LCA-B-AR Axle Scale Weigh In Motion

User Manual

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OVERVIEW

LCA-B-AR is a smart digital automatic weighing instrument. Operates as Static Measurement Mode or Dynamic Measurement Mode. LCA-B-AR can handle every single axle loadings and individual speeds.

Features:

- High internal resolution (24 bits)
- Digital filter
- LCD display
- MODBUS protocol *
- IP-66 protection class
- Internal voltage supply circuitry is isolated from the external voltage supply
- Isolated communication lines
- 2 relay output
- 4-20mA Analog output module
- Eeprom memory for user Set-Up and Calibration information.
- Internal RTC and battery circuitry.
- 15 axles per transition
- Alibi Memory up to 42 records for vehicle transitions and 10 records for calibration history

*In specific conditions and factory tests only

SPECIFICATIONS

TECHNICAL SPECIFICATIONS

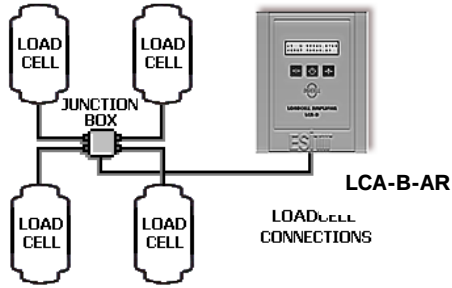
- Easily adjustable parameter and calibration menu by keypad
- Up to 160 mV/V input range
- Gain adjustment according to sensor output
- Sense compensation
- Up to 8 Loadcells are connectable
- Industrial IP 66 protection class case
- Remote control, parameter Set-Up and Calibration

Model	LCA-B-AR
Accuracy Class	0.5 / 1 / 2
Input	DC voltage: (+/-) 1.25 – 160mV/V
A/D Speed (/second)	800
Display Resolution	1/100.000
Power Supply	12-24V DC
Display	LCD (2x16 character)
Communication	RS-232 / RS-485
Loadcell Excitation	10 VDC (250mA, 8 loadcell)
Alibi Records	Maximum 42 records
Calibration Info	Last 10 calibrations are stored automatically

SYSTEM REQUIREMENTS

Additional modules for proper using;

JUNCTION BOX: If the system consists of more than one loadcell, then a junction box is used for accumulating the loadcell outputs to the LCA-B-AR device.

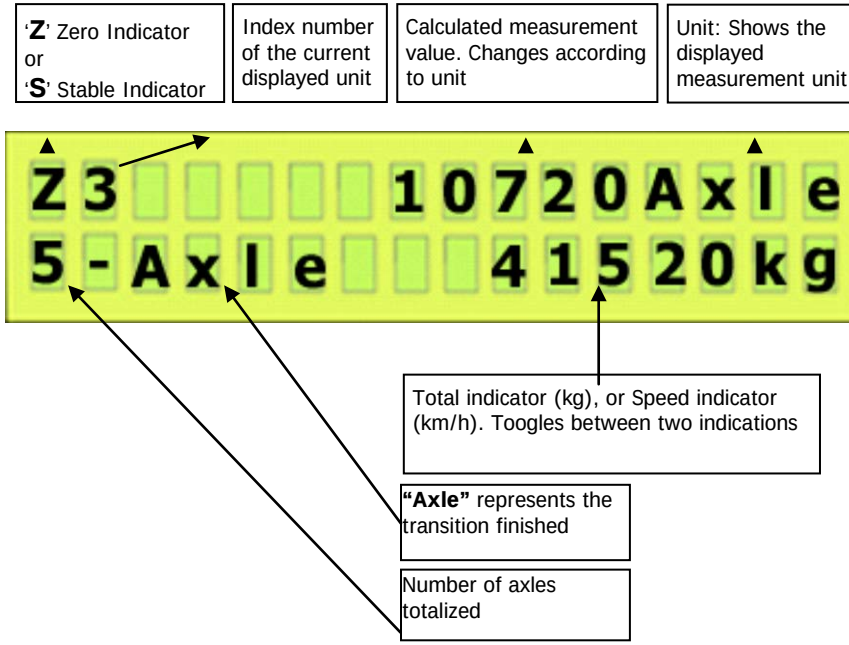


- **COMPUTER (PC):** If a computer used for monitoring then a computer with standard configuration will be required.

Minimum Configuration: P100MHz processor, 8Mb RAM, 500Mb hard-disc and at least an RS232 port.

- **RS232/485 CONVERTER:** If RS-485 communication base will be used for communication an **RS232/485 Converter** must be used between PC and device(s) to adapt device(s) and computer.
(**NOTE:** To communicate with more than one device at the same bus, RS-485 Communication must be used.)

