LC-LINE

Maintenance Guide
Special Functions
Programming (for Technical Personnel)
Installation Kit

NOTE: DITRON reserves the right to change product specifications without notice. All the news about the new implementation of DITRON Products be found in the relative technical notes regarding included updates on the Official DITRON Website: www.ditron.net

VERSION

SEP 2009

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1. GENERAL PRECAUTIONS

This manual contains the instructions for the fiscal cash register maintenance and programming.
This manual refers to a fiscal cash register of LC series is model NESSO.
You are advised to read this manual thoroughly before carrying out any operation.
Any extra Maintenance of cash register must be carried out by an authorized well equipped Technical Centre for a fast and effective technical intervention.
The manufacturer declines all responsibility in case of work is carried out by non-authorized personnel and if non-original parts are used.
Maintenance operations must comply with the laws of the country the cash registers is being used.

No internal part of the machine must be touched even in cases of malfunction, nor the seal must be interfered with: this is the **exclusive** prerogative of Authorised Assistance Centre personnel.

2. MAIN TECHNICAL FEATURES

Power supply unit : input 90-264 VAC output 9 VDC 0,5 Amp
Current : 90-264 VAC - 120-370 VDC
Frequency : 47-440 Hz
Power : Max 45 W
Temperature : 0°C – 45°C (degrees centigrade)
Humidity : 10% - 90%
External dimensions : Nesso Model: (W x H x D) mm. 170 x 114 x 270

3. SET-UP AND CHECKS

3.1. Removal of Packaging

The cash register and its accessories come in a cardboard box. Ensure that the box is intact and that all parts present.

Ensure that serial number corresponds exactly with the number shown on all accompanying documents.

3.2. Checkover before switching on

Once the machine has been removed from the packaging, ensure:

- ✓ that the outer parts are intact;
- ✓ that the seal is attached and intact

3.3. Set-up

The cash register requires a single-phase AC power supply of 230V, 50 Hz. Ensure that the electric installation is earthed.

Insufficient earthing may seriously weaken the operating ability of the machine.

- ♦ Do not use triple adapters or extension leads etc.
- ♦ The cash register should not be connected to the same supply as other equipment with a high consumption such as refrigerators or motors in general.
- ♦ The lead should be checked frequently.
- ♦ Ensure that the socket is always free of obstacles which could prevent from unplugging in emergency.

3.4. Switching on for First Time

Proceed as follows:

- ✓ Insert the paper roll as indicated in the Instruction Manual.
- ✓ Connect the cash drawer.
- ✓ Insert the plug into a 230 V socket.
- ✓ Switch on at the mains.

3.5. Check functions

Proceed as follows:

- ✓ Carry out some sales operations to see if the keyboard, display and printer are in working order.
- ✓ Ensure the journal paper is properly rolled.
- ✓ Check that all segments of the display light up correctly
- ✓ Check that both the receipt slip and journal are clearly and fully printed.
- ✓ Check that the drawer opens properly at the end of the transaction.

3.6. Programming the machine

To program correctly it is important to be fully aware of the needs of the user. It is therefore necessary that the programmer be fully informed and that he program the machine before delivery.

For program modes, see Instruction Manual.

The special programs of use to the technical personnel follow later.

4. GENERAL FEATURES AND MAIN PARTS

General features and main components are listed below.

- Amounts capacity in registration mode: 9 digits.
- Totalizers capacity: 10 digits
- Print: Thermal receipt print 20 alphanumeric characters
- Customer and operator display are LCD type with 12 digits.
- Drawer connection for automatic opening
- NIMH rechargeable battery for data storage
- Totalizers memory
  Fiscal and management totalizers, contained in special RAM, are well protected with a backup buttery.

- **Fiscal Memory:**

The fiscal memory is made up of an Eprom of 256 Kbytes. The fiscal logotype and the serial number of the cash register are recorded in the appropriate areas. There is a space for max 2150 fiscal records in each of which the daily total and the Z report date are stored. ECR restarts (MAC) and receipt headers are also registered in fiscal memory. Maximal number of restarts (MAC) is 200. Header change is limited by quantity of available fiscal records. The fiscal memory is located in a special compartment on the bottom case of the machine and is sealed with a special epoxy resin. This makes any attempt at cancelling the fiscal memory impossible.

- **Cabinet**

The internal parts are made inaccessible by a ∅ 9 mm seal placed on the screw fixing the cover to the base. This means it is impossible to enter into the inner parts without removing the seal.

The self-adhesive label generally reports the following information:

- the Manufacturer
- the commercial name of the model
- the serial number
- the approval number
- the technical assistance centre

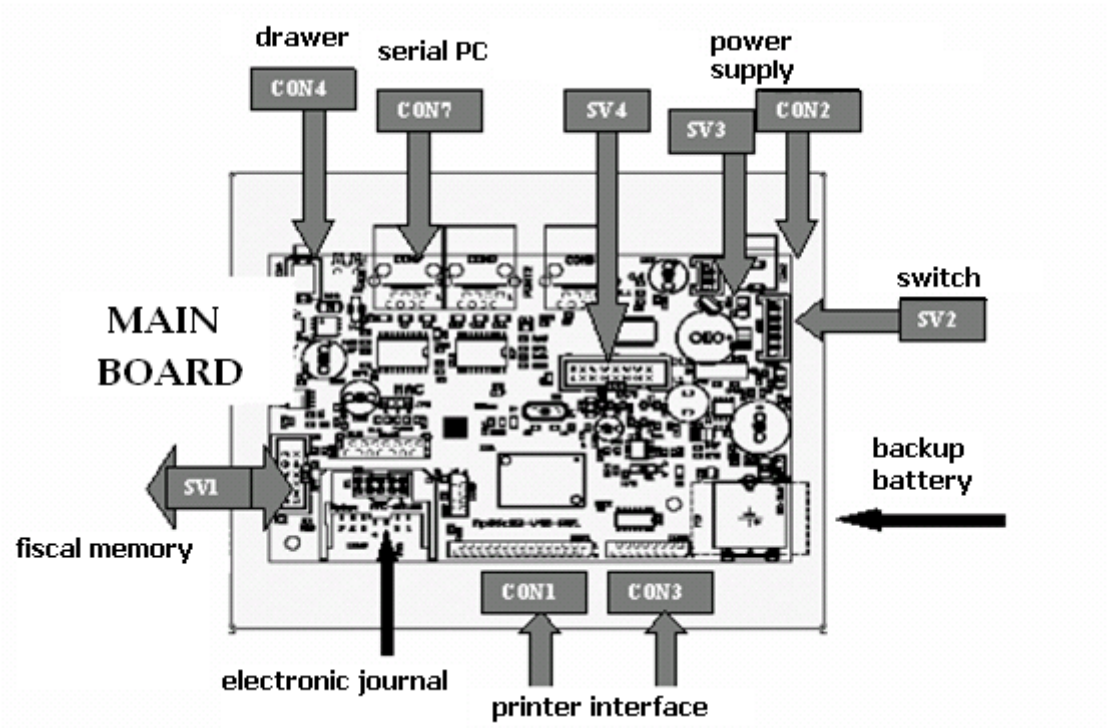
- **Keyboard**

Keyboard contains 30 buttons.
Buttons allow the execution of functions and fiscal management of the machine.
All buttons are programmable (except numeric keys). It means they can be assigned to a different function from the default.
The general reset the machine (MAC) restores the default keyboard layout.

