luce x2

type: FST3

cafe

I / E

INSTALLATION AND MAINTENANCE MANUAL
Original instructions

MAN4200005 rel. 05 dated 02.04.2013

this manual is intended to describe the **luce x2** vending machine in its three versions: basic, TFT and touchTV; by using the same basic components, the three machines differ from each other in components and in the features specified later on; the descriptions supplied by this document are shared by all three versions, if not otherwise specified by the text.

luce x2

luce x2 con TFT

luce x2 touchTV

keyboard	traditional	traditional	central touch screen
service messages	two-line alphanumeric display	lateral graphical display	central touch screen
information messages	no	lateral graphical display	central touch screen
person sensor photocell	no	no	yes
illuminated panels	yes	yes	no

05	02.04.2013	Company names, directives updating ; TFT and touchTV versions added;
04	26.04.2011	First issue; this is release no. 4 (four) of this document for balancing and levelling the various releases of the manuals, applicable before, in various languages;
REL.	DATED	DESCRIPTION

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general guarantee conditions

these conditions regulate Rheavendors Industries S.p.A. / MPR S.p.A. 's obligations with reference to guarantee and repair; any other term or condition, either verbal or written, is not applicable, including those in the purchaser's purchase orders, if not explicitly accepted and signed by Rheavendors Industries S.p.A. / MPR S.p.A.; if the guarantee terms here below should be held not to be valid and/or lawful in the Country where the product is sold, they will not be effective whereas all the other clauses will remain valid and applicable;

1st the mechanical and electronic components of the machine are guaranteed for twelve months, starting from the sales date certified by the fiscal receipt;

2nd the guarantee shall be understood as the free replacement of any part of the machine that – at the manufacturer's unquestionable discretion – should prove to be originally defective due to manufacturing defects; the cost of sending the manufacturer machines, defective pieces and spare parts will be totally charged to the user's account; the manufacturer reserves the right to use new or reconditioned components for repair; if replaced, original components will be guaranteed for 12 months; the parts replaced under guarantee will become the property of Rheavendors Services S.p.A. (request for "Form PO 19.01/2b" Materials under guarantee – Authorisation to return);

3rd in case of irreparable failure or if a failure of the same origin is repeated, the manufacturer may – at its unquestionable discretion – replace the machine with another one, the model of which is either the same or an equivalent one; the guarantee of the new machine will be extended up to the original term of guarantee of the replaced machine;

4th all the parts that should prove to be defective due to negligence or carelessness (non-observance of the instructions for the operation of the machine), incorrect installation or maintenance by unauthorised personnel, transport damage or any circumstance – anyway – not due to the manufacturing defects of the machine are not covered by guarantee; the installation and connection with supply plants as well as the maintenance operations mentioned by the installation manual are also excluded from any performance under guarantee; the guarantee will not cover payment systems either; whether installed on the machine or supplied as an accessory, they are subject to their manufacturer's guarantee whereas Rheavendors Industries S.p.A. / MPR S.p.A. will just act as brokers;
all changes made to the machine and not agreed with the manufacturer in writing will involve the immediate termination of the guarantee period and anyway fall under the Customer's total responsibility;

5th the guarantee is excluded in all cases of improper use of the machine;

6th Rheavendors Industries S.p.A. / MPR S.p.A. will disclaim all responsibility for any damage that may be directly or indirectly caused to people, animals or things as a result of:
improper use of the vending machine; incorrect installation; improper energy or water supply; serious maintenance deficiency; actions or changes not explicitly authorised; use of non original spare parts;

in case of failure, Rheavendors Industries S.p.A. / MPR S.p.A. are obliged neither to compensate any economic damage due a forced stop of the machine nor to extend the guarantee period;

7th if the machine should be transferred to a centre designated by the manufacturer for overhaul or repair, the relative transportation risks and costs will be charged to the user's account; the freight charges of machines, defective pieces and spare parts are always understood as charged to the user's account;

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declaration of conformity

Rheavendors Industries S.p.A. / MPR S.p.A. declare that this vending machine has been designed and manufactured in compliance with the following directives and safety standards:

Directives:
2004/108/EC; 2006/95/EC; 2006/42/EC;
2002/95/EC (RoHS); 2002/96/EC (RAEE); 1907/2006/EC (REACH); 1935/2004/EC;

Standards:
SAFETY part. 2-75: (particular requirements for commercial dispensing appliances and vending machines) +
CEI EN 60335-2-75/A12;
EN 60335-1: 2002 + A1: 2004 + A2: 2006 + A11: 2004 + A12:2006 + A13: 2008 + A14: 2010 +
60335-1/EC: 2010;
EN 60335-2-75: 2004 + A1: 2005 + A11: 2006 + A2: 2008 + A12: 2010;

EMC:
EN 55014-1: 2006 + A1: 2009;
EN 55014-2: 1997 + A1: 2001 + A2: 2008;
EN 61000-3-2: 2006 + A1: 2009 + A2: 2009;
EN 61000-3-3: 2008;

EMF:
EN 62233: 2008;

manufacturer of the machine

Rheavendors Industries S.p.A.
Via Trieste, 49
21042 Caronno Pertusella
Varese
Italia

MPR Macchine Per Ristorazione S.p.A.
Via Milano, 257
20021 Baranzate
Milano
Italia

The Legal Representative

(A. D. Majer)

ISO 9001 certification


DET NORSKE VERITAS
QUALITY MANAGEMENT SYSTEM CERTIFICATE
Certificate No. / Certificate No. CERT-88862-2001-AQ-MIL-SINCERT
Si attesta che / This certifies that
Il sistema di gestione per la qualità di / the quality management system of
RHEAVENDORS INDUSTRIES S.p.A.
Via Garavaglia, 58 - 21042 Caronno Pertusella (VA) - Italy
Via Trieste 49 - 21042 Caronno Pertusella (VA) - Italy
È conforme ai requisiti della norma per i sistemi di gestione per la qualità
Conforms to the quality management systems standard
UNI EN ISO 9001:2008 (ISO 9001:2008)
Questa certificazione è valida per il seguente campo applicativo:
This certificate is valid for the following products or services:
Progettazione e produzione di distributori automatici di bevande calde e fredde
Design and manufacture of hot and cold drinks vending machines
Data Prima Emissione / First Issue Date 2001-07-18
Data di scadenza / Expiry Date 2012-12-12
Luogo e data / Place and date Agrate Brianza, (MB) 2011-05-24
Settore EA : 18
Edmea De Paoli
Lead Auditor
ACCREDIA
per l'Organismo di Certificazione / for the Accredited Unit
DET NORSKE VERITAS ITALIA S.R.L.
Zeno Beltrami
Management Representative


DET NORSKE VERITAS
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Certificato No. / Certificate No. CERT-11256-2002-AQ-MIL-SINCERT
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Via Milano, 257 - 20021 Baranzate (MI) - Italy
È conforme ai requisiti della norma per i sistemi di gestione per la qualità
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Vittore Marangon
Management Representative

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table of contents

in the listed chapters, the manual describes a

luce x2

vending machine in its hardware and software components for a complete and fully-aware use of all machine functions; due to the large variety of available options and the constant technical update of our vending machines, some special device or function might be indicated and described not in the manner you expect; in this case, do not hesitate to contact us;

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ATTENTION: this label applied next to the serial number label inside the vending machine points out that the instructions supplied by this manual must be carefully read before the installation and operation of the vending machine;

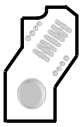
please, print this manual only if necessary; environmental protection is our common interest;

01.
legend

some general instructions that may be of use for reference to this manual;

01.01. abbreviations and pictograms

I = dispensing cycle of drinks based on instant products;
E = dispensing cycle of drinks based on instant products and coffee beans;
EE = as above, but with two coffee beans canisters;
BG = ice bench (cooling unit);
FP = dispensing cycle of cold drinks based on instant products (cooling unit);
BB = dispensing cycle of cold drinks based on syrups (bag syrups in box and cooling unit);
FBT = fresh brew tea;
⌘ = mixer for mixing the instant product with water;
VSF = worm screw pitch in the product canister (9 mm/18 mm);
§ = product stirrer of instant canisters;

 = espresso coffee brewer;

see the concerned manuals

01.02. symbols of attention

if the text is highlit by this symbol, it is recommended to pay special attention to the performance of the procedures described; if not carefully performed on safe conditions, they can be source of general danger;

if not properly performed, the actions marked by this symbol may expose to accidental contacts with electric voltage;

if not properly performed, the actions marked by this symbol may expose to accidental contacts with high-temperature parts;

the same symbols can be found inside the vending machine to specify the parts on which to act with the outmost care;

the symbol recommends the utmost attention during the actions described; the use of the service key intended to activate all machine functions when the door is open is only reserved to the technical operators who know the operation of the vending machine, who are aware of potential risks and who make sure they are operating on totally safe conditions;
the use of the service key shall be strictly limited to the time necessary to perform the actions requiring the use thereof; users shall be informed of the prohibition on using and approaching the vending machine;

the symbol means that it is forbidden to dispose of the equipment as urban waste and compulsory to provide for separate collection in order to prevent any potential effect on the environment and human health; strictly follow the provisions of the European Parliament's 2002/96/EC Directive;

01.03. tools

some tools commonly used and easy to find are necessary to act with this vending machine:

- a pair of scissors for electricians;
- a star screwdriver 4/6 mm;
- a set of fixed wrenches up to 13 mm;
- a set of socket head screws from 2 to 8 mm;

it may be of use to procure some expendables, such as disposable paper, single-use gloves, clean cloths, cups and a bucket for the collection of waste water;

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02. introduction

02.01. copyright information

this document contains some confidential information of Rheavendors Industries S.p.A. / MPR S.p.A.'s exclusive property; the content of this document can be neither disclosed in favour of third parties, nor copied or reproduced in any form whatsoever, either fully or partially, without Rheavendors Industries S.p.A. / MPR S.p.A.'s prior authorisation in writing; the utilisation, reproduction or disclosure of the technical information in this document can be protected by Rheavendors Industries S.p.A. / MPR S.p.A. according to the Law;

this manual is intended for the owner of the vending machine; it is an integral part of the machine and it shall be kept with it;

the information supplied by this manual are intended to achieve the best performances of the vending machine within the scope of application established by the Manufacturer; Rheavendors Industries S.p.A. / MPR S.p.A. reserve the right to improve future production without serving any prior notice and without assuming any obligation to update the products on the market; the manufacturer will disclaim all responsibility for any inaccuracy due to misprints;

02.02. rules

safety rules for using the vending machine

** ** pay special attention to the chapters and notes high lit by the symbols of alert; strictly observe the rules concerning, in particular, the operators' and users' safety;

** ** under no circumstance may the vending machine be used by children or by people with poorer physical, sensorial or mental capacities or who have not been properly informed on correct use; children shall be supervised to prevent them from playing with the vending machine;

** ** if you should find out a water leak or the presence of smoke, immediately detach the vending machine from the electric and hydraulic network, never try to restore its operation and apply to skilled technicians;

** ** the machine shall be installed according to national rules; pay special attention to the rules about the machines directly connected with the hydraulic network;

** ** the user is not allowed to access the maintaining and servicing area that shall be properly signalled;

** ** never remove protections, never override safety devices and never modify the machine or its components;

02.03. contacts

Rheavendors Services S.p.A. is at disposal for any kind of support and information on this vending machine;

telephone: 0039 02 966 551
fax: 0039 02 96 55 086
e mail: rheavendors@rheavendors.com

for any reference about our partners all over the world please visit site :

www.rheavendors.com

02.04. serial number labels

to be able to identify the vending machine rapidly and univocally as well as to get the best support, please specify the data of the serial number label;

code : D12345A67890
s/n: 1234 56 7890 (example)

silvery serial number labels are applied inside and outside the case of the machine;

03. technical data

03.01. dimensions	height: width: depth: depth with open door:	1,830 mm 640 mm 705 mm 1,270 mm
03.02. weight	instant machine: espresso machine:	145 kg 165 kg
03.03. supply		
water	- connection by means of a solenoid valve with 3/8" gas male face:	from 0.1 MPa to 0.8 MPa
energy	- 230 V ac, 50 Hz; single-phase and ground; - cable of the following type: HO 55 VV-F 3 G 1.5 E; (values and indications for standard machine) <u>anyway refer to serial number label data</u>	in I: 1.700 W in E: 2.800 W see 02.04.
03.04. sound pressure	A-weighted sound pressure level;	less than 70 dB(A)
03.05. keyboard	- base: electromechanical with backligthed keys: - touch TV: touch screen:	24 selections; 24 selections;
03.06. display	- base: alphanumeric 16 characters; 2 rows: - TFT: 5,7" with touch function: - touch TV: HD display:	graphical; 64x128; 240 x 320; 1050x1680;
03.07. dispensing cpt.	closed; protected by a liftable transparent bulkhead;	
03.08. safety		
water	in the instant machine, overflow sensor; in the espresso machine, overflow sensor and pressure relief valve; in all machines, water inlet solenoid valve with anti-flood sensor;	
energy	a door switch; two 6.3x32 mm fuses; (power supply 230 V ac); radio interference suppressor;	 12 A delayed
heat	manually resettable sensors;	88 °C
software	time limits for water dispensing cycles;	
03.09. grinder motor	in the espresso machine:	230 V dc
03.10. millstones	in the espresso machine, according to the machine configuration: flat conical	 Ø 56 mm Ø 72 mm
03.11. doser	according to the machine configuration : mechanical: manually programmable; software: grinder time programmable;	 6.0 ÷ 7.8 gr
03.12. coffee brewer	in E machines, structure made of plastics; the dimension of the brewing chamber can be mechanically programmed in three volumes;	Ø 40 mm orange chamber Ø 36 mm black chamber
03.13. air break	in the espresso machine, air break with overflow and level switch;	
03.14. pump	instant circuit: maximum five, immersion, rotary: espresso circuit: vibration:	24 V dc 230 V ac
03.15. product motors	max. eight in the instant version, max. six in the espresso version, according to the machine configuration;	32/85 r.p.m. 24 V dc
03.16. mixing bowls	max. five in the instant version, max. four in the espresso version, according to the machine configuration;	
03.17. mixer motors	max. five in the instant version, max. four in the espresso version, according to the machine configuration;	15,000 r.p.m. 24 V dc

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03.18. boiler	instant machine: open-top boiler:	3.4 litres, 1,600 W
	espresso machine: double boiler - pressurised for espresso: - open-top for instant:	 0.4 litres, 1,100 W 3.4 litres, 1,600 W
03.19. product canisters	max. eight, according to the machine configuration; dispensing worm screws 9 mm or 18 mm in pitch; with mixer gear and stirrer, if arranged by the configuration;	
	- coffee beans canister (or hopper) capacity:	single 5,000 g double 3,000 g
	- instant canister capacity:	sugar 4,500 g milk 1,350 g chocolate 3,500 g instant coffee 1,200 g tea 4,400 g
03.20. cup dispenser	one cup-release turret; five translucid columns:	Ø 70 mm n° 700 Ø 73 mm n° 670
	or two cup-release turrets; four translucid columns, each:	Ø 70 mm n° 450 Ø 73 mm n° 430 Ø 80 mm n° 400
03.21. stirrers dispenser	electromagnetic release; with vertical tank and weight bar;	n° 550 length: 89 mm adjustable to 104, 115 mm
	products, cups and stirrers shall comply with what specified in terms of quantity, dimensions and quality; use only products specifically conceived for automatic vending machines;	
03.22. miscellaneous	- internal service socket:	230 V ac; maximum load: 100 W
	- machine parameters programmable by means of a flash key or selection keyboard; payment system compartment; protocols: serial, parallel, executive, MDB;	
03.23. notes	the water and energy supply tolerances that can ensure a good and proper operation of the **luce x2** machine are:	
	water:	
	- total hardness: - recommended conductivity:	from 10 °F to 25 °F (*) 400 µS @ 20 °C
	(*) if harder, please use anti-limestone filters;	
	energy:	
	- nominal voltage:	+ 10/ - 15 %
	room (during storage and operation):	
	- temperature: - relative humidity:	5 °C ÷ 35 °C max 80 %
	electric consumption:	
	- power (vending phase):	630 Wh
	the complete data according to the EVA-EMP Energy Measurement Protocol, are made available upon request (see 02.03.);	
	**the power supply cable supplied with the vending machine shall not be altered under any circumstance; in case of loss or damage replace it by using an original component only;**	
	make sure that the electric installation can deliver the power suitable for the machine (see 03.03.); a good ground connection is not only a legal obligation for the protection of users and operators, but it can also provide for correct power supply;	

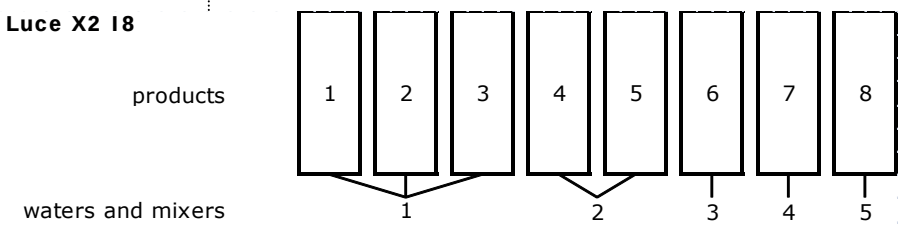
04. configurations

04.01. formalisms

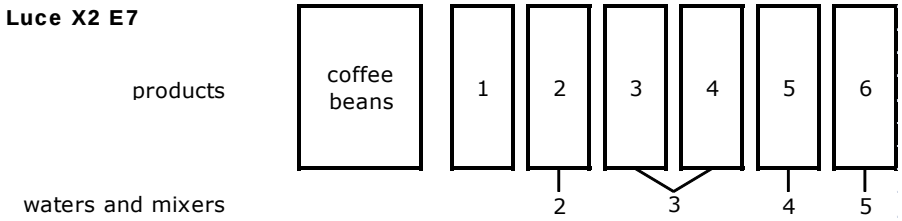
luce x2 configurations are numerous; they are coded by means of some categories exemplified here below in the abbreviation of the machine:

a. instant	- instant products only:	luce x2 **I**
b. instant and espresso	- instant products and coffee beans:	luce x2 **E**
c. instant and 2 espresso	- instant products and two different coffee beans:	luce x2 **EE**
d. product canisters	- instant products and coffee beans:	luce x2 **E7**
e. cold drinks	- hot and cold drinks (option cooling unit):	luce x2 E7 **FP**
f. numbering	- product canisters, mixing bowls and mixers are numbered in progression, from the left to the right, as it is shown later on; this numbering is used in the chapter on how to programme (see 09.) drinks;	

Luce X2 I8



Luce X2 E7



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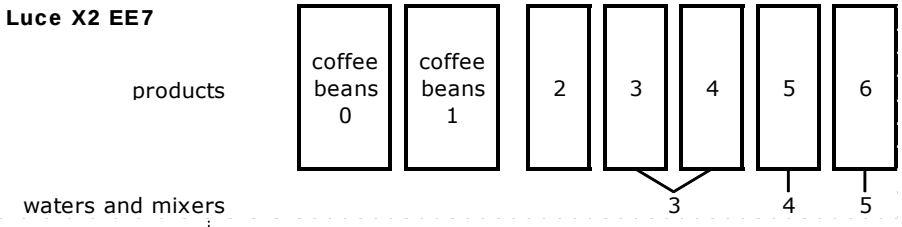
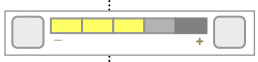
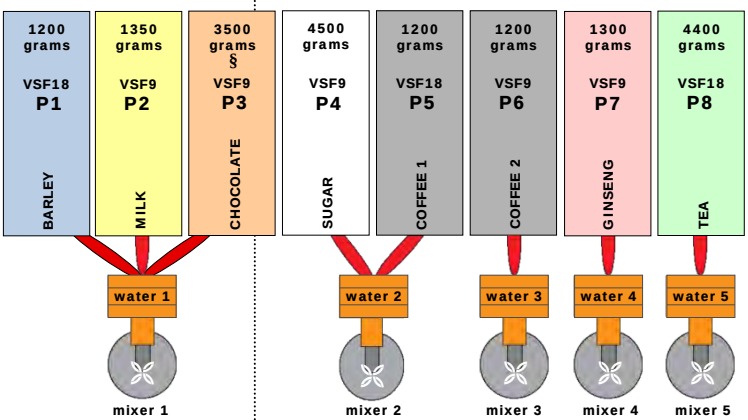


