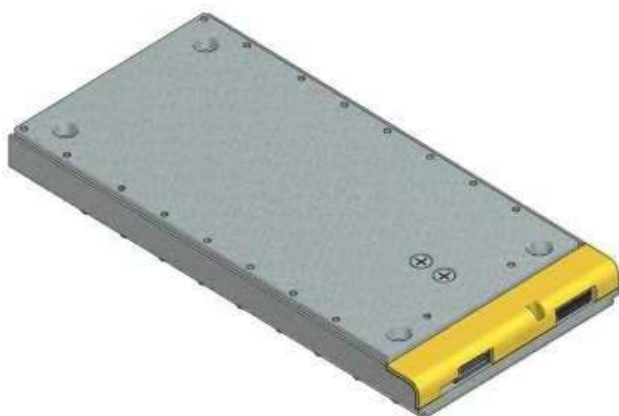
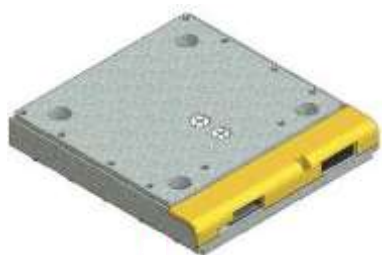


Libra S11 – Libra CD ccTalk electronic scale

Operator's manual

Rev. 1.01

Libra S11 ccTalk Libra CD ccTalk



Operator's manual



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STORICO REVISIONI			
Revisione n°	Data	Modifica	Note
Rev. 1.00 (Creazione)	26.04.13	Creazione	
Rev. 1.01	15.12.15	Inserito schedino indipendente pesa-monete	Cambiato logo

GENERAL DESCRIPTION

Congratulations for buying the Alberici LIBRA electronic scale.

We trust that its features and its performance will fully satisfy your expectations.

The Libra is a patented weighting cell system. By measuring the weight of the hopper and the contained coins, and calculating the tare, it returns the amount of contained coins.

The system works by ccTalk protocol, the secure and precise serial communication standard.

The electronic scale can be used with single-coin hoppers: in particular, the LibraCD matches disk-driven hoppers (as HopperCD), while LibraS11 matches universal type (belt-driven) hoppers (as HopperOne S11).

MAIN FUNCTIONALITIES

Accurate digital processing: the weight cells detect and transmit exact values, providing a precise measurement against the rough level signals provided by the usual level sensors of the hoppers.

Maximum weight: up to 25 Kgs (es. 6000 € made of 3000 x 2 € coins)

Protocol interfaces: ccTalk (to handle the scale as an individual peripheral unit), or **SPI** (to control scale-and-hopper as a single unit).

Multi-function dip-switch row: to select the protocol, to set the ccTalk address, to set the scale tare, to preset the coin denomination to be weighed, and to program one new denomination or token.

No need for cleaning or maintenance: technical failures typical of optic sensors and metal electrodes do not affect the measurement, so cutting service costs.

