Using UniOP in a S-S 5136-PFB Profibus DP System

This technical note describes the setup of a Profibus DP system with a S-S Technologies 5316-PFB board as the bus master and a UniOP panel running the Profibus DP (often referred as 'Profibus Lite') protocol. This document is not intended to be a complete user's manual but rather a step-by-step guide to the most complex parts of the system configuration. For additional information on the connection of UniOP to a Profibus DP system you may also refer to the technical note TN96.

This technical note comes with a set of support files which will be used in setting up the test system.

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1. Hardware Setup

The system setup is described below:

- Install the 5136-PFB board in a PC. Proper reservation must be done for I/O, interrupts and memory (in some cases also memory shadowing must be disabled in the BIOS setup).
- Install the driver for the 5136-PFB board. The initial test has been performed under Windows 95 using the 32 bit driver.
- Download a simple project file to a UniOP panel equipped with a TCM08 Profibus DP communication module.
- Connect the UniOP panel and the Profibus DP master with a standard Profibus DP cable.

The first two steps must be performed according to the documentation available from S-S Technologies. The latest version of the driver may be downloaded from the S-S web site.

2. Configuration of the Profibus DP Network

Use the Com ET Master Configuration program to configure the 5136-PFB as a Profibus DP master station.

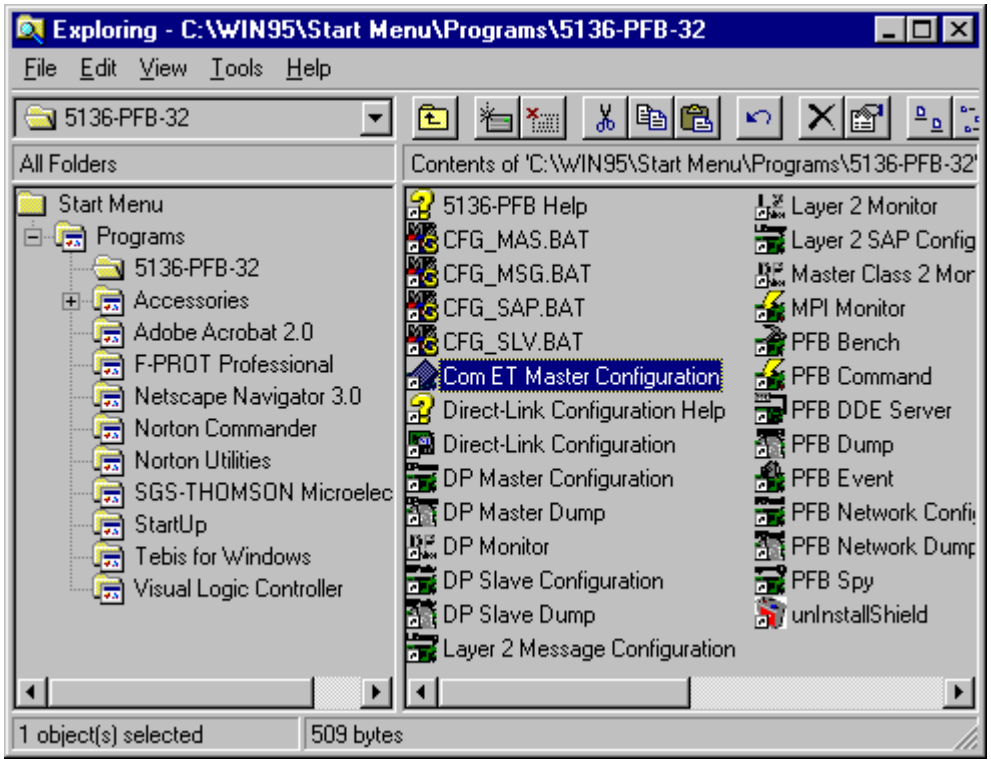

Figure 1

The configuration process is performed downloading a binary file to the 5136-PFB. The binary file must have extension .2bf and can be prepared off-line with the Siemens COM ET 200 version 2.1 software package.
The file lite.2bf is available as a sample program. All the steps for the creation fo the binary configuration file will be described in the chapter 5 of this technical note.

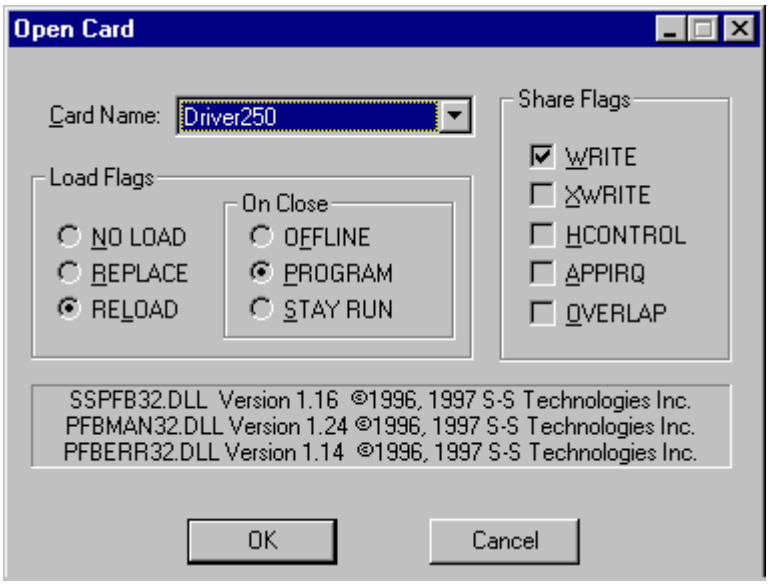

Figure 2

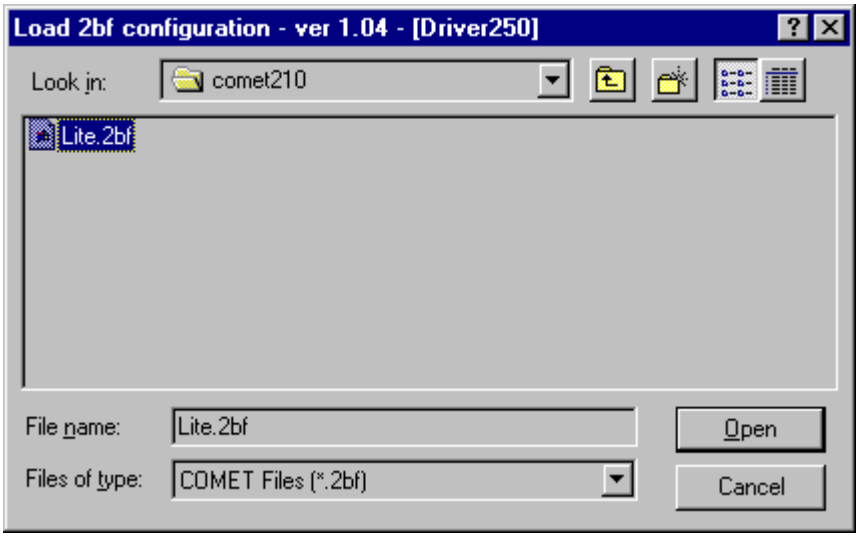

Figure 3

The program will confirm that the transfer has been completed successfully.

3. Going On-line with the 5136-PRB

To start on-line operation with the 5136-PRB start the program PFB Command.