04.02. examples of configurations

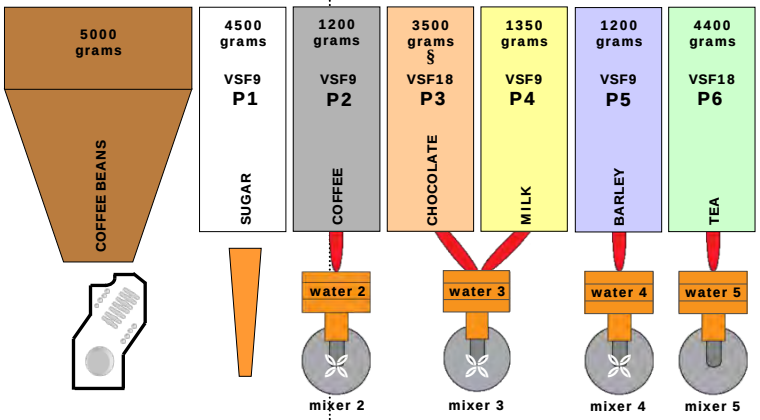
luce x2 I8

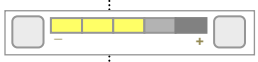




COFFEE 1		COFFEE 2		INSTANT PRODUCTS	
short coffee without sugar	short coffee with sugar	short coffee without sugar	short coffee with sugar	milk	milk with coffee
long coffee without sugar	long coffee with sugar	long coffee without sugar	long coffee with sugar	capp-ciocc	chocolate
white coffee without sugar	white coffee with sugar	white coffee without sugar	white coffee with sugar	ginseng	barley
cappuccino without sugar	cappuccino with sugar	cappuccino without sugar	cappuccino with sugar	tea	strong tea

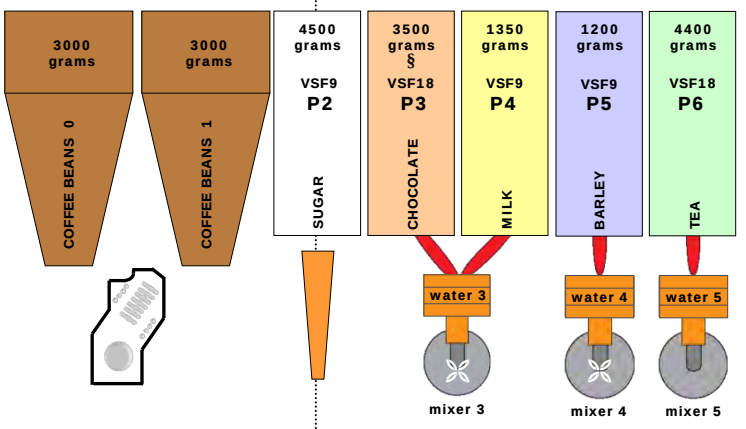
luce x2 E7

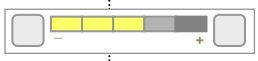




ESPRESSO		INSTANT COFFEE		INSTANT PRODUCTS	
short espresso with sugar	capp-ciocc with sugar	short coffee with sugar	capp-ciocc with sugar	chocolate	strong chocolate
long espresso with sugar	mocaccino with sugar	long coffee with sugar	mocaccino with sugar	capp-ciocc	milk
white coffee with sugar	cappuccino al cacao with sugar	white coffee with sugar	cappuccino al cacao with sugar	tea	strong tea
cappuccino with sugar	latte macchiato with sugar	cappuccino with sugar	latte macchiato with sugar	barley	cup only

luce x2 EE7





COFFEE BEANS 0		COFFEE BEANS 1		INSTANT PRODUCTS	
short espresso with sugar	capp-ciocc with sugar	short espresso with sugar	capp-ciocc with sugar	short barley with sugar	milk with sugar
long espresso with sugar	mocaccino with sugar	long espresso with sugar	mocaccino with sugar	long barley with sugar	chocolate
white coffee with sugar	cappuccino al cacao with sugar	white coffee with sugar	cappuccino al cacao with sugar	white barley with sugar	choco-milk
cappuccino with sugar	latte macchiato with sugar	cappuccino with sugar	latte macchiato with sugar	capuccino with sugar	tea

the configurations above are just some of possible **luce x2** configurations, considering the vending machine releases and programmability; the principles of operation and information are anyway universal and applicable to all machines of the **luce x2** range;

04.03. accessories

to complete and supplement the vending machines of the **luce x2**, range, Rheavendors Industries S.p.A. / MPR S.p.A. has got a series of accessories manufactured for these machines, such as autonomous water supply kit, anti-limestone filters, connection with machines for dispensing packed products, module for dispensing covers, cooling unit, peristaltic pump unit for dispensing syrup and water, …;

Rheavendors Services S.p.A. is at disposal for any kind of support and information on special configurations (see 02.03.);

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05.
presentation

05.06.
back-lit panel

05.02.
selection keyboard

05.04.
display

05.05.
sugar regulation

05.14.
door lock

05.11.
coin acceptance/return

05.30.
cup dispenser

05.12.
message plates

05.13.
dispensing compartment

05.11.
coin acceptance/return

05.06.
back-lit panel

05.09.
touch screen and
selection keyboard

05.10.
person sensor photocell

05.09.
sugar regulation

05.14.
door lock

05.11.
coin acceptance/return

05.30.
cup dispenser

05.12.
message plates

05.13.
dispensing compartment

05.11.
coin acceptance/return

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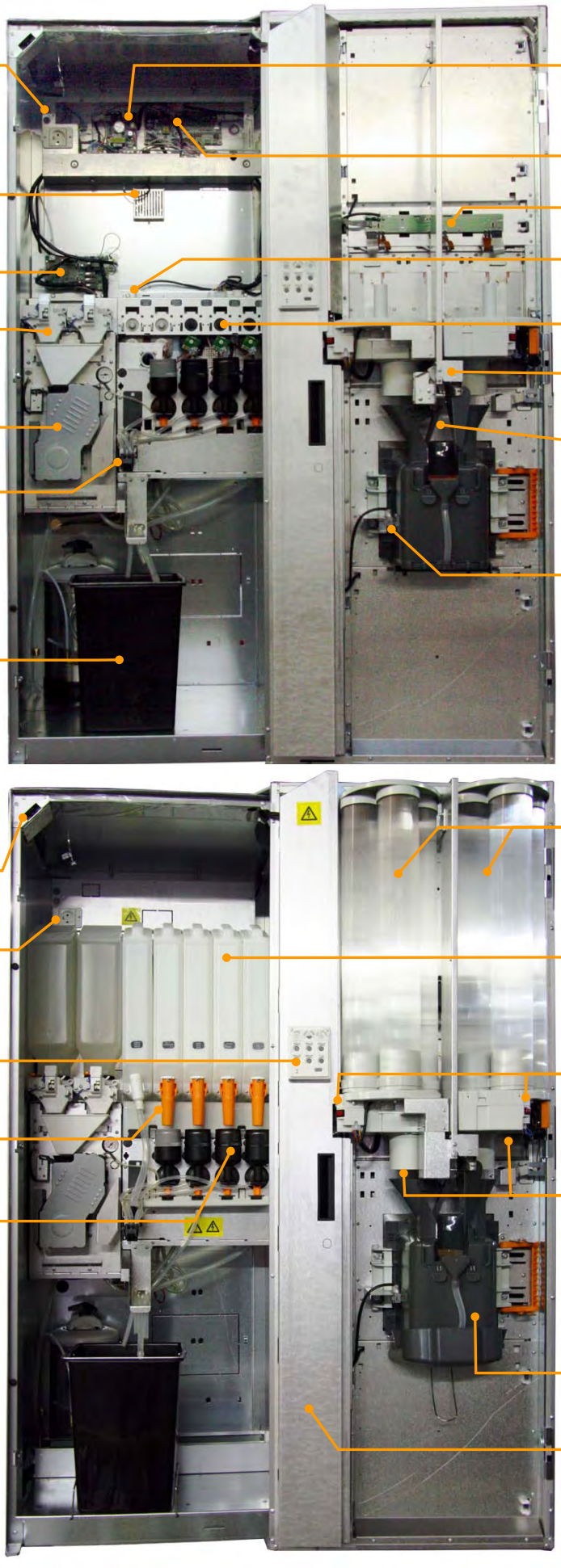

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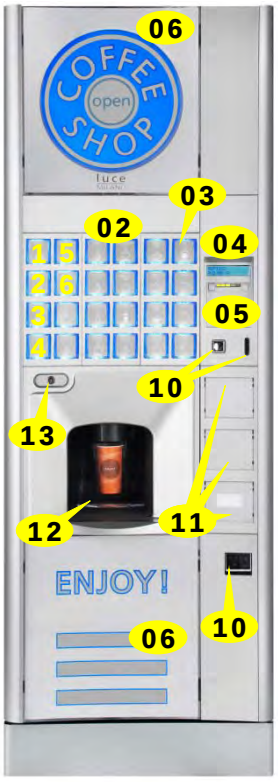
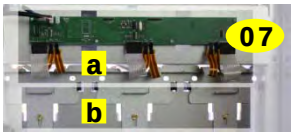
05.01. general information	the Rhea **luce x2** vending machine is a machine explicitly designed for being easily used by all users since no specific competence is required in preparing drinks; to dispense, just enter any credit and press a selection keyboard key shortly;
	the function consists in dispensing drinks by mixing food products and water at a proper temperature; the correct operation of the vending machine occurs in closed rooms in normal environmental conditions and at a room temperature between 5° and 35°C, the relative humidity below 80%; **use only specific products and ingredients for vending machines;**
05.02. selection keyboard	after having closed the door, press the buttons to dispense; keys will assume various functions in the programming mode (see 09.) and enable the user to modify the machine parameters; keys are numbered progressively from the top and from the left: 1, 2, …;
05.03. selection key labels	a transparent cover keeps the labels intended to identify the features of dispensing cycles in place (each back-lit key is separated from the others); (see 13.12.);
05.04. display	alphanumeric; two lines having sixteen characters each;
05.05. sugar keyboard	two keys, just beneath the display, enable the user to adjust the sugar quantity displayed by a led bar;
05.06. panels door lighting	two back-lit customisable panels complete the door (see 05.31.); light blue colour for instant versions, orange for espresso versions; the upper and lower door parts are lit up by an electroluminiscent panel supplied by low voltage; an electric connector inside the door and on the right can supply the necessary voltage;
05.07. keyboard lighting	the three modules composing the keyboard are lit up by led's supplied by flat cables ("a"); every single eight-key module can be easily removed by lifting the flat lever ("b") and by extracting the assembly from the outside;
05.08. TFT	5,7" TFT; 320x240 pixel resolution; with touch screen; images customisable by means of a USB pen drive; regulate the sugar quantity you wish;
05.09. touch screen	the central touch screen combines all the features which serve to communicate with users; the selections and programming keyboards and all multimedia messages and information are gathered in this component;
05.10. person sensor photocell	it detects the presence of a person near the machine to adapt the messages displayed in the touch screen;
05.11. coin slot - coin reject button – coin return compartment	they enable the machine to accept and/or return the coins inserted for the credit necessary for the dispensing cycle (payment system not supplied);
05.12. message plates	information messages protected by a transparent cover can be inserted for users;
05.13. dispensing compartment	the internal space, protected by a liftable transparent bulkhead, is lit up during the dispensing cycle;
05.14. door lock	the door is closed by means of a lock; the key is mapped and numbered for identification;



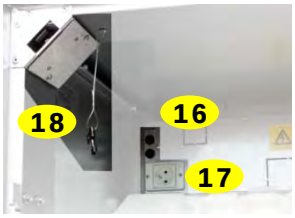


05.15. electric connection — a three-terminal socket is arranged at the back of the cabinet for the connection of the mains cable;

05.16. fuses — installed on the mains power supply to protect the machine (see 03.08.); fuses should be mandatory substitutes only by qualified technical personnel;

05.17. main socket — service 230V ac; 100W max;

05.18. door switch — to power off the machine when the door is open;



attention

some parts remain anyway network-connected

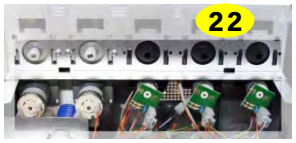
use the service key to supply the vending machine if it is necessary to activate the machine when the door is open; the key is hung up in the proximity of the switch and its use is reserved to the properly trained technical personnel only;

05.19. product canisters — instant product canisters dispense their content in the underlying mixing bowls; an internal worm screw driven by the product motor will push the instant product to the product slide; they can be equipped with a wheel and a stirrer for constant dispensing; the coffee bean canister (hopper) has a closing blade for insertion before lifting it; to protect the products, canisters are closed by a cover;

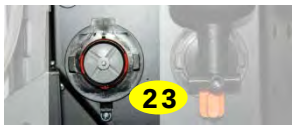
05.20. product slides — to avoid any product leakage, the end part of product slides can be lifted horizontally and the white ring nut rotated to open (to the left) or to close (to the right) the product canister outlet;

05.21. mixing bowls — the mixing bowls of the mixers will accommodate the instant products you have poured to mix them with water; the fan of mixer motors will act at the bottom and the drink outflow to the dispenser occurs by means of a silicone tube; mixing bowls and outlet tubes can be washed with lukewarm running water;

05.22. product motors — these motors are intended to rotate the worm screws inside instant product canisters to pour the product quantity necessary for selection in the mixing bowls;



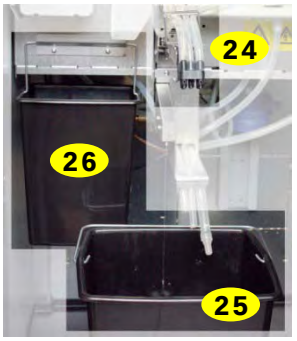
05.23. mixer motors — the mixer motors help to mix instant products with water by means of the rotation of the fan mounted on their axis; the rotation speed can be adjusted (see 09.) to the features of the various products;

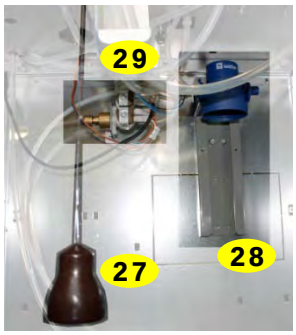


05.24. dispenser nozzle arm — the arm places the nozzles above the cup during the dispensing cycle and draws them back at the end of the cycle;

05.25. waste water bucket — the bucket collects any residual drop from the dispenser and, if necessary, the waste water in excess from the boiler and air break;

05.26. grounds bucket or bag grounds — a rectangular metal ring keeps the grounds bucket or, in some versions, the grounds bag in place;



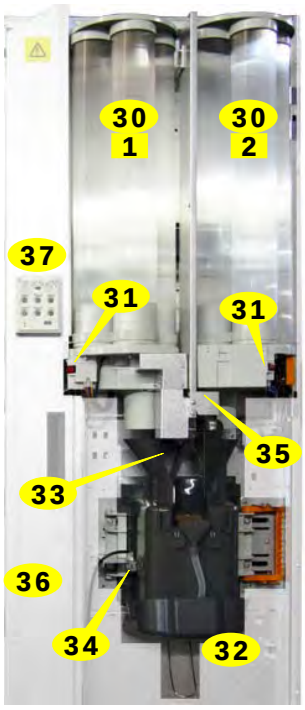


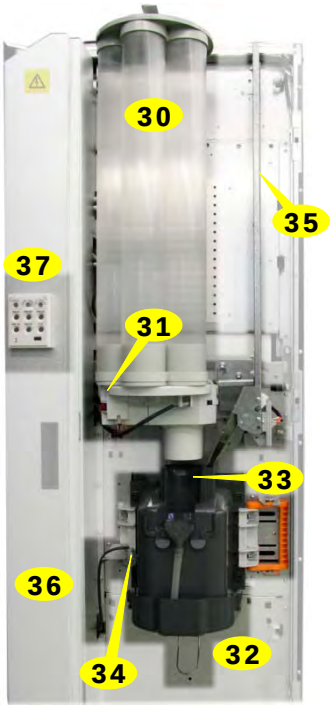
05.27. floater — a floater acts on a microswitch to signal that the waste water bucket filling level is too high;

05.28. filter seat — the filter cartridge intended to demineralise inlet water is placed in the head and secured at the back of the machine; replace the cartridge regularly in compliance with the manufacturer's instructions; the filter is placed on the left of the machine in some versions;

05.29. water inlet solenoid valve — intended to stop the water inlet in case of failures;

05.30. cup dispenser — a turret consisting of five columns or two turrets consisting of four columns according to the machine configuration contains paper or plastic cups, the diameter ranging from 70 mm to 80 mm; the turret on the left **1** contains the cups classified as "cup. 1" in the programming mode whereas the one on the right **2** contains the cups classified as "cup 2";





05.31. cup dispensing button — press it shortly to dispense a cup;

05.32. cups station — the cups station accommodates the cup during the dispensing cycle of the drink; a funnel and a tray collect the drops in excess, if any, and convey them into the waste water bucket;

05.33. cups station led — a led illuminates the cups station during the dispensing cycle and warns with its flashes the progress of the selection;

05.34. cup sensor — if any, it detects the cup presence by determining the behaviour of the machine (see 09.);

05.35. stirrers dispenser — placed between the cup turrets, it dispenses the stirrers in the tank column by means of an electromagnet; to facilitate the load cycle, rotate the cup turret on the right by pressing the orange block; the tank can be adjusted to the stirrer length by means of three screws;

05.36. carter — the carter protects the CPU, the payment system (not supplied) and the coin box; it is kept in place by a magnet;

05.37. service keyboard — the service keyboard is placed on the carter inside the door; its keys can be used to program the machine (see 08.03 and 09.);

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05.38. grinder

the grinder is intended to grind the coffee beans in the hopper to fill in the volumetric doser chamber or directly in the coffee brewer chamber;
the grinding degree (flat millstones) is adjustable by means of the knurled white knob standing out of the grinder body (rotate clockwise for fine grinding), (see 13.06.);

the degree of grinding (conical millstones) is adjustable by rotating the outer ring (see 13.05.);

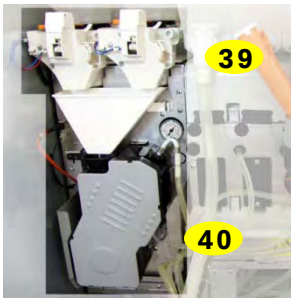
05.39. doser

volumetric

the volumetric doser will gather the coffee ground by the grinder to pour it in the coffee brewer after having reached the dose you have programmed; the doser will open twice straight to enable to empty the ground product collection chamber completely;

timing

there is a version of **luce x2** with timing doser in which the amount of ground coffee is poured directly into the chamber of the coffee brewer and the quantity of which is determined by the software "grinder time" (see 09.);