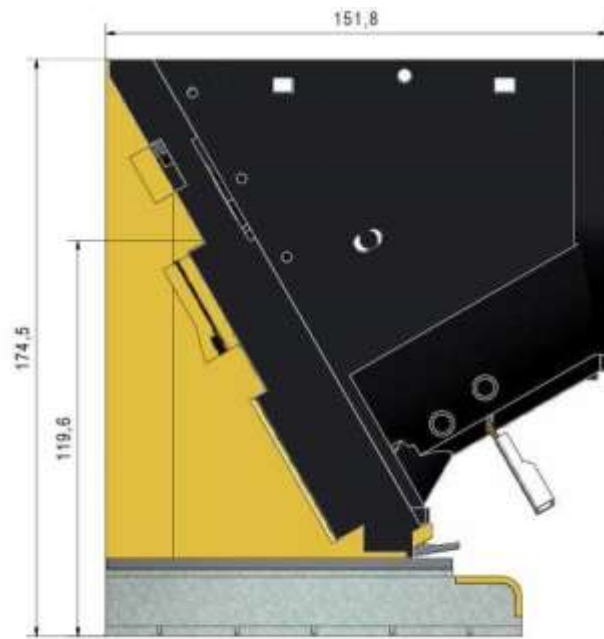
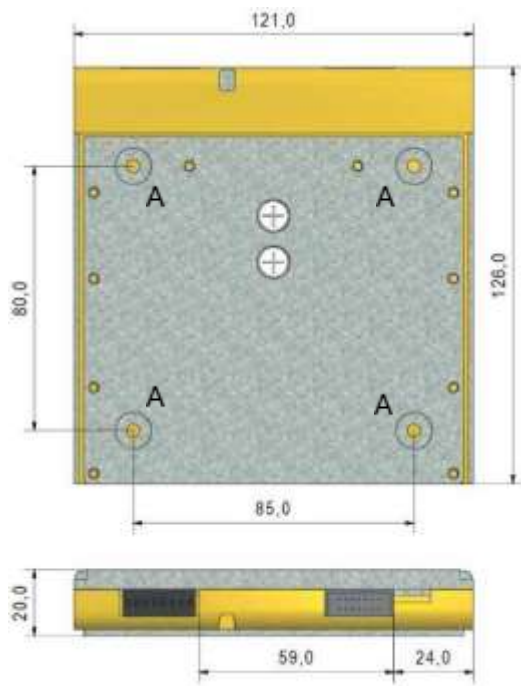
Value contained in the hopper gets updated in real time: at any moment the machine p.c. board can detect the exact amount available in each monitored hopper, allowing substantial advantages and savings:

- The reserve level gets precisely signaled. Refilling activity can be carried out only when really needed.
- No need to count in advance the amount of coins to be poured in.
- Alerts showing time and amounts connected to illicit or unjustified withdrawals.

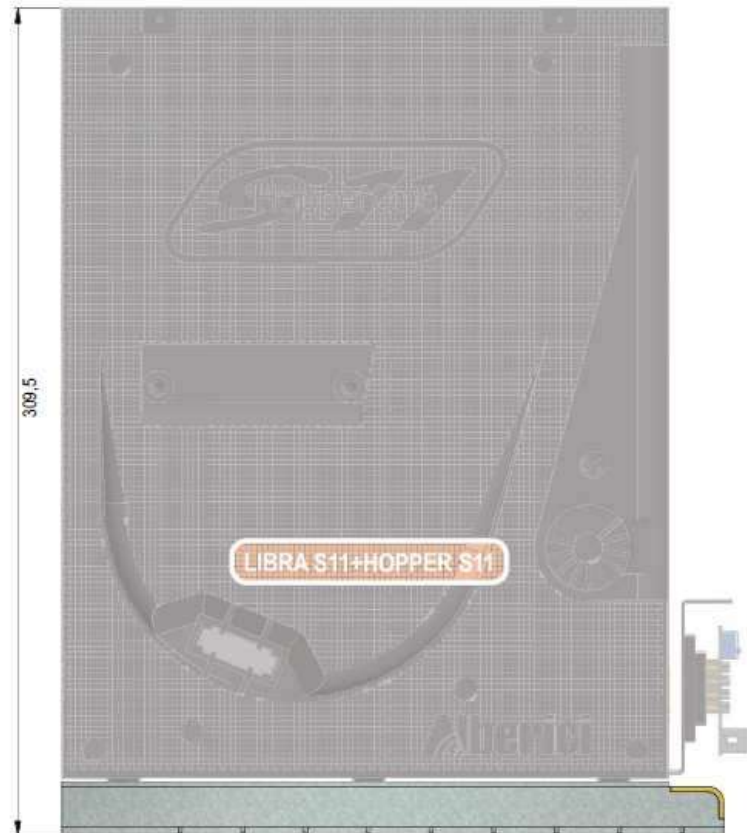
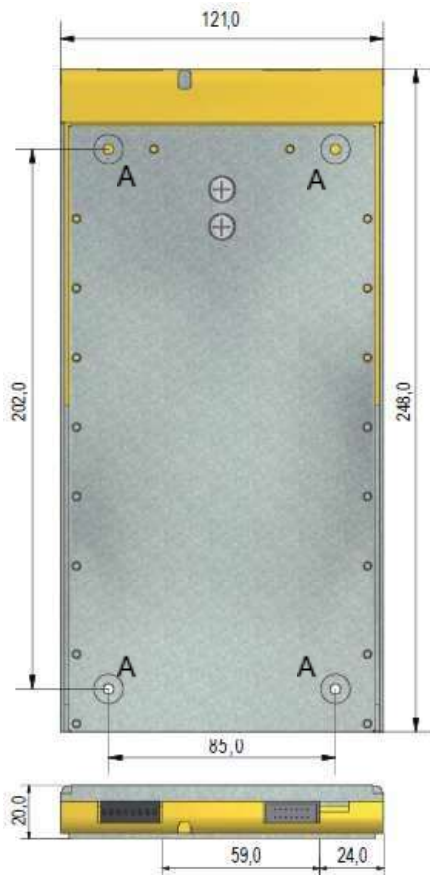
TECHNICAL SPECS

