

Twido

Exemplo comunicação CanOpen com a remota OTB1C0DM9LP.

Arquitetura

TWDLCAE40DRF + TWDNCO1M

OTB1C0DM9LP



TSXCANKCDF90T

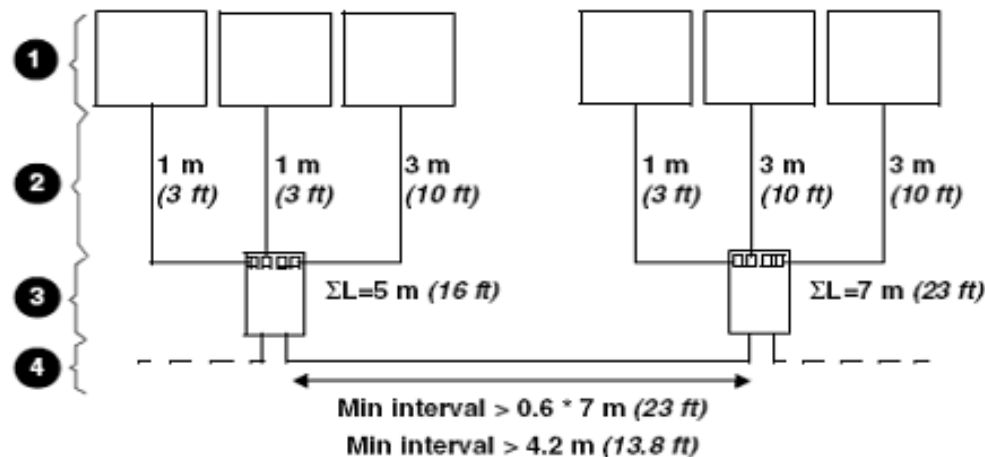
TSXCANKCDF90T

TSXCANCB..
(.. 50=50m; 100=100m; 300=300m)

CanOpen

- Características e recomendações:

The following illustration shows the calculation of the length of a cable located between two tap junction boxes



The table below describes the components of a CANopen network:

Number	Description
1	Connected CANopen devices
2	Drop cables (tap junction box / device)
3	Tap junction boxes
4	Connection cables (tap junction box / tap junction box)

In this example, we have two tap junction boxes and 6 devices. We start by calculating the sum of the lengths of cables for each tap junction box, and we obtain 5 m (16 ft) and 7 m (23 ft). We keep the longest length, i.e. 7 m (23 ft). The minimum length of the cable between the two tap junction boxes is equal to 60% of 7 m, i.e. 4.2 m (13.8 ft).

CanOpen

• Características e recomendações:

- Number of Connected Devices** In addition to the length limitations over the whole of the CANopen bus, the following limitations apply:
- Whatever the case, no more than 64 devices may be connected on the same segment.
 - Two segments must be separated by a repeater.
 - The number of devices connected to a full system depends on the CANopen master and cannot exceed 127.
-

Choice of system cables

Transmission Speed The maximum allowable transmission speeds are given in the following table:

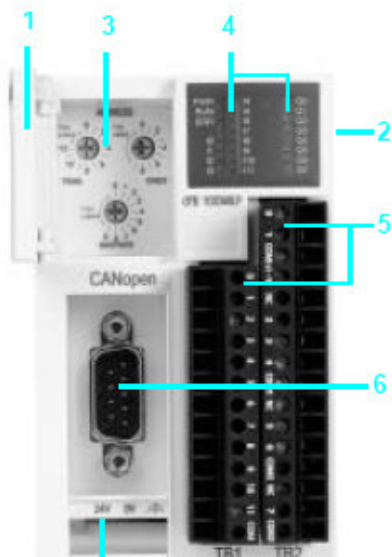
Transmission speed (Kbits/s)	Cable length
1000	20 m (65.62 ft)
800	40 m (131.23 ft)
500	100 m (328 ft)
250	250 m (820 ft)
125	500 m (1,640.4 ft)
50	1,000 m (3,280 ft)
20	2,500 m (8,202 ft)
10	5,000 m (16,404 ft)

Specific Resistance The specific resistance of the cables should be below 70 mΩ/m.

Line Terminator Resistance To minimize the voltage drop in the connection, it is advisable to use a higher line terminator resistance for high length cables than that specified by the standard ISO11898-2. When configuring the system, the connector resistances must also be taken into consideration.

