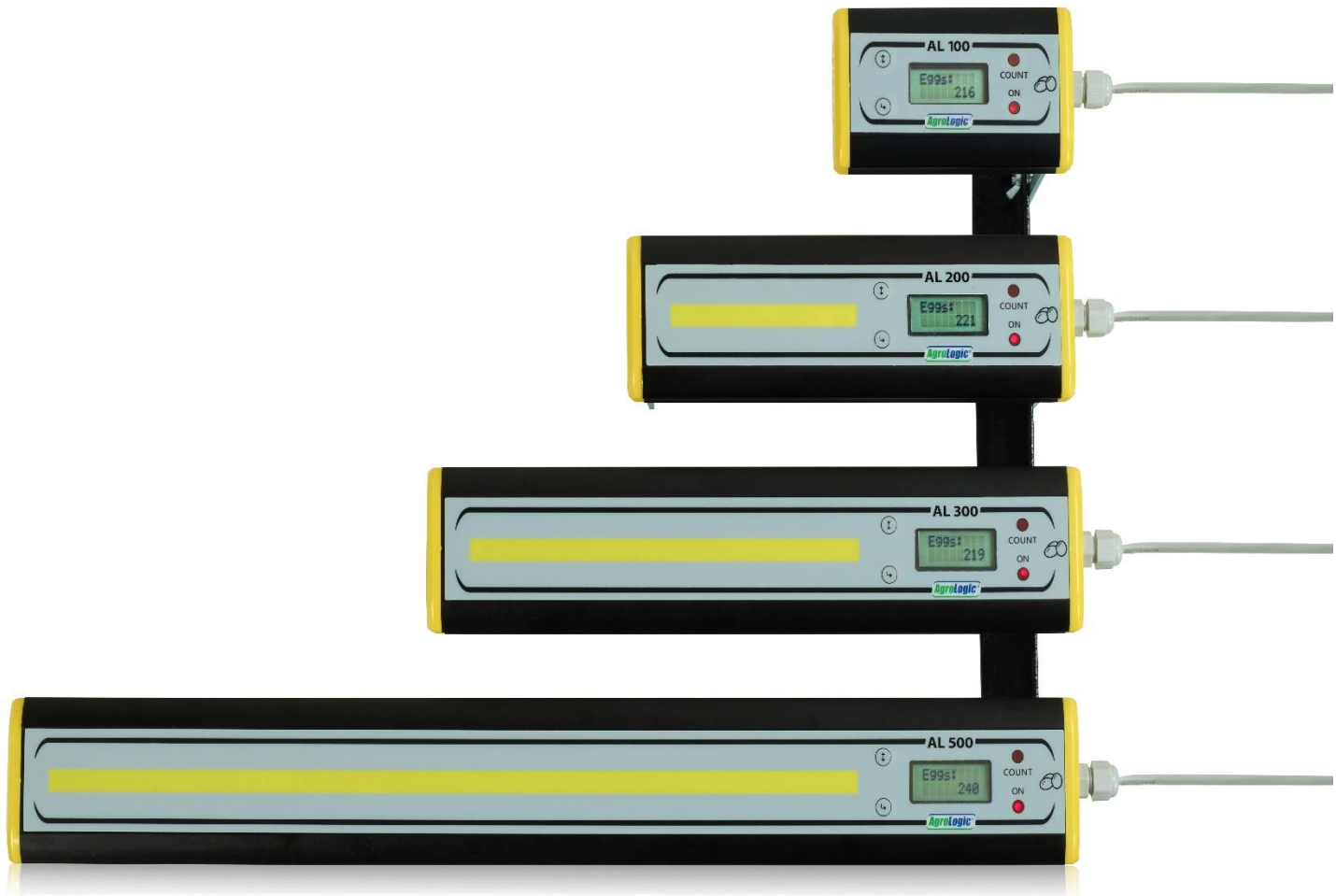








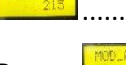

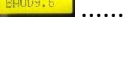


AL EGG COUNTERS SERIES



Contents

Contents	2
1. Introduction.....	3
2. Technical specification	4
3. Mounting	5
4. Electrical connection	6
5. Interface	7
6. Menu screens	8
6.1. Main screen 	8
6.2. Clear counter screen 	8
6.3. Calibration screen 	9
6.4. Sensor data screen 	9
6.5. Sensor DT data screen 	10
6.6 Contrast screen 	11
HYST page 	11
U_HYST page 	11
SNSTHRES 	11
MOD_ADDR page 	11
MODSPEED 	11
M_PARITY	11
7. Maintenance.....	12

AL Egg Counters Users MANUAL

This manual contains information about installation, calibration and maintenance of the **AL Egg Counter** series.