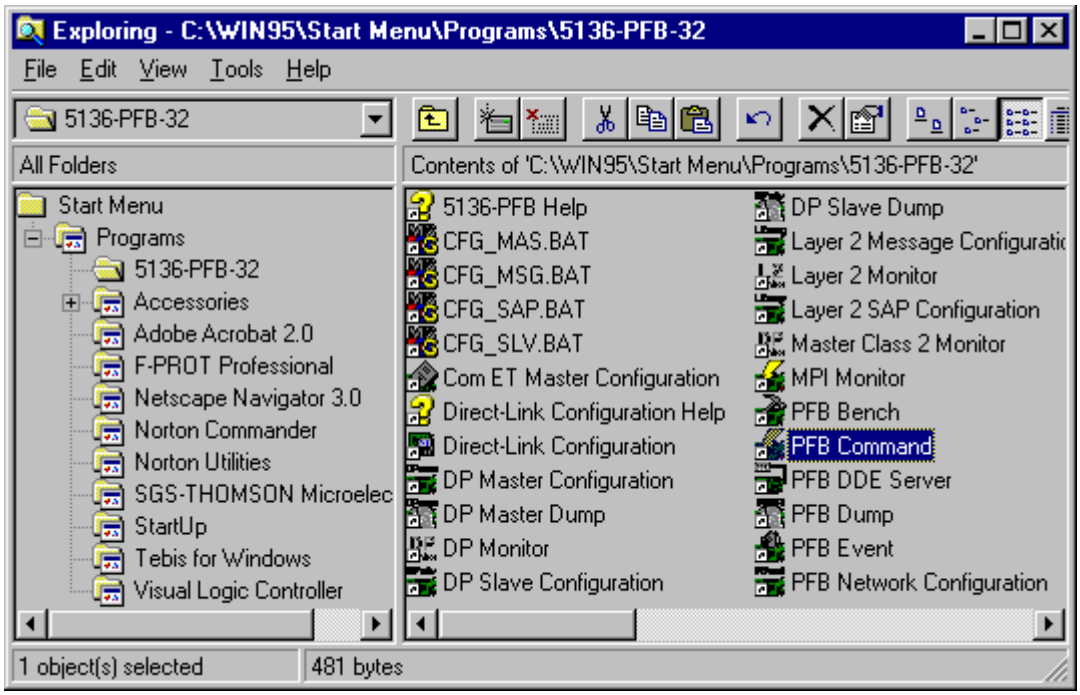

Figure 4

Choose the command ONLINE and send the command to the board.

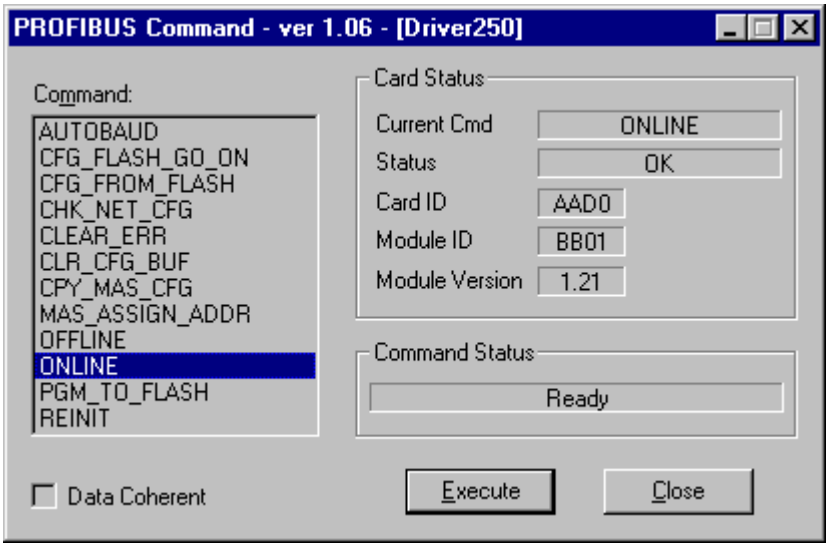

Figure 5

4. Activation of the Profibus DP Monitor

The 5136-PRB board can be used as a Profibus DP network monitor using the DP Monitor program. The DP Monitor will let you check the communication between the Profibus Master and its slave stations.

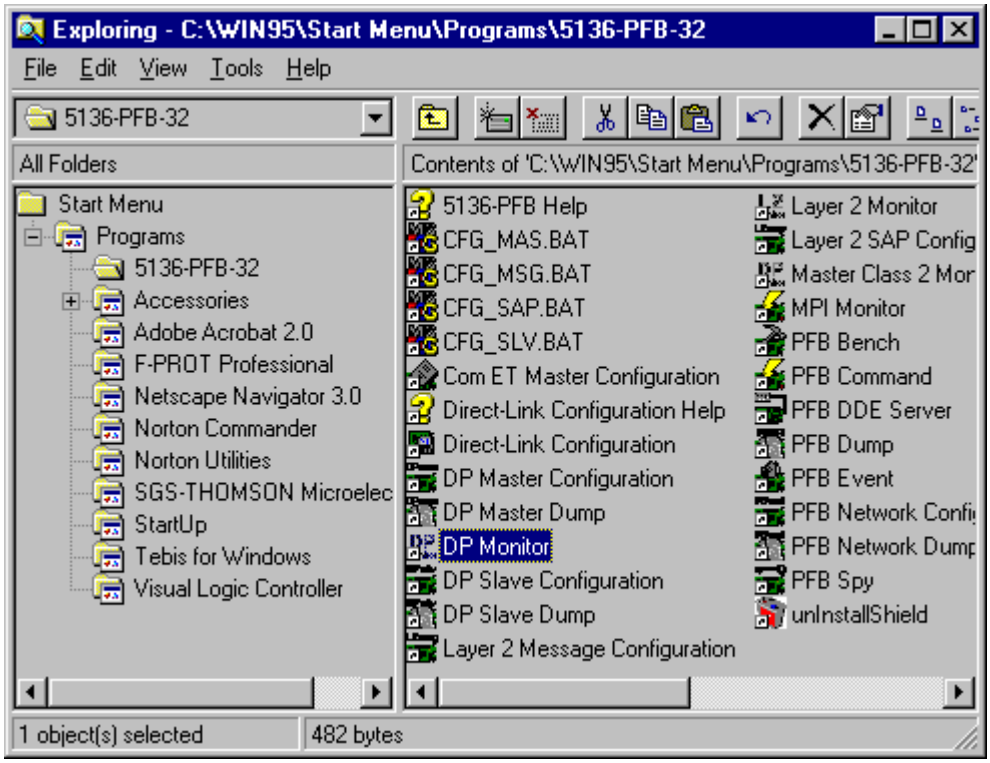

Figure 6

Upon activation the DP monitor will display the on-line map of network nodes.