Advantys OTB

• Características do módulo:



Description

The Advantys OTB 1●0 DM9LP (1) interface modules comprise:

- 1 An access door to the speed and network address coding wheels.
- 2 A connector for expansion modules (right-hand side).
- 3 Two or three coding wheels (depending on model) for island address and bus or network communication speed adjustment.
- 4 Indicator lights (communication status and I/O states).
- 5 Screw terminal connectors for connection of inputs/outputs.
- 6 Connectors for connection of bus or communication network.
- 7 Terminals for connection of ± 24 V supply.

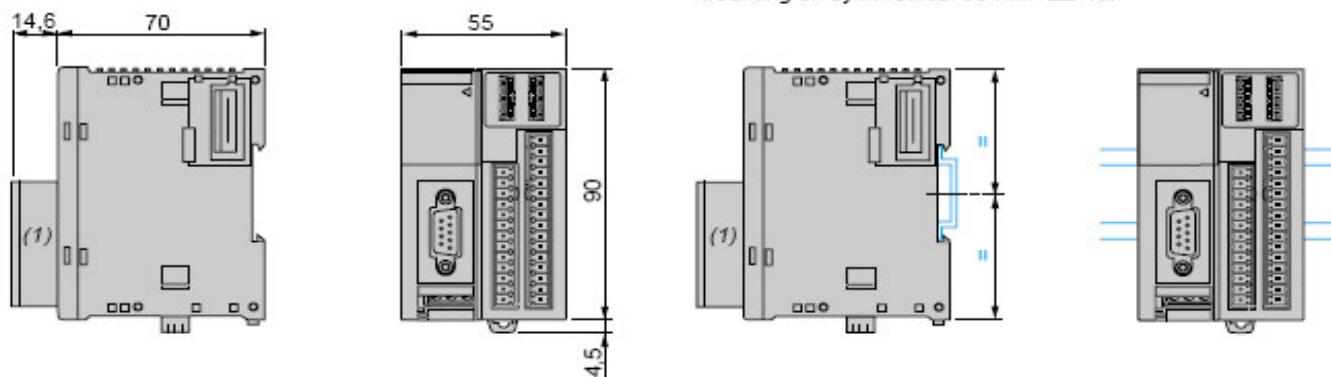
Mounting: the interface modules mount on 35 mm symmetrical rail.

(1) Only the communication part is dedicated to each fieldbus or network and can differ, the general description remains the same.

Dimensions

OTB 1●0 DM9LP

Mounting on symmetrical 35 mm  rail



(1) With removable screw terminal block type connector.

Advantys OTB

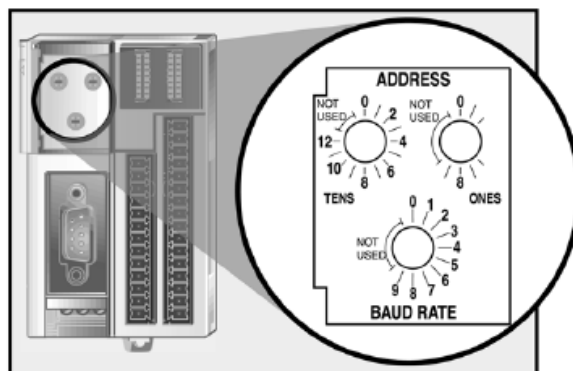
• Definição do endereço:

Island Network Address

Summary

The encoder wheels of the Advantys OTB CANopen module OTB 1C0DM9LP are used to define the address of the island on the network.

Physical Description



Island Addresses

The CANopen interface module reads the address of the island indicated by the upper encoder wheels every time the island is powered up.

The address of the island is a numerical value between 1 and 127, which must be different from all other island addresses on the network. If the configured address is prohibited, the network interface module will not communicate.

Field Bus Communication

The Advantys OTB interface module communicates when the encoder wheels are configured to a valid and unique CANopen address. If the island has an invalid address, it cannot communicate with the master. To establish communication, configure the encoder wheels to a valid address and power up the island.

Configuring the Island Address

The instructions for configuring the address of the island are described in the following table.

Step	Action	Comment
1	All power supply to the island must be OFF.	The changes you make will be detected on the next power up.
2	Select an island address.	Select an address that is not currently being used on your field bus network.
3	Adjust the upper encoder wheels: - Left encoder wheel: 0 to 12 (tens), - Right encoder wheel: 0 to 9 (unit figures).	Use of addresses 0, 128 and 129 is prohibited.
4	Power up the island in order to implement the new configuration.	The network interface module reads the encoder wheel adjustments only on power up.