PROTOCOLLI / INTERFACE	ccTalk, SPI	TEMPERATURA OPERATIVA / OPERATING TEMPERATURE	5°C + 50°C (95% Humidity N.C.)
ALIMENTAZIONE / POWER SUPPLY	24 Vdc (±5%)	TEMPERATURA MAGAZZINO / STORAGE TEMPERATURE	10°C + 60°C (95% Humidity)
MONETE PROGRAMMATE /	2€ 1€ 50 €cent	PESO / WEIGHT	0,500 Kg (Libra CD)
PROGRAMMED COINS DENOMINATIONS	20 €cent 10 €cent 5 €cent 2 €cent		0,700 Kg (Libra S11)
ASSORBIMENTO /	150 mA		
CURRENT DRAW	(+Assorbimento/Current draw HopperCD/S11)		

DIMENSIONS



LIBRA CD+HOPPER CD



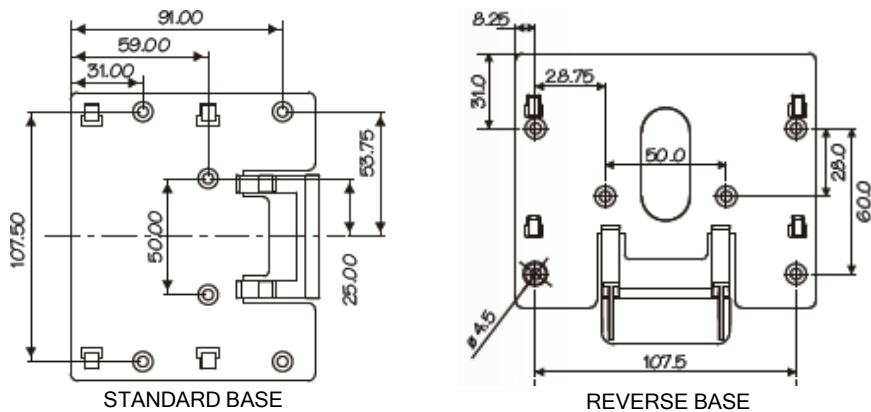
LIBRA S11+HOPPER S11

INSTALLATION

Fasten the scale to the hopper supporting shelf, through the 4 preset holes (see “A” holes in the previous page drawing).

