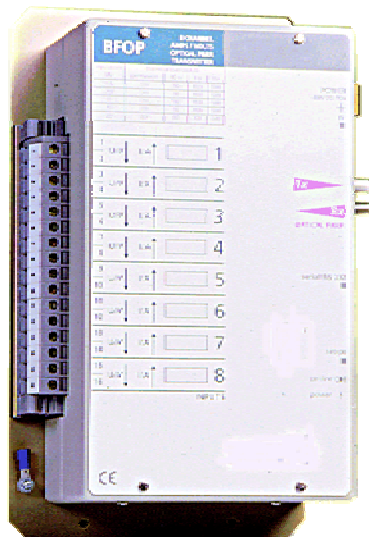


User's guide for BFOP2



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I - Overview

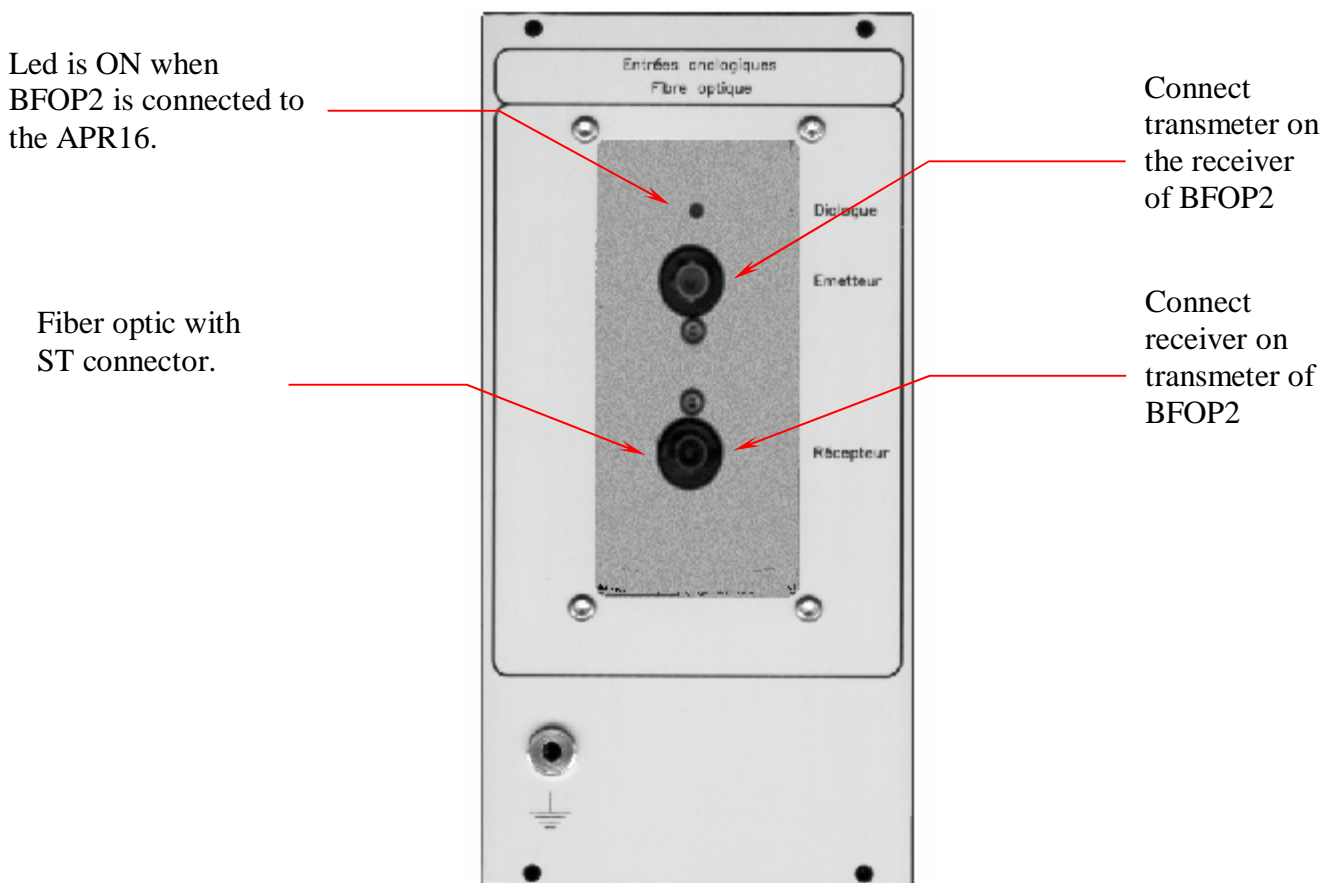
a) BFOP2 interface

This interface is used to connect 8 analog channels (Voltage or currents) to the disturbance fault recorder APR16. Connection between APR16 and BFOP2 is done with a duplex fiber optic (Max length 300m).

