EPSON®

EXCEED YOUR VISION

Epson **FP-90**

Application Sw Development Guide

REVISION HISTORY

Rev	Sheet	Comment	Date	Author
Preliminary		First edition	August the 4th	C.Radaelli
A	All	Revision A	August the 20th	C.Radaelli
B	All	Add information about active X	August the 25th	C.Radaelli
C	All	Add some details	September the 15th	C.Radaelli
D	All	Handle the error from FP	December, 22 2003	C.Radaelli
E	7	Revision, bit 6 DGFE missing not supported	January, 2nd 2004	C.Radaelli
F	52, 53	Paper out	March, 4th 2004	C.Radaelli
1.01	All	Changed the Review index criteria Global review Mode State 14: Added description of flags 11, 12 and 26. Mode State 15: Correct description of parameter 11, added description of parameters 12 and 13.	June, 4th 2004	C.Guietti

Index

1. Overview

Aim of this manual is to provide the basic information for the software houses that have to integrate the Epson fiscal printer in their application software.

Epson fiscal printer is a complete fiscal cash register. It can be used in stand alone mode (as cash register) or connected to a PC (as fiscal printer).

Using the Epson fiscal printer it is no needed any Government approval when you connect the fiscal printer to a POS system.
The fiscal printer is a complete cash register that you can connect to any kind of PC and application software.
Fiscal printers got the approval from Italian Government as stand alone product or connectable printer.

The PS2 keyboard gives you the freedom to use any kind of PC or POS keyboard.
When the fiscal printer is connected to a PC/POS you can use the keyboard, of course the application software must provide all the basic fiscal functions like, as example, daily closure.

2. List of related documents

FP000-008 - Communication protocol rel. 1.14
FPxxx manuale operatore
ActiveX driver manual

3. Abbreviation

DGFE: Dispositivo Giornale di Fondo Elettronico (Electronic Journal)

4. Fiscal printer architecture

The Epson Fiscal printer provides the following interfaces/connectors:

- Power supply (24 Vcc 2Amp)
- Cash drawer
- Serial interface for Host communication
- Display
- PS2 interface
- Flash memory connector(for Electronic Journal model)

Following some details about configuration and devices:

Power supply: Epson model PS180 is the homologated power supply, it is possible to provide the power from computer like IR or other similar equipments.

Cash drawer: any kind of cash drawer can be used, the connector is a standard Epson TM printer.

Serial Interface: Standard serial interface is available to connect the printer to the computer, the following RS232 signals are used: CTS, RTS, RX and TX.
In stand alone mode it is possible to connect to the serial interface the following devices:
- Barcode reader
- Magnetic Card Reader

Display: Several kind of display 2 x 20 characters can be used:
- Epson DM-D110 and DM-D210 (operator and user display)
- Double face display in FIP technology (CD7220)
- Double face display in LCD technology (FD-110)

PS2 Interface: it is possible to connect to the printer any kind of Ps2 keyboard.
In standard package it is included in the box the PC keyboard, optionally Epson can provide a 32 keys POS keyboard.
It is possible to connect to the PS2 interface to a Barcode reader.

Flash Memory connector: In the model with electronic journal it is present a connector for installing a flash memory, on Fp90 model it is used the Multi Media Card (MMC).
For information about homologated MMC pls contact Epson Italia Spa.

Epson fiscal printer can work in the following mode:

- Stand Alone mode
- On line mode: Master/Slave

In "Stand alone mode" the printer works as a complete cash register, on the serial interface it is possible to connect a card reader or a Barcode reader.

In "On line mode" the Epson fiscal printer is normally used connected to a computer that provides all the necessary data and information. , this operating mode of the printer is defined "Slave mode".
It is possible to configure the Fiscal printer in "Master mode", in this way the printer works as a cash register providing to the computer all the information relating the operation done by the operator.
In case the information relating a PLU is not available the printer asks to the computer such information.

5. Epson fiscal printer main features

Epson Fiscal Printer is able to manage 4 different menus:

- "REG": use in normal way to sell products.
- "X": used to print-out not fiscal reports.
- "Z": use to print out the fiscal report and for daily closure
- "SET": to program the printer.

Registers size:

Register name	Size (digit)	Max value
Items amount	7 +2	9.999.999,99
Receipt total amount	7+2	9.999.999,99
Daily total amount	7+2	9.999.999,99
Fiscal printer total amount	10+2	9.999.999.999,99

For the description 20 characters are used, in case of FP90 it is possible to extend up to 25 characters the products description

Receipt header

It is possible to program up to 6 rows with different characters size to be used for the name of the company that is using the fiscal printer.

PLU/Department

1000 PLUs and 40 departments are programmable in the fiscal printer.

Programmable parameters

Discount and surcharge percentage
Five taxes percentage
6 monetary standards
10 credit cards and a generic credit
10 product groups
5 key cash, with an associated value
2 promotions M x N
12 operators
Fiscal printer setup
The fiscal printer may work in stand alone mode or in slave mode connected to a computer

In stand alone mode the fiscal printer may have a slip printer connected in order to print receipts or invoices

Keyboard fully re-configurable

Serial RS-232 port fully configurable

Total amount registers

- One total amount for each department (40)
- Total number PLU register
- 4 total register amounts of the VAT with programmable VAT percentage.
- 6 + 1 currency register values, 6 for currencies + 1 for current currency.
- 10 totals amount for credit cards.

6. How to use the Epson Fiscal Printer using the keyboard

We assume the you are using the 32 keys POS keyboard connected to the PCS2 fiscal printer, if you are using a standard PC keyboard please check the following the cross reference table:

Example: VOID on 32 keys is equal to F1 to PC keyboard

Key on 32 POS keyboard				Equivalent Key in PC keyboard			
VOID	STORNO	RESO	ALL VOID	F1	F2	F3	F4
SCONTO %	SCONTO A VALORE	MAGG. %	PLU	F5	F6	F7	F8
7	8	9	IMPORTI NON RISCOSSI	7	8	9	F9
4	5	6	CARTA DI CREDITO	4	5	6	F10
1	2	3	CREDITO	1	2	3	F11
0	00	,	ASSEGNI	0	/	,	F12
CL	X	REP.	SUB-TOTALE	CANC	*	-	+
^S	^G	CHIAVE	TOTALE	S	G	C	INVIO

Using the keyboard it is possible to select one of the four different modes of the printer: REG, X, Z and SET.

To select the mode you have to read the following instructions:

REG MODE: Normal mode, used to sell the goods. Push the key "CL" (Clear) or "CHIAVE" to escape from other menues.

X MODE: From the REG MODE push 1111 + "CHIAVE".
In this mode you can select different function used to print out the NOT fiscal report.

Z MODE: From the REG MODE, push 2222 + "CHIAVE".
In this mode you can perform the daily closure (function 01) and print out other fiscal reports.

SET MODE: From the REG MODE, push 3333 + "CHIAVE"
In this mode you can select several programmed menu or function.

7. REG MODE

7.1. Key <CL>

Cancel the information on the display not already confirmed.
In case of error it is possible to escape from the error state.

7.2. Key <X>

In case of receipt not open it is possible to show DATE and TIME registers on the display.
In other case it is possible to set the PLU: set the quantity (4 + 3 digit – 4.3) push X key then go on setting the price, department or PLU, STORNI or return goods.

7.3. Key <VOID>

Pushing this key it is possible to cancel the previous transaction. The amount of the transaction canceled is printed-out as negative number.
If the receipt is closed, pushing this key you can print out the receipt header.

7.4. Key <REPARTO>

This key gives the possibility to perform a transaction to a dedicated department.
Pushing it more then once, it is printed out the same item previous printed.
It is possible to program a description up to 20 characters, 3 kinds of price, VAT number, single item, max amount value, printer group and super department.

7.5. Key <CREDITO/CARTA DI CREDITO>

Pushing this key the transaction is closed, the payment is saved in the credit card payment.

7.6. Key <ASSEGNI>

Pushing this key the transaction is closed, the payment is saved in ASSEGNI (Check) payment.

7.7. Key <SUBTOTALE/APERTURA CASSETTO>

Pushing this key while the receipt is open, the display will show the total reached in the receipt that is defined partial amount.
To print out the partial amount it is needed to manage a discount or surcharge.
Pushing this key when there are no receipt open, it is possible to control the cash drawer.

7.8. Key <TOTALE>

Pushing this key the transaction is closed, the payment is saved in cash   payment.
Pushing this key with the receipt closed, the fiscal printer print out copy of the previous receipt without fiscal logo.

7.9.   Key <↑G>

Used to feed the journal paper. IT is used also to confirm some program operation.

7.10.   Key <↑S>

Used to feed the receipt paper roll.

