FAG OPTIME C4

When you need more Smart Lubrication

We pioneer motion

SCHAEFFLER

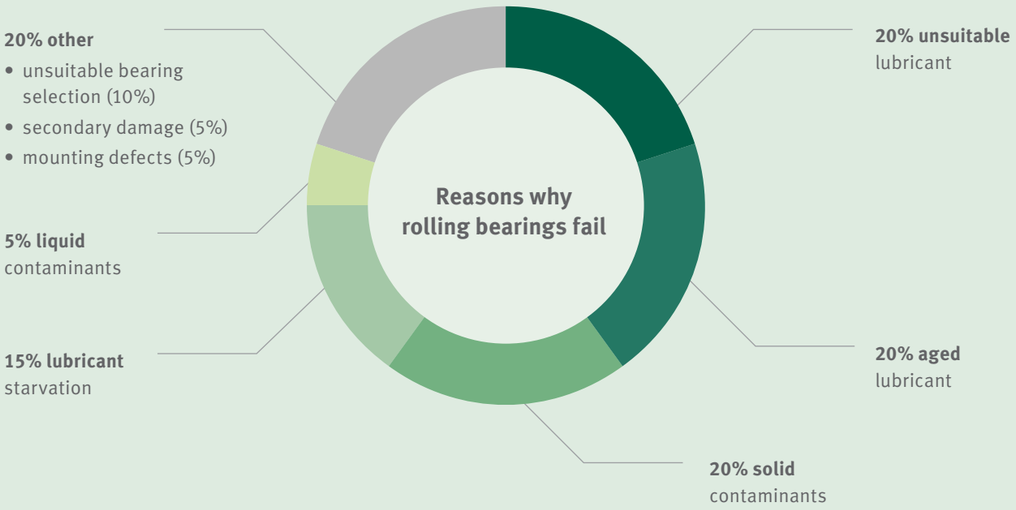
CHALLENGES IN MACHINE LUBRICATION

Ideally, machines run smoothly – but for that, they need to be properly lubricated. What sounds simple in theory often turns out to be difficult, time-consuming, and prone to error in practice.

Reasons why rolling bearings fail

Around 80% of all bearing failures are caused by insufficient or incorrect lubrication. In this context, manually lubricating machines is particularly prone to error. However, manual lubrication is still widespread – in the process industry, for example, it is carried out in 74% of all cases.

This also means that maintenance work is complex and time-consuming since all lubrication points must be regularly checked and lubricated. As these are often located in hazardous areas, maintenance teams having to manually lubricate machinery increases the risk of workplace accidents.



Source: Schaeffler, TPI, Schmierung von Wälzlagern

The statistics show the most common causes of rolling bearing failure.

Machine lubrication made easy – with Smart Lubrication

Smart lubricators combine the advantages of automatic lubrication with smart monitoring technology. As a result, they eliminate unnecessarily complex and time-consuming tasks, which simplifies machine lubrication.

Automatic lubricators make it easier to keep machines greased. Despite their use, however, tasks such as manually checking lubrication points still need to be carried out. After all, to eliminate this job, they would have to be monitored – which is possible with our smart lubricators.

Our OPTIME lubrication systems reliably deliver the specified amount of lubricant – and therefore ensure that your machines are always optimally supplied. This avoids premature bearing failures, which in turn prevents expensive downtime.
In addition, smart lubricators increase occupational safety, as employees have to spend significantly less time in hazardous areas.

OPTIME Digital Service
- Easy-to-use mobile app
- Powerful web-based dashboard for desktop PCs

Cartridge
Can be filled with our high-performance Arcanol lubricant or your own alternative

FAG OPTIME C4
- Smart multi-point lubrication system
- Power supply via cable

OPTIME C1
- Smart single-point lubrication system
- Replaceable battery

Gateway
- Mobile communication via SIM or Ethernet

Our portfolio includes all the components you need for smart lubrication.

WHEN YOU NEED MORE

The FAG OPTIME C4 makes machine lubrication even easier

OPTIME C1, the first truly smart lubricator, has been available since January 2022. The single-point lubrication system brought the advantages of smart lubrication to factory floors and production facilities for the first time.

