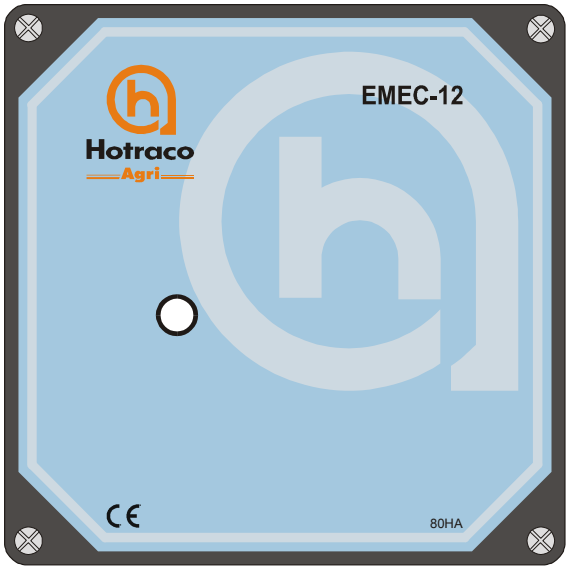
1. General

The EMEC-12 is an egg-counter which makes it possible, in combination with an egg-counter computer, to count eggs on a conveyor belt. The eggs do not need to be singulated or oriented in any way, the sensor will accurately count side-by-side eggs.

The EMEC-12 uses infrared light to detect the eggs on the conveyor. For every detected egg, an electronic pulse is generated. The EMEC-12 is also provided with a CAN-bus, through which the information is sent.
The EMEC-12 works with an accuracy of minimal 99,5%. The accuracy of the EMEC-12 strongly depends on the mounting.



2. Technical specifications

Electrical

Power supply	:	8..30 Vdc
Power consumption electronics	:	max. 1 VA

Measuring range

Scan width	:	120 mm
Scan height	:	25-50 mm (at mounting height 62 mm)

Pulse output

Open collector	:	Type NPN
Current	:	max. 25 mA (R_i = 100 Ω)
Pulse time	:	LOW: 150 msec, HIGH: 150 msec (minimal)

Standby input

Input circuit	:	R_i = 15 kΩ, standby level = 8 V minimal

Communication

Protocol	:	CAN-EGG
Maximum length	:	250 meter @ 100 Kbs

EEG-directives

EMC	:	89 / 336 / EEG
Low voltage	:	93 / 68 / EEG

Mechanical

Operating temperature range	:	0…40 °C
Dimensions (H x W x D)	:	55 x 120 x 122 mm
Encasing	:	IP 53 synthetic
Weight	:	ca. 0,2 kg