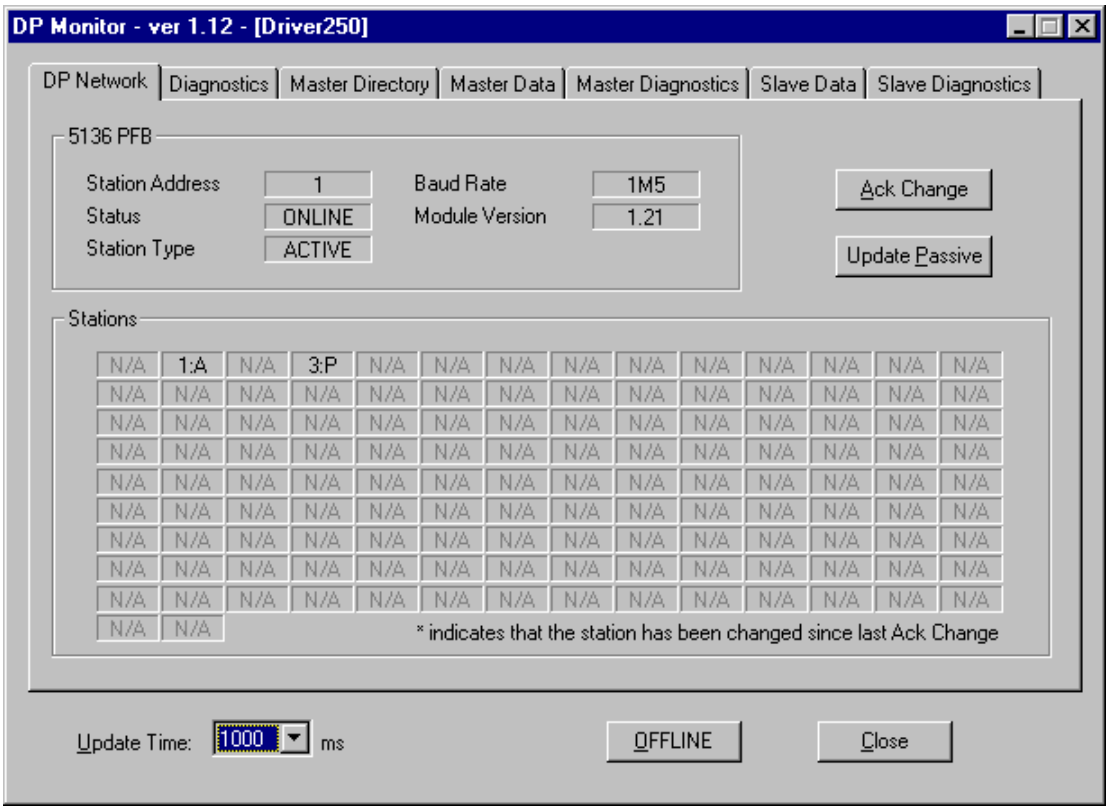

Figure 7

In the sample system only two nodes are highlighted:
1:A (active station, the 5136-PRB master)
3:P (passive node, the UniOP MMI).

If you select the Master Data tab, two buffers of 32 bytes will be shown. The two buffers are actually the Profibus DP Transmit and Receive buffer of the master unit. In the sample system the RX Data buffer will show the data received from the UniOP, the TX Data contains the data that will be transmitted to the UniOP.

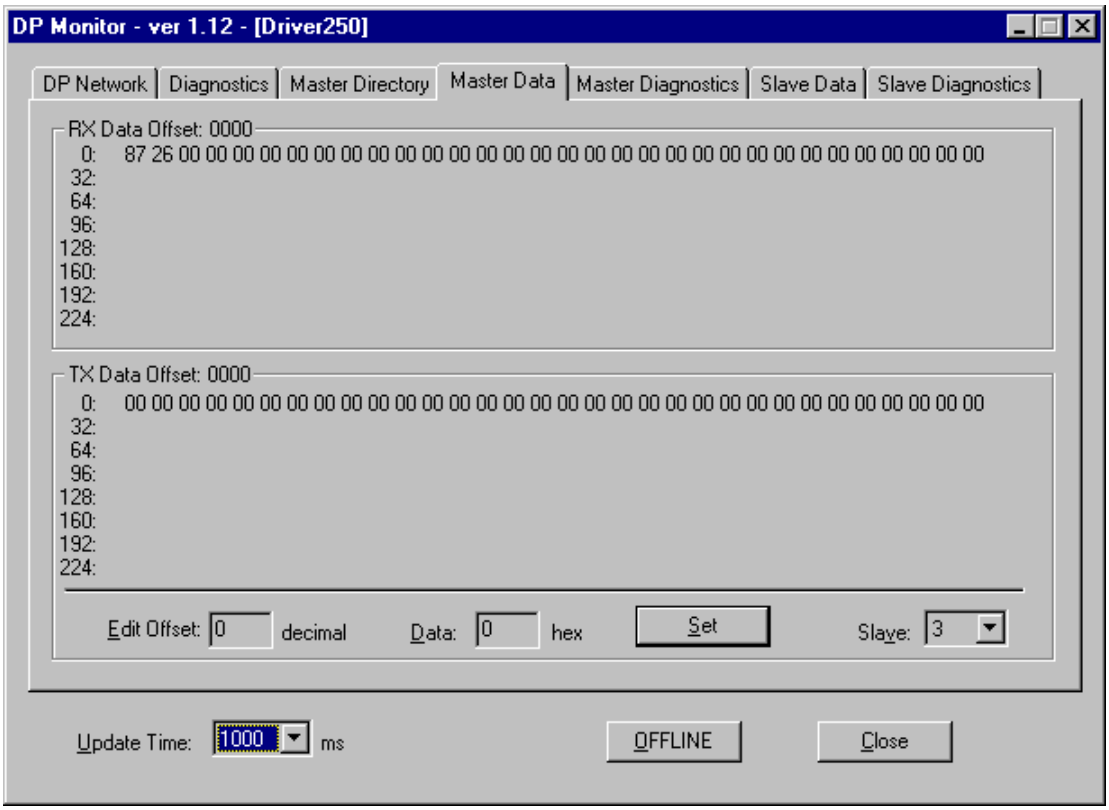

Figure 8

To enable the transfer of data from the Master to the UniOP, the Master station must be switched to RUN mode.

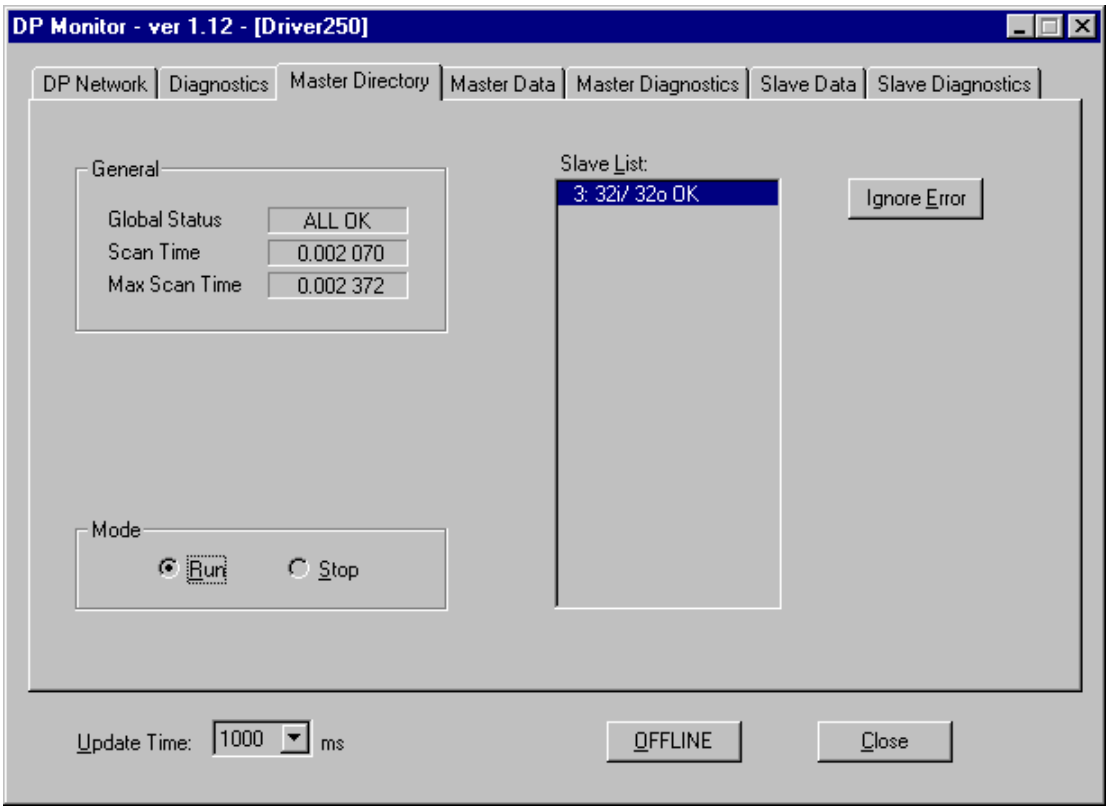

Figure 9

Now, if you change some data in the TX Data buffer (using the sample programs change the value at Offset 0 and confirm with the Set button) the same data will be displayed by the UniOP panel.