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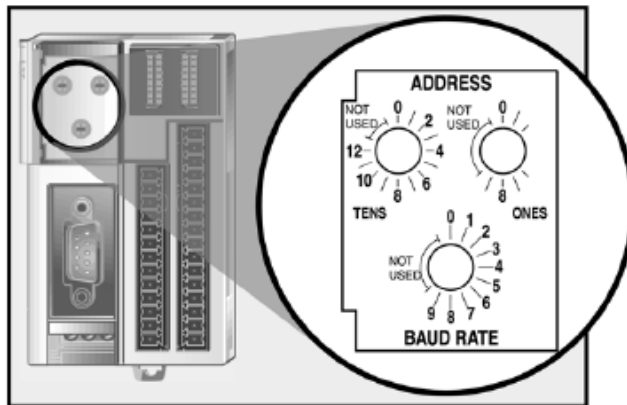
• Definição do baudrate:

Network Speed

Summary

An encoder wheel of the Advantys OTB CANopen OTB 1C0DM9LP module is used to define the network speed.

Physical Description



Rate Selection Table

Position (lower encoder wheel)	Baud rate
0	10 Kbits/s
1	20 Kbits/s
2	50 Kbits/s
3	125 Kbits/s
4	250 Kbits/s
5	500 Kbits/s
6	800 Kbits/s
7	1 Mbits/s
8	Automatic detection
9	Default rate (250 Kbits/s)

Note: Position 8 is used to search automatically for the bus transmission speed. The search starts at 1 Mbits/s then gradually reduces the baud rate by increments until communication is established on the bus. The automatic search only works on an operational CANopen network with an active master.

Network Speed

The CANopen interface module reads the address and baud rate indicated by the encoder wheels each time the module is powered up.

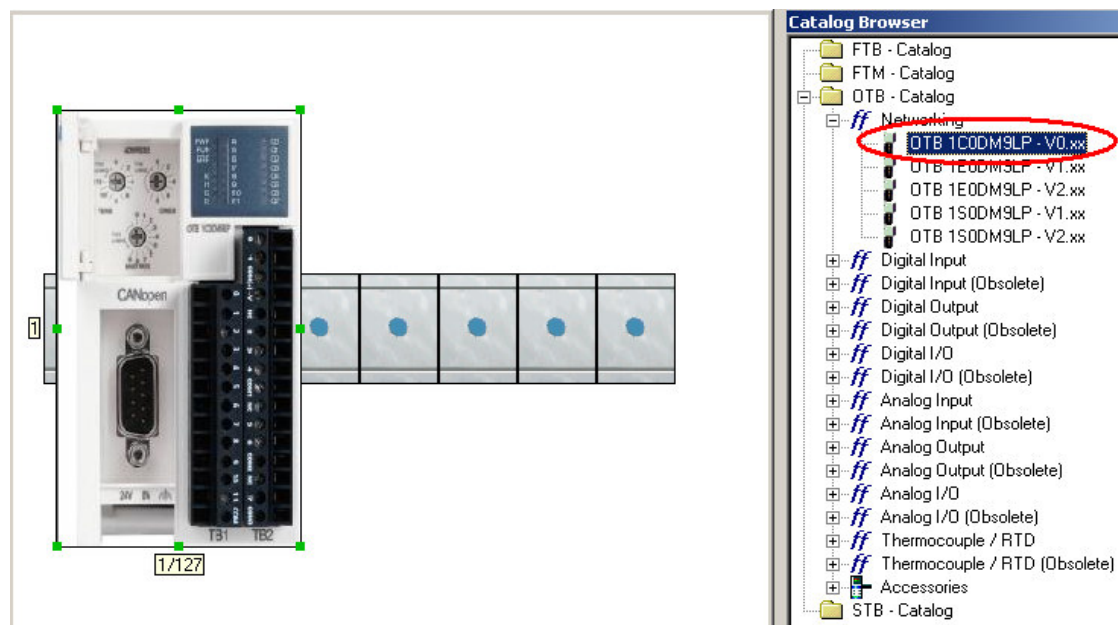
Network speed configuration

The instructions for configuring the baud rate are given in the following table.

Step	Action	Comment
1	All power supply to the OTB network interface module must be off.	The changes you make will be detected on the next power up.
2	Select the rate in bauds to be used for CANopen field bus communications.	The rate configuration depends on the specifications of your system and the network.
3	Set the lower encoder wheel to the position corresponding to the required rate.	Use the following rate selection table.
4	Power up the OTB network interface module again to apply the new configuration.	The network interface module reads the encoder wheel parameters only on power up.