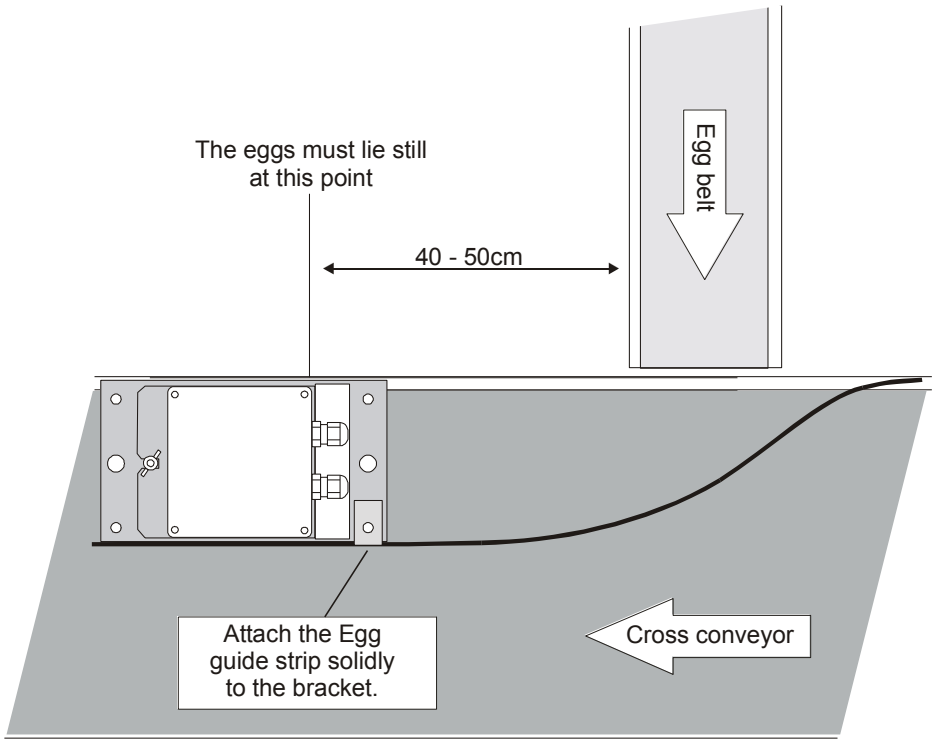
3. Installation on a conveyor

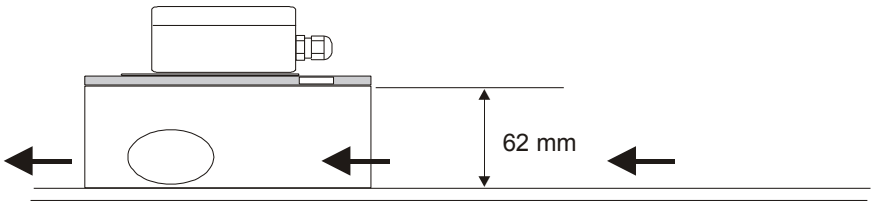
In order to achieve the best accuracy, the egg-counter should be mounted at **a place where the eggs are not rolling or shifting on the conveyor**. Also, some conveyors move backwards after the drive motor turns off. The egg-counter will count eggs moving in either direction, causing an overcount if the conveyor moves backwards significantly. This problem can be corrected by installing a brake on the motor, or by installing the egg-counter at another location on the conveyor.

The egg-counter should be mounted on a suitable bracket (The B-EMEC, which can be delivered by your supplier) directly above the egg conveyor.

Important: When mounting the bracket, it is necessary to maintain a height of approximately **62 mm** between the upper side of the conveyor and the bottom of the egg-counter.

Accuracy of the egg-counter can be affected by bright overhead lighting, for example sunlight. With too much sunlight, an accurate working is not guaranteed and an error message will appear (the red LED turns ON). Therefore it is wise not 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 the bright light.





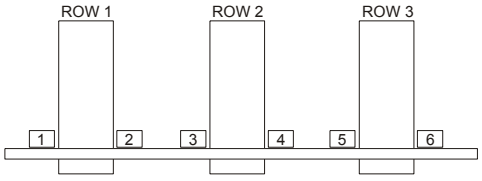
4. Maintenance

Under normal conditions the egg-counter should require very little maintenance. In most cases, if properly installed, the infrared sensors stay relatively clean underneath. If dust or dirt does tend to build up on the sensors, it should be periodically wiped off with a soft (damp) cloth. The egg-counter is easily to remove from the bracket by loosening the wing nut and moving the counter horizontally.

When cleaning the poultry house, care should be taken so 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 the enclosure will be heated from the inside and will not draw moisture.

5. Installation

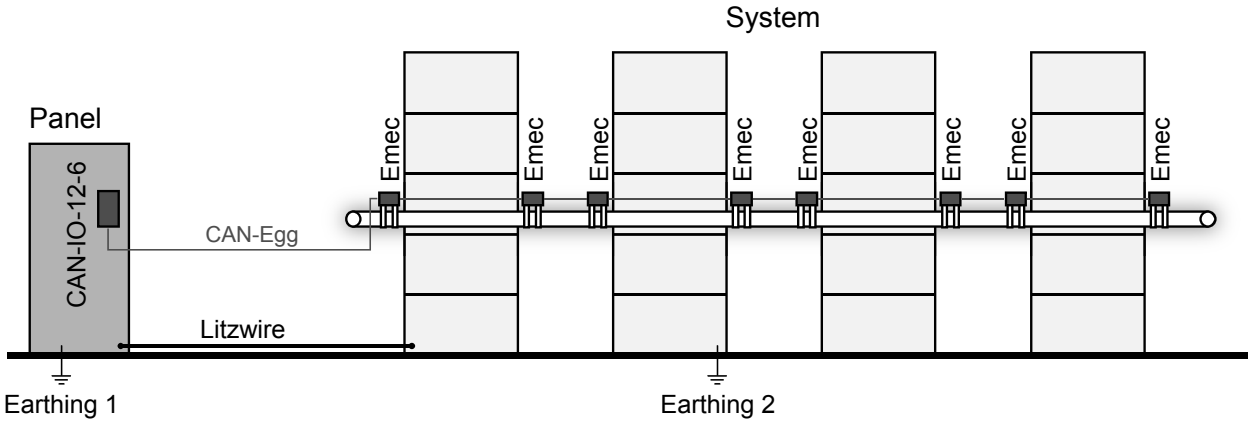
When switching on the mains, the egg-counter runs a selftest for 2 seconds and then it's ready to start counting eggs. The green and red LED at the front will go ON (= orange) during the selftest and then the red LED goes OFF (the green LED stays ON). If an egg is counted, the green LED will turn OFF for a short period of time. Simultaneously a pulse is generated on the output.
The counter also has a standby-input. This checks if the conveyor is switched on. When the conveyor is standby (switched off), no eggs are counted (LED is orange). If the standby-input is not being used (not connected), the counter is ready for counting eggs. However, this could affect the accuracy.