7.11.   Key <RESO> (return goods)

Used to save in the fiscal printer return back of goods.
The amount value is saved in a dedicated register.

7.12.   Key <%-> e <%+>

Used to compute the amount in case of discount or surcharge,
Pushing this key it is used to compute the percentage the value programmed.

7.13.   Key <STORNO>

Used to cancel one item from an open receipt.
It works in the following way:
  1. Pushing the key STORNO
  2. Pushing the amount to be cancelled (STORNO)
  3. Pushing the department key

7.14.   Key <ALL VOID >

It gives the possibility to cancel the current open receipt.

7.15.   Key   <CHIAVE SOFTWARE>

It gives the possibility to select one of the 4 different modes.

8.   X MODE

After selecting the X mode, it is required to input the function (state) desired (2 digits).
After setting the state push the key CONTANTI to get the print-out.
The result of the print-out is a not fiscal receipt with the content of fiscal memory.

8.1.   Mode state 01: Daily financial report

```
        X 01
  FINANZIARIO GIOR.
```

8.2.   Mode state 02: daily report category

```
        X 02
  MERCEOLOGICI  G.
```

8.3.   Mode state 03: daily report department total amount

```
        X 03
  REPARTI GIORNAL.
```

8.4.   Mode state 04: daily report PLU data

```
        X 04
  PLU GIORNALIERI
```

8.5.   Mode state 05: daily report by hours

```
        X 05
  ORARIA GIORNAL.
```

8.6.   Mode state 06: daily report by operators

```
        X 06
  OPER. GIORNALIERI
```

8.7. Mode state 07: report by department operators

```
        X 07
   FINANZIARIO PER.
```

8.8. Mode state 08: report by categories

```
        X 08
   MERCEOLOGICI P.
```

8.9. Mode state 09: total report by departments

```
        X 09
   REPARTI PERIOD.
```

8.10. Mode state 10: PLU report

```
        X 10
   PLU PERIODICI
```

8.11. Mode state 11: PLU report by hours

```
        X  11
   ORARIA PERIODICA
```

8.12. Mode state 12: operator report by hours

```
        X 12
   OPER. PERIODICI
```

8.13. Mode state 13: displays the cash in the cash drawer

```
        X 13
   TOTALE GIORNO
```

```
        X 13
   TOTALE GIORNO
```

9. Z MODE

After selecting this mode (2222 + CHIAVE) you have to enter the state pushing 2 digit.
Pushing the "TOTALE" key the print out is issued.

9.1.   Mode state 01: daily closure

```
          Z 01
   CHIUSURA GIORNALIERA
```

9.2.   Mode state 02: daily financial report

```
          Z 02
   FINANZIARIO GIORN.
```

9.3.   Mode state 03: daily category report

```
          Z 03
   MERCEOLOGICI  G.
```

9.4.   Mode state 04: daily PLU report

```
          Z 04
   PLU GIORNALIERI
```

9.5.   Mode state 05: daily report by hours

```
          Z 05
   ORARIA GIORNAL.
```

9.6.   Mode state 06: daily operators report

```
          Z 06
   OPER. GIORNALIERI
```

9.7.   Mode state 07: financial report

```
        Z 07
   FINANZIARIO PER.
```

9.8.   Mode state 08: categories report

```
        Z 08
   MERCEOLOGICI P.
```

9.9.   Mode state 09: PLU report

```
        Z 09
    PLU PERIODICI
```

9.10. Mode state 10: selling report by hours

```
        Z 10
   ORARIA PERIODICA
```

9.11. Mode state 11: selling report by operators

```
        Z 11
   OPER. PERIODICI
```

9.12. Mode state 12: Print-out of daily closure by numbers

```
Z 12              NUMERO
   NUMERO INIZIALE
```

Select the starting number of daily closure then push "TOTALE"

```
Z 12              NUMERO
   NUMERO FINALE
```

Select the end number of daily closure then push "TOTALE"

9.13. Mode state 13: Print-out of daily closure by dates

```
Z 13                DATA
    DATA INIZIALE
```

Select the starting date then push "TOTALE" key

```
Z 13                DATA
    DATA FINALE
```

Select the end date then push "TOTALE" key.

9.14. Mode state 14: Print-out of daily closure sum of total amount by dates

```
Z 14                DATA
    DATA INIZIALE
```

Select starting date then push "TOTALE" key

```
Z 14                DATA
    DATA FINALE
```

Select the end o date then prush "TOTALE" key.

9.15. Mode state 15: Print-out of total daily closure saved in fiscal memory

```
        Z 15
    STAMPA FISCALE
```

.

9.16. Mode state 16: Save in fiscal memory the COMPANY NAME

This operation must be done only by authorized technical person.
By means of this operation it is possible to save in fiscal memory the information that will
be printed out on the header of fiscal receipt.
To perform this operation the internal jumper must be removed.
Pls contact Epson Italia spa.

9.17. Mode state 96: Send the content of electronic Journal by means of serial interface using ASCII protocol

```
Z 96
 TRASMISSIONE  DGFE
```

Push the ^G key to start the transmission. On the display it will be shown "ATTENDERE".

9.18. Mode state 97: Format the DGFE flash memory

```
Z 97
FORMATTAZIONE DGFE
```

Push the ^G key to start the transmission. On the display it will be shown ATTENDERE.
Do not switch off the printer during this phase.

9.19. Mode state 98: Print out the content of DGFE (E/J) between two fiscal receipt numbers in one selected day.

```
Z 98                 DATA
          DATA
```

Select the date then push "TOTALE" key

```
Z 98             NUMERO
   SCONTRINO INIZIALE
```

Select the starting number of fiscal receipt then push "TOTALE" key

```
Z 98             NUMERO
   SCONTRINO FINALE
```

Select the end number of fiscal receipt then push "TOTALE" key, the printer start printing.

9.20. Mode state 99: Print out the content of DGFE (E/J) between two dates.

```
Z 99                 DATA
     DATA INIZIALE
```

Select the starting date then push "TOTALE"

```
Z 99                 DATA
     DATA FINALE
```

Select the end date then push "TOTALE"

10. SET MODE

After selecting this mode (3333 + CHIAVE) you have to enter the number of state pushing 2 digit.

10.1.   Mode state 01: date and time setting.

```
S 01
   DATA/ORA
```

To perform this operation you have to arrange in advance a daily closure.
Select the date and time then push "TOTALE" key.

10.2.   Mode state 02: department program.

```
S 02      N° REP
NUMERO REPARTO
```

Select the identifier number of department then push "TOTALE" key.
Enter the department description using the ASCII code of the characters decreased by 32:
  • Pushing the key "X" the cursor moves forward,
  • Pushing the key "VOID" the cursor moves back,
  • Pushing the key "↑S" sets the description in the center,
  • Pushing the key "00" the last character entered is repeated,
  • Pushing the key "STORNO" all the description is deleted.

```
S 02      N° REP   N. CAR.   ASCII*
      DESCRIZIONE REPARTO
```

Select the price of department.
Using the numeric keyboard edit the price (max 9 digits).
CL to cancel then push "TOTALE" key.

```
S 02      N° REP  PREZZO    TIPO
      PREZZO UNITARIO
```

Enable or disable single item or normal receipt

```
S 02      N° REP     0/1
   NO/SI SINGOLO REP.
```

VAT number program (0÷4), CL cancel the value. Then push "TOTALE" key.

```
S 02     N° REP    TASSA
   GRUPPO TASSA REP.
```

To program the upper limit of the price in this department, input the value to be set as limit, then push "TOTALE" key.

```
S 02     N° REP    LIMITE
    LIMITE PREZZO
```

Enter the printer group if needed then push "TOTALE" key.

```
S 02     N° REP   GRUPPO
   GRUPPO  STAMPA
```

Enter the super department if needed, then push "TOTALE" key.

```
S 02     N° REP   N.MERC.
   N. MERCEOLOGICO
```

Enter the unit measure for the goods then push "TOTALE" key.

```
S 02     N° REP      UM
    UNITA' MISURA
```

10.3. Mode state 03: PLU program.

```
 S 03      N. PLU
NUMERO     PLU
```

PLU number starts from 1 to 1000.
Pushing the KEY SUBTOTALE, you can get the print-out of the programmed PLU.

