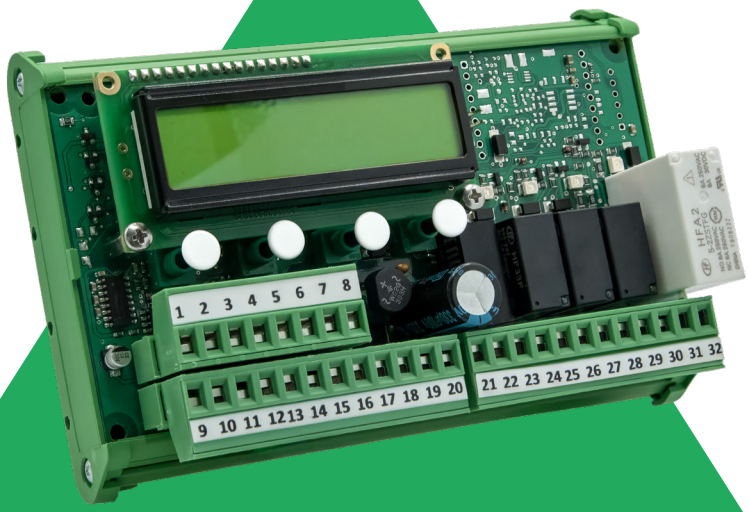
PAVONESISTEMI



LC 330 load limiter

In accordance with Performance Level (PL) d, as defined by ISO EN 13849-1 corresponding to Safety Integrity Level (SIL) 2, as defined by EN 62061

VERSION 2.2

TECHNICAL MANUAL

All data provided is subject to change without notice.
All dimensions are given in millimeters (mm).

PAVONE SISTEMI S.R.L.
Via Tiberio Bianchi 11/12/13, 20863 Concorezzo (MB)
T 039 9162656 **F** 039 9162675 **W** pavonesistemi.it
Industrial electronic weighing systems since 1963

INDEX

Rel ID 21460302 SW0.3

PAVONE SISTEMI S.R.L.
Via Tiberio Bianchi 11/12/13, 20863 Concorezzo (MB)
T 039 9162656 **F** 039 9162675 **W** pavonesistemi.it
Industrial electronic weighing systems since 1963

PRECAUTIONS

READ *this manual* ***BEFORE*** *using or servicing the instrument.*

FOLLOW *these instructions carefully.*

KEEP *this manual for future reference.*

WARNING

Installation and maintenance of this instrument must be carried out only by qualified personnel.

Use caution when performing checks, tests, or adjustments with the instrument powered on.

Make electrical connections only when the power supply is turned off.

Failure to observe these precautions may result in hazards.

DO NOT ALLOW *untrained personnel to operate, clean, inspect, repair, or tamper with this instrument.*

INTRODUCTION

SYSTEM DESCRIPTION

LC 330 is a load limiting system with dual-channel connection for load cells.

The load cell must be a dual-bridge type in systems requiring Performance Level PL d.

SAFETY AND REGULATORY COMPLIANCE

In the SIL 2-compliant version, according to Category 2 of standard EN 13849-1:2008, PL d (corresponding to SIL 2, standard EN 62061), load limitation is performed via relays.

The LOCKOUT relay is a safety relay with mechanically linked contacts, monitored in real time in accordance with standard EN 50205.

Relay switching occurs when the configured load thresholds are reached.

Safety and Diagnostic Functions

- The system monitors:
- Fault or disconnection of the load cell

  –> This results in the de-energizing of the LOCKOUT relay and the other limiting relays, and the enr gizing of the ALARM relay.
- Imbalance between the two acquisition channels
- Internal self-diagnostics
- Load cell not connected

Operating Modes

- LC 330 can operate:
- As a single-load limiter
- In summing mode, by connecting up to 4 units

Summing Function

- Monitors the total load
- Limiting relays can act on individual or total loads
- The safety LOCKOUT relay acts on both and checks inter-unit connection
- Performance Level PL d with up to 2 connected units, PL c with more than 2 (EN 13849-1)
- Connections via RS485 or optional RF wireless

Configuration and User Interface

Configuration and calibration are carried out via:

- 4 mechanical buttons
- LCD display showing load cell signal and alarms
- Alternatively, a ground-based RF device can be used.

Logic Inputs

There are 2 remote-configurable logic inputs, which can be set for:

- Limited load reset
- Data transmission to ground (e.g., ticket printing)
- "Motor" input for calculating remaining lifetime of the lifting system
- Redundant selection of the lockout setpoint (2 options)

Analog Output (Optional)

The analog output can be configured for:

- Single load
- Total load (summing function)

Installation Requirements

The device must be installed in enclosures with a minimum protection rating of IP54, in accordance with EN 60529.

Final Compliance

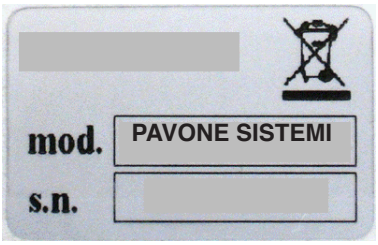
The LC 330 is designed to comply with:

- Performance Level PL d according to ISO EN 13849-1
- SIL 2 according to EN 62061

Performance Level (EN 13849-1)	Probabilità di guasti pericolose per ora [1/h]	SIL Level secondo EN IEC 62061
b	$3 \cdot 10^{-6} \leq PFH_D < 10^{-5}$	SIL 1
c	$10^{-6} \leq PFH_D < 3 \cdot 10^{-6}$	SIL 1
d	$10^{-7} \leq PFH_D < 10^{-6}$	SIL 2
e	$10^{-8} \leq PFH_D < 10^{-7}$	SIL 3

INSTRUMENT NAMEPLATE

mod. LC330



It is important to provide this information when requesting support or instructions regarding the instrument, along with the program number and version, which are shown on the manual cover and displayed on the screen at startup.

The label also specifies the voltage that must be applied to the relay contacts.

Disposal must comply with national and local regulations related to material processing.

The LC330 instrument must be properly disposed of as electronic waste.

