

BOD

COD

BTX

TOC

DOC

UV254

NO₃

NO₂

NH₄

K⁺

Free Chlorine

F⁻

TSS

Turbidity

Color

pH

ORP

EC

Temperature

O₂

O₃

H₂S

AOC

Fingerprints

Contaminant Alarm

s::can

Intelligent. Optical. Online.

Water Quality OnLine Drinking Water

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|-------------------------|-----------------|---------------|--------------|---------------|------------|-----------|---------|------------------|------------------|-----------------|-------------|-----------|-------------|--------------|---------------|---------------|--------------|---------------|
| quantity of parameters* | 8 | 4 | 4 | 2 | 2 | 3 | 4 | 4 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| parameter | | | | | | | | | | | | | | | | | | |
| BOD | 16 | 22 | | 26 | | | | | | | | | | | | | | |
| COD | 16 | 22 | | 26 | | | | | | | | | | | | | | |
| BTX | 16 | | | | | | | | | | | | | | | | | |
| TOC | 16 | 22 | | 26 | | | | 40 | | | | | | | | | | |
| DOC | 16 | 22 | | 26 | | | | | | | | | | | | | | |
| UV254 | 16 | 22 | | 26 | | 30 | 34 | | | | | | | | | | | |
| NO ₃ -N | 16 | | | 26 | 28 | | | | | | | | | | | | | |
| NO ₂ -N | 16 | | | | | | | | | | | | | | | | | |
| NH ₄ -N | | | | | | | | | 42 | 44 | | | | | | | | |
| K ⁺ | | | | | | | | | | 44 | | | | | | | | |
| chloride | | | | | | | | | 42 | | | | | | | | | |
| chlorine | | | | | | | | | | | | | | | | 60 | | |
| chlorine dioxide | | | | | | | | | | | | | | | | | 62 | |
| hydrogen peroxide | | | | | | | | | | | | | | | | | | 64 |
| peracetic acid | | | | | | | | | | | | | | | | | | |
| F ⁻ | | | | | | | | | | | 50 | | | | | | | |
| TSS | 16 | 22 | | | 28 | | 34 | | | | | | | | | | | |
| turbidity | 16 | 22 | 24 | 26 | 28 | | 34 | 40 | | | | | | | | | | |
| color | 16 | | 24 | | | | | 40 | | | | | | | | | | |
| pH | | | | | | | | | 42 | 44 | 50 | | 54 | | | | | |
| ORP | | | | | | | | | | | | | | 56 | | | | |
| conductivity | | | | | | | | | | | | | | | 58 | | | |
| temperature | 16 | 22 | 24 | 26 | 28 | 30 | 34 | 40 | 42 | 44 | 50 | 52 | 54 | 56 | 58 | 60 | 62 | 64 |
| O ₂ | | | | | | | | | | | | 52 | | | | | | |
| O ₃ | 16 | | | | | 30 | | | | | | | | | | | | |
| H ₂ S | 16 | | | | | | | | | | | | | | | | | |
| AOC | 16 | | | | | | | | | | | | | | | | | |
| fingerprints | 16 | | | | | | | | | | | | | | | | | |
| hydrocarbon alarm | 16 | | | | | | | | | | | | | | | | | |
| pressure | 16 | 22 | 24 | 26 | 28 | 30 | 34 | | | | | | | | | | | |
| measuring method | | | | | | | | | | | | | | | | | | |
| spectral UV | X | | | | | | | | | | | | | | | | | |
| spectral UV-Vis | X | X | X | X | X | X | X | | | | | | | | | | | |
| ISE | | | | | | | | X | X | X | | | | | | | | |
| fluorescence | | | | | | | | | | | X | | | | | | | |
| optical / infrared | | | | | | | | | | | | | | | | | | |
| glass electrode | | | | | | | | | | | | X | X | | | | | |
| amperometric | | | | | | | | | | | | | | | X | X | X | X |
| four electrodes | | | | | | | | | | | | | | X | | | | |

* The amount of parameter is depending on the specific configuration of the monitoring system.

