holding register, input register), dirección del registro

Tabla 3: Descripción de los parámetros de asociación objetos

```

<actuator_object>
  <ObjectIndex>31</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
  <SCPTovrValue>0.0000</SCPTovrValue>
  <SCPTgain>1/1</SCPTgain>
  <SCPTdefOutput>0.0000</SCPTdefOutput>
  <SCPTupdateRate>60.0</SCPTupdateRate>
  <SCPTlocation>1U40050@temp</SCPTlocation>
  <SCPTmaxRcvTime>0.0</SCPTmaxRcvTime>
</actuator_object>

```

Para más informaciones hay que tener como referencia la ficha técnica del dispositivo, disponible en la dirección web: http://www.csimn.com/CSI_pages/BB485.html.

6. Pulsar la tecla "Send All Cp's" con el fin de memorizar la configuración de asociación de registros Modbus a objetos LON.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40202	0000	0000	☐

Location: 1U40202 @ Pump1Status

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0 00:00:00.000	0.0000	2.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT

SNVT_count_f

Change Type

Node Object Configuration Properties

Baud Rate: 19200

Swapped Doubles: ☐

Node Location String: @

Major Ver: 1

Minor Ver: 10

Third -->

Get All CP's

Get Node CP's

Send All CP's

Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0

Master: ☒

Slave Response: 500 mSec

Slave ID:

Use Fn Codes 5/6: ☐

Read CP's from File

Save CP's to File

Node Identity

Neuron ID	Subnet	Node	Domain
02-47-37-E5-01-00	1	1	0:

Program ID: 80:00:17:46:00:81:04:06

Wink

Configure

Second... Press Service Pin, then click here -->

Get ID

Reset

Unconfig

Network Interface Configuration

Subnet	Node	Domain Length and Value
1	126	0

Configure

Fetch Cfg

First -->

Connect

Disconnect

Log:

```

15:31:54 User: Query Domain OK
15:32:16 Fetch NV, index: 4 Response: 00 00 00 00
15:34:49 Fetch NV, index: 4 Response: 00 00 00 00
15:34:58 Fetch NV, index: 4 Response: 00 00 00 00
    
```

7. Habilitar los objetos que se desean modificar y/o leer configurando RQ_ENABLE.
8. En el caso de querer cambiar la asociación de registros, modificar los parámetros mediante Babel Buster Configuration Tool (modificando los parámetros del campo Object Location String y Network Traffic Control), o si no, modificar el fichero .xml de configuración o bien, mediante el programa LonMark.

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1. UVOD

Namen tega dokumenta je pokazati, kako je mogoče uporabljati zunanjo Modbus napravo, prisotno pri proizvodih Evoplus, za povezavo na omrežje Lon – s pomočjo vmesnika Modbus-Lon, ki je dostopen na tržišču.

Ta dokument predvideva, da uporabnik že ima določeno osnovno znanje o omrežjih LON in Modbus.

Obtočna črpalka Evoplus uporabniku daje na razpolago zunanjo **MODBUS RTU** napravo z vmesnikom RS-485.

S pomočjo nekaterih modulov, ki so prisotni na tržišču, je mogoče obtočno črpalko povezati tudi v omrežje LonWorks: mogoče je vizualizirati njeno stanje in prilagajati njene parametre prek branja in spreminjanja registrov, tako kot je opisano v priročniku "Navodila za uporabo protokola Modbus", ki je na razpolago na naslovu "<http://www.dabpumps.it/evoplus>".

2. PREHOD MODBUS-LONWORKS

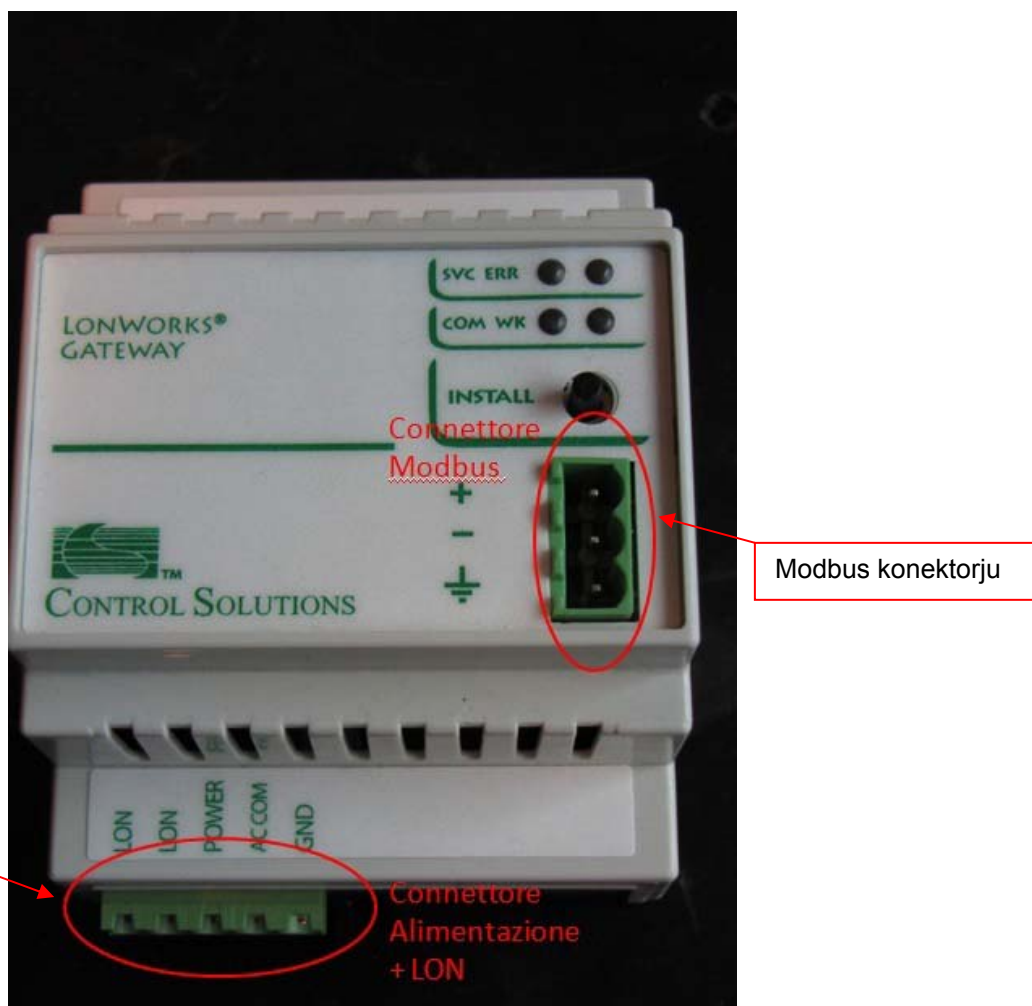
Za povezavo Modbus omrežja z omrežjem tipa LonWorks je treba med obe omrežji postaviti prehod (gateway).

Na trgu so prisotne različne vrste prehodov; priporočamo zlasti BabelBuster485.

Spodaj so navedene nekatere karakteristike pretvornika:

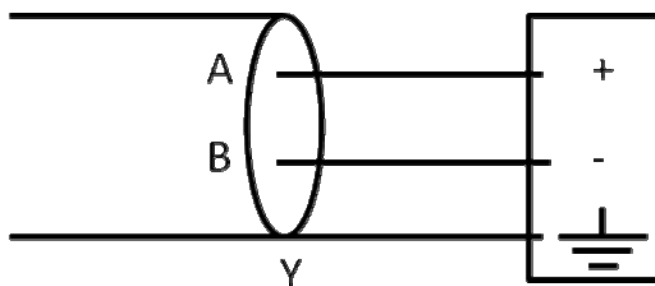
Vmesnik	LonWorks TP/FT-10 - ModbusRtu Rs485
Komunikacija	Dvosmerna
Napajanje	10-30 VDC ; 12-24 VAC
Poraba moči	0,1 A pri 24 VDC
Montiranje	Priključnica DIN
Dimenzije	100mm H x 70mm W x 60mm D
Pogoji uporabe	Temperatura od -40 do +85 °C , Vlažnost 5-90 %

Tabela 1: Karakteristike prehoda Babel Buster 485



Slika 1: Babel Buster 485

Priključitev MODBUS vodila: priključite neinvertni končnik **A** na priključek +, invertni končnik **B** pa na priključek - na Modbus konektorju. Signal **Y** priključite na priključek skupne mase. Glede priključitve končnikov A, B in Y na Evoplusu glej priročnik za vgradnjo proizvoda.