TECHNICAL SPECIFICATIONS

CHARACTERISTICS	SPECIFICATIONS
BOARD POWER SUPPLY	20 - 50 VAC/VDC, PROTECTED AGAINST REVERSE POLARITY
PROTECTION	WITH RESETTABLE FUSE
POWER CONSUMPTION	6 VA
INSULATION	CLASS III
OPERATING TEMPERATURE	-10°C TO +50°C (MAX 85% HUMIDITY, NON-CONDENSING)
STORAGE TEMPERATURE	-20°C TO +60°C
DISPLAY	BACKLIT LCD, 2 LINES OF 16 CHARACTERS, 5 MM CHARACTER HEIGHT
LED INDICATORS	4 X 3 MM FOR RELAY STATUS + 1 FOR DEVICE STATUS
KEYBOARD	4 MECHANICAL BUTTONS
OVERALL DIMENSIONS	140 MM X 93 MM X 65 MM (W X H X D), INCLUDING TERMINALS
MOUNTING	4-SCREW MOUNTING OR DIN/OMEGA RAIL SUPPORT
ENCLOSURE MATERIAL	POLYAMIDE 6.6 UL 94V-0, SELF-EXTINGUISHING
CONNECTIONS	REMOVABLE SCREW TERMINALS, 5.08 MM / 5 MM PITCH
LOAD CELL INPUTS	2 INDEPENDENT INPUTS
SINGLE BRIDGE CELLS	SIGNAL + MONITOR INPUT (INTERNALLY PARALLELED)
DUAL BRIDGE CELLS	TWO SIGNAL INPUTS
MAX NUMBER OF LOAD CELLS	8 X 350 Ω
LOAD CELL POWER SUPPLY	SHORT-CIRCUIT PROTECTED
LINEARITY	< 0.01% OF FULL SCALE
TEMPERATURE DRIFT	< 0.002% FS / °C
INTERNAL RESOLUTION	24 BIT
MEASUREMENT RANGE	-3.9 MV/V TO +3.9 MV/V
DIGITAL FILTER	SELECTABLE FROM 0.25 HZ TO 3 HZ
ZERO AND FULL SCALE CALIBRATION	AUTOMATIC (THEORETICAL) OR VIA TEST WEIGHTS
CABLE BREAK DETECTION	CONTINUOUSLY MONITORED
ELECTRICAL SAFETY COMPLIANCE	EN61010-1
LOCKOUT OUTPUT	SAFETY RELAY WITH GUIDED CONTACTS (EN50205), SPDT CONTACT
LIMITATION OUTPUTS	2 RELAYS WITH SPDT CONTACT
ALARM OUTPUT	RELAY WITH SPDT CONTACT
RELAY CONTACT RATING	2A AT 30 VDC / 250 VAC
LOGIC INPUTS	2 OPTO-ISOLATED LOGIC INPUTS
ANALOG OUTPUT	VOLTAGE (0–10 / 0–5 V) OR CURRENT (0–20 / 4–20 MA)
ANALOG OUTPUT RESOLUTION	16 BITS
ANALOG OUTPUT CALIBRATION	DIGITAL VIA KEYBOARD
ANALOG LOAD LIMITS	MIN 10 KΩ (VOLTAGE), MAX 300 Ω (CURRENT)
ANALOG LINEARITY	0.03% OF FULL SCALE
ANALOG TEMPERATURE DRIFT	0.002% FS / °C
RS232 SERIAL PORT	DATA TRANSMISSION AND FIRMWARE UPDATE
RS232 BAUD RATE	SELECTABLE 1200 – 115200 BPS
RS232 PROTOCOLS	REPEATER, KEYPAD, ASCII SLAVE, MODBUS RTU
RS485 SERIAL PORT	SUMMING CONNECTION, DATA TRANSMISSION
RS485 BAUD RATE	SELECTABLE 1200 – 115200 BPS
RS485 PROTOCOLS	SUMMING, REPEATER, ASCII SLAVE, MODBUS RTU
OPTIONAL RF INTERFACE	SUMMING, DATA TRANSMISSION, GROUND CONFIGURATION

All data provided is subject to change without notice.
All dimensions are given in millimeters (mm).

RF FREQUENCY	868 MHZ (7 CHANNELS)
AVERAGE RF RANGE	50 METERS
MICROCONTROLLER	32-BIT ARM CORTEX M0+
CODE MEMORY	128 KB FLASH, REPROGRAMMABLE VIA ONBOARD RS232
DATA MEMORY	32 KB EEPROM, EXPANDABLE TO 256 KB
WATCHDOG	INDEPENDENT WATCHDOG
EMC COMPLIANCE	EN61000-6-2, EN61000-6-3
FUNCTIONAL SAFETY COMPLIANCE	EN13849-1
BOARD DIMENSIONS	90 X 72 MM
MOUNTING TYPE	4-SCREW / DIN RAIL

INSTALLATION

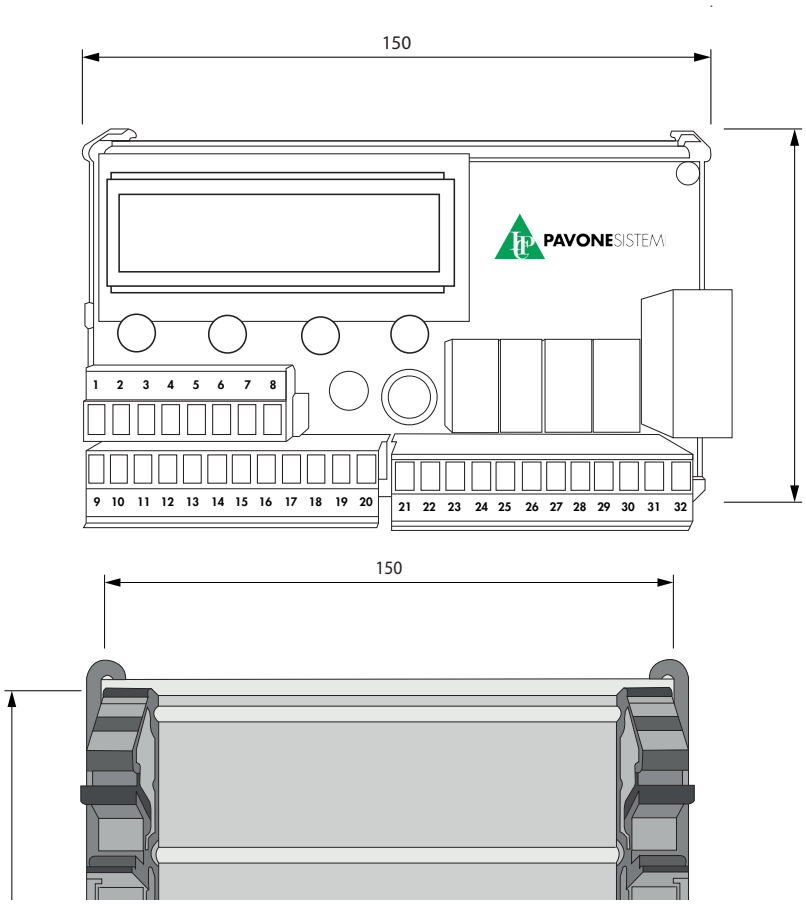
GENERAL

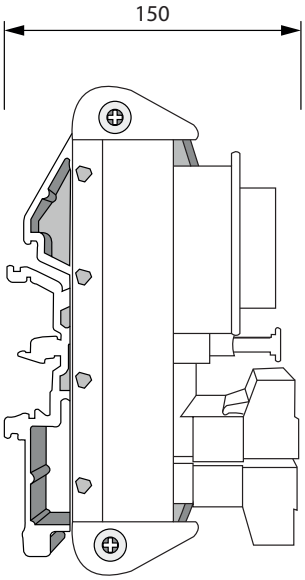
The LC330 consists of a base board housed in a plastic enclosure suitable for 35 mm DIN rail mounting.

The LC330 must not be immersed in water, exposed to water jets, or cleaned/washed with solvents.

Do not expose the device to heat sources or direct sunlight.

OVERALL DIMENSIONS





All data provided is subject to change without notice.
All dimensions are given in millimeters (mm).

ELECTRICAL INSTALLATION

The LC330 uses removable screw terminals with 5.08 mm pitch for electrical connections.

The load cell cable must be shielded and routed away from power cables to avoid electromagnetic interference.