SCREEN APPEARANCE



1.1 Symbols and Meanings

- **'Z' Zero Indıcator:** This symbol appears on the screen when the measurement value is below +/- 0.25d compare to zero.
- **'S' Stable Indıcator:** This symbol appears on the screen when the measurement value is +/- 1d for 3 seconds.
- "**Minimum Speed**": This message appears on the second line of the LCD when an axle transition occurred below the minimum speed value which is defined in "**P10:MinimumSpeed**" parameter.
- "**Maximum Speed**": This message appears on the second line of the LCD when an axle transition occurred abıve the maximum speed value which is defined in "**P09:MaximumSpeed**" parameter.
- "**Acceleration!**": This message appears on the second line of the LCD when a different axle transition speeds evceed more then the acceleration value which is defined in "**P16:Acceleration**" parameter.
- "**STATIC MODE**": This message appears on the second line of the LCD when the operation mode is **Static**.

- Unit (**kg**, **Axle**, **Spd**, **Totl**, **Aspd,Spce,Tmr**): Notifies the unit in use. The unit will change when the indication is changed by pressing  (Function) key.

1.2 KEYS

Zero Change Function

 **Zero Key (Short Press):**

- User Zero: User Zero operation. Makes measurement result zero (0). Additionally clears error flags of device.

 **Zero Key (Long Press):**

Clears the last vehicle transition information (Speed, total, axle weights).

 **Total Key (Short Press):**

Dynamic Mode: Switches the displayed measument unit (kg, Axle, Spd, Total, Space and Time).

Static Mode: Captures the weighing value (if the weight is above the threshold value that stated in parameters) as axle load (Pressing again will update the captured weighing value). After the load receptor unloaded the captured value will be automatically evaluated as axle load and number of axles counts up.

 **Total Key (Long Press):**

- Used to change operation mode. Operation mode toogles between **Static Mode** and **Dynamic Mode**.

 **Function (Short Press):**

- Changes the index value of the displayed unit (In operation only in **Axle**, **Spd, Spce** and **Tmr** units).
- Makes the transition finished without waiting wheel time out value (In both Static and Dynamic modes).

 **Function (Long Press):**

If this button pressed for 3 seconds or more, then parameter **Set-Up** menu appears on the screen.

 **&**  **Zero & Total (Long Press):**

Take a Print Out of the last vehicle Transition.

 **&**  **Zero & Function (Long Press):**

Resets device.

 **&**  **Total & Function (Long Press):**

Shotcut to Search Alibi-Records: Alibi Records find menu is displayed via pressing theese keys together with 3 seconds or more.

 **&**  **&**  **Zero & Total & Function (Long Press):**

Do Alibi Record manually: By pressing these buttons together an alibi record can take place manually.

1.3 Physical Dimensions

Dimensions	
Width	130 mm
Height	171 mm
Depth	50 mm

1.4 Memory

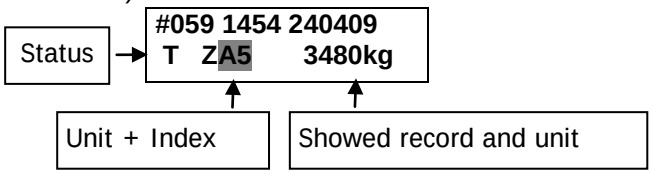
LCA-B-AR has non-volatile E²PROM memory and Real-Time Clock unit. There is a Cell circuitry inside the LCA-B-AR to save the datas and clock when a power down state occured. Use CR2032 as the battery cell. The all parameters, production date and the calibration informations are

saved on the E²prom memory. Calibration Date is updated automatically by the software used for calibration of the LCA-B-AR.

1.4.1 ALIBI MEMORY

LCA-B-AR indicator can store 42 records of the transition information and last 10 calibration records.
An Alibi record consists:
mm:hh dd/mm/yy + Status+ Avg Speed+ Totalization+ Axle Weighs + ChkSum
Example:

Time→ 14:54
Date→ 24/04/2009
Speed→ 5
Total→ 16480 kg
Axles→ 2250,2250,5500,3000,3480
Status→" ZT "
'n' : Minimum speed
'x' : Minimum speed
'a' : Minimum speed indication
'T' : Time set done after last record
'C' : Weigh calibration after last record
'Z' : Zero calibration after last record
'A' : Automatic Record (This record taken automatically by LCA indicator)



A record can be placed by pressing the shortcut keys (Long press to →0← & ⇕ & =↑= Zero & Total & Function; manual record)
or using the LCA menu "P59:ManualRecord" (Manual record)
or automatically as stated in P57:Auto Record (Automatic record)

After a weight calibration or zero calibration, a last-calibration record is done automaticaly.

