DY-5032
Protocol converter
®CANopen/Modbus Master
User Manual
Revision 1.0

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REVISION LIST:

Revision	Date	Author	Chapter	Description
1.00	01/2006	ASCON	All	First release version

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CHARACTERISTICS

The CANopen/Modbus master Protocol Converter is an electronic device that can be installed on DIN rail, it allows the following:

- bi-directional information between networks CANopen and Modbus.
- Electrical isolation between two BUSes
- SDO, PDO, Nodeguarding
- RS485 Serial Communications (RTU Version)

To configure the Protocol Converter, use the Compositor software that runs under the control of Windows Operating System. It is downloadable from the site www.ascon.it in section *download/software*. Entered the download area, find the program: Ascon_SW_DY-**5032**_Compositor.zip

Note: the first time you enter the Software Download area, you need to register yourself, by clicking on the register button.

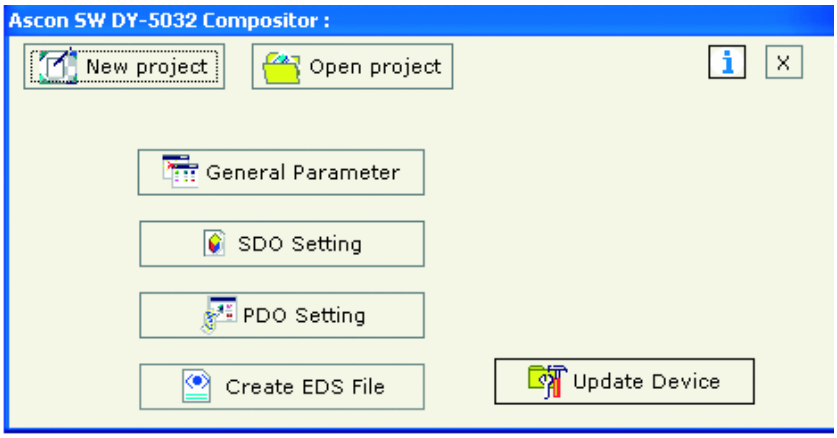
The Protocol Converter can be configured up to a maximum 1000 SDO, 2 TPDO and 2 RPDO.

USE OF DY-5032 Compositor SOFTWARE

INTRODUCTION

The CANopen/Modbus Protocol Converter, allows a CANopen network to communicate with a Modbus network that we simply call CANopen and ModBUS in this manual.

When launching it the following window appears:



The “New Project” button creates the folder which contains all the project files:

- The project is the set of files that defines a particular configurations of the CANopen/Modbus Protocol Converter. This file can also be imported and exported.

- To clone configurations of a CANopen/Modbus Protocol Converter in order to configure another device in the same manner, it is necessary to maintain the folder and all its contents.
- To clone a project in order to obtain a different version of the project, it is enough to duplicate the project folder with another name and open the new folder with the button “Open Project”.

When the project is created or opened, it is possible to access the various configuration sections:

- **Set Communication**;
- **SDO Setting**;
- **PDO Setting**;
- **Create EDS file.**

SET COMMUNICATION

This section defines the main communication parameters of two BUSes where the Protocol Converter is inserted**.**

