



Frese FLOWGUARD

Remote Flow Control as a Service



Frese

Innovative solutions from Frese regulate global HVAC systems precisely and efficiently. Our products transform advanced technology into everyday solutions - from cooling systems in the Middle East to heating systems in Scandinavia.

With over 30 years' experience in the production of dynamic flow control solutions, Frese has positioned itself as the leading manufacturer of energy saving valves. Our commitment to innovation ensures that we are always on the cutting edge of technological advancements within our areas of expertise.

Our products are built on the knowledge, experience and commitment of our employees and partners. This ensures the optimal use of our systems, thereby maximizing savings, and positions Frese as the natural choice for pressure independent and dynamic solutions.

Frese FLOWGUARD

The digital Frese FLOWGUARD is an IoT-based solution that helps you operate your heating application in new and intelligent ways.

It is a completely battery operated and wireless valve system, which can limit or turn off the flow in any liquid based heating and cooling installation. Frese FLOWGUARD is easily installed and is deployed using a mobile phone or tablet.

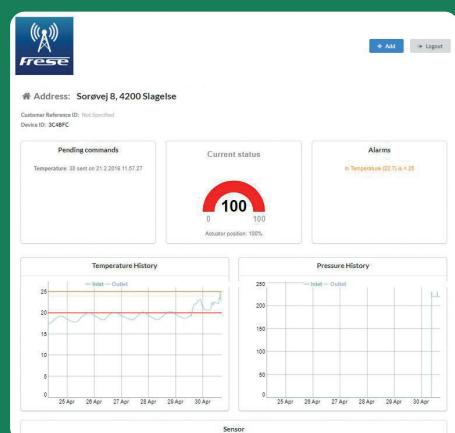
Frese FLOWGUARD is monitored and operated via the web based Frese FLOWCLOUD®. This gives you an easy and intuitive overview of the installed Frese FLOWGUARDS through historic graphs of pressure, temperature etc.

Frese FLOWCLOUD®

Frese FLOWGUARD is monitored and operated via the webbased Frese FLOWCLOUD®. With the Frese FLOWCLOUD® dashboard you have one central access point to all your Frese FLOWGUARDS with access to historic graphs of pressure, temperature etc. You can also operate a specific Frese FLOWGUARD as needed.

It is possible to connect information such as name, address and unit ID, which gives you the easy and individual overview you need.

Adding new Frese FLOWGUARDS to Frese FLOWCLOUD® is done simply and intuitively by scanning the unique QR code on each Frese FLOWGUARD with a mobile phone or tablet.





Frese FLOWGUARD Controller

Protection class:	IP 43 to EN 60529
Supply:	Lithium Battery 3,6 V, 10,4 Ah
Battery lifetime:	Up to 10 years
Control connection:	Sigfox
Ambient operating conditions:	5°C - 50°C 20 - 90% RH
Dimensions (HxWxD):	92 x 90 x 35 mm



Temperature/Pressure Sensor

Temperature sensor range:	0°C - 55°C
Pressure sensor range:	0 bar - 10 bar
Operation temperature range:	0°C - 85°C
Sensor connection:	1/4"



Temperature Sensor

Temperature range:	0°C - 100°C (strap-on) -40°C - 120°C (probe sensor)
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External Antenna - Optional

Beskyttelseskasse:	IP 54 iflg. EN60529
Colour:	Grey RAL 7047
Frequency:	Omni-directional 868 MHz
Ambient operating conditions:	-30°C - +70°C



Motoric Actuator for PICV

Characteristics:	Motoric actuator
Protection class:	IP 54 to EN 60529
Control signal:	3-point
Actuating force:	125 N
Running time:	15 s/mm



OPTIMA Compact PICV

Pressure class:	PN25
Max. differential pressure:	800 kPa
Medium temperature range:	0°C - 120°C

Background: What is Sigfox

How does Sigfox work?

The term "Broadband" has been part of our everyday language for some time. Sigfox exists on the opposite end of the spectrum, so to speak, by using Narrowband technology.

Where Wi-Fi og mobile phone technology lets us send and receive large amounts of data almost instantly, e.g. when we stream videos, Narrowband can only transmit very small data packages of 12 bytes and receive 8 bytes.

This, however, is more than enough for a lot of IoT projects - including Frese FLOWGUARD.