BFOP2 is powered in 48 DC voltage.

b) Receiver (Optical fiber rack)

This rack is integrated in the disturbance fault recorder APR16



II – Technical characteristics of BFOP2

a) Inputs

8 analog channels with 14 bits resolution
Current inputs on Current transformers
Voltage input : Differential amplifier

b) Outputs

1 duplex fiber optic (62.5/125) (Data + Clk) ST (Max 300meter)
1 RS232 link for test

c) Power

48V DC power
10 Watts.

d) Protection

Current inputs (34A permanent, 200A during 1 seconde).
RS232 link protected against short circuits

e) Max rating

ambient T°: 50°C max 1°C min

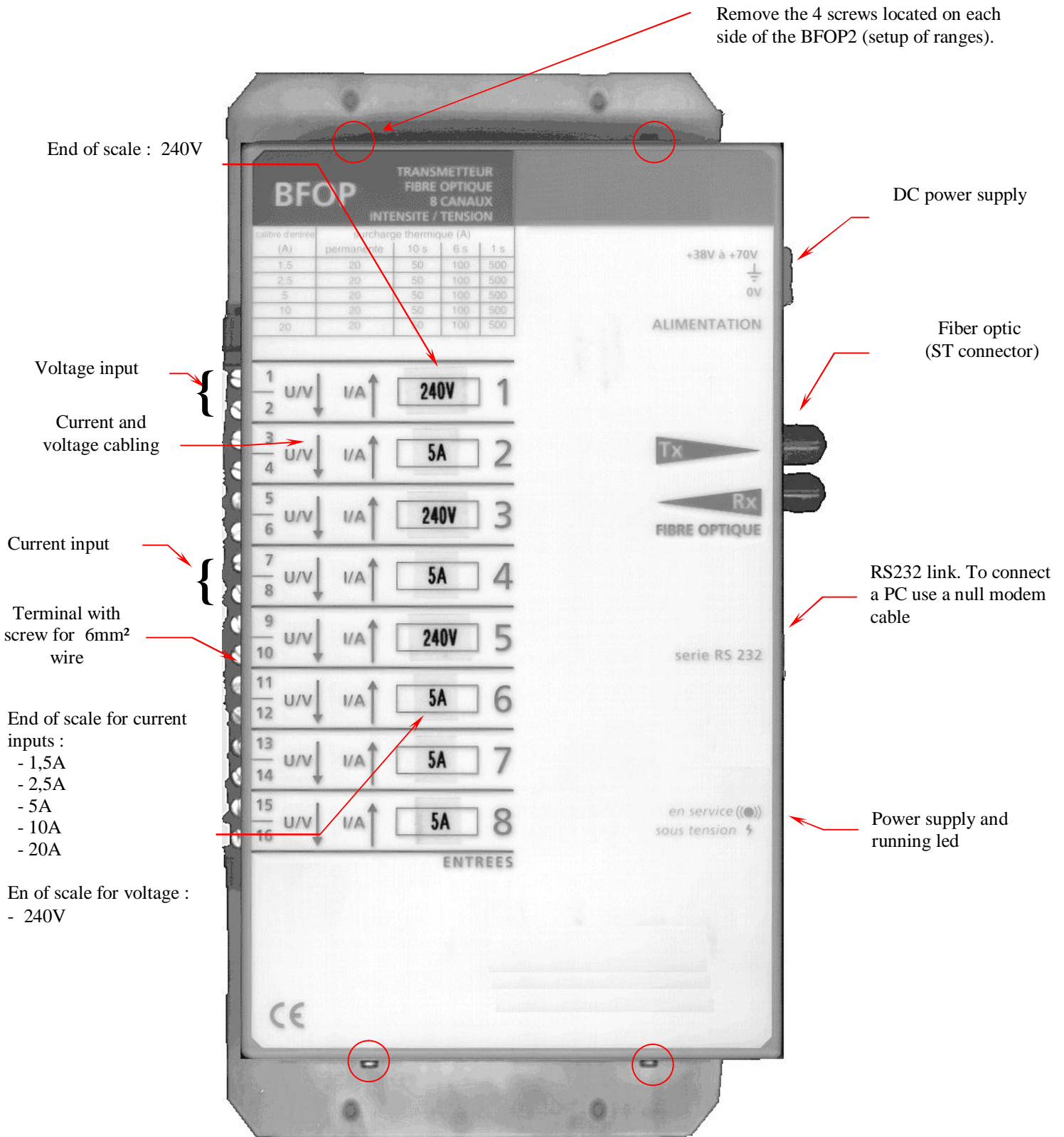
f) Connectors

Optical fiber ST
Power WAGO 231 (delivered)
Voltage and currents inputs: terminal with screw for 6mm²

