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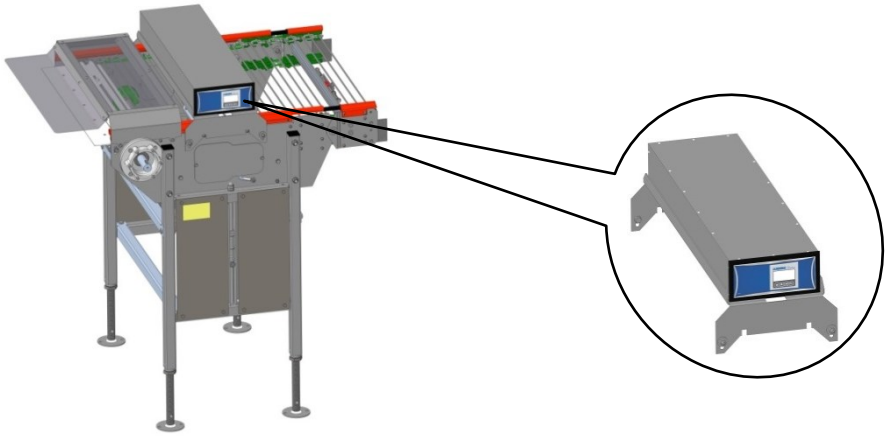
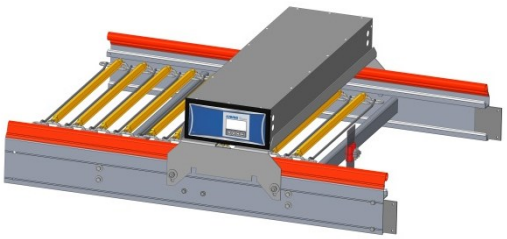
LUBING Egg Counter EMEC



The LUBING Egg Counter EMEC is a counter which makes it possible to count eggs on the LUBING conveyor belt. It is not necessary to separate or align the eggs. The sensor will accurately count side-by-side. The egg counter uses infrared light to detect the eggs on the conveyor belt. For every detected egg an electronic pulse is generated. The egg counter works with an accuracy of minimal 99.8%.
The installation of the egg counter can be done either on a front drive or on a connecting part of the conveyor system.

Egg counter on a front drive



Egg counter on a connecting part

The egg counter is available in several versions. The correct choice depends on the conveyor width:

Overview LUBING Egg Counter EMEC			
Type of conveyor	**Item No.**	**Description**	**Max. scan width EMEC**
350	187 700 30 00	Egg counter with bracket, type 350 (EMEC-40)	394 mm
500	185 700 30 00	Egg counter with bracket, type 500 (EMEC-50)	486 mm
750	188 700 30 00	Egg counter with bracket, type 750 (EMEC-75)	760 mm

In addition to historical data from the last seven days, the integrated display also shows the current output in eggs per hour. With the current conveying volume, the transport volume of frequency-controlled systems can be easily adapted to the capacity of the packing / grading machine. Thus

the conveyor is operated in low-wear continuous operation without unnecessarily start-stop processes.

Installation instructions

The counting accuracy of the egg counter strongly depends on the mounting and the type of conveyor:

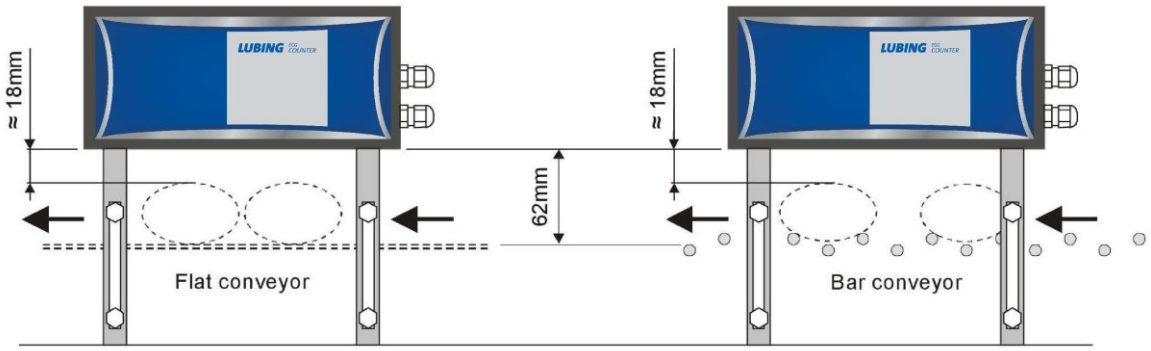
- The accuracy of the egg counter can be affected by bright overhead lighting, e.g. sunlight. Exposed to strong sunlight an accurate working is not guaranteed. Therefore it is not recommended to connect the egg counter near a door or window. The egg counter will compensate normal amounts of background light. Occasionally, the egg counter may need to be shaded from bright light.
- In order to achieve the best accuracy the egg counter should be mounted at a place where the eggs are not rolling or shifting on the conveyor belt.
- Some conveyor systems move backwards after the drive motor turns off. The egg counter will count eggs moving in either direction, causing an additional count if the conveyor moves backwards significantly. This problem can be avoided by installing a brake on the motor or by installing the egg counter at another location on the conveyor.