HopperCD:

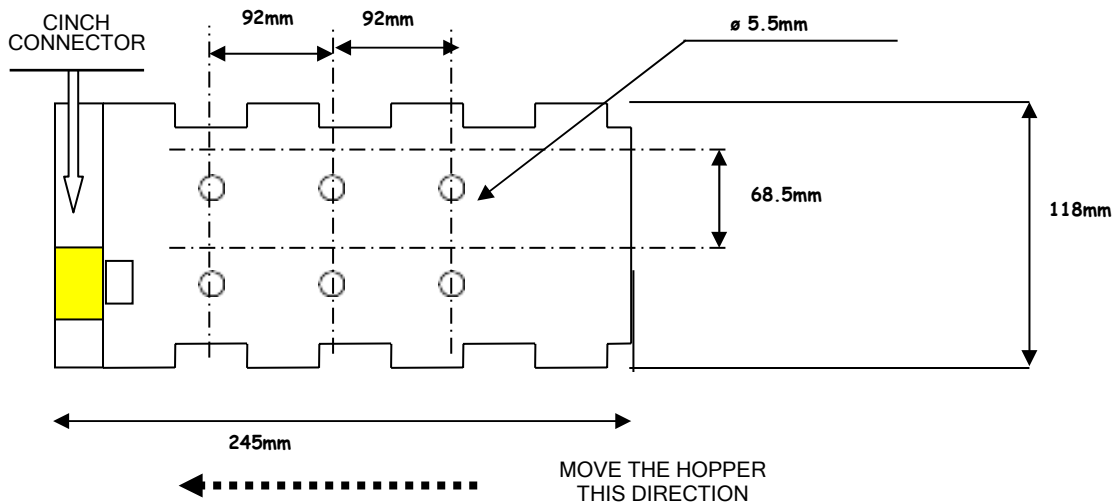
- . fit the polycarbonate base of the hopper onto the scale top
- . set the hopper in its position and slide it until it clings in.
- . read the following section before connecting power.



To dismount the HopperCD, press the front lid down, and slide the hopper out.

Hopper S11:

- . fit the base of the hopper onto the scale top
- . set the hopper in its position and slide it until its CINCH connector clings into the connector of the hopper
- . read the following section before connecting power.



To dismount the HopperS11, drag it opposite to the CINCH connector, and move it outwards.

POWER SUPPLY AND CONNECTIONS

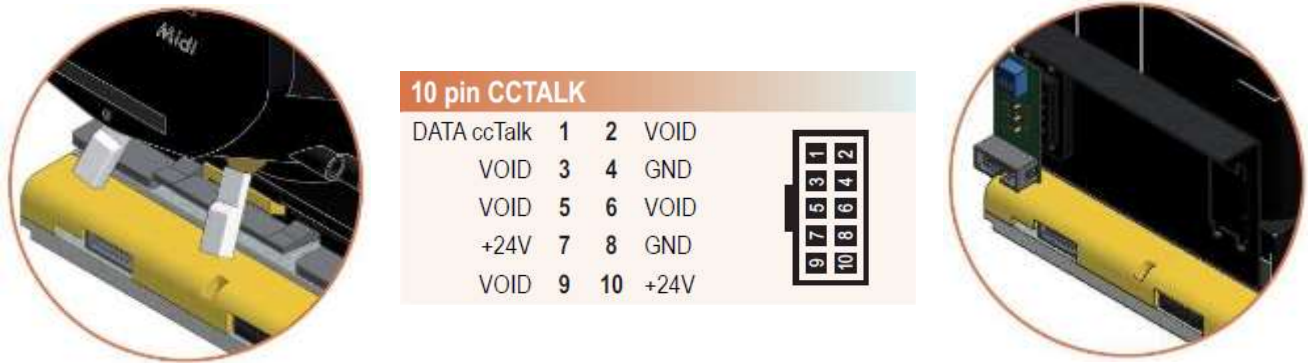
Operating Voltage	+ 24 Vdc (+/- 5 %)
Current Draw	150mA (*)

(*) add the current draw of the relevant hopper to obtain the total amount. The section of the connection wires must be compatible with the obtained current values.