g) Housing

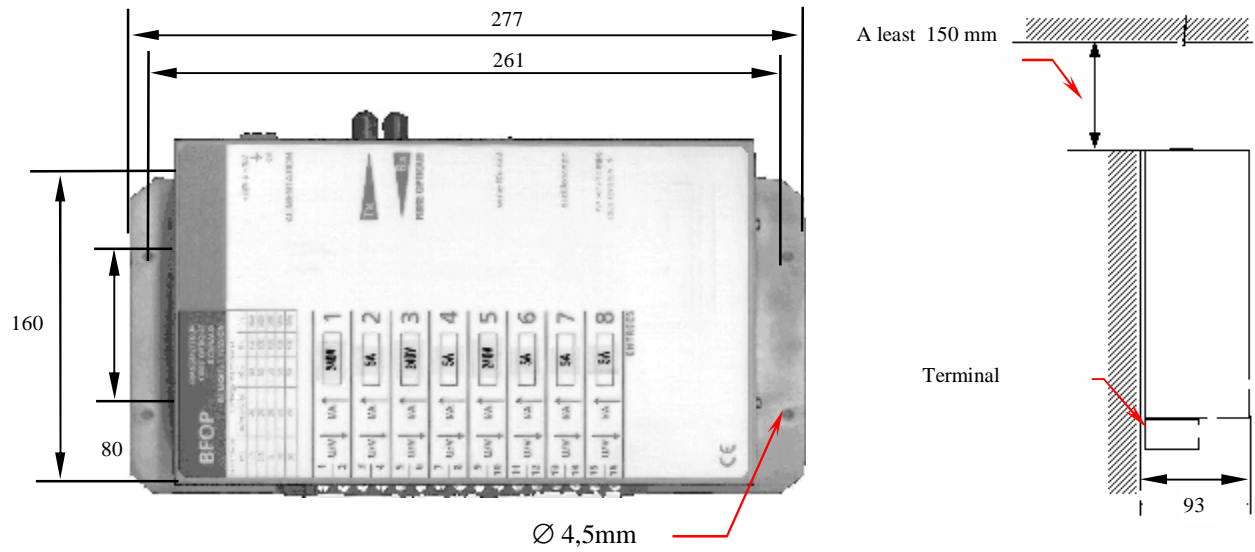
Stainless steel box

III – Description of BFOP2

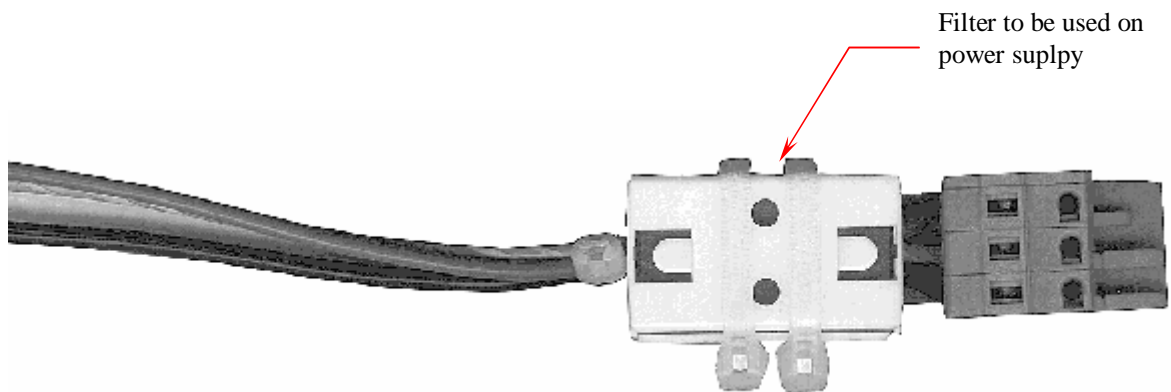


IV – Mounting BFOP2

a) size of BFOP2



b) Power supply



V – Setup of range (Hardware) :

1) overview

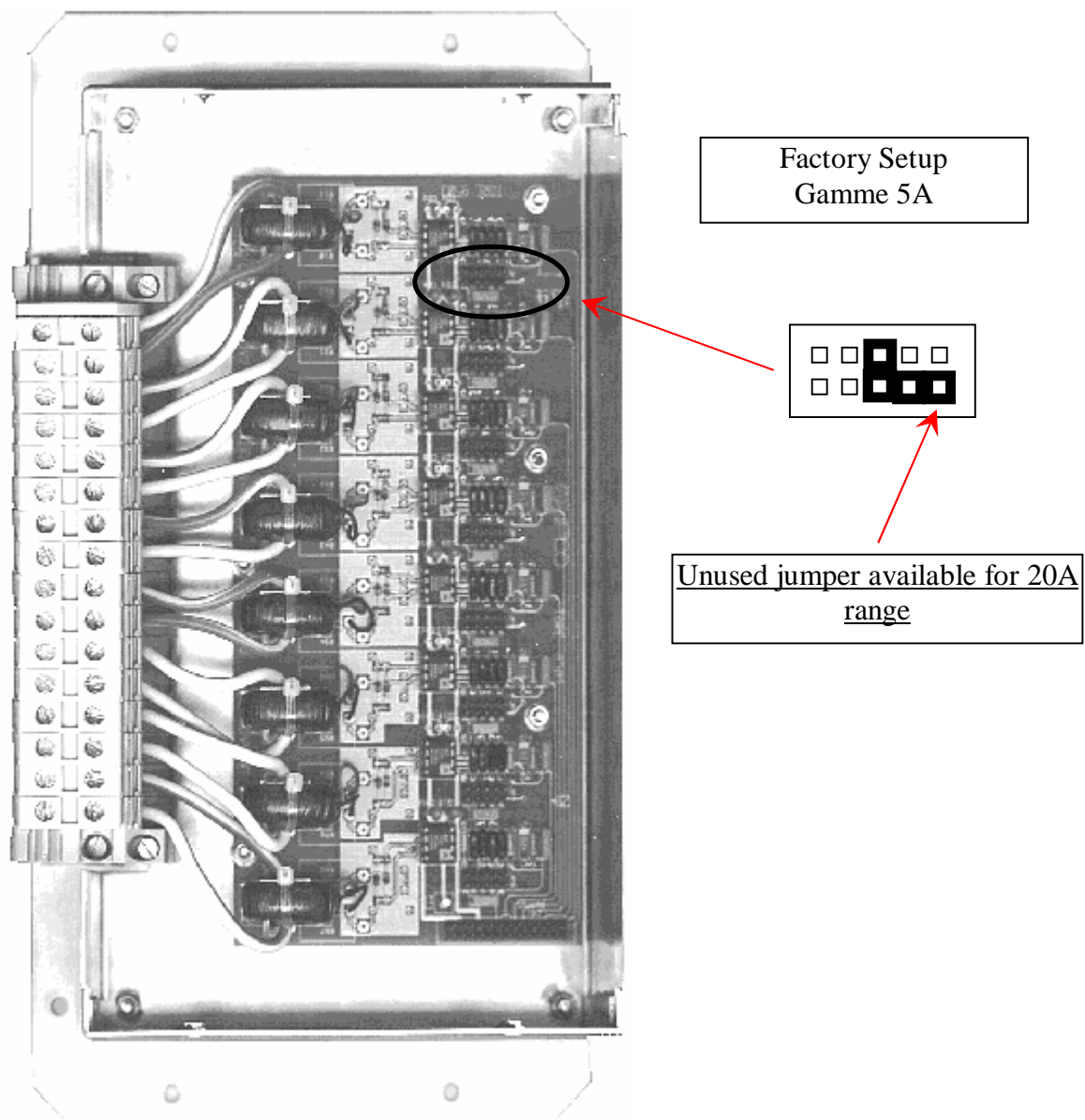
To change the end of scale of BFOP2 you have to do the following