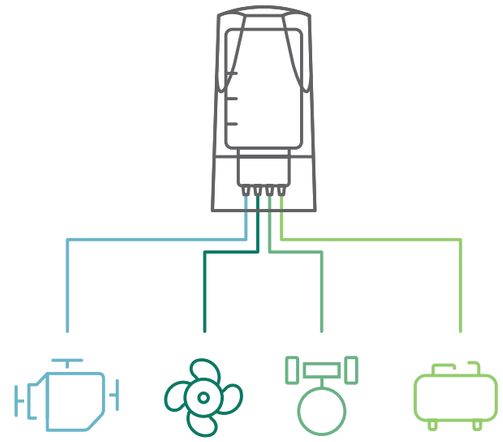
But some machines have multiple lubrication points, require a significant amount of lubricant, or do not offer enough space to install a lubricator directly at the lubrication point. To meet these and other requirements, we have expanded our portfolio to include the new FAG OPTIME C4. It offers more application possibilities, options, and insights, and therefore more convenience for your maintenance teams.

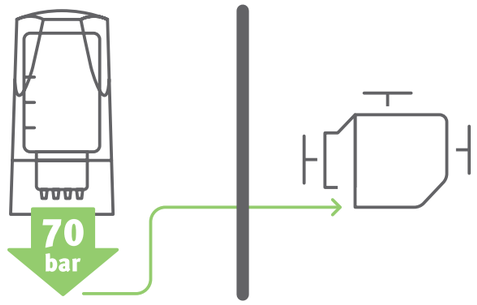
Sometimes you just need more. This is where the FAG OPTIME C4 comes in.

More application possibilities

The FAG OPTIME C4 offers additional functions and features.
This means that you can use smart lubricators in even more applications.

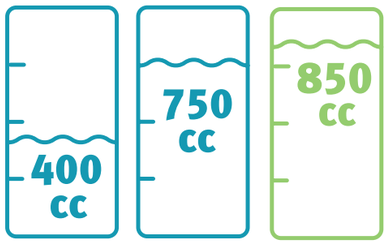
Four individually programmable outlets
As a multi-point lubrication system, the FAG OPTIME C4 has four outlets that can be programmed individually. A single lubricator can now supply up to four lubrication points with different requirements. This means that the FAG OPTIME C4 can be used in places where the OPTIME C1 is rarely used due to financial or space constraints. You now only need to purchase, configure, and maintain a single device for multiple lubrication points.





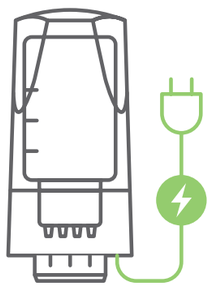
70 bar outlet pressure
The FAG OPTIME C4 has an outlet pressure of 70 bar (1,015 psi). This allows the lubricant to be transported over greater distances. It is now possible to supply lubrication points that don't allow for the smart lubricator to be installed nearby. In addition, machines that have a higher back pressure due to their design can now be lubricated in a smart way as well.

Higher capacity cartridges
The FAG OPTIME C4 can hold 400 or 750 cm^3 of grease or 850 cm^3 of oil. Thanks to the higher filling capacity, the cartridges do not need to be changed or refilled as often. Even lubrication points that require a significant amount of lubricant can now be supplied with a smart lubricator. Previously, this would not have been cost-effective due to the frequent refilling and the associated time and effort. This makes the FAG OPTIME C4 particularly suitable for applications in mining, where it can also be used as a single-point lubrication system, or for the oil lubrication of drive chains.

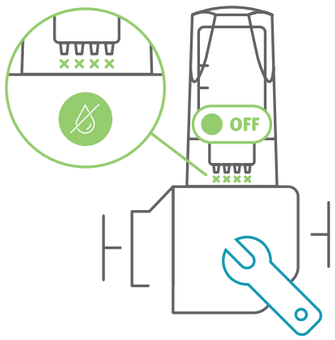


More options

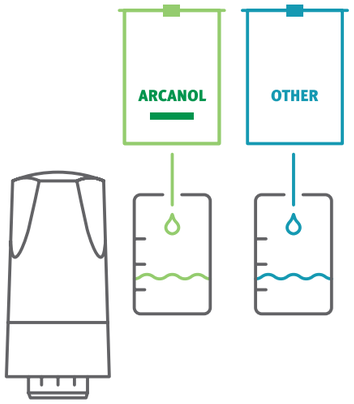
The FAG OPTIME C4 also expands your options in the field of smart lubrication.
The new lubricator either supplements the OPTIME C1 or offers you additional options.