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DI Andreas Weingartner
CEO and Owner
s::can Messtechnik GmbH

A warm welcome to s::can

You are holding in your hands the catalogue from s::can Messtechnik GmbH - the first complete catalogue of online instruments for water quality monitoring. What makes this catalogue so special? The same thing that makes s::can special: s::can is the only firm in the world that has given its heart and soul to online water quality measurement. Since our foundation, nothing else has come out of our development department, nothing else has come out of our production sites, so now nothing else goes into our catalogue. We only ever become involved in technologies that are in line with this focus. This focus is unique in the world.

We are of the opinion that the time has come for reliable, simple, intelligent and inexpensive submersible probes for online water quality monitoring.

s::can Messtechnik GmbH

**Founded in Vienna, Austria in 1999,
branches in the USA, China, France, Spain and Mexico.**

Focus:

Research, development and production of innovative measuring instruments for online water quality monitoring.

Mission:

s::can offers a complete set of accurate, reliable, low-maintenance and inexpensive measuring instruments for comprehensive and time-resolved water quality monitoring. We consider online water quality monitoring the essential basis for the monitoring of any natural water bodies and for the economically and ecologically optimised operation of waste water treatment plants, drinking water works and industrial plants. Such monitoring and optimisation can help minimise the emission of pollution and hazardous substances into the environment thus helping to secure optimum water quality for human consumption at best possible economic efficiency.

s::can
Intelligent. Optical. Online.

Intelligent. Optical. OnLine.

Our services & our guarantees

Whether it is a simple pH sensor or a complex spectral probe, s::can measuring instruments are intelligent and compatible with each other in s::can systems and with third-party systems. They can all communicate with all terminals, they can also be operated without a terminal and they can even be integrated directly into your control system without an extra terminal. They are always operated by the same software, viewed on the same display and installed, set up, calibrated and maintained in the same way. They have a comprehensive repertoire of self-diagnosis functions that are always executed automatically and they inform you immediately in plain language if deviations from optimum operation occur. All this is always done in the same way so that you only have to familiarise yourself once with the very intuitive s::can software and then you can operate all s::can instruments.

Optical

Organically developed, constantly tried and tested, and often proven: Optical works best. It doesn't matter whether it is COD, TOC, NO₃, NO₂, TSS, turbidity, dissolved oxygen, or many others besides. Whenever an optical method is available, we use it; when not, we develop one. Optical methods are the most reliable, the simplest, have the lowest cost, and, above all, they are usually the most accurate.

If ever a measurement is impossible by optical methods, then we just use the best alternative method that comes closest to our focus. For example, in our ammo::lyser™ the ammonium is measured using a combination of electrodes which is acknowledged as the best to date for a pH and potassium compensated ammonium measurement. With the ammo::lyser™, we have also set the standards, won in practically all tests against comparable instruments and ensured that the ammo::lyser™ is now regularly used in the biggest projects everywhere in the world.

OnLine & InSitu

We postponed the issue of this catalogue until our parameter range was complete, at least regarding typical applications in the areas of water, waste water, environmental monitoring, and industrial applications. We waited until we had developed an absolutely state of the art measuring instrument for each individual parameter. It is our firm conviction that each of those instruments cannot be bettered today in terms of performance, quality and cost.

On top of this there are our fully modular compact measuring stations that combine these instruments into an organic whole. They present a complete solution whose modules the user only has to connect ("plug-and-measure") in order to receive at no extra cost a previously unheard of variety of immediately available information and parameters.

For instance the combination of the parameters COD-BOD-NO₃-NH₄-NO₂-TSS-pH can be measured with only 2 s::can probes and 1 terminal, replacing an entire container of conventional cabinet analysers and thereby revolutionising water and waste water monitoring around the world.

We are proud of having created all this in less than 10 years and also to have set new standards in water monitoring along the way. For example, in 2000 when we brought our first spectro::lyser™ to the market we established online UV spectrometry in sensor format in the marketplace years ahead of the competition. Today, with well over 9.000 systems sold, we are the undisputed global market leader in this segment and can continue to call ourselves the technological leader.