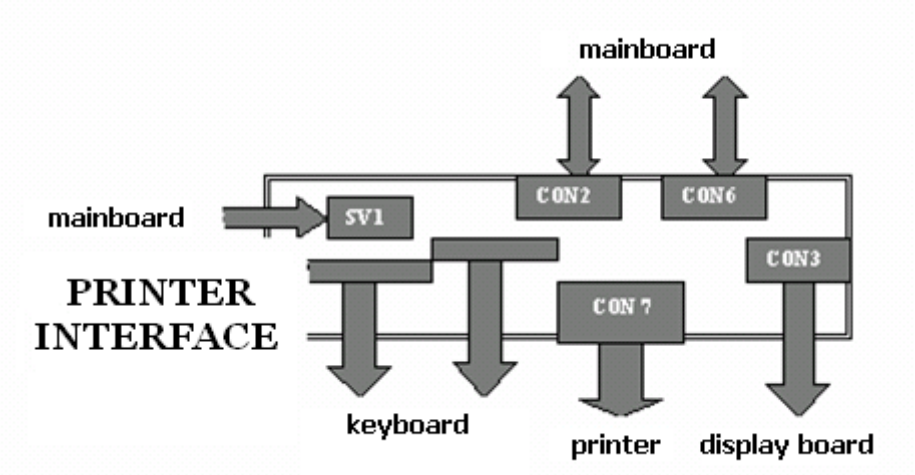
5. UNIT DESCRIPTION

Figure A shows the block diagram of fiscal block. The main units and the connections between them are visible.
The electronic part of Nesso consists of main board based on Mitsubishi microprocessor that controls the functions, fiscal or not, of the machine. In order to optimize space, power consumptions and characteristics that distinguishe the products of Ditron "LC" line, some hardware connections have been used. Such as single printer interface card that is a "passage" for customer and operator displays and keyboard. Let's see the main features of the cards.

5.1. Figure A:



Nesso main board and its components



Printer interface board and its connections

5.2. Connections description

In order to optimize the connection between units of Nesso, the printer interface card is exploited to connect main board with keyboard and display units.
The following legend it is described connectors for the main board and printer interface and their main functions.

Mainboard

CON 1 = connector between mainboard and printer interface. It carries signals of printer, keyboard, buzzer and numerical display.
CON 2 = connector for external feed
CON 3 = connector between mainboard and printer interface. It carries keyboard signals.
CON 4 = drawer connector
CON 7 = connector of serial type RS 2323
SV1 = connector between mainboard and fiscal memory
SV2 = connector of switch
SV3 = connector between mainboard and printer interface (SV1), used for feed of high-powered printer section.
SV4 = free connector (future use)

Printer Interface

SV1 = connector between printer interface and mainboard (SV3) feed of high-powered printer section.
CON 2 = connector between printer interface and mainboard (CON1). It carries signals of printer, keyboard, buzzer and numerical display.
CON 3 = connector between printer interface and mainboard. It carries signals of display and buzzer.
CON 6 = connector between printer interface and mainboard. (CON3) It carries keyboard signals.
CON 7 = printer connector. It carries printing sygnals.
Keybord connectors = connects printer interface board with two flat cables of 30-buttons keyboard based on line/column matrix.

5.3. Mainboard

The machine is essentially a single board, while all other cards used for support and connection.
The main board contains a power section, control the reset and power fail, a CPU which integrates a RAM memory, a program, a system clock, and components for signal management for:
• the fiscal memory
• drawer
• printer
• displays
• keyboard
• serial connection
The electronic "LC" (ie, low consumption) provides elimination of "controllers" as in practice their functions were "delegated" to the CPU "slave"connected to the main microprocessor, such as display and keyboard controls, is now managed entirely by the main CPU on the mainboard.
The back-up battery for data retention has the following characteristics:
rechargeable NiMH type 3.6-V 140-160 mAh.

5.4. Fiscal memory board

It contains memory for fiscal data storage.

5.5. Display board

Connection of LCD customer display on one side and operaror display on other side. Cotrols also a buzzer.

5.6. Printer interface

Connection of thermal printer SEIKO LTPZ245B, it controls paper finish and temperature of printing head. It is also used as support connections of keyboard and display to the main board.

5.7. Keyboar board

It provides a support for the keys matrix which are controlled directly by the processor.

6. ERROR MESSAGES

The cash register may indicate error messages: some of these are fully described on the display, others are indicated by a numerical code on the display.

Some messages can be cleared by the keyboard (**C** key) and others require technical assistance as they block the machine.

Some blocking errors refers to the fiscal memory and allow only memory reports printing. In this case other functions are forbidden.

The errors and the meanings are listed below.

6.1. Error warnings displaying a message

Err_receipt

Indicates that the paper in the printer has run out. Replace the paper, lower the lever and press **C**

Err_FM_full

This message blocks all the functions of the machine and shows that the fiscal memory is full. Only fiscal memory reading operation can be carried out.

Get_Money

This message appears if max cash option has been activated and max value has been exceeded. The machines signalise to get money from the cash drawer.

Err_Coll.

This message indicates that an error of connection to PC occurred during accessing to an external PLU.

Err_33 Date

This message indicates that entered date precedes the last date stored into the fiscal memory. Reset the machine and enter right date when requested.

Ins. Paper

Indicates to operator to insert the paper under the slip printer.

Ins. Operator

Indicates to enter the number of operator before starting transaction.

Closing

This message advises to activate the daily closing procedure.

Err. LoGo FM

This message advises that logo stored into the fiscal memory is different from logo stored into the eprom. The machine doesn't work (fiscal memory error)

6.2. Error warnings displaying a number code

Message on display	Meaning	
Err_1	Wrong setting	
Err_3	Clock error	
Err_4	Key not recognised	
Err_5	Transaction Overflow	
Err_6	Wrong eprom version	
Err_7	Function not allowed	
Err_8	Item code not found or not programmed	
Err_9	Insufficient change	
Err_10	Slip off	
Err_11	Withdrawal is required	
Err_12	Fiscal Memory Overflow	(block)
Err_13	Fiscal Memory Malfunction	(block)
Err_15	Fiscal Memory not found	(block)
Err_16	Negative total	
Err_18	Fiscal Memory full	(block)
Err_19	Fiscal data corrupted	
Err_20	Finish receipt	
Err_21	Insufficient voltage to printer (less than 20V)	
Err_22	End of Receipt paper	
Err_23	End of Journal paper	
Err_24	Accounting operation invalid	
Err_25	Currency code don't exist	
Err_26	PLU code out of range	
Err_28	Writing error in fiscal memory	(block)
Err_29	Reading error in fiscal memory	(block)
Err_30	Serial interface missing	
Err_31	Only possible after fiscal reset	
Err_32	Too many adjustments	(block)
Err_33	Date previous to the last date in fiscal memory	
Err_34	Records are full in fiscal memory	
Err_39	Function not valid in training mode	
Err_40	More than daily maximum (fiscal reset)	
Err_42	It's obligatory to indicate operator	
Err_43	Print head lever raised or too hot	
Err_44	Fiscal memory and RAM data do no correspond	
Err_45	Compulsory total at end of receipt	
Err_46	Subtotal press is required	
Err_47	Modem error	
Err_51	Shutdown signal	
Err_52	Subtender not activated	
Err_53	Eprom version error	
Err_ 83	Two cases: EJ fault or EJ not recognised (i.e. EJ initialised by another machine)	
Err_ 84	EJ not inserted	
Err_ 85	EJ not initialised	
Err_ 86	EJ full (only daily closing operation is possible)	

Other messages relating to optional accessories can be found in the instruction manuals of the individual accessories.