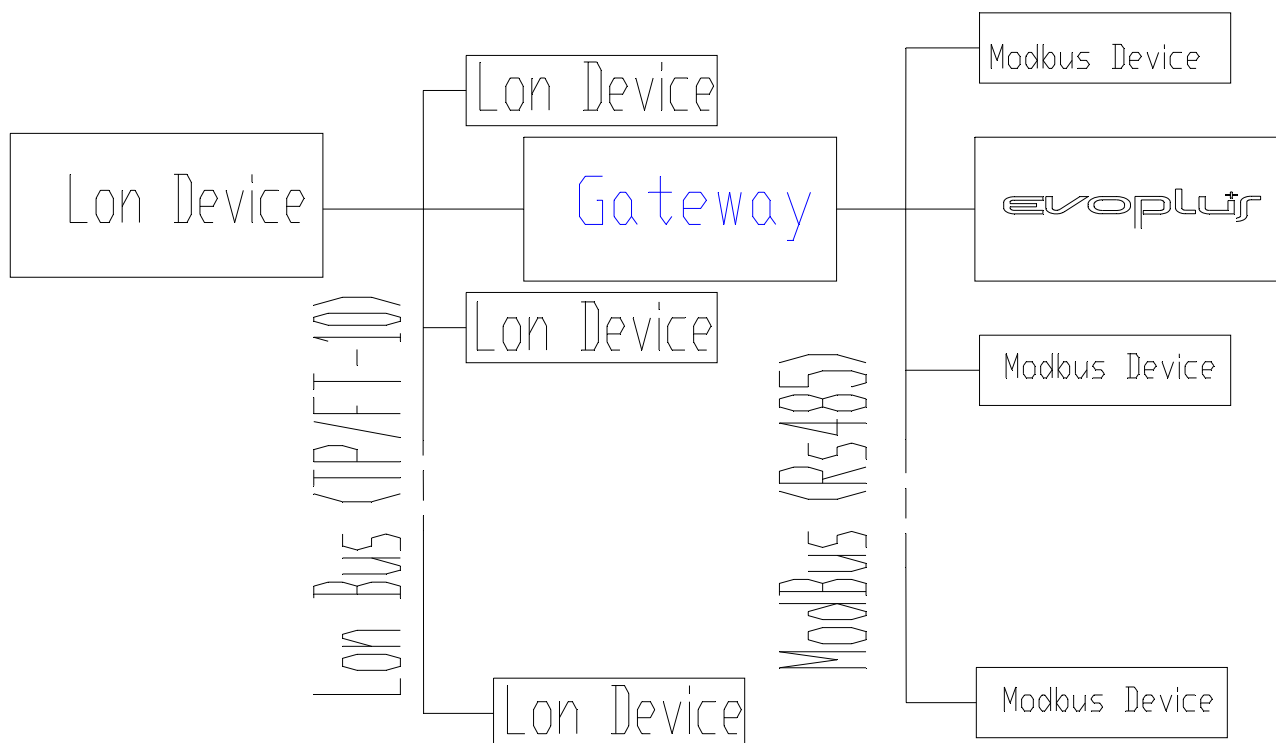
Slika 2: Vezava modbus Babel Buster 485 - Evoplus

LONBUS vodilo (kabel TP/FT-10) priključite na oba LON končnika.

Za napajanje naprave Babel Buster 485 z enosmerno napetostjo je treba poskrbeti za napetost med 10 in 30 VDC med priključkoma POWER in GND. Priključka ACCOM ne zvežite.

Za napajanje z izmenično napetostjo pa napajalna končnika zvežite na priključka POWER in ACCOM.

Za nadaljnje informacije glej: http://www.csimn.com/CSI_pages/BB485.html



Slika 3: Shema hibridnega omrežja Modbus - Lon

3. KAKO KONFIGURIRATI BABEL BUSTER 485

V nadaljevanju bodo opisana opravila, ki so potrebna za pravilno konfiguracijo naprave:

1. Napravo zvežite s PC-jem prek omrežja LON; vključite napajanje naprave.
2. Zaženite program Babel Buster Configuration Tool, ki se nahaja na CD-ju, dobavljenem skupaj z napravo Babel Buster 485.
3. Izberite komunikacijska vrata LON in kliknite na "Connect".

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40110	0000	0000	☐

Location: 1U40110 @ MaxRpmPerCent

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0.0	0.0000	60.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT

SNVT_count_f

Change Type

Node Object Configuration Properties

Baud Rate: 19200

Swapped Doubles: ☐

Node Location String: @

Major Ver: 1

Minor Ver: 10

Third --> Get All CP's Get Node CP's

Send All CP's Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,1,0

Slave Response: 500 mSec

Slave ID:

Use Fn Codes 5/6: ☐

Read CP's from File

Save CP's to File

My IP Address:

My Subnet Mask:

My Gateway:

Remote Server:

Node Identity

Neuron ID: 02-47-37-E5-01-00

Subnet: 1

Node: 1

Domain: 0

Program ID: 80:00:17:46:00:81:04:06

Wink Configure

Second... Press Service Pin, then click here --> Get ID Reset Unconfig

Network Interface Configuration

Subnet: 1

Node: 126

Domain Length and Value: 0

Configure

Fetch Cfg

First --> Connect Disconnect

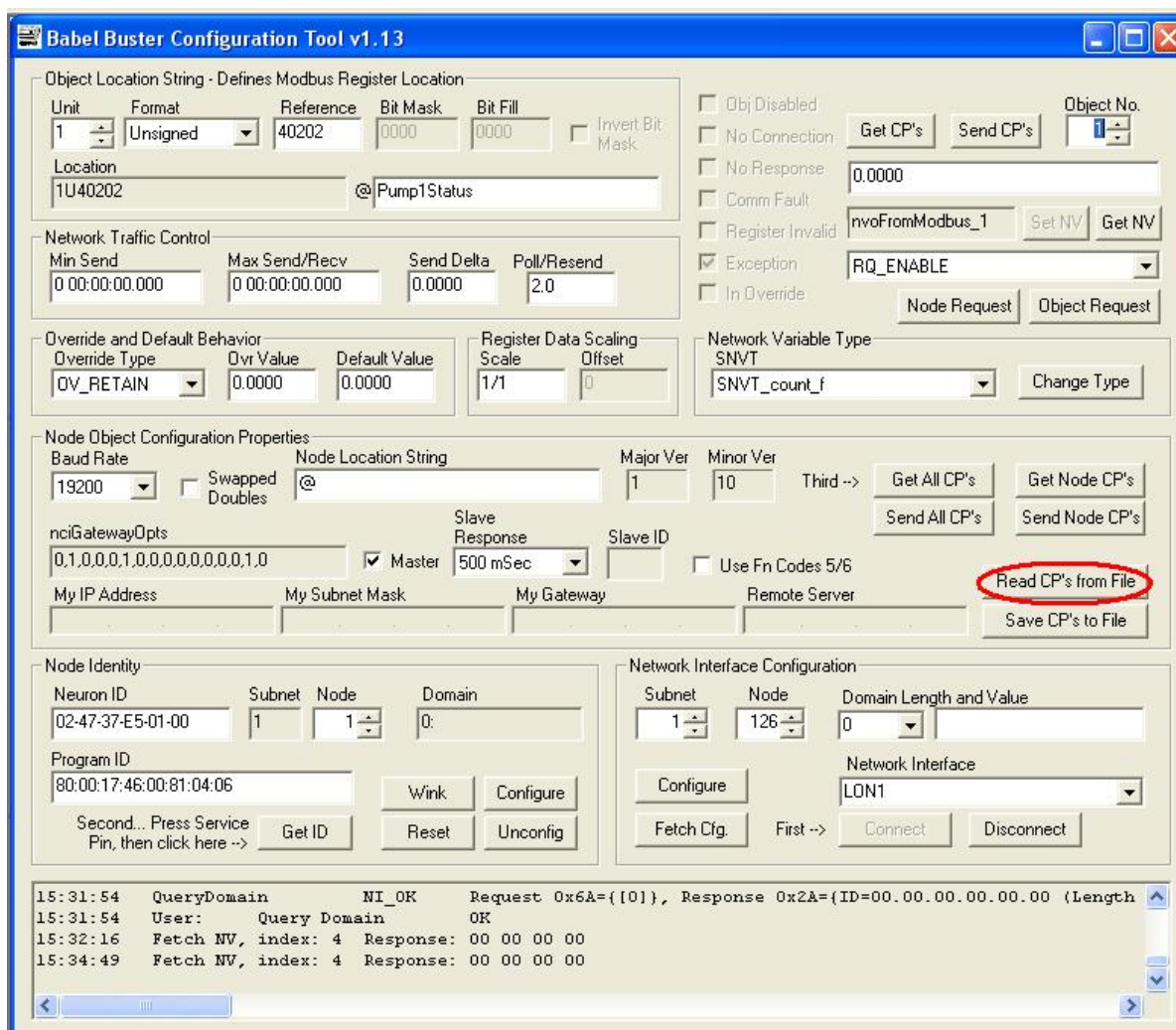
14:14:13 Fetch NV, index: 35 Response: 42 20 00 00

14:14:15 Fetch NV, index: 35 Response: 42 20 00 00

14:14:17 NV updated.