Pushing the key "TOTALE" step by step you can program:

- PLU description: Max 20 characters using the ASCII code of the characters decreased by 32.
    - Pushing the key "X" the cursor moves forward,
    - Pushing the key "VOID" the cursor moves back,
    - Pushing the key "↑S" sets the description in the center,
    - Pushing the key "00" the last character entered is repeated,
    - Pushing the key "STORNO" all the description is deleted.

```
 S 03     N. PLU   N. CAR.   ASCII*
           DESCRIZIONE PLU
```

- PRICE:
  Use the numerical keys then confirm with "TOTALE" key.

```
 S 03     N° PLU    PREZZO
PREZZO UNITARIO       TIPO
```

- DEPARTMENT:
  Select the department number from 1 to 40 then push "TOTALE" key.

```
 S 03     N° PLU   N° REP.
    REPARTO PLU
```

- BAR CODE:
  Enter up to 40 character code then push "TOTALE" key.

```
 S 03     N° PLU    N°CAR
    CODICE A BARRE
```

10.4. Mode state 04: program discount or surcharge.

```
┌─────────────────────┐
│   S 04      TASSO   │
│ %          SCONTO   │
└─────────────────────┘
```

Set the percentage for the discount (0÷99.99).
Push "TOTALE" key to set the surcharge:

```
┌─────────────────────┐
│   S 04      TASSO   │
│ %          MAGG.    │
└─────────────────────┘
```

10.5. Mode state 05: VAT program.

```
┌──────────────────────────┐
│   S 05    GR. IVA  VALORE │
│ ALIQUOTA          TASSA   │
└──────────────────────────┘
```

Set the value of the VAT number percentage, then push "TOTALE" key to select one of the 4 VAT identifier numbers.

Pushing "SUBTOTALE" key you can get the print-out of the VAT number programmed.

10.6.   Mode state 06: currency program.

```
S 06      N° VAL.
NUMERO VALUTA
```

Pushing key SUBTOTALE you can get the print-out of the currency programmed.

Setting step by step the TOTALE key you can program the following:

Currency description
Used to enter the description (max 2 characters) using the ASCII code of the characters decreased by 32:
- Pushing the key "X" the cursor moves forward,
- Pushing the key "VOID" the cursor moves back,
- Pushing the key "↑S" sets the description in the center,
- Pushing the key "00" the last character entered is repeated,
- Pushing the key "STORNO" all the description is deleted.

```
S 06      N° VAL   N. CAR.   ASCII*
          DESCRIZIONE VALUTA
```

Currency exchange rate: set the value then push "TOTALE" key

```
S 06      VALORE
VAL.    CAMBIO
```

10.7.   Mode state 07: Program the Credit card description

```
S 07      N°C.CRE.
CARTA  CREDITO
```

Pushing key SUBTOTALE you can get the print-out of the current description of credit card.

Then select the credit card number and push "TOTALE" key.

Credit card description: Max 20 characters using the ASCII code of the characters decreased by 32:

- Pushing the key "X" the cursor moves forward,
- Pushing the key "VOID" the cursor moves back,
- Pushing the key "↑S" sets the description in the center,
- Pushing the key "00" the last character entered is repeated,
- Pushing the key "STORNO" all the description is deleted.

```
S 07      N.C.CRE.  N. CAR.   ASCII*
DESCRIZIONE CARTA  DI CREDITO
```

10.8. Mode state 08: program the category

```
S 08      N°MERC.

MERCEOLOGICO
```

Set the number of category, then push TOTALE key

Category description: Max 20 characters using the ASCII code of the characters decreased by 32:

- Pushing the key "X" the cursor moves forward,
- Pushing the key "VOID" the cursor moves back,
- Pushing the key "↑S" sets the description in the center,
- Pushing the key "00" the last character entered is repeated,
- Pushing the key "STORNO" all the description is deleted.

```
S 08    N.MERC.  N. CAR.   ASCII*
 DESCRIZIONE  MERCEOLOGICO
```

10.9. Mode state 09: Fixed cash key program

```
 S 09      VALORE
VALORE CONT.  N.
```

Set the amount of cash requested (max 9 digit) then push "TOTALE" to link the fixed key.

10.10. Mode state 10: Program the tickets

```
 S 10     N. TICK.
NUMERO TICKET
```

Set the identifier number of ticket (1÷10) then the "TOTALE" key.

Pushing "SUBTOTALE" key you can get the print-out of the current description of tickets.

Tickets description: Max 20 characters using the ASCII code of the characters decreased by 32:

- Pushing the key "X" the cursor moves forward,
- Pushing the key "VOID" the cursor moves back,
- Pushing the key "↑S" sets the description in the center,
- Pushing the key "00" the last character entered is repeated,
- Pushing the key "STORNO" all the description is deleted.

```
 S 10    N° TICK.  N. CAR.    ASCII*
      DESCRIZIONE   TICKET
```

10.11. Mode state 11: Promotion MXn program

```
S 11      NUM.      MxN
  PROMOZIONE  MxN
```

Set the M value (max 99) then push "X" and set the N value (max 98).
M must be bigger then N.

10.12. Mode state 12: PLU direct key program.

```
S 12      NUM.     CODICE
   COD. PLU DIRETTI
```

Set the identifier number of the PLU then push "TOTALE" to confirm.

Pushing the "SUBTOTALE" key you can get the print-out of the current PLU key.

10.13. Mode state 13: Operator program

```
S 13      N. OP.
N°   OPERATORE
```

Select the idntifier number of the operator (1-12) then push "TOTALE" key.

Pushing "SUBTOTALE" key you can get the print-out of the current description of operator.

- Operator name: Max 20 characters using the ASCII code of the characters decreased by 32.
    - Pushing the key "X" the cursor moves forward,
    - Pushing the key "VOID" the cursor moves back,
    - Pushing the key "↑S" sets the description in the center,
    - Pushing the key "00" the last character entered is repeated,

Pushing the key "STORNO" all the description is deleted

```
S 13      N° OP.   N. CAR.   ASCII*
       NOME  OPERATORE
```

- Operator password: Use the numeric keys to set the password (0-9999) then push "TOTALE" key.

```
S 13      N° OP.   CODICE
  CODICE  OPERATORE
```

- Sales commission: Use the numeric keys to set the percentage of sales commission. (0-99,99) then push the "TOTALE" key.

```
S 13      N° OP.    VAL.%
  COMMISSIONE OPER.
```

Pushing the "SUBTOTALE" key it is possible to get a print-out of the current status of the fiscal printer.

Pushing the "TOTALE" key it is possible to modify the settings going trough the program steps.

Pushing the "X" key you toggle between the status YES or NOT APPRENDIMENTO.

If you set yes you can issue fiscal receipt without saving it in fiscal memory.

In APPRENDIMENTO mode, in the fiscal receipt, the blank spaces characters are replaced by "?" characters.

10.14. Mode state 14: Fiscal printer settings (flags)

```
S 14        1          0
  NO APPRENDIMENTO
```

```
S 14        1          1
  SI APPRENDIMENTO
```

Then push "TOTALE" to set the possibility to enable the print out of a receipt when the cash drawer is open.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14        3          0
   NO STAMPA CASS.
```

```
S 14        3          1
   SI STAMPA CASS.
```

Then push "TOTALE" key to select the use of OPERATOR information.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14        4          0
   NO  OPERATORI
```

```
S 14        4          1
   SI  OPERATORI
```

Push the "TOTALE" key to enter password for operator.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14        5          0
  NO OPER. SEGRETI
```

```
S 14        5          1
  SI  OPER. SEGRETI
```

Push the "TOTALE" key to enter the possibility to change the operator.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14        6          0
   NO RESET OPER.
```

```
S 14        6          1
   SI RESET OPER.
```

Push the "TOTALE" key to enter the possibility to print out the operator identifier number on the receipt.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14         7           0
      NO STAMPA OPER.
```

```
S 14         7           1
      SI STAMPA OPER.
```

Push the "TOTALE" key to enter the possibility to print out the number of items in the fiscal receipt.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14         8           0
      NO STAMPA PEZZI
```

```
S 14         8           1
      SI STAMPA PEZZI
```

Push the "TOTALE" key to enter the possibility to print out long or short product code.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14         9           0
      COD. PROD CORTO
```

```
S 14         9           1
      COD. PROD. LUNGO
```

Push the "TOTALE" key to enter the possibility to set the ON LINE or STAND ALONE MODE.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14        10           0
      NO PC IN LINEA
```

```
S 14        10           1
      SI PC IN LINEA
```

Only for FP90.
Push the "TOTALE" key to enter the possibility to set the transmission of paper-end information AUTOMATIC or ON REQUEST.

