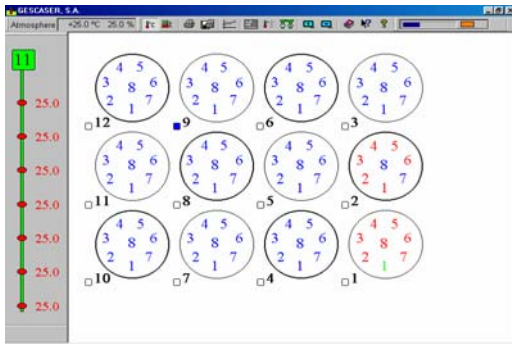


Gescaser have been in the market of temperature control system for cereals since 1973.

Gescaser controls the entire fabrication process.

Gescaser have the ISO 9001:2008 certificate, ATEX certificates for Zone 20 and a Gost and Metrologic certificate to export to Russia.



**Easy** installation on PC, smartphone and tablet

**Simple** and **intuitive** software

**RS232** and **USB** connections

**SCADA** reading data through **OPC** software

**Data** can be **read** through **Ethernet**

**Extensions** are **easy** to implement

Automatic **ventilation** depending on our sensors:

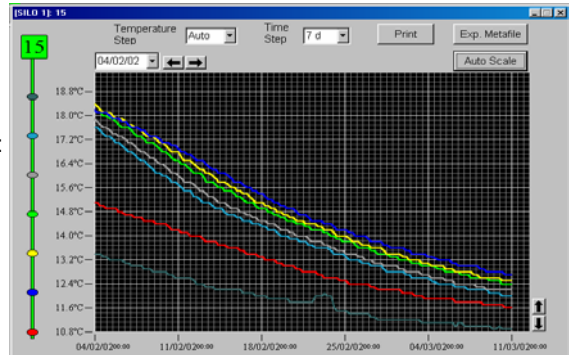
**Inside** temperature

**Outside** temperature and humidity

Early alert **alarm**

**Historical** of temperature

**Activate / Deactivate** sensor **automatically**



Temperature control system software is **easy** and **intuitive** to **manage**, as well as that is very **light** to be able to send it by e-mail and that's the reason for its basic looking.

All **data read** by the system can be transferred to a **SCADA**.

All modifications (extensions) are very **easy to implement** with a small modification on the software and can be sent by e-mail too.

**Automatic ventilation** can be parameterized according to silo temperature, ambience temperature and relative humidity from ambience. **Fans** will automatically switch on/of according to parameters introduced on the software.

Keeping an eye on **historical temperatures** and graphics the owner can **act before** any high temperature appears (early alert alarm).

**Activate and deactivate sensors automatically** is important because if an alarm temperature is set to 15°C sometimes sensors that are not submerged on grain will be on alarm without needing. Because of day and night have very contrasted temperatures, the software can automatically determine which sensors are submerged and which ones aren't and deactivate those that are submerged. Thanks to that you can also have an idea of the level of the silo which can be a useful data if the diameter of the silo is not too big otherwise the error can be too big.

## Temperature Control System (hardware)



**Smooth, flexible** and small diameter tube  
 Great **tensile strength**, above 5000 kg  
 Only **Ø11mm of diameter**  
**Gost & Metrologic** certifications  
**Easy to repair**, even with silo full of grain  
**NTC sensors** safe against lightning's



**ATEX** certification for areas with risk of explosion

All **digital parts** are:

**interchangeable**, no matter which installation belongs  
 easy to replace: **Unplug and plug**

**Modular** installations, so **extensions** are **easy to implement**

**Connection** box placed **outside** of the silo, so **easy access**

**Probes head** shape **avoids water** to come inside the silo

It's very important of a **smooth** and **flexible** probe and with a **small diameter** because is related with grain friction on the probe and so with the **strength on roof silo's**. If the diameter is higher, higher will be the strength that roof's will have to withstand.

**Sensor cable can be taken out and put it back in even with silo full of cereal.** This is not useful to replace sensors as we never have had to but instead **is interesting for the following reason:** sometimes owner of silos don't want to believe the temperature shown on the software. To **check temperature** is very easy in this case, you will only need to pull out the sensor cable, put all sensors together and verify that all sensors are showing the same temperature as the atmosphere sensor is showing, if so it means that sensors are correctly showing the temperature. Then even if the silo is full of grain you can put back the sensor into silo.

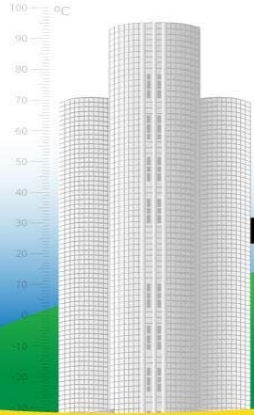
**Sensors** are **analogical** for one reason: **on lightings any sensor will be damaged.** Could you imagine the cost of replacing an installation of 60 probes with 5 sensors each? Instead of replacing small multiplexer boxes?

All digital parts are easy to replace and all electronic boards are easy to plug and unplug and they are even interchangeable so a fault is very easy to locate by changing two boards, if the box (A) that was not working now is working and box (B) don't means that the board is damaged otherwise would mean that connections on box A are wrong.

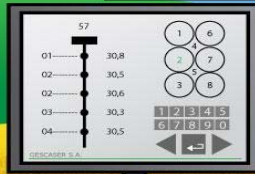
**Connection box is placed outside of the silo** so it can be accessed easily. Some temperature control manufacturers place them inside the silo so it's very difficult to verify the probes in those conditions. Even if the probe is placed outside of the silo, thanks to head probe shape it's **impossible that water comes inside of the silo.**



## Temperature Control System (sensors)



GESCASER (analogical sensors)	Other fabricants (digital sensors)
<b>MORE</b> cables needed on installation	<b>LESS</b> cables needed on installation
If lightning, <b>NONE</b> sensors will be damaged	If lightning, <b>MOST</b> of the sensors will be damaged
Sensors cables can be placed <b>ANYWHERE</b>	Sensors cables have to be placed to an <b>SPECIFIC LOCATION</b>
<b>ALL</b> connections to probes are from the outside of the silo	<b>SOME</b> connections to probes are from inside the silo.
<b>Accuracy</b> ±0.5°C	<b>Accuracy</b> ±0.5°C
<b>GESCASER</b> Perimeter <b>34.54mm</b>	
<b>TESTS:</b> A probe with 54.95mm of perimeter and 36m length applies a 950kg tensile strength A probe with 43.96mm of perimeter and 36m length applies a 450kg tensile strength A probe with 34.54mm of perimeter and 36m length applies a 270kg tensile strength	
<b>Easy to replace:</b> Electronic parts are easy to plug and unplug	<b>Difficult to replace:</b> Electronic parts are screwed to mother board



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