Our services & Our guarantees

About our prices

Have you ever been annoyed with a cheap printer that you just bought, only to find that the first time you had to change the ink cartridge it cost almost as much as the printer itself? Unfortunately a similar trend can be detected in the sector of water quality measurement technology - but not at s::can.

s::can does not try to make its profits from the sale of “consumables” such as reagents, consumable parts and the like, thereby hitting the customer with unexpected costs. s::can is not a “consumables company”. The consumables strategy contradicts our principles of fairness in the customer relationship and the importance we ascribe to running an ecologically sustainable business. Our business is simpler. We make our living from the sale of our measuring instruments. Most of our instruments are designed in such a way that they need no consumables at all and, if they do (e.g. with ISE probes), then they are designed in such a way that the use of consumables is in the region of the technically feasible minimum, and the consumables required can be purchased in the smallest possible units at the most keenly calculated prices. The advantage is obvious. The operating costs of our instruments are typically close to zero or a small fraction of that of our competitors. In terms of “total cost of ownership”, many of our instruments are already the best price to buy, and after 3 years or 5 years at the latest, all of our instruments are unrivalled economically. May we give you an estimated calculation for your application?

Cost Guarantee - No surprises over many years

Within the framework of individual service contracts and for an annual fee we will be happy to give you a guarantee to cover all costs that might arise in the operation of our instruments, beyond our comprehensive standard guarantees. For 3 years, 5 years or even 10 years. Whenever you compare our instruments with the instruments of other manufacturers, ask the other manufacturer to give you a guarantee to cover the operating costs over lengthy periods. You will be amazed how much less expensive s::can measuring instruments are to operate.

Quality Guarantee – No one can do more for optimum quality

The effort that we make in controlling quality in production is probably unique. Just visit us at our factory in Vienna, Austria, and we will be happy to show you our production plant and our QS system. As a result of our focus on allowing only reliable, simple and at the same time intelligent sensors be part of our measuring systems, we can give guarantees that were previously unheard of in our sector. For instance, we guarantee our optically operated sensors for up to 3 to 5 years. We give a minimum 2 year full guarantee on all other sensors – apart from consumables, but we can even cover those up to 100% within the Cost Guarantee.

“CleanData” Guarantee - and you can focus on your own job

Within service contracts we will also be happy to give functionality and availability guarantees. That extends to the “CleanData” concept. Here our local partners handle the installation, setup, calibration and maintenance of your instruments and we send you regular reports about the instruments’ performance, and can automatically give you service recommendations if you grant us remote access to the measuring system. Our “Support” department will even inform you about any special features of your application if that is what you want and is available to discuss the causes of any deviations. So you can keep your mind free of the measuring instrument, which is really a side issue for you, and dedicate yourself once more to your central tasks.

Environmental Guarantee - Monitoring the environment, not polluting it

Our measuring instruments are constructed so as not to use any chemicals or leave any waste. Most s::can instruments operate for many years without consuming any replacement or spare parts. Virtually no environmentally harmful processes or chemicals are used in manufacture. Every one of our instruments and also our entire range of instruments leaves a truly negligible “ecological footprint” compared with traditional laboratory, quick test and analyser technology.

**Our services
+ Our guarantees**

= your benefit

Water quality parameters

Correlation with laboratory parameters

It is an understandable requirement of users and also of monitoring bodies with legal duties to check the accuracy of measurement of online sensors compared to standardised reference methods in the laboratory. This check is indispensable – but often not trivial – in particular with measurements that are intended to check the compliance to emission limits.