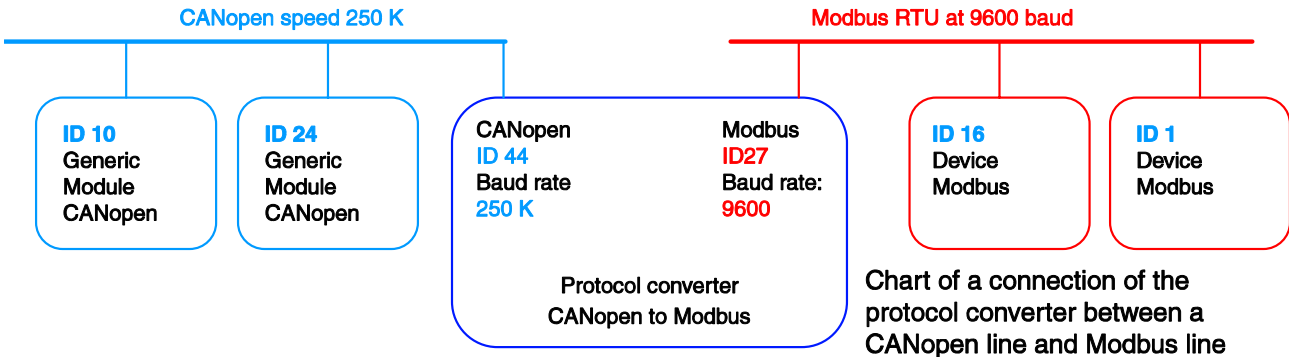
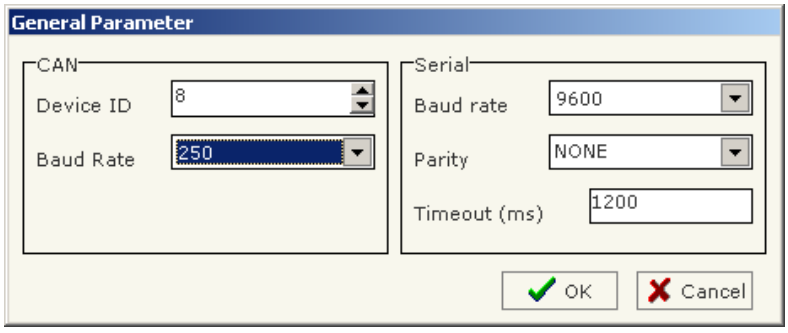


Chart of a connection of the protocol converter between a CANopen line and Modbus line

“General Parameter” Section



By pressing the “General Parameter” button, the previous window appears in which can be set the parameters of both the BUSses.

- In the fields Device ID, the Gateway address of CANopen device can be inserted.
- In the fields Baud Rate, can be inserted the velocity of the two BUSes.
- The parameter timeout is expressed in milliseconds.
- Timeout is the maximum waiting time for Serial response.

SDO CONFIGURATION

"SDO Setting" Section

The Manufacturer area of Object Dictionary can be configured for representing data of serial line.

The following objects can be defined within the section as SDO Setting:

- The CANopen SDO gives access to a Modbus word.

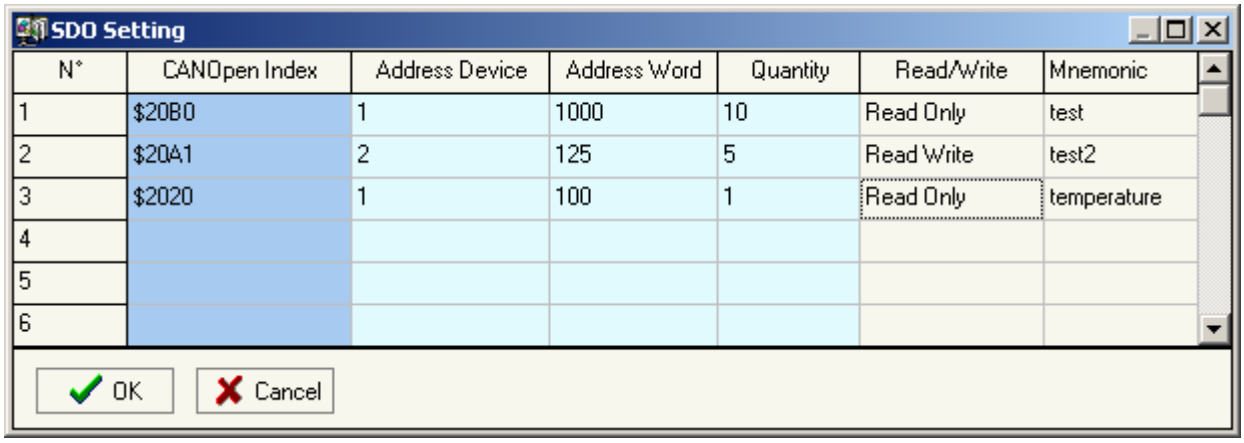
Example 1:

If I want to read data from Modbus network but I'm in a CANopen network :

I'll define an sdo index ($20B0) and this will be associated to an area inside Modbus network (address 1000 inside device 1)

For reading word 1000 on device at address 1 you have to read sdo index $20B0 subindex 1.
For reading word 1001 on device at address 1 you have to read sdo index $20B0 subindex 2
Etc.