7. TECHNICAL ASSISTANCE

The Technical Centres carrying out any maintenance must comply with some requirements established by the Law on the fiscal cash registers, use proper equipments and hold a well equipped spare parts warehouse, and a deep knowledge on the products and all their functions in order to re-establish the working state.

In this chapter, we give some simple operating instructions to staff that carries out technical assistance of products manufactured by Ditron, particularly for the product Nesso, that is the subject of this manual.

7.1. Opening the cabinet

All maintenance intervention requiring the cabinet to be opened, need as follows:

- Place the product on a flat surface
- Disconnect the power supply from the mains
- Disconnect the cash drawer
- Disconnect any serial peripherals
- Remove the fiscal seal and completely unscrew the screw below

- Push the upper (body) towards the rear of machine holding the base (bottom), thereby releasing the cover from the hooks on the front part of base

- Raise the body turning it on about 30 degrees relatively to the front hooks

- At this point you will get free access to the boards inside the machine to perform the service operations.

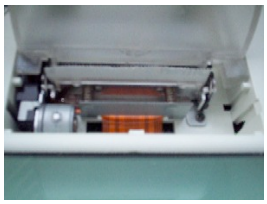
7.2. Replacing the cutter

Just under the transparent cover that gives access to a paper of Nesso there is a small niche which is protected by plastic door. The manual cutter is fixed here.

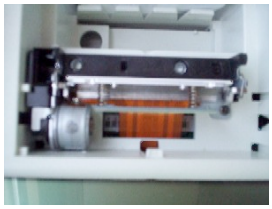
In order to open this niche in case of cutter replacement or for access to the printer without removing the fiscal label (f.e. to remove the rest of paper that can block operation and jams the paper) do the following:

- insert a screwdriver into the slot to release the plastic door

- You will then have an access to the printer compartment



- The complete printing mechanism (motor, head, flat cable) will be visible



7.3. Spare parts

As above said to make service of this product it's necessary to have required spare parts. Replacement of parts, except fiscal memory, which can be replaced only by the producer and the Ditron EJ that can be replaced by the end user, must be made by qualified personnel as part of approved laboratories.
The complete list of spare parts and related codes and prices is available on this site www.ditron.net in dealer's area.
As an examples here given some of the spare parts that can be used by laboratories.

- NESSO mainboard code MPZ333
- Switch code. MPL001
- Switch cable code. MPZ331
- Cutter code. MPB134A
- Printer case NESSO code. MPC274
- Transparent papers cover NESSO code. MPC272
- Transparent roll NESSO code. MPC271
- Printer code.MPG0033
- Printer interface code. MPZ334
- Display board code. MPZ336
- Keyboard Nesso MPZ228Z
- Cable 8-wires code. MPM176
- Cable 30-wires code. MPM178
- CON2 with cable 16-wire code MPM177
- Power cable mainboard-interface code. MPZ332
- Cable 16-wires code MPM177

8. BACK-UP BATTERY

Ditron Nesso is equipped with a backup battery for fiscal data and the main programming retention. This battery has the following specifications:3,6V 140-160 mAh rechargeable, NiMH type.

If the product remains unused for a long time without being plugged in you may receive the following message on display:

RECHARGE BATT.

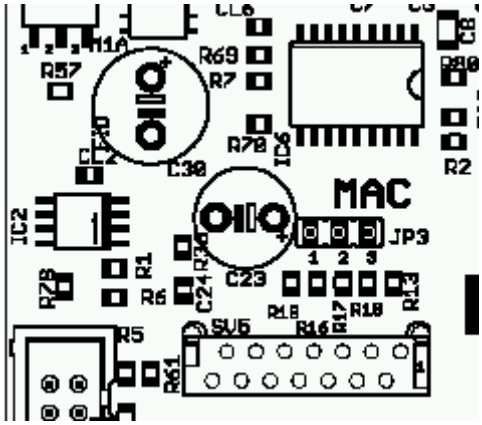
Just simply use the product for several minutes to restore normal functionality. However, if the problem will appear every time you switch on, the backup battery can be replaced by technical support service with a battery of the same characteristics.

9. FIRMWARE LOAD

The fiscal cash register Ditron Nesso is not equipped with an EP-ROM or FLASH ROM replaceable by Technical Assistance Service. Firmware is stored in the machine's internal memory o on the CPU board and can be loaded using a serial port using appropriate software.
The details of this procedure will be subject of a technical note attached to the software which is available to Ditron dealers and authorized technical assistance centers.

10. MAC PROCEDURE (MEMORY ALL CLEAR)

On the main board there is the connector (JP3) with three pins. It's used to make the master reset (MAC) or restart of ECR.



During normal operation a jumper shorts the pins 1 and 2 of the connector. To run MAC move the jumper to short-circuit pins 2 and 3.

The procedure to run the MAC is as follows:
1. Turn off the Nesso through the switch.
2. Move the jumper in position 2-3
3. Turn the Nesso on. The display shows a series of 8
4. Press "C". Display shows the word "Total Clear?"
5. Press "CONFIRM". A set of 8 appear again on the display.
6. Press "CONFIRM". The display shows the current date, update it (if necessary) and depress "CONFIRM"
7. The display shows the date followed by a question mark "?", check the data and type "CONFIRM"
8. The display shows time. Check and update (if necessary) and type "CONFIRM"
9. The display shows a counter that visualizes the progress of master reset, after the machine prints a receipt containing the data:

1.0B (firmware version) **NESSO** (name) **110706** (date of issue) **83BA** (check sum) **01** (model) **TS 123456** (serial number) **2150** (available zeroings) **1** (MAC executed)

10. Return the jumper in position **1-2**

NOTE

ATTENTION: Please note that the recent changes in law does not permit the set a date prior to the last recorded in the fiscal memory, and if that eventuality is made the machine stops and signals ERR 33 ("wrong date"). To correct this error you need to repeat the restart.

It 'very important not to make a mistake entering future date, because it will causes the cash register be unusable.

It's also possible to perform the "Soft Initialization" which leaves unchanged all programming of the machine. If you don't need to run MAC to restart the product from a fatal error, but f.e. in diagnostic purposes in the verification period, you can proceed with the SOFT INIT, rather than a HARD INIT.

The Soft init or **partial MAC** leaves unchanged any programming such as departments, PLU, options, (remember that the receipts header is stored in fiscal memory and not cleared by MAC). However, use **partial MAC** part very carefully and take care to check that the programming data is "intact" and not changed as a result of serious errors restored only by the MAC TOTAL.

To perform a soft INIT instead of hard INIT you can press "C" button in paragraph 5 of the described sequence, and follow the next steps.

If the cash register is fiscalized, each ECR restart increments a counter which is contained fiscal memory. This counter controls the total number of carried out resets, which by law can not be greater than 200. Exceeding of this limit will cause ECR to be blocked and you can do only fiscal memory reading.

11. FISCALIZATION PROCEDURE

To fiscalise the cash register, type the following sequence in SET mode:

3150 <CONFIRM>

The cash register asks confirmation of the operation which is carried out when <CONFIRM> is pressed.
If the fiscalisation is confirmed, on the display appears the last date registered in the fiscal memory.
Make sure that this date is correct before accepting it using the <CONFIRM> key. If a mistake occurs, it will not be possible to program a date prior to the fiscalisation date.
Once the date has been checked and accepted, the cash register is fiscalised and it is printed a receipt with thee message:

"ECR FISCALISED".