Read this manual carefully and follow all instruction.

Document History

Revision Level / Date	Section Affected	Description
1.0		First Edition
1.3/16.06.2018	All sections	Cosmetic changes

1. Introduction

The **AL Egg Counter Series** has been designed to work with most types of egg conveyors (rod conveyors, belt conveyors etc.). Eggs must pass directly under the **AL Counters**.

AL Egg Counter Series uses highly intelligent sensors with infrared lasers to measure distance with *Time-Of-Flight* technology under licensed patent number 250809. Using this technology, the **AL Egg Counter Series** accuracy will not be affected by external factors such as conveyor type and color, egg color and size, orientation of the eggs on the conveyor or lighting conditions.

The **AL Egg Counter Series** has a built-in display for easy setup and display of current egg count.

AL Egg Counters Users MANUAL

2. Technical specification

Power supply		6-24 VDC / 8-18 VAC
Power consumption:	AL100	Max 0.5W
	AL200	Max 1.0W
	AL300	Max 1.5W
	AL500	Max 2.5W
Digital output		Open Drain 24V/0.5A
Pulse width		37.5 ms
Accuracy (under normal conditions)		99.8%
Operating temperature range		0° to +40° Celsius / 32° to 104° Fahrenheit
Enclosure		IP52
Dimensions:	AL100	144x75x30 mm 5.6x2.9x1.2 inch
	AL200	248x75x30 mm 9.76x2.9x1.2 inch
	AL300	352x75x30 mm 11.85x2.9x1.2 inch
	AL500	560x75x30 mm 22.04x2.9x1.2 inch
Weight (without mounting bracket)	AL100	328 gr // 0.72lb
	AL200	478 gr // 1.05 lb
	AL300	628gr // 1.38 lb
	AL500	928gr // 2.05 lb
Installation height		60-75 mm
Scan width	AL100	100 mm
	AL200	200 mm
	AL300	300 mm
	AL500	500 mm
Conveyor speed		0-7m/min 23f/min

AL Egg Counters Users MANUAL

3. Mounting

1. Mount the **AL Egg Counter** 60-75mm above the conveyor belt using the supplied brackets. For the AL100 use one bracket and for AL200-500 use two brackets from both sides of conveyor as shown on Figure 2
2. The sensors are located on the bottom of the counter. Ensure that the bracket doesn't block the sensors. The **AL Egg Counters** must be fixed securely to the conveyor and all eggs can pass freely under the counter.
3. For best results, the eggs should not roll around on the conveyor while passing under the **AL Egg Counters**. Rolling eggs may be counted twice.
4. When stopped, the conveyor should not move backwards.

Always mount **AL Egg Counters** with power off.