Field Quantity means number of consecutive location can be read.



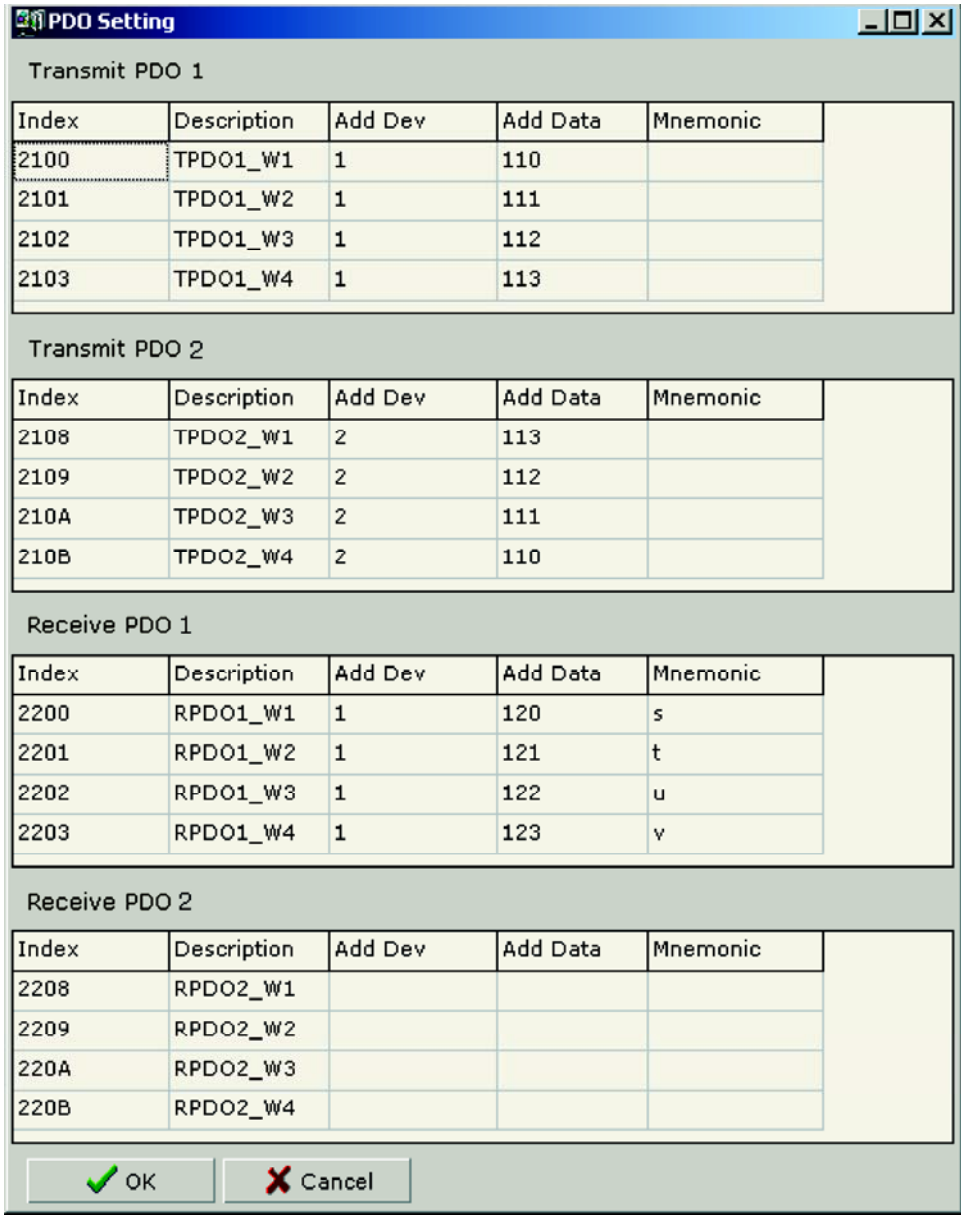
The object $2100 to 210F and $2200 to 220F are reserved and cannot be used.