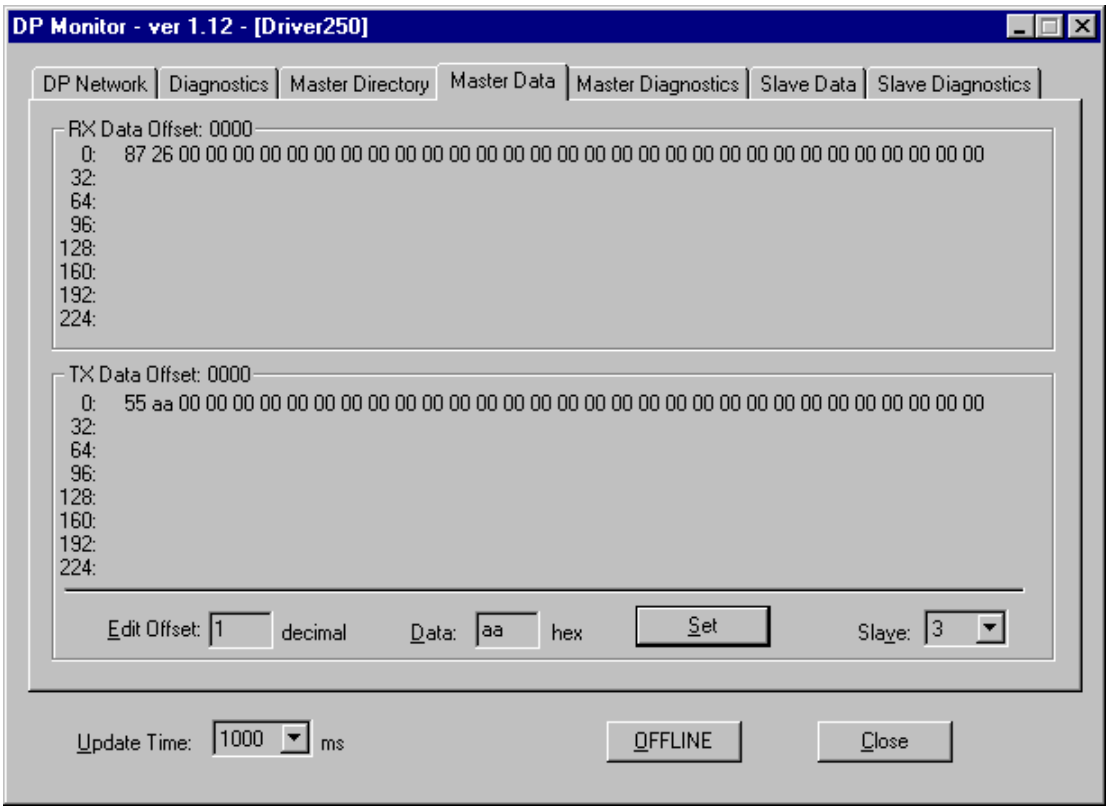
DP Monitor - ver 1.12 - [Driver250]
DP Network
Diagnostics
Master Directory
Master Data
Master Diagnostics
Slave Data
Slave Diagnostics
RX Data Offset: 0000
0: 87 26 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
32:
64:
96:
128:
160:
192:
224:
TX Data Offset: 0000
0: 55 aa 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
32:
64:
96:
128:
160:
192:
224:
Edit Offset: 1 decimal
Data: aa hex
Set
Slave: 3
Update Time: 1000 ms
OFFLINE
Close

Figure 10

5. Hardware Configuration with COM ET 200

The Hardware configuration of the Profibus DP system and the network parameters may be defined with the Siemens COM ET 200 package. The version 2.1 has been used in the test described in this Technical Note.

Before you start the COM ET 200 program, you should copy the file ex9649ax.200to the directory C:\COMWIN21\TYPDAT5X. This file will add the description of UniOP panel in the catalog of the COM ET software.

It may be necessary to use the command Open/Filetype in COM ET 200 to see the UniOP device description file in the list of available devices.