14:14:18 Fetch NV, index: 35 Response: 42 20 00 00

4. Med prvim zagonom pritisnite na tipko "Install" na napravi Babel Buster.
5. Kliknite na gumb "Read Cp's from file", uporabljajoč konfiguracijsko datoteko EvoplusLON.xml.



Konfiguracijska datoteka poskrbi, da se na napravo LON naložijo vsi parametri, potrebni za prevajanje podatkov z LON omrežja v Modbus omrežje in obratno.

Vsebuje zlasti parametre serijske komunikacije Modbus. Spodnja tabela navaja parametre, za katerih nastavitve poskrbi omenjena datoteka.

Konfiguracija naprave Modbus-LON	Master
Hitrost prenosa	19200 kb/s
Parnost	Ne
Končni bit	1
Časovna omejitev odziva	1000 ms

Tabela 2: Konfiguracija Modbusa

Pomembno: Modbus vmesnik na črpalki Evoplus mora biti konfiguriran enako, kot navaja Tabela 2.

Če želite spremeniti nekatere komunikacijske parametre (npr. hitrost prenosa), morate uporabiti spustni meni "Baudrate" ali ročno spremeniti datoteko .xml.

V datoteki so shranjene tudi vse informacije glede povezav med MODBUS registri in LON registri. Konfiguracijska datoteka opisuje vse LON objekte. Sledi primer:

```
<sensor_object>
  <ObjectIndex>1</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTminSndT>0,00:00:00.000</SCPTminSndT>
  <SCPTmaxSndT>0,00:00:00.000</SCPTmaxSndT>
  <SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
```

```

<SCPTovrValue>0.0000</SCPTovrValue>
<SCPTgain>1/1</SCPTgain>
<SCPTdefOutput>0.0000</SCPTdefOutput>
<SCPTsndDelta>0.0000</SCPTsndDelta>
<SCPTupdateRate>2.0</SCPTupdateRate>
<SCPTlocation>1U40202@Pump1Status</SCPTlocation>
</sensor_object>

```

ObjectIndex	ID objekta
SCPTnvType	StandardNetworkVariableType
SCPTminSndT	Minimalni čas, preden se lahko zgodi osvežitev spremenljivke
SCPTmaxSndT	Maksimalni čas, ki lahko preteče med dvema zaporednima posodobitvama spremenljivke
SCPTovrBehave	
SCPTovrValue	
SCPTgain	Množilna konstanta
SCPTdefOutput	
SCPTsndDelta	Minimalna sprememba, zaradi katere se spremenljivka posodobi
SPTupdateRate	Časovni interval, v katerem se prek Modbusa opravi ena zahteva
SCPTlocation	Določa Modbus lokacijo, kateri je objekt dodeljen, zlasti podrejeni (slave) naslov, tip registra (signed, unsigned, floating ...) (holding register, input register), naslov registra

Tabela 3: Opis parametrov za dodelitev objektov

```

<actuator_object>
  <ObjectIndex>31</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
  <SCPTovrValue>0.0000</SCPTovrValue>
  <SCPTgain>1/1</SCPTgain>
  <SCPTdefOutput>0.0000</SCPTdefOutput>
  <SCPTupdateRate>60.0</SCPTupdateRate>
  <SCPTlocation>1U40050@temp</SCPTlocation>
  <SCPTmaxRcvTime>0.0</SCPTmaxRcvTime>
</actuator_object>

```

Za dodatne informacije si je treba ogledati podatkovni list naprave, ki je na razpolago na naslovu http://www.csimn.com/CSI_pages/BB485.html.

- Kliknite na gumb "Send All Cp's". S tem dejanjem se shrani spomin konfiguracije za dodelitev Modbus registrov LON objektom.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40202	0000	0000	☐

Location: 1U40202 @ Pump1Status

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0 00:00:00.000	0.0000	2.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT

SNVT_count_f

Change Type

Node Object Configuration Properties

Baud Rate: 19200

Swapped Doubles: ☐

Node Location String: @

Major Ver: 1

Minor Ver: 10

Third --> Get All CP's Get Node CP's

Send All CP's

Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0

Master: ☒ Slave Response: 500 mSec

Slave ID:

Use Fn Codes 5/6: ☐

My IP Address:

My Subnet Mask:

My Gateway:

Remote Server:

Read CP's from File

Save CP's to File

Node Identity

Neuron ID: 02-47-37-E5-01-00

Subnet: 1

Node: 1

Domain: 0:

Program ID: 80:00:17:46:00:81:04:06

Wink Configure

Second... Press Service Pin, then click here --> Get ID Reset Unconfig

Network Interface Configuration

Subnet: 1

Node: 126

Domain Length and Value: 0

Configure

Fetch Cfg. First --> Connect Disconnect

Network Interface: LON1

15:31:54 User: Query Domain OK

15:32:16 Fetch NV, index: 4 Response: 00 00 00 00

15:34:49 Fetch NV, index: 4 Response: 00 00 00 00

15:34:58 Fetch NV, index: 4 Response: 00 00 00 00

- Omogočite objekte, ki jih želite spremeniti in/ali prebrati, tako da izberete nastavitev RQ_ENABLE.
- Če želite spremeniti dodelitev registrov, spremenite parametre prek orodja Babel Buster Configuration Tool (tako da spremenite parametre polj Object Location String in Network Traffic Control) ali s spremembo konfiguracijske datoteke .xml ali z uporabo programa LonMark.

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1. ВЪВЕДЕНИЕ.

Целта на този документ е да илюстрира как да се използва периферното устройство Modbus, налице в продуктите Evoplus за свързването с мрежа Lon, чрез използването на интерфейси Modbus-Lon, предлагани на пазара.

Документът предвижда основно познание от страна на потребителя на мрежите LON и Modbus.

Циркулационната помпа Evoplus предоставя на потребителя периферното устройство **MODBUS RTU**, с RS485 интерфейс. Чрез някои от модулите, предлагани на пазара, циркулационната помпа може да се предразположи също и към мрежата LonWorks и следователно и състоянието и, и възможността да се променят параметрите на циркулационната помпа, четейки или променяйки регистрите, както е описано в Ръководството "Инструкции за използване на протокола Modbus ", на разположение на адреса "<http://www.dabpumps.it/evoplus>".