2 ASSEMBLING and POWER-UP

LCA-B-AR Indicator has internal connection terminals. Relevant connections are done with these terminals. There is an explanation on the LCA-B-AR board that represents the meaning of each terminal. From left to right side on the LCA-B-AR board (1 to 22), each terminal meaning is given below:

1. **POWER+** : Power Supply (+ Pin for DC Supply)
2. **POWER-** : Power Supply (– Pin for DC Supply)
3. **GROUND** : Earth for device body.
4. **RS Rx/A** : Rx pin for RS- 232, A pin for RS- 485
5. **RS Tx/B** : Tx pin for RS- 232, B pin for RS- 485
6. **RELAYC** : Common pin for both Relays.
7. **RELAY1** : Contact connection for Relay1.
8. **RELAY2** : Contact connection for Relay2.
9. **INPUTC** : Common pin for digital inputs.
10. **INPUT1** : Digital input 1 (Opto isolated).
11. **INPUT2** : Digital input 2 (Opto isolated).
12. **ANALOG+** : + Power supply for 4- 20 mA or Pulse Input.
13. **PULSE IN** : Non-Used in AR devices.
14. **4/20mA** : 4- 20 mA analog output.
15. **ANALOG-** : – Power supply for 4- 20 mA
    or – Connection for Pulse Input.
16. **SHIELD** : Loadcell ground connection (Same point with device's internal ground)
17. **–S (Yellow)** : -Sense Loadcell
18. **–E (Black)** : -Excitation Loadcell
19. **–I (Red)** : -Input Loadcell
20. **+S (Blue)** : +Sense Loadcell
21. **+E (Green)** : +Excitation Loadcell
22. **+I (White)** : +Input Loadcell

It is enough to connect Power (1: **Power**+, 2: **Power**0) and Loadcell (17--22, **-S**, **-E**, **-I**, **+S**, **+E** and **+I**) connections to device terminals for stand alone working as minimum requirements.

Note: Warm-up condition will take 5 minutes after first energized. During warm-up, a relavant screen message will seen on the LCD and device will no function.

LOADCELL CONNECTION

There are two power lines and two output lines on the Loadcell cables. Some load cells has additional sense lines. The colors on the Esit model Loadcell cables and meanings are explained as follows:
Load cell cables can be 4 wired or 6 wired. When 4 wired Loadcell cable is used, there are no Sense Lines (Orange and Blue). Because of this, these pins on LCA-B terminal **must be shorted** with Power (Excitation) lines. [Jumper from +Sense (+ S) to +Power (**+ E**) and from –Sense (**- S**) to – Power(**- E**)]

Loadcell colors and meanings are explained as follows:.

For 4 wired load cell cable:

COLOR	**MEANING**
Shield	Cover (Blendage, Shield)
Red	- Output
White	+Output
Black	- Excitation
Green	+Excitation
Orange	-Sense
Blue	+Sense

If the system consists of more than one load cell, then a junction box is used for accumulating the loadcell outputs to the LCA-B device.

Note: Don't forget to make connections between **-S:-E**, **+S:+E** connectors for 4 wired loadcell connection.

After checking whether the correct connection is supplied, power up the device.

2.1 COMMUNICATION CONNECTIONS

LCA-B Communication Line Connection **(RS- 232** standard);

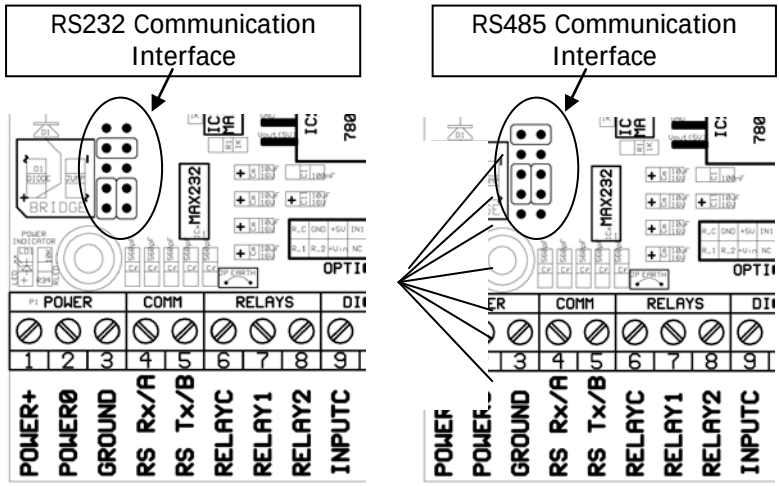
RS Rx/A ——————— Rx (Receive)
RS Tx/B ——————— Tx (Transmit)
GROUND ——————— Gnd

LCA-B Communication Line Connection **(RS- 485** standard);