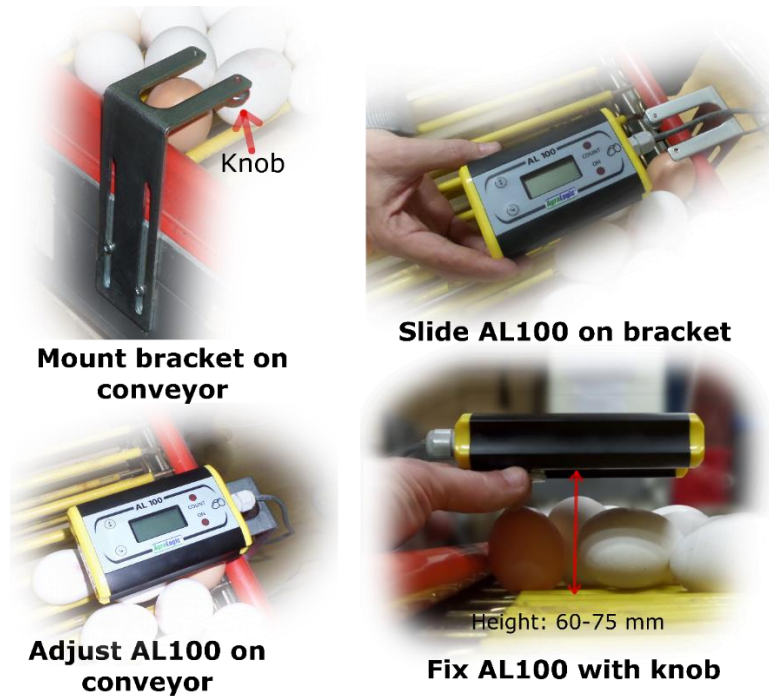


Figure 1

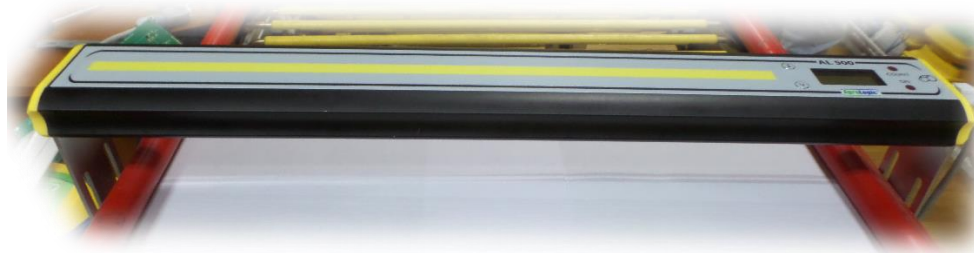


Figure 2

4. Electrical connection

1. Connect the **AL Egg counters** using low voltage cables. The cable should be laid away from power cables. If this is not possible, shielded low voltage cable should be used.
2. Connect the **AL Egg counters** according to the instructions in Figure 3 and Table 1.

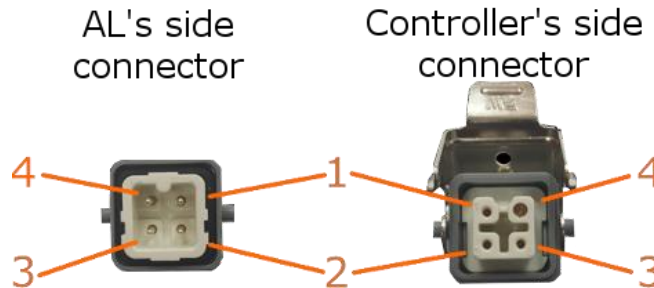


Figure 3

Table 1

AL Egg Counter Series side wire color	Pin number	Usage AC power supply	Usage DC power Supply
Red	1	AC input 1	DC IN+
Black	2	AC input 2	Not connected
Green	3	Pulse output	Pulse output
Shield	4	Ground	Ground (DC IN-)

3. If metal cable channels are used, always ground them.
4. Observe regulations of local electricity company.

Optionally, the AL Egg Counters are supplied with power adaptor shown on Figure 4. Please, connect red marked wire to **DC IN+** input and wire without mark to **GROUND(DC IN-)** input.



Figure 4

5. Interface

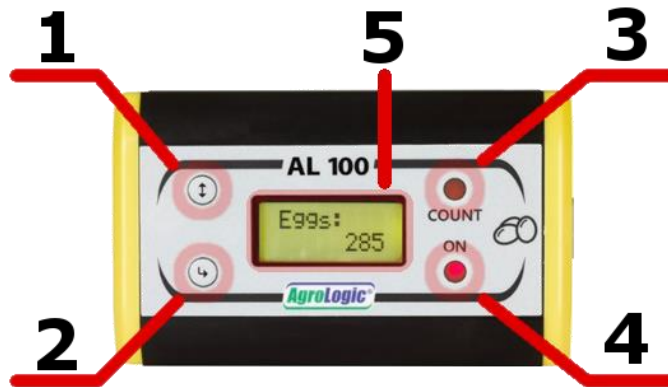


Figure 5

- 1. "Menu" key**
"Menu" key is used to switch between menus and screens.
- 2. "Enter" key**
"Enter" key is used to enter menus and for actions on screens.
- 3. "Count" LED**
"Count" LED blinks once for each egg counted.
- 4. "On" LED**
"On" LED is lit, when AL Egg Counter is powered and functioning.
- 5. "LCD"**
LCD is used to display count of eggs, calibration status, sensor data, etc.