2. ШЛЮЗ (GATEWAY) MODBUS-LONWORKS

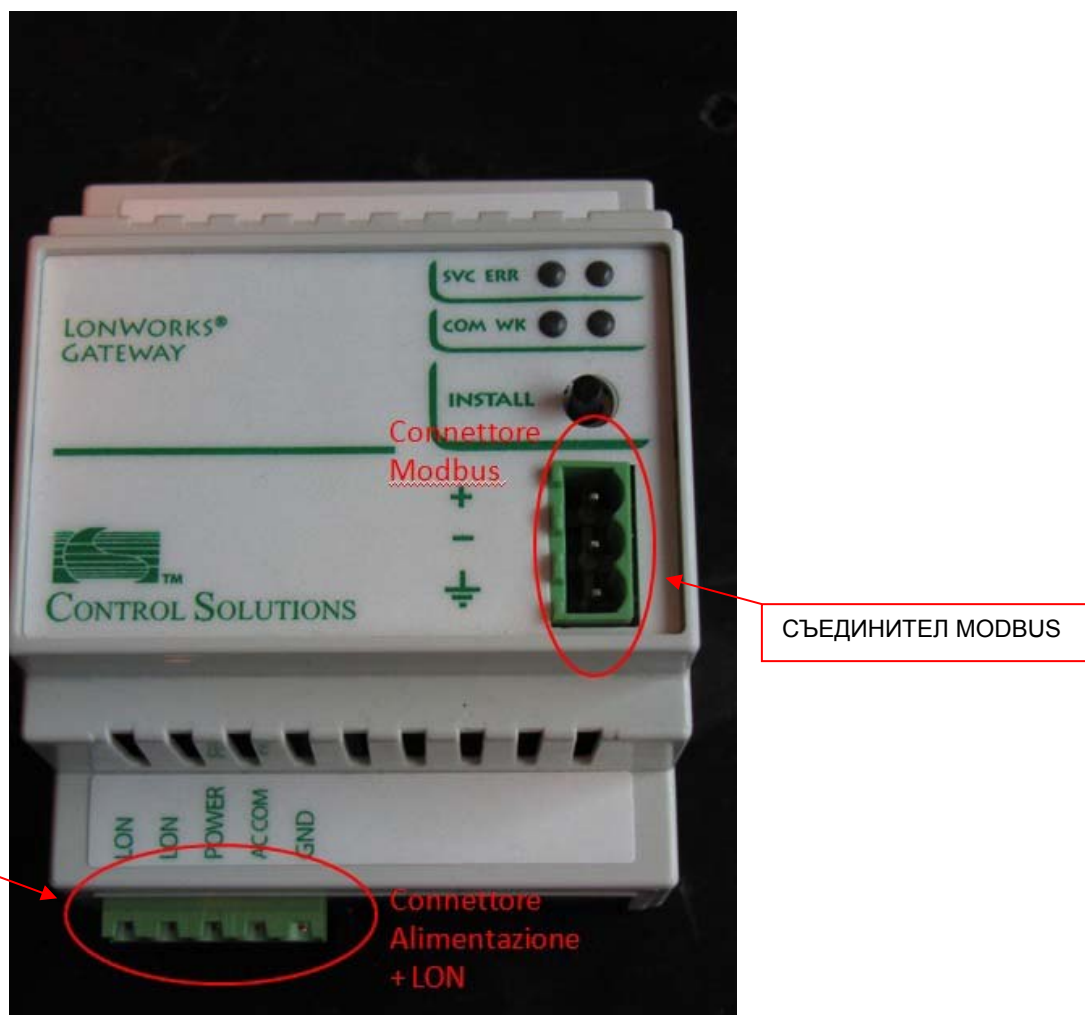
За да свържете мрежа Modbus с мрежа от типа LonWorks, е необходимо да се постави шлюз (gateway) между двете мрежи.

На пазара съществуват различни видове, препоръчваме Ви по-специално BabelBuster485.

По-долу се указват характеристиките на конвертора:

Интерфейс	LonWorks TP/FT-10 - ModbusRtu Rs485
Комуникация	Двупосочна
Захранване	10-30 VDC ; 12-24 VAC
Разход на енергия	0.1 A @ 24 VDC
Монтаж	Шина DIN
Размери	100мм H x 70мм W x 60ммD
Условия на употреба	Температура -40 + 85 °C , Влажност 5- 90 %

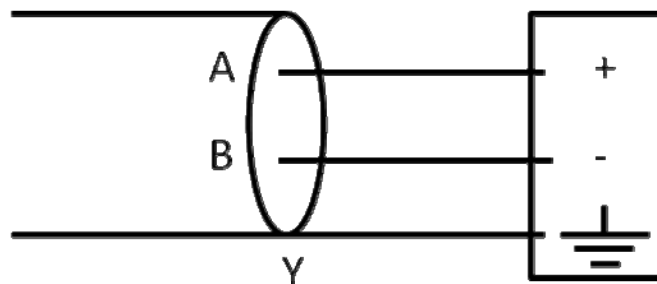
Таблица 1: Характеристики Babel Buster 485



Фигура 1: Babel Buster 485

Що се отнася до свързването с шината MODBUS, свържете правилно неинвертирания терминал **A** към щифта + и инвертирания терминал **B** към щифта - на съединителя Modbus. Свържете сигнала **Y** към общия терминал.

За свързването A, B и Y върху Evoplus се отнасят към ръководството за инсталиране на продукта.



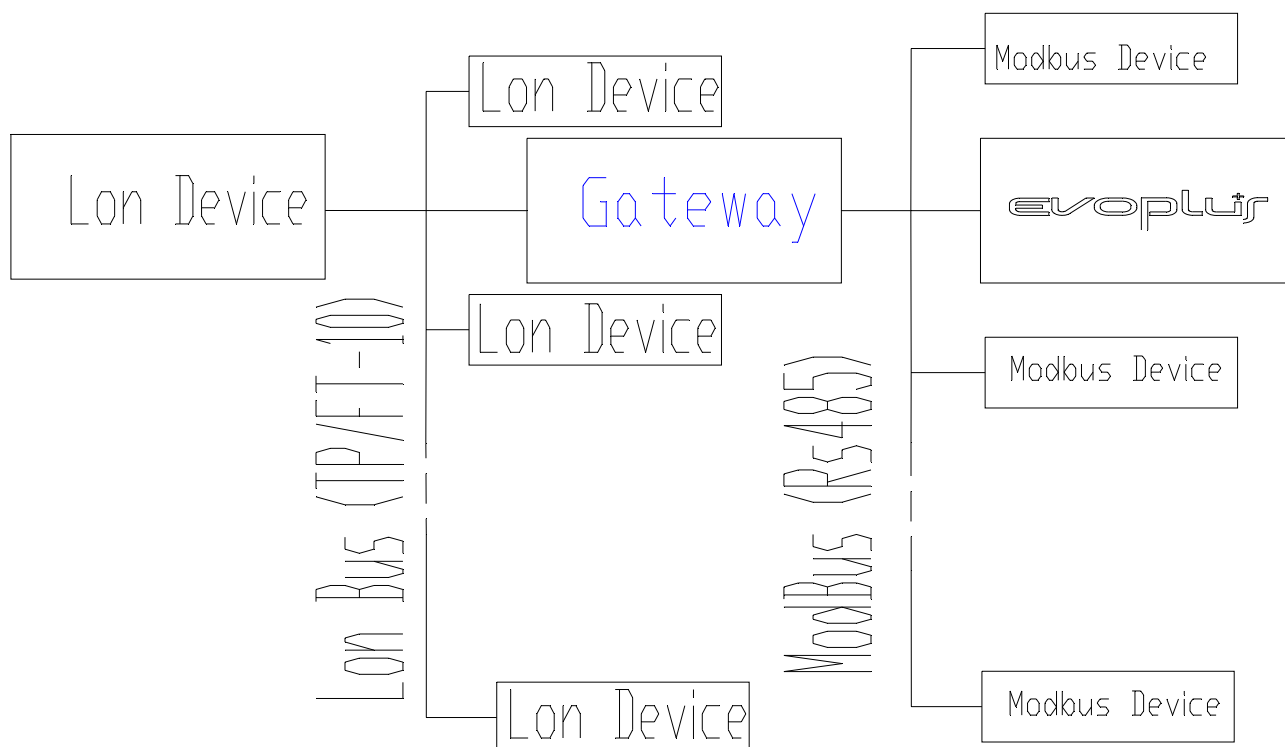
Фигура 2: Свързване modbus Babel Buster 485 – Evoplus

Свържете шината LONBUS (кабел TP/FT-10) към двата терминала LON.

За захранването на Babel Buster 485 при постоянно напрежение, доставяйте напрежение между 10 V и 30V DC (Постоянен Ток) между съединителите POWER и GND. Не свързвайте терминала ACCOM.

За захранването при напрежение AC (Променлив Ток), свържете двата терминала за захранване между POWER и ACCOM.

За повече подробности: http://www.csimn.com/CSI_pages/BB485.html



Фигура 3: Схема Смесена (хибридна) мрежова топология Modbus - Lon

3. КАК СЕ КОНФИГУРИРА BABEL BUSTER 485

По-долу се описват операциите, необходими за правилното конфигуриране на устройството :

1. Свържете устройството към PC чрез мрежа LON, подайте захранване на устройството.
2. Задейстайте приложението Babel Buster Configuration Tool, на разположение в компакт диска, доставен заедно с Babel Buster 485.
3. Изберете входа за комуникация LON и натиснете "Connect".