Fiscalisation resets all counters, but does not effect the programming of the machine.

12. ELECTRONIC JOURNAL

The Electronic Journal (EJ) allows to record sales data in an electronic memory instead of a paper journal. The EJ is a 32MB (minimum) flash memory.
32MB allow to store up to 230.000 receipts, for a period of 5 years (assuming 100 receipts per day). See the following table:

ELECTRONIC JOURNAL LIFE		
	CHARACTERS	**BYTES**
N. chars per line	12	12
N. blanks per line	2	14
N. lines per receipt	15	210
N. receipts per day	100	21.000
N. days per year	300	6.300.000
N. years	5	31.500.000
		TOTAL MB: 32

12.1. Data protection

Several protection features have been projected to prevent damage and involuntary modification of data into EJ.
EJ data protection is ensured by the following systems:

- an electronic protection between memory and connector
- a proprietary writing algorithm
- a box where memory is plunged into epoxy resin ensuring inaccessibility, tampering, corruption and preservation from dust and humidity

12.2. Procedure for the Electronic Journal initialization

The cash register comes with a blank *EJ* to be used for fiscal purposes. The initialisation procedure is mandatory before starting any operation after fiscalization. This procedure is also necessary ***every time*** when new *EJ* is installed.

IMPORTANT: always keep a spare *EJ* available. The cash register will not work when the *EJ* runs out or is missing, as well as a traditional cash register cannot work without a journal paper roll.

In order to start initialization of a new *EJ,* proceed as follows:

In SET mode: **4 → KEY**
Type: **3152 →TOTAL**

The Operator Display will show the following message:

INITIALIZE. EJ CONFIRM ?
EJ INITIALIZED

At this point, the cash register prints a non fiscal receipt bearing information important for data storage, which must be written on the self adhesive label on the EJ box. This label is useful for storage and classification of the EJ devices.

INITIALIZE. EJ
COD.01 032M 07-05-03 09:52

Cod.01 = EJ serial number
032M = EJ memory capacity
07-05-03 = EJ start date

Initialization Receipt

Electronic Journal. 32M N° ____	*Memory Capacity and Serial Number (COD) EJ*
ECR. Model._____	*Cash Register Model*
ECR Serial no. _____	*Appliance serial number*
Starting date_____ end_____	*Start date/ End date period of EJ of use.*

EJ label

12.3. Electronic Journal replacement

It is absolutely impossible to issue fiscal receipts when the EJ is full. At this extent, there are various checks that indicate the need to replace the *EJ* starting 99 Z-closures before it actually runs out!
The only thing to do in this case is to get ***immediately*** a new EJ, in order to be ready to replace it when necessary.
NOTE: When the number of residual Z-closures in the EJ **equals one**, the device memory could become full during usual cash register use, that is while fiscal receipts are being produced.
In this case, an error signal on the display and a prolonged beep will warn the user that the EJ has run out and Z-closure is the only procedure allowed at this stage.
From that moment onwards it will no longer be possible to go on with sales on that EJ: it has to be replaced.
Following memo helps people to properly carry out the EJ replacement:

1. Carry out the fiscal closure of the current *EJ*
2. Remove the EJ
3. Fill in the label with the serial number and start date of the new EJ
4. Properly insert the new EJ
5. Switch on the machine and carry out the initialization procedure

Fill in the label of the old EJ with the end date and store it carefully.

To replace electronic journal follow the described procedure. EJ is accessible on the bottom part of the machine.

Once you open the door you can easily extract the EJ, releasing it from holder in plastic.

The new EJ with the same characteristics, and provided only by authorized Ditron dealers,

can be inserted in the same place, paying attention to the contacts orientation.

Ditron ECR have an automatic mechanism that signals the completion of EJ about 100 days before it runs out.

12.4. Diagnostic Test on EJ state

In case of EJ warning (ERR. 83, ERR. 84) a diagnostic test can be launched in SET mode

<350> <CONFIRM>

This function can also be used to test an EJ initialised on a different machine and showing some failures (Err.83).

The machine prints out one of the following reports depending on the EJ state.

NO EJ (if no EJ is installed in the machine)

```
  EJ REPORT
  ---------------------
  STATE: 00
```

EJ KO (error while accessing the EJ)

```
  EJ REPORT
  ---------------------
  STATE: 01
```

BLANK EJ (EJ not initialised yet)

```
  EJ REPORT
  ---------------------
  STATE: 02

   CID:   xxxxxxxxxxxxxxxx          (EJ ID number)
          xxxxxxxxxxxxxxxx

   CSD:  xxxxxxxxxxxxxxxx           (EJ operational ID)
          xxxxxxxxxxxxxxxx

01                                  (EJ protection state data)
00000000
00000000

??????????

COD.?? 032M dd-mm-yy hh:mm
```

EJ open (operational state).
EJ full (only Z-closure permitted).
EJ closed (a new EJ has been initialised).

```
    EJ REPORT
  ---------------------
  STATE: 05(/04/03)             (open/full/closed state)
     xxxxxxxx                   (pointer to the first free EJ record)

CID:   xxxxxxxxxxxxxxxx         (EJ ID number)
       xxxxxxxxxxxxxxxx

CSD:   xxxxxxxxxxxxxxxx         (EJ operational ID)
        xxxxxxxxxxxxxxxx

01                              (EJ protection state data)
00000000
00000000

TV45xxxxxx                      (serial number of the ECR initialising the EJ)
```

COD.xx 032M dd-mm-yy hh:mm (assigned EJ code and initialisation date)

FILLING: xx% (EJ filling percentage)

EJ initialised by another ECR

EJ REPORT

STATE: 07 (EJ state)

CID: xxxxxxxxxxxxxxx (EJ ID number)
xxxxxxxxxxxxxxx

CSD: xxxxxxxxxxxxxxx (EJ operational ID)
xxxxxxxxxxxxxxx

01 (EJ protection state data)
00000000
00000000

TV45xxxxxx (serial number of the ECR initialising the EJ)

COD.xx 032M dd-mm-yy hh:mm (assigned EJ code and initialisation date)

EJ with incorrect data (unknown data)

EJ REPORT

STATE: 06 (EJ state)

NOTE: At the end of the report the ECR tests the last block data. If incorrect, it's printed again.

STATE: 01 (to show writing errors)

12.5. EJ Re-printing

One of the advantages of having an EJ is being able to decide which data (relating to sales in a particular period) are to be re-printed and when.
EJ data re-printing is very simple.
In SET mode: 4 → KEY
Enter the sequence:

160 →CONFIRM
166 → CONFIRM

On the display, the current date is proposed as the start date

Set date: **dd/mm/yy** and press → **CONFIRM.**
The end date appears on the Display.

Set the end date and press → **CONFIRM**

In case of command 166 it is possible to specify also the start time and end time of the receipts.
If the selected start and end date are the same day, it is possible to carry out an even more selective research. The cash register will ask you to select the receipt/s (number range) that you wish to re-print. Entering the number "0" all the receipts are printed.

13. SPECIAL FUNCTIONS

There are three types of special functions:

1. The ones which can be activated in REG mode
2. The ones which can be activated in READ mode
3. The ones which can be activated in SET mode.