Connectors

One 10p socket for flat cables is available on the front side; one 10p socket for flat cables is available on the rear side; one signal led; one 8 Dip-Switch row.

The two 10p sockets are connected in parallel. Connect the cables from the machine to the male connector, and then connect the scale to the hopper through the 10p socket located on the rear side.



All signals are in negative logic, that is: active when its potential is equal to GND.

SETTINGS

The pattern below shows the functions that can be selected by dip-switch combinations

DS 1	DS 2	DS 3	DS 4	DS 5	DS 6	DS 7	DS 8
CCT ADDRESS			TARE	DENOMINATION SETTING			

Setting the CCTalk address

DS1, DS2, DS3, allow to set the ccTalk address of the scale: standard address is 130 (hexadecimal: 82), to which must be added the binary value of the combination of the 3 dip-switches.

Therefore any address between 130 and 137 can be selected.

DS 1	DS 2	DS 3	Serial address
			130
		X	131
	X		132
	X	X	133
X			134
X		X	135
X	X		136
X	X	X	137

DS 4 is used to calibrate the weight of the empty hopper (see section “Tare Calibration”, page 7).

Setting the coin denomination

Combinations of DS 5-8 determine the coin denomination that will be put in the hopper, according to the following pattern:

DS5	DS6	DS7	DS8	COIN DENOMINATION
ON	x	x	x	SPECIAL
OFF	OFF	OFF	ON	2 EURO
OFF	OFF	ON	OFF	1 EURO
OFF	OFF	ON	ON	50 CENT
OFF	ON	OFF	OFF	20 CENT
OFF	ON	OFF	ON	10 CENT
OFF	ON	ON	OFF	5 CENT
OFF	ON	ON	ON	2 CENT

It is important that the proper coin denomination is set.

DS5 set to ON sets the scale for the SPECIAL mode; all remaining DS are not influential when DS5 is on. See details in the section "Activation of the SPECIAL denomination").

It is possible to set the coin denomination setting also by ccTalk command: this setting has the priority with respect to the setting by dip-switches.

Please note that the scale reads the dip-switch combination only at power on or at reset: therefore any modification made during operation has no effect until switching off and on again.

Tare calibration

Prior to put the scale into operation, it must be calibrated: if the balance has never been calibrated before, the front LED flashes red. In this situation the board will always respond BUSY to the request for the number of coins measured.

- Set the DS4 to ON
- Power up the scale: the LED flashes yellow until the measurement is complete.
- The LED remains steadily lit in yellow.
- To activate the operating mode, and therefore the possibility of measuring coins, move DS4 to OFF and power off the board.

Calibration by ccTalk command

Use the HEADER 73 command (see the table in the CCT COMMANDS section on page 10).

Activation of the 'SPECIAL' denomination

- power off the scale
- move DS4, DS5, DS6, DS7, DS8 to OFF
- turn on the power supply
- the LED flashes blue: load 100 pieces of the SPECIAL coin, e.g. 100 tokens or 100 pieces of the coin denomination that will be used in the hopper (*)
- move the DS5 to ON: the LED flashes green (measurement in progress), and stays solid green when the measurement is successful
- turn power off and on again, leaving the DS5 ON.

(*) NOTICE: if the scale has already been calibrated for the tare (weight of the hopper that will be used), put the hopper on the scale and pour the 100 tokens in the hopper; if it has not been calibrated, calibrate it without hopper, then put the 100 token straight upon the scale.

OPERATION

The Led will be flashing green while measuring (reply to prompt will be "BUSY"), and will remain steady green when the measure is obtained (reply to prompt will be the detected number of coins).

It is possible to read the coin denomination that has been set, the amount of coins detected (during normal operation), and to set the coin denomination to be measured (custom SPECIAL option included). The unit must have been first calibrated and programmed.

When in error, the Led will light up steady red.

