Frese FLOWGUARD

Description

Frese FLOWGUARD is remote Flow Control as a Service. The digital Frese FLOWGUARD monitors temperature, pressure and valve position.

A dashboard shows historic graphs and makes the user able to operate the valve.

The controlles is connected to the dashboard via the Sigfox IoT technology. Sigfox is a low power wide area IoT network that covers more than 60 countries.

Application

Frese FLOWGUARD can be used in both heating and cooling systems to monitor, optimise or shut off the flow in a remote application.

Benefits

- Remote flow control
- Valve size: DN15-DN20 – up to 1,500 l/h
- Monitoring of pressure
- Monitoring of temperature
- Battery driven - low installation cost

Approvals

- Conforms to EMC directive
- CE approved
- Sigfox certified

Features

- Control of maximum flow – overflow protection because of pressure independent valve design
- Exchange of data between the controller and Frese FLOWCLOUD® up to 3 downlinks and 144 uplinks a day depending on Sigfox signal strength
- Battery driven system – up to 10 years
- Build in Sigfox antenna – not visible
- Optional external Sigfox antenna version
- Tamper proof 3-point actuator
- LPWAN – very long range at ultra low power consumption
- Digital pressure and temperature sensor mounted directly in the valve
- Web user interface
- IP 43
- Supports up to 2 external temperature sensors
- Supports an extra digital pressure and temperature sensor
- Possibility of fixed power supply via usb cable

Frese FLOWGUARD

Function

- Data transmission via the World Wide Sigfox network (url: sigfox.com/en/coverage)
- Open and close the valve or preset it to any required position
- Remote operation - no access to buildings neccessary
- Battery lifetime up to 10 years. When the battery lifetime expires the valve position will remain unchanged until the battery has been renewed
- Force data transmitting from the controller via the menu - see the Mounting Instruction
- Full IT-structure included
- Frese grants full access to a userfriendly dashboard

Remote Sigfox function/benefit

- No need for Wifi or SIM-card
- Does not require customers involvement
- No problems with firewall
- No pairing is required
- Plug & Play after the device is registered with a QR-code on a smartphone or tablet.

sigfox ready

Frese FLOWGUARD

Technical data · Frese OPTIMA Compact PICV

Valve housing:	DZR Brass, CW602N
DP controller:	PPS 40% GF
Spring:	Stainless steel
Diaphragm:	HNBR
O-rings:	EPDM
Pressure class:	PN25
Max. differential pressure:	800 kPa
Medium temperature range:	0°C - 120°C

Technical data · Frese Motoric Actuator for PICV

Characteristics:	Motoric actuator
Material actuator housing:	PA/PC
Protection class:	IP 54 to EN 60529
Control signal:	3-point
Actuating force:	125 N
Stroke:	max. 8.5 mm
Running time:	15 s/mm
Ambient operating conditions:	0°C - 50°C
Cable length:	1.0 m incl. 3 pin JST PHR-3 connector

Technical data · Frese FLOWGUARD

Control unit material:	ABS and PC
Protection class:	IP 43 to EN 60529
Supply:	Lithium Battery 3.6 V, 10.4 Ah (NON rechargeable)
Battery lifetime:	Up to 10 years
Ambient operating conditions:	Temperature 0°C - 50°C Humidity 10-90% r.F.
Control connection:	Sigfox

Technical data · Temperature/Pressure Sensor

Output signal:	Digital (SPI)
Sensor housing material:	Stainless steel AISI 316
Temperature sensor range:	0°C - 110°C
Pressure sensor range:	0 bar -10 bar, tol. +/- 1%
Range:	0°C - 85°C
Pressure class:	PN25
Sensor connection:	1/4"
Cable length:	1.2 m incl. 5 pin JST PHR-5 connector

Frese FLOWGUARD

Technical data · Temperature Sensor (strap-on)

Material:	ABS
Colour:	Base black, lid white
Temperature range:	0°C - 100°C, tol. +/- 0,2°C
Cable length:	2 m, Silicone, black, incl. 2 pin JST PHR-2 connector