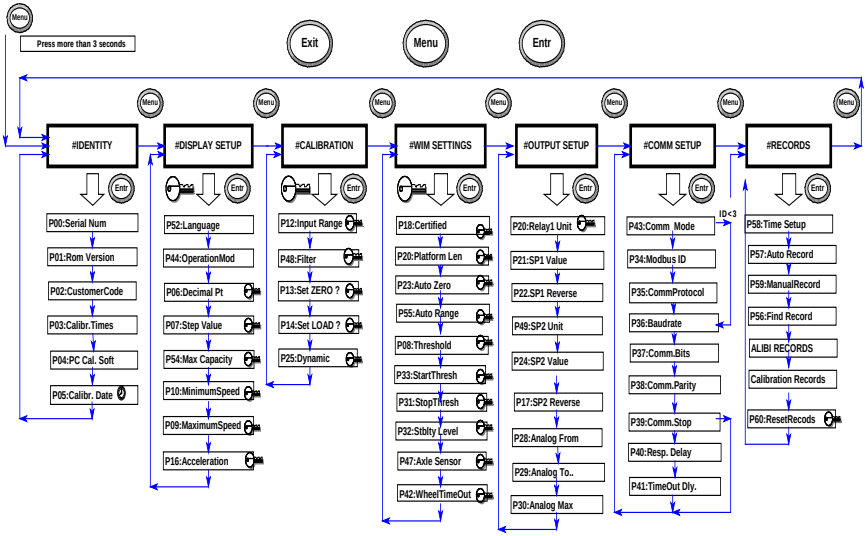
RS Rx/A ——————— RS A (Master device, PC etc..)
RS Tx/B ——————— RS B (Master device, PC etc..)

2.2 Communication Jumpers Settings:

Please install the jumpers as stated below.



3 FLOW CHART


Menu
Press more than 3 seconds
Exit
Menu
Entr
#IDENTITY
#DISPLAY SETUP
#CALIBRATION
#WIM SETTINGS
#OUTPUT SETUP
#COMM SETUP
#RECORDS
P00:Serial Num
P01:Rom Version
P02:CustomerCode
P03:Calibr.Times
P04:PC Cal. Soft
P05:Calibr. Date
P52:Language
P44:OperationMod
P06:Decimal Pt
P07:Step Value
P54:Max Capacity
P10:MinimumSpeed
P09:MaximumSpeed
P16:Acceleration
P12:Input Range
P48:Filter
P13:Set ZERO ?
P14:Set LOAD ?
P25:Dynamic
P18:Certified
P20:Platform Len
P23:Auto Zero
P55:Auto Range
P08:Threshold
P33:StartThresh
P31:StopThresh
P32:Stblty Level
P47:Axle Sensor
P42:WheelTimeOut
P20:Relay1 Unit
P21:SP1 Value
P22.SP1 Reverse
P49:SP2 Unit
P24:SP2 Value
P17:SP2 Reverse
P28:Analog From
P29:Analog To..
P30:Analog Max
P43:Comm Mode
P34:Modbus ID
P35:CommProtocol
P36:Baudrate
P37:Comm.Bits
P38:Comm.Parity
P39:Comm.Stop
P40:Resp. Delay
P41:TimeOut Dly.
ID<3
P58:Time Setup
P57:Auto Record
P59:ManualRecord
P56:Find Record
ALIBI RECORDS
Calibration Records
P60:ResetRecods

3.1 Setting Parameters

Parameter adjustment diagram is shown above. If Function (=↑=) key is pressed for 3 seconds or more, then menu screen appears. There are six headline menus and they are as follows:

- #IDENTITY
- #DISPLAY SETUP
- #CALIBRATION
- #WIM SETTINGS
- #OUTPUT SETUP
- #COMM SETUP
- #RECORDS

Meaning of the keys **(Exit Menu Ente**r) appears on the second line of screen when one of these headlines listed. Menu screen looks like as follows:

```
#IDENTITY
 Exit Menu Entr
```

According to this, the meaning of each key is stated below.

 **Exit**: The Zero key is used. When this key is pressed, menu screen goes off and returns to normal measurement screen.

 **Menu**: The Total key is used. Menu screen switches to the next headline of menu when this button is pressed. (**#IDENTITY, #DISPLAY SETUP, #CALIBRATION, # WIM SETTINGS, #OUTPUT SETUP, #COMM SETUP, #RECORDS**)

 **Entr**: The Function key is used. When this key is pressed on the menu screen, related parameter setup screen is displayed.

One of these headlines can be selected by pressing Function (=↑=)key. Meaning of the parameter and parameter number that is to be modified or read from the screen, appears on the LCD's upper line. The parameter's alternatives or parameter value will be displayed on the second line of LCD. Related parameter digit blinks and helps us which digit is about to be changed.

(The parameters that about to change can be protected by the calibration key. For this reason, don't forget to install the calibration key inside the LCA-B-AR to modify the parameters protected by the calibration key.)