The most important benefits of Narrowband technology can be found in the official name of this type of network: LPWAN – Low-Power Wide-Area Networks.

Because the data packages are so small, and because the units only need to transmit and receive data at certain intervals, they consume very little electricity. This allows them to be battery powered, which makes them relatively cheap and easy to install, since they require no extra investment in electrical installations.

The estimated battery life is 10 years.

Narrowband technology also has very long range and can cover a wide area, so the controller can easily transmit data to a base station several miles away without losing power.

Another benefit of using Sigfox is that it is not based on the mobile phone network. This means that the unit needs no sim card but only an integrated chip, which makes it much less complicated.



Why did we choose Sigfox for Frese FLOWGUARD?

We chose Sigfox for its unified platform which can be used globally. It is an uncomplicated technology and it fits perfectly with Frese's setup, where battery life is important and data packages are small. Frese FLOWGUARD does not need to transmit much data since most of it is based in the controller's firmware.

See iotdk.dk/en/sigfox-iot for further technical info.

Frese's customers get a solution which is very easy to install, deploy and operate. The necessary infrastructure is already in place, so there is no need to establish new networks. They also avoid the complications of sim cards, since all they need is in the integrated chip.

Sigfox is as close to Plug-andPlay as you can get. That is the most important benefit of this technology.

The financial side of using Sigfox is also to our customers' advantage, since it provides full financial transparency and predictability, ensured by a fixed subscription rate per unit.



OPTIMA Compact · Pressure Independent Control Valve

OPTIMA Compact is the 2nd generation of pressure independent control valves from Frese. It is a dynamic valve which regulates flow and temperature in heating and cooling applications and combines an externally adjustable automatic balancing valve, a differential pressure control valve and a full authority modulating control valve in one compact valve housing.

Benefits

- Compact valve housing ensures easy installation
- Linear and pressure independent coherence between flow and valve position

Case Study · Frese FLOWGUARD and Naestved District Heating Company



Frese and Naestved DHC are heading into the future of IoT with Frese FLOWGUARD. 200 district heating customers in Naestved now have Frese FLOWGUARDS in their homes.

Frese's IoT journey

"It all started when Naestved District Heating Company came to us with a very specific request. They needed a battery operated valve solution, which would allow them to monitor, operate and shut down the flow to individual heating units remotely," says Martin Overbjerg, Business Development Manager, District Energy, Frese.

This launched Frese's IoT journey, and the company's first IoT product can now be found in the homes of 200 district heating customers in Naestved.

Close collaboration

Frese FLOWGUARD is a battery operated IoT valve system that lets you monitor pressure and temperature and also limit or shut down the flow to the individual heating unit.

"It allows us to isolate a specific unit from our network, and that was what we wanted. We are very pleased with our collaboration with Frese in the development of Frese FLOWGUARD. They have been very attentive to our wishes," says Customer Service Manager Arne Ulstrup from Naestved DHC.

Naestved DHC needed a valve, which could easily be retrofitted into the company's existing heating units. This task was accomplished in close cooperation with their supplier, Gemina Termix.

Jacob Soendergaard, service technician at Naestved DHC, explains:

"The units have been quite easy to install, especially after we discovered how much we could prepare in our own workshop."

Wireless via Sigfox

Frese FLOWGUARD stands out from the crowd because it can be monitored and operated remotely via the web based Frese FLOWCLOUD®. So Naestved DHC no longer needs to send out a technician to deal with everyday operations.

Because Frese FLOWGUARD is battery operated, it functions independently from the customer's existing electrical installations. It communicates with the dashboard via the Sigfox network, which requires very little power. The estimated battery life is 10 years.

High expectations

Naestved DHC has already installed 200 units, and is about to start analyzing all the new data. Customer Service Manager Arne Ulstrup has high expectations.

"We have bought 200 units so far, and when we see that they deliver what we need, we will consider expanding the project to other parts of the city. We see this as an investment in the future. It shows promise - financially as well."



www.frese.eu/en/flowguard

Denmark - Headoffice

Frese A/S
Tel: +45 58 56 00 00

Denmark

DE Valves Glamsbjerg A/S
Tel: +45 44 22 21 11

United Kingdom

Frese Ltd
Tel: +44 (0) 1704 896 012