Pushing the "X" key you toggle between status AUTOMATIC and ON REQUEST

```
S 14          11           0
TX FINE CARTA AUTOM.
```

```
S 14          11           1
 TX FINE CARTA RICH.
```

Only for FP90, from rel. 2.0 on.
Push the "TOTALE" key to enter the possibility to set the local visualization of paper close to end information.
Pushing the "X" key you toggle between status YES and NOT

```
S 14          12           1
  SI   VIS. FINE CARTA
```

```
S 14          12           0
  NO   VIS. FINE CARTA
```

Push the "TOTALE" key to enter the possibility to set mandatory to push SUBTOTAL key before closing the fiscal receipt.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14          13           0
    NO SUB-TOTALE
```

```
S 14          13           1
    SI SUB-TOTALE
```

Push the "TOTALE" key to enter the possibility to print out copy of fiscal receipt.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14          14           1
  SI  RISTAMPA SCON
```

```
S 14          14           0
  NO  RISTAMPA SCON
```

Push the "TOTALE" key to enter the possibility to select the use of particular barcode
Pushing the "X" key you toggle between status YES and NOT.

```
S 14          15           0
  BC 2 a CODIF TIPO 1
```

```
S 14          15            1
   BC 2 A CODIF  TIPO 2
```

Push the "TOTALE" key to enter the possibility to manage different kinds of barcode.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14          16
   BC2 CON CKS INTERM
```

```
S 14          16
  BC2 SENZA CKS INTERM
```

Push the "TOTALE" key to enter the possibility to manage different barcodes.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14          17
  BC2  CON DATI DI PESO
```

```
S 14          17
  BC2 CON DATI DI Q.TA
```

Push the "TOTALE" key to enter the possibility to enable/disable the "SHIFT" key.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14          18
    SI TASTO SHIFT
```

```
S 14          18
    NO TASTO SHIFT
```

Push the "TOTALE" key to enter the possibility to enable/disable the "STORNO" key.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14          19
   SI TASTO  STORNO
```

```
S 14          19
   NO TASTO STORNO
```

Push the "TOTALE" key to enter the possibility to enable/disable the "RESO" key.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14        20
    SI TASTO  RESO
```

```
S 14        20
    NO TASTO RESO
```

Push the "TOTALE" key to enter the possibility to enable/disable the "VOID" key.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14        21
    SI TASTO  ANNULLO
```

```
S 14        21
    NO TASTO ANNULLO
```

Push the "TOTALE" key to enter the possibility to enable/disable "SCONTO" key.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14        22
    SI TASTO  SCONTO
```

```
S 14        22
    NO TASTO SCONTO
```

Push the "TOTALE" key to enter the possibility to enable/disable the "ABBUONO" key.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14        23
    SI TASTO  ABBUONO
```

```
S 14        23
    NO TASTO ABBUONO
```

Push the "TOTALE" key to enter the possibility to enable/disable change currency function.
Pushing the "X" key you toggle between status YES and NOT.

```
S 14        24
    NO STAMPA VALUTA
```

```
S 14        24
    SI STAMPA VALUTA
```

Push the "TOTALE" key to enter the possibility to enable/disable the print out of EURO/LIRE in the fiscal receipt.
Pushing the X key you toggle between status YES and NOT.

```
S 14        25
NO TOTALE EURO/LIRE
```

```
S 14        25
 SI TOTALE EURO/LIRE
```

Only for FP90 and FP260.
Push the "TOTALE" key to enter the possibility to disable/enable the automatic opening of the cash drawer.
Pushing the X key you toggle between status YES and NOT.

```
S 14        26
 SI AP. AUT. CASSETTO
```

```
S 14        25
NO AP. AUT. CASSETTO
```

10.15. Mode state 15: Fiscal printer settings (parameters)

Pushing "SUBTOTALE" key it is possible to get a print-out of the current status of the fiscal printer.
Pushing the "TOTALE" key it is possible to modify the settings going trough the program steps.

Input : use the numeric key to select the right value (1-99), then push "TOTALE" key.

```
S 15  1   VALORE
V.  IMPUTAZIONE
```

Around: use the numeric key to select the right around (1-999), then push "TOTALE" key.

```
S 15  2   VALORE
ARROT.  IMPORTO
```

Percentage around: use the numerical key to set the right value (1-999), then push "TOTALE" key.

```
S 15  3   VALORE
  ARROT.    %
```

Currency around: use the numerical key to set the right value (1-999), then push "TOTALE" key.

```
S 15  4   VALORE
ARROT.  VALUTA
```

Number of retries during transmission to the PC: set the value (1-99) then push "TOTALE" key.

```
S 15  5      VALORE
NUM. RITRASMISSIONI
```

Time of the retry: set the value in seconds of the time to wait between two sequential retries (1-99) then push "TOTALE" key.

```
S 15  6      VALORE
TEMPO RITRASMISSIONE
```

Print head intensity level: use "X" key to set the value then push "TOTALE" key.

```
┌─────────────────────────┐
│ S 15  7      VALORE      │
│ INTENSITA'  STAMPANTE    │
└─────────────────────────┘
```

Display intensity level: use "X" key to set the value, then push "TOTALE" key.

```
┌─────────────────────────┐
│ S 15  8      VALORE      │
│ INTENSITA' VISORE        │
└─────────────────────────┘
```

Header Graphic logo: select one of the 9 logos pre loaded in flash area, 0 for none, then push "TOTALE" key.

```
┌─────────────────────────┐
│ S 15  9      VALORE      │
│   HEADER GRAFICO         │
└─────────────────────────┘
```

Footer graphic logo: select one of the 9 logos pre loaded in flash area, 0 for none, then push "TOTALE" key.

```
┌─────────────────────────┐
│ S 15 10      VALORE      │
│   FOOTER GRAFICO         │
└─────────────────────────┘
```

Cash desk number: set the value (1-999) then push "TOTALE" key.

```
┌─────────────────────────┐
│ S 15 11      VALORE      │
│   NUMERO CASSA           │
└─────────────────────────┘
```

Only for FP90.
To select the paper roll size: 0 = 80mm; 1 = 60mm: 2=57mm. Select the paper roll size then push "TOTALE" key.
Note: 57mm are managed only from rel. 2.0 on.

```
┌─────────────────────────┐
│ S 15 12      VALORE      │
│ STAMPA 80/60/57mm        │
└─────────────────────────┘
```

Only for FP90.

Automatic switch-off for display. Set the value (1-99) then push "TOTALE" key.

```
┌─────────────────────────┐
│ S 15 13      VALORE      │
│ SPEGNIMENTO VISORE       │
└─────────────────────────┘
```

10.16. Mode state 16: program header of fiscal receipt character type.

```
┌─────────────────────────────┐
│  S 16     N° RIGA           │
│  RIGA NORMALE               │
└─────────────────────────────┘
```

Pushing the "TOTALE" key you can select the raw and the following kind of character style, use the key "X" to select the right one:

Riga doppia evidenziata	: double height underline
Riga normale	: normal
Riga evidenziata	: underline
Riga doppia	: double height

10.17. Mode state 17: Serial communication settings

Pushing the "SUBTOTALE" key it is possible to print out the current configuration

```
┌─────────────────────────────────────────┐
│  S 17                    DISPOSITIVO     │
│        TIPO CONNESSIONE                  │
└─────────────────────────────────────────┘
```

Push "X" key to select between:
- NOT USED
- COMPUTER
- BARCODE READER
- CARD READER

Select the computer then select the baud rate, parity, number of data bits and stop bits configuration

Tasto <TOTALE>	Tasto <X>
Baud rate	57600 (Only FP90), 38400, 19200, 9600, 4800, 2400, 1200
Parity	ODD, EVEN, NONE
Data bits	7, 8
Stop bits	1, 2

10.18. Mode state 21: RAM reset

```
S 21      PASSW
 AZZERA RAM
```

Insert the password and reset the non fiscal RAM.

10.19. Mode state 22: Printer test.

```
S 22
 TEST STAMPANTE
```

Every 4 minutes the printer prints out a test receipt.

10.20. Mode state 23: Serial port test

```
S 23
   TEST SER:
```

Use the loopback connector to perform the test

10.21. Mode state 28: Enable the technical check reminder.

```
 S 28
VISITA ANNUALE
```

10.22. Mode state 29: PS2 configuration.

```
S 29            FUNZ.
FUNZIONE TASTO PS2
```

Select the key you want to modify and push it, after that read in the following table the code of the function you want assign to the key and insert it.
Push "TOTALE" key to confirm.