The total error of measurement results from a) representativity of sample taken, compared to the online sensor, b) changes in the sample as a result of transportation and storage and, c) lab analysis errors, easily adding up to as much as 20% of the true value. This is for sure greatly depending on the parameter and application, but occurs even when the work is done most cleanly. The online measurement value is very often higher than the laboratory value since part of the target substance is often lost during handling. We have documented many examples where, despite the use of quality-controlled reference methods, parameters such as BOD, COD, NO₃-N, and TSS or TS were systematically 10 – 20% higher compared to laboratory measurements. These values were taken for calibration of the online sensor so as a result all the following measurements were too low by this percentage. Which might not be a major problem for process control, since all that matters there is good dynamics and stability, but is unacceptable for compliance monitoring. In our experience a correlation of 90% to 95% can normally be achieved between the online sensor and the laboratory, but just to achieve this takes a lot of specialist knowledge and experience, not least regarding sample taking and sample transportation. We are very happy to support our customers to achieve the best possible results with our comprehensive experience.

The pioneering (and currently world's only) international standard for assessing online measuring instruments for water quality monitoring is ISO 15839. We see this standard as a major step towards objective assessment of the quality of online water measurement instruments and we are already gradually moving to having all our instruments tested in this manner. As soon as approved research institutes are granted the authority to issue inspection certificates, we will show these in our specifications.

In recent years many countries have witnessed a change of paradigm towards the recognition of online methods and instruments often in acknowledgement of the tremendous operational advantages to be gained from continuously measuring dynamic values.

With more than 10 years of experience in the field of comparative studies, after over 100 technical commissionings and approvals, and with about a dozen tests always in progress in many countries of the world, s::can can offer you the best possible support in your comparative studies. We know what counts, even in the most varied applications that can occur in water management. Our feasibility studies and calibration reports are well known throughout the sector, are worked out meticulously and independently by the scientists in our “Support” department using recognised methods, and turned out to be critical several times because of the commitment of this department to quality and objectivity without the pressure to sell.

Parameter overview

“Why do we measure”

The goal of quality monitoring various natural waters and drinking waters is the reduction of harmful effects to our environment and our human health. This aim has to fulfil various guidelines that are defined in official ecological and drinking water quality regulations. Because of the continuous efforts to improve the quality of natural waters, to reduce the health risks of water consumers and to optimise the efficiency of drinking water treatment, the requirements for process technology and for quality control of water are ever increasing.

Therefore reliable monitoring stations that provide continuous data are an essential component in the drinking water supply and the environmental protection - both for the dynamic process control as well as for continuous monitoring of the water quality. In environmental monitoring as well as in drinking water production s::can monitoring stations have been in use for many years. Their technological and methodological quality standards have set new boundaries with regards to measurement performance and have often opened up completely new opportunities for drinking water security and environmental protection.

s::can
Intelligent. Optical. Online.

“How do we measure”

All s::can instruments can be operated according to the “plug & measure” principle: With a simple plug connection, which provides power supply and data communication, the s::can sensors are connected to s::can terminals and are ready for use immediately. All s::can instruments are pre-calibrated ex works. The s::can terminals are equipped with the respective connectors (fully compatible interfaces) and the software for operation the s::can probes and sensors.

All s::can measurement systems consisting of standardised s::can products are ready for use without the need for complex initial procedures on site (no wiring, no long settings, no initial calibrations etc.). The “Plug & Measure” principle avoids complex installation procedures on site and thus does not only save time during initial operation, but also reduces avoidable errors.

Manufactured using highly resistant materials and tested according to the highest quality standards, s::can measurement instruments can be used in practically all types of water. The highly optimised design completely eliminates all moving parts in contact with the water. This reduces failures and maintenance dramatically.

Using standardised mounting devices, s::can spectrometer probes can be installed quickly and effortlessly, either submersed (InSitu) or in a flow through setup (by-pass, monitoring station).

All s::can instruments are intelligent - amongst others local calibrations are stored on the instruments and auto-diagnosis procedures are used to ensure best possible operation.

Suitable for a wide range of applications, ranging from very low up to very high concentrations, from sum parameters to measurement of single substances, from ultra pure water to industrial waste waters, s::can monitoring systems provide reliable and accurate readings. Even in such applications, that had remained impossible for other instruments.