When using the EMEC-12 in combination with ORION computers, it is possible to connect the counter through the CAN-bus. Information will be passed on by communication, for example the amount of counted eggs. A maximum of 64 egg-counters can be connected through a CAN-IO-12-6 interface with an ORION. At every egg-counter the address must be set with SW1. Start at row 1 on the left with number 1, right number 2, row 2 on the left number 3, etc. Only when switching on the egg-counter, SW1 is read. The CAN-bus can be terminated with the jumper JP1. Place the jumper at the first and last communication-junction. The first junction is usually the CAN-IO-12-6 interface and the last junction the egg-counter (or visa-versa).

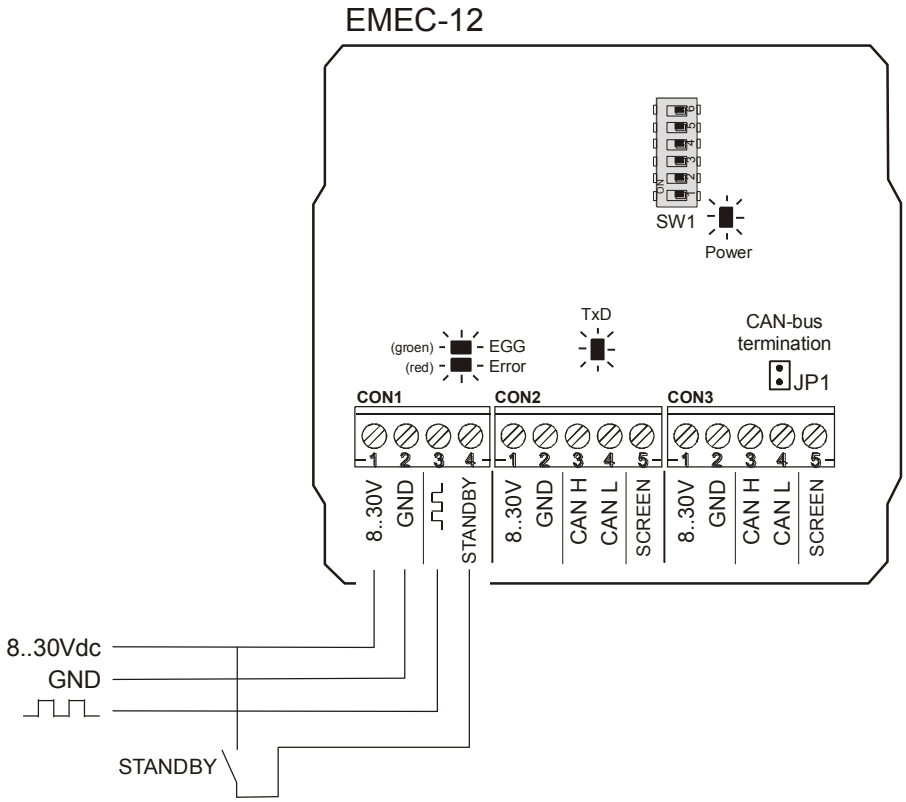
Address		Address		Address		Address	
1		17		33		49	
2		18		34		50	
3		19		35		51	
4		20		36		52	
5		21		37		53	
6		22		38		54	
7		23		39		55	
8		24		40		56	
9		25		41		57	
10		26		42		58	
11		27		43		59	
12		28		44		60	
13		29		45		61	
14		30		46		62	
15		31		47		63	
16		32		48		64	

Sometimes the system on which the egg counters are installed has a different earthing than the panel. As a result the CAN-Bus communication can be disturbed. In the worst case one or more involved circuit boards can be damaged. To prevent this, connect the panel and the system with the egg counters to each other by means of a litzwire.



6. Wiring diagram

Via Pulse-output (HDC computers):



At STANDBY the contact should be closed
(= conveyor **switched off**)

Via CAN-Bus (Orion computers):