NO.	DESCRIPTION
1	Power supply negative (–)
2	Power supply positive (+)
3	Reference positive (+)
4	Reference negative (–)
5	Load cell 1 signal (–)
6	Load cell 1 signal (+)
7	Load cell 2 signal (+)
8	Load cell 2 signal (–)

No.	DESCRIPTION
9	COM1 – TX (RS232)
10	COM1 – RX (RS232)
11	COM1 – GND
12	COM2 – A+ (RS485)
13	COM2 – B– (RS485)
14	Analog Ground (GND)
15	Analog Voltage / Current (Volt / mA)
16	Input 1
17	Input 2
18	Input Common
19	Power Supply + / ~ (18–50 Vac/Vdc)
20	Power Supply – / ~ (18–50 Vac/Vdc)

No.	DESCRIPTION
21	Relay 1 Common (Alarm)
22	Relay 1 NC (Alarm)
23	Relay 1 NO (Alarm)
24	Relay 2 Common
25	Relay 2 NC
26	Relay 2 NO
27	Relay 3 Common
28	Relay 3 NC
29	Relay 3 NO
30	Lockout Relay Common (Relay 4)
31	Lockout Relay NC (Relay 4)
32	Lockout Relay NO (Relay 4)

WARNING: DO NOT USE CABLES LONGER THAN 30 METERS.

POWER SUPPLY

The device is powered via terminals 19 and 20.

The power cable must be routed separately from other cables.

The power supply is galvanically isolated.

Supply voltage: 18 to 50 Vdc or Vac, max 6 VA

No.	Power Supply Terminal Block
19	+ ALIM. 18 ÷ 50 Vdc / Vac
20	GND / Vac

LOAD CELL CONNECTION

LOAD CELL CABLE INSTALLATION

- The load cell cable must not be routed together with other cables (e.g., relay outputs or power supply cables). It must follow a dedicated path.

LOAD CELL CABLE EXTENSIONS

Any extension of the load cell cable must be properly shielded, respect the color coding, and use cable of the same type provided by the manufacturer.

Cable extensions must be made:

- by soldering,
- via auxiliary terminal blocks,
- or using the junction box provided separately.

LOAD CELL CABLE CONDUCTORS

- The load cell cable must not contain more conductors than those actually used.
- If using a multi-conductor cable with unused wires, connect the remaining wires to the negative pole of the load cell power supply (Terminal No. 1)..

LOAD CELL POWER SUPPLY

The load cell power supply voltage is 4 VDC

and is protected against temporary short circuits.

TERMINAL CONNECTION

The load cell must be connected to terminals 1 to 8 of the corresponding terminal block.

SPECIAL CONFIGURATIONS

- For a single load cell, two solder bridges must be present underneath the board.
- For dual-bridge load cells, the second signal must be connected to terminals 7 and 8.

No.	Description
1	Load cell power – (negative)
2	Load cell power + (positive)
3	Reference + (positive)
4	Reference – (negative)
5	Signal Channel 1 – (negative)
6	Signal Channel 1 + (positive)
7	Signal 2 + (positive, dual bridge)
8	Signal 2 – (negative, dual bridge)

Connect the load cell cable shield to the load cell power negative (–) or to ground.

RS232 SERIAL PORT CONNECTION (COM1)

To establish the serial connection, use a shielded cable, making sure to connect the shield to ground at only one end.

If the cable contains more conductors than required, connect the unused conductors to the shield.

- The maximum serial cable length must not exceed 15 meters, in compliance with EIA RS-232-C standards. Beyond this length, use the RS485 interface available on the device.
- The serial cable must not be routed together with other cables (e.g., relay outputs or power cables); it should follow a dedicated path whenever possible.

Below is a sample wiring diagram for connection to a 9-pin female PC connector.

N.	Serial, Analog, Inputs, Power Terminal Block – 12P, 5 mm pitch
9	COM1 - TX (Rs232)
10	COM1 - RX (Rs232)
11	COM1 - GND

RS232 SERIAL PORT CONNECTION (COM2)

Using the RS485 serial interface, it is possible to establish serial connections over long distances.

This type of connection also allows multiple devices to be linked together for the "summing" function, or connected to a MASTER unit (e.g., PC, PLC, etc.) using a single serial line, and therefore a single serial port on the MASTER.

The maximum number of connected units is 32.

- The serial connection cable must be suitable for RS422/RS485 communication, with one twisted pair for RS485 and appropriate shielding.
- The cable must not be routed with other cables (e.g., relay outputs or power cables); it should follow a dedicated path whenever possible.

N.	Serial, Analog, Inputs, Power Terminal Block – 12P, 5 mm pitch
12	COM2 - A + (Rs485)
13	COM2 - B - (Rs485)

OPTIONAL ANALOG OUTPUT CONNECTION

The device can optionally be equipped with an analog output in either current or voltage.

The V / mA selection is made via a solder jumper by removing the board from its support.

The output is factory calibrated based on the selected mode.

For this reason, it is recommended to specify the desired mode when placing the order.

Specifications:

- **Voltage output: range 0–10 V or 0–5 V, minimum load 10 kΩ**
- **Current output: range 0–20 mA or 4–20 mA, maximum load 300 Ω**

WIRING NOTES

- Use a shielded cable for the connection, ensuring the shield is grounded at only one end.
- Analog signal transmission can be sensitive to electromagnetic interference, so it is recommended to keep cables as short as possible and route them separately from other cables.

N.	Serial, Analog, Inputs, and Power Terminal Block – 12P, 5 mm Pitch
14	Analog. GND
15	Analog. Volt / mA

LOGIC INPUT CONNECTIONS

The logic inputs are isolated from the device using optoisolators.

Logic input cables must not be routed together with power or supply cables.

Use the shortest possible cable for the connection.

To activate a logic input, close the contact with the common terminal.

N.	Serial, Analog, Logic Inputs, and Power Terminal Block – 12P, 5 mm Pitch
16	Ingresso 1
17	Ingresso 2
18	Comune ingressi

Warning: If the corresponding function is enabled on the inputs, the lockout threshold has two values (A and B).

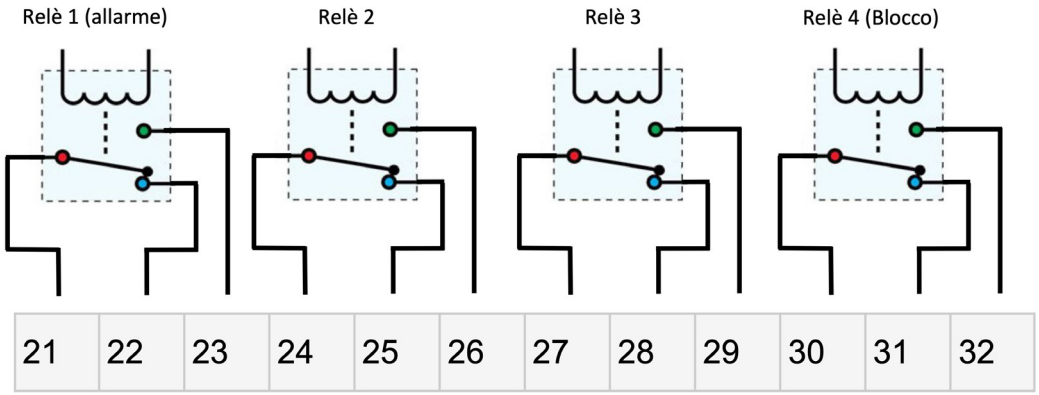
The instrument uses threshold value A or B depending on the state of the inputs.