FUNZIONE TASTO	CODICE FUNZIONE	FUNZIONE TASTO	CODICE FUNZIONE
0÷9	000÷009	NON CALCOLA	111
00	010	STORNO	112
000	011	TICKET	113
CL	012	SCELTAPREZZO	114
X	013	ULTIMO TOT.	115
VOID	014	MxN (1)	116
,	015	MxN (2)	117
REP1÷REP40	016 ÷ 055	OPERATORE	118
PLU1÷PLU30	056 ÷ 085	VOID TOTALE	119
CONT1÷CONT5	086 ÷ 090	NOT USED	120
VAL1÷VAL5	091 ÷ 095	Cod. PRODOTTO	121
VALUTA	096	SUPERO LIMITE	122
CARTA CRED.	097	FATTURA	123
ASSEGNI	098	RICEVUTA	124
SUB-TOTALE	099	VISUAL. PROD.	125
CONTANTE	100	TICKET 1÷10	126 ÷135
↑S	101	COD. CLIENTE	136
↑G	102	COD. FISCALE	137
PLU	103	CHIAVE SW	138
PLU-ENTRY	104	C. CRED. 1 ÷ 10	140 ÷ 149 [1]
RESO	105	PLU31÷PLU70	150 ÷ 189 [2]
ENTRATE	106	DIPENDENTI	190 [2]
USCITE	107	CONVENZIONI	191 [2]
%+	108	TICKET SURPLUS	192 [2]
%-	109	NOTA DI CREDITO	192 [3]
ABBUONO	110	NESSUNA	999

[1] Available from   Release 2.00E
[2] Available from   Release 2.01
[3] Available from   dalla Release 3.00

Note: Correspondence between ASCII codes and keyboard codes:
ASCII*:   The code used to program text row corresponds to the ASCII code reduced by 32.

Examples:
- To write space "   " (ASCII decimal code 32) use code 00.
- To write "A"   (ASCII decimal code 65) use code 33.

11. Epson fiscal printer error messages

DISPLAY	CAUSE	POSSIBLE SOLUTION
CARTA SCONTRINO	Receipt roll paper close to end	Change the roll paper
CARTA GIORNALE	Journal roll paper close to end	Change the roll paper
STAMPANTE OFF-LINE	Paper roll end, or cover opened	Check the cover, and the paper roll.
TASTO ERRATO	A key not valid has been pushed.	Push CL
DATA INFERIORE	The date is lower then permitted value.	Push CL and try again
DATA ERRATA	Error during the program of the date	Push CL and try again
SEQUENZA ERRATA	a sequence not valid happened (Ex. Payment during a close receipt)	Push CL and check the operation
DATI INESISTENTI	A not existing parameter has been selected	Push CL and try again
VALORE ERRATO	A value out of range has been selected	Push CL and try again
PROGR. MATRICOLA	Fiscal printer not valid	Contact EPSON ITALIA
GIA' ESISTENTE	A value already existing has been try to be set.	Push CL and try again
NON PREVISTO	Try to use a function non existing	Push CL and check the operation
IIMPOSSIBILE ORA	Try to set a parameter that can not be done at the moment.	Push CL and try again (may be with daily closure)
NON POSSIBILE	A function not available has been selected	Push CL and try again
SCRITTA INVALIDA	Try to send to the printer the word TOTALE	Push CL and change the word
SUPERA VALORE	A number of amount figures over the limit	Push CL and try again
SUPERA LIMITE	A value of amount over the limit	Push CL and try again
NON PROGRAMMATO	Try to use a function not enabled	Push CL and try again
CHIUDI SCONTRINO	Max number of items reached	Push CL and Close the receipt using TOTALE or other payments
CHIUDI PAGAMENTO	Over the limit of fiscal amount	Push CL and try again
MANCA OPERATORE	The operator has not been set	Push CL and try again

CASSA INFERIORE	Try to set a function that set the amount of cash drawer in negative.	Push CL and check the money
OLTRE PROGRAMMAZ	Try to use a price in the department over the limit set	Push CL and try again
PC NON CONNESSO	PC communication error	Push CL and check the communication with the computer
CHECKSUM ERRATO	Wrong Codice fiscale	Push CL and check the codice fiscale
DATI INESISTENTI PC	In MASTER MODE the computer has not the ITEM in the data base	Push CL and try again
D.G.F.E.ASSENTE	Flash memory non insert	Push CL and check the MMC card
D.G.F.E DA FORMATTARE	The flash memory is new	Select the right operation to format the memory (SET 96)
D.G.F.E PROSSIMO ESAURIENTO	MMC close to be full	Prepare a new MMC
D.G.F.E ESAURITO	Flash memory FULL	Change MMC
D.G.F.E DI ALTRO M.F:	MMC of other fiscal receipt	Check the right MMC for your printer
D.G.F.E ERRORE XXXXXXX	Error Flash memory (E/J)	Contact EPSON ITALIA
MF NO FISC	RAM error	Contact EPSON ITALIA
M.F. OVERFLOW TOTALI, M.F. ESAURITA, M.F. SATURATA	Fiscal memory run out	Contact EPSON ITALIA
MF STACCATA	Fiscal memory error	Contact EPSON ITALIA

12. How to use the Epson Fiscal Printer using serial interface

It is recommended to use the ActiveX driver in order to communicate with the fiscal printer.
You can download from our web site the last version.

The ActiveX control works in synchronous way, the application program that use this control must wait that the control close the communication with the printer before going on.

The returned value from the fiscal printer relating last command received is available in the propriety called "LAST".

The methods relating the fiscal printer use the prefix "op". Each methods implement a single command managed from the printer.

The input parameters of the methods are defined with the following type:

- **String**: used for all the description

- **Integer:** used for all the value up to 32.767

- **Long**: used for all the value up to 2.147.483.647

- **Single:** used for all the decimal value, not used in the currency ratio.

- **Double:** used in the currency ratio for exchange the currency

- **Currency**: used for all the figures relating money.

- **Date**: use for the date, the single items (day, year etc.) are used as integer.

Relating the Currency, this activeX is able to format automatically the field to send to the printer, this is done using the propriety **EuroSetting, this propriety MUST BE SET**.

This control does not manage the communication retry, in case of communication error it returns back an ERROR.

12.1. Active X in C#, J# and C++ for .NET

When using .NET it is mandatory to set the optional parameters. Without setting these parameters, even if seems OPTIONAL, some methods do not work properly.

12.2. Active X and dependency files

In case you want to compile the activeX in your application you have to include the following files:

CABFilename=EpsonFP2.CAB
CABINFFile=EpsonFP2.INF
Uses1=MSVBVM60.DLL
Uses2=OLEAUT32.DLL
Uses3=OLEPRO32.DLL
Uses4=ASYCFILT.DLL
Uses5=STDOLE2.TLB
Uses6=COMCAT.DLL
Uses7=VB6IT.DLL
Uses8=MSCOMM32.OCX

Uses9=msstkprp.dll

12.3. DEMO PROGRAM

Use the CLIENT DEBUG EPSON program to understand how to use this driver.