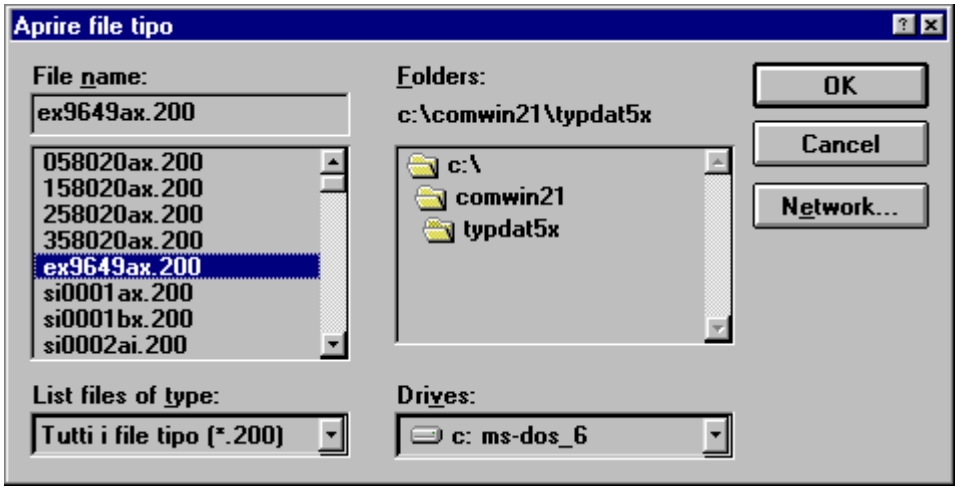

Figure 11

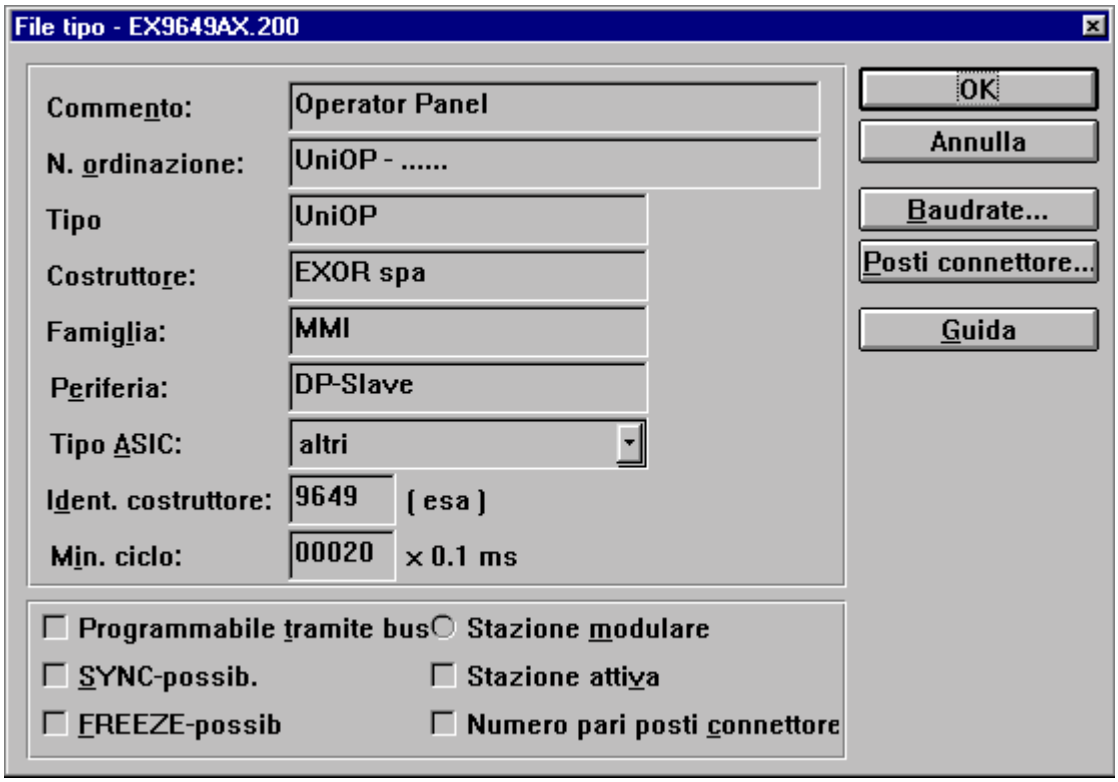

Figure 12

The COM ET 200 software has to be restarted after this operation.

The next step will be to create the Profibus DP system configuration with COM ET 200.

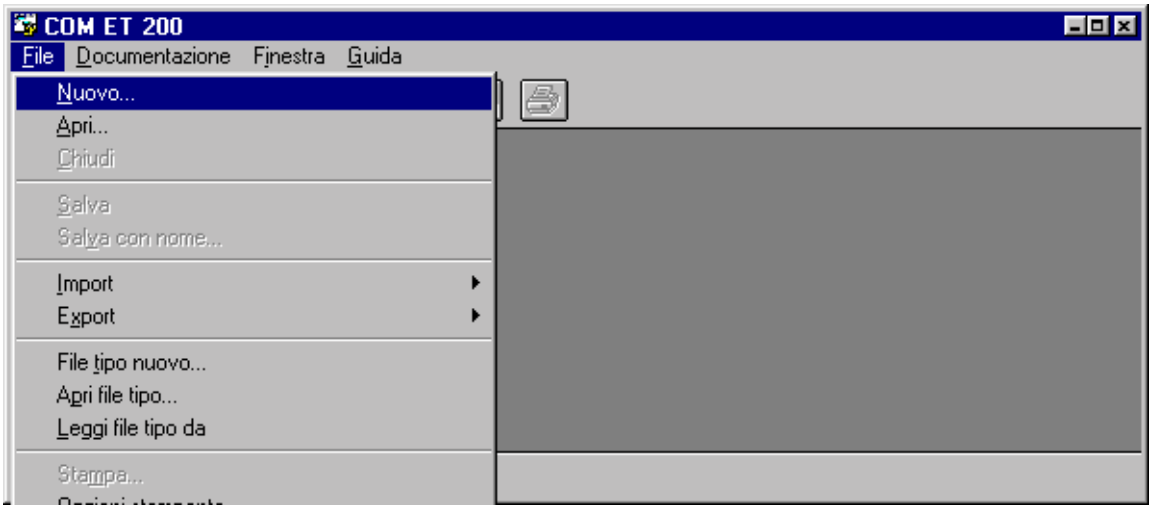

Figure 13

Choose the Siemens S5-95U as the master system (Host System Configuration).

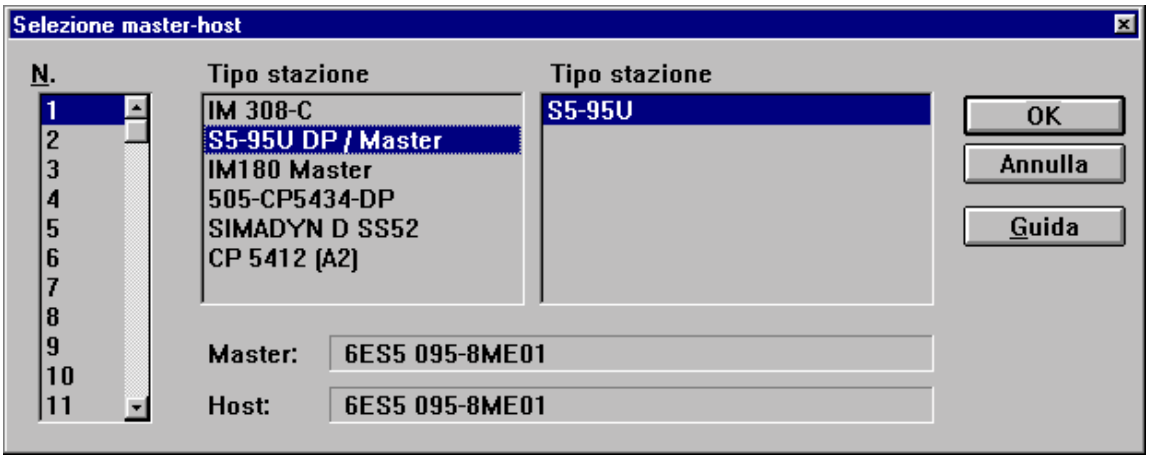

Figure 14

The UniOP Operator Panel should be added to the Master System as node 3. Error report should be disabled.