05.40. coffee brewer

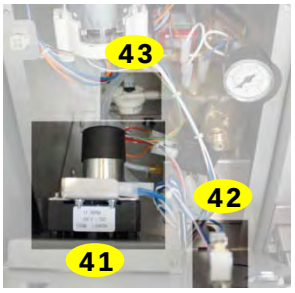
after having received the ground product dose and compressed it, brewing occurs in the coffee brewer, with the water coming from the vibration pump; the used dose is conveyed to the grounded coffee bucket (or bag); the coffee brewer presence is detected by a microswitch;

05.41. brewer presence microswitch

the coffee brewer motor is intended to rotate some parts of the coffee brewer to compress the ground coffee for brewing; the rotation is controlled by a switch driven by a cam intended to inform the CPU about the position of the brewer;

05.42. microswitch presenza gruppo

a microswitch detects the coffee brewer presence and enables dispensing cycles with coffee beans;

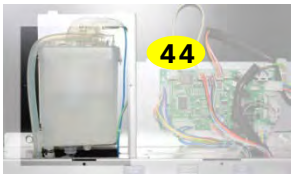


05.43. volumetric counter

for the espresso version only, it supplies the CPU with the water quantity flowing through the coffee brewer to determine its volume;
the water quantity of instant selections is established by the time set in the "water N" parameter only (see 09.);

05.44. air break

in E machines, it accumulates water for conveyance to the pressure boiler; the level is controlled by a floater and, if higher than established, it will flow back to the safety device of the inlet solenoid valve, thus preventing further water from flowing in;

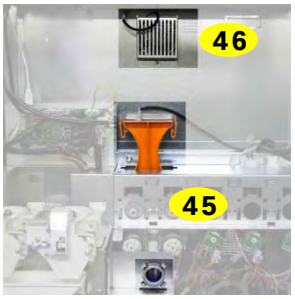


05.45. powder aspirator

an aspirator will eject suspended product residuals from the inside of the vending machine; the aspirator is connected with a drawer beneath the product slides to intercept the residual impalpable powder coming from selections; it can be easily extracted by pressing the side fins of the support; aspirated air is ejected through the slots of the rear panel;

05.46. environment aspirator

to aspirate the air from the internal environment of the machine to avoid any condensate;



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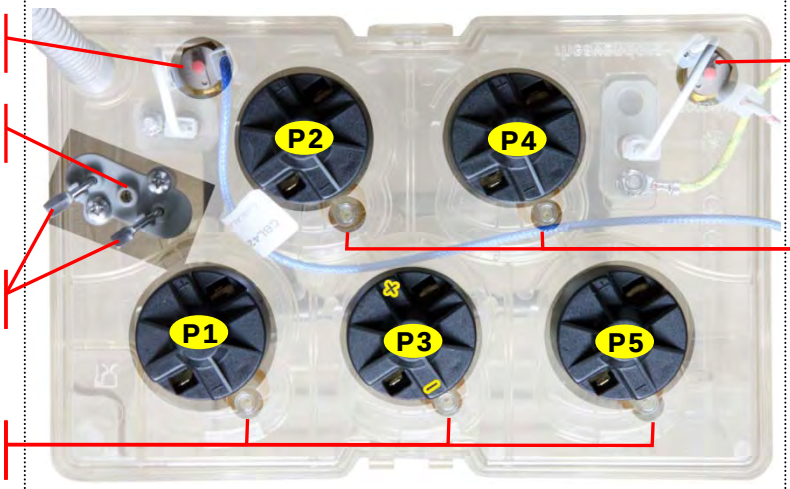
attention
these components may be very hot even if the machine is off;

05.47. boiler

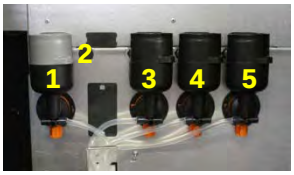
boiler with all active elements (heating element, heat protections, temperature sensor, pumps) secured to the cover;

05.48. boiler pumps

pumps with turbines immersed in the boiler water; water is conveyed in tubes feeding mixing bowls; the number of pumps varies according to the machine configuration; a boiler with five pumps is shown here by way of example (attention to polarisation; see 03.14.);



pump	name sw	outlet
P1	water 1	mixing bowl 1
P2	water 2	direct water
P3	water 3	mixing bowl 3
P4	water 4	mixing bowl 4
P5	water 5	mixing bowl 5

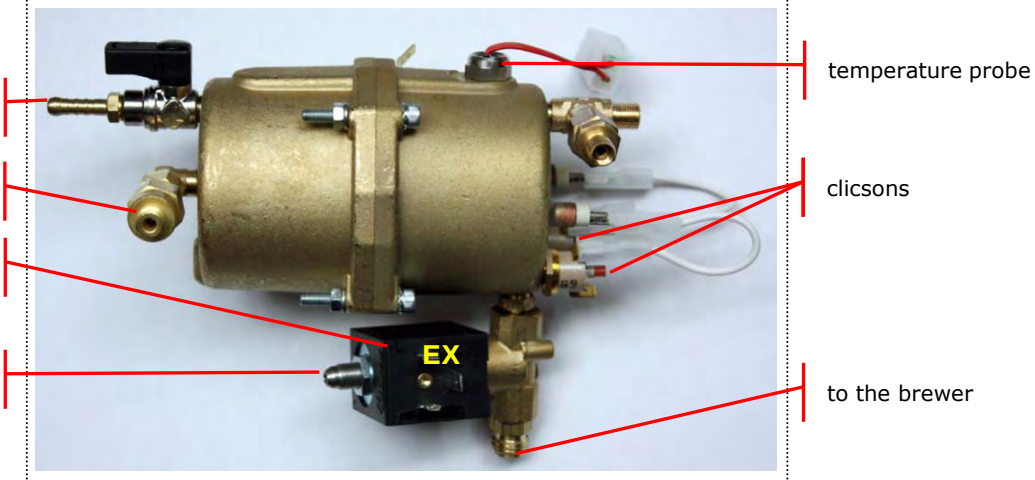


05.49 pompa espresso

in E machines, a vibration pump with by-pass intended to direct water to the three-way solenoid valve for espresso is installed in addition to the boiler for instant selections;

05.50. pressure boiler

in the E machine, pressure boiler complete with a temperature probe and protection clicsons; the drain tap may be used to empty the hydraulic circuit (see 09.);



solenoid valve	name sw	outlet
EX	water coffee	coffee brewer

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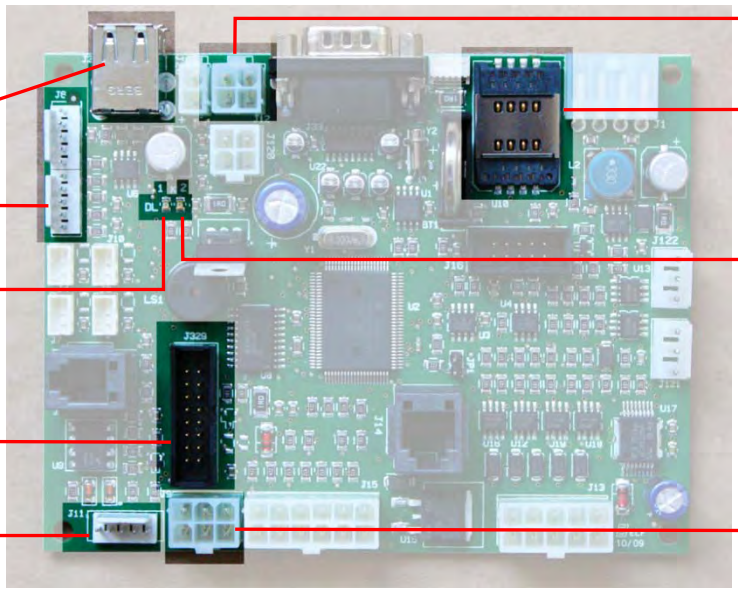
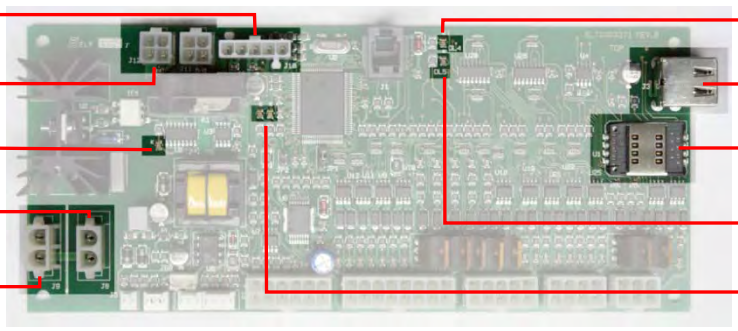
05.51. electronics

05.51.a. CPU



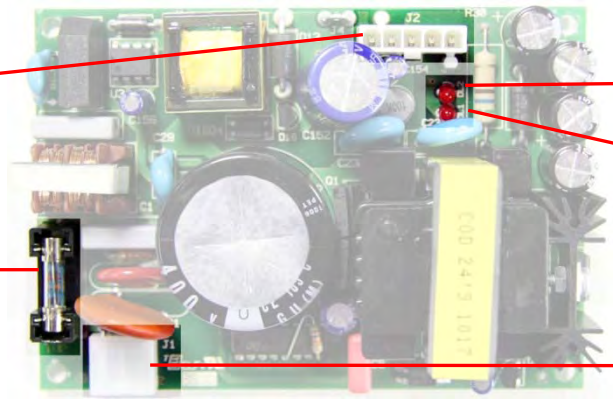
the CPU board placed inside the door and protected by the carter governs the machine operation; the information exchange with the other boards occurs by means of a double USB socket (see 14.), including the connectors for the service keyboard, the payment systems, the display and the programming flash key;

05.51.b. power board



the power board receiving the commands from the CPU is intended to operate the machine devices; it is also intended to control devices, such as motors, pumps, solenoid valves or heating elements; a double USB connector (see 14.) is arranged for the logic connection with the other boards; if the status led's are blinking, it means that it is working normally;

05.51.c. switching power supply unit



the switching power supply unit is intended to generate the voltage necessary to operate the machine boards; it is protected against overvoltage by a fuse;

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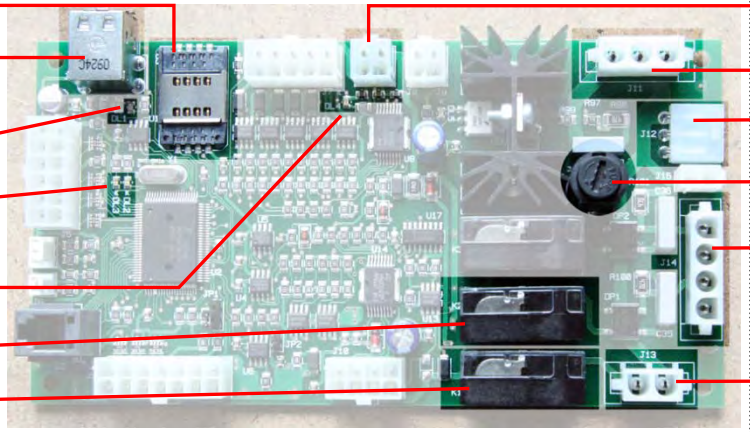
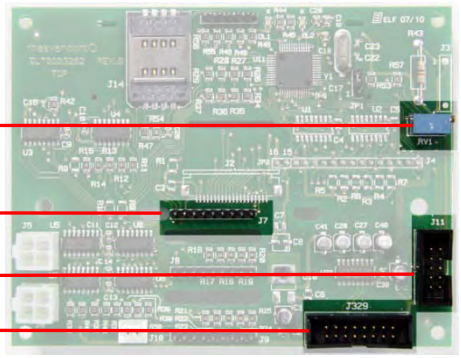
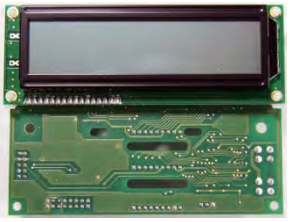
05.51.d. coffee brewer expansion board



the coffee brewer expansion board is necessary only in E machines since it is intended to control the devices that are typical of the espresso machine: grinder, vibration pump, …; input and output signals are exchanged with the other boards by means of a double USB connector (see 14.); if the status led's are blinking, it means that it is working normally;

05.51.e. display board





the display board secured inside the door is intended to receive the signals from the CPU, the keyboard and the "+/- sugar" regulation and to display the messages to the user or to the operator;

05.51.f. USB connection

a USB cable allows the loading of software and images via a USB pen drive:

in the **luce x2 TFT**, this cable is connected to the display board (vedi 05.51.e.) and it is located inside the door;

in the **luce x2 touch TV**, it is connected to the mother board (vedi 05.51.g.) and it is located in the inner wall of the cabinet;

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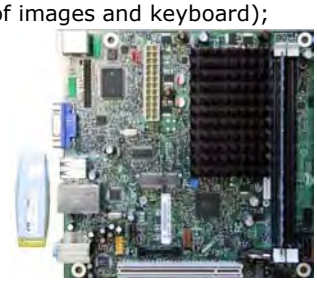
monitor and touch screen hardware

the power of these components is not switched off when the door is opened and it is always presents when the machine is supplied with the cable network;

any modification, change or adaptation on the hardware that supports the programs necessary for the touch screen functions (mother board, touch screen, power supply, cables, ...), unless expressly authorized, determines the immediate forfeiture of any and every form of guarantee (see also page. 03);

05.51.g. mother board

the mother board is housed on the back wall of the cabinet and it is the seat of the programs that govern all aspects of the touch screen (views of images and keyboard);



05.51.h. mother board power supply

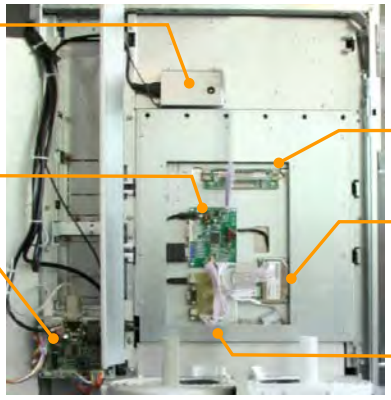
it is the item which supplies operating voltages to the mother board;

05.51.i. touch screen power supply

it is the item which supplies operating voltages to the touch screen;

05.51.l. touch screen support components

these components are subsidiary to the functioning of the touch screen (monitor and touch screen functions);



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05.52. software **base**

residing software can be transferred and copied by means of a flash key to be inserted into a connector of the machine boards (see 05.51.) and the rheAction programme;
(power off the machine, insert the key into the flash socket of the board in question, power on the machine by means of the service key, power it off at the end of the transfer and remove the key);

these programmes are named:

05.52.a. in the CPU board

- master: it is the software determining the machine cycles, the links between the functions, the order of execution of operations; this software can not be modified by the operator, but it can be replaced in the CPU by means of a flash key written at works or by means of rheAction (see 05.51.a.);

- configuration: it is the software installed in the CPU, determining the times and the successions of dispensing drinks, the payment system protocol, the display modes, …; variables may be modified by the operator either manually aboard the machine or by means of rheAction to adapt the machine behaviour to the final users' needs (product quantities and mixtures, warning messages …) (see 09.);

05.52.b. in the power board

- power: to establish the functions of the devices of this board (see 05.51.b.);

05.52.c. in the coffee unit expansion board

- coffee unit: it is the software installed in this board, determining the coffee unit behaviour (cycles, timing, …) (see 05.51.d.);

please note that the flash key may include:

master only

it can be transferred from the key to the CPU only and updating occurs automatically at the power on of the machine; the display shows "PROGRAMMING OK" at the end:

configuration only

at the power on, the display shows:
choose "1" to update the machine with the key data; the display shows "PROGRAMMING EAROM";
choose "2" to transfer the data from the machine to the key; the display shows "PROGRAMMING FLASH LEY";
the display shows "PROGRAMMING OK" at the end

PROGRAMMING MASTER

1 from key to VMC
2 from VMC to key

PROGRAMMING OK

master and configuration

they can be transferred from the key to the CPU only and updating occurs automatically at the power on of the machine; at the end, the display shows:

power software

it can be transferred from the key to the board only; wait for the status led's (see 05.51.b.) to turn off after having blinked for some seconds;

coffee unit expansion software

it can be transferred from the key to the board only; wait for the status led's (see 05.51.d.) to turn off after having blinked for some seconds;

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05.53. software
TFT and **touchTV**

a): using the USB key

the following software programmes, divided into five logic chapters residing in the machine, can be transferred, copied, modified by means of a USB key, to be inserted into a connector (see 05.39.) and the rheAction programme;

- **master GPU**: is the software determining the TFT display operation;

- **data file**: is the software installed in the CPU, determining the intervals and sequences, by which drinks are dispensed, the payment system protocol, the display modes, …; variables can be modified by the operator manually, on the machine, and by means of rheAction to adapt the behaviour of the machine (product quantities and mixtures, warning messages, …) to the end users' requirements (see 09.);

- **CPU master** : is the software determining the machine cycles, the relations between functions, the order by which the machine will perform operations; this software can not be modified by the operator, but it can be replaced in the CPU by means of a USB key written at works or by means of rheAction;

- **GUI file** : contains the images the display can show during the various work phases of the vending machine; they reside in the display board (GPU) and can be replaced by customised images; the exact procedure to update or replace is described by "rheavendors LuceX2 Touch";

- **message files**: it includes all the messages the machine may show for users and operators;

the following instructions can be observed for transfer data from/to the machine:

- power off the machine;

- insert the USB key in the connector inside the door (see 05.39.);

- power on the machine by means of the service key (see 05.13);

to move from one item to the other one on the display, follow the TFT or monitor instructions; in general, act on the touch or on the keyboard where:

key 1	to scroll items down;
key 6	to scroll items up;

key 2	to scroll chapters forward;
key 3	to scroll chapters downward;

- the display shows all GPU masters in the USB key; select the necessary file and update the machine by pressing "4";

- the same operations can be carried out for the following chapters, (data files, CPU masters, GUI files, message files), scroll and select by pressing key "2", any way refer to the instructions supplied by the display;

Rheavendors Services S.p.A. is at disposal for support and information about the RheAction system and the "rheavendors LuceX2 Touch" manual (see 02.03.);

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b): using the flash key

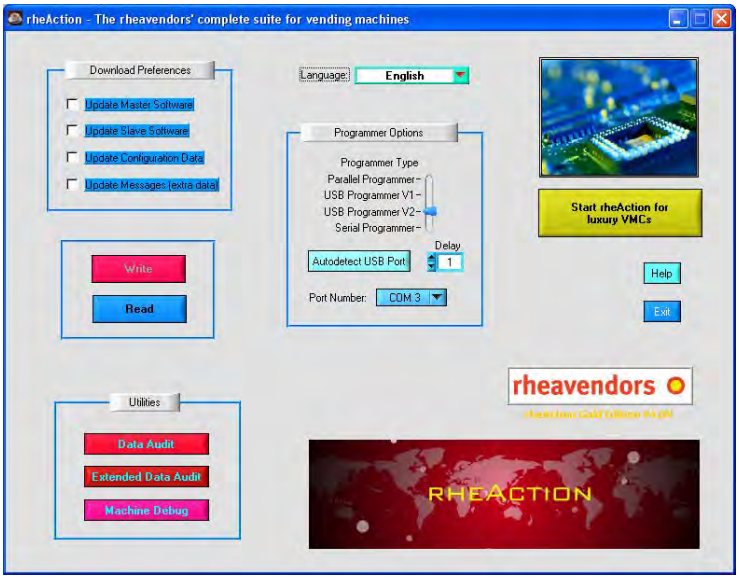
use a flash key to update the firmware intended to govern the "coffee brewer expansion" (see 05.51.d.) and "power" boards (see 05.51.b.);

if it is necessary to update one of the software programmes mentioned above in the machine, it is important for the flash key, from which the programme is installed, to be physically inserted into the board; the procedure for the transfer of these software programmes shall observe the following steps:

- power off the machine;
- insert the flash key into the connector of the board in question;
- power on the machine;
- two led's of the machine will flash on and off and turn off at the end of the programming cycle;
- power off the machine and remove the flash key;

05.54. rheAction

a system called rheAction is intended to complete and supplement the programming executable in the machine; it is composed by a software and hardware, installable in a pc, capable of storing, modifying and writing the configuration data of Rhea machines;
Rhea Vendors Group is at disposal for any kind of support and information on the RheAction system (see 02.03.);



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06.
preliminary actions

06.01. handling

the vending machine may be transported, handled and positioned by skilled and trained personnel only; while handling, never overturn the machine; observe the orientation arrows on the package;

attention

handle the machine carefully to prevent the authorised personnel from being injured; considering the weight and overall dimensions of the vending machine, it is recommended to use a truck at low speed;

06.02. unpacking

- approach the packed vending machine to its work position;
- cut the protection film used to wind up the vending machine along one of its protection angle bars;
- remove the vending machine from the pallet by unscrewing self-threading screws and by extracting metal squares to the outside;
- lift the vending machine by means of a truck;
- remove the pallet from beneath the vending machine;
- carefully re-arrange the vending machine on the floor;

attention

the materials composing the package shall never be left within the reach of people from outside, in particular of children, because they represent a potential source of danger; only specialised companies may be charged to provide for the disposal of package components;

06.03. positioning

the vending machine shall be arranged for work in a sheltered room; from the walls keep a distance that can provide for good air circulation and easy access; make sure that the floor can properly support the weight of the machine and that the latter is levelled; adjust the feet in such a way that

the inclination of the cabinet shall not exceed 2°

and that the vending machine is perfectly stable; it is recommended to use a water-proof protection that can be easily cleaned beneath the vending machine to collect any accidental product fall;

06.04. preparation

when the machine is in its final working position:

- cut the clamp intended to secure the door key to the supply cable secured at the back of the vending machine;
- insert it into the lock (see 05.14.), rotate it and open the door;
- remove the envelope of documents, labels and accessories from the waste water bucket (see 05.25.);

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07.
connections

07.01. water

make sure that the water used to supply the vending machine has all proper features for human consumption;

make sure that there is no sign of impurity and check the degree of hardness; if necessary, contact an analysis lab;

if necessary, use a softening filter and replace the cartridge at regular intervals to preserve the machine components;

make sure that the network pressure is the one preset for the machine (see 03.03.); use a pump or a reducer in case of non-compliance; it is recommended to install a tap to detach the machine from the network; connection shall occur by means of a new tube type-approved for food use and capable of supporting the operating pressure; when it's necessary a replacement, use only tubes with the same features listed above;

for the drinkability features of "waters intended for human consumption" refer to the following Internet address :

http://eur-lex.europa.eu/
directive 98/83/EC of 03/11/1998

07.02. energy

observe the rules on connections with the electric network, in particular on grounding; connect the machine permanently without using any reduction, adaptor, multiple socket or extension; use the network connection cable supplied with the vending machine only;

it is recommended to install a differential current device operating below 30 mA, detaching the machine from the mains and promptly tripping in case of improper electric input in order to considerably reduce the risks arising out of any short-circuit;

attention

check the power plant capacity to supply the power required by the machine (see 03.03) and the observance of the rules in force; strictly refer to the data of the serial number label (see 02.04.);

for a correct and safe configuration of the electric power supply installation refer to the following Internet address, if necessary:

http://eur-lex.europa.eu/
directive 2006/95/EC of 12/12/2006

08.
first power on

08.01. introduction

after having unpacked the vending machine, arranged it firmly in the work place and connected it hydraulically and electrically, carry out some actions to operate it;

wash hands thoroughly with water and soap before handling the machine and the products; only use potable water to clean the components;

08.02. activity

open the door, arrange the waste water bucket, insert the floater and all outlet hoses (see 05.27.);

in espresso machines pour a small quantity of coffee beans into the coffee hopper to avoid displaying the no coffee message; never forget to open the hopper/s blade/s;
remove the stirrers weight from the tank and load the stirrers by inserting them from the above; re-place the weight;
lift the cover/s intended to protect the turret/s, fill in the column, except for the one/s placed on the distributing (dispensing) holes of cup release/s;
insert and rotate the service key into the door switch (see 05.18.);

no coffee beans
OFF 09

attention

the vending machine is supplied and running to all effects; the mobile parts of the coffee brewer will be handled; act extremely carefully;

and wait for the rotation of the turret/s to come to an end; load the column/s that have remained empty;

attention

use cups and stirrers only, specifically conceived for vending machines; (see 15.);

switching on…
please wait

the vending machine performs a diagnostic cycle for loading and heating waters; the warning messages about the progress of these phases will appear on the display according to the version;

refilling water
wait

at the end of assembly and the final inspection, the water used for tests is discharged from the machine; at the first power-on, all circuits shall be filled in before any other action; the machine will therefore load water automatically; after all hydraulic circuits of the machine have been filled in, the water flow stops automatically, thus starting the phase intended to heat water in the boiler, in which temperatures shall reach the set values (see 09.);

wait
temperature

08.03. activity

transportation, storage and installation conditions can not provide for immediate utilisation of the vending machine and it is recommended to perform a complete wash cycle before using the vending machine;

attention

the machine dispenses a pre-fixed water quantity for each wash cycle;

press keys "MIX 01", "MIX 02", … of the service keyboard (see 05.37.) to activate the wash cycle of the corresponding hydraulic circuit (boiler, tubes, mixing bowls, ….);
during the wash cycle, the monitor displays the message "manual washing" down, on the left corner;

key "C.G." activates the wash cycle of the coffee brewer circuit;

repeat the operation for some times to rinse the whole water circuit of the machine;

power off the vending machine by means of the service key;
detach the power supply cable from the mains;

08.04

prepare a chlorine-based anti-bacterial sanitising solution by observing the instructions supplied with the product; remove and immerse the following into the solution: the product canisters you have disassembled, the trays of mixers, their fans and the silicone tubes intended to dispense products; the time necessary to sanitise is specified by the anti-bacterial product package; at the end, remove all the parts you have sanitised from the solution, dry them carefully by using clean cloths and reassemble them into the machine;

lift the end of the product slides of instant containers and load them with the corresponding products; refer to the machine configuration (see 04.) and to the labels of containers; fill in the coffee beans canister/s with coffee beans (in machines E); close the containers and the coffee beans canister/s with their upper covers;
lower the product slides to the mixing bowls (see 05.20.) and pull the blade intended to close the coffee beans canister/s (in machine E);

to clean and treat food products properly, refer to the content of the following Internet address:

http://eur-lex.europa.eu//
regulation 2004/852/EC of 29/04/2004

08.05.

close the door by means of the lock key (see 05.14.) and put it in a safe place;

wait
temperature

the display (or the monitor) will show the messages that specify the operations carried out by the machine:

initial check; Tsol=nn °C; Tesp=nn °C;

until the water temperatures of the boiler are adapted to the values set up in the configuration software;

at the end of this phase intended to heat water in the boiler, the vending machine is ready to dispense on a free basis and the display (or the monitor) shows the stand-by screen;

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09. programming basis

the parameters forming the composition of recipes – written in the CPU board memories – enable the user to dispense drinks without requiring the installer to set up special programmes; to modify them to adapt the drinks you have produced to specific requirements, refer to the following; at the end of the chapter (see 09.02.), a summary table may help the user trace back all programming items and variables;
to access the programming mode, open the machine door and use the service key in the safety switch;

attention

the vending machine is supplied and running to all effects in this operation mode; act extremely carefully;

the service keyboard buttons have the following functions:

- "PROG." to access the programming mode;
- "FREE VEND" to dispense selections on a free basis;
- "TOT COUNT" to display the total number of dispensing cycles;
- "MIX NN" to enable the wash cycles of mixing bowls and their circuits;
- "C.G". (unit cycle) to enable the coffee unit wash cycle and its circuit;

access — press the "PROG" key of the service keyboard (see 05.37.); the display shows:

PROGRAMMING BUTTON N

quit — after having programmed, press "1" and, then, key "PROG" to go back to the usual operation of the vending machine and to store all changes you have made; the display will show:

END PROGRAMMING wait ……

the programming steps listed herein may be not in the correct sequence or provide for some slight differences compared to the machine; however, general principles and preliminary instructions remain applicable;

<u>09.01. "progr"</u> — press the key "PROG", press "1"; the buttons of the selection keyboard will assume the following functions:

Key 1	to scroll the items forward
Key 6	to scroll the items backward

Key 2	to scroll the variables of items forward
Key 3	to scroll the variables of items backward

Key 4	to increase the value of the variable on the screen
Key 5	to decrease the value of the variable on the screen

the items are (scroll by means of key "1"):

PROGRAMMING BUTTON N

09.01.a. key 1 — contains the variable composing selection 1;
… — …
key 24 — contains the variables composing selection 24;
key 25 — not corresponding to a selection, but to the enable of the cup sensor, as it is specified in the "no-cup pre-selection";

09.01.b. prices — to establish the prices of every single dispensing cycle;

PROGRAMMING PRICES

09.01.c. happy price — to establish the prices of every single dispensing cycle produced in special time bands;

PROGRAMMING HAPPY PRICE

09.01.d. coins — to determine the values of coins;

PROGRAMMING COINS

09.01.e. temperatures — to set up the boiler water temperatures;

PROGRAMMING TEMPERATURE

09.01.f. miscellaneous — to programme different options;

PROGRAMMING MISCELLANEOUS

09.01.g. diagnostics — to display some machine parameters;

DIAGNOSTICS

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09.01.h. sales audit	to display the quantity of dispensing cycles you have performed;	SALES AUDIT
09.01.i. MDB	it contains the programming of the MDB protocol parameters;	PROGRAMMING MDB
09.01.l. clock	to set up the machine clock;	PROGRAMMING CLOCK
09.01.m. out of service	to record any failure that may have occurred;	REGISTRATION OUT OF SERVICE
09.01.n. product qty	to check and enable product dispensing cycles;	PROGRAMMING PRODUCT QTY
09.01.o. maintenance	it contains the maintenance control parameters of the machine;	PROGRAMMING MAINTENANCE
09.01.p. RFID CARD	to determine the RFID card parameters;	PROGRAMMING RFID CARD
09.01.q. tuning motors	to regulate the speed of the boiler pumps and product motors;	PROGRAMMING PRODUCT MOTORS
09.01.r. id. machine	it contains the machine identification parameters;	PROGRAMMING ID MACHINE
	in detail, the chapters just listed include the following items and variables;	
09.01.a. button from 1 to 24	press key "2" when the display shows "key n" to scroll the variables composing the function of that key;	PROGRAMMING BUTTON N
	scroll keys "4" and "5" to choose among the items:	
	- "ENABLED": the key will perform the function you have programmed (dispensing cycle of a drink); see paragraph "ENABLED";	FUNCTIONING
	- NOT ENABLED": the key will be inhibited and it will perform no function;	INHIBITED
	- "PRESELECTION": if pressed before the actual selection, the key will perform the function of the items specified by paragraph "PRESELECTION";	PRESELECTION
	- "COLD": to enable the selection button to dispense cold drinks (machine with FP option); see paragraph "COLD ENABLED";	COLD
"FUNCTIONING"	use key "2" to scroll the following items:	
	choose the "extended" option to display all variables; choose the "reduced" option to display only the parameters with values other than zero (use keys "4" and "5" to modify the option);	programming: TOTAL programming: PARTIAL
	use key "2" to scroll the following items:	
	espresso coffee is the first product you can programme for each selection key; there are three variables:	
	- the water quantity in the cup; change it by means of "4" and "5"; if the variable is zero, no espresso will be dispensed (drink composed by instant products only);	COFFEE WATER 0= inhib. cc: 00
	- espresso coffee will be dispensed before (value 1) or after (value 0) instant products, if programmed;	coffee sequence 1=coffee before N
	- if a version is complete with two coffee canisters, choose between two different coffee bean mixtures; 0=coffee canister on the left; 1= coffee canister on the right;	MIXTURE COFFEE N

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	press "2" to scroll and display:	
	press keys "4" and "5" to change the rotation time of the N product motor, thus changing the product quantity you have dispensed; if time is zero, no product N will be dispensed; you can carry out a "time test" on the set-point; (see 13.20.);	PRODUCT N 0= inhib. 0.0
	if the time you have programmed is other than zero, the N product motor will be activated at the expiry of the delay time you have programmed; the delay time is increased or decreased by pressing keys "4" and "5";	start delay PRODUCT N 0.0
	the rotation time of the product motor can be briefly interrupted one or two times during the dispensing cycle (0 = no break);	breaks number 0-1-2 00
	to determine the pump power on time (in I machines) or the solenoid valve opening time (in E machines) and then the water quantity it will deliver; you can carry out a "time test" on the set-point; (see 13.20.);	WATER N time 0= inhib. 0.0
	water will be dispensed in the mixing bowls at the expiry of the delay time you have programmed;	start delay WATER N 0.0
	for instant selections only, the water flow in mixing bowls can be regulated between low, medium, high by pressing keys "4" and "5";	water flow : N medium
	the rotation time of the mixer fan can be changed by pressing keys "4" and "5"; if time is equal to zero, the mixer will not rotate; you can carry out a "time test" on the set-point; (see 13.20.);	MIXER N 0= inhib. 0.0
	if the rotation time is other than zero, the mixer fan will be rotated at the expiry of this delay time;	start delay MIXER N 0.0
	the mixer rotation speed can be regulated between low, medium, high by pressing keys "4" and "5";	MIXER speed N medium
LM dispensing	to establish the milk quantity of the second dispensing cycle;	PRODUCT LM 0= inhib. 0.0
LM dispensing	to determine the delay of the second milk dispensing cycle;	start delay PRODUCT LM 0.0
LM dispensing	to determine the breaks of the second milk dispensing cycle;	breaks number 0-1-2 00
LM dispensing	to establish the water quantity of the second milk dispensing cycle;	WATER LM time 0= inhib. 0.0
LM dispensing	to determine the water quantity delay of the second milk dispensing cycle;	delay water LM 0= inhib. 0.0
LM dispensing	to establish the mixer rotation time of the second milk dispensing cycle;	MIXER LM 0= disab. 0.0
LM dispensing	if other than zero, the mixer power on will be delayed by the time you have set up;	start delay MIXER LM 0.0
	the power-on time of the grinder can be regulated here to establish the coffee quantity that will fall into the brewing chamber of the espresso unit; parameter used in machines complete with a time doser;	grinder time 0.0
	press key "4" and "5" to establish how many seconds (from 0 to 20.0) after the end of the activity of the 24V device last involved in the selection (mixer motor, pump boiler, etc.), the dispenser nozzle arm will move back to its standby position;	retards tubes 00.0

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press key "4" and "5" to choose the cup in which to dispense the drink and whether to release the stirrer or not; in multiple options, cup "2" will be only dispensed if cup "1" fails;

OPTION SELECTION
cup1 or cup2+stirrer

cup 1 or cup 2
cup 2 + stirrer
cup 2
cup 1 + stirrer
cup 1
no cup
no cup + stirrer

if cup "1" fails, the display shows "no cup 1";
if cup "2" fails, the display shows "no cup 2";

if both of them should fail, the vending machine signals the OFF 01 error; (see 11.);

- a drink is dispensed, but no cup falls down;
- a drink is dispensed, but no cup falls down and a stirrer is released;

to choose the sugar canister (keys "4" and "5");

canister
SUGAR n:N

press "4" and "5" to choose the drink name to display during the dispensing cycle; options are listed here below:
- "standard", the display will show "drink N under preparation";
- "list of names" of drinks made available in the machine memory; the display will show "*drink name* under preparation";
- "custom": the display will show the user's customised names; it is necessary to create a configuration file with RheAction (see 05.54.) and load it on the machine by means of a flash key (see 05.52.a.);

selection name N
------- n:00

"PRE-SELECTION"

you can choose among an ensemble of names stored in the memory or written by means of rheAction;
the commonest pre-selections and their programming options are listed here below:

"decaffeinated/barley":

pre-selection is intended to replace espresso coffee with instant decaf (or with barley); variables are listed here below:

- message appearing on the display during the dispensing cycle;

preselection
DECAFEINATED

- decaffeinated product canister (keys "4" and "5");

canister
DECAFEINATED n:N

- mixing bowl and mixing water (keys "4" and "5");

ev-mixer
DECAFEINATED n:N

- price change with respect to the standard espresso drink; (keys "4" and "5");

DECAFEINATED price
0=+ 1=- 00

- keys for which pre-selection has effect (scroll by means of key "2" and select enable or disable by means of key "4" and "5"); this instruction is repeated in any pre-selection to enable the effect in the key or not (*);

enable presel.
button N: YES (*)

"extra milk"

- to choose the milk canister;

PRODUCT
MILK n:N

- to determine by how many seconds to change the rotation time of the product motor you have set up in the configuration; to enable, see (*);

extra milk
quantity + 0.0

"espresso"

- to decrease the NN water percentage to the water you have set up in the espresso selections; to enable, see (*);

water quantity
ESPRESSO -00 %

"cup 2"

- to increase the product quantity by the percentage you have set up; to enable, see (*);

PRODUCT
percent +00 %

"no cup"
"button 25"

- if available, it is intended to enable the cup sensor to allow the machine to dispense drinks without any cup release, i.e. by using the user's; to enable, see (*);

cup sensor
1=enable 0

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"FUNCTIONING COLD"

set up the "PRODUCT N". "PRODUCT N start delay" and "pause number" parameters, as it has been specified before for "hot" selections;

PRODUCT N
0= inhib. 0.0

start delay
PRODUCT N 0.0

breaks number
0-1-2 00

press key "4" and "5" to establish the pump power-on time and, therefore, the quantity of still water at room temperature directly dispensed into the cup;

time H2O natur.
0= inhib. 0.0

still water at room temperature will be dispensed with the delay programmed here (keys "4" and "5");

start delay
H2O natur. 0.0

press key "4" and "5" to establish the pump power-on time and, therefore, the cold water quantity directly dispensed into the cup;

time H2O cold
0= inhib. 0.0

cold water will be dispensed with the delay programmed here (keys "4" and "5");

start delay
H2O cold 0.0

press key "4" and "5" to establish the pump power-on time and, therefore, the cold water quantity dispensed to mix the instant product;

time H2O cold
FP N 0.0

the cold water necessary to mix the product will be dispensed with the delay programmed here (keys "4" and "5");

start delay
H2O cold FP 0.0

to choose the mixer used to mix water and product;

cold number
mixer N

press key "4" and "5" to modify the rotation time of the N product motor to change the product quantity dispensed; if time is zero, product N is not dispensed;

MIXER N H2O cold
0= inhib. 0.0

if the rotation time is other than zero, the mixer fan will be rotated with this delay;

start delay
MIXER H2O cold 0.0

press keys "4" and "5" to regulate the mixer rotation speed and choose among slow, medium and quick;

MIXER speed H2O
medium

press key "4" and "5" to establish the pump power-on time and, therefore, the carbonated cold water quantity dispensed;

time H2O cold gas
0= inhib. 0.0

carbonated cold water will be dispensed with the delay programmed here (keys "4" and "5");

start delay
H2O cold gas 0.0

press key "4" and "5" to establish the pump power-on time and, therefore, the cold water quantity dispensed to mix the syrup;

time H2O scir N
0= inhib. 0.0

the cold water necessary to mix the syrup will be dispensed with the delay programmed here (keys "4" and "5");

start delay
H2O scir N 0.0

the comments about "hot" selections already made before are also valid for the "tube delay", "cup selection option" and "selection name" variables;

retard tubes
0.0

OPTION SELECTION
cups ...