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40110	0000	0000	☐

Location: 1U40110 @MaxRpmPerCent

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0.0	0.0000	60.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT

SNVT_count_f

Change Type

Node Object Configuration Properties

Baud Rate: 19200 ☐ Swapped Doubles

Node Location String: @

Major Ver: 1 Minor Ver: 10 Third -->

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0 ☒ Master

Slave Response: 500 mSec Slave ID:

Use Fn Codes 5/6 ☐

My IP Address: My Subnet Mask: My Gateway: Remote Server:

Read CP's from File Save CP's to File

Node Identity

Neuron ID: 02-47-37-E5-01-00 Subnet: 1 Node: 1 Domain: 0

Program ID: 80:00:17:46:00:81:04:06

Wink Configure

Second... Press Service Pin, then click here --> Get ID Reset Unconfig

Network Interface Configuration

Subnet: 1 Node: 126 Domain Length and Value: 0

Configure Fetch Cfg

Network Interface: LON1

First -- Connect Disconnect

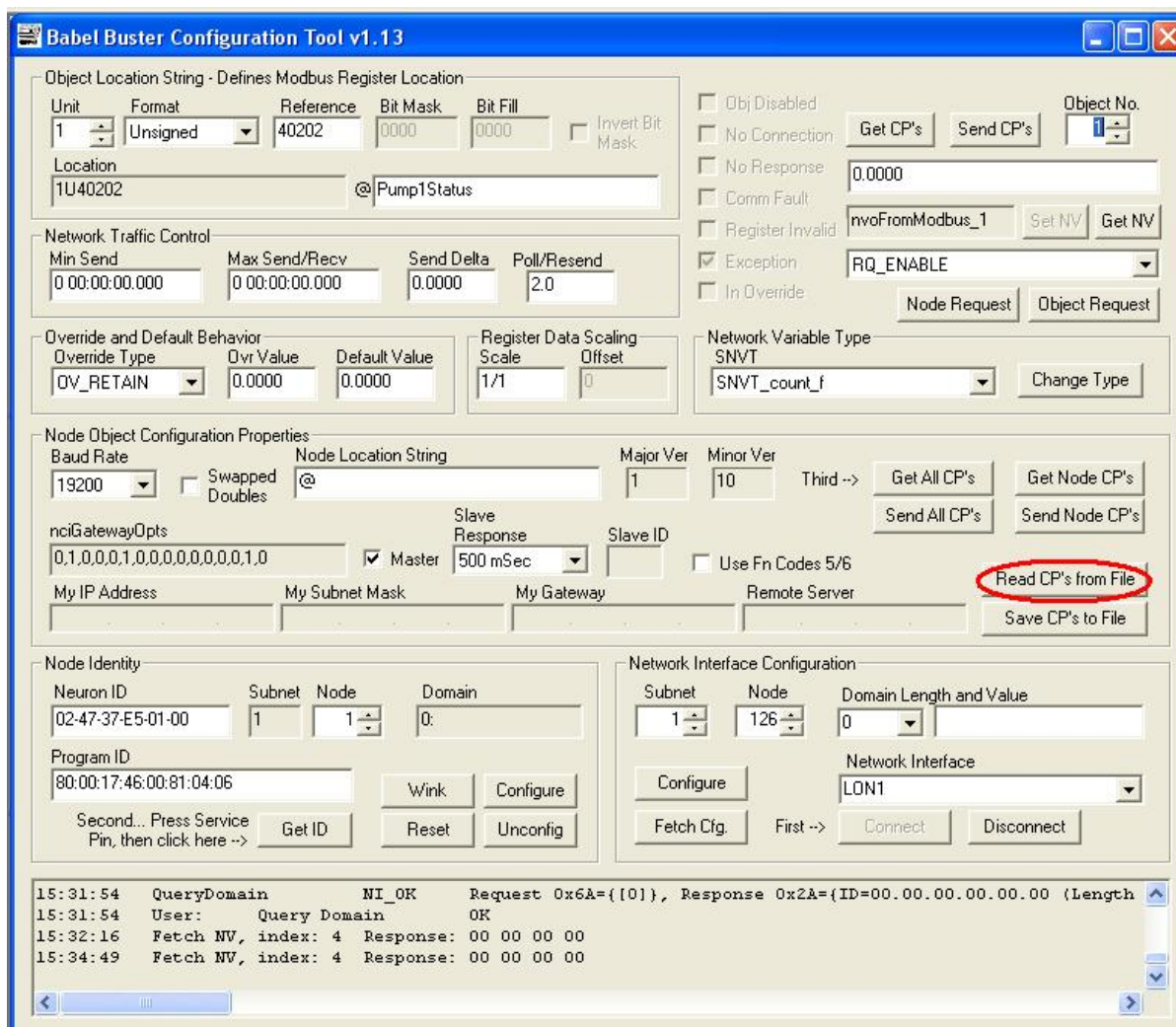
14:14:13 Fetch NV, index: 35 Response: 42 20 00 00

14:14:15 Fetch NV, index: 35 Response: 42 20 00 00

14:14:17 NV updated.

14:14:18 Fetch NV, index: 35 Response: 42 20 00 00

- При първото включване, натиснете бутона "Install" върху Babel Buster.
- Натиснете бутона Read Cp's from file, използвайки файла за конфигуриране EvoplusLON.xml.



Файлтът за конфигуриране ще зареди върху устройството LON всички параметри, необходими за преобразуването на данните от LON в Modbus и обратно.

По-специално съдържа параметрите за серийна комуникация на Modbus. Следната таблица описва параметрите, нагласени от Файла:

Конфигурация на устройството Modbus-LON	Master
Скорост на предаване	19200 kb/s
Паритет	No
Стопов бит (Stop bit)	1
Отговор време на изчакване (Response timeout)	1000 ms

Таблица 2: Конфигурация на Modbus

Важно: интерфейсите Modbus, налице в циркуляционната помпа Evorplus, трябва да се конфигурира по същия начин, както е описано в Таблица 1.

В случай, че искате да промените някои параметри на комуникацията (напр. скоростта на предаване), ще трябва да действате от падащото меню "Baudrate", или ръчно да промените файла .xml.

Във файла е записана също и цялата информация относно връзката между регистрите MODBUS и LON.

Конфигурационният файл описва всички обекти LON. Тук по-долу е изложен пример:

```
<sensor_object>
  <ObjectIndex>1</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTminSndT>0,00:00:00.000</SCPTminSndT>
```

```

<SCPTmaxSndT>0,00:00:00.000</SCPTmaxSndT>
<SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
<SCPTovrValue>0.0000</SCPTovrValue>
<SCPTgain>1/1</SCPTgain>
<SCPTdefOutput>0.0000</SCPTdefOutput>
<SCPTsndDelta>0.0000</SCPTsndDelta>
<SCPTupdateRate>2.0</SCPTupdateRate>
<SCPTlocation>1U40202@Pump1Status</SCPTlocation>
</sensor_object>

```

ObjectIndex	Идентификационният номер на обекта
SCPTnvType	StandardNetworkVariableType
SCPTminSndT	Това е минималният период от време, преди да може да се направи опресняване (refresh) на променливата
SCPTmaxSndT	Това е максималният период от време, което може да измине от една до друга актуализация на променливата.
SCPTovrBehave	
SCPTovrValue	
SCPTgain	Мултипликативна константа
SCPTdefOutput	
SCPTsndDelta	Това е минималното изменение, поради което променливата се обновява.
SCPTupdateRate	Това е интервал от време, през което е отправено искане чрез Modbus.
SCPTlocation	Определя местоположението Modbus, към което обектът е свързан, по-специално Slave адреса, типа регистър (signed,unsigned, floating...) (holding регистъра, input регистъра) адреса на регистрира.

Таблица 3: Описание на Параметрите за Асоцииране на обекти

```

<actuator_object>
  <ObjectIndex>31</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
  <SCPTovrValue>0.0000</SCPTovrValue>
  <SCPTgain>1/1</SCPTgain>
  <SCPTdefOutput>0.0000</SCPTdefOutput>
  <SCPTupdateRate>60.0</SCPTupdateRate>
  <SCPTlocation>1U40050@temp</SCPTlocation>
  <SCPTmaxRcvTime>0.0</SCPTmaxRcvTime>
</actuator_object>

```

За по-подробна информация за справка се отнасяйте към списъка datasheet на устройството, на разположение на http://www.csimn.com/CSI_pages/BB485.html.