Advantys OTB

- Escolha do modelo remota:



The Advantys OTB offer has also been designed to be as simple as possible. This offer includes 3 communication bases (interface modules) for the various types of network or fieldbus: Ethernet TCP/IP/Modbus, CANopen or Modbus RS 485 Serial Line. Inputs and outputs are directly integrated in the interface modules. Each base incorporates 20 I/O:

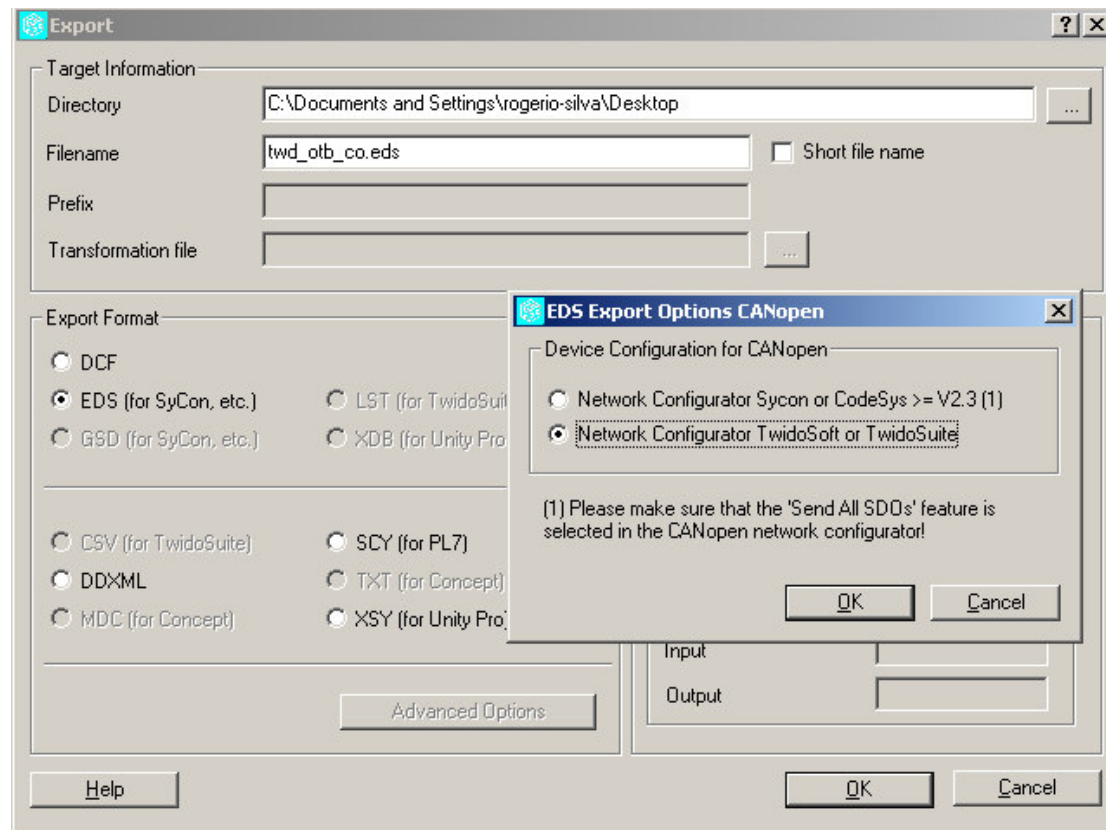
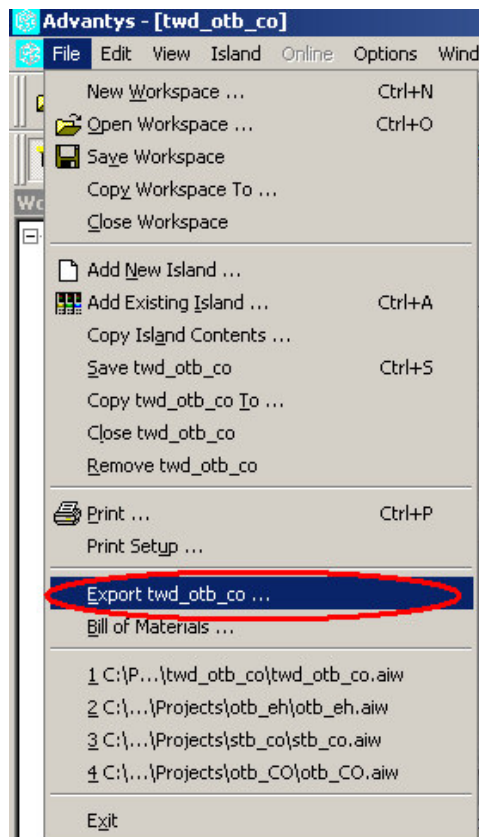
- 12 $\pm$ 24 V inputs,
- 6 relay outputs,
- 2 $\pm$ 24 V solid-state outputs.