This demo program is provided with source code and give you a demo how to use this activeX. This demo program simulate a restaurant (PIZZERIA) demo.
There are 4 sheets:
- 1st sheet:
    - o COMANDE: to sell ITEM (ex. MARGHERITA PIZZA)
    - o PAGAMENTI: Payments (TOTALE: cash – ASSEGNO: check)
    - o TOTALI: total amount
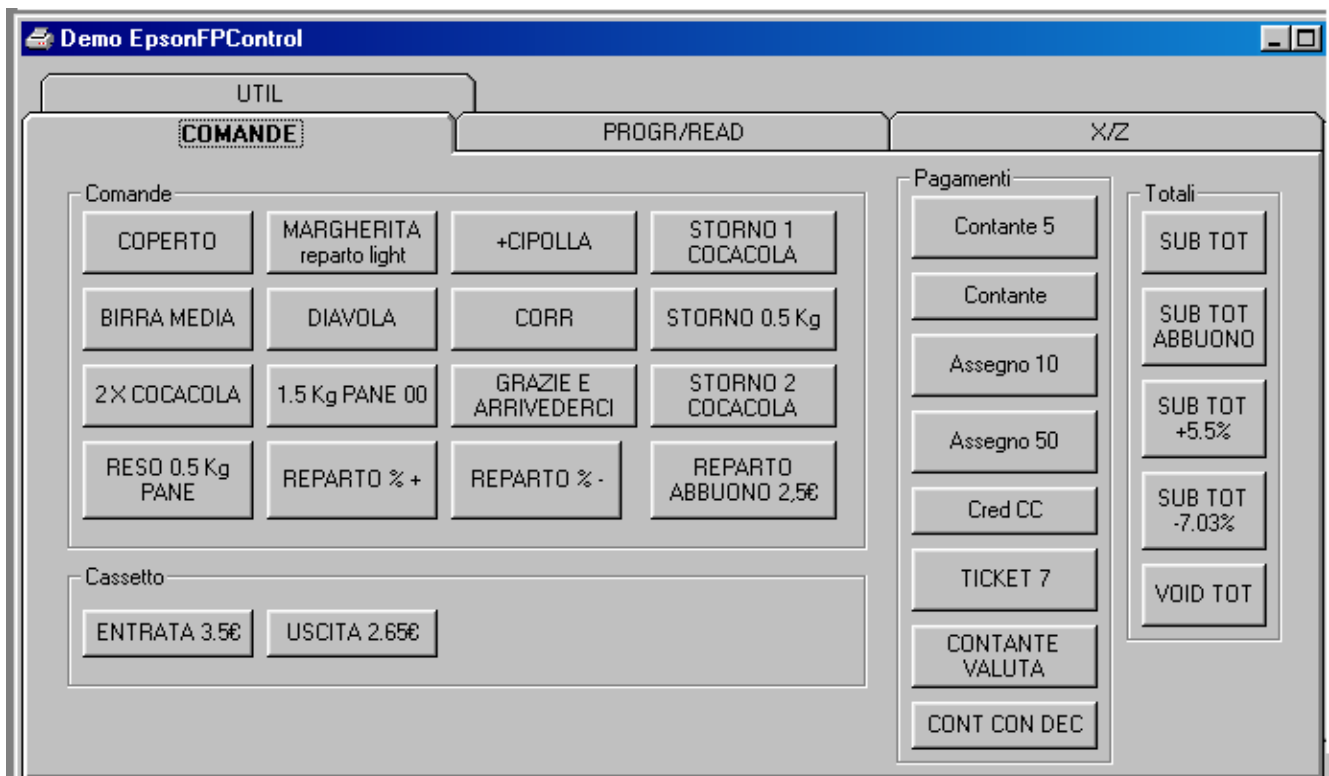
- 2nd sheet: there are 3 areas:
    - o PROG: to program parameters
        - ▪ OpProgDataOra: use to program date and time
    - o READ: to read the parameters
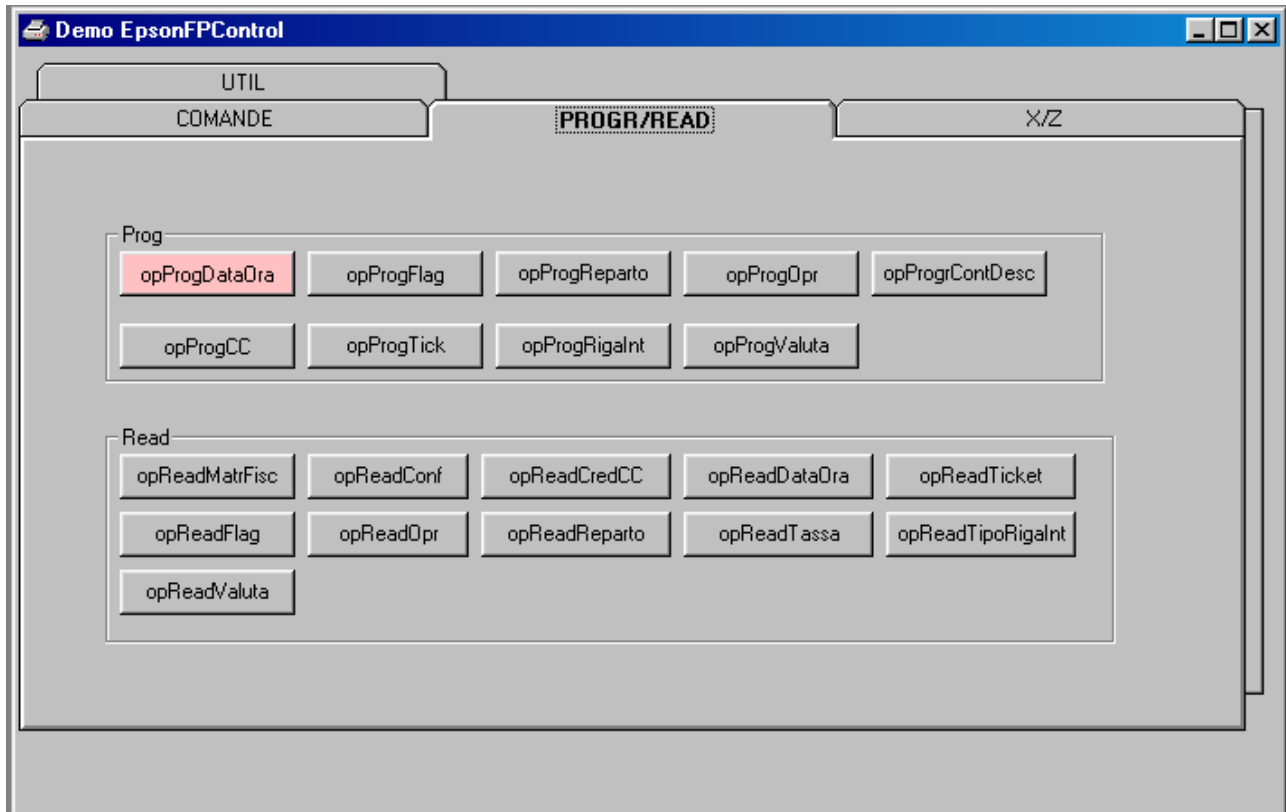
- 3rd sheet: this sheet is arranged to simulate the two states X and Z
  - XTOT: used to get reports X
  - ZTOT: used to arrange the Z report, the most important METHOD is the opZChiusuraFisc: daily closure
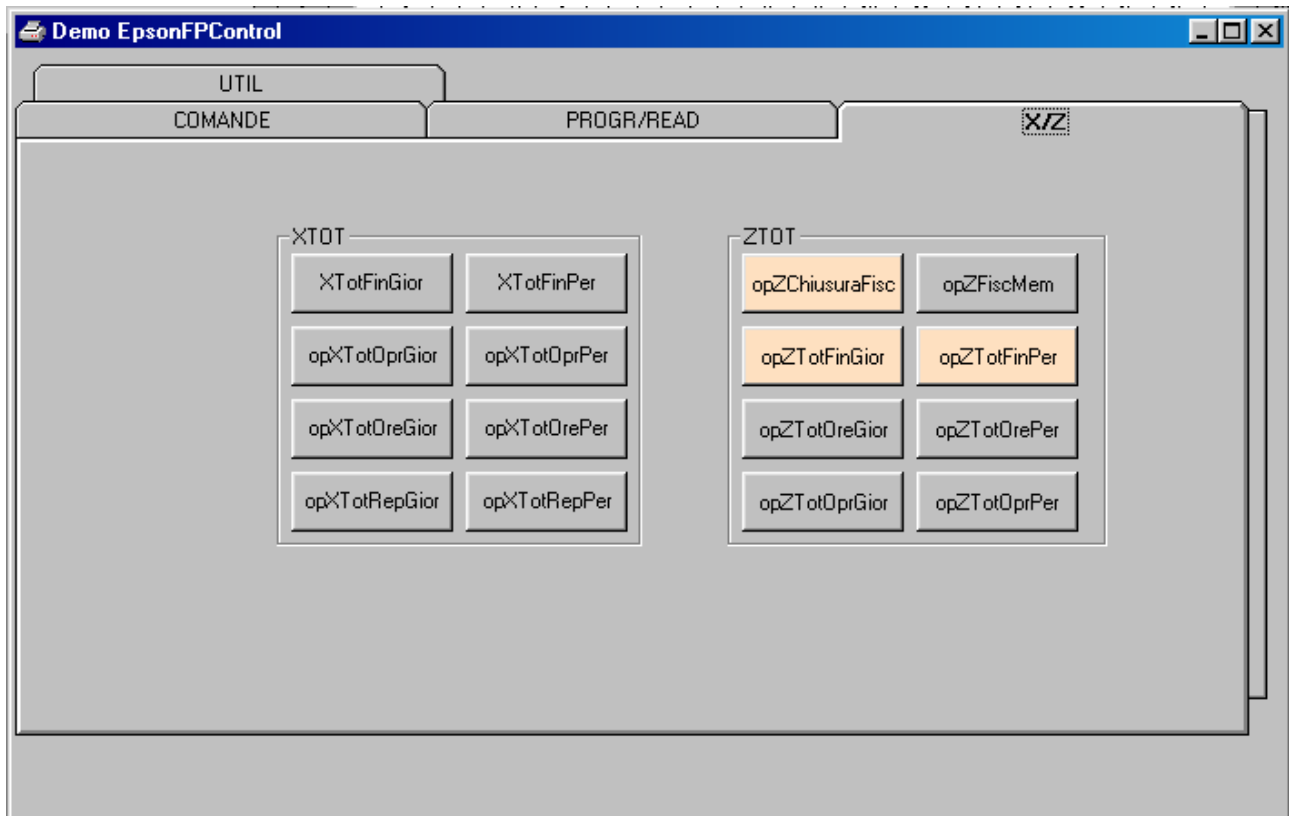
4th sheet: to demo some UTILITY functions like:

- RistampaScontrino: to print another copy of last receipt

- MsgPromo: to send characters to the display
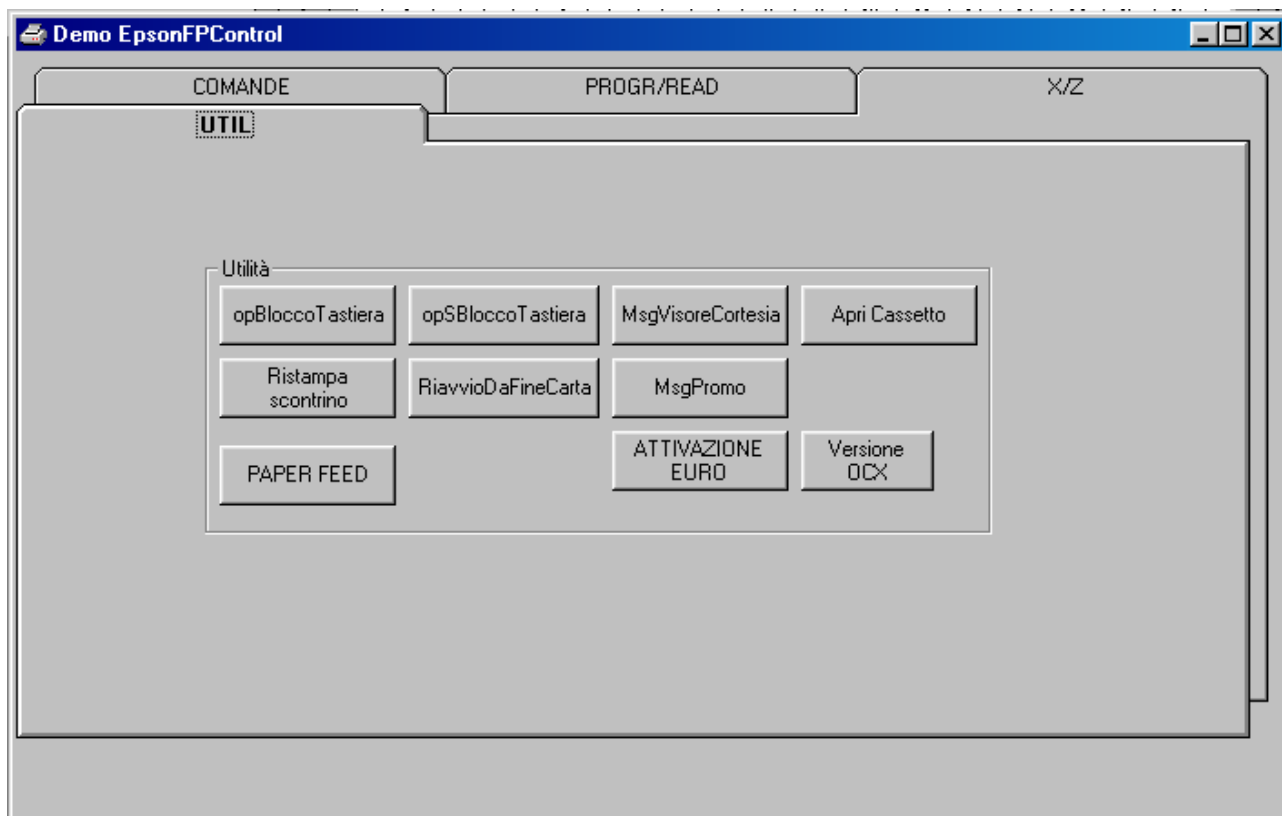
12.4.   Minimum set of methods to be implemented

The minimum set of methods that should be integrated in your application program is reported in the following list:

- PortOpen()

- PortClose

- OpRepart() : use to sell items

- OpRepartoLight(): same as opReparto() but much faster (no Optional parameter)

- OpRepartoReso() : use to return back the goods

- OpReaprtoStorno(): use to cancel items in the current fiscal receipt

- OpRepartoVoid(): use to cancel last item issue

- OpTOTALE(): use for close the receipt with payment cash

- OpZChiusuraFiscale(): daily closure

- OpProgDataOra(): use to program date and time

### 12.5.   How to use a method

To use a method like opReparto() used to sell items, an example is in Visual Basic is:

```
Private Sub CmdOpReparto2_Click()
    Dim risOpReparto As EpsonFP2.enumEPS_OP_RETVALUE
    risOpReparto = EpsonFPControl2.opReparto(1, "PIZZA", 0.77, 1)
    If risOpReparto = OP_OK Then
        Debug.Print "opReparto OK"
    Else
        Debug.Print "opReparto PROBLEMI"
    End If
End Sub
```

Parameters of opReparto() method:

- 1   : Number of operator
- "PIZZA"   : what you are selling
- 0,77   : Price
- 1   : Department store

12.6.   How to print out a receipt

There are two steps to print out a simple receipt for example a PIZZA

1 – EpsonFPControl2.opReparto(1, "PIZZA", 0.77, 1)   TO SELL THE PIZZA
2 – EpsonFPControl2.opTOTALE(1)   TO PAY CASH

12.7.   How to perform a daily closure

To arrange a daily closure use this method:

EpsonFPControl1.opZChiusuraFisc(1)

12.8.   How to print out a bar code (FP260 & FP90)

Use the following method to print out the barcode.
Ex:
EAN13 bar code

opPrintBarcode(1 , 2 , 801234567890)

12.9.   How to read the status of the printer (Fp260 & FP90)

Use the following method to read the status:

OpReadStat(1)

Returned value:
LastCPUsw: Sw release of FPxxx
LastMFsw: Sw release of MF (only for FP90)
LastState: (5 bytes)

FP260:
Byte 0: 0=OK, 1=Journal paper, 2=Receipt paper
Byte 1: Not used
Byte 2: Cash drawer status, 0=OPEN – 1=CLOSE
Byte 3: not used
Byte 4: not used

FP90:
Byte 0: 0=OK, 2=Receipt paper
Byte 1: DGFE, 0=Ok, 1=Close to full, 2=to be formatted, 3=previous Flash, 4=other FP,
5= FULL.
Byte 2: Cash drawer status, 0=OPEN – 1=CLOSE
Byte 3: Fiscal receipt – 0=OPEN, 1=CLOSE
Byte 4: not used

13. VAT

In Italy several VAT percentages are imposed. The most common VAT value is 20%.
In case of fiscal cash register or fiscal printer it is not needed to save VAT amount separated from total Amount.
When you sell goods you have to specify the selling PRICE including VAT and sell the item.
In case you want to separate the goods with different VAT, we suggest to use the DEPARTMENTS (REPARTI) to sell products with different VAT.

Use the method opProgTassa(ByVal NTassa As Integer, ByVal Aliquota As Single) to set the VAT value and the method opProgReparto() to select which kind of programmed VAT number you want to assign to the specific department (REPARTO).

Ex:
VAT **20**%
Assigned as VAT number **1** to the department **4**

opProgTassa(**1**,**20**);
opProgReparto(**4**, Department VAT20%, 0,0,0,0,**1**, 0, 0, 0, 0)

14. Handle the error using the Active X driver

The errors are split in two levels:

- Internal ACTIVEX errors

- Internal printer errors.

The internal activeX errors have been defined with the prefix "OP" followed by the description. In case of internal printer errors the methods return back the code **EERR**, the kind of error can be check in the Property **lastEERR**.

Example of handling the error for the method opReparto():

```
retry = 3;                          // set max number of retry
WHILE (retry != 0)
opResult = opReparto()              // execute the method opReparto()

        IF (opResult != OP_OK)

// two kind of errors: internal to the printer or ActiveX one.

                IF (opResult == EERR)  // internal printer error
                        FpInternalError()
                        retry = 0
                ELSE
                        ActivexError(opResult)
                        retry –-
                        IF (retry > 0)
                                EpsonFPControl2.Retry == TRUE // resend with last frame counter
                        ELSE
                                PrinterError = TRUE
                        ENDIF
                ENDIF

        ELSE

        // result OK                 // not needed to arrange retry
                retry = 0

        ENDIF
ENDWHILE

IF (printerError == TRUE)
        Call technical support
ENDIF
```

// Manage FP internal ERROR

FpInternalError()

SWITCH (EpsonFPControl2.LastEERR)

   CASE EERR_CARTA_GIORNALE:
// Journal paper is close to end. At the end of the receipt inform the operator to change the Journal paper
roll.