Power supply
The FAG OPTIME C4 is supplied with power via a cable.
This makes maintenance even easier, as there are no batteries to change.



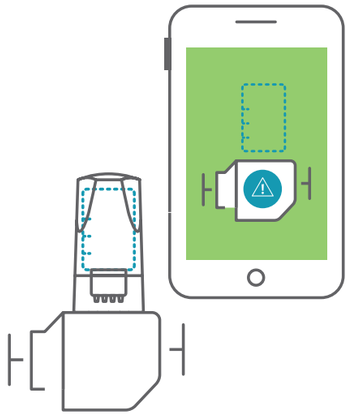
On/off function
The FAG OPTIME C4 can be switched off and on again as required. This is especially useful when the machine is not running, for example during maintenance. The lubrication process can be paused easily, which saves energy and lubricant.



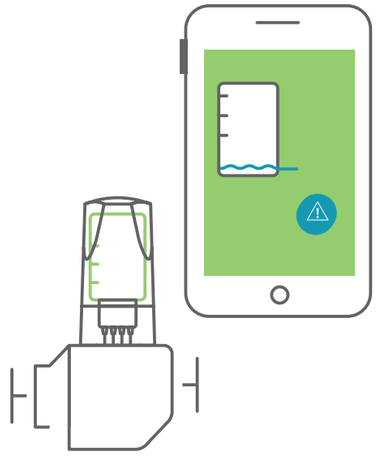
Filling the cartridges
The cartridges for the FAG OPTIME C4 are available filled or empty. This means that you can decide right from the start whether you would rather use Arcanol from Schaeffler or your own lubricant. Once empty, you can refill the cartridges with a lubricant of your choice.

More insights

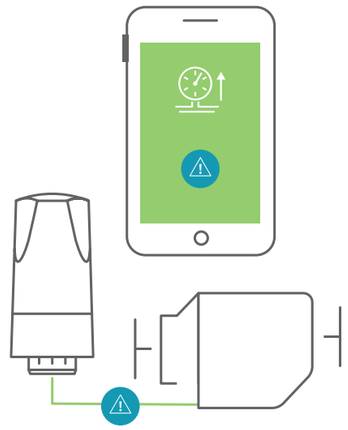
In addition to the familiar insights, the FAG OPTIME C4 gives you access to additional and more precise data. These enable you to save even more time and effort.



Inserted cartridges
The FAG OPTIME C4 recognizes whether a cartridge is inserted or not. This means that you do not have to go to the lubrication point or even be on site to test whether everything is working properly. This ensures that the machine is running smoothly.



Remaining lubricant quantity
Based on the number of actuated strokes, the FAG OPTIME C4 knows how much lubricant is left in the cartridge and displays the remaining amount. With this information, you can schedule refills accordingly and avoid the surprise of a low-level warning.