selection name N
------- n:00

09.01.b. prices

press key "2" to display:
each selection can be assigned a sales price; use "4" and "5" to modify the amount and "2" to scroll the twenty-four price lines; twenty-four lines are referred to selections, the twenty-fifth to the difference between the price of the drink dispensing cycle with and without a cup, which means that it is the cup price;

PRICE N
0.00

09.01.c. happy price

press key "2" to display:
every single selection may be assigned a sales price that will be valid only in well-defined time ranges (see 09.01.l.); use "4" and "5" to change the amount and "2" to scroll the price lines;

PRICE N
0.00

09.01.d. coins

assign each channel its value for the parallel payment system; press "2" to scroll the coins from A to J and use "4" and "5" to change its value;

COIN A
0.00

09.01.e. temperature

press key "2" to display:

use keys "4" and "5" to modify the water temperature values of the pressure boiler, boiler and the cooling unit, if any;

TEMPERATURE
boiler NN

to establish the water temperature of the instant boiler;

TEMPERATURE
espresso NN

to establish the basic temperature of the pressure boiler;

DEFINITION
first coffee 00

when the machine remains in stand-by mode for a time longer than the value set in this variable, the pressure boiler heating element will be activated for the time set in this variable before dispensing an espresso;

heating time
sec.: 00

to establish the water temperature of the cooling unit;

TEMPERATURE
cold NN

09.01.f. miscellaneous

the "miscellaneous" item includes some options (press keys "4" and "5" to modify the values of these options):

- machine code A and B: you can number the machine to distinguish it from others similar (data collection);

machine code
A NN

machine code
B NN

- message number: press keys "4" and "5" to choose the messages to display on the screen when the machine is in standby mode;

message number
N

- coin mechanism programming options: press keys "4" and "5" to display the options of communication with the payment system; choose among:

  - parallel single vend

coin-mech type
PAR. SING. VEND

  - parallel multiple vend

coin-mech type
PAR. MULT. VEND

  - executive

coin-mech type
EXECUTIVE

  - executive price holding

coin-mech type
PRICE HOLDING

  - MDB

coin-mech type
MDB

- access code: to access the programming mode only after having typed a password you can choose by pressing keys "4" and "5"; carefully note down the combination you have chosen;

access code
NN

- fan delay: to determine for how many minutes after the latest dispensing cycle the powder suction fan will remain active;

fan time
min. NN

- beep time: beep time active at the end of each machine function;

Beep time 0.0

- number of decimals: to determine how many decimals are considered in the comparison between the selection price and the credit you have inserted;

decimal number N

- grinder type: in the E machine, to decide whether coffee is ground for the espresso selection in progress (1) or for the next one (0); option (2) is for machines with a time doser;

display color 00

- first installation: used to make sure that the water circuit will be filled in at the next power on; if the value is zero, the machine will perform the cycle just as for 08.02 at the next power on;

first installat. 0=first N

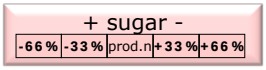
- to enable the summer time function (from the last Sunday in March to last Sunday in October, the set time is automatically increased by one);

Summer Time 1= yes N

- to establish the standard sugar quantity dispensed; press keys "4" and "5" to modify it;

DEFAULT SUGAR LED=0-5 = 3

all led's off= no sugar ←



- to establish whether to release the stirrer before or after the other products;

stirrer 0=before 1=after N

- to establish whether to release the stirrers or not when a no-sugar dispensing cycle is selected;

stirrer no sugar 1= enable N

- in the E machine, to empty water circuits automatically:
  - detach the water supply and press "4";
  - open the pressure boiler drain tap (see 05.45.) and press "5";
  - when the display shows:
  - close the pressure boiler drain tap;

Deinstallation 4=START

Open boiler tap P5=START

Deinstallation

END close boiler tap

at the end of the uninstall cycle, the boiler water temperatures will be set to zero and the machine will be set to "FIRST INSTALLATION=0";

- in the E machine, to decide whether to keep the brewing chamber of the coffee brewer in the upper piston in standby mode (close) or not;

Position Brewer 0=close 1=open N

09.01.g. diagnostics

press key "2" to access diagnostics and to enable the machine to display (keys "4" and "5") the standby message and the boiler water temperature, alternatively;

ENABLE DISPLAY TEMPERA. 1=YES N

press "2" once again to display the voltage value intended to supply devices at 24 V dc;

VOLTAGE volt: 00.0

when this item appears (key "2"), press "4" to dispense a stirrer;

TEST STIRRER sel 4

extract the coffee unit from the machine, arrange a cup beneath the doser and press "4" to get the ground product; now, you can perform the coffee dose test;

TEST DOSING COF. sel 4

if a module intended to dispense covers is connected with the machine, press "4" to release a cover and perform a complete module test;

test cover sel 4

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09.01.h. sales audit

this menu is intended to gather the quantities of the selections made by the machine: names are assigned according to the EVA-DTS standard:

- VA 102
  quantity of total vends (parameter not resettable);

- VA 104
  quantity of the vends made after the reset;

- VA 101
  total amount of receipts (parameter not resettable);

- VA 103
  total amount of receipts after the reset;

- VA 202
  quantity of total tests (parameter not resettable);

- VA 204
  quantity of tests after the reset;

- VA 302
  quantity of free vends (parameter not resettable);

- VA 304
  quantity of free vends after the reset;

- CA 201
  total amount sold by cash (parameter not resettable);

- CA 203
  total amount sold by cash after the reset;

- CA 202
  total amount of the selections sold by cash;

- CA 204
  quantity of the selections sold by cash after the reset;

- CA 305
  total amount of cash receipts;

- CA 301
  partial amount of cash receipts;

- DA 401
  total amount loaded on RFID cards;

- DA 402
  total amount loaded on RFID cards after the reset;

- DA 201
  total amount sold by means of a RFID card;

- DA 203
  total amount sold by means of a RFID card after the reset;

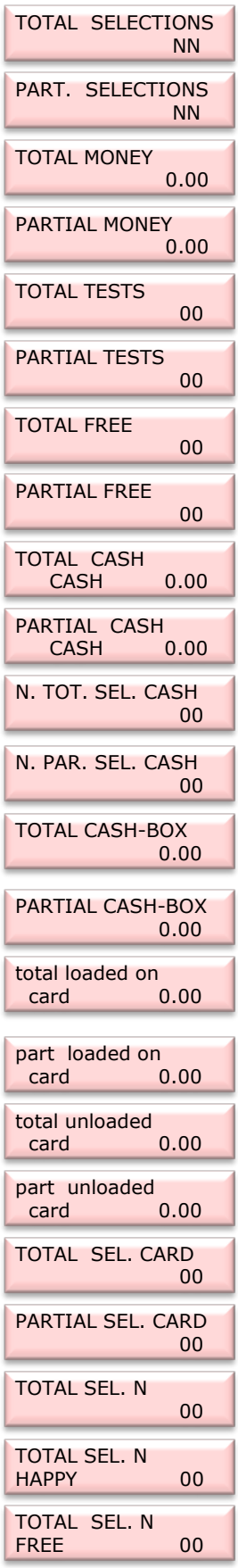
- DA 202
  quantity of selections sold by means of a RFID card;

- DA 204
  quantity of selections sold by means of a RFID card after the reset;

- LA 1*1
  selections sold at a standard price;

- LA 1*2
  selections sold at a happy price;

- PA 403
  free selections;



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09.01.i. MDB	press "2" to display the variables necessary for the MDB protocol; press keys "4" and "5" to scroll the values;	
	- tube dispensing: to empty coins tubes;	Ejection tubes button:7-8-…-11-12
	- changegiver enable: to enable the coins change of the changegiver	escrow enable 0=enab. 1=dis. N
	- maximum credit: to establish the maximum acceptable credit amount;	credit max 0.00
	- maximum change: to determine the maximum change amount;	rest max 0.00
	- single/multiple vend: to keep the residual credit amount after a dispensing cycle or not;	Sell type 0=sing. 1=mult. N
	- token value: to quantify the value of the token;	Token value 0.00
	- coins change N: to establish the coins to be used for the change when the machine is able to give it; from A to P;	coin rest a N 0=acc. 1=disab. 0
	- coins no change N: to establish the coins not to be accepted when the machine is unable to give the change; from A to P;	coin no rest a N 0=acc. 1=disab. 0
	- set "0" to enable the changegiver; "1" to enable the changegiver only if the change made available is enough or if there is the RFID card; "2" to enable the changegiver only if there is the RFID card;	Bill validator enab.= 0,1,2 = 0
	- tube value: to specify the value in the ensemble of coins tubes;	MDB tubes value 0.00
09.01.l. clock	this chapter is intended to determine:	HOUR: 00:00
	- current time;	DAY: 00
	- current day;	MONTH: 00
	- current month;	YEAR: 00
	- current year;	day of week: (ex.) Tuesday
	- day of the week;	
	use the three pairs of parameters (Start Happy N and End Happy N) to establish three time bands during which the machine will apply "happy prices" (see 09.01.c.);	START FN: 00:00
		END FN: 00:00
	for each day of the week you can establish a time band during which the machine will accept no selection and reduce the water heating of the boiler;	SWITCHING ON: xxxxx 00:00
		SWITCHING OFF xxxxx 00:00
	to count the energy consumption of the machine;	Kilowatt hours: 0.0
	the machine will perform a wash cycle at the time you have specified provided that it has performed at least five dispensing cycles after the last cycle; erogazioni;	CLEANING: 00:00
09.01.m. out of service	to display the recording of the twenty errors last occurred in the machine; press key "2" to scroll the records and key "4" to reset the recording (see 11.);	n. N off NN hh:mm dd-mm-yyyy

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09.01.n. product qty

each product motor can be assigned a time credit in seconds that will be decreased at each dispensing cycle of that product; after having used up the credit, the machine will answer "selection not available" whenever a request is made for that product; this control is disabled at the beginning and the machine has got no constraint; to programme the credit time of a product motor, just increase the variable by pressing key "4" and "5"; programmable products from 1 to 6;

product qty N
[0.0] 0.0

please note that the first warning threshold can be programmed; if exceeded, the display will show an alarm message without interfering with the operation of the machine;

prod. N warning
thresold: 0.0

after having used up the time credit, the operator may decide whether to inhibit or not the dispensing cycle of the selections, including that product;

enable stop prod. N
1=stop 0

09.01.o. maintenance

in this ensemble of parameters, key "2", you can set up some counters to trigger an alarm after a programmable number of events (press "4" and "5" to set up and PROG to store):

- dispensing cycles before having to replace the cartridge of the external filter, if any; as soon as 500 dispensing cycles are left, the display will show "change water filter" and as soon as the decounter has reached 0, it will display "out of service water filter", thus inhibiting the operation of the machine;

water filter cnt
[00] 00

- espresso dispensing cycles before having to service the coffee unit (see 12.); as soon as 5 dispensing cycles are left, the display will show "make brewer cleaning" and as soon as the decounter has reached 0, it will display "out of service cleaning brewer", thus inhibiting the operation of the machine;

dec. cof. brewer
[00] 00

- espresso dispensing cycles before having to empty the grounds bag or bucket (see 05.21); as soon as the decounter has reached 5, it will display the message "remove coffee grounds" until the decounter has reached 0, thus inhibiting the operation of the machine;

dec. cof. grounds
[00] 00

09.01.p. rfid card

- the maximum credit that can be loaded into the RFID card can be established by this variable;

max credit card
0.00

- 0 for each coin (from A to J) that can be accepted when the RFID card is available;

coin A N
with card 0=acc.

- 0 for each coin (from A to J) that can be accepted when the RFID card is not available;

coin A N
no card 0=acc.

- to specify the percentage used to reduce the prices set in 09.01.b. when the RFID board is in use;

discount RFID card
- 00 %

09.01.q. tuning motors

with respect to the setup in 09.01.a:

- the rotation time of the boiler pumps can be changed (keys "4" and "5") by +/- 30 %; the change concerns all the activations of the pumps for all selections (see 13.16.);

tuning pump N
percent +00 %

- the rotation time of every single product motor can be modified (keys "4" and "5") by +/- 30% compared to the time set in the recipe variables (see 09.01.a.); the modification concerns all the activations of the product motors for all selections;

tuning motor N
percent +00 %

- the activation time of the grinder can be varied (keys "4" and "5") by +/- 30%;

tuning grinder N
percent +00 %

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09.01.r. id.machine

press key "2" to scroll the identification codes to detect the EVA DTS data:

- machine number;
- location number;
- machine configuration;
- address for the connection with the DDCMP protocol;
- to choose the data transmission system;

code ID 101
00

code ID 104
00

code ID 106
00

address VIDTS
00

EVADTS IRDA=0
SERIAL=1 0

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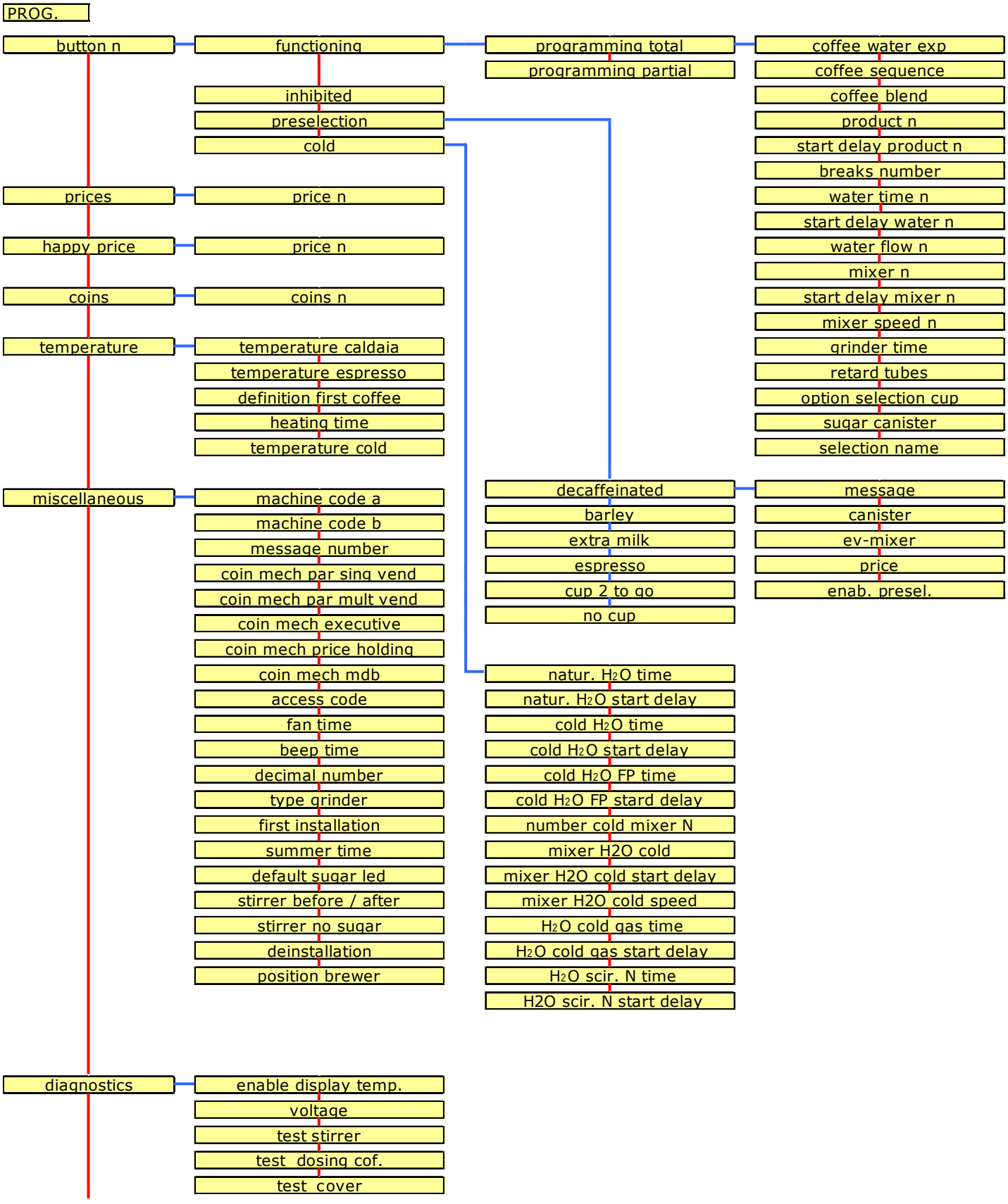
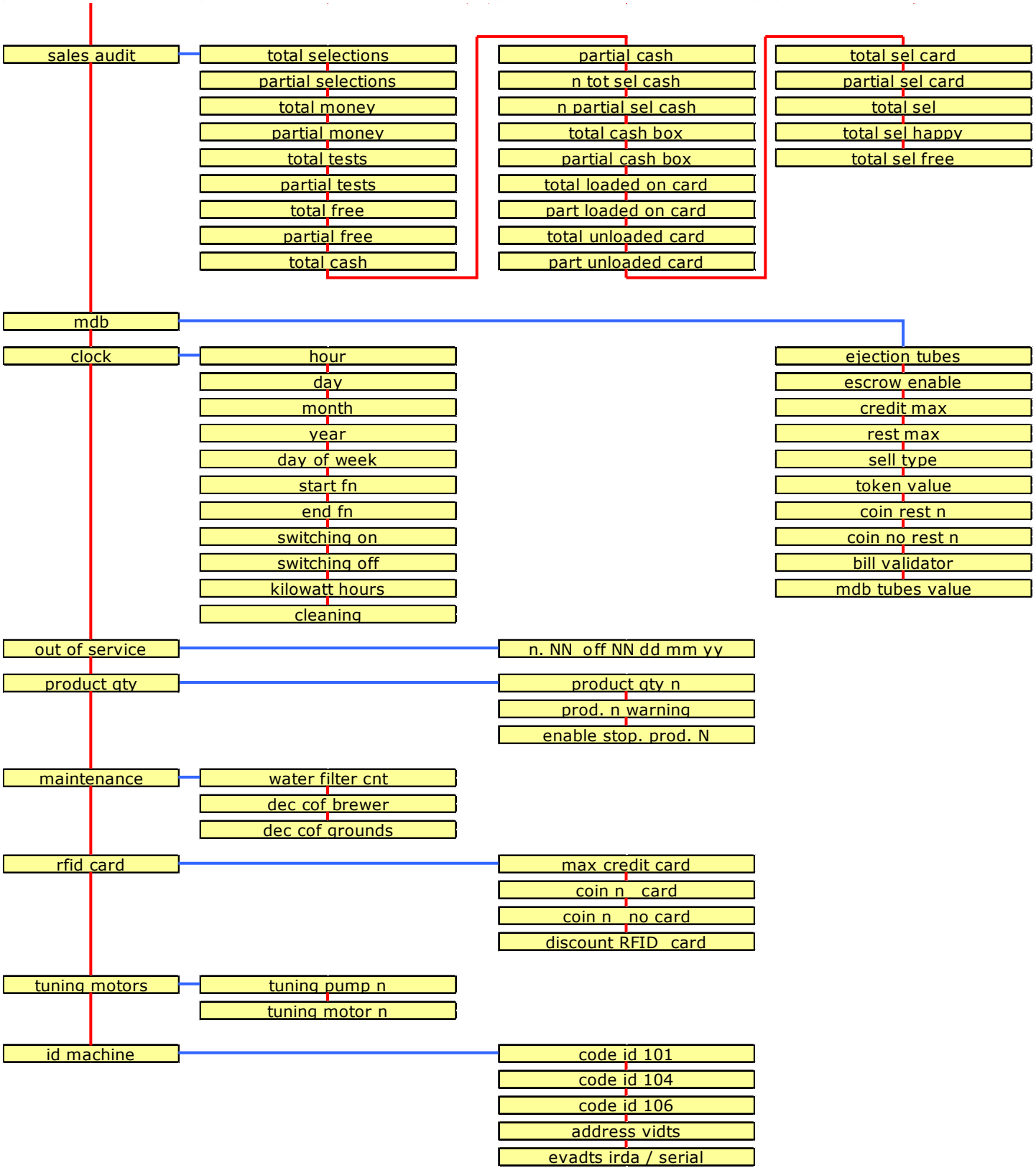