6. Menu screens

Full Screens Flowchart is shown in Figure 6.

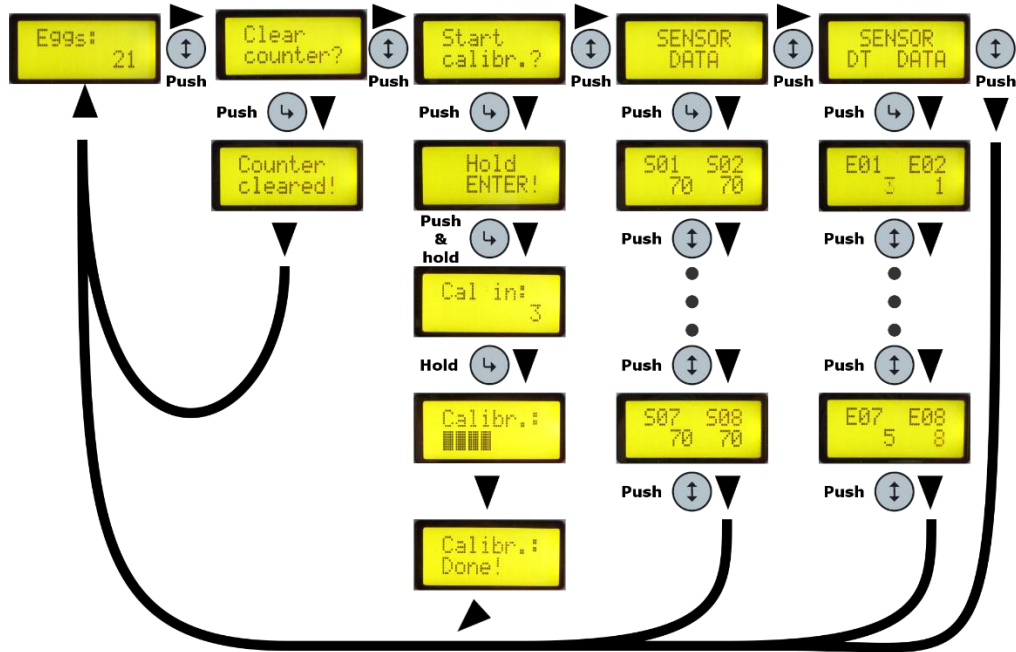


Figure 6

6.1. Main screen



This screen shows total amount of eggs counted.

6.2. Clear counter screen



To reset the counter to 0, follow the below steps (See Figure 7):

- Press on the “Menu” key until you reach the “Clear counter?” screen.
- Press on the “Enter” key to reset the counter. The “Counter cleared!” screen will appear.
- After 2 seconds the counter display will return to main screen.



Figure 7

AL Egg Counters Users MANUAL

6.3. Calibration screen



After the counter is mounted, it must be calibrated. Calibration screens are shown in Figure 8.

When calibrating, do not block sensors with hand as shown on Figure 7.



Figure

To calibrate the **AL Egg Counters**, follow the below steps:

Supply power to the AL Egg counter

- Place a sheet of white paper or other flat thin bright material on conveyor underneath the **AL Egg counters**.
- Press on the “Menu” key until you reach “Start calibr.?” Screen.
- Press on the “Enter” key, the “HOLD ENTER” screen will appear.
- Press on the “Enter” key until you reach “Calibr.:” screen.
- Once calibration is finished, the “Calibr.: Done!” screen will appear and the **AL Egg counter** is now calibrated.

After 2 seconds the counter display will return to main screen.

After calibration,(with sheet of white paper or other flat thin bright material on conveyor underneath) sensor data for each sensor should be 70 ± 3 .