All the bases use a $\pm$ 24 V supply. Of monobloc design, each Advantys OTB interface module can be fitted with expansion modules.

With its range of I/O expansions, the Advantys OTB offer provides a modularity that allows all requirements to be met, commencing with a base that can be fitted with up to 7 digital or analogue I/O modules. The expansion modules, like the interface modules, simply clip-on to 35 mm symmetrical rail and enable configurations of up to 132 digital I/O and up to 48 analogue I/O channels, or a mixture of both types (within the limit of 7 expansion modules), to be obtained.

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- Exportação arquivo configuração EDS:



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- Mapa de Endereço das Entradas e Saídas digitais:

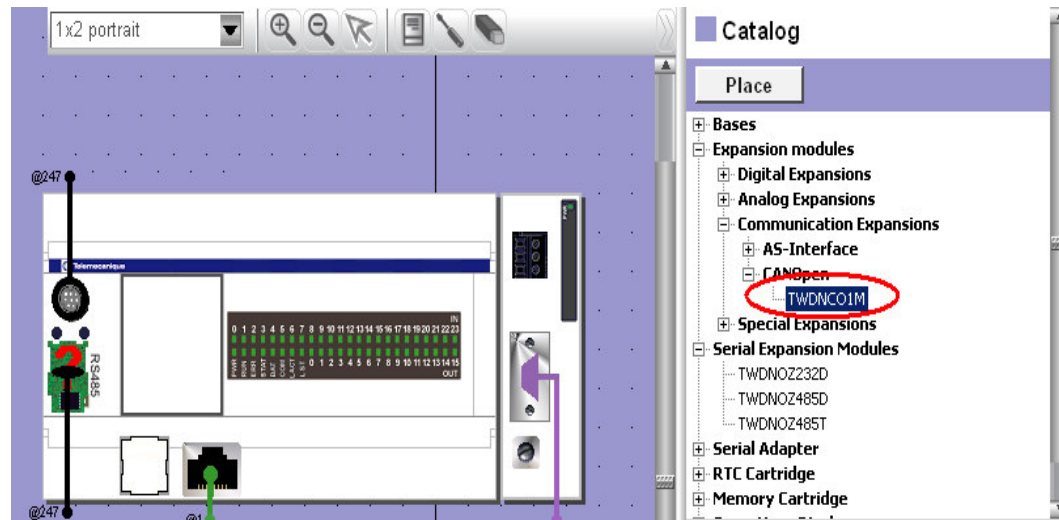
Discrete I/O Access Objects

The following table describes the different objects reserved for the I/O read/write operations of the OTB module:

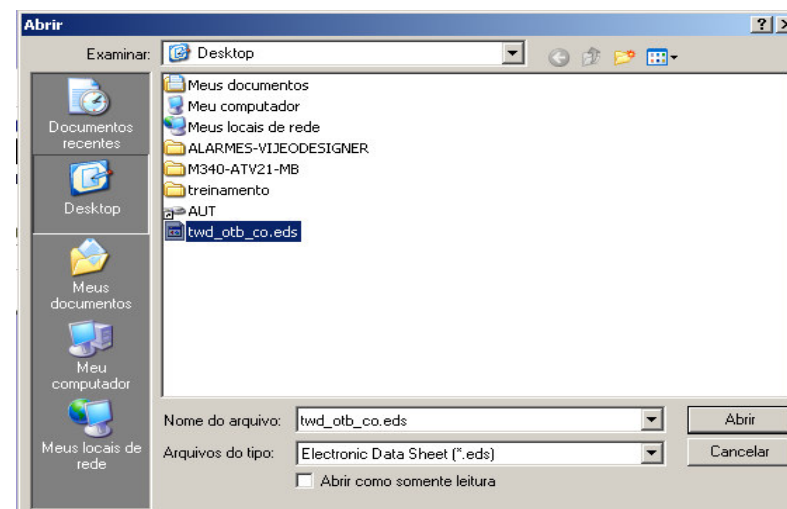
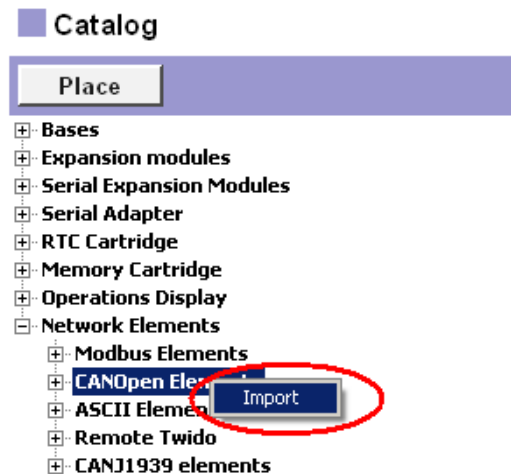
Object	Sub-index	Bit	Description	Parameter
6000H	1	Bit 0	Read input 0	8-bit word
		...	...	
		Bit 7	Read input 7	
	2	Bit 0	Read input 8	8-bit word
		...	...	
		Bit 3	Read input 11	
		Bit 4	Not used	
		...	...	
		Bit 7	Not used	
6100H	1	Bit 0	Read input 0	16-bit word
		...	...	
		Bit 11	Read input 11	
		Bit 12	Not used	
		...	...	
		Bit 15	Not used	
6200H	1	Bit 0	Write output 0	8-bit word
		...	...	
		Bit 7	Write output 7	
6300H	1	Bit 0	Write output 0	16-bit word
		...	...	
		Bit 7	Write output 7	
		Bit 8	Not used	
		...	...	
		Bit 15	Not used	