Input 1 Contact	Input 2 Contact	Function
Closed	Open	Setpoint A
Open	Closed	Setpoint B
Open	Open	Input Alarm
Closed	Closed	Input Alarm

RELAY CONNECTIONS AND OUTPUTS

- Each relay contact is rated at 2 A, 30 Vdc / 250 Vac.
- All relays are SPDT (single pole double throw) type.
- Relay 4 (LOCKOUT) is a safety relay with mechanically linked contacts, compliant with EN50205.

No.	Description
21	Relay 1 Common (Alarm)
22	Relay 1 NC (Alarm)
23	Relay 1 NO (Alarm)
24	Relay 2 Common
25	Relay 2 NC
26	Relay 2 NO
27	Relay 3 Common
28	Relay 3 NC
29	Relay 3 NO
30	Lockout Relay Common (Relay 4)
31	Lockout Relay NC (Relay 4)
32	Lockout Relay NO (Relay 4)



DISPLAY INDICATIONS

<table>
<tr><th>DISPLAY</th><th>STARTUP</th></tr>
<tr><td>PW6L01
Rev.2.1 - 76BD</td><td rowspan="2">At startup, the display briefly shows the programmed firmware code and its corresponding version.
In the following screen, the device serial number is displayed (only if it has been set in the corresponding parameter).
These details are important and should be provided when requesting support or repair service.</td></tr>
<tr><td>Serial Number
201900001</td></tr>
<tr><th>DISPLAY</th><th>NORMAL OPERATION</th></tr>
<tr><td>(S) Load:12345.6
////////—</td><td rowspan="5">During normal operation (i.e., when no alarms are active), the display shows the current gross load, along with the stability indicator (S).
On the lower line of the display, additional information is shown. The operator can scroll through this data by pressing the left button (VIS):
• Load bargraph relative to the lockout relay setpoint (relay 4)
• Signal from channel 1
• Signal from channel 2
• Net weight (if a tare is active)
• Status of logic inputs
• Value of the analog output (if configured)
If an alarm is active, the lower line is hidden and only appears for 5 seconds after pressing the VIS button.</td></tr>
<tr><td>(S) Load:12345.6
Sign. 1.234 mV/V</td></tr>
<tr><td>(S) Load:12345.6
Net Load:12345.6</td></tr>
<tr><td>(S) Load:12345.6
INPUTS:I1=0 I2=0</td></tr>
<tr><td>(S) Load:12345.6
An.Out: 10.41 mA</td></tr>
<tr><td>(S) Load:12345.6
Total Ld:12345.6</td><td>When the summing function is active, the lower line of the display shows the total load.
The other information normally shown during operation can still be manually toggled as usual.</td></tr>
</table>

DISPLAY	STAND-BY
(S) Load:12345.6 **////////-------**	It is possible to program a timeout period after which, if the keypad is not used, the display backlight turns off and the keypad is disabled. To exit this condition, press and hold any key for 3 seconds.
(S) Load:12345.6 **VIS >T< >0< PRG**	The parameter control and programming procedures are carried out using the four mechanical buttons located below the display. The contextual function of each button is briefly shown every 3 seconds when no digit entry is in progress.

ALARM LIST

When an alarm occurs, a descriptive message of the cause is displayed on the lower line of the screen.

In standby conditions, the backlight turns on automatically.

When an alarm is active:

- Relay 1 (Alarm) is activated
- All other relays are deactivated
- If multiple alarms are present at the same time, the instrument displays the one with the highest priority.

By pressing the VIS button, the operator can manually scroll through the list of detected alarms.

After **5 seconds of inactivity**, the alarm with the highest priority is displayed again.

DISPLAYED CODE	DESCRIPTION
(S) Load: ——————— **HARDWARE FAILURE**	Hardware fault on the board – Unable to acquire the load cell signal.
(S) Load:12345.6 **OFF SCALE CELLS**	Load cell nominal capacity exceeded.
(S) Load:12345.6 **RELAY 4 FAILURE**	Lockout relay (R4) contact failure. The status of the contacts is continuously monitored in real time. Additionally, a full check of the lockout relay is performed at instrument startup. **The contact test occurs in three phases:** 1. Watchdog signal operation check 2. Contact closed condition check 3. Contact open condition check
(S) Load: ——————— **CELL1 :ERR.CONN.**	Missing or incorrect connection of the load cell (channel 1).
(S) Load:12345.6 **CELL2 :ERR.CONN.**	Missing or incorrect connection of the second load cell channel
(S) Load:12345.6 **NO CALIBRATION**	Calibration has not been performed

(S) Load:12345.6 **OVERLOAD SETP.4**	Overload threshold exceeded (safety relay R4)
(S) Load:12345.6 **IMBALANCE C1/C2**	Unbalance between load cell channels (difference > 0.5 seconds from set threshold)
(S) Load:12345.6 **SUM: COMM. ERROR**	Communication error with summing unit (protocol)
(S) Load:12345.6 **SAFETY MEM. ERR.**	Memory save alarm for counters in SAFETY mode
(S) Load:12345.6 **Total Ld:^^^^^^^**	In summing mode: one device is in error or disconnected
(S) Load: ——————— **SETP.INPUTS ERR.**	Fault on setpoint logic inputs

Alarms marked with a red asterisk in the original indicate safety-related conditions: they remain active even if the triggering condition is no longer present.

ALARM LIST

Under normal operating conditions (i.e., when standby is not active and no alarms are present), the display shows a brief description of the function of the four buttons on the lower line every 3 seconds.

This indication is not displayed while the keypad is in use.

DISPLAYED CODE	WAITING FOR COMMANDS
(S) Load:12345.6 **VIS >T< >0< PRG**	When no programming procedure is active, the button functions are as follows: • VIS: Toggles the data displayed on the lower line. • T<: Semi-automatic tare command. Holding the button for 2 seconds clears any tare stored in memory. • 0<: Gross weight zeroing command, within the threshold set in parameter [1306]. • PRG: Press and hold for 2 seconds to access the setup menu.
DISPLAYED CODE	**MENU NAVIGATION**
SETUP MENU **<- -> ESC SEL**	During menu navigation in the setup procedure, the button functions are as follows: • <–: Moves to the previous menu item • –>: Moves to the next menu item • ESC: Exits the menu and returns to the upper level or exits the procedure • SEL: Activates the selected item

DISPLAYED CODE	PARAMETER MENU
[1102] 5000 **<- -> ESC PRG**	During parameter menu navigation, the button functions are as follows: • <–: Scroll to the previous parameter • –>: Scroll to the next parameter • ESC: Exit the menu and return to the upper level, or exit the procedure • SEL: Enter the parameter edit/programming mode
DISPLAYED CODE	**NUMERIC PARAMETER PROGRAMMING**
[1102] 5000 **(+) (-) -> ENT**	During programming, the digit being edited will blink: • (+): Increases the blinking digit • (–): Decreases the blinking digit • –>: Moves to the next digit to the right • –> (hold): Press and hold for 2 seconds to reset the value • ENT: Confirms and stores the displayed value
DISPLAYED CODE	**PRESET VALUE PARAMETER PROGRAMMING**
[1003] ENABLED **<- -> ENT**	During programming, the current value blinks: • <–: Selects the previous value • –>: Selects the next value • ENT: Confirms and stores the displayed value

SETUP MENU

Access to the setup menu is protected by a programmable and optionally deactivatable password.