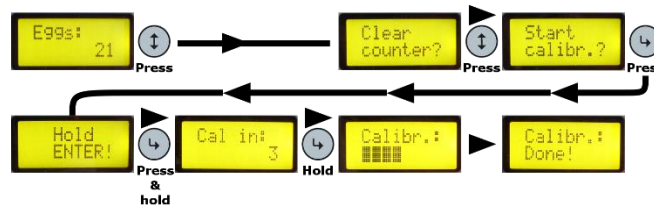


Figure 8

6.4. Sensor data screen



The “SENSOR DATA” screens show important information about the **AL Egg Counters** internal sensors. The Sensor data contains four submenu screens (See Figure).

AL Egg Counters Users MANUAL

To view “SENSOR DATA” screens, follow the below steps:




- Press on the “Menu”  key until you reach the “SENSOR DATA” screen.
- Press on the “Enter”  key to enter submenu screens.
- Press on the “Menu”  key to scroll through submenu screens.



Figure 9




This information is for Agrologic technical personnel.

6.5. Sensor DT data screen

The “SENSOR DT DATA” screens show important **AL Egg counters** technical data.

There are four Sensor data submenu screens. Each screen shows technical data for two of the internal sensors (See Figure 8).

To view “SENSOR DT DATA” screens, follow the below steps:

- Press on the “Menu”  key until you reach the “SENSOR DT DATA” screen.
- Press on the “Enter”  key to enter submenu screens.
- Press on the “Menu”  key to scroll through submenu screens.

To check automatically the AL egg counter sensors, choose this option.

Before doing the check sensor procedure, adjust the AL egg counter height to 30-40mm above a white surface and recalibrate it.

After this procedure is done, the AL egg counter will show each sensor number and its status:

- GOOD – sensor is OK .
- Stb.Fail – sensor failed stability check.
- Cal.Fail – sensor failed calibration check.

This information is for Agrologic technical personnel.



Figure 8

AL Egg Counters Users MANUAL

6.6 Contrast screen



Adjust screen contrast

HYST page



This parameter affects counter sensitivity to extremums. The smaller this parameter, the greater the sensitivity.

U_HYST page



This parameter affects counter sensitivity to boundaries. The smaller this parameter, the greater the sensitivity.

SNSTHRES



This parameter sets maximum distance between AL egg counter and vertex of the egg. If the distance exceeds this limit – AL egg counter wont count this egg.

The units of this parameter are set in quarters of a millimeter.

MOD_ADDR page



AL egg counter MODBUS address.

MODBUS- Program version 24.0 only

MODBUS

Through the user interface, you can set device address, baud rate (2400, 4800, 9600, 19200, 38400, 115200) and parity (1 stop bit, 2 stop bits, even, odd).

MODSPEED



MODBUS Baud rate.

Could be:

2400 b/s

4800 b/s

9600 b/s

19200 b/s

38400 b/s

115200 b/s

M_PARITY

MODBUS parity options.

1 stop bit

2 stop bits

1 stop bit, even parity

1 stop bit, odd parity

Modbus commands supported:

- Read holding registers (0x03)
- Write holding register (0x06)
- Write Holding registers (0x10)
- Loopback (0x08)

Address of 32 bit egg counter register is **0x01**.

Special address (**0xFF00**) for commands.

The commands are:

- CALIBRATION (0x00)
- CLEAR_COUNTER (0x01)

Pulse output width.

The AL series 200, 300 and 500 has option to adjust the pulse output width.

You can choose pulse output speed.

13ms / 19.5ms / 26ms / 32ms / 39ms / 45.5ms / 52ms / 58.5ms / 65ms

7. Maintenance

AL Egg counters requires a minimum of maintenance.

The glass bottom cover normally remains dust free. If the **AL Egg Counters** become inaccurate, clean the glass bottom.

To clean glass cover, use compressed air or a antistatic cloth.

Recalibrate after cleaning.

We suggest cleaning the bottom of the AI counters once every 2 weeks or sooner if needed.



Always disconnect power before cleaning the **AL Egg Counters** and poultry house.

To prevent damage, ensure that no water or steam comes into contact with the **AL Egg Counters** or connectors.