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- Escolha do módulo mestre CanOpen:

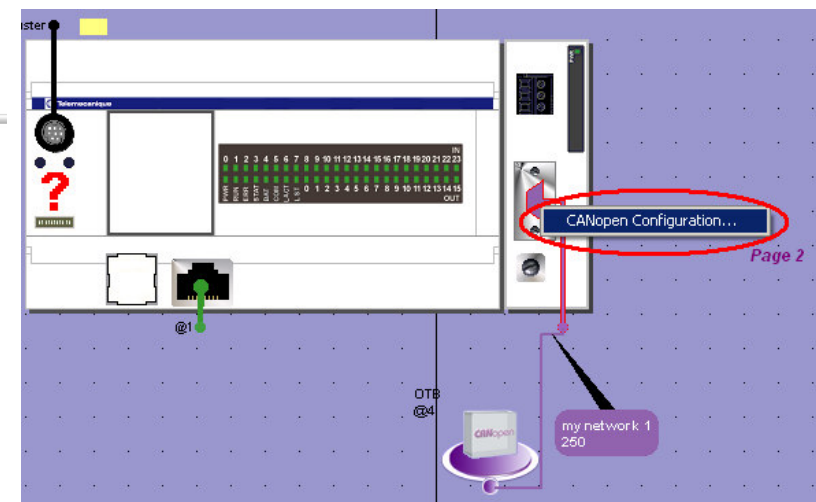
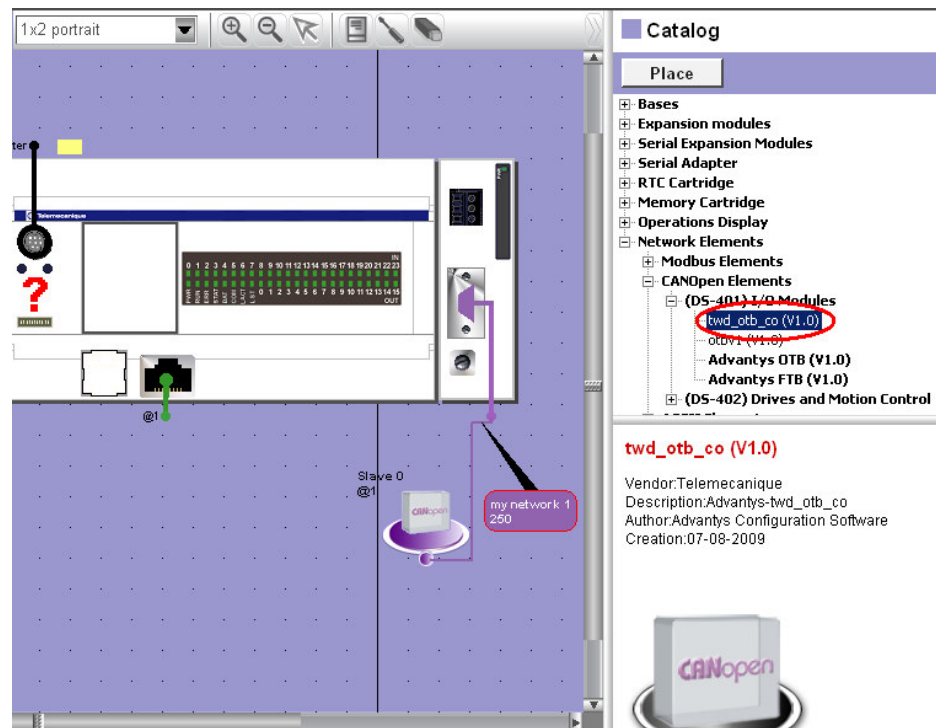