- Hardware setup (change jumper inside the box)
- Software setup (Program the new scales) Connect a PC with DSPDEP software to the BFOP2 on RS232 connector.

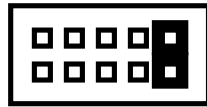
2) hardware

Before opening the BFOP2, remove the power plug. Then remove the 4 screw located on each side of the BFOP2 (See scheme page 4)

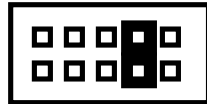
Jumpers are located in the low part of the BFOP2.



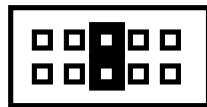
3) Jumper Setup



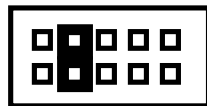
range 1,5 A



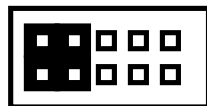
range 2,5 A



range 5 A



range 10 A



range 20 A

VI – Setup of BFOP2 (Software) :

1) Setup of DSPDEP software

The software is delivered on the APRWIN CDROM

To install the software click on SETUP program. After install click on DSPDEP icon to start program.

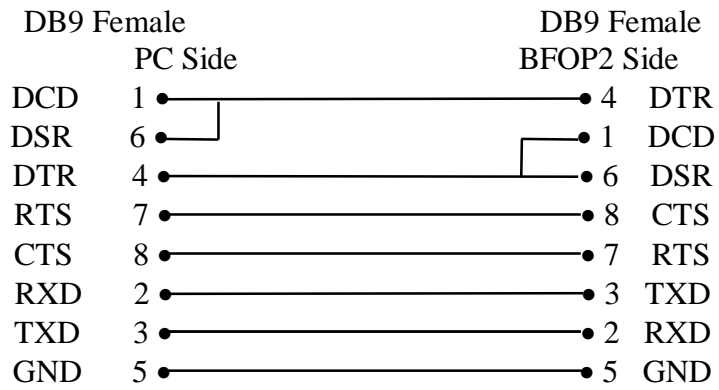
2) First setup

Select the serial COM port where is connected the PC. Serial speed is always 38400bps.

3) Connection of BFOP2 to the DFR APR16

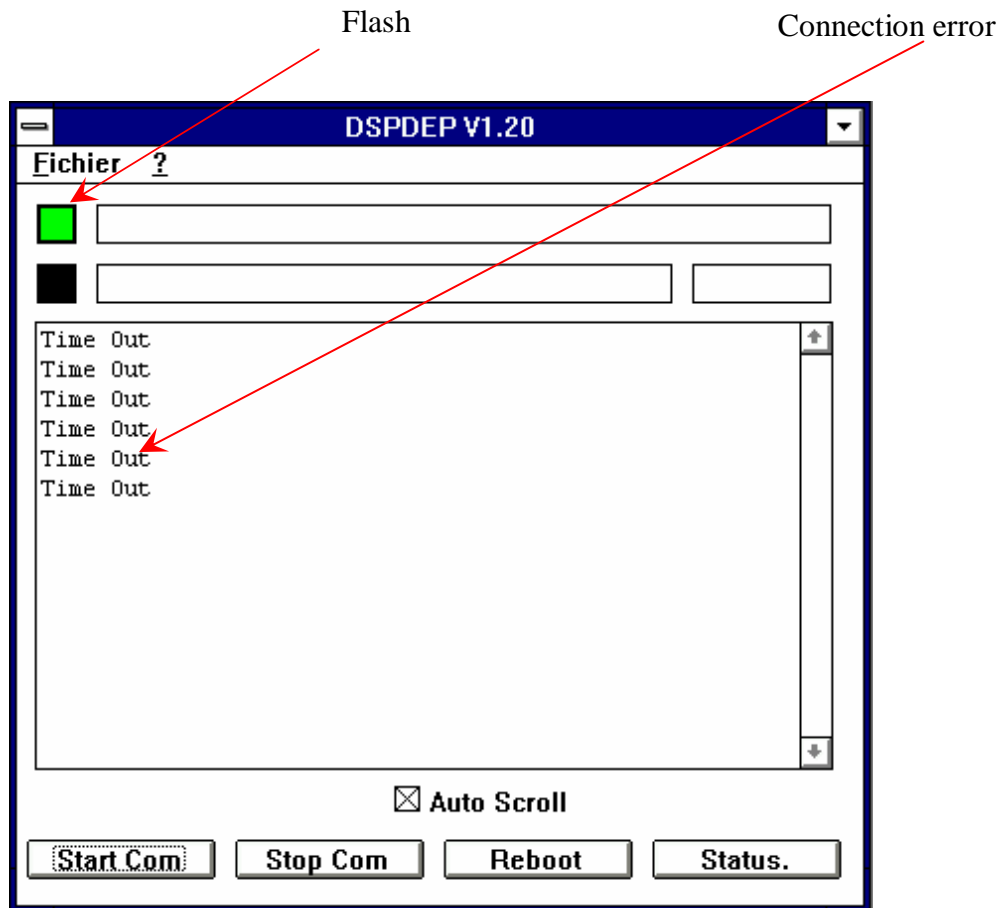
In order to communicate correctly, you have to connect serial link, remove fiber optic from the BFOP2 and power it.