OPTIONAL BLP BOARD (INDEPENDENT WEIGHING SCALE)

The optional BLP board (cod. SH-1M31) can be matched to the Lybra scale(s) to weigh coins on a lab desk, and to obtain automatic calculation of their quantity as well as of their total amount. Please follow the instructions below.



Set the scale on an even and stable surface.

Prepare +24V power supply for the J4 socket (take care of complying with the plus and minus polarities (shown on the board itself and in the figure below); do not provide power yet).

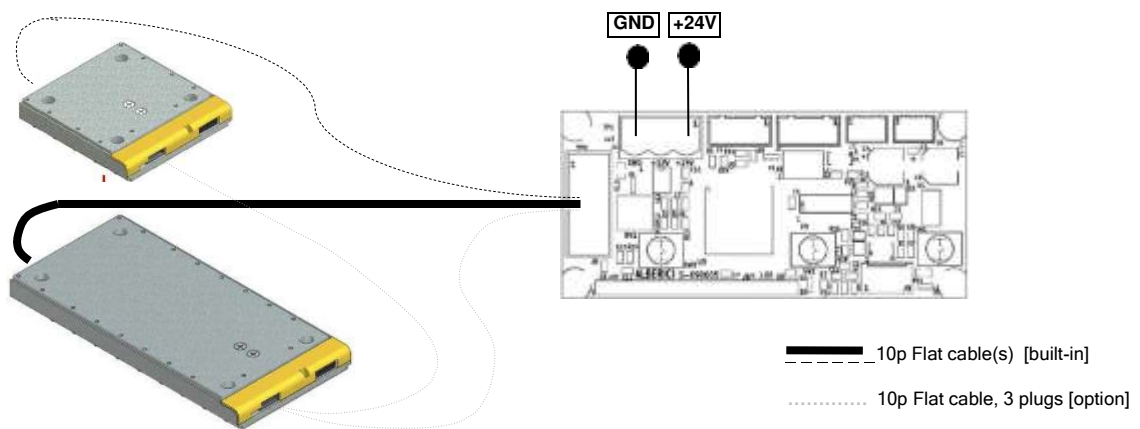
Place a container on the Lybra scale, where you will pour coins or tokens or other objects to be weighed.

Move Dip-switch 4 to ON and power up the board. Yellow light will flash for a few seconds, then it will set to still light. Switch power off, and move Dip-Switch 4 back to OFF.

Set the Dip-Switches 5-...-8 (on the front of the Lybra scale) to the coin denomination that shall be weighed; please refer to "Setting the coin denomination" at page 8.

Connect the 10p flat cable between the scale and the J5 socket on the BLP board.

Make use of the built-in 10p flat cable to weigh by only one Lybra scale. To weigh by two Lybra scales at the same time, connect the optional 10p flat cable with 3 plugs (cod. S-030411-000, not included) to the front 10p sockets.



Switch power on: green still light will turn on (if flashing red: the tare has not been gauged. If flashing blue: coin denomination has not been set).

If two scales have been connected, set respectively to weigh 2€ and 1€ coins, the display shall show the values here beside:

L1:	1	2,00 €
L2:	1	1,00 €

If only one scale set for 2€ coins has been connected, the display shows:

L1:	1	2,00 €
L2:	ASSENTE	

Pour the coins inside the container; the display shall show the number of coins detected, as well as their total value.

L1:	50	100,00 €
L2:	ASSENTE	

Switch power off when finished.

CCT COMMANDS

The ccTalk address of the scale is determined by the configuration of the Dip-Switches. The available addresses are 130-to-137. Address 130 is the default address, while 137 is the sum of the default value and the value of DS combination.