   CASE EERR_CARTA_SCONTRINO:
// Receipt paper is close to end. At the end of the receipt inform the operator to change the paper roll.

   CASE EERR_OFFLINE
// the printer has the LED ERROR ON (cover open or there's no paper inside); recover the error
// closing the front cover or adding the paper.
// to check and close the error, sent the following method: **opRiavvioStampaDaFineCarta()**
// In case of FP90 from rel. 1.0C this method is not mandatory to end this kind of ERROR.

   CASE EERR_SLIP_KO
// the connected slip printer may be off or the serial cable is disconnected
// check for the slip printer status

   CASE EERR_DATA_INFERIORE
// it has been sent to the printer a date which is lower then expected. It is not possible to set a date lower
then the one saved during the last daily closure.

   CASE EERR_DATA_ERRATA
// one or more of the following fields: year, month, day, hours and minutes are not in the correct
// range

   CASE EERR_SEQUENZA_ERRATA
// command sequence not allowed;
// exp: with the receipt CLOSED it is trying to execute the opVoidTot() method or any kind of
// payment. With the receipt OPENED is it trying to execute any kind of movement of amount of value in
// the cash drawer like opAssegnoEntrate() or opContanteEntrate() etc.

   CASE EERR_DATI_INESISTENTI
// trying to program/read an information for which no data exist

   CASE EERR_VALORE_ERRATO
// generic error; a command has been sent with a field containing a wrong data

   CASE EERR_GIA_ESISTENTE
// trying to execute an operation which has been already executed

   CASE EERR_NON_PREVISTO
// Generic error, the method has a index parameter out of range (example of index parameter: the
// department number, the VAT (TASSA) number, the credit card number etc. depending on
// the method used)

   CASE EERR_IMPOSSIBILE_ORA
// generic error meaning it's impossible to execute the required method. If you try to program the date
// of the fiscal printer w/o having execute a daily closure this error is returned.

   CASE EERR_NON_POSSIBILE
// generic error meaning it's impossible to execute the required method.

CASE EERR_SCRITTA_INVALIDA
// the method used contains the word TOTALE (uppercase or lower case or a
// combination of them) into the field "description"

CASE EERR_SUPERA_LIMITE
// the field PREZZO is higher then the parameter LIMITE PREZZO (price limit) of the
// department used; sell using a department which has a higher price limit

CASE EERR_NON_PROGRAMMATO
// trying to execute a method which requires some parameters to be programmed

CASE EERR_CHIUDI_SCONTRINO
// it's been reached the maximum number of lines for a ticket; close the ticket with
// the payment command

CASE EERR_CHIUDI_PAGAMENTO
// it's been reached the maximum number of lines for a ticket and the maximum
// number of partial payments; close the ticket with a payment command which
// has an amount equivalent to the difference which remains to pay

CASE EERR_CASSA_INFERIORE
// trying to execute the methods opContanteUscite, opContanteUsciteVal,
// opAssegnoUscite or opAssegnoUsciteVal with an amount higher then the
// available one

CASE EERR_OLTRE_PROGRAMMAZ
// the field PREZZO is higher then the parameter LIMITE PREZZO (price limit) of the
// department used; sell using a department which has a higher price limit

CASE EERR_MANCA_MODULO
// there's no paper inside the slip printer

CASE EERR_CHECKSUM_ERRATO
// the checksum of the Codice Fiscale is wrong

ENDSWITCH
RETURN()

// Manage ActiveX ERROR

ActivexError(opResult)

SWITCH (opResult)
   CASE OP_ERR_NOCOLL
// In case of error, wait 7 seconds then try again, if error still remain it means printer not connected,
Starting from rel. 2.052 of ActiveX driver this delay is integrated in the Sw driver.
// check cable connection with the printer or printer is OFF

   CASE OP_ERR_PORTCLOSE
// the method PortOpen has not been executed
     PortOpen()

   CASE OP_ERR_EUROLOCK
// the property EuroSettings has not been set;
     EpsonFPControl2.EuroSetting = EPS_EUROSETTING_EURO

   CASE OP_ERR_FILENOTFOUND
// the ocx didn't find the path for the graphic file; check for the correctness // of the path

   CASE OP_ERR_OCXBUSY
// OP_ERR_OCXBUSY = true means the ocx is busy
     WHILE (EpsonFPControl2.OCXBusy == TRUE)
     ENDWHILE

   CASE OP_ERR_TIMEOUT:
   CASE OP_ERR_CHKS:
   CASE OP_ERR_ACKTIMEOUT:
   CASE OP_ERR_STXTIMEOUT:
// communication problem, arrange the retry

ENDSWITCH

APPENDIX A Keyboard layout

32 Keyboard PS2 interface

VOID	STORNO	RESO	ALL VOID
SCONTO%	SCONTO	MAGG. %	PLU
7 P R S	**8** T U V	**9** W X Y	NON RISC.
4 G H I	**5** J K L	**6** M N	CARTA DI CRED.
1	**2** A B C	**3** D E F	CRED.
0 O Q Z	**00**	**'**	ASSEGNI
CL	**X**	REP. 1	SUB-TOTALE
↑S	**↑G**	CHIAVE	TOTALE
IN PROODUCTION UNTIL 2004			

↑S	**↑G**	CHIAVE	ALL VOID
SCONTO	RESO	PLU	VOID
SCONTO %	MAGG. %	REP. 2	STORNO
CL	**X**	REP. 1	ASSEGNI
7 P R S	**8** T U V	**9** W X Y	NON RISC.
4 G H I	**5** J K L	**6** M N	CRED.
1	**2** A B C	**3** D E F	SUB-TOTALE
0 O Q Z	**00**	**'**	TOTALE
IN PRODUCTION FROM 2005			

APPENDIX B Cross reference between PC keyboard and 32 keys keyboard

32 keyboard				PC keyboard			
VOID	STORNO	RESO	ALL VOID	F1	F2	F3	F4
SCONTO %	SCONTO A VALORE	MAGG. %	PLU	F5	F6	F7	F8
7	8	9	IMPORTI NON RISCOSSI	7	8	9	F9
4	5	6	CARTA DI CREDITO	4	5	6	F10
1	2	3	CREDITO	1	2	3	F11
0	00	,	ASSEGNI	0	/	,	F12
CL	X	REP.	SUB-TOTALE	CANC	*	-	+
^S	^G	CHIAVE	TOTALE	S	G	C	INVIO

APPENDIX C Keyboard code

Code	Character	Code	Carattere	Code	Character	Code	Character	Code	Character
00	SPAZIO	**19**	3	**38**	F	**57**	Y	**76**	l
01	!	**20**	4	**39**	G	**58**	Z	**77**	m
02	"	**21**	5	**40**	H	**59**	[	**78**	n
03	#	**22**	6	**41**	I	**60**	\	**79**	o
04	$	**23**	7	**42**	J	**61**	]	**80**	p
05	%	**24**	8	**43**	K	**62**	^	**81**	q
06	&	**25**	9	**44**	L	**63**	_	**82**	r
07	'	**26**	:	**45**	M	**64**	`	**83**	s
08	(	**27**	;	**46**	N	**65**	a	**84**	t
09	)	**28**	<	**47**	O	**66**	b	**85**	u
10	*	**29**	=	**48**	P	**67**	c	**86**	v
11	+	**30**	>	**49**	Q	**68**	d	**87**	w
12	,	**31**	?	**50**	R	**69**	e	**88**	x
13	-	**32**	@	**51**	S	**70**	f	**89**	y
14	.	**33**	A	**52**	T	**71**	g	**90**	z
15	/	**34**	B	**53**	U	**72**	h		
16	0	**35**	C	**54**	V	**73**	i		
17	1	**36**	D	**55**	W	**74**	j		
18	2	**37**	E	**56**	X	**75**	k		

APPENDIX D: Interface signal

Fiscal Board: PC

Pin-out of the serial port for host connection based on 6 pins RJ11 female connector:

Pin	Description
2	Receive data
3	Transmit data
1	Ground
5	Request to send
6	Clear to send

Fiscal Board: PS2 interface

The PS2 is controlled by a interface that reduce the voltage level of the Keyboard from 5 V to 3.3 Volt.
IN order to provide the 5 Volt to the keyboard an step-down is used to reduce the voltage from 24 Volt to 5 Volt @100 mA.
The keyboard connector is a standard PS2 connector like the FP260 one

```
           PS/2 KEYBOARD 6 PIN MINI-DIN FEMALE CONNECTOR
                    PIN                      SIGNAL

    6 H 5      1 --------------------------- DATA
    4    3     2 --------------------------- not used
     2  1      3 --------------------------- GND
               4 --------------------------- +5V
               5 --------------------------- CLK
               6 --------------------------- not used
```