The s::can solution

The spectrometer probe

Let's get out of the laboratory, and into the water. Away from the complicated and high-maintenance cabinet analysers towards reliable and simple online technologies and, above all, submersible spectrometers. A "mega trend" for the future of water management? We are convinced of it. s::can spectrometer probes need practically no maintenance, are extremely robust and durable and keep measuring for years, 24 hours a day, to the complete satisfaction of the operators. The advantages are obvious and are described later in more detail for the individual measurement parameters.

| | Spectrometric | Photometric | Cabinet analyser |
|--------------------|---------------|-------------|------------------|
| Accuracy | ★★★★ | ★ | ★★★★ |
| Stability (drift) | ★★★★ | ★★★ | ★★ |
| Calibration effort | ★★★ | ★★ | ★★★★ |
| Maintenance effort | ★★★★★ | ★★★★ | ★ |
| Purchase costs | ★★★★ | ★★★★ | ★ |
| Operating costs | ★★★★★ | ★★★★ | ★ |

Comparison of various procedures for monitoring organic chemistry

The spectrometer probe ...

... provides several crucial advantages over simple photometer probes:

- 1) Up to 8 major parameters can be measured at once. This flexibility also permits expansion of the range of parameters for future applications which you are probably not thinking of at all today.
- 2) Measurement is incomparably more stable with regard to cross-sensitivities and therefore more accurate than photometer probes by entire orders of magnitude, especially in difficult applications.
- 3) Even in special applications, there is almost always a spectral range that correlates well with the substance of interest. In the event of major changes in water composition, only a new spectral calibration is required.
- 4) A large number of individual substances can also be identified against a fluctuating background matrix and separately quantified with the application of chemometric methods (e.g. BTX, phenols, solvents, flavouring agents etc.), which does not work at all with simple photometric probes.
- 5) Distinguishing between total and dissolved substances is possible: s::can uses a sophisticated mathematical algorithm that permits this distinction to be made reliably and usually works even without calibration.
- 6) The intelligent "spectral alarm" permits detection of deviations from a normal composition ("event detection") and provides an associated alarm signal. This method is now acknowledged and in use around the world, e.g. in drinking water and river water alarm systems and in industrial discharge monitoring.

Conventional solutions

The traditional cabinet analyser

This type of instrument has been in use for about the last 30 years for measuring most chemical parameters. The advantage of such instruments was always with the manufacturers of consumables and not with the customers. These instruments can often be kept going only by means of comprehensive service contracts, they consume chemicals and spare parts, pollute the environment, and need considerable attention. Frequently they are so expensive and unreliable in operation that users just shut these instruments down again after some period of use.

The simple photometric probe

... despite its disadvantages, is still in widespread use today, probably because for a long time there simply was no better replacement available for monitoring organic carbon compounds (by correlation with the UV absorption signal at 254 nm). It is also used for monitoring nitrate (e.g. by correlation at 220 nm).

Since this probe can only ever measure one parameter, the optical filter would have to be changed to measure other substances, creating a great deal of work, and then the probe can in turn monitor only this one parameter: flexibility is very restricted. The measurement of COD can be rendered impossible simply by the discharge of a new industrial emitter into the sewage system.

However, with clear water and completely stable water composition, good results can sometimes be achieved. With fluctuations in turbidity, a second wavelength must also be measured for compensation, still this does not work nearly as well as full spectral compensation (see picture). This alone lifts these sensors up to the price level of s::can spectral instruments.

Since these probes remain restricted to single parameter monitoring, a substantial cost disadvantage compared with a spectral probe arises. These simple probes are just not able to cope with matrix fluctuations and they often provide results that are not sufficiently correlated with the true concentration values, or with the reference method.

The s::can solution

s::can spectral instruments capture the major proportion of organic carbon compounds (because they are chemo-physically similar to UV oxidation in a TOC analyser), which as a general rule correlates excellently with the reference measurements. Recovery is estimated to be about 80% in domestic waste water. The correlation with other oxidative methods for TOC analysis is usually also good but, like all methods, it also has certain limits. Our experts can now almost always say from experience how good the expected correlation will be and help you with optimising the results.