The setup menu includes the following entries:

- **FUNCTIONAL PARS.** – Functional parameters
- **WEIGHING CONST.** – Load cell weighing constants
- **WEIGHT CALIBRAT.** – Calibration with test weights, theoretical calibration, and linearization
- **METROLOG. PARS.** – Metrological parameters and filter settings
- **DGT INPUT/OUTPUT** – Configuration of inputs, outputs, and setpoints
- **COMMUNIC. PORTS** – RS232, RS485, and RF communication ports
- **ANALOGIC OUTPUT** – Optional analog output
- **SAFETY COUNTERS** – Counters and settings for the optional "Safety" function

When a parameter menu is selected, the parameter values are displayed and can be edited.

Each parameter is identified by a code [0000] in addition to its description.

Parameters may be either editable numeric values or selectable preset values.

Some menu items initiate specific operations (e.g., zero calibration).

FUNCTIONAL PARS.

GENERAL PASSWORD [1002]

General access password for the setup menu. If the value is 0, the password is disabled.
Value: *0÷9999*
Default: *0*

SAFETY FUNCTIONS [1003]

Enables or disables the SAFETY function, which monitors the service life of the system.
Value: *Enabled / Disabled*
Default: *0*

STAND-BY [sec.] [1004]

Standby activation time. If the value is 0, the function is disabled.
Value: *0÷999 sec*
Default: *0*

SERIAL NUMBER [1006]

Serial number displayed at startup. If the value is 0, the display is disabled.
This setting is protected by password [1325].
Value: *0÷999999999*
Default: *0*

WEIGHING CONST.

L.CELLS CAPACITY [1102]

Total nominal capacity of the load cells, expressed in the unit of measure (e.g., kg) used for weight display, in integer value.

Value: 0 ÷ 999999

Default: 0

L.C.SENS. [mV/V] [1103]

Average sensitivity of the load cells, used for theoretical calibration (default: 2.0000 mV/V).

Value: *0 ÷ 3.9999 mV/V*

Default: *0*

PRE-LOADED TARE [1105]

Preload of the load cells (theoretical zero), used for theoretical calibration.

Value: *0 ÷ 999999*

Default: *0*

DIVISION VALUE [1106]

Weight division value.

Value: *0.0001 ÷ 100*

Default: *0*

SIG.DIFF. [mV/V] [1109]

Signal imbalance limit between the two load cell channels.

This parameter is visible only in SIL2 operation mode.

Value: *0.100 ÷ 1.000*

WEIGHT CALIBRAT.

ACQUIRE ZERO

Zero calibration (Zero signal acquisition)

WEIGHT CALIBR.

Full-scale calibration using a test weight

THEORETICAL CAL

Command to perform theoretical calibration based on preset parameters

LINEARIZATION

Weight linearization procedure (up to 5 points)

SIGNAL 2 CALIBR.

Calibration procedure for signal 2 (*)

CALIBR. PASSWORD [1001]

Access password for the weight calibration procedure.

If the value is 0, the password is disabled.

(*) Signal 2 Calibration

This procedure compensates for possible signal differences between channel 1 and channel 2 (used when the channel imbalance alarm is triggered).

Calibration sequence:

1. ***Zero calibration – Unload the cell and press the CAL button***
2. ***Load calibration – Apply a known load and press the CAL button***
3. ***Value display – C1 and C2 signals are shown; press ESC to exit***

PARAMETERS

FILTER FACTOR [1301]
Weight filter factor. Lower values correspond to less filtering action.
Value: 0 ÷ 9

STABILITY FACTOR [1302]
Weight stability factor. Lower values result in faster detection of stability.
Value: 0 ÷ 4

INITIAL AUTOZERO [1304]
Initial autozero limit at instrument startup.
Value: 0 ÷ <capacity>

ZERO-TRACKING [1305]
Zero-tracking function setting, expressed in divisions per second.
Value: NO / 0.5d / 1d / 2d

ZERO BAND [div] [1306]
Acceptance band for semi-automatic zero command.
Value: 0 ÷ 200

INPUT/ALARM

FUNCTION INPUT 1 [1401]

Selects the function of input 1: Auto tare, Motor input for SAFETY function, weight data transmission, or Block Setpoint selection.

Value: Tare / Motor / Txd / Sel.Set.

FUNCTION INPUT 2 [1402]

Selects the function of input 2.

Value: Tare / Motor / Txd / Sel.Set.

SETPOINT OUT 1(*) [1404]

Setpoint value associated with output 1.

Not available in SIL operation.

Value: 0 ÷ <capacity>

DELAY OUT1 [sec] [1407]

Deactivation delay for output 1.

Value: 0 ÷ 99.9 sec

POLARITY SET 1 [1408]

Polarity of gross load compared to setpoint 1.

Value: Positive / Negative

HYSTERESIS SET 1 [1409]

Hysteresis for setpoint 1 comparison.

Value: 0 ÷ 9999

OUT 1 LOAD SEL. [1410]

Load type compared to setpoint 1.

Value: Single / Total

SETPOINT OUT 2(*) [1412]

Setpoint value associated with output 2.

Value: 0 ÷ <capacity>

DELAY OUT2 [sec] [1415]

Deactivation delay for output 2.

Value: 0 ÷ 99.9 sec

POLARITY SET 2 [1416]
Polarity of load compared to setpoint 2.
Value: Positive / Negative

HYSTERESIS SET 2 [1417]
Hysteresis for setpoint 2 comparison.
Value: 0 ÷ 9999

OUT 2 LOAD SEL. [1418]
Load type compared to setpoint 2.
Value: Single / Total

OUT 2 BLOCK [1435]
If enabled, exceeding setpoint 2 will also deactivate output 4 (lockout).
Value: Enabled / Disabled

SETPOINT OUT 3(*) [1420]
Setpoint value associated with output 3.
Value: 0 ÷ <capacity>

DELAY OUT3 [sec] [1423]
Deactivation delay for output 3.
Value: 0 ÷ 99.9 sec

POLARITY SET 3 [1424]
Polarity of load compared to setpoint 3.
Value: Positive / Negative

HYSTERESIS SET 3 [1425]
Hysteresis for setpoint 3 comparison.
Value: 0 ÷ 9999

OUT 3 LOAD SEL. [1426]
Load type compared to setpoint 3.
Value: Single / Total

OUT 3 BLOCK [1436]
If enabled, exceeding setpoint 3 will also deactivate output 4 (lockout).
Value: Enabled / Disabled

SETPOINT OUT 4(*) [1428]
Setpoint value associated with output 4.
Value: 0 ÷ <capacity>

DELAY OUT4 [sec] [1431]
Deactivation delay for output 4.
Value: 0 ÷ 99.9 sec

POLARITY SET 4 [1432]
Polarity of load compared to setpoint 4.
Value: Positive / Negative

