

Chicken Hatchery

Facts & figures:

Approximately 49 billion chickens are consumed worldwide every year. That is 134 million every day.

Chicken is the most common type of poultry in the world.

100g of baked chicken breast contains 4 grams of fat and 31 grams of protein.



Chicken hatcheries in general

It takes about 21 days to hatch a chicken and during that time, it is crucial that the surroundings are controlled for it to be successful. Egg hatching farms transform the

chickens into "broilers" or egg laying hens. Meat from egg hatching farms is the most consumed worldwide.

Why the need to measure CO₂?

Less staff required to run the breeding stations thanks to all hatching around the same time. Easier to plan shipments and know how many birds can be transported at a time. This results in less capital and reduced transport costs.

A smaller number of birds that die during transportation which delivers more profit per shipment and less feed losses.

More efficient and cheaper feeding options, both through feed reduction and reduction in time.

Faster and easier to slaughter of the animals using CO₂, and there is no unnecessary suffering to the birds.

Packing method using CO₂, so **food will last longer** in supermarkets and for customers once purchased. This means a reduction in food that is discarded because of expiration dates.

How does it work?

The fertilized eggs are placed in a chamber, which then controls the CO₂ content depending on what stage of development the eggs are in. The eggs that are alive contribute with the development of CO₂ (not 100% of all eggs are alive), which means

that you have to monitor the CO₂ continuously.

It has been shown that during embryonic development, the supply of CO₂ demonstrated positive health effects. Control of CO₂ in chickens in development has also led to a more controlled hatching time.

The reason is the increased CO₂ concentration inside the egg, so the fully developed chickens start to hatch out of the shell. When this has occurred, oxygen will be supplied. Once the eggs are hatched, they are sent off into big trucks, **where the birds continue to develop during the transportation. To be able to manage and stay healthy during the time in the truck the CO₂ is controlled for the whole journey.**

It has been found that the bird's metabolism works slower at high concentrations of CO₂, which mean it takes less time and less food to raise broilers or egg laying hens. That makes production cheaper for the companies, it's also more sustainable to use less feed per pound of chicken.

The chickens are slaughtered after being knocked out with high levels of CO₂, which only take a few seconds. This method is more humane than killing by electrical stunning.

Sustainability of the meat increases by 20%, when using CO₂ for modified atmosphere processing.

Discussed in this edition:

Chicken hatcheries in general	1
Why the need to measure CO ₂ ?	1
What solution can Rotronic offer?	2
Rotronic products	2
Customer benefits	2
Contact us	3

What solution can Rotronic offer?

Rotronic offers a wide range of fix-mounted CO₂ only and CO₂ temperature transmitters. All of them are based on the principle of NDIR technology. They are pre-calibrated and have a life-

time of over 15 years under normal conditions. Multiple analogue outputs like current loop, voltage and relay contact allow for the easy adaptation to every application. A major advantage of the cur-

rent sensor is the stability of the measurement over the entire temperature range, whereas some sensors are temperature dependant, Rotronic remains stable.

Rotronic products:

Transmitter:

- **CF3 series**
0...2000ppm or 0...5000ppm,
±30ppm, ±3% of reading
Optional display,
IP54
- **CF8 series**
0...2000ppm or 0...4000ppm,
±30ppm, ±3% of reading or
±300ppm, ±3% of reading
Optional display,
IP54,
Optional visual alarm,
Optional relay,
Optional CO measurement,
Optional temperature measurement,

Hand held device:

- **CP11**
Measurement of CO₂, temperature and relative humidity,
-20...60°C,
±0.3K,
0.1...99.9%rh,
±2.5%rh,
0...5000ppm,
±30ppm, ±5% of measured value,
Data logging function (18000 values) with time stamp.

Calibration:

- **CO₂ calibrator**
Neutralises CO₂ from the air,
Cleanness: 20-25ppm CO₂
gas flow out,
Reaction time: 90 seconds to neutralise CO₂
Operating range: 0...45°C,
Delivered with 10 soda lime cartridges.



CF8-D/W-IN transmitter



CF8-W-Disp-GH transmitter

Customer benefits:

Accuracy and long term stability

Choosing Rotronic gives you the best accuracy on the market.

The Rotronic CO₂ sensors can easily be calibrated, to guarantee highest possible precision of the measured concentration.

Calibration

The ABC function automatically avoids baseline drift. A calibration and adjustment is carried within a user defined time where the lowest value is automatically calibrated at 400ppm. Optionally

a 0ppm calibration unit is available from Rotronic.