The comparison between laboratory COD or laboratory TOC and spectrometrically determined values should always be better than 90% depending on the distribution of your reference samples. If that does not work out or is not satisfactory straight away, please contact s::can Support (email: support@s-can.at).

For many applications the distinction between total COD and dissolved COD, or between TOC and DOC is of major importance. This distinction is based on a physically consistent description of the solids by a spectral algorithm that has now been proven in practice thousands of times. (See diagram on the next page).

In addition here comes another great advantage of spectrometry: Not only can one quantify any change of the concentration of total organic compounds, expressed by COD or TOC, but it is also possible to identify several differentiated groups of organics or even detect individual organic substances that cause this change. It is even possible to distinguish between “normal” and “abnormal” (mostly undesirable) organic composition in “event detection systems”. The s::can spectrometer probe is now accepted by public authorities in many countries as a substitute measurement for COD or TOC, and this strong trend is continuing.

Spectral BOD as provided by s::can has nothing to do with the widely used simple correlation of BOD to UV254 that is used by other manufacturers but which seldom works reliably.

In principle it is not the respiration of the bacteria that is tracked - the standard measurement - but it is the easily digestible fraction of the organic compounds that is measured directly. To this end spectral algorithms were developed for various waters from thousands of samples, and these are based on the spectral integral of light absorption of biologically easily accessible chromophorous carbon compounds (e.g. proteins, acids etc.) in the wavelength range as pictured in the diagram on the next page.

It is always recommended that the BOD (as opposed to other spectral parameters) be calibrated on initialisation of a measuring station by comparison with a reference method.

The comparison between laboratory BOD and spectrally-determined online values should be better than 85%. If that is not sufficient or does not work straight away, just contact s::can Support and together we will achieve a still better correlation by supporting you with the reference measurements and/or conduct a calibration specifically for you.

Conventional solutions

The traditional measurement of COD is conducted after pulping the sample with oxidants of varying strength (and varying harm to the environment) such as dichromate (about 90% recovery efficiency in domestic waste water) or manganese III (about 80% recovery efficiency in domestic waste water). In the attempt to come as close as possible to the normative standards, laboratory methods were transferred to field analysers and hardly changed. As these methods are not really practical in process and field applications, these analysers are as a rule expensive to buy and operate, complicated, unreliable and harmful to the environment, and often still do not conform to the legal standards. The quality of measurement actually achieved is then mostly well below the given specification since very few users have the time to invest in these instruments to keep them operating reliably. But even if these instruments worked perfectly, their availability and the accuracy achieved are still well below that of spectral probes since it is not easy to gain control of the incidental and systematic errors that occur because of their complexity.

It is not without reason that the replacement of COD cabinet analysers is one of s::can's major areas of business.

The disadvantages of TOC analysers occur in a similar area. In addition, depending on the method used, there is only ever a certain proportion of the organic carbon compounds that is oxidised and, as a result of the method, that fraction may well also be detected by the spectral probe as is the case with UV pulping which is popular due to being considered comparatively environmentally friendly.

Although BOD is a very interesting parameter, in particular for the modelling and layout of waste water treatment plants, it is difficult to sample, prepare and also to analyse. The main reason is clear. After all one is working here with living organisms that may behave quite differently depending on the water quality and experimental conditions thus a lot of scattering is introduced. BOD is normally measured by detecting the respiration of bacteria via oxygen content or indirectly via the gas pressure. Among other things, measurement in the low concentration range or in the presence of inhibitors regularly causes problems.