RS232 null modem cable PC/BFOP2

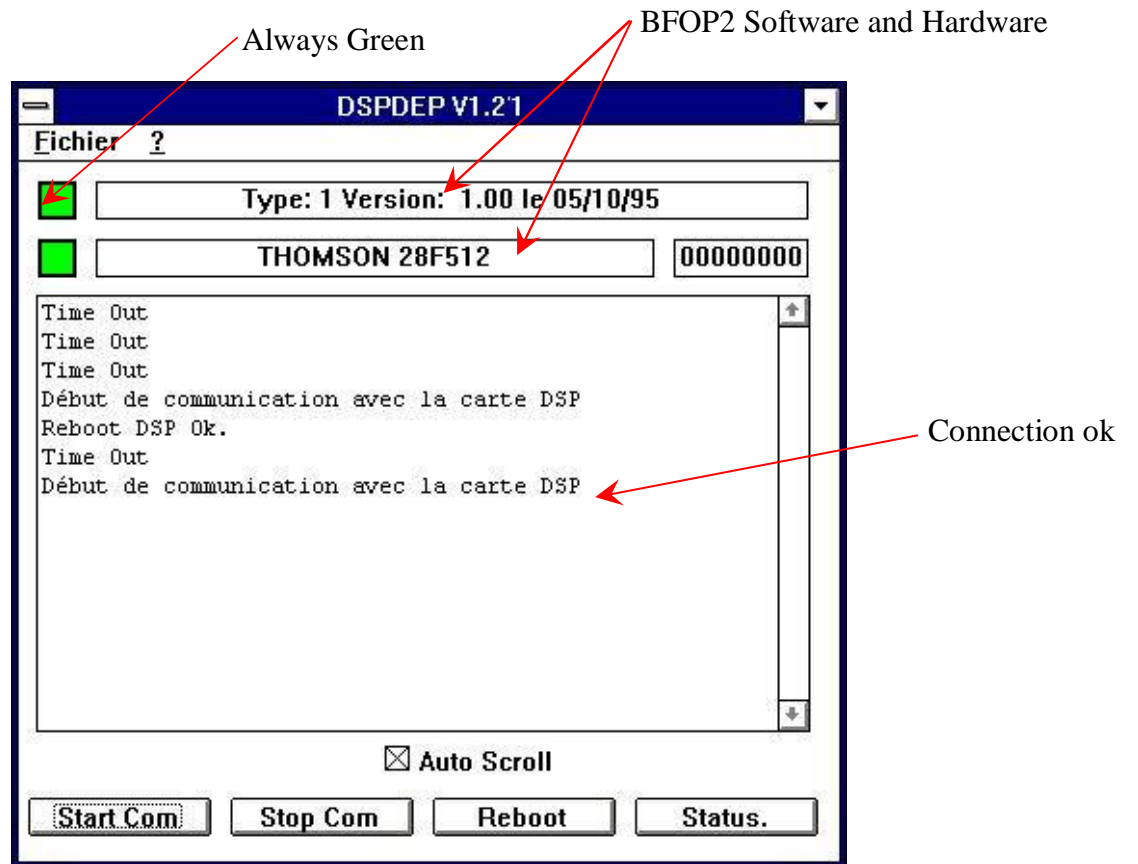


When connection is good you can run the DSPDEP program. It is correct when the green square is displayed and when There is no "Timeout message".