All data will be retrieved on event read of specific SDO. The master CANopen need to have a timeout higher than 500 ms . The reply time is the time for a serial inquiry plus the serial response.

PDO Setting

The gateway permits to use 2 Receive PDO and 2 Transmit PDO. All PDO are mapped to specific object for TPDO1 ($2100,$2101,$2102,$2103). A PDO have 8 bytes length which are divided in 4 word. Each word is linked to a word in serial bus.

Writing an RPDO of gateway, the data will be written into serial device of specific addresses. Requesting a TPDO this PDO will contain the data read from serial bus, from a specific device and addresses.



In the form above it is possible to configure the four parts of each PDO compiling the exchange table.

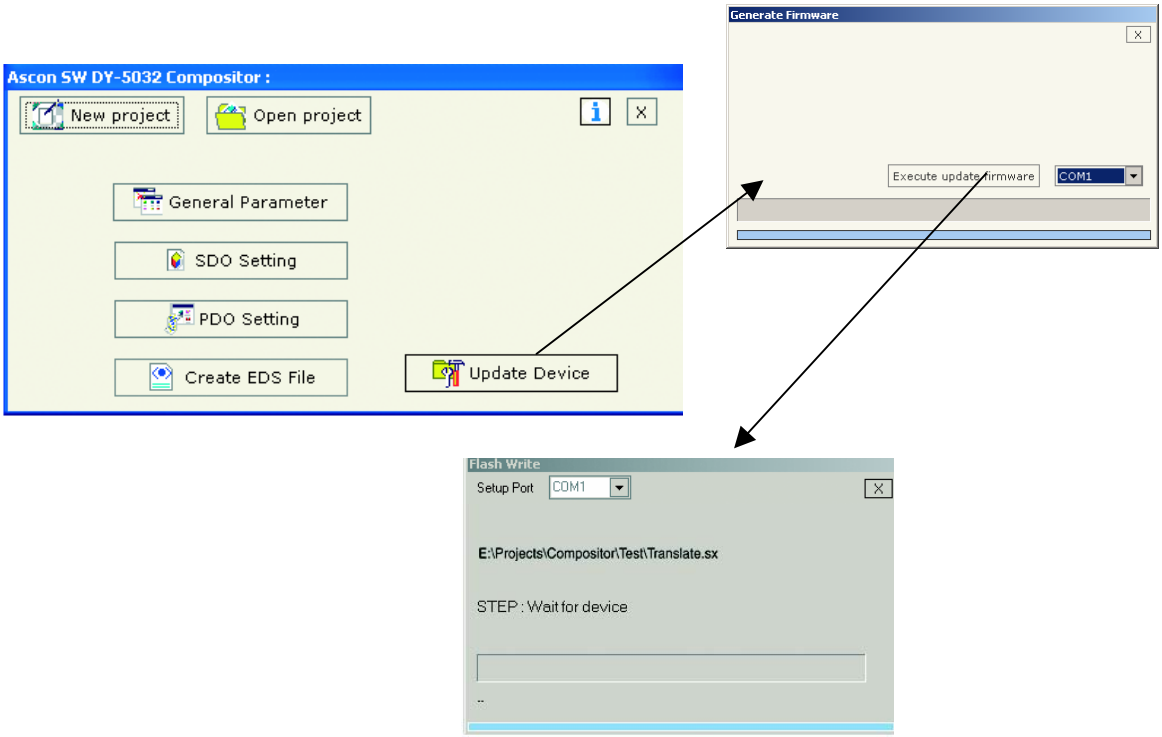
Create EDS file

By clicking on this button the user can create a valid EDS file.

WARNING: In order to obtain a valid file that describes all the configured SDOs and PDOs, create the EDS file only after setting the SDOs and the PDOs.