  Note: This problem does not occur with LUBING conveyor systems.

Installation on a conveyor

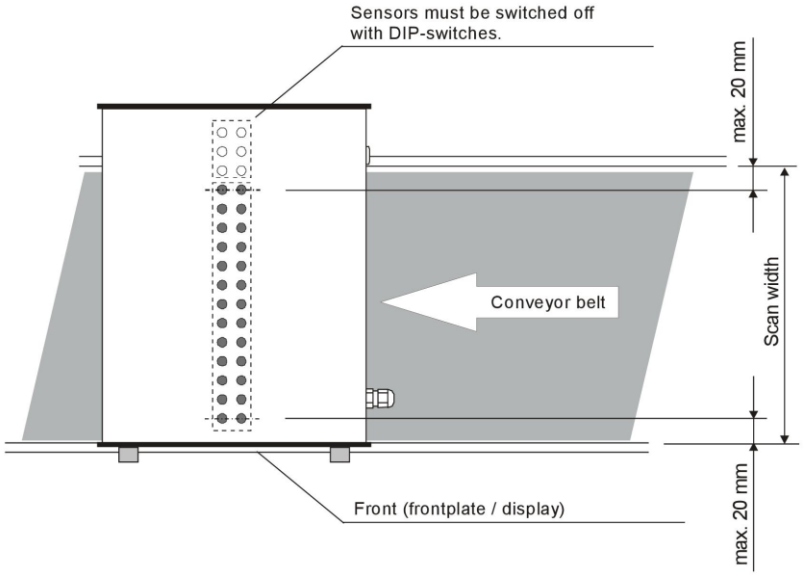
The egg counter should be mounted by means of supplied supports on the conveyor.

- If mounting the egg counter onto the conveyor belt the mounting distance between the bottom of the counter and the top of the conveyor belt **must be 62 mm**. In this position the distance between the top of the egg and the counter is **about 18 mm**. If a rod conveyor is applied the mounting distance is defined as the distance between the top of the lowest conveyor bar and the bottom of the counter. Please refer to illustration below.

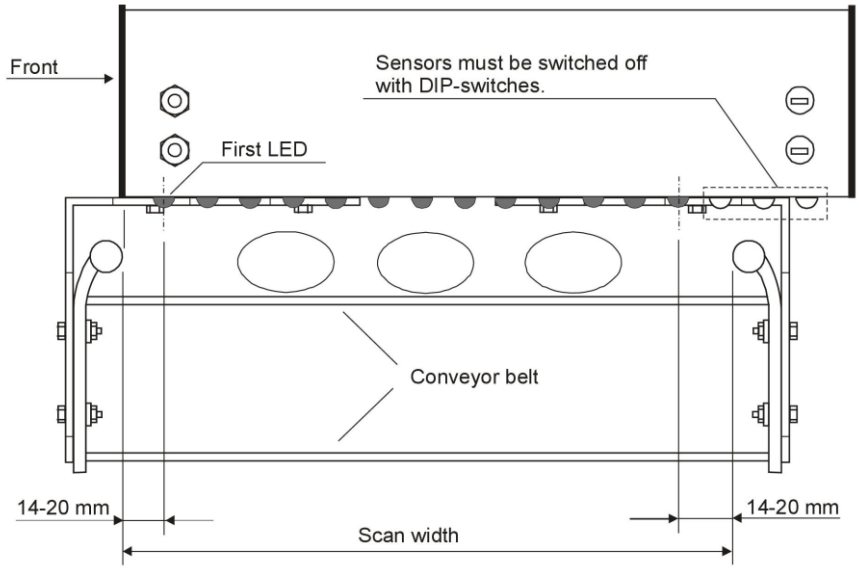


Important information!
If the average dimension of the eggs that are produced is bigger or smaller, then it might be necessary to adapt the mounting distance of the counter (top of the egg to the counter 18 mm).