- Натиснете бутона "Send All Cp's". С тази операция се записва в паметта конфигурацията чрез асоциирането на регистрите Modbus към обектите LON.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40202	0000	0000	☐

Location: 1U40202 @ Pump1Status

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0 00:00:00.000	0.0000	2.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT

SNVT_count_f

Change Type

Node Object Configuration Properties

Baud Rate: 19200

Swapped Doubles: ☐

Node Location String: @

Major Ver: 1

Minor Ver: 10

Third -->

Get All CP's

Get Node CP's

Send All CP's

Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0

Master: ☒

Slave Response: 500 mSec

Slave ID:

Use Fn Codes 5/6: ☐

Read CP's from File

Save CP's to File

My IP Address:

My Subnet Mask:

My Gateway:

Remote Server:

Node Identity

Neuron ID: 02-47-37-E5-01-00

Subnet: 1

Node: 1

Domain: 0

Program ID: 80:00:17:46:00:81:04:06

Wink

Configure

Second... Press Service Pin, then click here -->

Get ID

Reset

Unconfig

Network Interface Configuration

Subnet: 1

Node: 126

Domain Length and Value: 0

Configure

Fetch Cfg

First -->

Connect

Disconnect

Network Interface: LON1

15:31:54 User: Query Domain OK

15:32:16 Fetch NV, index: 4 Response: 00 00 00 00

15:34:49 Fetch NV, index: 4 Response: 00 00 00 00

15:34:58 Fetch NV, index: 4 Response: 00 00 00 00

7. Активирайте обектите, които искате да промените и/или да четете, като нагласите RQ_ENABLE.
8. Ако искате да промените асоциирането на регистрите, променете параметрите чрез Babel Buster Configuration Tool (изменяйки параметрите на полето Object Location String и Network Traffic Control), или променяйки конфигурационния файл .xml, или с помощта на програмата LonMark.

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1. BEVEZETÉS

A jelen dokumentum célja a Modbus periféria használatának bemutatása, amely megtalálható az Evoplus termékek közt, felhasználható a piacon megtalálható Lon hálózatra illetve Modbus-Lon hálózatra való csatlakozáshoz.

A felhasználó részéről a dokumentum használatához szükséges a LON és Modbus hálózatok alapszintű ismerete.

Az Evoplus Cirkulátor lehetővé teszi, hogy a felhasználó az RS485 interfészen keresztül hasznosítsa a **MODBUS RTU** perifériát.

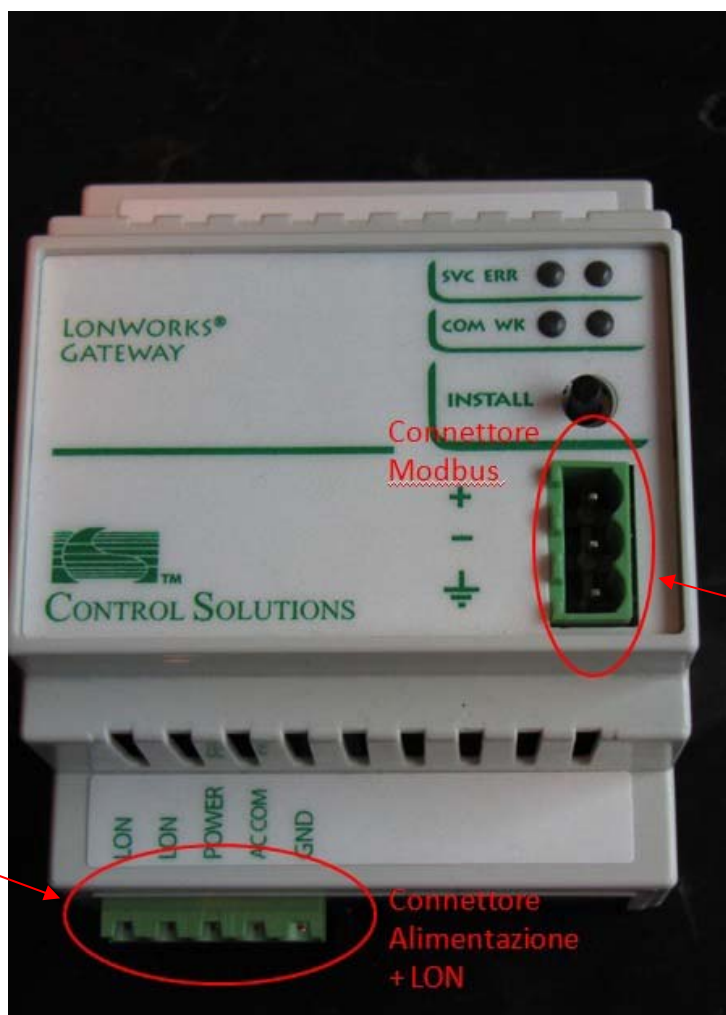
A megvásárolható modulok segítségével a cirkulátort felhasználhatjuk LonWorks hálózathoz is, ami lehetővé teszi a saját státusz és a cirkulátor paramétereinek megváltoztatását, a regiszterek olvasásával vagy módosításával, ahogy az a "Modbus Protokoll használati útmutatója"-ban le van írva, és amelyet a következő linken olvashat el: "<http://www.dabpumps.it/evoplus>".

2. GATEWAY MODBUS-LONWORKS

Egy Modbus és LonWorks hálózat egyeztetéséhez, szükséges a két hálózat közti gateway leállítása. Kereskedelembe különböző típusúak vásárolhatóak meg, mi a következőt ajánljuk: BabelBuster485. Alább a konvertitor jellemzőit soroljuk fel:

Interfész	LonWorks TP/FT-10 - ModbusRtu Rs485
Kommunikáció	Két irányú
Táp	10-30 VDC ; 12-24 VAC
Teljesítmény felhasználás	0.1 A @ 24 VDC
Összeállítás	Barra DIN
Méret	100mm H x 70mm W x 60mm D
Felhasználási kondíciók	Hőmérséklet -40 + 85 °C , Nedvesség 5- 90 %

1 Táblázat: Babel Buster 485 jellemzői



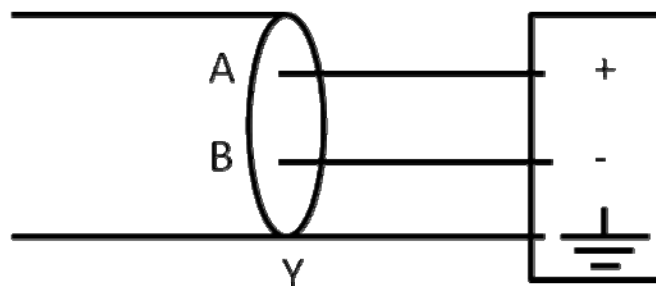
ELLÁTÁSI KONNEKTOR
+ LON

MODBUS KONNEKTOR

1 Kép: Babel Buster 485

A bus MODBUS-hoz való csatlakozásra vonatkozóan, csatlakoztassuk a nem invertálható **A** végletet a Modbus konvertitor pinjéhez + és a nem invertálható **B** végletet a pinhez. Az **Y** jelet a közös végletéhez kell csatlakoztatni.

Az A, B és Y pontok Evoplus-hoz csatlakoztatásakor mindig be kell tartani a bekötésre vonatkozó útmutató előírásait.



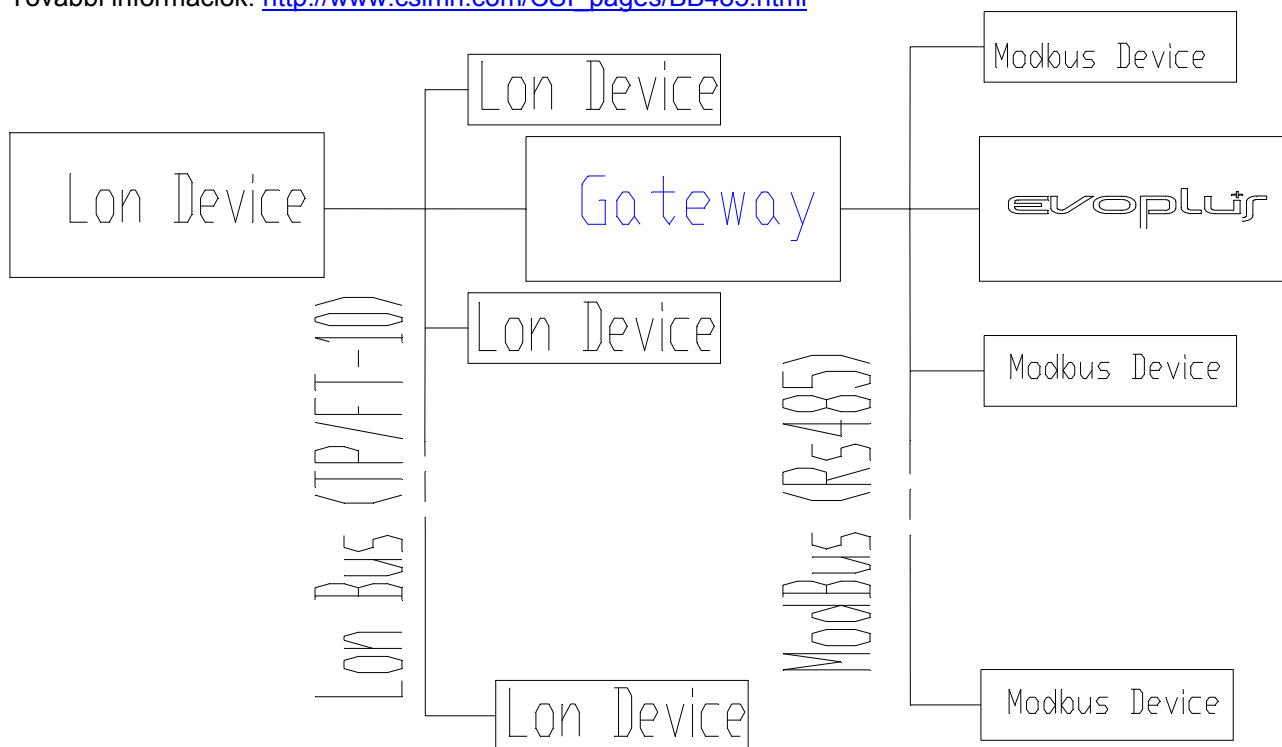
2 Kép: Modbus Babel Buster 485 – Evoplus csatlakoztatása