EXAMPLE:

If parameter 16 (P16) **"#CALIBRATION**", **"P16: Input Rang**e" is wanted to be changed, then, first Function () key must be pressed for 3 seconds or more to enter the menu screen. The menu screen appears on the LCD will be as below:

```
#IDENTITY
 Exit Menu Entr
```

Pressing Total () key on this menu screen causes switching the other headlines. Switch to the **# CALIBRATION** headline by pressing Total ()key. Screen appearance will be as follows when this headline appears on the screen:

```
#CALIBRATION
 Exit Menu Entr
```

After then, enter the parameter entry screen by pressing Function ()key. LCD appearance will be as below:

```
P16:Input Range
   1↵2.50 mV/V
```

The alternatives from 0 to 7 can be switched by pressing Zero () key. Changeable parameter alternative blinks and the meaning of the alternative is seen next to the number. When Function () key is pressed, selected parameter value is saved and parameter screen switches to the next parameter screen. The alternatives that belong to this parameter are:

ALTERN↵ MEANING

0 ↵ 1,25 mV/V
1 ↵ 2,50 mV/V
2 ↵ 5,00 mV/V
3 ↵ 10,0 mV/V
4 ↵ 20,0 mV/V
5 ↵ 40,0 mV/V
6 ↵ 80,0 mV/V
7 ↵ 160 mV/V

3.2 Reseting Axles

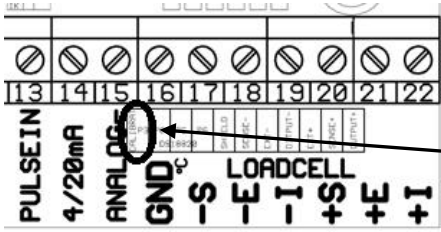
When **Zero** key is pressed for 3 seconds or more, makes the Total and axle values zero.
There is no permission for automatic zero in LCA-B indicator.

3.3 Zeroing

When **Zero** key is pressed (short press), the measurement result acts as zero point.

3.4 Calibration Key

LCA-B-AR device has internal calibration key inside.



Please leave te jumper after all the settings has finished

3.5 Parameters and Their Meanings:

3.5.1 #IDENTITY

This headline contains identity information about device.
P00:Serial Num: Device's serial number (Unchangeable).
P01:Rom Version: Shows micro-controller's software version and suffix number (Unchangeable).
P02:CustomerCode: Specific number for customers.(Unchangeable)
P03:Calibr.Times: This information shows number of calibration done (Automatically incremented each time a calibration is done).
P04:PC Cal. Soft: Personal code or PC software version number that the calibration process was made by. (The calibrating PC program automatically writes its own code to this area. If calibration is made by keypad, this value automatically sets itself to 0 [zero]).
P05:Calibr. Date: Calibration date information. The calibrating PC software or LCA-B-AR itself writes the calibration date to this area automatically.

3.5.2 #DISPLAY SETUP

This headline contains parameters about language selection, decimal point position, capacity, Min. Flowrate, Max-Flowrate and step values.
P52:Language: Language selection can be set as Turkish or English
P44:OperationMod: Start-Up condition for measurement mode. When a power-up condition occures, the measurement mode is selected according to this parameter. And also after an adjustment on menus the operation mode of the device will also changes according to this parameter.
P06:Decimal Pt: Decimal point position adjustment. Decimal point for weight indication (for "**Kg**" unit). Other values are automatically adapted.
P07:Step Value: Step value adjustment. This parameter effects the Axle loads calculated and the Total value claculated from the axles.
P54:Max Capacity: The maximum capacity of the Axle scale.
P10:MinimumSpeed: Minimum Speed value. "**MinimumSpeed**" message appears on the screen when a transition of a single axle less then the minimum speed.
P09:MaximumSpeed: Maximum Speed value. "**MaximumSpeed**" message appears on the screen when a transition of a single axle more then the maximum speed.
P16:Acceleration: Acceleration limit value. "**Acceleration!**" message appears on the screen when difference between the axles more then the acceleration limit stated in this parameter. (0:No limit)

3.5.3 #CALIBRATION:

In this menu calibration process is done. Also this screen can be used for monitoring internal counts. If you do not want to change anything, choose '**No**' alternative. Otherwise calibration can be modified or corrupted.

P12:Input Range Determines the input range (1, 25 - 2,50 - .. 160mV/ V). Appropriate analogue input signal is chosen according to the sensor type. (Please enter 2,50 mV/V if not sure)

P48:Filter: Filter value. Number of measurement that to be used for average calculations. Please choose 5 ↵ 32measurements if you have no idea.

ALTERN ↵ MEANING
0 ↵ 1
1 ↵ 2
2 ↵ 4
3 ↵ 8
4 ↵ 16
5 ↵ 32

P13:Set ZERO?: In this section calibration zero is saved to the device non-volatile memory.
(**Please see the Calibration**)

P14:Set LOAD?: In this screen, calibrating value is determined.
(**Please see the Calibration**)

P15:SCALE VALUE: Determines the value that is to be scaled as the reference value.

(NOT: "**P15:SCALE VALUE**" screen will not shown if 'No' alternative chosen in "**P14:Set LOAD?**" screen)

3.5.4 #WIM SETTINGS

Parameters for the Weight In Motion application can be found in this menu headline.

P18:Certified: This parameter is used for testing. When smaller divisions needed out of ceritified values than this parameter selected as "No". In this time, the speed calculation will be as 1km/h rounded and warm-up time will escaped.

P26:Platform Len: Load recepter length in mm (600mm to 900mm).

P23:Auto Zero: Automatic Zero operation. When there is no transition on the platform then automatic zero operation performed. +/-2% percent of maximum capacity is the limit for this operation.