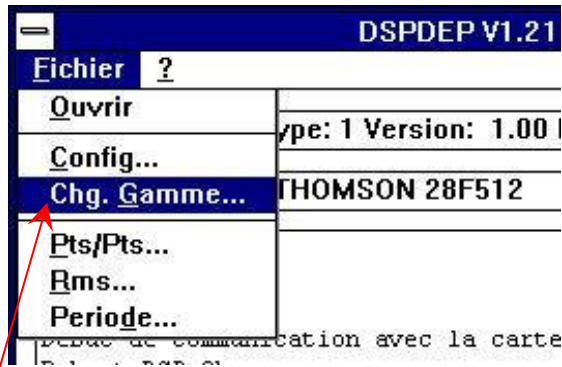
a) No connection



b) Good connection

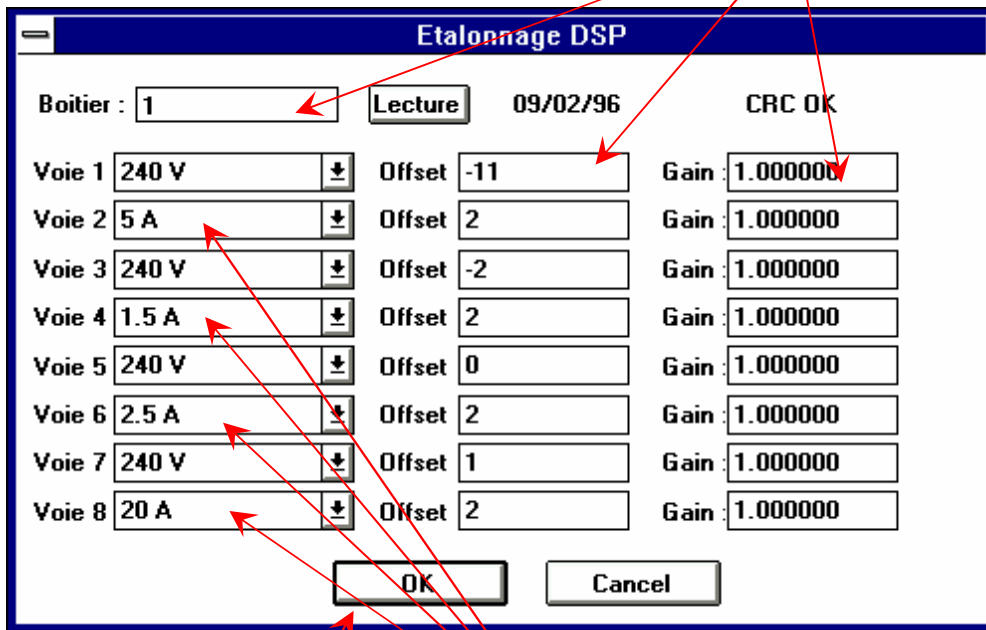


4) Modify ranges



Menu *Fichier/Chg. Gamme...*

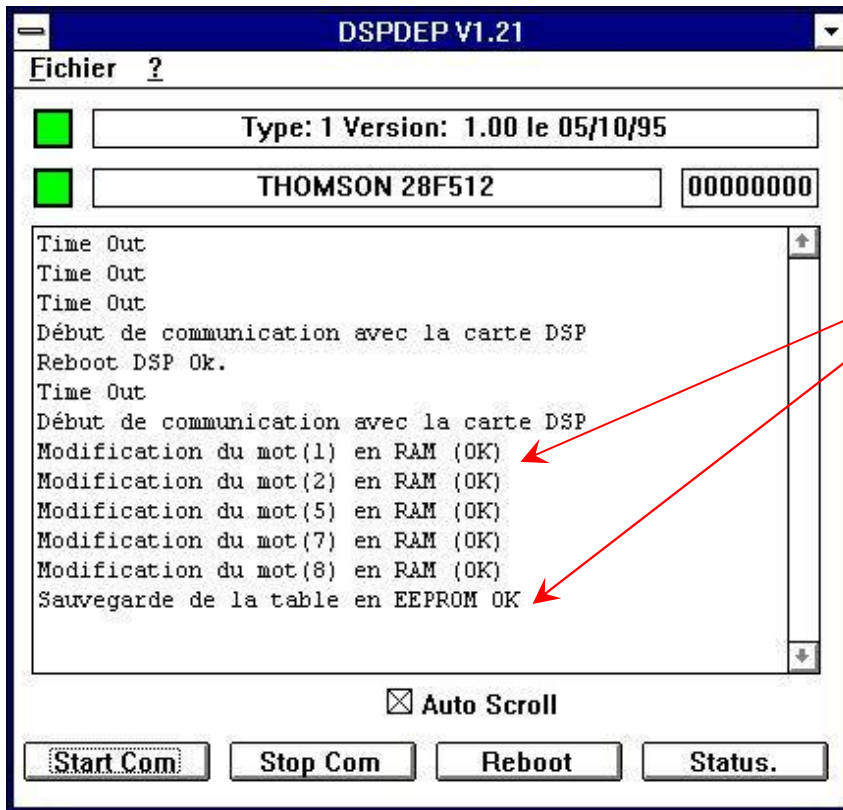
Factory setup no modify possible



Range is modify by listbox



Before cliquing on OK, verify that the range programmed by the jumper is the same than the range programmed by software



When finished the configuration is store into the EEPROM of the BFOP2

VII – Other functions

1) Point to point measure



Choose Fichier/Pts/Pts... menu option

Displaying of curves (point to point)

Channel to be displayed

Start measure

Measure in real time

Zoom choice

Number of samples

Clic here to change curves colour

Couleur

Couleurs de base :

Couleurs personnalisées :

Définir les couleurs personnalisées...

OK Annuler

2) RMS measurements.