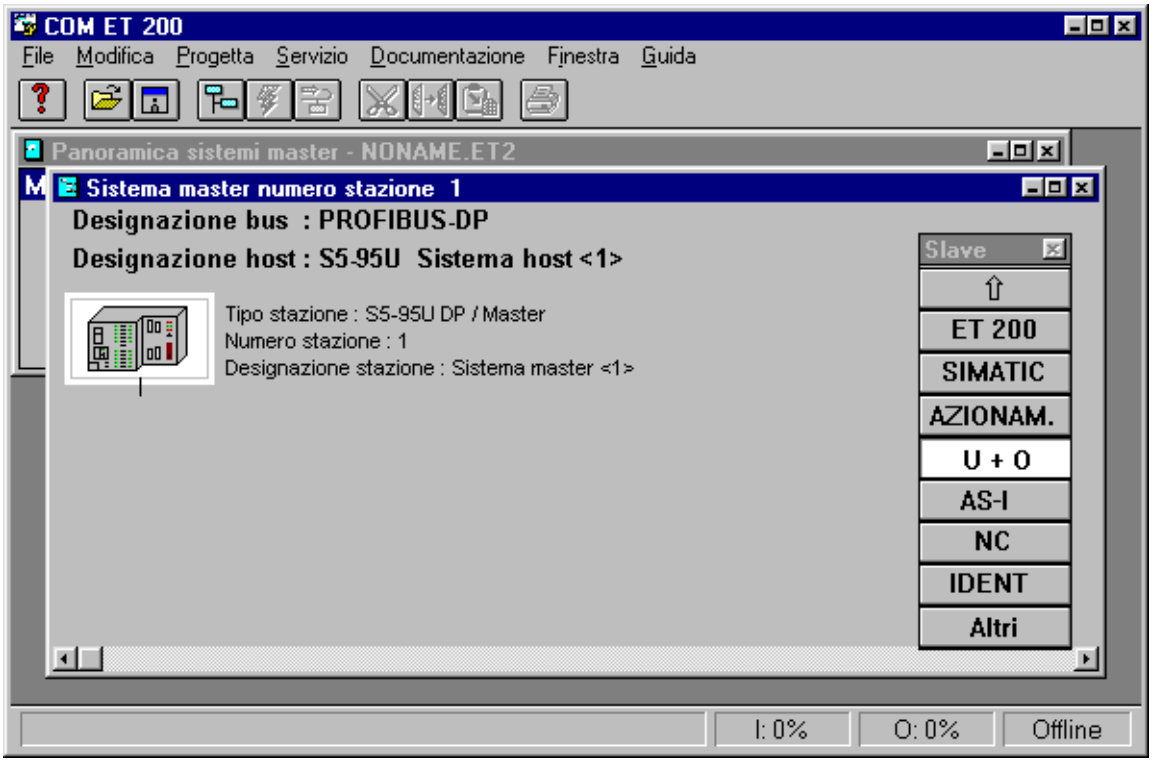

Figure 15

Figure 16

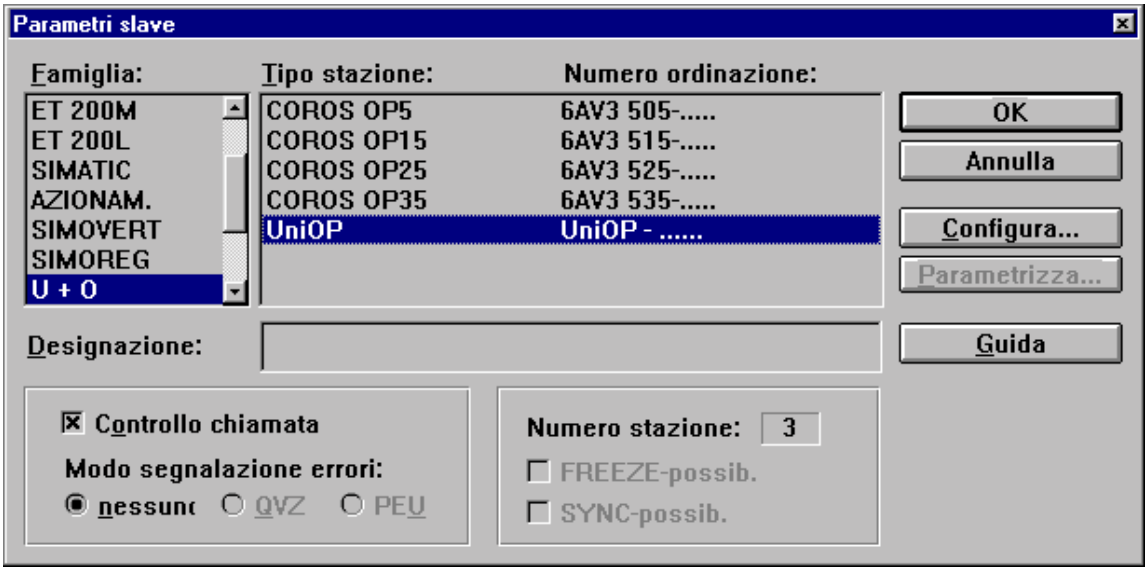

Figure 17

The I/O map of the slave should be configured entering the starting address for both buffers and then using the Auto Addressing button.

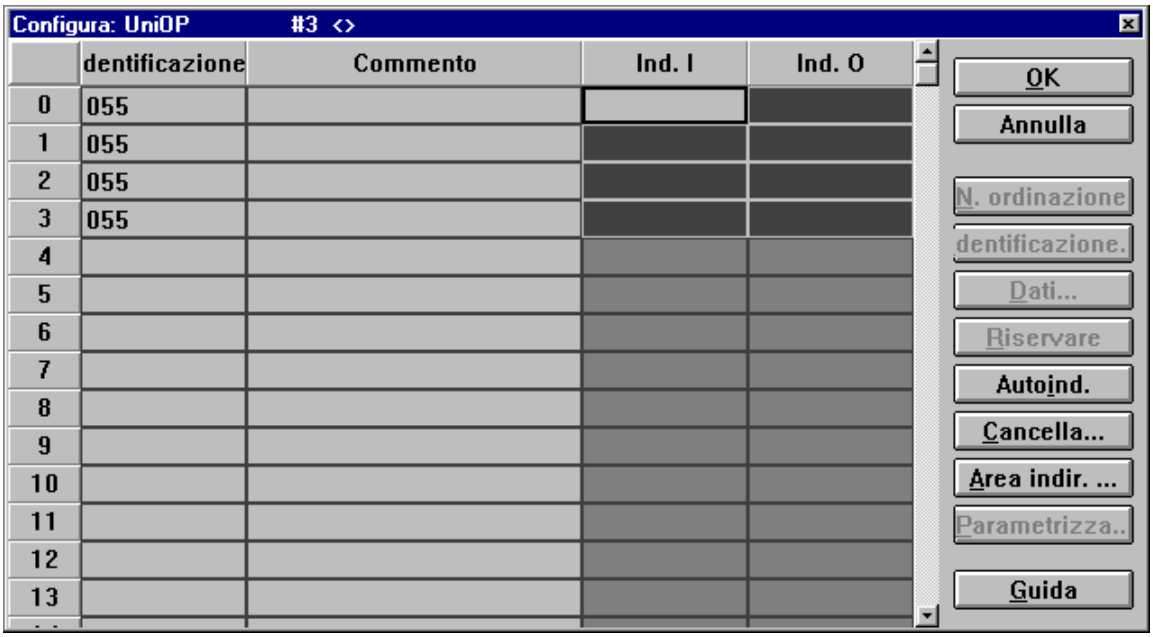

Figure 18

Note that the Profibus DP implementation in UniOP supports buffer length of 8, 16 or 32 bytes.

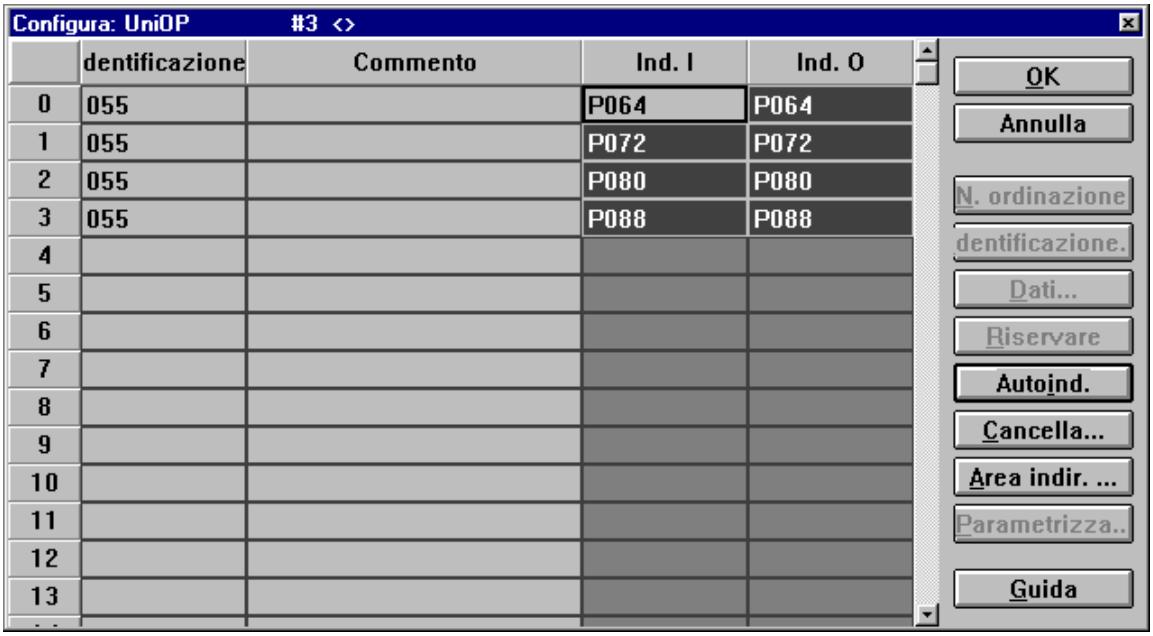

Figure 19

After the confirmation the network configuration will appear as in the figure below.