P55:Auto Range: Determines the single axle transition criteria as automatically or not. Choose 'Yes' by default.

P08:Threshold: Minimum load value that to be evaluated as a real wheel load. Weight results below this value will be ignored for the dynamic measurement.
P33:Start Threshold: Adaptation value to recognize rise-up condition when a wheel transition started.
P33:Stop Threshol: Adaptation value to recognize fall-down condition when a wheel transition occured.

P32:Stblty Level: Adaptation level criteria for a single axle pattern. Choose 5 as default.
P47:Axle Sensor: This is the axle sensor selection. According to this parameter the vehicle transition can be recognized by the LCA-B-AR a sensor signal on “Pulse In” input.
P42:WheelTimeOut: Time out value for a vehicle transition. LCA-B-AR device has no extra sensor to recognize vehicle transitions. Device itself evaulates the time interval between the axle transitions. When a vehicle transition has started, this timer starts counting after last axle has passed. When there is a time interval without axle transition over the platform, as stated in this parameter, then LCA-B-AR device stops counting and and totalizing the axles (If you are not sure about the value, please enter **10.0** seconds. Please set lower values if there a problem or close transitions between the vehicle)

3.5.5 #OUTPUT SETUP

This menu contains information about relay setting and 4- 20 mA analog output setup.
P20:Relay1 Unit: Unit for the Relay1 Output. According to this selection, the output can energize for minimum speed error, maximum speed error , acceleration error, Axle load (kg) value or Total load (kg) value.

P21:SP1 Value: This parameter is used to set the energizing value for relay1 output according to the unit in parameter ‘P20:Relay1 Unit’ (axle load or total load). This parameter can not be seen when Minimum Speed, Maximum Speed or Accereleration error selected in ‘P20:Relay1 Unit’.

P22:SP1 Reverse: Activation condition for Relay1 is determined. Relay1 can energize above the value stated in “ **P21: SP1 Value** ” or below.

P49:Relay2 Unit: Unit for the Relay2 Output. According to this selection, the output can energize for minimum speed error, maximum speed error , acceleration error, Axle load (kg) value or Total load (kg) value.

P24:SP2 Value: This parameter is used to set the energizing value for relay2 output according to the unit in parameter 'P49:Relay2 Unit' (axle load or total load). This parameter can not be seen when Minimum Speed, Maximum Speed or Accereleration error selected in 'P49:Relay2 Unit'.

P17:SP2 Reverse: Activation condition for Relay2 is determined. Relay2 can energize above the value stated in " **P24: SP2 Value** " or below.

P28:Analog From: Determines the analog outputs starting point (00,000... 31,999 mA). When screen value is Zero analog output value will be as stated in this parameter.

P29:Analog To..: Determines the analog output end point (00,000... 31,999 mA). When screen value is equal or greater than Analog Maximum value (**P30:Analog Max**), then analog output value will be as stated in this parameter.

P30:Analog Max: Maximum value for analog output. When screen value is equal or greater than "Analog Max" analog output value will be as stated in "**P29: Analog To..**"

3.5.6 #COMM SETUP

In this menu communication parameters can be set.

P43:Comm Mode: Communication Mode selection. According to this selection the serial communication port behaviour changes;

- 0↵Remote

Remote Display: In this mode, Total mass of the vehicle (kg) and average speed of the transition is sent to the remote display. The toggle time between the total and speed is 2 seconds.

- 1↵Printr

Printer: In this mode the transition information is sent to the printer.
Example:
A transition for a vehicle with Ticket Nr 52 and 5axles and 27720kg and 5km/h speed is printed as follows;

Header	Esit Elektronik LTD
Header2	Istanbul/ E-5 (Kadikoy)
Ticket Number	Ticket Nr: 52
Date:	Date: 07.12.2010
Time:	Time: 17:28
Totalization	**Total:** 27720 kg
Axle Number (s): Axle Load [kg]	**Axle1:** 5590 kg
	Axle2: 8080 kg

	Axle3: 4700 kg **Axle4:** 4660 kg **Axle5:** 4690 kg
Speed	**Speed:** 5 km/h

- 2↵PC Out

PC Output: Simple PC Output mode. In this mode a vehicle transition information is sent to a PC or similar device (PLC or etc).
Example:
A transition for a vehicle with 5axles 32540kg and 5km/h speed is transmitted as follows;
Chr(2) (STX), AxleKg(1), Chr(9)(TAB), AxleKg (2), Chr(9)(TAB), AxleKg (n), Chr(9)(TAB), AverageSpeed, Chr(9)(TAB), TotalizationKg, Chr(9)(TAB), ChkSum, Chr(3) (ETX)
AxleKg: Single Axle load in kg
TotalizationKg: Totalization value in kg
AverageSpeed *: Average Speed in km/h.
ChkSum: Check sum of the data transmitted (1byte).