Csatlakoztassuk a bus LONBUS-t (TP/FT-10 vezeték) a LON két végletéhez.

A Babel Buster 485 áramellátásához a DC POWER és GND konnektorok közt 10 V és 30V feszültség termelődik. Ne csatlakoztassuk az ACCOM terminálhoz.

Az AC feszültségi ellátásához csatlakoztassuk a POWER és ACCOM terminálokat az áramellátáshoz.

További információk: http://www.csimn.com/CSI_pages/BB485.html



3 Kép: Topológiai rajz a Modbus – Lon hibrid hálózatról

3. A BABEL BUSTER 485 KONFIGURÁLÁSA

A továbbiakban a készülék konfigurálásához szükséges lépéseket soroljuk fel:

1. LON hálózaton keresztül csatlakoztassa a készüléket a PC-hez, biztosítsa a készülék áramellátását.
2. Indítsa be a Babel Buster Configuration Tool programot, amelyet a Babel Buster 485-hez csatolt CD-én talál.
3. Válassza ki a LON feliratú kommunikációs portot és nyomja meg a "Connect"-et.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40110	0000	0000	☐

Location: 1U40110 @MaxRpmPerCent

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0.0	0.0000	60.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type: SNVT
SNVT_count_f Change Type

Obj Disabled ☐ No Connection ☐ No Response ☐ Comm Fault ☐ Register Invalid ☐ Exception ☒ In Override ☐

Object No. 32

Get CP's Send CP's Set NV Get NV

Node Request Object Request

Node Object Configuration Properties

Baud Rate: 19200 Swapped Doubles ☐ Node Location String: @ Major Ver: 1 Minor Ver: 10 Third --> Get All CP's Get Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0 Master ☒ Slave Response: 500 mSec Slave ID: Use Fn Codes 5/6 ☐ Read CP's from File

My IP Address: My Subnet Mask: My Gateway: Remote Server: Save CP's to File

Node Identity

Neuron ID	Subnet	Node	Domain
02-47-37-E5-01-00	1	1	0

Program ID: 80:00:17:46:00:81:04:06 Wink Configure

Second... Press Service Pin, then click here --> Get ID Reset Unconfig

Network Interface Configuration

Subnet	Node	Domain Length and Value
1	126	0

Configure Fetch Cfg First -- Connect Disconnect

Network Interface: LON1

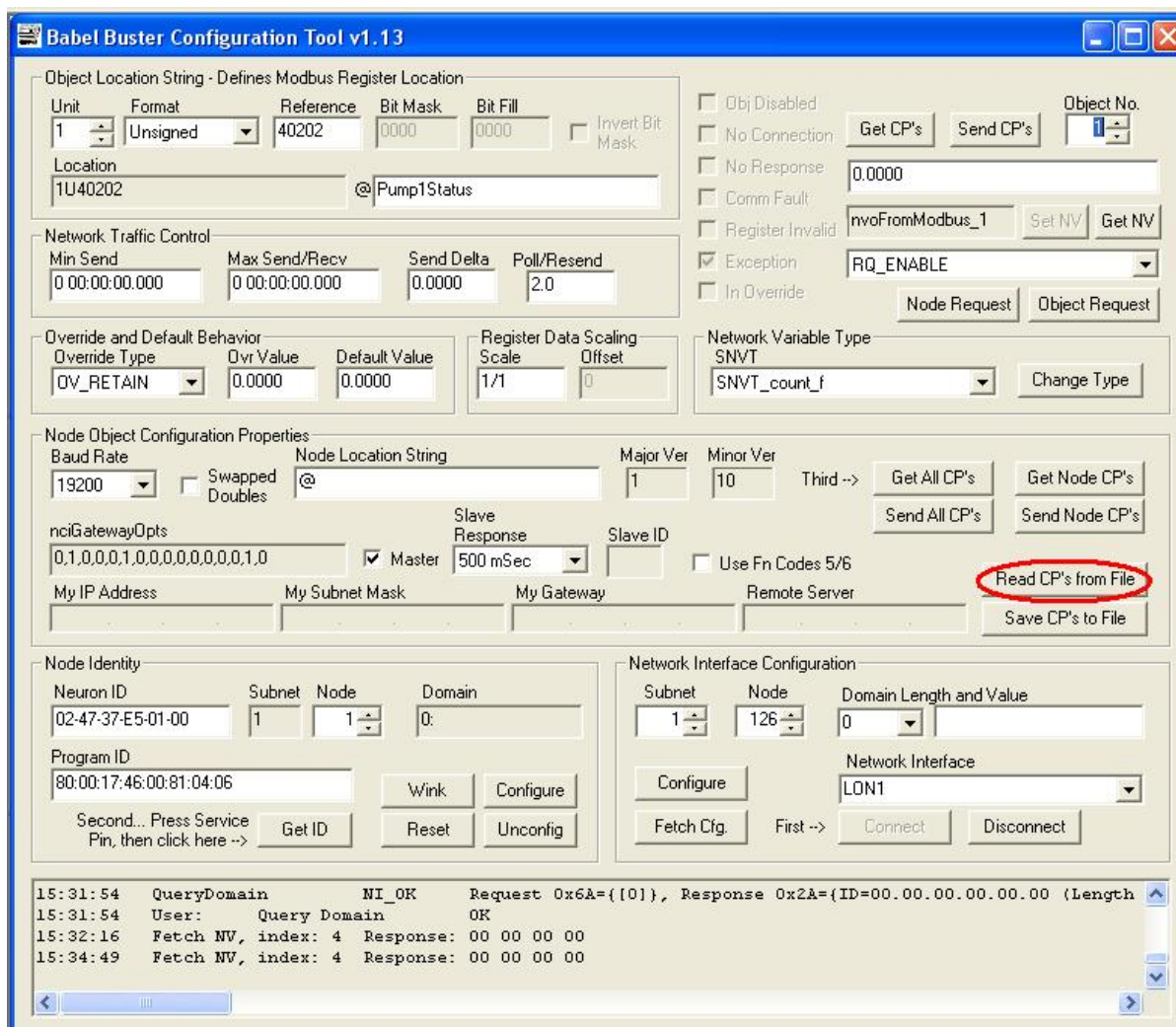
14:14:13 Fetch NV, index: 35 Response: 42 20 00 00

14:14:15 Fetch NV, index: 35 Response: 42 20 00 00

14:14:17 NV updated.

14:14:18 Fetch NV, index: 35 Response: 42 20 00 00

4. Az első használat alkalmával nyomjuk le az "Install" gombot a Babel Buster-en.
5. Nyomjuk le a "Read Cp's from file" gombot, használjuk az EvoplusLON.xml. konfigurációs file-t.



A konfigurációs file feltölti a LON device-ra minden hasznos paramétert, amely a LON-ból Modbus-ra való adatkonvertáláshoz szükséges.

Különös tekintettel a Modbus sorozati kommunikációs paramétereire. Az alábbi Táblázat, a File által adott sorozati kommunikációs paramétereket tünteti fel.