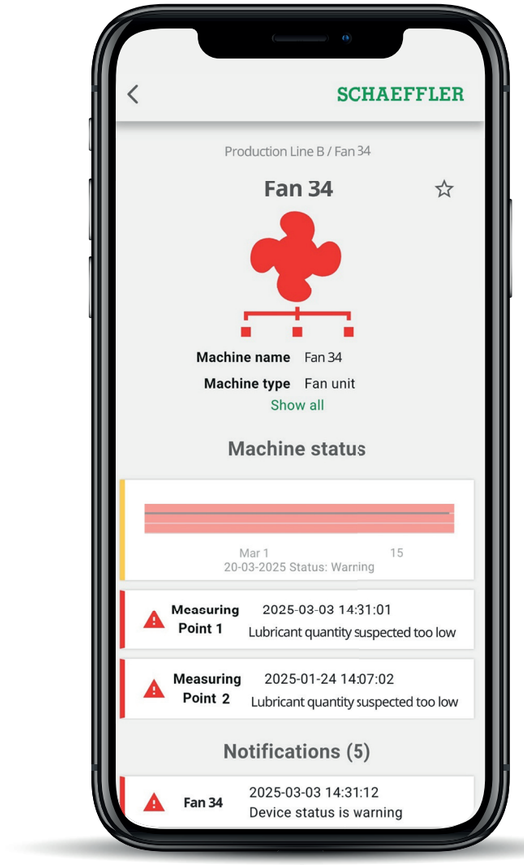
High back pressure warning
The FAG OPTIME C4 checks whether lubricant is dispensed successfully and warns you if the back pressure is too high. This is particularly helpful when dealing with problems such as blockages, as it makes it easier to locate them, allowing you to then fix the problem more easily and effectively.

Benefit from even more Smart Lubrication

More condition-based greasing with the OPTIME Ecosystem

Just in time for the launch of the FAG OPTIME C4, a new feature is also being added to the OPTIME Ecosystem that makes it even easier to ensure that machines are optimally lubricated. OPTIME Condition Monitoring can now detect a lack of lubricant in a machine based on vibration data. You will then receive a warning notification in the app. If you use OPTIME lubricators, you can easily identify the affected lubrication point. This way, you will immediately know which lubricator you need to adjust to keep your machine running smoothly.

The combination of lubrication and condition monitoring in a single system is what makes the OPTIME Ecosystem – and with it the FAG OPTIME C4 – truly one of a kind. This gives you an edge when it comes to lubricating machines.



Did you know?
The OPTIME Ecosystem was launched in 2020 and now consists of various condition monitoring and smart lubrication solutions. It reduces unplanned downtime by making predictive maintenance easy in the process industry.

In late 2021, the portfolio was expanded to include the world's first truly smart lubricator – the OPTIME C1. It made smart lubrication management possible for the first time. Now the OPTIME Ecosystem is growing again. The FAG OPTIME C4 is the latest smart lubricator to be added to the range, further expanding the possibilities in the field of smart lubrication.

› Learn more about the OPTIME Ecosystem

Easy in every way

Based on Schaeffler's long-standing expertise in the field of bearing engineering, vibration analysis, and lubrication: the OPTIME Ecosystem enables a high level of "smartness" that makes predictive maintenance to eliminate unplanned downtime easy.

Easy to start
Plug-and-play functionality makes it easy to install, set up and integrate hundreds of machines in a very short time.

Easy to use
The intuitive mobile app with award-winning interface makes it easy to use – whether you are a beginner or an experienced user.

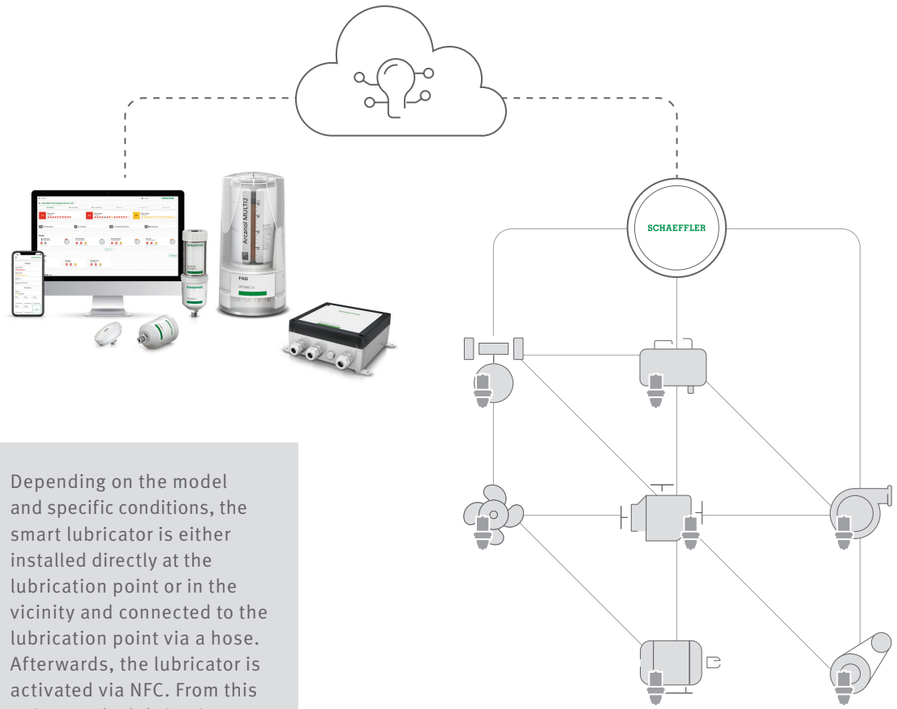
Easy to scale
Its ease of use and affordability make it easy to scale up and expand the scope of what you need at any time – in just a few steps.