- The metal housing must be adjusted at the front in a manner that it is equal to the side of the conveyor belt or with the conduction on which the eggs pass. The distance between the side of the conveyor belt or conduction and the first infrared sensor must be **max. 20 mm**. If the egg counter crosses over at the back of the conveyor belt, one or more infrared sensor must be switched off by using DIP-switches. Please refer to the table on the next page to see how many sensors have to be switched off. The distance between the side of the conveyor belt or conduction and the last infrared sensor should be **max. 20 mm**. Please refer to illustration below.



- The scan-width can be adjusted in **steps of 11 mm**. If this does not correspond with the width of the egg conveyor, the egg counter needs to be mounted in such a way that the space between the first infrared sensor and the edge of the egg conveyor and the last (used) infrared sensor and the edge of the egg conveyor is equal (14-20 mm). Please refer to illustration below.



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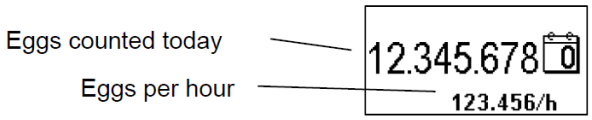
		SW1	Number of LEDs switched off						
No. board			1 LED OFF	2 LEDs OFF	3 LEDs OFF	4 LEDs OFF	5 LEDs OFF	6 LEDs OFF	7 LEDs OFF
		Board 4							
Type 350 EMEC-40	4								
Scan width		394 mm	383 mm	371 mm	360 mm	348 mm	336 mm	325 mm	314 mm
		Board 5							
Type 500 EMEC-50	5								
Scan width		486 mm	475 mm	463 mm	452 mm	440 mm	429 mm	417 mm	405 mm
		Board 8							
Type 750 EMEC-75	8								
Scan width		760 mm	749 mm	737 mm	726 mm	714 mm	703 mm	691 mm	680 mm

Installation example:
Mounting a LUBING Egg Counter on a conveyor type 350:

- *Required egg counter = Item No. 187 700 30 00 – Egg counter with bracket type 350 (max. scan-width: 394 mm).*
- *Use DIP-switch SW1 of the last scan-print to disconnect 6 LEDs (the scan-width becomes 325 mm).*
- *Place the counter in a way that the space to the first LED is 15 mm.*

Start-up operation

When switching on the mains the egg counter starts a self-test for two seconds. Then it is ready for operation. On the display the logo ‘Eggs counted today’ will appear.



If an egg is counted, the number of ‘Eggs counted today’ will be increased with one. Simultaneously a pulse is generated on the output (standard 1 pulse per egg, maximum 5 pulses per second).
The egg counter can be put into standby mode via a separate input. As a rule, the start/stop signals of the conveyor system are used for this purpose. If the standby mode is activated, no eggs are counted. The use of the standby mode is not mandatory, but can improve the accuracy in certain situations.

Important information!
For maximum accuracy it is advisable to always use the stand-by input.

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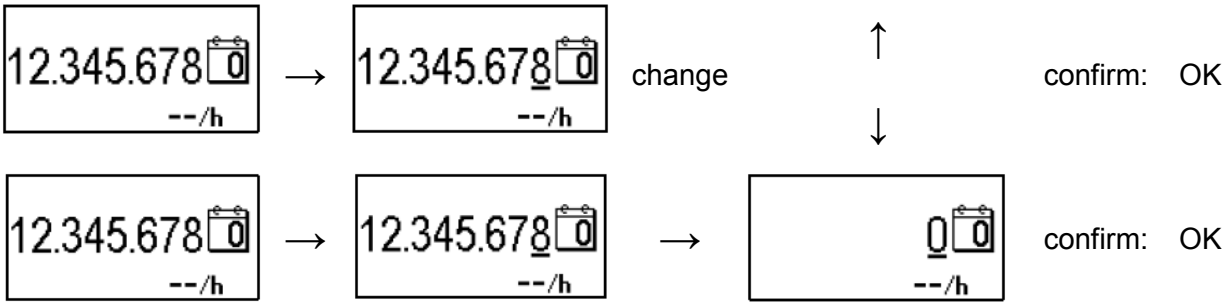
Display