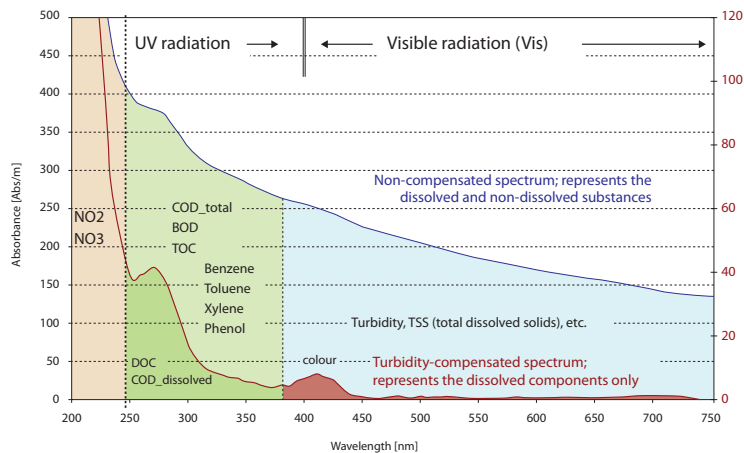
BOD cabinet analysers in particular do not reflect BOD according to the standard and they must therefore first be compared themselves with the “true” BOD method and calibrated accordingly. The maintenance effort may be considerable, which is why BOD is rarely measured online with any enthusiasm.

COD

**COD
dissolved**

TOC

BOD



s::can measuring method – “Fingerprint“

The s::can solution

NO₃-N Depending on the method, a spectral probe measures the nitrate concentration with much greater accuracy and stability and greater freedom from cross-sensitivities than a simple photometric probe (see diagram below). So an s::can spectral probe, regardless of whether it is a nitro::lyser™, multi::lyser™ or spectro::lyser™, is already widely used as a reference for simple photometric or ISE probes.

The nitrate value is accurately measured and displayed by s::can spectral probes in many applications without calibration. The detection limit in some applications is in the region of 0.005 mg/l (!) and even in a heavily loaded SBR reactor at 15 g/l TS, it is still better than 0.2 mg/l. The recommended measurement path length for the latter highly concentrated waste water is just 0.5 mm and, despite this, accurate measurements are possible, as is reliable cleaning of the measurement gap.

The nitrate value measured by s::can spectral probes is extremely stable in respect to matrix fluctuations. Thus, for instance, an accurate nitrate value can be measured with one and the same instrument in most flows without local calibration and this is not disturbed by typical daily, weekly or seasonal fluctuations either.

The higher purchase price compared with ISE probes will pay for itself in no more than one or two years of operation, and the many subsequent years of operation are characterised by problem-free, practically free-of-charge measurement, free of worries. You will soon no longer think about the nitro::lyser™ at all, while the measurement values, on the other hand, will become the basis of your day-to-day work which you take for granted.

Comparison of various methods for monitoring NO₃-N

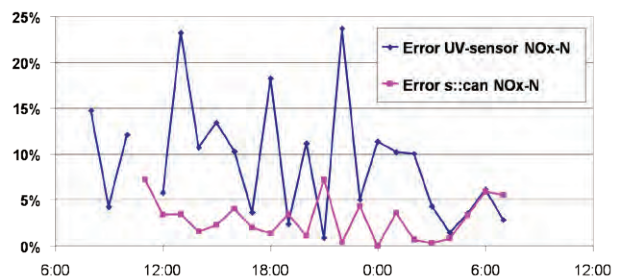
| | Spectrometric | Photometric | ISE |
|--------------------|---------------|-------------|------|
| Accuracy | ★★★★★ | ★★★ | ★★ |
| Stability (drift) | ★★★★★ | ★★★★ | ★ |
| Calibration effort | ★★★★★ | ★★★★ | ★ |
| Maintenance effort | ★★★★★ | ★★★★ | ★★★ |
| Purchase costs | ★★ | ★★★★ | ★★★★ |
| Operating costs | ★★★★★ | ★★★★ | ★ |

Conventional solutions

Nitrate is hardly ever measured these days with cabinet analysers since these also create disadvantages (hydraulic sampling, reagent consumption, maintenance effort etc.) and, in any case, recognised alternative methods exist.

Optical probes have been successful and have found acceptance globally, so today there is generally no longer any real reason to use a cabinet analyser for monitoring of nitrate.