Easy to decide
A complete overview of all your machines and lubrication points, easy-to-understand alarms and automated analytics make it easy to know what to do next.

Easy to profit
With an immediate reduction in downtime, the OPTIME Ecosystem offers a quick return on investment. Its cost efficiency also makes comprehensive condition monitoring and smart lubrication affordable.

How Smart Lubrication works

OPTIME lubricators form a mesh network that monitors lubrication. The network can be expanded to include additional smart lubricators at any time.



1

Depending on the model and specific conditions, the smart lubricator is either installed directly at the lubrication point or in the vicinity and connected to the lubrication point via a hose. Afterwards, the lubricator is activated via NFC. From this point on, the lubrication point will be properly and reliably supplied.

2

All of the data on the condition of the lubrication point and the lubricator is sent via the mesh network to the gateway, which forwards the data to the cloud. This information can then be viewed in the mobile app and on the dashboard. This allows you to monitor the lubrication point at any time and from anywhere.

3

Thanks to automatic status messages, you can precisely schedule maintenance work and also stock spare parts as necessary. In the event of an issue at a lubrication point, an alarm is triggered and displayed in the app or on the dashboard – helping to prevent downtime.

The benefits of Smart Lubrication

By using smart lubricators, you can be sure that your machines are properly lubricated and run smoothly. You can also simplify workflows, make better use of existing capacities, and save resources.

More simplicity

Our smart lubricators are easy to install, activate, and monitor. When a cartridge is empty, it can be replaced or refilled in just a few steps. In addition, maintenance work can be planned more easily thanks to the transmitted data.

More peace of mind

The OPTIME Mobile App allows you to keep an eye on all of your lubrication points and their statuses – anytime, anywhere. This significantly reduces the need for routine checks. If anything looks out of the ordinary, a warning notification is sent to the app. This ensures that you are informed immediately and can react accordingly to prevent downtime.

More time

Thanks to the smart lubricators, you save the time and effort required for manual lubrication, routine checks, and repairs. Instead, you can use the capacities previously planned for this for other tasks. Since workers now have to spend less time in hazardous areas, the risk of workplace accidents decreases. In addition, your machine uptime increases thanks to the avoidance of unplanned downtime.

More sustainability

Since our lubricators only dispense the exact amount of lubricant needed, you can reduce your lubricant waste by up to 60%. Energy consumption is also reduced by up to 3%. Optimal lubrication therefore helps you cut costs and reduce emissions while also extending the lifetime of your bearings and machinery. You also benefit from a lower scrap rate by avoiding unplanned downtime.

Find the right lubricant and lubricator for your application

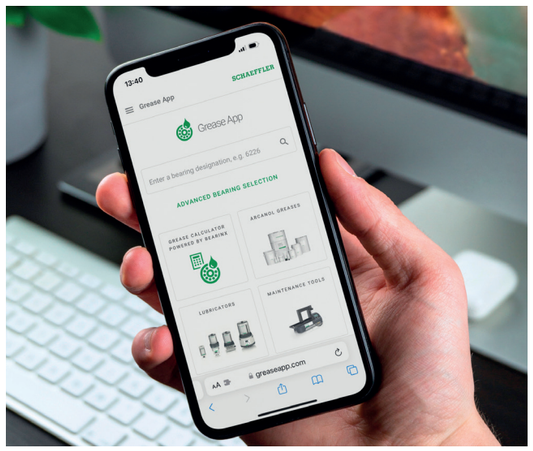
To keep your machines running smoothly, it is essential that you supply them with the right type and quantity of lubricant. With the Schaeffler Grease App, you can easily determine which Arcanol brand rolling bearing grease is best suited for your bearing, while our lubricator selection assistant helps you choose the right lubricator.