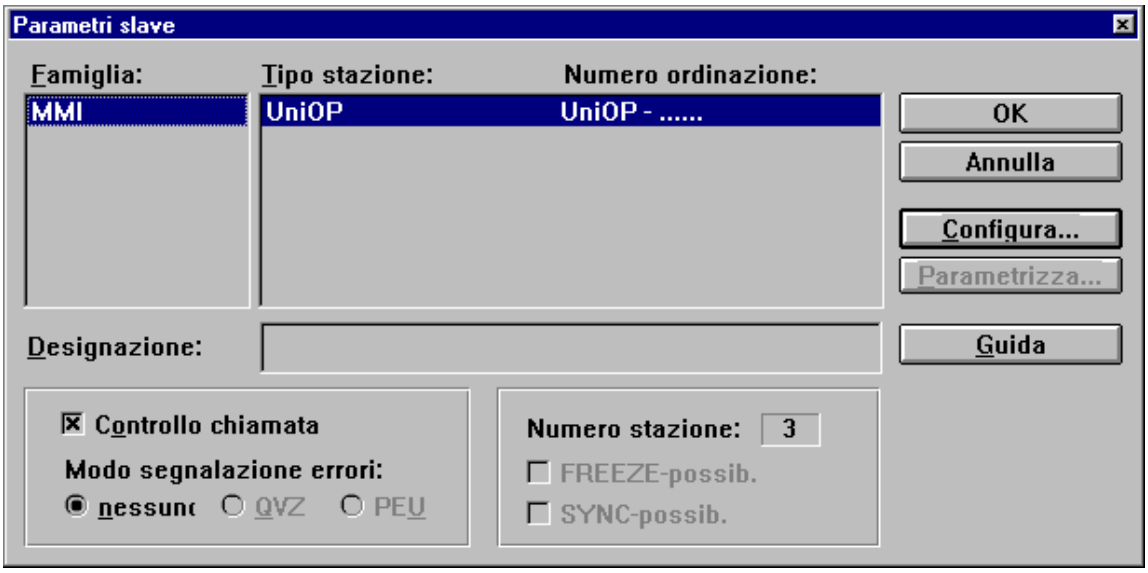

Figure 20

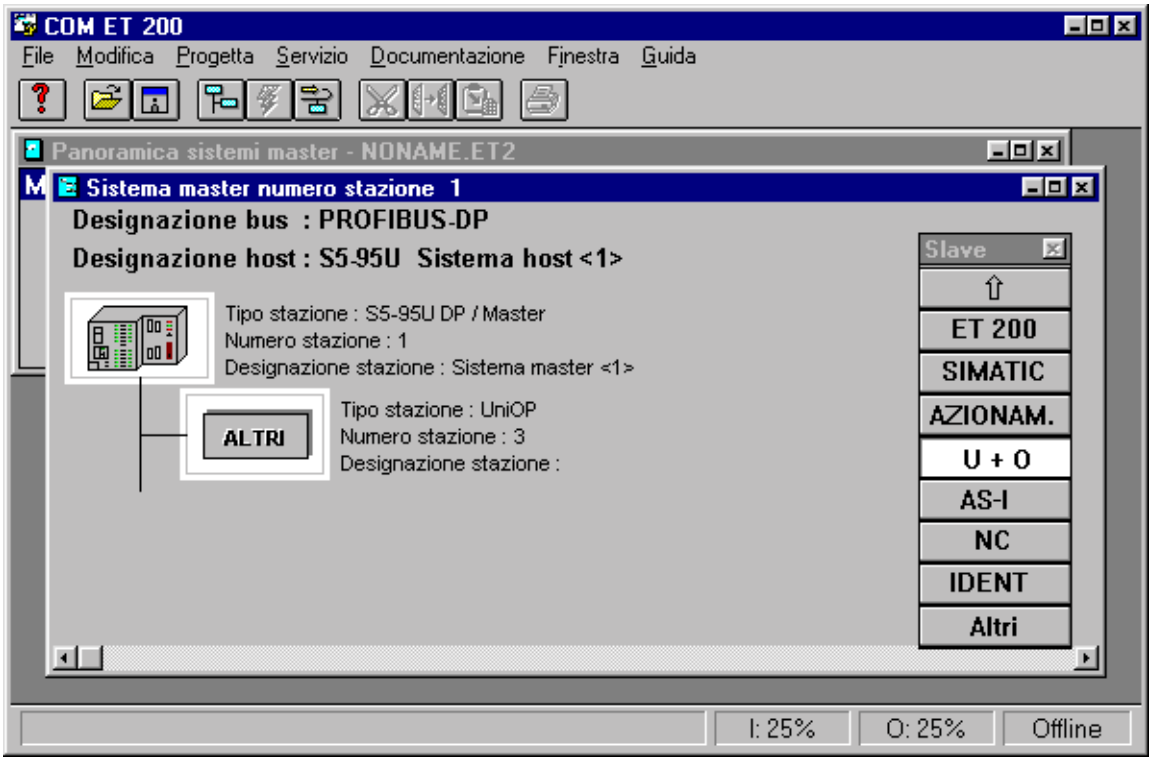

Figure 21

The configuration should then be saved to a file. The sample program lite.et2 contains the example described in this chapter.