- 3↵PC Det

PC Detailed: Detailed PC Output mode. In this mode a vehicle transition information is sent to a PC or similar device (PLC or etc) in detailed as each single axle weight in “kg”, time intervals between the axles in “ms” and each single axle speeds in “km/h”. Here is the serial format;
Chr(2) (STX),
AxleKg(1), Chr(9)(TAB), AxleSpeed(1), Chr(9)(TAB), AxleTime(1), Chr(9)(TAB), AxleSpace(1), Chr(9)(TAB), N/A, Chr(9)(TAB),
AxleKg(2), Chr(9)(TAB), AxleSpeed(2), Chr(9)(TAB), AxleTime(2), Chr(9)(TAB), AxleSpace(2), Chr(9)(TAB), N/A, Chr(9)(TAB),
AxleKg (n), Chr(9)(TAB), AxleSpeed(n), Chr(9)(TAB), AxleTime(n), Chr(9)(TAB), AxleSpace(n), Chr(9)(TAB), N/A, Chr(9)(TAB),
AverageSpeed, Chr(9)(TAB), TotalizationKg, , Chr(9)(TAB), ChkSum, Chr(3) (ETX)

AxleKg: Single Axle load in kg.
AxleSpeed *: Single Axle transition speed.
AxleTime *: Time interval from last axle to the current axle
AxleSpace *: Distance between one axle before and the current axle
TotalizationKg: Totalization value in kg
AverageSpeed *: Average Speed in km/h.
ChkSum: Check sum of the data transmitted (1byte).

* This value will not transmitted in static mode by measuring axles manually.

- 4 ↵ Serv 1

Service Mode1: Non applicable. Used for precalibration in installation

- 5 ↵ Serv 2

Service Mode2: Non applicable. Only Factory Service

- 6 ↵ Serv 3

Service Mode3: Non applicable. Only Factory Service

- 7 ↵ Commnd

PC Commands Mode: Commands from PC mode. Please see Technical documentation for further information

P34:Modbus ID Nr: Bus ID number

Non applicable. This menu can only be displayed in Service modes.

P35:CommProtocol: Protocol.

Non applicable. This menu can only be displayed in Service modes.

P36:Baudrate: Communication speed selection

1200, 9600, 19200* and 57600* bps rates can be selected. Please contact technical person for supported rates.

*These baudrates are only for special LCA-B-AR models.

P37:Comm. Bits: Number of bits to be used

7bit / 8bit.

P38:Comm. Parity: Communication parity bit selection

none, even, odd parity

P39:Comm. Stop: Communication stop bit selection

1stop, 2stop

P40:Resp. Delay: Response delay.

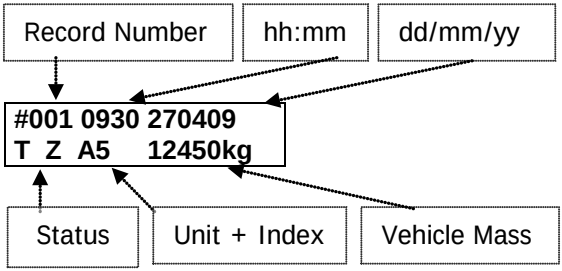
Non applicable.

P41:TimeOut Dly.: Timeout delay.

Non applicable.

3.5.7 #RECORDS

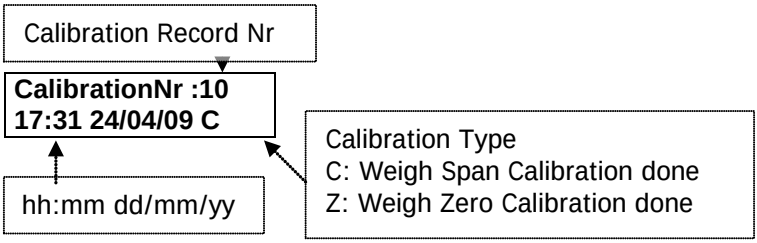
P58:Time Setup: Date & Time Setup parameter. Any modification on this parameter tracks a Time-set ('T' sign) information to the next Alibi record. Time format is, 09:04 27/04/10 → mm:hh dd/mm/yy
P57:Auto Record: Automatic Alibi record selection. Alibi record can take place after every vehicle transition automatically by setting this value as "Yes". To cancel auto record, set this parameter as "No".
P59:ManualRecord: Select "Yes" option to take place an Alibi record manually. Otherwise select "No" option.
P56:Find Record: Record number that to be shown after this selection. (The last record number shown when entered to this parameter screen)
After P56 selection, the screen appearance will be as follows;



Press →0← key to decrease 'Record Number' and press ↑T↓ key to increase 'Record Number'.
Please see 1.4.1 ALIBI MEMORY section to find out detailed information about Record Information.

CALIBRATION RECORDS

After pressing =↑= (Function) key, calibration information screen appears as stated below;



The last calibration information is shown on this screen. The record table is updated after a new calibration (Zero or Span) process.

Press  key to decrease ‘Calibration Number’ and press  key to increase.