Lubricator Selection Assistant
To cover as many different requirements as possible, we have a wide range of lubricators in our portfolio. Our Lubricator Selection Assistant will help you find the right one for your machine. Based on the characteristics of the lubrication points, the selected grease, and the type of application, the web-based app will recommend one or more suitable lubricators. All of the components needed for installation will be displayed in the appropriate quantity in a parts list. You can then use this list to request a quote or to order all of the components directly.

› Find the right lubricator with the selection assistant

Schaeffler Grease App
With our web-based or mobile app, you can determine the appropriate Arcanol grease, the lubricant quantity for both initial and subsequent lubrication, and the relubrication interval for your bearing in just a few clicks. You can also view the properties of the recommended rolling bearing grease in the app. You can then access the medias shop via the button to view the products and order them.

› View Schaeffler Grease App



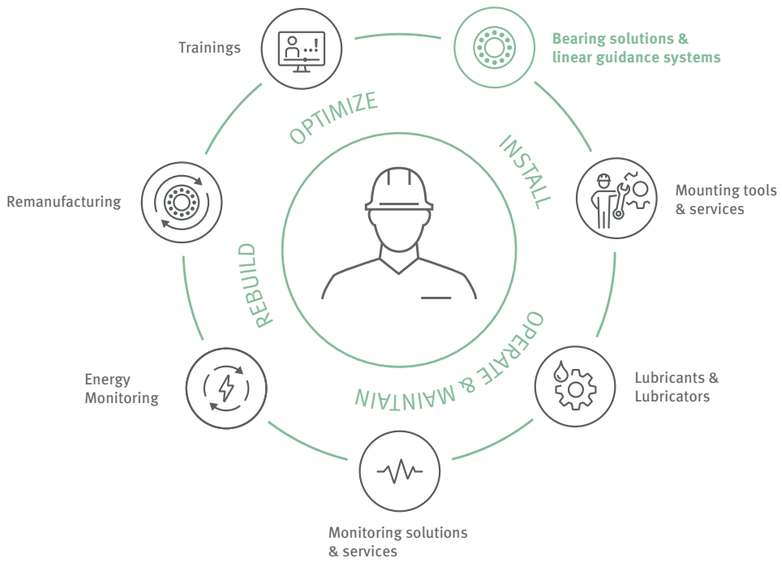
Schaeffler Lifetime Solutions

Keep your machines rolling
Schaeffler Lifetime Solutions is a full suite of industrial maintenance products, services and solutions for the entire machine lifetime. Designed with maintenance teams and plant managers in mind, the portfolio offers you everything you need to ensure that uninterrupted rhythm in your workshops and plants.

Regardless of whether you are working in food and beverage, pulp and paper, cement and mining – or any other industry. Our solutions ensure that you can roll through the everyday knowing your machines are running smoothly.

› Ready to get started?

Added value along the entire life cycle



Product Specifications

FAG OPTIME C4

Characteristic		Value
Dimensions (WxHxD)		144 mm x 297 mm x 144 mm
Drive system		electromechanical
Mass (without cartridge)		≈ 2.4 kg
Installation position		vertical, max. vertical tilt 5°
Housing material		PA
Protection class		IP66 [1]
Lubricant delivery		Piston pump
Metering volume per outlet for each delivery stroke		0.12 cm³ +0.013/–0.013 cm³
Number of lubrication points		≤ 4
Number of outlets		4
Outlet type		Push-in fitting 6 mm with clamping tongs for PA pipe or metal pipes with appropriate claw groove geometry
Lubricant volume	Grease	400 cm³ / 750 cm³
	Oil tank	850 cm³
Lubricants	Grease	Grease up to NLGI 2 [2]
	Oil	68 cSt ... 1500 cSt
Max. permissible operating pressure		70 bar
Operating temperature		–20 °C ... +70 °C
Communication Wirepas Mesh	Frequency band	2.4 GHz
	max. range with line of sight	60 m
Communication NFC	Frequency band	13.56 MHz
Maximum output		+8 dBm
Operating voltage (Class 2; NEC/NFPA 70)		DC 24 V (±1,2 V)
Current consumption		I_{max} ≤ 500 mA at DC 24 V