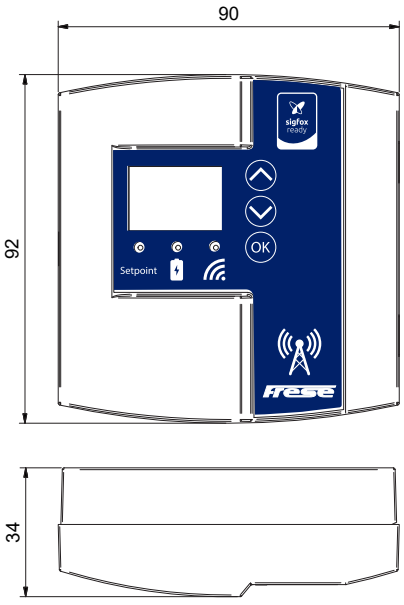
Tekniske data · Temperatursensor (probe sensor)

Material:	Stainless steel
Temperature range:	-40°C - 120°C, tol. +/- 0,2°C
Cable length:	2 m incl. 2 pin JST PHR-2 connector

Technical data · External Antenna

Material:	ASA Plastic
Protection class:	IP54 to EN60529
Colour:	Grey RAL 7047
Frequency:	Omni-directional 868 MHz
Ambient operating conditions:	-30°C - +70°C
Cable length:	3 m incl. SMA-Plug connector

Dimensions [mm]



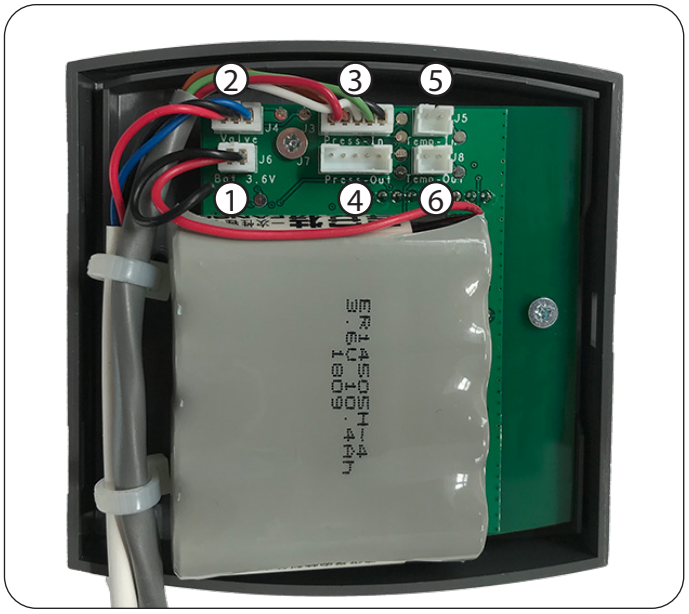
Frese FLOWGUARD

Connection of power and sensors · Standard

Terminals.

1. Battery
2. Valve
3. Pressure inlet side
4. Pressure outlet side
5. Temperature inlet side
6. Tempereture outlet side

See Mounting Instruction for further details



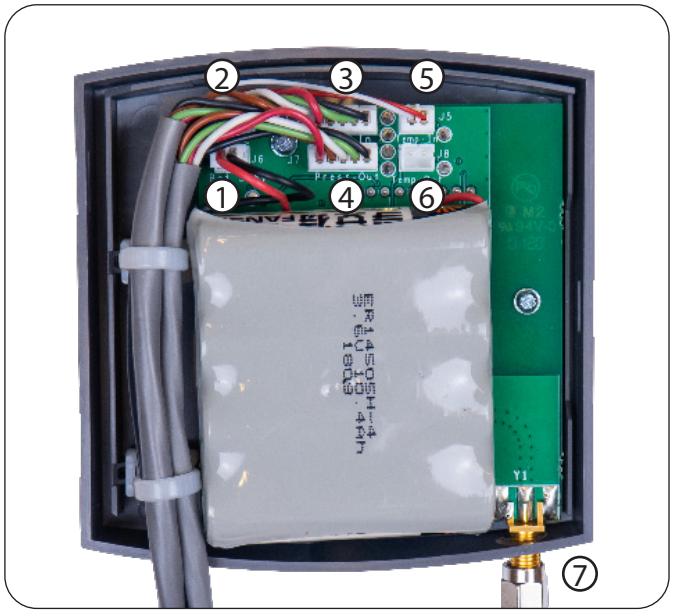
Frese FLOWGUARD Controller with internal antenna

Connection of power and sensors · Extended

Terminals.