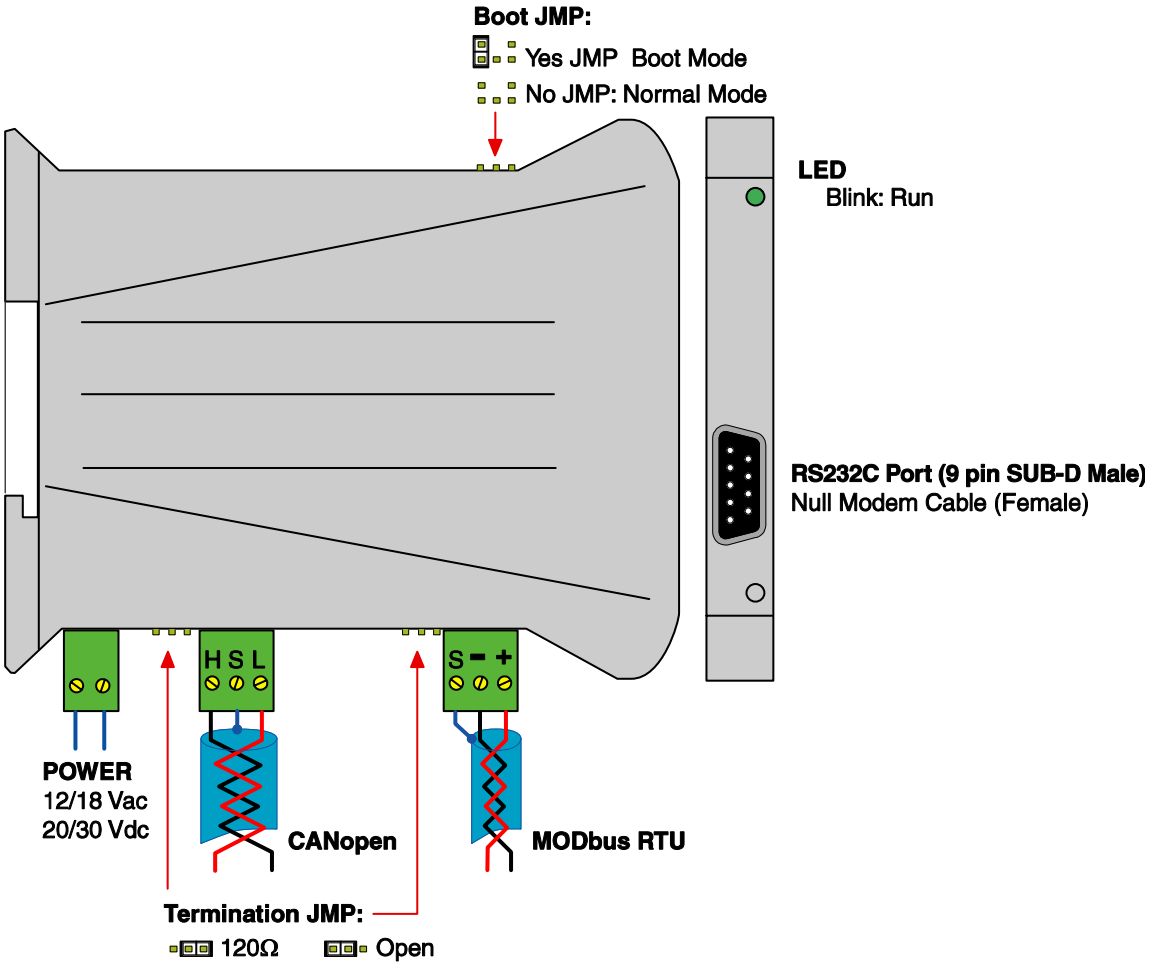
DEVICE UPDATE

In order to download the parameters, you must click the button “Update device” on the main window.



1. At this point, you must boot the protocol converter with the provided jumper. See the “Connection scheme” hereafter.
2. Select the serial port which performs the update. Click on “Execute update firmware”.
3. Wait for the running bar to finish.
4. Remove the jumper and reboot the protocol converter.