DS1	DS2	DS3	ADDRESS
OFF	OFF	OFF	130
ON	OFF	OFF	131
OFF	ON	OFF	132
ON	ON	OFF	133
OFF	OFF	ON	134
ON	OFF	ON	135
OFF	ON	ON	136
ON	ON	ON	137

The table below shows the typical ccTalk commands list for communication between the machine board and the Lybra scale:

PROMPT TO THE SCALE	REPLY FROM THE SCALE																		
Request Product Code: HEADER 244	BE LBR 1																		
Number of available coins: HEADER 72	<p>- BUSY: when the tare has not been programmed, or when the measurement is not stabilized.</p> <p>- 3 byte: when the measurement is stabilized or when it is in error.</p> <p>MON_{LSB}+MON_{MSB}+ERROR</p> <p>First bytes show the coins number (LSB first). The third byte should be always 0; different figure shows the type of error. In this case, the number of coins gets set to 0xFFFF.</p> <table border="1"> <thead> <tr> <th>3° Byte</th> <th>Error Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>"NO TARA" = tare has not been gauged</td> </tr> <tr> <td>1</td> <td>"RITARARE" = tare measurement must be repeated (the tare value is higher than the measured weight)</td> </tr> <tr> <td>2</td> <td>"NO PROG" = coin denomination not preset</td> </tr> <tr> <td>3</td> <td>-</td> </tr> <tr> <td>4</td> <td>-</td> </tr> <tr> <td>5</td> <td>-</td> </tr> <tr> <td>6</td> <td>"ERR.ADC" (signal error)</td> </tr> <tr> <td>7</td> <td>"ERR.CEL" (weight cell failure)</td> </tr> </tbody> </table>	3° Byte	Error Description	0	"NO TARA" = tare has not been gauged	1	"RITARARE" = tare measurement must be repeated (the tare value is higher than the measured weight)	2	"NO PROG" = coin denomination not preset	3	-	4	-	5	-	6	"ERR.ADC" (signal error)	7	"ERR.CEL" (weight cell failure)
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3	-																		
4	-																		
5	-																		
6	"ERR.ADC" (signal error)																		
7	"ERR.CEL" (weight cell failure)																		
Procedure for tare calibration: HEADER 73	<p>Ex. Send command 8200014934 0100820677: scale replies 'busy';</p> <p>- start loop with 500msec pause, until scale always returns "ack" to header 73: "8200014934 010082007D";</p> <p>- "ack" answer confirms that tare has been measured: exit loop.</p> <p>Whenever the command Header 73 is sent, the scale sets for tare calibration.</p>																		
Setting of the type of coin denomination that must be weighed:																			

<p>HEADER 74+ DATUM The Datum sent will set the coin denomination into the RAM of the scale, as per the following pattern:</p> <table border="1" data-bbox="150 293 587 685"> <thead> <tr> <th>DATUM</th> <th>COIN DENOMINATION</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Selection by DS</td> </tr> <tr> <td>0x01</td> <td>2 EURO</td> </tr> <tr> <td>0x02</td> <td>1 EURO</td> </tr> <tr> <td>0x03</td> <td>50 CENT</td> </tr> <tr> <td>0x04</td> <td>20 CENT</td> </tr> <tr> <td>0x05</td> <td>10 CENT</td> </tr> <tr> <td>0x06</td> <td>5 CENT</td> </tr> <tr> <td>0x07</td> <td>2 CENT</td> </tr> <tr> <td>0x08</td> <td>SPECIAL</td> </tr> </tbody> </table>	DATUM	COIN DENOMINATION	0x00	Selection by DS	0x01	2 EURO	0x02	1 EURO	0x03	50 CENT	0x04	20 CENT	0x05	10 CENT	0x06	5 CENT	0x07	2 CENT	0x08	SPECIAL	<p>ACK</p>
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0x07	2 CENT																				
0x08	SPECIAL																				
<p>Read the coin denomination that will be weighed: HEADER 75</p>	<p>1 datum. This byte will be according to the pattern referred to in HEADER 74.</p>																				
<p>Confirm coin denomination: HEADER 76</p>	<p>By this command, the coin set by header 74 in the RAM will be confirmed and set into the flash memory. This way, it will not be necessary to re-program it when the scale is powered on again.</p>																				



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