13.1. SPECIAL FUNCTIONS IN REG MODE

a) By entering: **<1> < FUNCTION>**

on the display appears **NAME:**. By typing characters as on the alphanumeric table (max 16 characters), it is possible to obtain a variation in the description of the next sale. Digit **<CONFIRM>** to accept data typed.

b) by entering **<2> <FUNCTION>**

on the display appears **VAT NUMBER**; if using the alphanumeric characters, a tax code or a VAT number, these appear on the receipt. Digit **<CONFIRM>** to accept data typed.

The tax code or VAT number must be entered very carefully as they contain control characters which the machine will not accept if they are not correct. This function can be activated with a single key (cf. programming the keyboard).

c) by entering **<5> <FUNCTION>**

The machine print a copy of last receipt issued.

13.2. SPECIAL FUNCTIONS IN READ MODE

a) by entering **<0><CONFIRM>**

on the display appears the total cash in the drawer.

b) by entering **<1> <CONFIRM>**

On the display the total daily sales which will be recorded in the fiscal memory will appear.

13.3. SPECIAL FUNCTIONS IN CLOSING (Z) MODE

There follows a list of special functions which it is possible to program and their activation codes.

List of Codes for special functions – FISCAL MEMORY READING

10 = Print of Fiscal Memory content
11 = Print of Fiscal Memory content from number to number
14 = Print of Fiscal Memory content from date to date
15 = Print of Fiscal Memory content from date to date without details

13.4. SPECIAL FUNCTIONS IN SET MODE

Di seguito riportiamo le funzioni speciali che è possibile programmare ed i relativi codici di attivazione

10 = Receipt printing loop
16 = Memory dump
17 = Fiscal memory dump
20 = Receipt printing loop
32 = Programming options of operators
40 = Input serial number
51 = Keyboard single key input/fix comma
52 = Program keyboard
53 = Print keyboard program
57 = Position of key CONFIRM
58 = Position of key SELECT
59 = Position of key END
78 = Deactivate training mode
79 = Activate training mode
88 = Deactivate connections
89 = Activate connections
103 = Print drawings
160 = Print out of EJ content
166 = Print out of EJ content including data not authenticate by the SEAL (SIGILLO)
180 = Print out the list of EJ initialized on that machine
291 = Article management option
300 = Start autotest
350 = Diagnostic test for the EJ state
3150 = Fiscalization
3152 = EJ initialisation
3443 = Date of assistance call
9950 = auto-off function (for battery operated model)
9997 = Programming password for READING (X) mode
9998 = Programming password for CLOSING (Z) mode
9999 = Programming password SET mode

All these special functions must be carried out in SET mode.

13.5. Receipt printing loop

The following sequence must be entered:

<10> <CONFIRM>

The cash register will make a cycle of receipts every 5 minutes while the display shows the time.
The cycle is interrupted entering **<C>**.

13.6. Memory dump

The following sequence must be entered:

<16> <CONFIRM>

If the initial and final data of the memory to be read are entered using the alphanumeric keys and **<CONFIRM>**, the till will print byte by byte the contents of the memory area selected.

13.7. Fiscal memory dump

The following sequence must be entered:

<17> <CONFIRM>

The area of the fiscal memory chosen will be printed.

13.8. Receipt print loop

The sequence is

<20> <CONFIRM>

The till prints the sales receipts continuously.
Caution: if cash register is fiscalized, it should be in training mode before using this function.

13.9. Activate training mode

Type the sequence:

<79> <CONFIRM>

Using this function it is possible to use the cash register in training mode without entering fiscal receipts and without activating the fiscal memory.

This mode can only be used after a fiscal closure (Z-closure).

13.10. Deactivate training mode

Type the sequence:

<78> <CONFIRM>

Using this sequence it is possible to deactivate the training mode and re-establish normal operations.

13.11. Deactivate the connections

Type the sequence:

<88> <CONFIRM>

Using this function, all the serial connections are deactivated (**OFF LINE**).

13.12. Activate connections

Type the sequence

<89> <CONFIRM>

With this function all the serial connections are activated (**ON LINE**).

13.13. Print drawings

Type the sequence:

<103> <CONFIRM>

Using this function it is possible to print the complete sequence of designs available.

13.14. Date of assistance call

Type the sequence:

<3443> <CONFIRM>

This feature allows to set the date on which user must call for service. To disable the signal of technical support set the date to a very distant in time.

14. KEYBOARD PROGRAMMING

Refer to the following list of key codes to program the keyboard:

KEY CODES:

FUNCTION NAME	CODE	DESCRIPTION
FN_KEY	1	Operational key
FN_CLEAR	2	CLEAR
FN_LEFT	3	Cursor LEFT
FN_RIGHT	4	Cursor RIGHT
FN_BS	5	Backspace
FN_DEL	6	Delete
FN_INS	7	Insert
FN_CAP	8	Small/Capital letters
FN_ALT1	9	ALT 1
FN_ALT2	10	ALT 2
FN_NUM	11	Numbers + Subcode number (numerical pad)
FN_RFEED	12	Paper receipt feed
FN_JFEED	13	Paper journal feed
FN_DUMMY	19	NULL function
FN_UP	20	Cursor UP
FN_DWN	21	Cursor DOWN
FN_PGUP	22	Page UP
FN_PGDWN	23	Page DOWN
FN_ENTER	24	Confirm
FN_END	25	End, Exit
FN_SELECT	26	Select
FN_RONOFF	28	Receipt printing ON/OFF
FN_RTP2	29	Recalling of last 2 Totals
FN_SM	30	Multiple receipt
FN_RECL	31	Operator, Last Total
FN_SHIFT	32	Shift on Departments
FN_QTYSH	33	Quantity-shift
FN_MULT	34	Multiplier
FN_PRICE	35	Price
FN_DESCR	36	Description
FN_ENQ	37	Enquiry
FN_DPT	38	Department + SubCode (Department number)
FN_PLUID	39	PLU ID
FN_PLUCODE	40	PLU Code
FN_MOD	41	Modifiers (discount, surcharge, refund, void etc)+SubCode (modifierID)
FN_TENDER	42	Tender + SubCode (Tender ID)
FN_CURRCOD	43	Currency ID
FN_SUBTOT	44	SubTotal
FN_SUBPARZ	45	Partial Subtotal (it prints partial SubTotal and reset its Totalizer)
FN_COD	46	Codifier
FN_MOV	47	Cash flow menu
FN_CHIPMENU	48	Chip-Card menu
FN_FUNCT	49	Function ID (to run any function)
FN_OPDRW	50	Cash drawer opening
FN_OPER	51	Operator ID
FN_CLERK	52	Clerk & Waiter ID
FN_TIME	53	Date/Time
FN_CUST	54	Customer
FN_SLIP	55	Slip Printer menu + SubCode (Document ID:fiscal receipt, invoice, invoice on receipt etc)