P60:ResetRecords: Select “Yes” option to reset all Alibi and Calibration records. Press  (Function) key to exit without no change.

4 WEIGHT CALIBRATION

Follow the topics arranged below for performing calibration process correctly.

- Indicator should be kept in powered on state at least 30 minutes before the calibration process.
- Keep away all obstacles that may prevent load to be sensed by the platform.
- The reference weight should better be approved by authorities (The calibration weight should be an half of the capacity at least)

4.1 ZERO CALIBRATION

In order to introduce the Zero Point value to the device, **Zero Calibration** is done. To attain the **"# CALIBRATION**" menu, press 'Transition' () key on the menu screen and then enter the sub- menu items under the **"# CALIBRATIO**N" menu by pressing Function ()key. Screen appearance will be as follows:

P13:Set ZERO?
Yes 1476

In this setup screen, **"Y**es" or **"N**o" alternative can be determined by pressing Zero () key. Internal counts appear on the right bottom of LCD. The internal counts value can be changed as pure ADC values by pressing the 'Transition' () key. There are no changes to **Calibration Zero** if **"N**o" alternative is chosen. After selecting "**Y**es" alternative a waiting screen appears on the screen. The screen appearance will be as follows:

Please Wait..
3074654

The internal ADC counts will appear on the screen when the **Zero Calibration** process is working. Please do not touch the platform and do not allow a transition on the scale. Zero Calibration process is done when the Waiting Sreen is disaapeared.

4.2 LOAD CALIBRATION

In order to introduce known value to the device LOAD CALIBRATION should be performed. The screen appearance will be as follows:

```
P14:Set LOAD?
    Yes      13476
```

Load the platform with a known value. And then select 'Yes' by pressing Zero () key. Internal counts that represents the load on scale appears on the right bottom of LCD. After selecting "**Y**es" alternative the Load Calibration process begins. A Waiting Screen appears on the screen. The screen appearance will be as follows:

```
Please Wait..
     3074654
```

The internal ADC counts will appear on the screen when the **Load Calibration** process is working. Please do not touch the scale and do not allow any transition on the scale. Scaling Value screen appears on the screen when the Waiting Sreen is disappeared. The screen appearance will be as follows:

```
P15:SCALE VALUE
    00020.00   kg
```

The Calibration Weight that used for the loadind the scale is entered in this parameter. And Calibration Process is done by pressing Function () key.

4.3 STATIC TESTS

After the "Zero Calibration" and "Load Calibration" please check the calibration with No-Load and Test Load while the system is in STATIC MODE.

5 STARTING PROCESS

- Do the electrical and mechanical assembling.
- Check the mechanical level differences between the scale and road (apron). It must be zero (mm)
- Check the loadcell outputs with a test load on each corner of the platform and adjust the outputs from the j-box settings if necessary.
- Make Zero and Weight Calibrations. Check repeatability and corner errors.
- Set the speed limits and time out values according to the application.
- Set the Output parameters for the signs.
- Set the communication mode according to the application.

6 ERROR MESSAGES

LCA-B-AR device can display the following messages:

ERROR-5 "**ADC RANGE!**"
Internal counts are in over state. Check ADC gain setup and Loadcell sensor.

ERROR-22 "**Eeprom Mem**"
Non-volatile memory error. Please call service.

ERROR-42 **"RTC Error"**
Internal RTC error. There is an error inside the RTC unit. Battery may be empty.

ERROR-50 "**CALIB.KEY!**"
Calibration key is disabled. To perform this operation, modification should be done on the LCA-B-AR board.

ERROR-90 "**CONV.TOUT!**"
ADC conversion is timed out. Chip not responding. Please call service.

ERROR-99 "**WATCHDOG!** "
There is an unknown software lock occurred and device automatically RESET itself.

ERROR-02 "**Negative Load!** "
There is a negative load on the scale which is over than %2 of maximum capacity range.

7 PROBLEMS and SOLUTIONS

☹ Nothing on screen and no backlight.

☺ No energy is given to the device. The device may be unplugged. Check the voltages.

☹ LCA-B-AR cannot communicate with electronic device connected (PC, PLC..).

☺ Check the jumper settings for communication. Check the communication parameters and cables. The parameters must be configured the same with the electronic device that LCA-B-AR is connected. Check the cable and RS232/ 485 converter if used.

☹ Weight can not be seen.

☺ LCA-B-AR device can show different units on the LCD. By pressing Function key, the displaying value can be changed to “kg” unit. Or, there can be a calibration error or wrong connection in Load-cell cable. May need to perform calibration again. Can be controlled by checking internal counts.

☹ Keys not functioning.

☺ Check whether any key is left pressed.

☹ Device do not recognize a vehicle transition.

☺ Check the operation mode. LCA-B-AR device will nor recognize a transition when STATIC MODE. Also check the Threshold value which is higher than wheel loadings or not. Check “P42:WheelTimeOut” parameter is too small or not.