HYSTERESIS SET 4 [1433]
Hysteresis for setpoint 4 comparison.
Value: 0 ÷ 9999

OUT 4 LOAD SEL. [1434]
Load type compared to setpoint 4.
Value: Single / Total

(*) SETPOINT OUT Parameters
When both logic inputs are configured in "Sel.Set" mode, the setpoint parameters highlighted in the previous table are split, so that the lockout thresholds are differentiated for the two zones (A and B).
In this case, these parameters will appear in the menu as follows:

Parameter	Description
SETPOINT OUT 1 A [1404]	Setpoint for output 1 in zone A
SETPOINT OUT 1 B [1406]	Setpoint for output 1 in zone B
SETPOINT OUT 2 A [1412]	Setpoint for output 2 in zone A
SETPOINT OUT 2 B [1414]	Setpoint for output 2 in zone B

Parameter	Description
SETPOINT OUT 3 A [1420]	Setpoint for output 3 in zone A
SETPOINT OUT 3 B [1422]	Setpoint for output 3 in zone B
SETPOINT OUT 4 A [1428]	Setpoint for output 4 in zone A
SETPOINT OUT 4 B [1430]	Setpoint for output 4 in zone B

SERIAL PORTS

COM1 BAUD RATE [1501]
Baud rate selection for COM1 (RS232)
Value: 1200 ÷ 115200

COM1 FRAME FORM. [1502]
Frame format selection for COM1
Value: N81 ÷ E72

COM1 PROTOCOL [1503]
Protocol selection for COM1
Value: None / Continuous / Keypad1 / Keypad2 / DIN105 / Repeater / Slave / Profinet / Profibus

COM1 ADDRESS [1504]
Communication address for COM1
Value: 0 ÷ 99

COM2 BAUD RATE [1505]
Baud rate selection for COM2 (RS485)
Value: 1200 ÷ 115200

COM2 FRAME FORM. [1506]
Frame format selection for COM2
Value: N81 ÷ E72

COM2 PROTOCOL [1507]
Protocol selection for COM2
Value: None / Continuous / Keypad1 / Keypad2 / DIN105 / Repeater / Slave / Summing / Profinet / Profibus

COM2 ADDRESS [1508]
Communication address for COM2
Value: 0 ÷ 99

SUM UNITS NUMBER [1509]
Number of units connected in summing mode
Value: 0 ÷ 4

SUM TIMEOUT [1515]
Timeout for Sum/Difference protocol communication
Value: 0.0 ÷ 99.9 seconds

COM3 BAUD RATE [1510]
Baud rate selection for COM3 (RF)
Value: 1200 ÷ 115200

COM3 FRAME FORM. [1511]
Frame format selection for COM3
Value: N81 ÷ E72

COM3 PROTOCOL [1512]
Protocol selection for COM3
Value: None / Continuous / Keypad1 / Keypad2 / DIN105 / Repeater / Slave / Summing

COM3 ADDRESS [1513]
Communication address for COM3
Value: 0 ÷ 99

RF CHANNEL SEL [1514]
RF channel number (channel will be initialized on next device restart)
Value: 0 ÷ 7

ANALOGIC OUTPUT

FULL SCALE LOAD [1602]
Full-scale value for analog output
Value: 0 ÷ 999999

OUTPUT LOAD SEL. [1603]
Reference weight selection for analog output
Value: Gross / Net / Tot.Gross / Tot.Net

RANGE DELL'USCITA ANALOGICA [1604]
Value: 0 ÷ 5V / 0 ÷ 10V / 0 ÷ 20mA / 4 ÷ 20mA

ZERO ADJUSTING
Zero offset adjustment

F.S. ADJUSTING
Full-scale offset adjustment

OPERAT. COUNTER [1702]
Lifting operations counter (active with motor input).
The value increases with variable frequency, based on the formula:
$(CS / FS)^3$

- ***CS*** = Lifted load
- ***FS*** = Rated capacity of the lifting system

Value: 0 ÷ 999999

OPERATIONAL TIME [1706]

System operating time (motor input active).

Displayed in the format:

- "HHHH:MM:SS" if ≤ 9999 hours
- "HHHHHH:MM" if > 9999 hours

SYSTEM CAPACITY [1708]

Rated capacity of the lifting system (password protected: 2792)

Value: 0 ÷ <capacity>

RESET COUNTERS

Counter reset procedure (password protected)

USCITA ANALOGICA

LIMIT VALUES

When the weight exceeds the programmed full-scale value, the analog output exceeds the nominal full-scale level, up to a saturation limit.

If the weight is negative, the analog output drops below the nominal minimum, down to a saturation limit.

In the following cases, when weight cannot be measured:

- at instrument startup
- in case of communication loss with other devices
- if the analog output is set to summed mode

the analog output assumes a minimum value below the nominal minimum.

The analog signal update rate matches the display refresh rate.

The filter applied to the analog output (as it is a reconverted digital value) is the same filter used for the weight display.

COMMUNICATION PROTOCOLS

SUMMING PROTOCOL

Summing Protocol – Description of the Transmitted String

The summing protocol transmits the following string:

STX	<ID>	<Net>	<Gross>	ETX	<checksum>	EOT

STX: Start of Text character, ASCII code 02h

ETX: End of Text character, ASCII code 03h

EOT: End of Transmission character, ASCII code 04h

<ID>: Instrument identifier, which can be:

- '**A**' (ASCII 41h)
- '**B**' (ASCII 42h)
- '**C**' (ASCII 43h)
- '**D**' (ASCII 44h)

<Net> and <Gross>:

- Fields of 6 ASCII characters containing only digits "0" to "9" (ASCII 30h–39h)
- No spaces or decimal points
- If the weight is negative, the first character of the field is a minus sign "-" (ASCII 2Dh)

CHECKSUM CALCULATION

The checksum is used to verify the integrity of the transmitted string.

It consists of three pairs of ASCII characters, each derived from an XOR operation on blocks of 5 bytes:

1. **First pair:** XOR of STX + ID + first 3 bytes of the net weight.
2. **Second pair:** XOR of last 3 bytes of the net weight + first 2 bytes of the gross weight.
3. **Third pair:** XOR of last 4 bytes of the gross weight + ETX.

Each XOR result is split into two nibbles (4 high bits and 4 low bits), and each nibble is converted into an ASCII character.

Example: If the XOR result is 5Dh, the two checksum characters will be "5" and "D" (ASCII 35h and 44h).

RECEPTION TIMEOUT

The reception timeout can be set from 0 to 99.9 seconds in the serial port parameters.

It applies to both communication interfaces:

- COM2 (RS485)
- COM3 (RF)

During the synchronization phase, each device transmits based on its address:

- **A** –> every 0.3 seconds
- **B** –> every 0.6 seconds
- **C** –> every 0.9 seconds
- **D** –> every 1.2 seconds

Once synchronized, all devices transmit at 5 Hz.

The timeout for communication or synchronization loss is set via the parameter:

"**SERIAL PORT \ SET TIMEOUT**" (default value: 3 seconds).

If a device does not receive a valid string within the time defined by 250 ms × number of silent units, it will transmit its own string anyway, to prevent transmission blocks caused by noise or signal interference.

IMPORTANT NOTE

For correct operation of the summing protocol, all devices must be configured with the same number of decimal places.