CONNECTION SCHEME

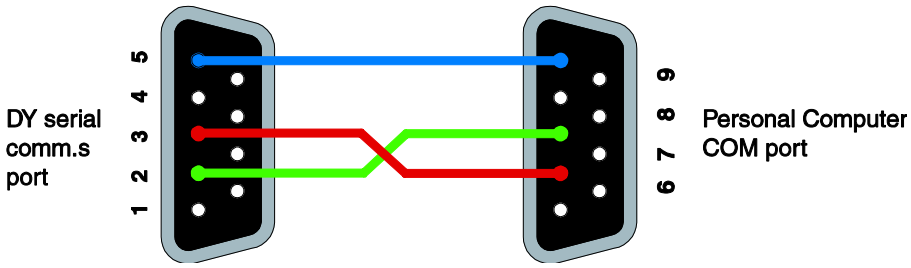


CABLE CHARACTERISTICS

RS232 Cable

The connection from RS232 socket to a serial port (example: the one of a personal computer), must be made with a NULL MODEM cable (a serial cable where the pins 2 and 3 are crossed).
It is recommended that the RS232C Cable not exceeds 15 meters.

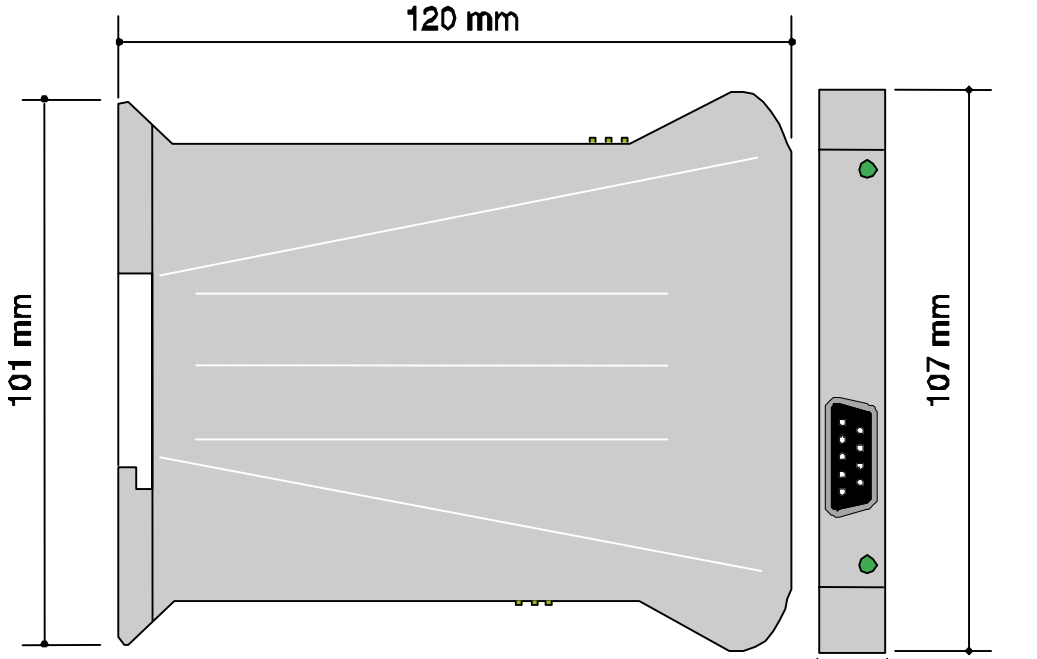
Null modem cable



CANBUS Cable Characteristics

DC parameter:		Impedance	70 mΩ/m
AC parameters:		Impedance	120 mΩ/m
		delay	5 ns/m
Length		Baud Rate [bps]	Length max. [m]
		10 K	5000
		20 K	2500
		50 K	1000
		100 K	650
		125 K	500
		250 K	250
		500 K	100
		800 K	50
		1000 K	25

MECHANICAL DIMENSIONS



Housing: PVC
Weight: 200g (approx.)