

TGC-2

Data sheet

Gas mixing and measuring of oxygen and carbon dioxide (O₂ and CO₂) as well as proportionate control of gas supply.



Features / Advantages

- On-line gas analysis
- Off-line spot test analysis
- Electronic flow control of the gas supply
- Electronically (or manually) controlled gas mixing for 2 or 3 gases
- Combined gas mixing and measuring of oxygen and carbon dioxide (O₂ and CO₂)
- Proportional control of gas supply
- The module automates the gas supply process and relevant documentation.
- Automation of the gas purging process
- On-line and off-line testing all in one
- 99 programme for different product parameters
- More uniform packaging quality
- Gas savings
- Higher machine flexibility
- Flush back cleaning of the measuring hose
- Packaging machine interface
- Electronically controlled gas mixer
- Robust and sturdy design (stainless steel)
- Built in sample pump
- Self diagnostics

Introduction to the TGC-2

Dansensor Module TGC-2 (Total Gas Control) is PBI-Dansensor's device for gas mixing and measuring of oxygen and carbon dioxide (O₂ and CO₂) as well as proportional control of the gas supply. TGC-2 enables both on-line measuring and spot measuring. Dansensor Module TGC-2 is a micro-processor controlled and not only a measuring device but a complete documentation unit, as all data - not only the measuring result - but also other parameters such as package contents, origin, programme no., calibration data, etc. can be printed or transmitted to an external computer for further processing and/or storage. Measuring results and events (O₂ and CO₂ alarms, flow alarms, start/stop of packaging process, etc.) can also be saved (logged) internally in the memory of TGC-2 and later transmitted to a PC or sent to a printer.

Working with the ISO 9000 standards

The micro-processor continuously controls the measuring process and monitors all parameters incl. the measuring gas flow, inlet pressure of gases connected to the gas mixer and /or the electronic flow valve which controls the gas supply. These documentation facilities are of great importance to ensure that we are working in accordance with the ISO 9000 standards. Dansensor Module TGC-2 automates the gas supply process and relevant documentation.

Automation of the gas purging process

The unique feature in the TGC-2 Module is automation of the gas purging process on a flow packaging machine both horizontally and vertically. Thus the TGC-2 automatically supplies the gas needed for reaching and maintain the oxygen level preset by the operator before sealing the package.

TGC-2 offers a solution where the on-line gas analyser (O₂) in the TGC-2 is continuous and near real time measuring the actual oxygen content in the package via the sampling hose placed near the sealing area. The measured oxygen level is via the software continuously compared to the O₂ level, preset by the operator for this particular package. If the oxygen level is too high, the proportional flow regulator is asked to give more gas, thus purging away more atmospheric air. If the oxygen level is too low, less gas will be supplied. The target is to maintain the oxygen level in a "window", defined by the O₂ minimum and maximum accepted levels.

 **PBI Dansensor**

Best choice for gas and permeability instrumentation

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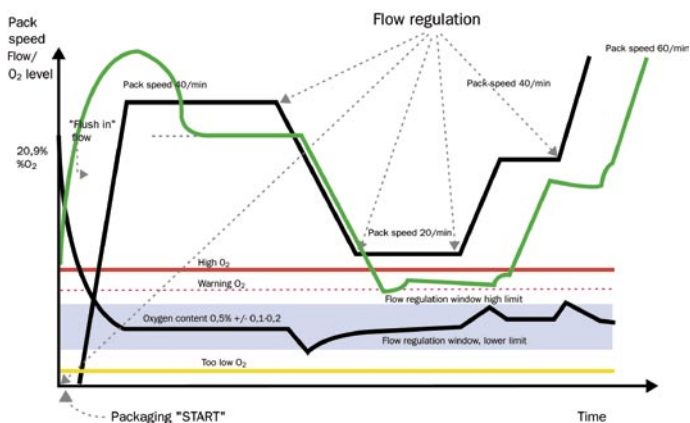
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Calibrated and ready to use

The TGC-2 comes with a certificate of calibration and only needs to be re-calibrated once a year. The operator never needs to worry about compensation for air pressure or flow verification as all this automatically is taken care of.

If you wish to re-calibrate the TGC-2 yourself, this is a very simple process. You simply use the automatic calibration routine available in the menu.

The principle of flow regulation



Easy to operate

The TGC-2 is with its touch screen and menu structure very easy to operate. The different parameters for the TGC-2 are set up in programmes (99 programme). The operator does not need to reset the parameters, he only chooses a new programme and the TGC sets itself up automatically. This also applies to the gas mixer, if the electronic option is chosen. The programme selection procedure can on OEM level be interfaced with the packaging machine.

Data collection and documentation

When TGC-2 is measuring and displaying the measuring data on screen, this data can immediately be logged. Measuring data can be printed at once and/or saved internally in the memory of TGC-2 for printing out at a later stage. Data logging in the TGC-2 has been implemented so that when logging is ON and logging to buffer has been selected, the data are always saved under the product currently selected. When data are logged to the buffer, TGC-2 can save a total of nearly 2000 measurements.

Technical specifications

Sensors	
O ₂ sensor:	Ceramic, solid state sensor
CO ₂ sensor:	Infrared, double wavelength sensor
Measuring gas	
By means of the built-in pump, measuring gas is taken from the suction probe or via the enclosed needle.	
Gas pressure:	Atmospheric press +0-100 mbar
Gas humidity:	Max. 90% RH - non-condensing
Gas consumption:	Probe: approx. 350 ml/min. Spot: approx. 60 ml/min.
Measuring range	
O ₂ sensor:	0,001 - 100%, auto range shifting
CO ₂ sensor:	0,1 - 100%
Accuracy	
O ₂ sensor:	Max. ±1% of the reading in the calibrated range
CO ₂ sensor:	Max. ±2% of the full range
Response time	
O ₂ sensor:	Less than 2 secs.
CO ₂ sensor:	Less than 5 secs.
Heating time	
O ₂ and CO ₂ sensor:	10 minutes from cold state (shorter at temporary interruptions)
Operation	
Alarm:	Up to 8 (99 optional) products, with programmable acoustic alarm for high and low levels
Mechanical data	
Dimensions:	290 x 350 x 470 mm (HxWxD)
Weight:	27 kg (35 kg incl transportbox)
Other features	
Signal output:	RS 232C serial port for external printer or PC interface
Power supply:	207 - 253 VAC, 50-60 Hz., 180 VA 103 - 127 VAC, 60 Hz., 180 VA
Relay outputs:	2 for gas concentration alarm and 1 ready relay. Max. 48V, 1A.

PBI-DS-Dash-gastec-TGC2-UK-1



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