Konfigurációs device Modbus-LON	Master
Trazmissziós sebesség	19200 kb/s
Egyenértékűség	Nincs
Stop bit	1
Response timeout	1000 ms

2 Táblázat: Modbus konfiguráció

Fontos: A Modbus interfész rajta van az Evoplus cirkulátoron, és az 1 Táblázatban leírtak szerint kell konfigurálni.

Ha néhány paramétert meg szeretnénk változtatni (pl.: trazmissziós sebesség), azt a "Baudrate" legördülő menüből kell kiválasztani, vagy manuálisan az .xml. filet kell megváltoztatni.

A file tartalmazza minden a MODBUS és a LON regiszter csatlakoztatására vonatkozó információt. A konfigurációs file tartalmaz minden LON tárgy leírását. Egy példa:

```
<sensor_object>
  <ObjectIndex>1</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTminSndT>0,00:00:00.000</SCPTminSndT>
```

```

<SCPTmaxSndT>0,00:00:00.000</SCPTmaxSndT>
<SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
<SCPTovrValue>0.0000</SCPTovrValue>
<SCPTgain>1/1</SCPTgain>
<SCPTdefOutput>0.0000</SCPTdefOutput>
<SCPTsndDelta>0.0000</SCPTsndDelta>
<SCPTupdateRate>2.0</SCPTupdateRate>
<SCPTlocation>1U40202@Pump1Status</SCPTlocation>
</sensor_object>

```

ObjectIndex	tárgy Id
SCPTnvType	StandardNetworkVariableType
SCPTminSndT	A legrövidebb idő, amely a változó frissítése előtt kell elteljen
SCPTmaxSndT	A maximális idő, amely a változó két update-je közt telhet el.
SCPTovrBehave	
SCPTovrValue	
SCPTgain	Sokszorosító konstans
SCPTdefOutput	
SCPTsndDelta	A legkisebb eltérés ami miatt a változót frissíteni kell
SPTupdateRate	Az az idő, amelyen belül Modbus-on keresztül küld felkérést
SCPTlocation	Behatárolja a Modbus kapcsolódó tárgy pozícióját, különös figyelemmel Slave Cím, regiszter típus (signed,unsigned, floating...) (holding register, input register), a regiszter címe

3 Táblázat: Kapcsolódó tárgyak paramétereinek leírása

```

<actuator_object>
  <ObjectIndex>31</ObjectIndex>
  <SCPTnvType>SNVT_count_f</SCPTnvType>
  <SCPTovrBehave>OV_RETAIN</SCPTovrBehave>
  <SCPTovrValue>0.0000</SCPTovrValue>
  <SCPTgain>1/1</SCPTgain>
  <SCPTdefOutput>0.0000</SCPTdefOutput>
  <SCPTupdateRate>60.0</SCPTupdateRate>
  <SCPTlocation>1U40050@temp</SCPTlocation>
  <SCPTmaxRcvTime>0.0</SCPTmaxRcvTime>
</actuator_object>

```

További információhoz utaljon a készülék datasheet-jére, amelyet a következő linken ér el
http://www.csimn.com/CSI_pages/BB485.html.

6. Nyomja le a "Send All Cp's" gombot. Így elmenti a memóriába a Modbus csatlakozó regiszter és a LON tárgyak konfigurációját.

Babel Buster Configuration Tool v1.13

Object Location String - Defines Modbus Register Location

Unit	Format	Reference	Bit Mask	Bit Fill	Invert Bit Mask
1	Unsigned	40202	0000	0000	☐

Location: 1U40202 @ Pump1Status

Network Traffic Control

Min Send	Max Send/Recv	Send Delta	Poll/Resend
0 00:00:00.000	0 00:00:00.000	0.0000	2.0

Override and Default Behavior

Override Type	Ovr Value	Default Value
OV_RETAIN	0.0000	0.0000

Register Data Scaling

Scale	Offset
1/1	0

Network Variable Type

SNVT

SNVT_count_f

Change Type

Node Object Configuration Properties

Baud Rate: 19200

Swapped Doubles: ☐

Node Location String: @

Major Ver: 1

Minor Ver: 10

Third -->

Get All CP's

Get Node CP's

Send All CP's

Send Node CP's

nciGatewayOpts: 0,1,0,0,0,1,0,0,0,0,0,0,0,0,1,0

Master: ☒

Slave Response: 500 mSec

Slave ID:

Use Fn Codes 5/6: ☐

Read CP's from File

Save CP's to File

My IP Address:

My Subnet Mask:

My Gateway:

Remote Server:

Node Identity

Neuron ID: 02-47-37-E5-01-00

Subnet: 1

Node: 1

Domain: 0:

Program ID: 80:00:17:46:00:81:04:06

Wink

Configure

Second... Press Service Pin, then click here -->

Get ID

Reset

Unconfig

Network Interface Configuration

Subnet: 1

Node: 126

Domain Length and Value: 0

Configure

Fetch Cfg

First -->

Connect

Disconnect

Network Interface: LON1

15:31:54 User: Query Domain OK

15:32:16 Fetch NV, index: 4 Response: 00 00 00 00

15:34:49 Fetch NV, index: 4 Response: 00 00 00 00

15:34:58 Fetch NV, index: 4 Response: 00 00 00 00

7. Aktiválja a módosítandó és/vagy olvasandó tárgyakat, az RQ_ENABLE beállítással.
8. Ha meg akarjuk változtatni a kapcsolódó regisztereket, a paramétereket a Babel Buster Configuration Tool –val tudjuk átállítani (az Object Location String e Network Traffic Control ablak értékeinek módosításával), illetve az .xml konfigurációs file módosításával, vagy LonMark program segítségével.

DAB PUMPS LTD.

Units 4 & 5, Stortford Hall Industrial Park,
Dunmow Road, Bishop's Stortford, Herts
CM23 5GZ - UK

salesuk@dwtgroup.com

Tel.: +44 1279 652 776

Fax: +44 1279 657 727

DAB PUMPS B.V.

Brusselstraat 150

B-1702 Groot-Bijgaarden - Belgium

info.belgium@dwtgroup.com

Tel.: +32 2 4668353

Fax: +32 2 4669218

PUMPS AMERICA, INC. DAB PUMPS DIVISION

3226 Benchmark Drive

Ladson, SC 29456 USA

info.usa@dwtgroup.com

Ph. : 1-843-824-6332

Toll Free: 1-866-896-4DAB (4322)

Fax : 1-843-797-3366

OOO DWT GROUP

100 bldg. 3 Dmitrovskoe highway,

127247 Moscow - Russia

info.russia@dwtgroup.com

Tel.: +7 495 739 52 50

Fax: +7 495 485-3618

DAB POLAND - Representative Office

Mokotow Marynarska

Ul. Postepu 15c - 3rd Floor

02-676 Warsaw - POLAND

Tel. +48 223 81 6085

DAB PUMPS CHINA

No.40 Kaituo Road, Qingdao Economic &
Technological Development Zone

Qingdao City, Shandong Province, China

PC: 266500

info.china@dwtgroup.com

Tel.: +8653286812030-6270

Fax: +8653286812210

DAB PUMPS IBERICA S.L.

Avenida de Castilla nr.1 Local 14

28830 - San Fernando De Henares - Madrid

Spain

info.spain@dwtgroup.com

Ph.: +34 91 6569545

Fax: +34 91 6569676

DAB PUMPS B.V.

Albert Einsteinweg, 4

5151 DL Drunen - Nederland

info.netherlands@dwtgroup.com

Tel.: +31 416 387280

Fax: +31 416 387299

DWT South Africa

Podium at Menlyn, 3rd Floor, Unit 3001b,

43 Ingersol Road, C/O Lois and Atterbury,

Menlyn, Pretoria, 0181 South-Africa

info.sa@dwtgroup.com

Tel +27 12 361 3997

Fax +27 12 361 3137

DAB PUMPEN DEUTSCHLAND GmbH

Tackweg 11

D - 47918 Tönisvorst - Germany

info.germany@dwtgroup.com

Tel.: +49 2151 82136-0

Fax: +49 2151 82136-36

DAB UKRAINE Representative Office

Regus Horizon Park

4M. Hrinchenka St, suit 147

03680 Kiev. UKRAINE

Tel. +38 044 391 59 43

DAB PRODUCTION HUNGARY KFT.

H-8800

NAGYKANIZSA, Buda Ernő u.5

HUNGARY

Tel. +36.93501700

**DAB PUMPS S.p.A.**

Via M. Polo, 14 - 35035 Mestrino (PD) - Italy

Tel. +39 049 5125000 - Fax +39 049 5125950

www.dabpumps.com