09.a.
programming
TFT and touchTV

the vending machine is programmed by means of parameters considered standard for the specific configuration required; values forming the composition of recipes enable the user to dispense drinks without requiring the installer to set up special programs; to modify these parameters to adapt the drinks you have produced, refer to the following (programming tree); to access the programming mode, open the door of the machine and use the service key in the safety switch;

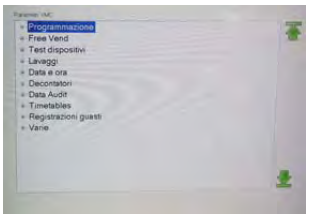
attention

the vending machine is supplied and running to all effects in this mode of operation; act extremely carefully;

access — press the key "PROG" of the service keyboard (see 05.37.);

quit — after having programmed, press key "PROG" to go back to the usual operation of the vending machine and to store all changes you have made;

even if the **luce x2 TFT** and **luce x2 touchTV** software has an intuitive and easy structure to approach, it allows maximum freedom of use of the machine' functions; in particular, there are no names hard linked to the actuators (e.g.: product motor 1, mixer 3, ...), but the programming action, in each selection, is completely free to operate and it may match the name of "device" to any of the following physical actuators:



- coffee brewer or product motor;
- solenoid valve or instant pump motor;
- mixer motor;

please note that these devices can be enabled and used several times during the same selection;

parameters — the following parameters are available for each device:

duration: it is the activation time of the device (pump, mixer, product motor); it will establish the activation time of the pump for coffee beans selections;

delay: it is the delay by which the device is activated after the selection has been started;

product variation: not used;

param1: to establish the work speed of:

- mixer motor 6=slow; 8=medium; 15=quick;

- instant pump motor 6=slow; 11=medium; 15=quick;

or to establish:

- the work time (tenths of a second) of the millstone motor in coffee beans selections (quantity of ground product);

display and guide messages: the graphical display complete with touch screen, by virtue of which the machine parameters can be displayed and modified, can show guide images and message that are of sure reference and orientation during the programmation steps; if the quantity of a variable can be changed, a window shows the current numeric value and two arrows, by means of which to change it;

to supplement the operational information of this manual, refer to "rheavendors LuceX2 Touch", which includes the instructions necessary to update and modify the programs residing in the machine (see 02.03.);

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Programming		
general options		
number of products	active product canisters;	10
number of selections	active selections;	24
advanced options		
instant temperature	boiler water temperature;	max 95 °C
espresso temperature	pressure boiler water temperature;	max 110 °C
unit temperature	coffee unit chamber temperature;	max 110 °C
cold temperature	cooling unit dispensing temperature;	from 0 to 15
ID A	first CPU identification number;	
ID B	second CPU identification number;	
ID C	third CPU identification number;	
ID D	fourth CPU identification number;	
person sensor	person sensor sensitivity; 0 = sensor excluded;	from 0 to 255
cup sensor	cup sensor sensitivity; 0 = sensor excluded;	from 0 to 255
Cup drop control	0= enables (if the cup sensor is enabled); 1= disabled	
installation/uninstallation	0=first installation, 1=normal power on, 2=uninstallation;	
brewer/type of millstone	0=open/instant, 1=open/not instant, 3=open/timed millstone, 4=closed/instant, 5=closed/not instant, 7=closed/timed millstone	
language	English, Deutsch, Italiano, Français, Espanol, Cestina, Slovensko, …	14 languages
payment system		
type of payment	parallel single - parallel multiple - executive - executive price holding - MDB - Rhea parallel single - Rhea parallel multiple - Rhea card + parallel - Rhea card + Rhea parallel;	
number of decimals	number of decimals of the price	from 0 to 3
bill acceptance	0 = always; 1 = with exchange only; 2 = with key only;	
price 2 usage	0=not used, 1=used with cashless, 2=used with "happy hour"; the price of every single selection can be differentiated if the payment is made by means of a key or if the selection is made during special time bands; see "Happy hour";	
parallel		
coin A	coin value A;	
…		
coin J		

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- MDB
  - changegiver enable — 0=enable 1=inhibited;
  - maximum credit — maximum admitted credit;
  - maximum coin return — maximum admitted coin return;
  - type of sale — 0=simple 1 = multiple;
  - token value — token value;
  - coins enabled
    - coin A accepted with change — 0=accepted 1=not accepted (exchange possible);
    - coin A accepted without change — 0=accepted 1=not accepted (exchange impossible);
    - ...
    - coin P ...
  - coin manually ejected — coin ejected;
- Mass set price 1 — to set price 1 of all selections to a well-defined value
- Mass set price 2 — to set price 2 of all selections to a well-defined value
- EVA-DTS — EVA-DTS protocol parameters;
  - ID 101
  - ID 104
  - ID 106
  - EVA-DTS address
  - EVA-DTS Port — 0=Irda, 1=RS232, 2=DEX, 3=DEX with reset
- selection — ensemble of parameters of selection 1;
- selection 1
  - type of selection — active, not active, preselection, cold, FBT;
  - type of cup — cup 1, cup 2, no cup cup 1 or cup 2, cup 2 or
  - strirrer — release the stirrer 0=disabilitato, 1=abilitato
  - stirrer time — release the stirrer 0=after; 1=before the dispensing cycle
  - price
    - price 1 — price 1 of selection (standard price);
    - price 2 — happy price of the selection; see "payment system" above;
    - from price 3 to price 6 — price 3... 6; *options available;*
  - number of elements — devices that can be activated in this selection max 8 (product motors, solenoid valves, mixers, ...);

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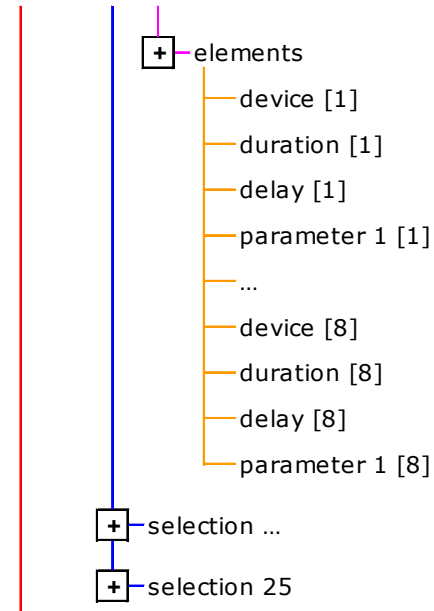

free vend

- selection 1
- ...
- selection 25

to perform dispensing cycles on a free basis that will be booked in "total free vends";

press [start]

Device under test

- device
  - grinder 1 (P1)
  - grinder 2 (P2)
  - not used (P3)
  - sugar (P4)
  - descafeinated (P5)
  - gingseng (P6)
  - milk (P7)
  - chocolate (P8)
  - barley (P9)
  - tea (P10)
  - hot solenoid valve 1
  - ...
  - hot solenoid valve 5
  - mixer 1
  - ...
  - mixer 5
  - test stirrer
- parameter 1 (test device)

to activate the devices listed here below for test purposes;

press [test]

the screen shows "running test ..."

and then "test ended"

Param1 (speed or activation time)

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- Wash cycles — to enable the wash cycles of the specified circuits;
  - mixer 1
  - ...
  - mixer 5
  - brewer wash with pastille

  press [start]
- Date and time — to programme these machine parameters; at the end, press "store date and time";
  - year
  - month
  - day
  - hour
  - minutes
  - seconds
  - store date and time
- Decounters
  - limits of decounter 1 — time credit of product motor 1;
  - value of decounter 1 — residual time of product motor 1;
  - reset of decounter 1 — reset of the time credit of product motor 1;
  - ...
  - limits of decounter 20
  - value of decounter 20
  - reset of decounter 20
- Audit data
  - total selections — total number of dispensing cycles;
  - partial selections — number of dispensing cycles of subtotals;
  - total vends — total amount of dispensing cycles;
  - partial vends — total amount cashed since the last reset of subtotals;
  - total free vends — total number of free dispensing cycles;
  - total number per selection
    - total selection 1 — number of dispensing cycles of selection 1;
    - ...
    - total selection 25 — number of dispensing cycles of selection 24;
  - partial number per selection — number of selections from 1 to 24 since the last reset;
    - partial selection 1 — number of partial dispensing cycles of selection 1;
    - ...
    - partial selection 25 — number of partial dispensing cycles of selection 24
  - partial reset — reset of all partial data;
  - Total reset — reset of all data;

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+ Timetables		
+ Energy saving bands		
On hour - Monday … Sunday	energy saving time band start;	
On minute - Monday … Sunday		
Off hour- Monday … Sunday	energy saving time band end;	
Off minute- Monday … Sunday		
Espresso standby temperature	water temperature in the pressure boiler during the energy saving time band;	
Instant standby temperature	water temperature in the boiler during the energy saving time band;	
+ happy hour	see "Price 2 usage";	
start hour - N	happy hour time band start hour;	three time bands av.
start minute - N	happy hour time band start minute;	
end hour - N	happy hour time band end hour;	
end minute - N	happy hour time band end minute;	
wash hour	wash cycle start hour;	two time bands av.
wash minute	wash cycle start minute;	
+ Failure records	error record (see 11.);	max 50
message reset	to delete error records;	
01) DD/MM/YYYY hh.mm - OFF: code		
…		
50) DD/MM/YYYY hh.mm - OFF: code		
+ Miscellaneous		
to show diagnostics information	to display temperatures, the state of sensors, …;	
firmware release	software releases of CPU, GPU, Pwr and Espresso	
full machine test	to test the machine devices	
Machine UID	Machine Unique Identifier	
+ product calibration	to increase or decrease the activation time of product motors (- 80% ÷ + 80%);	
product calibration 1		
…		
product calibration 10		
+ hot pump calibration	to increase or decrease the activation time of boiler pumps (- 80% ÷ + 80%);	
hot pump calibration 1		
…		
hot pump calibration 5		
+ cold solenoid valve calibration	to increase or decrease the activation time of cold unit solenoid valve (- 80% ÷ + 80%);	
cold solenoid valve calibration 1		
cold solenoid valve calibration 2		
espresso pump calibration	to increase or decrease the activation time of espresso pump (- 80% ÷ + 80%);	

10. parameters

the following tables are intended to supply some information on the programmable parameters of the **luce x2** configuration software; if not otherwise specified, the numeric time values of devices are understood in tenths of a second (e.g. 27 corresponds to 2 seconds and 7 tenths);

10.02. configuration **basic** and **TFT**

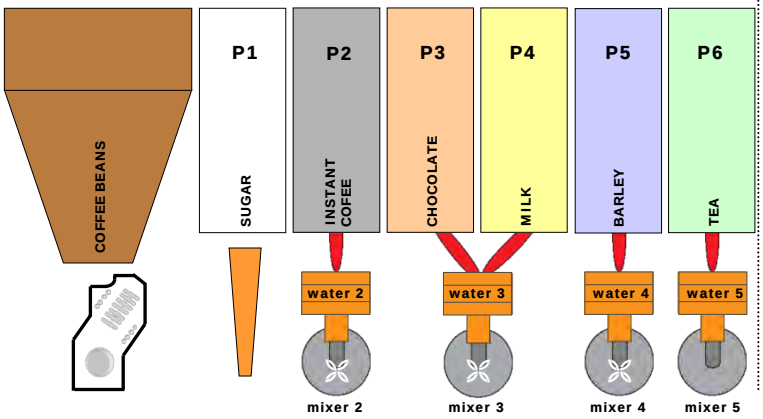
the parameters intended to dispense the drinks with the different possible products are supplied here below, just by way of example; these values enable the operator to program the selections of reference and they can be used to obtain some functional dispensing cycles even if it may be necessary to make some slight changes to appeal to the users;

see 04.02.

product canisters

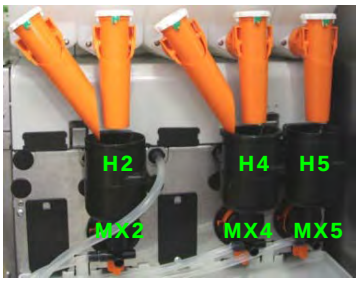
coffee beans	
sugar	P1
instant coffee	P2
chocolate	P3
milk	P4
barley	P5
tea	P6

espresso	water expr.	35									
	prod. 1	17									
espresso macchiato	water expr.	40									
	prod. 1	15									
	prod. 4	14			delay prod. 4	5					
	water 3	25							speed water 3	1	
	mixer 3	40			delay mixer 3	5			speed mixer 3	2	
capp ciocc	water expr.	40									
	prod. 1	17									
	prod. 3	10			delay prod. 3	5					
	prod. 4	20			delay prod. 4	5					
	water 3	35							speed water 3	1	
	mixer 3	50			delay mixer 3	5			speed mixer 3	3	
instant coffee	prod. 1	17									
	prod. 2	18			delay prod. 2	5					
	water 2	30							speed water 2	1	
	mixer 2	45			delay mixer 2	5			speed mixer 2	3	
instant cappuccino	prod. 1	17									
	prod. 2	18			delay prod. 2	5					
	water 2	35							speed water 2	1	
	mixer 2	45			delay mixer 2	5			speed mixer 2	3	
	prod. 4	22			delay prod. 2	45					
	water 3	35			delay water 3	40			speed water 3	1	
	mixer 3	50			delay mixer 3	45			speed mixer 3	3	
instant latte macchiato	prod. 1	17									
	prod. 2	30			delay prod. 2	5					
	water 2	25			delay water 2	55			speed water 2	1	
	mixer 2	35			delay mixer 2	60			speed mixer 2	3	
	water 4	45							speed water 4	1	
	mixer 4	60			delay mixer 4	5			speed mixer 4	3	
barley	prod. 1	17									
	prod. 5	18			delay prod. 5	5					
	water 4	35							speed water 4	1	
	mixer 4	45			delay mixer 4	5			speed mixer 4	3	
chocolate	prod. 3	38			delay prod. 3	5					
	water 3	50							speed water 3	2	
	mixer 3	75							speedmixer 3	3	
tea	prod. 6	22			delay prod. 6	5					
	water 5	50							speed water 5	2	
	mixer 5	65							speed mixer 5	3	



10.01.a. configuration
touchTV

devices names			
Coffee beans	P1		
Dek coffee beans	P2		
Sugar	P4	boiler pump H2	mixer 2
Instant coffee	P5		
Chocolate	P6	boiler pump H4	mixer 4
Milk	P7		
Lemon tea	P8	boiler pump H5	mixer 5



selection	device	duration	delay	param1
01. cappuccino classic	P1	80	0	38
	P7	8	5	0
you can change the device P1 with the device P2 to obtain the same selections but using the dek coffee beans ;	P7	8	30	0
	P7	8	55	0
	H4	65	0	11
	MX4	90	5	15
03. espresso	P1	48	0	38
05. milk	P1	48	0	38
	P7	8	5	0
	P7	8	18	0
	P7	8	30	0
	P7	8	50	0
	H4	90	0	11
	MX4	100	0	15
7. americano	P1	95	0	67
	H2	60	0	11
9. mochaccino	P1	82	0	0
	P6	8	2	0
	P6	8	13	0
	P7	13	22	0
	P7	12	29	0
	H4	60	0	0
	MX4	50	0	0
11. hot chocolate	P6	6	2	0
	P6	6	13	0
	P6	5	24	0
	P6	5	35	0
	P7	10	76	0
	H4	104	0	11
	MX4	115	0	15
13. lemon tea	P8	10	12	0
	P8	10	24	0
	P8	9	72	0
	H5	110	0	11

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10.02. limits

the table is intended to list the minimum and maximum values you can assign to programmable variables;

	m.u.	from	to	
exp coffee water	n.	0	250	0 = no espresso;
product	sec.	0	20	0 = no product;
product start delay	sec.	0	20	0 = no delay;
number of product pauses	n.	0	2	0 = no pause;
water time	sec.	0	20	0 = no water;
water start delay	sec.	0	20	0 = no delay;
water flow	→	→	→	low, medium, high
mixer	sec.	0	20	0 = no mixer;
mixer start delay	sec.	0	20	0 = no delay;
mixer speed	→	→	→	low, medium, high
temperature pressure boiler	°C	0	105	
temperature boiler	°C	0	95	
product decounter	sec.	0	6.000	0 = no limit;
machine code A e B	n.	0	65.535	
message number	n.	0	7	
fan delay	min.	0	180	
beep time	sec.	0	1.5	
number of decimals	n.	0	3	
coin A ÷ J	n.	0	65.000	
prices 1 ÷ 24	n.	0	65.000	
tuning pump	→	→	→	+/-30%
tuning motor	→	→	→	+/-30%
tuning grinder	→	→	→	+/-30%

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11.
solution of problems

some malfunctions produce an error message on the display; some general information is supplied here below for these messages;

error	actions/comments	cause
OFF 1	add cups to the vending machine turrets (see 05.30. and 13.01.); in the machines complete with two cup dispensers, a distinction will be made between OFF **1A** and OFF **1B**;	**no cup**
OFF 2	check the connection between the machine and the payment system; check the supply, programming (see 09.01.f.) and operation of the payment system; it can display OFF **2 E** (executive) or OFF **2 M** (mdb);	**no communication between the machine and the payment system**
OFF 3	empty the waste water bucket (see 05.25.);	**waste water bucket full**
OFF 4	check the movement of the dispenser nozzle arm; motor malfunction (**4A**) or control switch (**4B**) (see 05.24.);	**dispenser nozzle arm**
OFF 5	EAROM of the CPU board failed; replace the CPU board;	**no data storage**
OFF 6	water inlet solenoid valve in safety status (waste water from the boiler overflow) or non operating; the internal filter net clogged; water not supplied by the network, water supply flow rate not adequate; supply water circuit throttled or clogged; it may physiologically occur at the first power on when the boiler that is completely empty will require more time than usual to fill; (see 05.29.);	**filling time for the boiler or the air break too long**
OFF 6B	there is a control connecting water reloads with the drinks you have dispensed; if some water reloads occur without dispensing any drink, this will produce the 6B error; make sure there is no leakage in the water circuit;	**water reloads without dispensing any drink**
OFF 7	there is a maximum operation time of the brewing pump, at the expiry of which error 7 is produced; check the efficiency of the water circuit: volumetric counter, pump, three-way solenoid valve, …; brewing chamber as well as upper and lower filter of the coffee brewer; the quantity and grinding degree of coffee shall cause the machine to brew for about 10/15 seconds;	**espresso brewing time too long (E machines)**
OFF 8	electrically and mechanically check the switch controlling the coffee brewer rotation, the control cam, the unit rotation motor and its crank;	**false position of the coffee brewer (E machines)**
OFF 8A	make sure that the unit has properly positioned (against the support wall); check the operation of the micro switch operated by the presence of the brewer (see 05.42.);	**no coffee brewer (E machines)**
OFF 9	there is a control for the maximum grinding time; after this threshold has been exceeded, error 9 is produced; no coffee, hopper orange blade closed; wear, grinders excessively closed; (mechanic and electric) doser switch not operating; in the machine with two coffee canisters: **9A** in canister 0; **9B** in canister 1; **9C** in canisters 0 and 1 (see 05.19.);	**grinding time too long (E machines)**
OFF 9D **OFF 9E**	the volumetric doser has not opened after having received the command; if the machines are equipped with two coffee canisters, the second volumetric doser has not opened after having received the command;	**volumetric doser (E machines)**