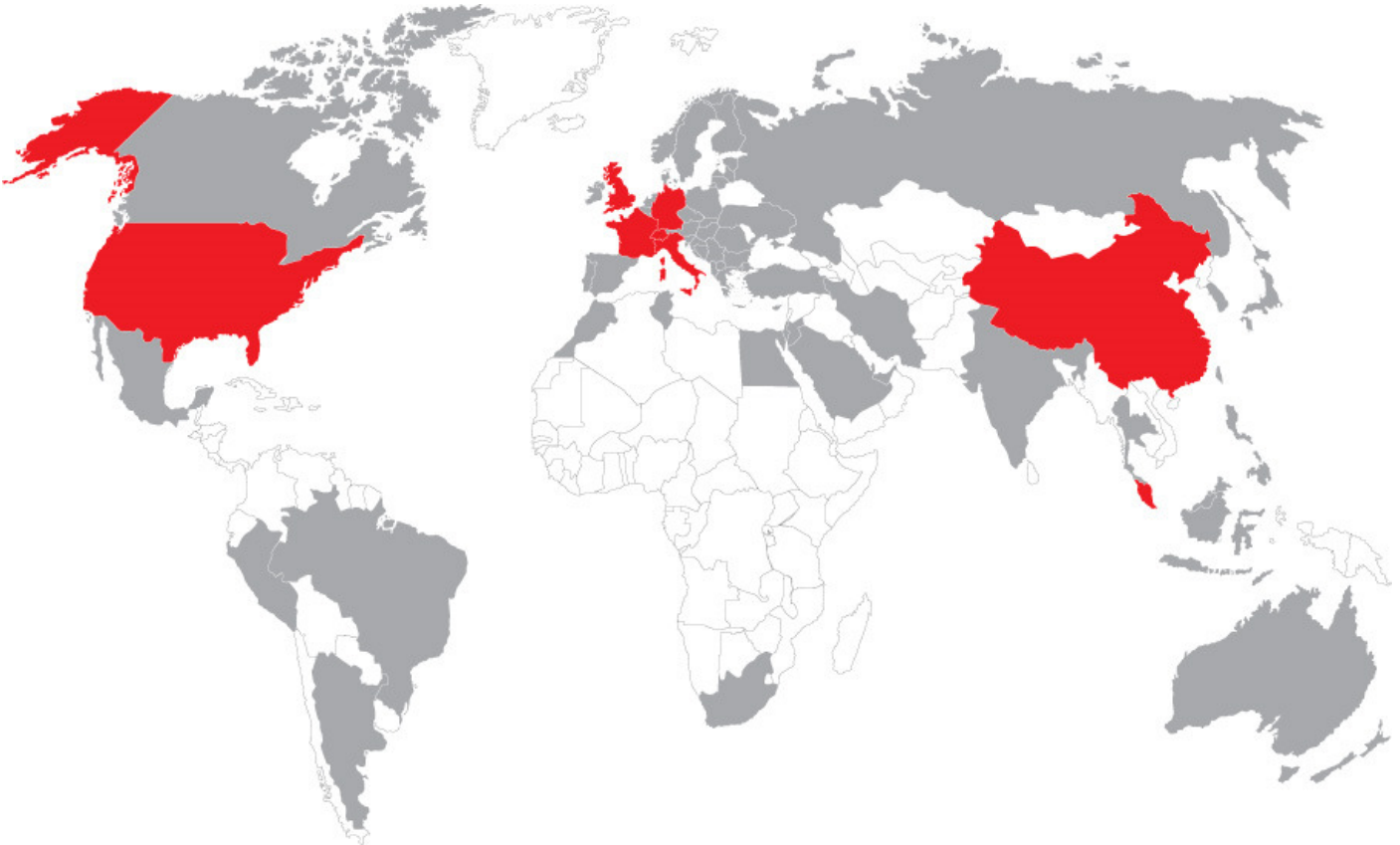


CP11 handheld device with the O-calibration unit



Contact us:

Rotronic is represented in more than 40 countries around the world. An up to date list of all our partners is available at www.rotronic.com



SWITZERLAND

ROTRONIC AG

Grindelstrasse 6,
CH-8303 Bassersdorf
Phone: +41 44 838 11 44
Fax: +41 44 837 00 73
www.rotronic-humidity.com

FRANCE

ROTRONIC Sarl

56, Bld. De Courcerin,
F-77183 Croissy-Beaubourg.
Phone: +33 1 60 95 07 10
Fax: +33 1 60 17 12 56
www.rotronic.fr

SINGAPORE

ROTRONIC South East Asia Pte Ltd

16 Kallang Place #07-04
Singapore 339156
Phone: +65 6294 6065
Fax: +65 6294 6096
www.rotronic.com.sg

GERMANY

ROTRONIC Messgeräte GmbH

Einsteinstrasse 17-23
DE-76275 Ettlingen
Phone: +49 7243 383 250
Fax: +49 7243 383 260
www.rotronic.de

UK

ROTRONIC Instruments UK Ltd.

Crompton Fields, Crompton Way
Crawley, West Sussex, RH10 9EE
Phone: +44 1293 57 10 00
Fax: +44 1293 57 10 08
www.rotronic.co.uk

ITALY

ROTRONIC Italia srl

Via Repubblica di San Marino, 1
I-20157 Milano (MI)
Phone: +39 02 39 00 71 90
Fax: +39 02 33 27 62 99
www.rotronic.it

USA

ROTRONIC Instrument Corp.

Suite 150, 135 Engineers Road,
Hauppauge, NY 11788
Phone: +1 631 427 38 98
Fax: +1 631 427 39 02
www.rotronic-usa.com

CHINA

ROTRONIC Shanghai Rep. Office

2B, Zao Fong Universe Building, No. 1800
Zhing
Shan West Road, Shanghai 200233
China
Phone: +86 21 644 03 55
Fax: +86 21 644 03 77
www.rotronic-humidity.cn