Choose *Fichier/Rms...*

Displaying of RMS values

Each RMS is displayed with a Bargraph

Start measure

100% of end of scale

130% of end of scale

Real time measure

Choice of displaying values in real value or in points

Bargraph	Value	Unit
100% of end of scale	226.018	V
130% of end of scale	1.373	mA
	226.186	V
	1.373	mA
	226.171	V
	1.526	mA
	366.222	µA
	6.104	mA

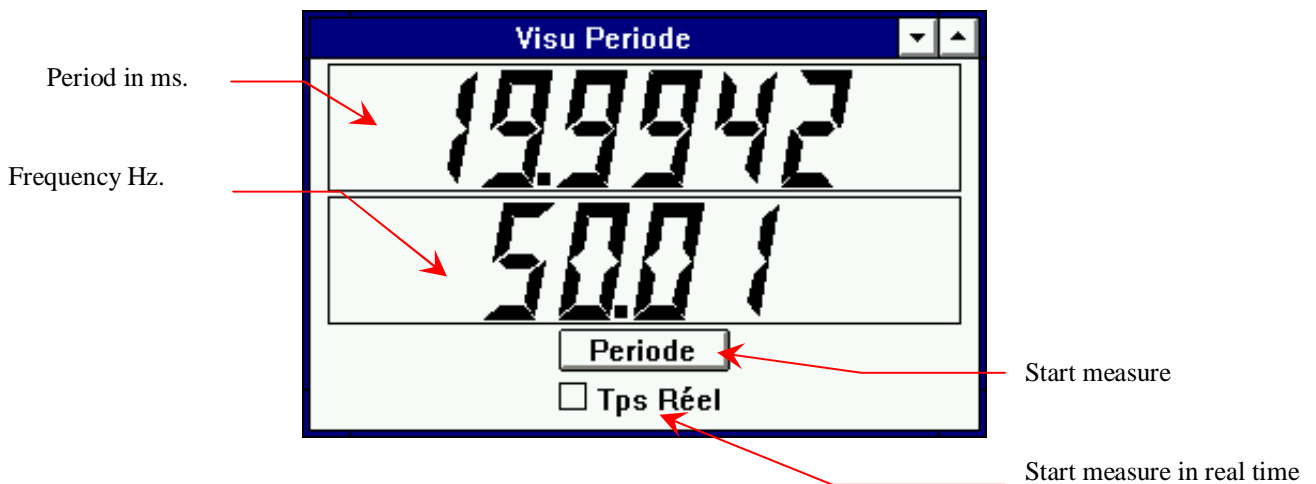
Absolu Tps Réel

3) Period / frequency displaying



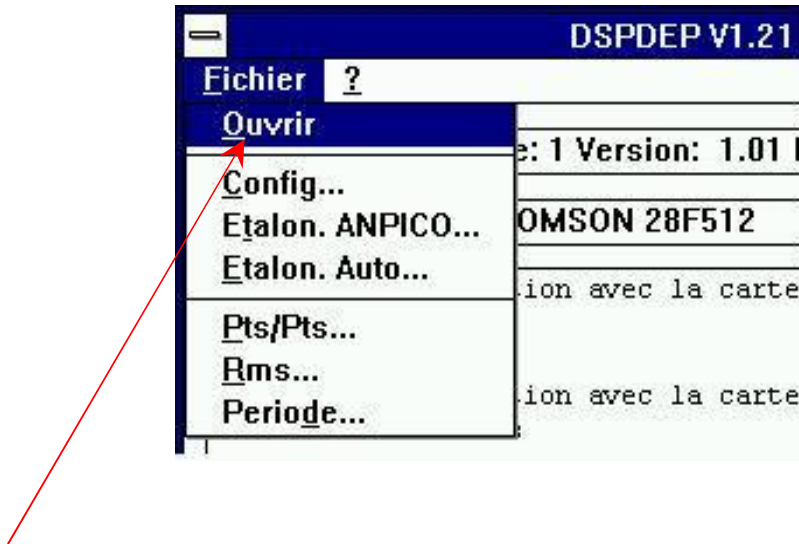
Choose Fichier/Period...

Displaying of frequency and period



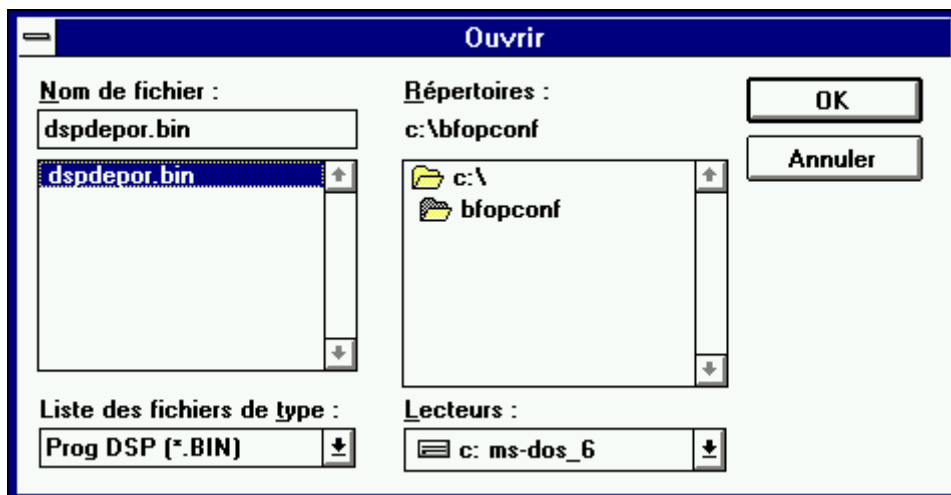
4) Bios Upgrade of BFOP2.

This program can also be used to upgrade bios of BFOP2.