1. Battery
2. Valve
3. Pressure inlet side
4. Pressure outlet side
5. Temperature inlet side
6. Tempereture outlet side
7. Optional external antenna

See Mounting Instruction for further details



Frese FLOWGUARD controller with external antenna

The pipe system shall be properly ventilated to avoid risk of air pockets. Glycolic mixtures up to 50% are applicable (both ethylene and propylene).

Recommendation: Water treatment to VDI 2035.

Frese A/S can accept no responsibility if another actuator is used instead of the Frese actuator. Other disclaims can be found in the Frese T&C for IoT products.

Frese FLOWGUARD

Setting the FLOWGUARD

The Frese FLOWGUARD controller can be activated in two different ways

1

"OK" is activated briefly, until a number appears on the display.

You now have access to the various menu options in the controller.

Point 1	• Green diode on – Valve position
Point 2	• No diode on – Inlet pressure
Point 3	• No diode on – Outlet pressure
Point 4	• Green diode on – Differential pressure
Point 5	• Red diode on – Battery status
Point 6	• No diode on – Inlet temperature • You can adjust the reading by pressing "OK" and then adjust the reading up or down using the arrow buttons. (Green dot following the number indicates an adjusted value.)
Point 7	• No diode on – Outlet temperature • You can adjust the reading by pressing "OK" and then adjust the reading up or down using the arrow buttons. (Green dot following the number indicates an adjusted value.)
Point 8	• Blue diode on - Data exchange • Press "OK" to enter this submenu. Then press "Arrow up", to upload data to Frese FLOWCLOUD, or "Arrow down", to download a command from Frese FLOWCLOUD.
Point 9	• No diode on – Firmware version

Firmware vers. 3.2

Frese FLOWGUARD controller

2

Press and hold "OK" until the green and red diodes flash alternately.

You can now calibrate the FLOWGUARD by pressing "arrow down".

NOTE	The actuator MUST be mounted on the valve before calibration. **N.B.:** During calibration, a diode on top of the actuator will be on. If the diode is off, the actuator jack has probably not been inserted correctly.

Frese FLOWGUARD

Frese FLOWGUARD Code Builder

Remote Flow Contol as a Service	48	
		-
Frese OPTIMA Compact PICV Dimension	B	DN15
	C	DN20
	D	Reserved
Frese OPTIMA Compact PICV Type	A	Low flow 2,5 mm P/T
	B	Reserved
	C	High flow 2,5 mm P/T
	D	Reserved
	E	Ultra high flow 2,5 mm P/T
Thread	M	Male
	F	Female
		-
Inline temperature and pressure sensor	0	No sensor
	1	1 sensor
	2	2 sensors
Temperature sensor	0	No sensor
	1	1 strap-on sensor
	2	2 strap-on sensors
	3	1 probe sensor
	4	2 probe sensors
	0	Reserved
Actuator	A	3-point (53-1982)
Controller	2	FLOWGUARD
Antenna	0	Internal antenna
	1	Eksternal antenna

48	-	X	X	X	-	X	X	0	A	2	X

Example of item code: 48-BEM-100A20

Product programme

Frese FLOWGUARD version	Item code
Frese OPTIMA Compact DN15 2,5mm UHF, M/M, 1 inline sensor, No strap on sensor, 3-point actuator, internal antenna	48-BEM-100A20
Frese OPTIMA Compact DN15 2,5mm UHF, M/M, 1 inline sensor, No strap on sensor, 3-point actuator, external antenna	48-BEM-100A21
Frese OPTIMA Compact DN15 2,5mm UHF, M/M, 2 inline sensor, 1 strap on sensor, 3-point actuator, external antenna	48-BEM-210A21

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