FN_RTP	56	Recalling of last Total
FN_VATID	58	Fiscal Code/VAT ID
FN_CHIP	59	Chip Card
FN_PRLEVEL	60	Pricelist ID
FN_STDS	61	Sub-total/codifier/ Cash drawer opening
FN_COPY	62	Copy of Receipt
FN_MODEM	63	Modem remote connection
FN_PO	64	Withdrawal, Paid-out
FN_RA	65	Deposit, Paid-in
FN_ACCOUNT	66	Downpayment
FN_TABLE	67	Table ID
FN_BILL	68	Table-Bill closing
FN_TOPEN	69	Table-Bill opening
FN_VARIAN	70	Variance (options for dishes in restaurant applications)
FN_WEIGHT	71	Gross Weight (for Checkout scale)
FN_TARE	72	Tare (for Checkout scale)
FN_VALIDATE	73	Authentication (of documents printed on Slip Printer)
FN_PRNLIN	74	Free text printing
FN_COPYSLIP	75	Copy of receipt on Slip Printer
FN_EUREST	76	Coins supplying
FN_MACRO	77	MACRO Function + SubCodie (macro ID)
FN_FREE	255	Disabled key
FN_MACROEND	255	End Macro

SUB-CODES FOR MODIFIER FUNCTION (FN_MOD)

FUNCTION NAME	*CODE*	*DESCRIPTION*
ID_MOD_RTM	1	Refund
ID_MOD_VOID	2	Void of last line
ID_MOD_PVOID	3	Void of one of the previous lines
ID_MOD_TVOID	4	Void of the transaction-receipt
ID_MOD_ADISC	5	Amount Discount-item level
ID_MOD_ADISC_ST	6	Amount Discount-subtotal level
ID_MOD_ACHARGE	7	Amount Surcharge-item level
ID_MOD_ACHARGE_ST	8	Amount Surcharge-subtotal level
ID_MOD_PDISC	9	Percentage Discount-item level
ID_MOD_PDISC_ST	10	Percentage Discount-subtotal level
ID_MOD_PCHARGE	11	Percentage Surcharge-item level
ID_MOD_PCHARGE_ST	12	Percentage Surcharge-subtotal level
ID_MOD_ENTRTIK	13	Discount on Ticket

SUB-CODES FOR TENDER FUNCTION (FN_TENDER)

FUNCTION NAME	*CODE*	*DESCRIPTION*
ID_TEN_CASH	1	Cash
ID_TEN_CREDIT	2	Credits
ID_TEN_CHEQ	3	Cheques
ID_TEN_COUPON	4	Coupons
ID_TEN_CRCARD	5	Credito Cards
ID_TEN_CHIP	6	Chip Card
ID_TEN_NOTPAID	7	Unpaid
ID_TEN_VARIOUS1	8	1st Additional Tender
ID_TEN_VARIOUS2	9	2nd Additional Tender
ID_TEN_CURR1	10	1st Currency
ID_TEN_CURR2	11	2nd Currency
ID_TEN_CURR3	12	3rd Currency
ID_TEN_CURR4	13	4th Currency
	14	1st Sub-Tender
	…	
	40	40th Sub-Tender

SUB-CODES FOR NUMERICAL KEYS FUNCTION (FN_NUM)

FUNCTION NAME	*CODE*	*DESCRIPTION*
FNN_0	0	Number 0
FNN_1	1	Number 1
FNN_2	2	Number 2
FNN_3	3	Number 3
FNN_4	4	Number 4
FNN_5	5	Number 5
FNN_6	6	Number 6
FNN_7	7	Number 7
FNN_8	8	Number 8
FNN_9	9	Number 9
FNN_00	10	Double zero
FNN_000	11	Triple zero
FNN_POINT	12	Decimal Separator

SUB-CODES FOR DEPARTMENT FUNCTION (FN_DPT)

CODE	*DESCRIPTION*
1	Department 1
2	Department 2
…	
N	Department N

SUB-CODES FOR MACRO FUNCTION (FN_MACRO)

CODE	*DESCRIPTION*
1	Macro 1
2	Macro 2
…	
N	Macro N

Keys are numbered from 1 starting from the top left key and following from left to right direction ("X" standing for "not programmable keys").

X	2	3	4	5	6
X	**X**	**X**	10	11	12
X	**X**	**X**	16	17	18
X	**X**	**X**	22	23	24
X	**X**	**X**	28	29	30

Anyway a function code is always assigned. The function-code 255 disables the key.

To program a key, type the following sequence:

<53> <CONFIRM>

Key position **<CONFIRM>** (to indicate the key to be programmed)
Function Code **<CONFIRM>** (to indicate the function to assign)
(i.e. 077001 <CONFIRM> = MACRO 1 Function)

When you enter the keyboard programming menu, the machine requires the position of the key to be programmed. Then the machine displays the function-code currently assigned and waits for this function code to be confirmed or replaced by the new function-code.

To exit the programming menu, press **<CREDIT/END>**.

For instance, in order to assign KEY no. **4** a MACRO to sell 10 euros to Dept 1, type the following sequence:
<499> < CONFIRM > <4> < CONFIRM > <077001> < CONFIRM > <011001> < CONFIRM > <011000> < CONFIRM > <038001>< CONFIRM ><042001>< CONFIRM >< CREDIT/END >

Printing a list of the current Function Codes might be helpful.

The sequence is:

<52> <CONFIRM>

Programming the *CONFIRM/SELECT/END* keys

The programmable functions correspond to single positions on the keyboard defined by specific parameters in the table of configurations of the cash register and are reloaded into the RAM when a MAC is done.

In standard configuration, ***CONFIRM, SELECT*** *and* ***END*** functions are assigned to **TOTAL**, **SUBTOTAL** and **CREDIT** keys**.** Such functions may anyway be assigned to other keys/positions.

For instance, in order to assign KEY no. 43 the **Dept 1** (038001) and the **END** (25) Functions, enter the following sequence:

<53>< CONFIRM > <43> < CONFIRM > <038001025> < CONFIRM > <END>

WARNING : These three keys are essential for any operation of the machine. Machine can't wotrk without.

15. MAIN TENDERS

Ditron ECRs have 13 main tenders and 17 sub-tenders. They allow to close the sale receipt
Tenders are the closing functions of the transaction.

Programming the Tenders

Main Tenders cannot be disabled. It's only possible to set some parameters.
Sub-Tenders are settled by the User and always refer to a Main Tender.
In order to program a Main Tender or a Subtender, enter the SubTender menu and press CONFIRM.
Once in the menu, the machine requires the number of the Tender to be modified. If the number entered is bigger than the number of available Main Tenders (13), this means that a Subtender (14 to 20) is intended to be modified.
The programming sequence is:

- Tender number (1 to 13) or SubTender number (14 to 20)
- Select YES/NO to enable/disable (only) the SubTender. "NO" ends the programming sequence
- NAME: alphanumerical description to be assigned to the Tender
- Main Tender Code: reference Tender of the SubTender
- Limits: sets the limits of the parameters of the Tender. The parameters are entered with 6 digits (MmmRrr), as follows:
    - M Maximum value admitted for the first digit of the amount
    - mm Maximum number of digits admitted for the amount
    - R Maximum number of digits admitted for the first digit of the change due
    - rr Maximum number of digits admitted for the change due.

  NOTE: if Mmm = 000, the amount limit check is disabled
  if Rrr = 000, the change due limit check is disabled

- Default value: Default value of the Tender (only in case of SubTender)
- OPTIONS: is a weights sum between 0 and 3966, coming by the weight sum of the enabled options (only in case of SubTender)

OPTION	WEIGHT
Password requirement	0002
Mandatory input	0004
To be confirmed by EFT	0008
Mandatory SubTotal	0016
Drawer opening	0032
Drawer Number (0, 1, 2 or 3)	0256 x Drawer Number (0-256-512-768)
Totalizer updating	1024
Replace description on the receipt	2048
Change due in Coupons	4096
Unpaid updating	8192

The Main Tenders are pre-set, non-configurable and are generally available on the standard keyboard. They are the following:

TENDER	CODE
Cash (default currency)	1
Credits	2
Cheques	3
Coupons	4
Credit Cards	5
Chip-Card	6
Unpaid	7
New Tender 1	8
New Tender 2	9
Foreign currency 1	10
Foreign currency 2	11
Foreign currency 3	12
Foreign currency 4	13

As for all the functions, it is possible to associate a key to a sub-tender.