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OFF 10	the values written in the EAROM are not compatible with the operation of the machine or deleted; reload them; replace the CPU board CPU; (see 05.51.a.);	**loss of programming data**
OFF 14	there is a control causing the machine to reload water after a well-defined number of dispensing cycles; otherwise, error 14 is produced; make sure that the water supply from the outside is correct (see 03.03.) and that the water circuit of the machine is orderly (tubes, gaskets, …); even an inlet water pressure value other than the setpoint may cause this error and fill the air-break or the boiler in excess;	**no water reload**
OFF 15	the cup turret rotation is inhibited; check the motor action and make sure that there is no obstacle (see 05.30.);	**cup dispenser**
OFF 16	a key of the service keyboard might have be stuck; (see 05.37.);	**service keyboard**
OFF 17	a key of the selection keyboard is not operating (short-circuited); it may also occur if an operator should operate it for too long while programming the machine (keys 4 and 5 to increase and decrease the quantities); (see 05.02.);	**selection keyboard out of order**
OFF17B	one of the two keys intended to programme the sugar quantity is short-circuited; replace it; (see 05.05.);	**sugar keys**
OFF 24A	the 24V dc supply is higher than the limit value; replace the power supply unit board (see 05.51.c.);	**24 V dc power supply excessive**
OFF 24B	pay attention to the cause that has brought about the failure; check the alternate supply at the board input; the component regulating the voltage might be faulty; replace the power supply unit board (see 05.51.c.);	**24 V dc power supply inadequate or lacking**
OFF 25	the cup has not been properly released; the motor intended to rotate scrolls might be hindered (see 05.30.); in the machines complete with two cup dispensers, a distinction will be made between OFF **25A** and OFF **25B**;	**cup release**
OFF 25C	the sensor fails to detect the cup drop;	**cup presence sensor**
OFF 31A	the pressure boiler temperature has exceeded the one you have programmed (see 09.01.e.); replace the temperature probe; the device of the CPU board is not working according to control; replace the CPU board;	**water temperature high (E machines)**
OFF 31B	temperature safety devices tripped (clicsons, thermofuses, …); restore or replace them; heating element not supplied or not operating; check the connections and continuity of the heating element; if necessary, replace it;	**water temperature low (E machines)**
OFF 31C	temperature probe interrupted; connector to the board, wiring; make sure that the cable between the probe and the CPU board is not interrupted or replace the probe;	**temperature probe (E machines)**
OFF 33 A, B, C	they have the same meaning of errors 31A, B and C, but referred to the boiler;	**I machines**
OFF 34	temperature not adequate, lack of water in the tank, … ;	**cooling unit**
OFF 50	check the USB connection cable between the two boards;	**communication between the CPU and the power board**
OFF 51	check the USB connection cable between the two boards;	**between the CPU and the control board of the brewer (E machines)**
OFF 53	check the USB connection cable;	**between the machine and the cooling unit**

10. maintenance

the **luce x2** vending machine requires no special maintenance procedure to do its job; however, if you provide for careful and frequent cleaning, this may help the machine keep its performance constant, prevent failures and ensure the high quality of dispensed drinks; the frequency of cleaning operations largely depends upon the number of dispensing cycles and the hardness of water in use (use a softener system) and it shall be adjusted to the working conditions of the vending machine;

the actions described are intended to prevent the bacterial growth in the machine areas directly in contact with foodstuffs and to keep the parts conveying drink-composing products clean; after having disassembled the parts of the machine listed here below, use plenty of lukewarm water to remove any residue that might build up;

the support of a bacterialstatic or bactericidal solution may strengthen a deep cleaning action, provided it is compatible with human health and the supply of foodstuffs; reassemble all the parts you have cleaned after having dried them by means of a clean piece of cloth;

refer to the content of the Internet address:

http://ec.europa.eu/food/food/biosafety/
hygienelegislation/index_en.htm

this site is intended to supply the European Parliament recommendations for properly and safely processing foodstuffs;
consult also:

http://eur-lex.europa.eu//
regulation 2004/852/EC of 29/04/2004

before accessing the machine for each maintenance operation, it is recommended to warn the users by means of boards properly positioned that it is forbidden to approach the vending machine and to use it;

attention

never wash the machine by using water jets;

wash hands thoroughly with water and soap before handling the machine and the products;

only use potable water;

all components shall be washed with running lukewarm water (50 °C maximum);

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12.01. **settimanale**

power off the machine; detach the power supply cable and carefully make sure that there is no sign of wear; carefully check the stability and efficiency of the internal connections of the mains supply;

external body and touch screen

use a non-abrasive piece of cloth after having dampened it with lukewarm water; only if necessary, use a neutral, non-foamy, detergent;

attention

use neutral detergent products only; never use abrasive cloths, steel sponges, aggressive or foamy detergents and other solvents, hot water and acids;

when it is necessary to clean the touch screen, in addition to the notes above mentioned, we recommend to use only a bland detergent, diluted as per instructions of the manufacturer, specific for these components (pc monitors and similar) taking care not to scratch, leaving cleaning liquid drops, …; do not spray the detergent directly on the monitor; prevent in any case the dripping

cups station

use the orange handle to remove the cups station from the inside the door, separate its components and wash them with plenty of lukewarm water; clean the transparent bulkhead from the inside;

product slides

remove them from the product canisters, wash them in plenty of lukewarm water (product slides are pressure-secured);

dispensing system

rotate the levers intended to secure the mixing bowls clockwise, remove the dispensing nozzles, pull the mixing bowl and the upper ring; also remove the sugar dispensing slide and the tube; wash the ensemble of disassembled parts in plenty of lukewarm water;

walls and bottom of the machine

remove any trace of residue from the internal surfaces of the machine and clean by using a damp piece of cloth;

internal wall of the door

remove any trace of residue from the surfaces inside the door, above all in the proximity of the cups station;

12.02. **monthly**

environmental and powder aspirators

carefully make sure that the motor of the aspirator can freely rotate and has no obstacles or obstructions; make sure that the corrugated tube connecting the powder aspirator and the aspiration drawer is clean and free of any product deposit;

products canister

rotate the baffles, remove the canisters from the machine, clean them externally; clean the support surface carefully to remove any trace of product;

in E machines

coffee brewer

clean and wash the whole coffee brewer by using running water; to check, clean or replace filters and gaskets after having disassembled the unit from the machine (see 13.04.):
- unscrew the two lock screws from the setting plates;
- rotate the upper piston to access the gasket as well as the upper and lower filters;
- check the upper and lower piston gaskets;
- clean the upper and lower filters;
- grease the lower filter stem by using silicone-based grease for foodstuffs;

doser / grinder

to remove the coffee canister, check the doser chamber, make sure that the coffee slide is free of any encrustation; make sure that grinding wheels are intact, free of any residue;

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12.03. **yearly**

dispensing system	replace the gaskets at the base of the mixing bowls of the mixers; remove the mixer motor fan by pulling it; replace the gaskets of the mixer motors shaft ;
products canister	disassemble the product canisters from the machine; empty them, disassemble them in their basic components and wash them carefully;
powder aspirator drawer	remove the water transport tubes from the boiler at the back of the mixer surface, disassemble the mixing bowls, unscrew the two side screws intended to fasten the surface, tilt and pull it, remove the aspiration drawer; wash it abundantly with lukewarm water;
boiler	empty the boiler by means of a drain pipe; extract it from the machine, remove the cover and wash the tank by removing any solid residue that may have built up at the bottom; remove any calcareous deposit from active elements: temperature probe, heating element, level probes, the shafts of rotary pumps, …;
silicone tubes	make sure that the water transport tubes are intact and that they have kept their transparency, replace them, if necessary;
in E machines coffee brewer	- replace the upper and lower pistons gasket; - replace upper and lower filters; - check the status of the brewing chamber;
pressure boiler	disassemble the pressure boiler; separate the pressure boiler from the block of the solenoid valves and check the sealing o-ring; clean the instant and espresso water circuits at the outlet; check the drain of the third way of the espresso solenoid valve by removing any trace of residue; empty and clean the air-break tank;
	the frequency of these operations depends on the number of dispensing cycles and the hardness of water used; their regular and accurate performance is necessary to prevent damage and malfunction, it allows a continued work and extends the life of the machine; the use of a water softener filter, whose cartridge is regularly replaced, prevents the formation of limestone;
12.04. out of order	if the vending machine should be inactive for a long period, please act as follows:
temporary	- in E machines, perform the uninstall cycle (see 09.01.f.); - In I machines, set the boiler water temperature to zero (see 09.01.e.); - detach the water and energy supply; - in I machines, empty the boiler; - empty and clean the product canisters; - empty the waste water bucket; - empty the grounds bucket (or remove the bag grounds); - clean the internal and external surfaces by using a wet piece of cloth; - cover the machine by means of a cloth; - store it in a sheltered place, at a temperature not below 5 °C, at a relative humidity not above 80%;
definitive	if you should definitively set the vending machine out of commission and provide for the disposal of some parts thereof, after having carried out the operations above, disassemble the vending machine by separating every single component and subdividing the parts according to the nature of materials; the applied symbol means that the components of the vending machine shall be not processed as home rubbish, but delivered to the collection points capable of recycling electric and electronic equipment; refer to the 2002/96/EC Directive and to the relative rules;
	the complete text of the European directive about this specific subject-matter is made available on the Internet site: http://eur-lex.europa.eu/ directive 2002/96/EC of 27/01/2003

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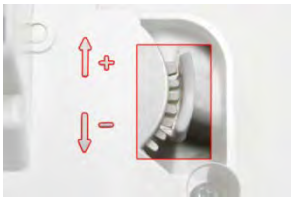
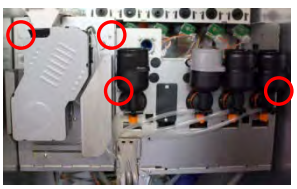
13. **how to do to:**		
13.01 load the cups	remove the cover, load the cups starting from the turret on the left, compared to the cup conveyor; it is absolutely necessary to press the cup release button (see 05.31.) whenever the cup loader is completely emptied to prevent the machine from dispensing the first drink without any cup;	see 05.30.
13.02. remove the coffee canister	insert the orange closing baffle as far as the bottom and lift the coffee canister;	see 05.19.
13.03. remove the instant canister	pull the canister by lifting it slightly; to reassemble it, insert the rear bush into the motor gear; disassemble the product slides from the canisters by turning them clockwise and pull them;	see 05.19.
13.04. remove the coffee brewer	when the machine is open, unscrew the water inlet black ring nut into the upper part of the unit; extract the coffee outlet tube from the support; lift the lock lever; pull the upper part of the unit;	see 05.40.
13.05. regulate the grinding degree	in the machines with flat millstones, rotate the knurled ring nut by means of the white adjusting screw (clockwise for a finer grinding degree); in the machines with conical millstones, rotate the ring nut of the grinder (clockwise for a finer grinding degree); the effect produced by the regulation becomes visible in the drink after three or four dispensing cycles;	 
13.06. regulate the ground dose	in the machines with the volumetric doser, press the regulation lever inside the machine; lift it up or lower it down to increase or decrease the volume of the ground measuring chamber; release the lever and check the insertion of the block between the two notches of the toothed sector; in the machines with timing doser, see "09.01.a. grinder time"; the effect produced by the regulation becomes visible in the drink after three or four dispensing cycles; the grinding degree and the coffee dose shall produce a 15-sec brewing cycle;	
13.07. remove water	follow the uninstall procedure;	see 09.
13.08. replace the o-ring of mixing bowls	remove the silicone tubes intended to dispense the product; turn the orange ring nut clockwise; pull the mixing bowl body and extract the mixer fan; you can now access the w-ring of the motor shaft; the water inlet gaskets of the mixing bowl and the mixing bowl gaskets;	see 05.21.
13.09. replace the mixer motor	remove the silicone tubes intended to dispense the product; turn the orange ring nut clockwise and pull the mixing bowl body; unscrew the crosshead screw and extract the motor; the power supply wires can be removed without any tool;	see 05.23.
13.10. replace the product motor	remove the product canister; access the rear part of the machine; extract the two small electric cables from the motor, hold the body, push it to the bottom to release it from the bayonet connection of the structure; the power supply wires can be removed without any tool (observe the polarities);	see 05.21.
13.11. how to access inside the machine	remove the water tube at the inlet of the coffee brewer (see 05.40.), the product canisters (see 05.19.), the plastic cover and the upper part of the mixing bowls (see 05.21.); unscrew the four screws (○); the two vertical surfaces of the coffee brewer and instant mixing bowls can be tilted forward;	

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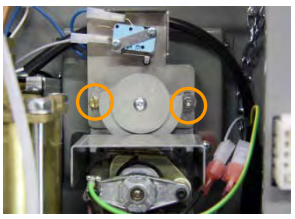
13.12. insert labels	to insert the labels into the selection keys, just detach them from the sheet supplied with the machine, arrange and secure them by using the transparent covers of the key; the cover is snap-locked by means of tongues;	see 05.03.
13.13. determine water and product times	the times specified by table 10.02. can be referred to as the times functional for the machine and the products to be dispensed; however, they can be adapted to the capacity of the user's cups (by changing "time water N") and its tastes (by changing "product N"); please, never forget to make sure that the dispensing time of the instant product is always lower than the one of corresponding water;	see 09.
13.14. programme delays	dispensing starts as soon as the user presses a selection key; the order in which instant products are poured into the cup depends upon the values of delays (e.g. the one, the delay value of which is zero, will be dispensed before the one, the value of which is 40, dispensed four seconds after the user has pressed the selection key); pay special attention when programming the delays in dispensing a product and the water diluting it in the mixing bowl; except for the instant coffee product, for which just the opposite is applicable, it is recommended to dispense water before the product to enable the latter to drop on the water film already present in the mixing bowl for a better mix; espresso is dispensed before and after any instant product by programming the variable "coffee sequence";	see 09.
13.15. regulate the speed of mixers	the rotation speed of the motors of product mixers can be adjusted between 15,000 r.p.m. and 5,000 r.p.m.; the drink quality of instant products depends a lot upon the action of the fans of mixers: instant chocolate generally requires a long mixing time at the maximum speed for dissolution in water whereas instant tea shall not be mixed to get a drink quality without any bubble on the surface;	see 09.
13.16. tune the water flow for instant products	regulation is admitted for boiler pumps (see 05.48.) within the +/-30% maximum limits only when the programmed water flow is "average"; when it is "low", it can be only increased (max. by 30%) whereas – when it is "high" - the flow can be only reduced (max. 30%);	see 09.
13.17. determine the time for the powder suction fan	to remove the residual powder of instant products from inside the machine, it is recommended to use the value in minutes you have already programmed (three); if you should use particularly volatile products, increase the time to five (and more) minutes;	see 09.
13.18. regulate the format of the stirrers tank	three Phillips screws are intended to arrange a vertical bar inside the stirrers tank to adapt the machine to the format in use;	see 05.35.
13.19. position the coffee brewer	the right phase of the coffee brewer that shall be in the same position as the one supplied by the photograph at the time of brewing is calibrated by means of the unit rotation control switch; the central articulation of the connecting rod shall be "moved back" by some degrees, compared to the ideal line joining the rotation axis of the unit and the upper end of the connecting rod; to achieve this result: - access the internal part (see 13.11.) at the back of the coffee unit and tilt the support backward; - loosen the Allen wrench and the screw; - regulate the switch position by rotating the support as well as by advancing or delaying the action of the cam on the lever; - screw the Allen wrench and the screw again;	 

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13.20. time tests	to check the rotation time of a product motor and a mixer fan or the activation time of a solenoid valve during the programming phase, when the display shows "PRODUCT N" or "WATER N time" or "MIXER N", press the "PROG" key: the device will be activated for the programmed time;	see 09.
13.21. install a payment system	the inner side of the carter (see 05.36.) is pre-arranged for the installation of a payment system; the system functionality is programmed by programmable parameters, such as in 09.; Rheavendors Services S.p.A. is at disposal for any kind of support and information on the installation of payment systems; (see 02.03.);	
13.22. return some material under guarantee	if you should return any material under guarantee that is either defective or not in compliance with your requirements, fill in the form "MOD. PO 19.01/2B Materials under guarantee – Authorisation to return" and send it to the fax number above to apply for authorisation; only after having received the authorisation form signed and numbered, you are permitted to send the goods at your expenses to the address specified by the form;	

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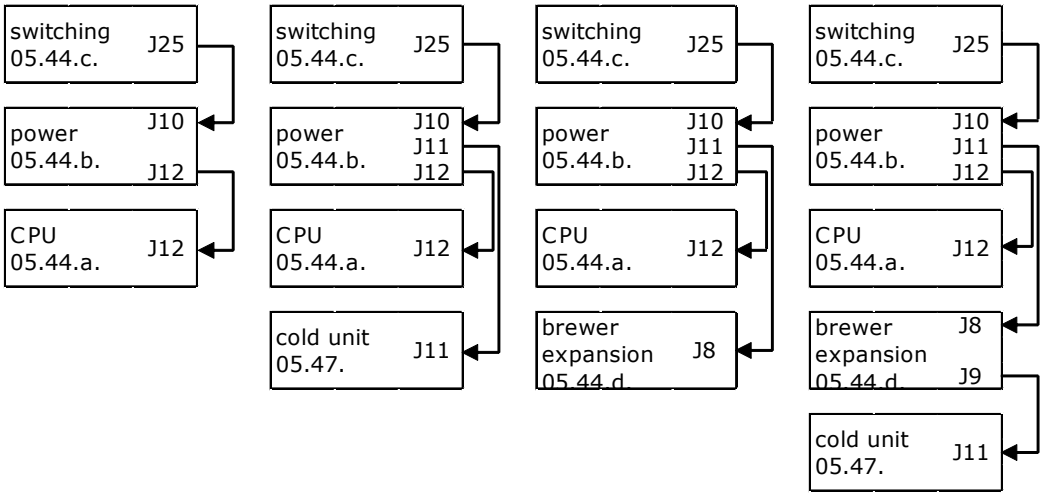
14.
electrical connections

the electronic boards composing **luce x2** are connected with each other for voltage supply and data exchange; the electric connections concerning the voltage supply and the USB ports for logic union and data transfer are represented here below;
the abbreviations (J nn) represent the names of the connectors, just as they are specified by the boards;