CONTINUOUS TRANSMISSION PROTOCOL

This protocol is used for continuous data transmission, typically toward a repeater panel.

The string is transmitted at a frequency of 10 Hz and has the following structure:

STX	<Status>	<Net>	ETX	<checksum>	EOT

Field meanings:

- **STX –** Start of Text character (ASCII 02h)
- **ETX –** End of Text character (ASCII 03h)
- **EOT –** End of Transmission character (ASCII 04h)

<Status>

This is a single character encoded using a bit map, where each bit represents a logic condition (bit set to 1 = condition is true):

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	1	1	Tare active	Minimum weight	Stable weight	Center of zero

<Net>

Field composed of 8 ASCII characters containing the net weight, right-aligned.

Special values:

- **Overload:** The field displays "^^^^^^^^"
- **Underload:** The field displays "_____"
- **Weight reading error:** The field displays " O-L "

SLAVE PROTOCOL

STANDARD WEIGHT REQUEST COMMAND:

<Address >	"N"	EOT

LC330 RESPONSE:

<Address >	"N"	<Status>	Net	<Gross>	ETX	<checksum>	EOT

WEIGHT REQUEST COMMAND (TRF PROGRAM 07 COMPATIBLE):

<Address >	"T"	EOT

LC330 RESPONSE:

<Address >	"N"	Net	ETX	<checksum>	EOT

<STATUS> FIELD – BIT MAP ENCODING

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	1	1	Tare active	Minimum weight	Stable weight	Center of zero

Field Descriptions

- **STX: Start of Text –** beginning of string (ASCII 02h)
- **ETX: End of Text –** end of data portion of the string (ASCII 03h)
- **EOT: End of Transmission –** string terminator (ASCII 04h)
- **<Address>:** Instrument identifier, calculated by adding 80h to the numeric address (e.g., Address 1 –> 80h + 01h = 81h)
- **"N":** Character requesting net/gross weight (ASCII 4Eh)
- **"T":** Character requesting net weight only (ASCII 54h)
- **<Status>:** A single character coded using the bit map above

<Net> / <Gross>:

- 8 ASCII characters, right-aligned
- Overload –> "^^^^^^^^"
- Underload –> "________"
- Reading error –> " O-L "

Checksum

The checksum is calculated by XORing all characters from <Address> up to (but not including) ETX.

The result is then split into 2 nibbles (high and low 4 bits), and each is converted to an ASCII character.

***Example:** If XOR result = 5Dh, then:*

***<Checksum>** = "5D" –> ASCII codes = 35h and 44h*

KEYPAD PROTOCOL

The string is transmitted at a frequency of 10 Hz with the following format:

STX	"	<Net>	CR

Character Meanings

- **STX:** Start of Text – beginning of string (ASCII 02h)
- **":** Quotation mark character (ASCII 22h)
- **CR:** Carriage Return – end of string (ASCII 0Dh)

<Net> Field

- Composed of 8 ASCII characters
- Right-aligned value with decimal point (ASCII 2Eh)
- Leading zeros are replaced with spaces (ASCII 20h)

Special Values

Overweight: field displays " ERROR"

Overflow: field displays " ERROR"

Weight reading error: field displays " ERROR"

WARNING:

- ***In SUMMING mode, the <Net> field represents the sum of net weights from all networked devices.***
- ***In SINGLE mode, the <Net> field represents the net weight from the single device.***

ITALSOUND REPEATER PROTOCOL

The string is transmitted at a frequency of 10 Hz with the following structure:

STX	<ID>	<DATA>	ETX

Character Definitions

- **STX (Start of Text):** Start-of-string character, ASCII value 02h
- **ETX (End of Text):** End-of-data character, ASCII value 03h
- **<ID>:** Two ASCII characters representing the communication address

Example: address 00 –> 30h 30h

<DATA> Field

- Field composed of 5 ASCII characters (6 if a decimal point is present)
- Weight value, right-aligned
- Decimal point is encoded as ASCII 2Eh
- Leading zeros are replaced by spaces (ASCII 20h)

Special Values in <DATA> Field

- **Overweight:** " HI "
- **Underweight:** " LO "
- **Weight read error:** "EEEEE"

WARNING

In SUMMING mode, the <DATA> field represents the sum of the net weights of all instruments on the network.

In SINGLE mode, the <DATA> field shows the net weight measured by the individual instrument.

KEYPAD PROTOCOL 2

The string is transmitted at a frequency of 10 Hz with the following structure:

"A"	<Net A>	"#"	"B"	<Net B>	"#"	"C"	<Total>	"#"

Character Definitions

- **"A":** Identifier for instrument A – ASCII value 41h
- **"B":** Identifier for instrument B – ASCII value 42h
- **"C":** Identifier for total weight – ASCII value 43h
- **"#":** Field separator – ASCII value 23h

<Net A>

- Field of 8 ASCII characters
- Net weight of instrument A, right-aligned

May include:

- Decimal point (ASCII 2Eh)
- Minus sign (ASCII 2Dh)
- Spaces (ASCII 20h) for non-significant zeros

Special values:

- **Overweight:** "^^^^^^^^"
- **Weight read error:** " O-L "

<Net B>

- Field of 8 ASCII characters
- Net weight of instrument B
- Follows the same format and conditions as <Net A>

<Total>

- Field of 8 ASCII characters
- **Net total weight (A + B), with support for:** Decimal point, Minus sign, Spaces for non-significant zeros

Special values:

- **Overweight:** "^^^^^^^^"
- **Weight read error:** " O-L "

DIN105 PROTOCOL

The string is transmitted at a frequency of 10 Hz and has the following structure:

STX	<Status>	<Net>	ETX	<checksum>	EOT

Field Definitions

- **STX:** Start of Text – string start character (ASCII 02h)
- **ETX:** End of Text – end of data character (ASCII 03h)
- **EOT:** End of Transmission – end of string character (ASCII 04h)
- **<Status>:** One character, encoded according to the bit map below
- **<Net>:** 8 ASCII characters containing the net weight, right-aligned

<Status> Field – Bit Map Encoding

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	1	1	Tare active	Minimum weight	Stable weight	Center of zero

<Net> – Special Conditions

- **Overload: "^^^^^^^^"**
- **Underload: "_____"**
- **Weight read error: " O-L "**

Checksum

The checksum is calculated using an XOR (exclusive OR) operation on all characters between <Address> and just before ETX.

The result is then split into two parts::

- he 4 high bits form the first checksum character
- The 4 low bits form the second checksum character

Each part is then encoded into an **ASCII** character.

Example: If XOR = 5Dh, then the Checksum = "5D" –> ASCII = 35h and 44h

SINGLE TRANSMISSION PROTOCOL

The string is transmitted when a logic input is configured with the "Txd" function.

Transmission occurs on each serial port configured as "None" or "Slave".

String Structure:

<Address>	<Status>	<Net>	ETX	<checksum>	EOT

Field Descriptions:

- **<Address>: Instrument identifier**
  –> This is the ASCII character obtained by adding 80h to the address number
  –> Example: Address 1 –> 80h + 01h = 81h
- **<Status>: One character, encoded using the following bit map (bit = 1 if the condition is true):**

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	1	1	Tare active	Minimum weight	Stable weight	Center of zero

<Net>: 8-character ASCII field, right-aligned, showing net weight

Special Values in <Net>:

- **Overload:** "^^^^^^^^"
- **Underload:** "_____"
- **Read error:** " O-L "
- **ETX (End of Text):** Data string terminator – ASCII 03h

Checksum:

Calculated using XOR on all characters from <Address> up to (but not including) ETX.