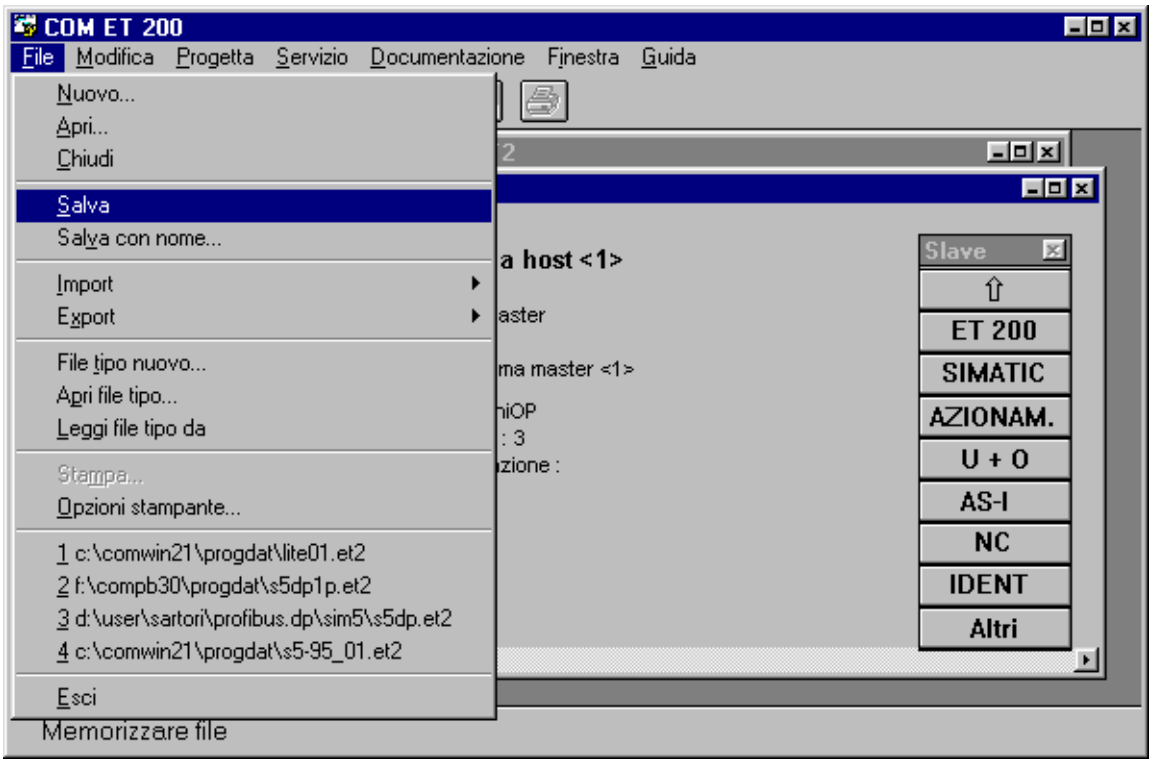

Figure 22

The configuration should then be exported as a binary file. The sample program has been saved to a file called lite.2bf.

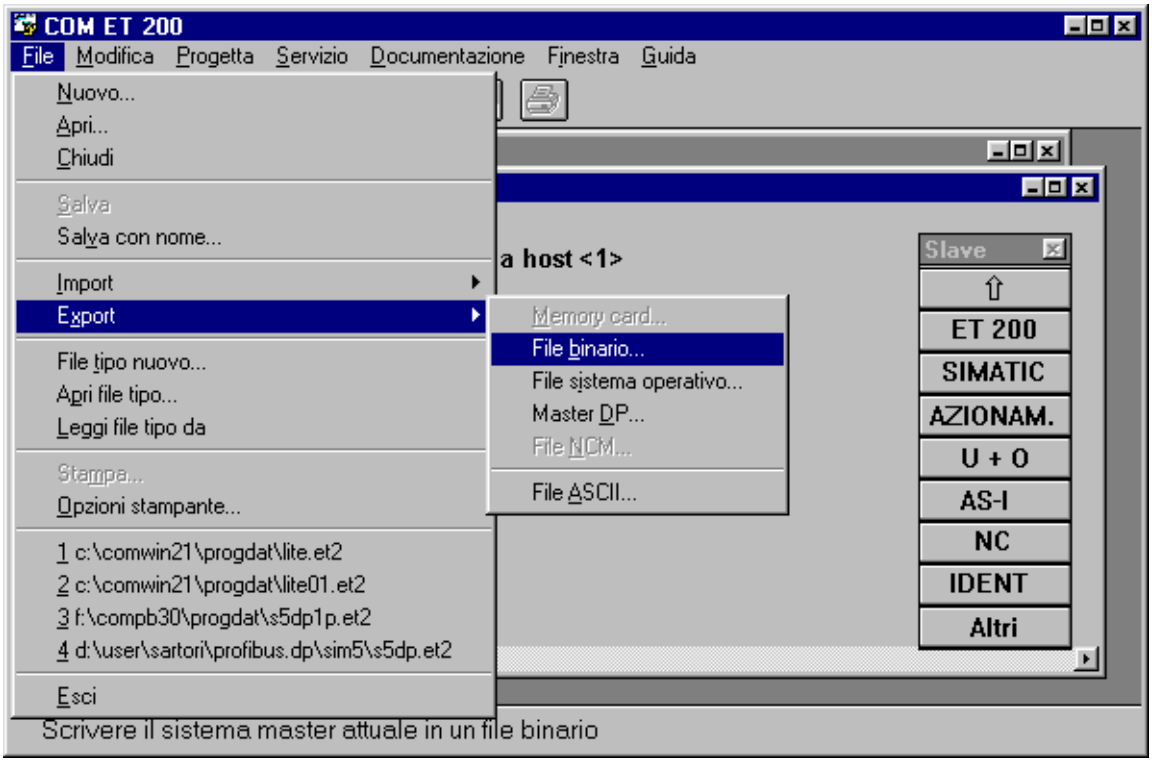

Figure 23

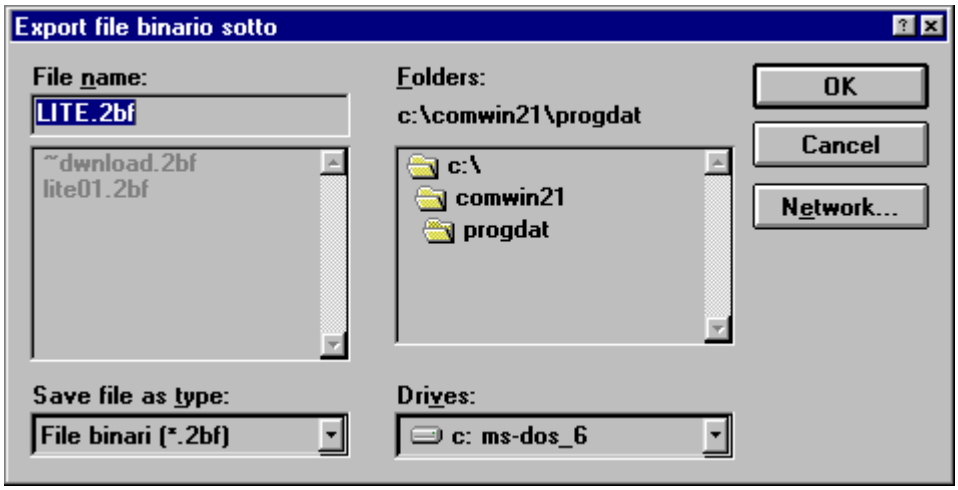

Figure 24

The system will prompt for the confirmation of the default parameters. The default values should be accepted.

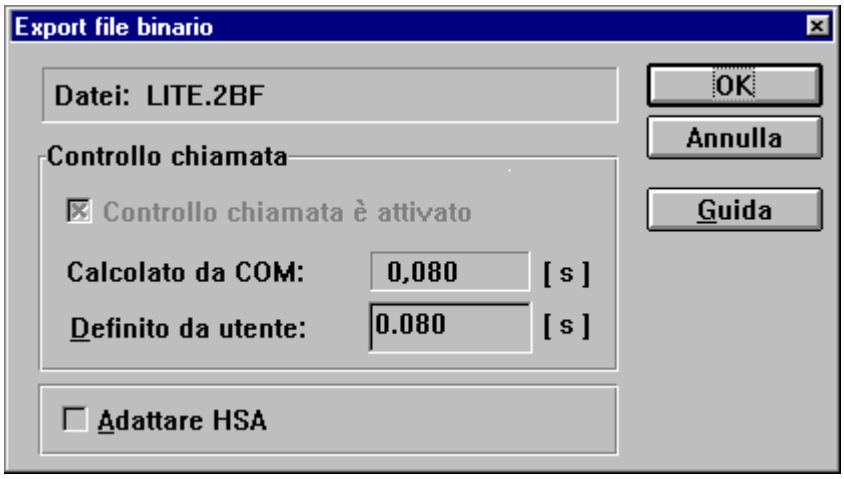

Figure 25

At the end of the process, two files have been generated:

- lite.et2
- lite.2bf

The file .et2 is the source file while the file .2bf is the binary image.
Both of them will be used by the 5136-PRB board configuration software as described in the chapter 2 of this technical note.