Importação do arquivo EDS gerador a partir do Advantys Software:



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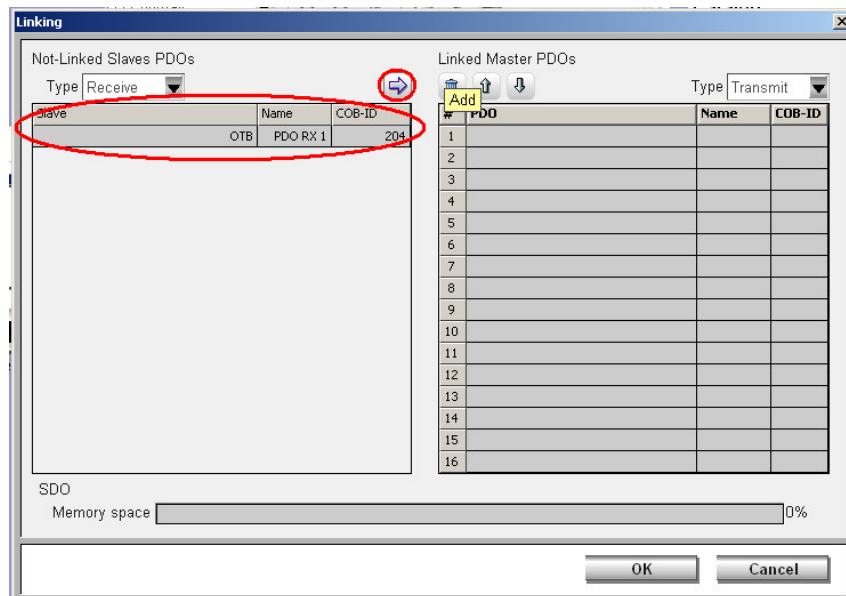
- Configuração OTB para rede CanOpen:



Após importação, configura-se a rede definindo o endereço de escravo e baudrate, de acordo com os padrões regidos para rede CanOpen.

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• PDO:



Seleção dos objetos de comunicação de leitura e escrita. Em seguida, visualiza-se dentro de cada grupo de PDO's os registros escolhidos.

A configuração dos objetos que formam a PDO são dados a partir do arquivo de configuração EDS.

Process Data Object (PDO) Transmission

Definition of PDO PDOs are objects which provide the communication interface with process data and enable them to be exchanged in real time. A CANopen device's PDO set describes the implicit exchanges between this device and its communication partners on the network.

The exchange of PDOs is authorized when the device is in "Operational" mode.

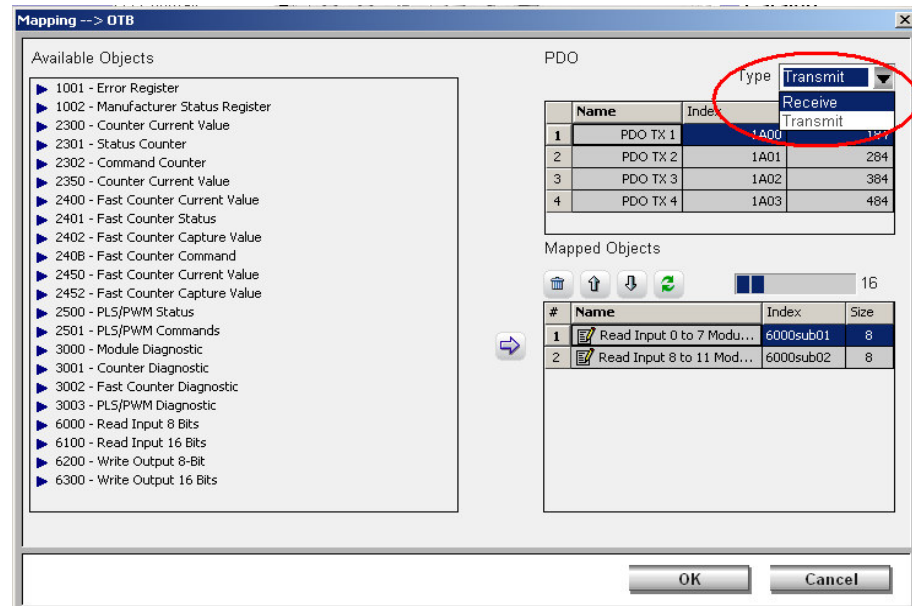
Types of PDO

There are two types of PDO:

- PDOs transmitted by the device ("Transmit PDO", "TPDO")
- PDOs received by the device ("Receive PDO", "RPDO")

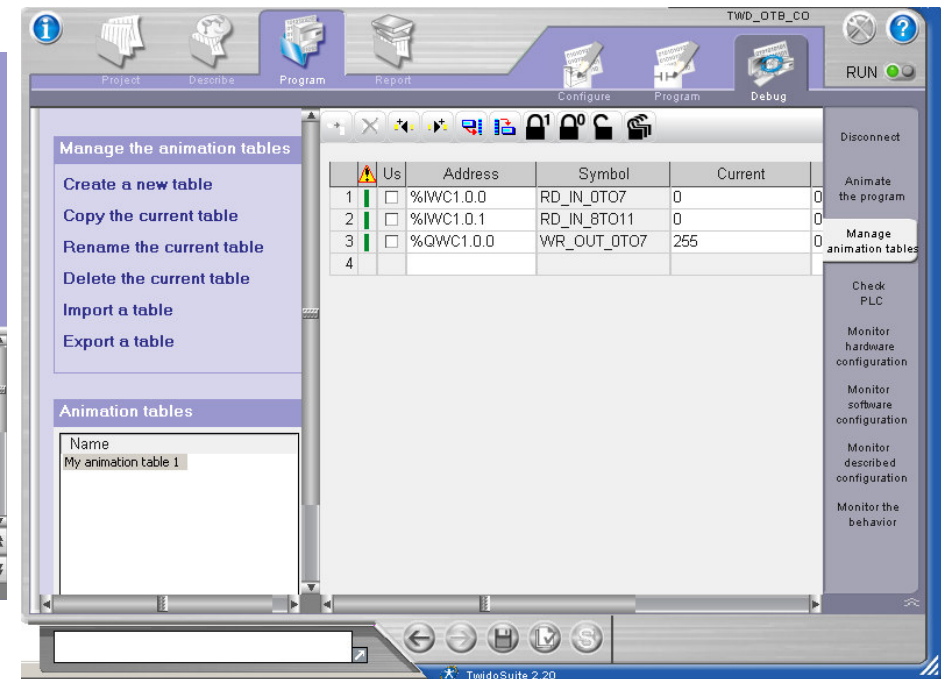
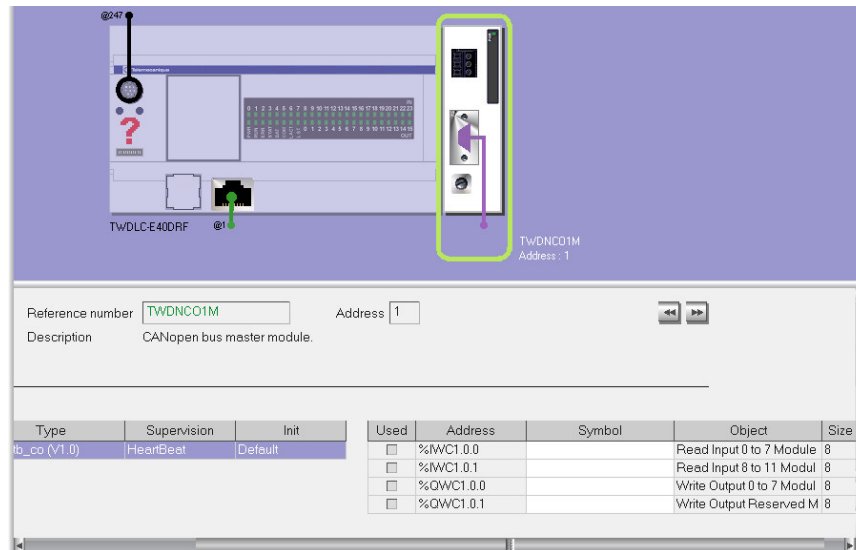
PDO Consumer/Producer

PDOs are based on the "Producer/consumer" model. The device which sends out a PDO is called the producer, while the device receiving it is known as the consumer.



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- Endereços reservados para comunicação:



%IWC1.0.0 – Leitura das entradas 0 a 7.

%IWC1.0.1 – Leitura das entradas 8 a 11.

%QWC1.0.0 – Escrita nas saídas 0 a 7.