Readout	Description
12.345.678 0 --/h	Eggs today (conveyor belt in stand-by)
12.345.678 -1	Eggs yesterday (day -1)
12.345.678 -2	Eggs the day before yesterday (day -2)
	up to and including
12.345.678 -7	Eggs day -7
23:58	Time

The amount of counted eggs for the last seven days can checked on the display. With ↑ or ↓ it is possible to move to other days and to display current time.
At the end of the day the data is shifted automatically. Data older than seven days is deleted.
The display will switch back to “Eggs counted today” if no key is actuated for a period of five minutes.
It is also possible to set the current value of “Eggs counted today” to a user defined value if required.

For example: adjust eggs or switch directly to ‘0’:



In case you do not wish to confirm the changed value during alteration, press → once again. The old setting will re-appear again on the display and the cursor disappears.

Maintenance

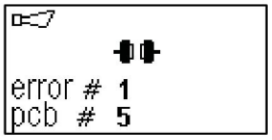
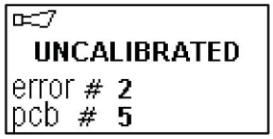
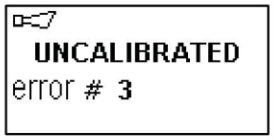
Under normal conditions the egg counter should require very little maintenance. In most cases, if properly installed to the system, the infrared sensors stay relatively clean.

- If dust or dirt tends to build up on the sensors, it should be periodically wiped off with a soft (damp) cloth.
  Attention! During cleaning process eggs can be counted, too.
- When cleaning the poultry house, care should be taken so that the sensors are not damaged by direct streams of high-pressure water or steam. Before washing down, make sure the strain relief is tightened securely around the sensor cable. For best results the egg counter should be switched on during wash down. This way enclosure will be heated from the inside and will not draw moisture.

Troubleshooting

Error messages

The egg counter checks the counter operation. In case of an error it will be displayed. The following error messages are possible:

Alarm	Description	Kind	Cause
	Communication error	Alarm	No connection with scan-board number x.
	Calibration error at scan-board	Alarm	Scan-board number x is uncalibrated.
	Total calibration error	Alarm	All scan-boards are uncalibrated.
	Light intensity too high	Warning	Light intensity too high.

With the error message 1, 2 or 3 the egg counting will be incorrect. The error message “light intensity too high” is given when too much light is measured. This occurs for example when sunlight reflects on the conveyor.

Unexpected counting results

Problem	Possible cause
Egg counter counts – too few eggs – too much eggs	- Adapt and correct the mounting distance - The eggs are not lying still because for example the egg supply is to close - Stand-by cross conveyor is not connected. Faults occur when the conveyor starts/stops

Technical data

Electrical data			
Power supply	230 VAC ±10%, 50/60 Hz		
Power consumption electronics	Max. 12 VA		
Fuse main current	T 100 mA (dim. 5 x 20 mm)		

Measuring range			
Scan width	Type 350 EMEC-40	Type 500 EMEC-50	Type 750 EMEC-75

	394 mm	486 mm	760 mm
Scan height	25 - 50 mm (at mounting height 62 mm)		
Suitable conveyor speed	2.5 - 8 m/min		
Operating temperature	0…40°C		
Stand-by input/output			
Digital input (Dig In 2)	NPN/PNP input 12..24 VDC 8 mA		
Relay output (Dig Out 1)	0.5 A, 24 VAC/DC		
Alarm output			
Alarm relay	0.5 A, 24 VAC/DC		
Mechanical			
Operating temperature range	0-40°C		
Dimensions (H x W x D) in mm	Type 350 EMEC-40	Type 500 EMEC-50	Type 750 EMEC-75
	107 x 225 x 406	107 x 225 x 498	107 x 225 x 772
Dimensions (H x W x D) in mm including mounting bracket			
Encasing	Steel/IP 52 plastic material		
Weight in kg	~ 4.1	~ 5.0	~ 7.7