Substituting the normal closure keys on the keyboard with payment type keys, it is possible to personalise completely the handling of the transaction closure.

To avoid the possible shortage of keys, it is possible to fix on the keyboard a key to which the function sub-tender FN_TENDER (42) + SubCode (0) has been assigned. Using this key preceded by a number (from 14 to 40), it is possible to access the 17 sub-tenders directly. In this case, however, it will not be possible to close the transaction inputting an amount.

It is possible, for example, to get different descriptions and freely assign the types of closure or assign in advance a basic value to the keys, for example programming a sub-tender value:

50,00 €

100,00 €

Simply depressing the 50,00 key will allow the cash register to ring up a payment using a bank note worth 50,00. Otherwise, programming the following descriptions:

AMERICAN EXPRESS

VISA

it is possible to handle different credit card keys, for each type of card, with a separate tally for each one.

Descriptions can be added to values:

"TICKET AT 5,00"

"TICKET AT 10,00"

"TICKET AT 25,00"

Three "voucher" keys with the value pre-set and separate tallies.

It is possible to ask for a supervisor password for every type of closure so as to allow only authorised personnel to input, for example meal tickets or credit card transactions.

It is also possible to oblige the clerk to input a certain figure, or prevent him from doing so. The multiplier key can be used to register different types of payment of elements amounting to 1, for example 3 bank notes of 5,00 Euro.

The amounts paid in using the different types of payment increase the totalizers of the till for every type of basic tender and also those of the clerk.

For example, the amounts paid in with the payment type CASH, will be accumulated in the totaliser both for cash and those for quantity and price, considered as the number of items rung up.

16. GRAPHICS AND PROMOTIONS

Ditron ECR have three different types of graphics which make it possible to personalise the receipt or apply promotions on sales or the image of the shop. In particular they can be divided into:

- departmental graphics
- promotions
- good luck

16.1. Standard, time programmed and logo graphics

To activate the graphics, use the usual programming method with END, SELECT and CONFIRM.

Once they have been entered in the menu, the machine will ask the clerk to choose between the **STANDARD**, department graphics at the bottom of the receipt, **TIME PROGRAMMED** graphics (at the bottom of the receipt only during the period required) or **LOGO** (printed at the top of the receipt).

The machine has 21 internal graphics, numbered 1 to 21, which can be used on any of the aforementioned types of receipt. To view them, enter the code **<103> <CONFIRM>** or **<500> <CONFIRM>**.

During graphics programming, the machine will ask if the alphanumeric description of the graphics. If it is necessary to change it, it is possible to proceed in the normal way (see alphanumeric programming) remembering that the number of characters available on a line is 24, and that the characters programmed are superimposed on the graphics, and that the number of lines to program depends on the height of the graphics.

If the answer "YES" is given to the question concerning modifying the alpha messages, the till will no longer print the alpha messages specific to the images (in ROM), but will substitute them with programmable messages (in RAM) "connected" with the image itself.

A total of 10 lines are provided for in the RAM and the image "contains" 10 pointers which show which of the ten lines will be used to print the alpha messages. Note that these 10 lines are all "shared" between the images and that they are thus essentially the same for all. On the other hand, the default messages in the ROM provided for each design are specific to the individual design and are different from design to design.

"YES", therefore, instructs the machine to use the programmable messages and so the following message comes up:

CANCEL ALPHA Y/N

and requires an answer "YES" or "NO".

With an answer "YES", the default alpha messages provided with the design (in the ROM) are recopied in the "programmable" messages (RAM), writing over them and so the standard ones will appear on the receipt. If however, the answer is "no", the messages already programmed will remain unchanged (if already programmed) or will be inserted if programmed with the usual programming system using the alphanumeric keys.

It should be pointed out, finally, that the alpha messages accompanying the designs are of two types:

-on the side

-underneath

The ones on the side are printed lines superimposed on the actual design, and allow test to be written to the left and right of the drawing and also within it. The ones underneath are lines of print below the image and so do not become part of it.

The LOGO graphics allow the description of the receipt header to be extended and the introduction of personalised graphics such as the emblem of the company, and are dealt with separately as this function can only be activated using separate software which must be specifically requested.

In the case of time programmed graphics, there is a table containing 10 lines, which the machine proposes in order, beginning with the first. For each one, identified by the indication on the display (NUMBER x), it is possible to program:

- the number of the associated design (DIS)
- the date to start printing the design (from)
- the date to stop printing the design (to)

It is therefore possible to overlap the dates so that the machine will automatically print different designs in contiguous periods.

16.2. Promotions

In this menu it is possible to activate JOLLY receipt YES/NO, the FREQUENCY with which the joker appears when a certain number of receipts having a value above the limit (MINIMUM) programmed and the default description is "JOKER".

To ensure that the prize is totally random, the machine chooses the emission of at random with a tolerance of 10% on the value of the frequency. For example, if a prize is programmed every 100 receipts, it could come out anywhere between the ninety-fifth and the hundred-and-fifth.

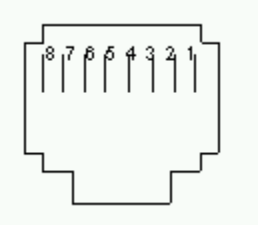
Further in the same menu it's possible to activate points management. (POINTS HANDLE YES/NO), the VALUE of one point, which means the amount associated with one point. Points will be generated for receipts with total amount greater then MINIMUM programmed. The TYPE can be programmed using the following values:

Description	**Weight**	**BIT**
Points applied only for customer or chip cards:	1	1
Points applied only for chip cards	2	2
Subtract the minimum total to calculate points	16	4
Possible to get bonus (article signed as bonus)	32	5

Note: Point applies always if customer set Bit 0 and Bit 1 equal to 0.
To define a number of points will be applied it's necessary to use the following formula:

17. SERIAL CONNECTIONS

Ditron Nesso has a serial connection port of RS 232 type.
On the back panel of the machine there is 8-pin connector RJ45 type which is used for serial link.
The pin-out of this connector is non-standard, the order of the pins is from one to eight, starting from the right when it is in front of you as shown on the right. The scheme of connecting cables is described in following chapters.



NOTE: Bu sure that machine is off before making any connection of any serial device to RJ45 of Nesso.

17.1. Programming and use of the serial ports

To program the serial communications ports, follow the following steps.

- Select the program menu of Port 1 depressing **<SELECT>** until **"PORT"** 1 is shown on the display, then confirm with CONFIRM.
- Select the peripheral that you want to connect to Nesso:
  "OFF" - nothing
  "HOST PC" if a direct connection to a PC is required
- Confirm the choice.

Once the selection is made by depressing **TOTAL**, the specific program is accessed.