[1] Outdoor use not tested as part of UL certification.
[2] Arcanol greases up to NLGI 3 (taking into account the maximum lubricant line length). Other greases up to NLGI 2 (with experimental determination of the maximum lubricant line length).
No solid particles, except PTFE, when using third party greases, the suitability of the pump system within the limit temperatures occurring is to be checked by customer.

All lubricant-dependent values determined using Arcanol MULTITOP at +20 °C.

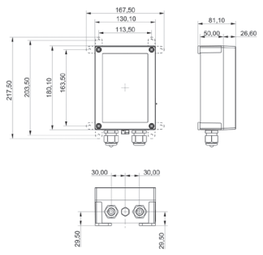
› More technical details

Product Specifications

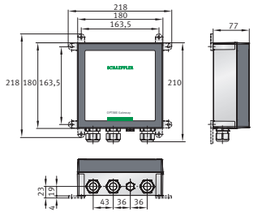
Gateway

Gateway	OPTIME Gateway (Ex)	OPTIME Gateway 2 (Ex)
Sensor communication	Wirepas Mesh (2.4 GHz ISM Band), maximum number of sensors: 50	Wirepas Mesh (2.4 GHz ISM Band), maximum number of sensors: 50
Sensor communication Schaeffler IoT Hub	2G, LTE CAT M1 LTE-Stick: GSM, UMTS, LTE (default) Wi-Fi 2.4GHz, Ethernet RJ45	LTE, UMTS, GSM (integrated) Wi-Fi 2.4GHz, Ethernet RJ45
SIM card format	Micro-SIM (3FF) depending on LTE stick	Micro-SIM 3FF
Ingress protection	IP 66/67 (standard) IP 66, Nema 4X (Ex)	IP 66, Nema 4X (standard and Ex)
Protection class	⧈	⧈
Operating temperature	-20°C bis 50°C (standard) -20°C bis 55°C (Ex)	-20°C bis 70°C (standard) -20°C bis 55°C (Ex)
Storage temperature	-40°C to 85°C Humidity 20 ... 90 °C	-40°C to 85°C Humidity 20 ... 90 °C
Power supply	Voltage range 85-264VAC, 47-440Hz, Power consumption 30VA max.	Voltage range 100 ... 240 VAC (±10 %), 50/60 Hz Alternative voltage range 12 VDC (±10%) Power consumption 20 VA
Certifications	CE (EU Directive 2014/53/EU), ANATEL, ANRT, COC, CRC, FCC, IC, ICASA, IFETEL, IMDA, KC, MIC, MOC, NBTC, NCC, NTC, RCM, SDPPI, SIRIM, SRRC, SUBTEL, TDRA, WPC	CE (EU Directive 2014/53/EU), FCC conform, further certifications will follow
Certifications(Ex)	ATEX/IECEx Zone 2/21 Further details are available on the device label CCC, QPS, ECAS Ex, INMETRO, KCs, MASC, PESO	ATEX/IECEx Zone 2/21 Further details are available on the device label CCC, QPS, ECAS Ex, INMETRO, KCs, MASC, PESO

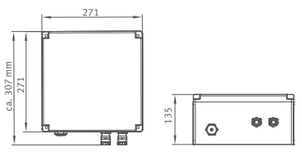
Dimensions of all Condition Monitoring OPTIME sensors (3, 5, 5 Ex)



Dimensions of the OPTIME Gateway



Dimensions of the OPTIME Gateway 2



Dimensions of the OPTIME Gateway Ex and OPTIME Gateway 2 Ex

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