The result is split into:

- **4 high bits –> first character**
- **4 low bits –> second character Both are then converted into ASCII characters.**

Example: If XOR = 5Dh, then Checksum = "5D" –> ASCII = 35h and 44h

EOT (End of Transmission): End-of-string character – ASCII 04h

PROFINET / PROFIBUS

This protocol enables communication with the optional external Rs232–RS485 / Fieldbus module.

When activated, the serial communication parameters are automatically configured as follows:

- **Speed:** 115200 bps
- **Format:** N-8-1 (No parity, 8 data bits, 1 stop bit)

No.	Register	Type	Notes
0	Status Register	INT	0 = weight in motion; 2 = stable weight
1	Gross Weight (MSB)	INT	Most significant word
2	Gross Weight (LSB)	INT	Least significant word
3	Net Weight (MSB)	INT	Most significant word
4	Net Weight (LSB)	INT	Least significant word
5	Digital Inputs	INT	See related table
6	Digital Outputs		
7	Alarm Register	INT	See related table
8	Load Cell Signal	INT	
9	Safety – Operation Counter (MSB)	INT	Most significant word
10	Safety – Operation Counter (LSB)	INT	Least significant word
11	Safety – Hour Counter (MSB)	INT	Most significant word
12	Safety – Hour Counter (LSB)	INT	Least significant word
13	Safety – Minute Counter	INT	
14	Safety – Second Counter	INT	
15	Sum – Gross Weight A (MSB)	INT	Most significant word
16	Sum – Gross Weight A (LSB)	INT	Least significant word
17	Sum – Net Weight A (MSB)	INT	Most significant word
18	Sum – Net Weight A (LSB)	INT	Least significant word
19	Sum – Gross Weight B (MSB)	INT	Most significant word
20	Sum – Gross Weight B (LSB)	INT	Least significant word
21	Sum – Net Weight B (MSB)	INT	Most significant word
22	Sum – Net Weight B (LSB)	INT	Least significant word
23	Sum – Gross Weight C (MSB)	INT	Most significant word
24	Sum – Gross Weight C (LSB)	INT	Least significant word
25	Sum – Net Weight C (MSB)	INT	Most significant word
26	Sum – Net Weight C (LSB)	INT	Least significant word
27	Sum – Gross Weight D (MSB)	INT	Most significant word
28	Sum – Gross Weight D (LSB)	INT	Least significant word
29	Sum – Net Weight D (MSB)	INT	Most significant word

30	Sum – Net Weight D (LSB)	INT	Least significant word
31	Sum – Total Gross Weight (MSB)	INT	Most significant word
32	Sum – Total Gross Weight (LSB)	INT	Least significant word
33	Sum – Total Net Weight (MSB)	INT	Most significant word
34	Sum – Total Net Weight (LSB)	INT	Least significant word
35	Monitor Register	INT	For fieldbus communication test; mirrors value from output area

PROFINET / PROFIBUS (continued)

The following table lists the output area registers (written by the master and acquired by the instrument, 16-bit size):

FRONT PANEL OF THE INSTRUMENT

The LC330 is equipped with a 4-digit display, 4 status LEDs for relay indicators, and 4 buttons.

In operational mode, the display shows the current weight.

Setup parameters are easily accessible and adjustable using the 4 front panel buttons, which are used to select, edit, confirm, and save new settings.

DISPLAY

During the programming procedure, the display shows a sequence of parameters and their corresponding values, allowing the operator to configure the instrument.

No.	Register	Type	Notes
0	Command Register	INT	
1	Data Register (MSB)	INT	Most significant word
2	Data Register (LSB)	INT	Least significant word
3	Monitor Register	INT	Fieldbus communication test: value written here is mirrored to input area

INPUT CODING TABLE

Bit 15–2	Bit 1	Bit 0
Not used	Input 2 active	Input 1 active

OUTPUT CODING TABLE

Bit 15–3	Bit 2	Bit 1	Bit 0
Not used	Output 3 active	Output 2 active	Output 1 active

ALARM CODING TABLE – First Part (Bits 0–7)

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Overload	Relay contact error	Channel	Overload threshold	Load cell 2 power alarm	Load cell 2 signal alarm	Load cell 1 power alarm	Load cell 1 signal alarm

ALARM CODING TABLE – Second Part (Bits 8–15)

Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
Overload	Relay contact error	Channel	Overload threshold	Load cell 2 power alarm	Load cell 2 signal alarm	Load cell 1 power alarm	Load cell 1 signal alarm

COMMAND / DATA REGISTER CODING TABLE

Register Value	Function (COMMAND REGISTER)	Function (DATA REGISTER)
0x0001	Semi-automatic zero	–
0x0002	Auto tare	–
0x0003	Cancel tare	–
0x0004	Write to monitor register	INT

FIRMWARE UPDATE

The instrument's firmware can be updated by connecting a Windows PC to the COM1 RS232 serial port, following the wiring diagram provided in this manual.

The PC must have the STM32 Prog application installed.

To begin:

- Power on the instrument with the "firmware upgrade" jumper closed. (The jumper is located next to the status LED.)

Update Procedure:

1. Launch the STM32 Prog application.
2. Select the correct COM port and set the baud rate to 115200.
3. Click "Open File" to select the firmware file to be programmed.
4. Click the "Program/Verify Firmware" button and wait for the process to complete:

    - Erasing

    - Programming

    - Verifying memory

INVALID WEIGHT ON STARTUP

(This appears to be a heading—please provide the context or continuation if you'd like it translated or explained.)

Let me know if you need the jumper location shown in a diagram or want to include troubleshooting steps.

EU Declaration of Conformity (DoC)

We,

Pavone Sistemi S.r.l.
Via Tiberio Bianchi, 11/13/15
20863 Concorezzo, MB

declare under our sole responsibility that the DoC applies to the following product:

Apparatus model / Product: **LC 330**
Type: Weighing Instrument

The object of the declaration described above, when used in accordance with the installation and operation manual, complies with the relevant Union harmonization legislation:

Machinery Directive 2006/42/EC (and subsequent amendments)
The following harmonized standards and technical specifications have been applied:

EN 13849-1:2008
EN 13849-2:2008

EMC Directive 2014/30/EU on electromagnetic compatibility

The following harmonized standards and technical specifications have been applied:

EN 61000-6-2: 2005
EN 61000-6-3: 2007 + A1 2011

Low Voltage Directive (LVD) 2014/35/EU

The following harmonized standards and technical specifications have been applied:

EN 61010-1: 2011

Signed on behalf of and in the name of:
Concorezzo: 16/01/2025

Di Reda Donato - Technical Manager

PAVONESISTEMI

PAVONE SISTEMI S.R.L.
Via Tiberio Bianchi 11/13/15, 20863 Concorezzo (MB)
T 039 9162656 **F** 039 9162675 **W** www.pavonesistemi.it
Sistemi di Pesatura Elettronica Industriale dal 1963