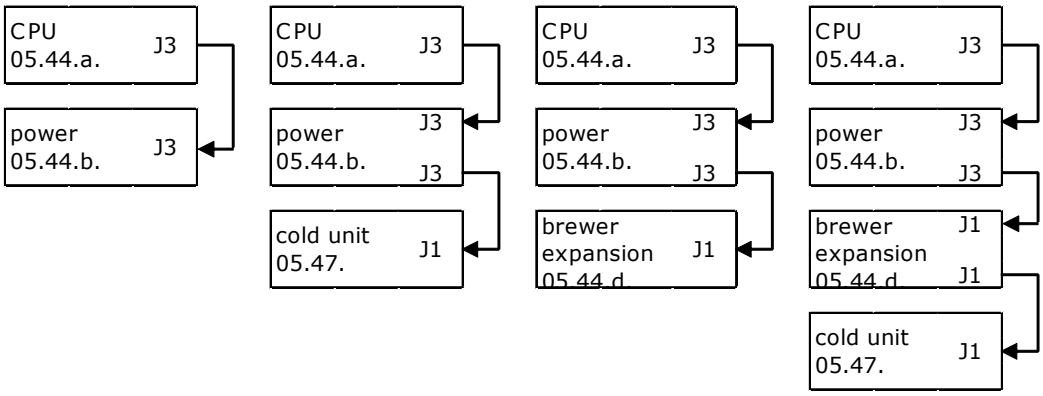
machine version

instant | **instant and cold unit** | **espresso** | **espresso and cold unit**

supplies



USB



Rheavendors Services S.p.A. is at disposal for support and information about wiring diagrams, assembly and wiring (see 02.03.);

15.
cups specifications

Rheavendors machines have been designed to work with a wide range of cups and have a large variety of hardware configurations to treat the wide ensemble of different cups made available for the vending sector;

the indications and parameters here below provide for a sure and safe functionality of Rheavendors machines, which are designed, manufactured and tested just with cups having these features; cups having a considerably different size or structure can be certainly used, even if their use shall be carefully evaluated, at least for the first time;

general information: some general conditions are assumed as absolutely necessary for a safe dispensing process; basically, the cups in use shall be:

- specific for the use of vending machines;
- homogeneous in terms of material, dimensions and weight;
- free of electrostatic charges;
- compatible with the temperatures of drinks;
- stacked up in a non-forced way;
- not deformed due to impact or compression;

other features that can be considered are:

the shape of the side wall that - if smooth - favours sliding and separation, conicity, weight and centre of gravity (better if downwards), transparency, reflecting or absorbing colouring (cups photocell), …;

transportation and loading: however, cups shall be properly treated until they are stored in the machine, ready for dispensing; for instance, transportation shall occur so as to keep them intact, the plastic film winding up stacks shall be removed without charging cups with statical electricity, stacks shall be poured into the cup dispenser in such a way that they are arranged uniformly, tidily and without any deformation, …;

refer to the technical catalogues of manufacturers supplying not only the dimensions of reference, but also suggestions and recommendations for proper use;

<u>important notes</u>

the cups specifically used for vending have some characteristics typical for use in the machines:

bottom: the geometry of the bottom is shaped so as to prevent cups from getting stuck one in each other and to make sure that their upper curls are placed at the same distance when cups are stacked up, and also,

under-curl diameter: they make sure that the physical size just beneath the upper curl is guaranteed and constant (interacting with the automatic release system and it is of fundamental importance for a safe release of the cups);

upper curl: the shape accomplished, constant and homogeneous ensuring a certain and repeatable interaction with the parts of the cups dispenser;

all these characteristics and indications contribute to a safe and sure automatic dispensing cycle of the cup, while ensuring a correct operation of the vending machine;

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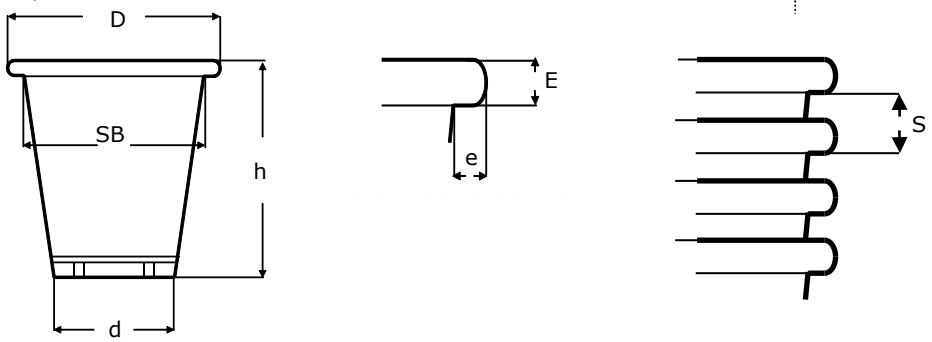
the table sums up the dimensions of the cups used as a reference; the countless number of existing variables is intentionally omitted for the sake of simplicity and clarity (it is impossible to list all the heights made available, the greater diameter being the same, more or less conicity, ...) by listing the sizes of the cups and columns in use, for instance, during the end-of-line testing;

the determining dimensions are certainly the greater diameter of the cup (D) and the under-mouth (SB) because they are the dimensions of the parts directly in contact with the cup release system of the vending machine (through-hole, augers, cups support, …);

even if important in the structure of the cup compared to the vending machine conformation, the other sizes are not so binding in contributing to the safety and repeatability of the dispensing process and they are supplied by way of example for "a" cup assumed as a reference;



	single cup								column
common name	D mm - 0.0; + 0.6	SB mm - 0.0; + 0.6	d mm	h mm	E mm	e mm	weight gr	volume cc raso bocca	S mm
diameter 57 plastic	57.2	52.9	33.0	61.0	2.0	2.2	2.2	87	≥ 4.0
diameter 70 plastic	70.0	65.0	38.0	74.0	2.0	2.5	3.8	150	≥ 4.0
diameter 73 plastic	73.2	67.5	46.0	100.0	2.0	2.75	4.8	200	≥ 4.5
diameter 70 paper	70.0	64.7	49.0	80.0	2.5	2.5	5.5	200	≥ 6.5
diameter 73 paper	73.2	67.5	50.0	103.0	2.5	2.5	6.4	210	≥ 7.0
diameter 80 paper	79.9	74.7	57.0	116.0	2.6	2.6	8.6	300	≥ 7.5

for above, only the tolerances admitted for size D and SD are specified;

cups with different sizes have already been successfully used in Rheavendors machines, having taken the sole precaution of carefully evaluating - before use - their compatibility with the dispensing systems and the architectures and dimensions of the cups station of vending machines;

Rheavendors Services S.p.A. is at disposal for any kind of support and information (see 02.03.);

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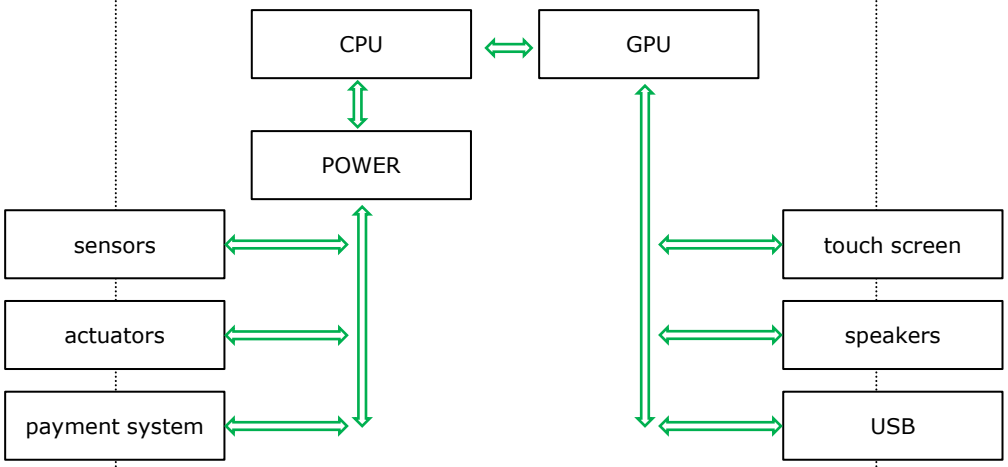
16.
electronic features
touchTV

important note

the utmost software flexibility and adaptability is not authorising, on no account whatsoever and under no circumstance, any improper use of this device that may be offensive, injurious, harmful, fraudulent or detrimental to human dignity; Rheavendors is only responsible for the multimedia contents (images, videos, sounds) installed at works and whoever may modify these contents, will fully assume civil and criminal liability;

all the machine functions and behaviors are under the CPU/GPU control; the CPU controls, also by means the power board, all the functions that are specific to a traditional dispensing machine while the GPU is mainly devoted to the most innovative devices;



the GPU organizes the GUI (Graphical User Interface) structure which is responsible for the characteristics of the objects displayed on the touch screen as, for example, the video displayed during the stand by or the picture showed during the preparation of a selection; all these objects are fully customizable by user;

the software must be in the following formats:

CPU	GPU
CPU firmware: .mhx recipes: .da2	GPU firmware: .mh2 pictures: .jpg, .png, .bmp videos: .AVI with Xvid codec

and they are transferable to the machine by means of a simple USB key (format it, FAT16, before using);

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16.01. GPU

below an overview of the structure of the GUI file

in a folder named:

x:\rhea\rheaGUI\

the user can load several GUI pack as:

x:\rhea\GUI pack name

the different GUI packs must have different names; e.g.:
x:\rhea\mickeymouse
x:\rhea\donaldduck
x:\rhea\...

structured with the following folders:

images

web

every GUI pack may be composed of:

images	it contains some images like the one used to fill the progress bar during the selection preparation;
web	it may be composed of the following .html files:
Config.html	it is a mandatory file that contains some parameters passed by the GUI firmware; these parameters are passed byurl parameters and are set by a script in some cookies that contain messages("your drink is ready, enjoy your drink, …); this cookies also include selection names and prices;
pageStandby01.html	its content is displayed when the machine is in stand by;
pageCredit01.html	it shown when the end user insert a credit;
pageSel01.html	those pages are shown during the preparation of the corresponding selections number; in this way it is possible to insert a custom image for each selection; the "pageSel01.html" is mandatory whereas all the other are optional and if one page is missing "pageSel01.html" is used instead;
pageSelEnd01.html	it shown when the selection preparation is finished and the cup is still in the cup station; this page is skipped if the cup sensor is disabled and, in this case, only the next message is displayed;
pageSelFinal01.html	when the user take the cup, this message is shown for four seconds; if this page is not present, the display returns to the stand by page;
pageSelNotAvailable.html	it is shown for some seconds when the user chooses a selection not available;
pageOutOfOrder.html	this page is shown when the machine is out of order;
pageMenu.html	during stand by, when a person is detected (sensor person enables), this page is loaded;

the utmost software flexibility and adaptability is not authorising – on no account whatsoever and under no circumstance - any improper use of this device that may be offensive, injurious, harmful, fraudulent or detrimental to human dignity; Rheavendors is only responsible for the multimedia contents (images, videos, sounds) installed at works and whoever may modify these contents, will fully assume civil and criminal liability;

to supplement the operational information of this manual, refer to "rheavendors LuceX2 Touch", which includes the instructions necessary to update and modify the programs residing in the machine (see 02.03.);

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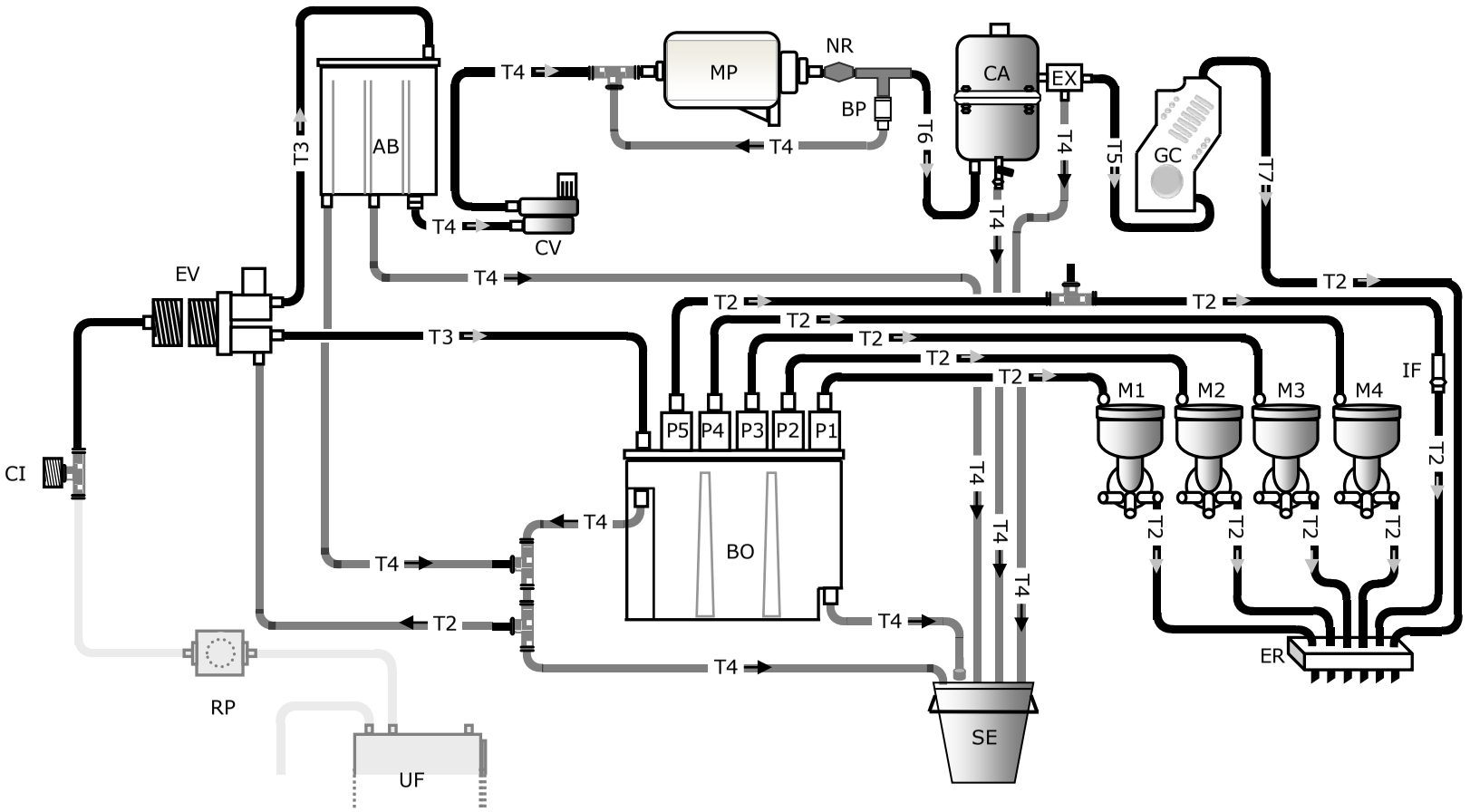

LEGEND	column	symbol	name
		CI	water connection
		EV	water inlet solenoid valve
		AB	air break
		CV	volumetric counter
		MP	pump ex 5
		NR	non return valve
		BP	safety by pass
		BO	boiler

column	symbol	name
	P1	boiler pump 1
	P2	boiler pump 2
	P3	boiler pump 3
	P4	boiler pump 4
	P5	boiler pump 5
	CA	pressure boiler
	EX	three-way valve
	GC	coffee brewer

column	symbol	name
	M1	mixer 1
	M2	mixer 2
	M3	mixer 3
	M4	mixer 4
	SE	waste water bucket
	ER	nozzle support
	IF	short insert
	UF	cold unit

column	symbol	name
2	RP	pressure regulator
/	T2	silicone hose 06/09T
/	T3	silicone hose 06/11T
/	T4	silicone hose 07/11T
/	T5	ptfe hose 02/04T
/	T6	ptfe hose 04/06T

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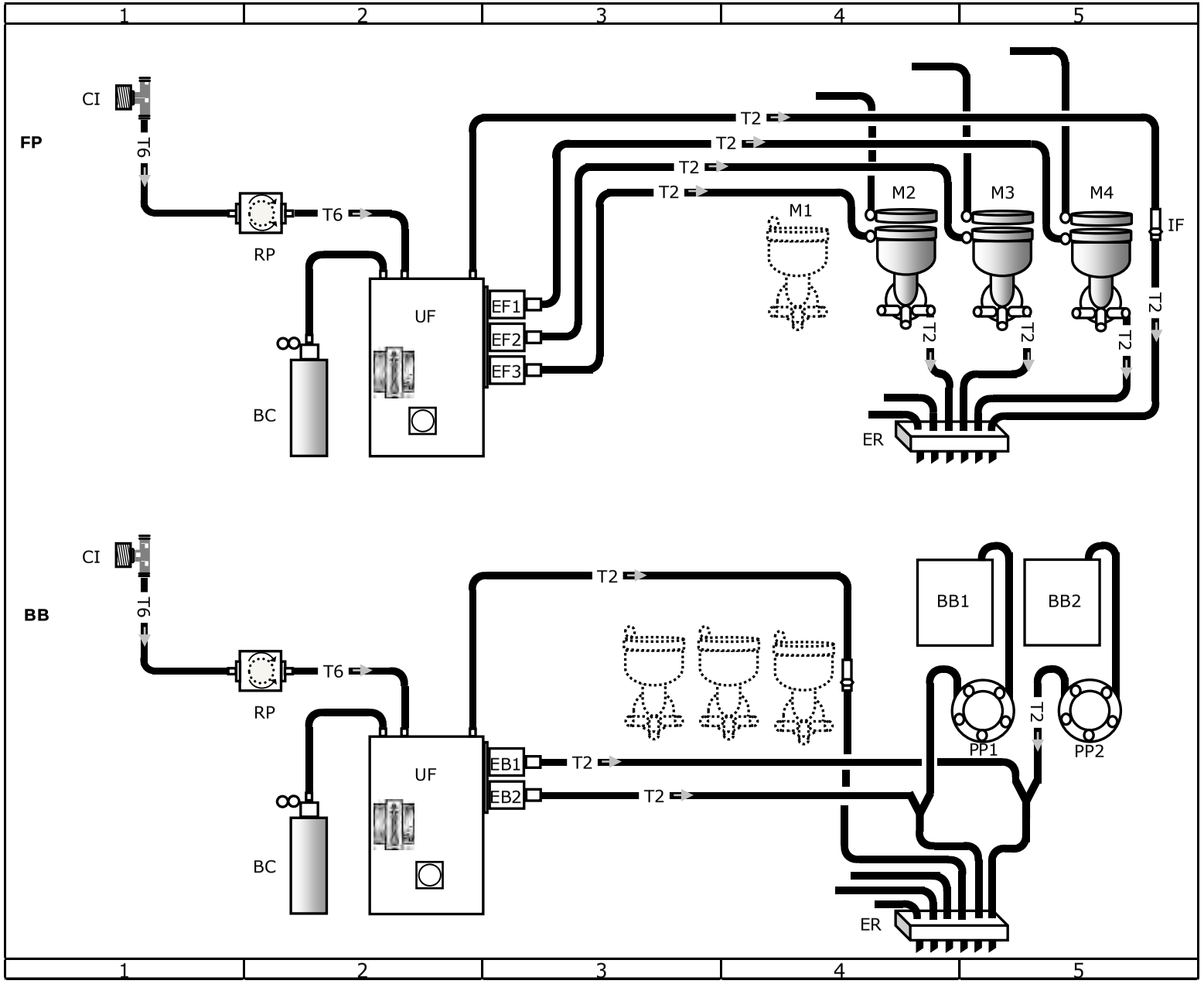
17. hydraulic diagram



LEGEND		
column	sym	name
1	CI	water connection
2	RP	pressure regulator
2	BC	CO2 cylinder
2	UF	cooling unit
3	EF1	powder cold solenoid valve
3	EF2	powder cold solenoid valve
3	EF3	powder cold solenoid valve
4/5	M(n)	mixer n
5	BB(n	bag in box
5	p	peristaltic pump
3	EB1	bag in box 1solenoid
3	EB2	bag in box 2solenoid
4/5	ER	dispenser
/	T2	06/09T silicone tube
/	T6	ptfe 04/06 tube

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