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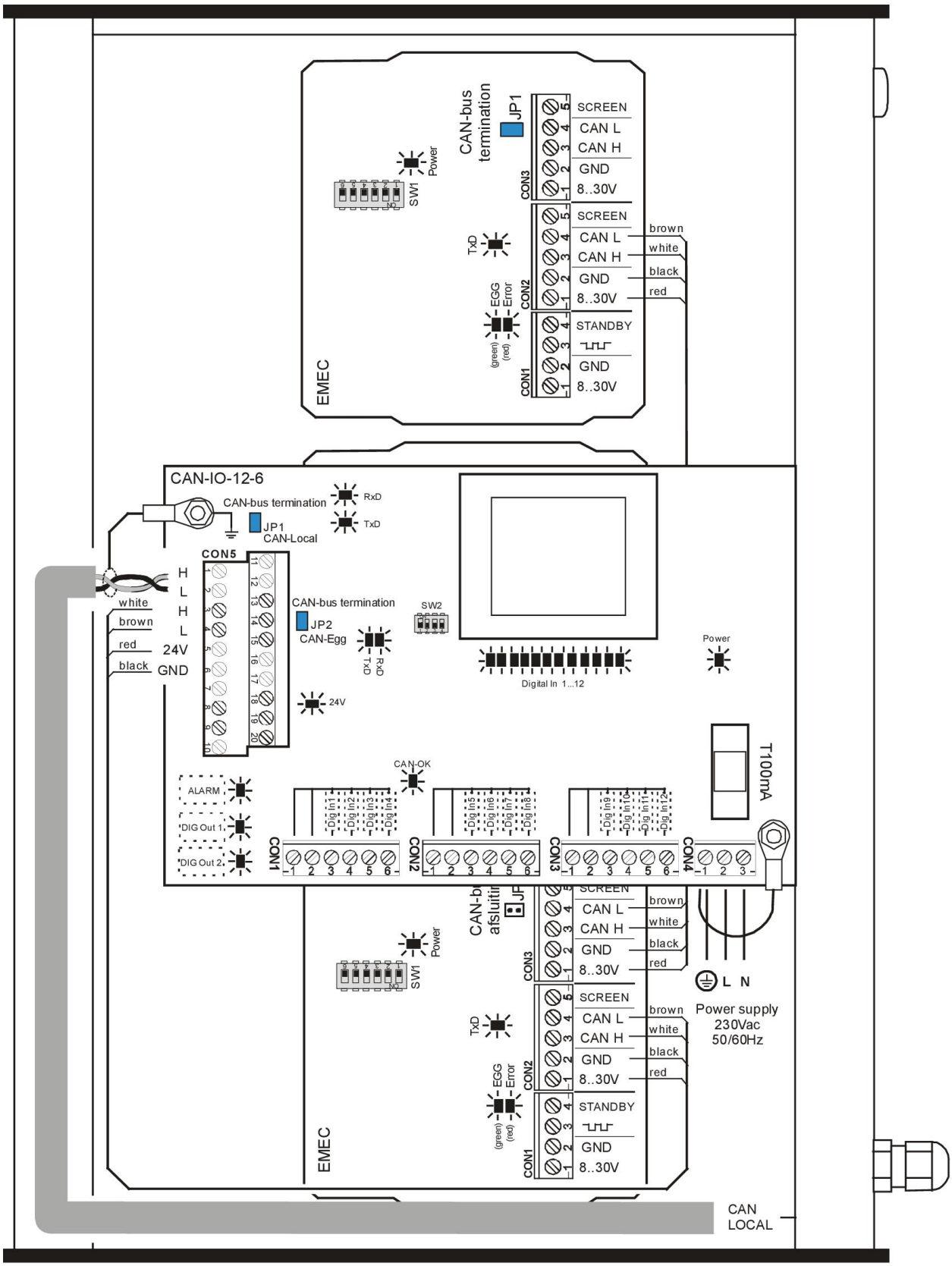
Wiring diagram



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