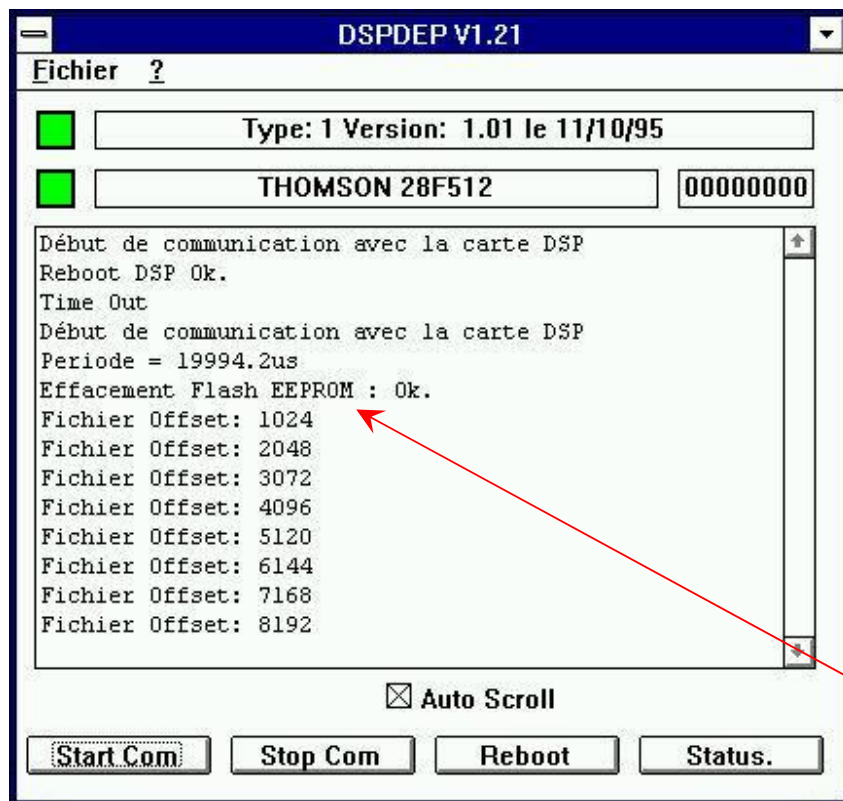


Choose *Fichier/Ouvrir*

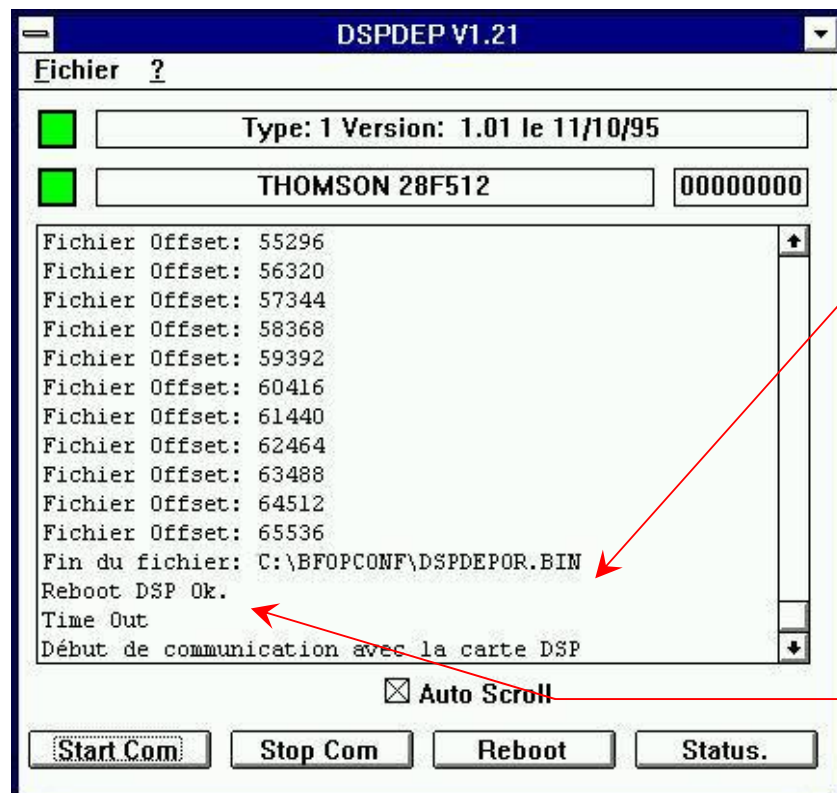
Select the BIOS file



Erase old program or program of EEPROM.



During programming, the power of BFOP2 must never be switch off . If it occurs, the BFOP2 must be sended back in factory.



End of programming.
Restart of BFOP2

VIII – Programming example on DFR APR16 :

a) Voltage : VT 15000V/100V

Unit	: VOLT		
Start of scale	: 0,000	Start of input scale	: 0,000V
End of scale	: 15000,000	End of input scale	: 100,00V

In this example, maximum value which can be measured is 15000V x 2,4 = 36000V

b) Example for current: CT 1200A/5A

Jumper on scale 5A


Unit	: A		
Start of scale	: 0,000	Start of input scale	: 0,000V
End of scale	: 1200,000	End of input scale	: 2,400V

In this example, maximum value which can be measured is 1200A

c) Example for current: CT 800A/5A

Jumper on scale 1,5A

Unit	: A		
Start of scale	: 0,000	Start of input scale	: 0,000V
End of scale	: 240,000	End of input scale	: 2,400V

$$800 \times \frac{1,5}{5}$$


In this example, maximum value which can be measured is 240A

d) Example for current CT 400A/5A

Jumper on scale 20A

Unit	: A		
Start of scale	: 0,000	Start of input scale	: 0,000V
End of scale	: 1600,00	End of input scale	: 2,400V

$$400 \times \frac{20}{5}$$


In this example, maximum value which can be measured is 1600A