If connecting a Host, proceed as follows:
The protocol address is made up of 5 numbers as follows:
1st figure (left) = speed
"1" = 1200 bit/sec
"2" = 2400 bit/sec
"3" = 4800 bit/sec
"4" = 9600 bit/sec
"5"= 38400 bit/sec (reserved in the case of 485)
"6" = 57600 bit/sec
"7" = 115200 bit/sec

2nd figure = parity
"0"= parity off
"1" = parity even
"2" = parity odd

3rd figure = number of stop-bit
"1" = only one stop-bit
"2" = two stop-bits

4th figure = number of bits/character, fixed at "8"

5th figure =flags organised in "weights" added to give the resultant figure: the figure can vary from "0" to "7", so there are three possible bit-flags, having the weight "1", "2", and "4". The value "8" is reserved for future use for expanding the flags.
Bit 0 = (weight 1): if active, indicates that the control check-sum will be transmitted and awaited in reception: if deactivated, the check-sum will not be used.
Bit 1 (weight 2): if activated, indicates long time-outs, while if deactivated indicates short time-outs.
Bit 2 (weight 4) if activated, shows that the transmission phase in the type A 232 is not required, i.e., the transmission of a message happens starting directly with STX…ETX, eliminating the sequence ENQ-ACK and the end of transmission EOT: if deactivated, it indicates that the connection phase is required (see transmission protocols).

Set the various transmission options selecting "yes" for each one if the active option is required, and "no" if the option is not required.
Pressing **<CONFIRM>** it is possible set various connection options, press "YES" to enable them and "NO" to disable them.

The options are:
"REMOTE FILES"
Depress "YES" if the till must contact an external archive to find sales data regarding items.

"KEYBOARD EMULATION"
Depress "YES" if the till needs to be able to transmit messages of the data-collect kind and process commands which exactly reproduce the sequences entered from the keyboard, i.e. to enable the Host to send "keyboard sequences".

"DATA COLLECT"
Depress "YES" if the till should send data-collect type messages for functions, i.e. that it keeps the host informed of all functions that have been carried out by the cash register.

"PRINT ECHO"
Depress "YES" if the till should send the image of all lines printed on the receipt, i.e. if it is necessary to send X-type data-collect messages.

"INTERACTIVITY"
Depress "YES" if the cash register should send the Host and image of all the input sequences entered by the clerk via keyboard, in order to get host authorisation for the said sequences before making them operative.

"**REMOVE FILES UPDATE"**
Depress "yes" if the "update" should be operational when the cash register accesses the external item archive, or when the till must send G type messages.

"CHANNEL ADDRESS"
(Future use) Leave Zero.

To activate the connection, depress

89 <CONFIRM>

On the display will appear the message ON-LINE to confirm activation.

To deactivate the connection, depress

88 <CONFIRM>

Additional information on the serial ports programming are available on the Serial Protocols Manual

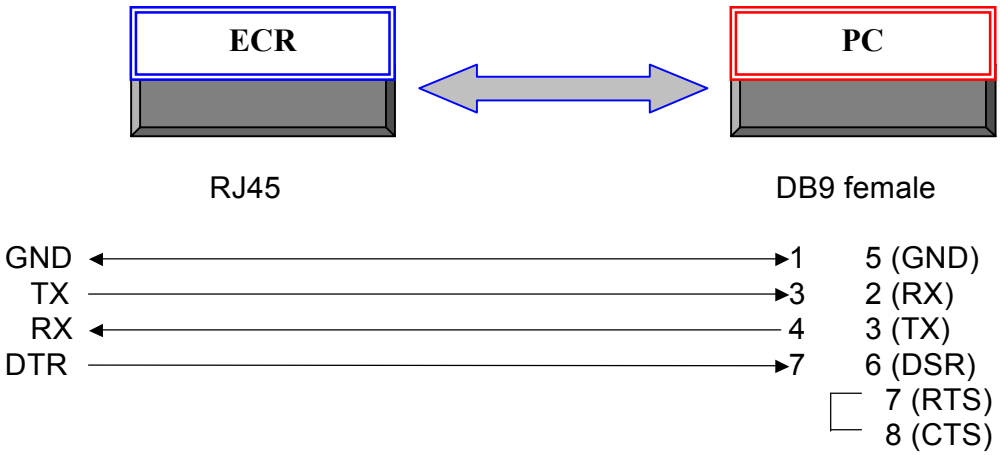
Pin-Out description

PIN	PORT 1
1	GND (ground)
2	TR-
3	TX
4	RX
5	RTS
6	CTS
7	DTR
8	TR +

The signals to consider in the case of RS232 are:

GND: ground of reference
TX: signal "transmission of data" out from cash register
RX: signal "reception of data" to cash register
RTS: "request to send" signal out from cash register
CTS: "clear to send" to cash register
DTR: "data terminal ready" signal out from cash register. This signal is connected internally to the mains supply, so shows ACTIVE when the machine is on and OFF when switched off.
+5: Positive tension of 5 Volts stabilized. The maximum current that can be taken in is 500 milliamperes.

17.2. Scheme of direct connection to PC RS232 (DB9 Female connector)



18. DIAGNOSTIC TESTS

It is possible to carry out a series of diagnostic tests to ascertain the correct functioning of the cash register.
To carry out these tests, enter a code followed by the **<CONFIRM>** key, while in **SET** mode.
The following are the possible tests.

- **PRINT TEST**

300 <CONFIRM>1 <CONFIRM>

A slip will be printed with all the lines containing the whole range of elements present on the thermographic head.

- **DISPLAY TEST**

300 <CONFIRM>2 <CONFIRM>

Carries out a test of each digit.

- **ROM/RAM TEST**

300 <CONFIRM> 4<CONFIRM>

Carries out a test of the ROM and the RAM printing the version of the firmware present.

- **CLOCK TEST**

300 <CONFIRM> 8 <CONFIRM>

Carried out a test of the clock printing the date and the time.

- **BUZZER TEST**

300 <CONFIRM> 16 <CONFIRM>

Carries out a test of the buzzer

- **DRAWER OPEN TEST**

300 <CONFIRM> 32<CONFIRM>

Opens the drawer directly

- **Keyboard Test**

300 <CONFIRM>64<CONFIRM>

Each individual key is tested and shows on the display the code of the key depressed. The switches (e.g. print head lever) can be checked by means of a series of 1 and 0.
Exit test mode depressing <C>

- **FISCAL MEMORY TEST**

300 <CONFIRM> 128 <CONFIRM>

Carries out a test by reading the fiscal memory. The lip printed shows the serial number, the date of the first time it was switched on, the fiscalisation date, resets carried out, repairs, and resets still available.

- **FISCAL MEMORY WRITING TEST**

300 <CONFIRM>256<CONFIRM>

Writes a zone given over to the fiscal memory.

- **POWER FAIL TEST**

300 <CONFIRM>512<CONFIRM>

Carries out a power fail test. The parameter is shown during the test as the machine switches itself and on again. This parameter must be more than 300.
This test is also a second print test and the parameters printed on the slop show the voltage, the temperature of the print head and printing speed.
The test may be interrupted depressing the <C> key.

- **SERIAL TESTS**

300 <CONFIRM> 1024 <CONFIRM>

Test the correct functioning of the external connections board.

A cable connecting the two serial ports together is required. (see Appendix D).

- **TEST BURN-IN**

300 <CONFIRM>2048<CONFIRM>

With this sequence the till goes into autotest and prints out every 5 minutes. The display shows the time.

- **MUTLTIPLE TESTS**

Putting together the codes of various tests it is possible to carry them out in sequence:

F.e.: **300<CONFIRM> 3 TOTAL>**

The machine carries out the print test followed by the display test.