Ion-selective (ISE) probes have also recently experienced a renaissance in nitrate measurement based on the lower purchase prices. However, by contrast with ammonium, the nitrate membranes available today are not so practical in use because they require more maintenance and are subject to more drift, re-calibration, and exchanges. In any event, today the ISE method is not suitable for WWTP compliance monitoring or even NO₃ monitoring in fresh waters because it is subject to strong drift especially visible at lower concentration levels. However, ISE probes are increasingly being offered as an alternative to control nutrient removal processes, often in combination with ammonium. The capital purchase price advantage compared with optical probes is striking only for a very short period. After just two years of operation the advantage is already lost because of the cost of consumables, and efforts required for calibration and electrode changing. After 10 years of operation, an ISE probe will have cost about two to three times as much in total as an optical probe, considering the total of maintenance hours and consumables.



© s::can Messtechnik GmbH

The s::can solution

s::can has achieved a breakthrough and can offer nitrite measurement, also in combination with nitrate and COD in a single probe, which correlates perfectly with the reference methods.

This opens up fundamentally new prospects both for treatment plant operators in their control and monitoring of nutrient removal, and for ecologists in their monitoring of the emission situation - NO₂-N is a poison dangerous to fish. The presence and fluctuation of nitrite concentration are always very informative indicators of disturbances to biological processes, i.e. presence of inhibitors.

For the first time, the combination of COD or TOC, nitrate and nitrite in a single probe for the operation and control of a treatment plant (see adjacent diagram) allows complete and detailed interpretation of the nutrient removal process.

The ammo::lyser™ is a third generation ion-selective (ISE) probe.

It is not just the concentration of NH₄-N in aqueous solution that is recorded but also the potassium concentration and the pH value thus allowing most interferences to be eliminated in a range of concentration of 0.1 to 1,000 mg/l. Optionally, a NO₃-N electrode can be added at elevated concentration levels of NO₃-N.

The expected effort and cost of installation, maintenance and consumables is considerably reduced with using the s::can ammo::lyser™, compared to cabinet analysers and investment costs are also lower by an entire order of magnitude.

With regard to the controller terminal, software, compressed air cleaning and interfaces, the ammo::lyser™ is fully integrated into s::can measuring systems, so it is simply connected to existing s::can systems and it can start measuring – the s::can “plug-and-measure” principle.

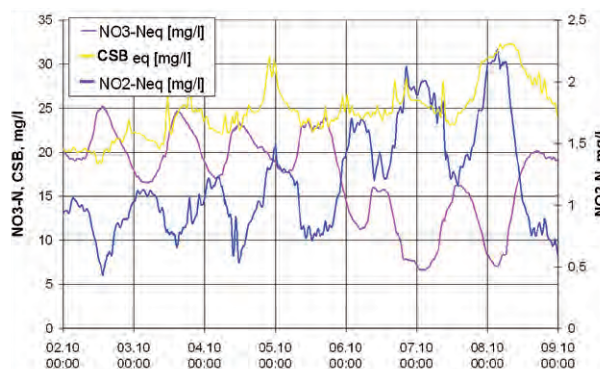
The ammo::lyser™ has several core distinguishing features compared with the ISE ammonium probes of other manufacturers:

Free of interference?

The ammo::lyser™ compensates fully for any interference with the ISE ammonium measurement. The superior features of the ammo::lyser™ are to be found in the use of the most highly-developed membranes and in the application of today's most advanced algorithms and calibration methods.

Conventional solutions

Until recently nitrite was measured almost exclusively by laborious colorimetric methods using analyser cabinets. Here for example azo dye is added and measurement is done photometrically after the reaction. The disadvantages already mentioned (mechanical sampling, reagent consumption, maintenance effort, environmental pollution, costs etc.) in principle also apply to nitrite analysers. Because of this effort and expense the measurement of nitrite has not been widely used to date although many applications would benefit from the availability of this parameter..



Ammonium is today still often measured with conventional cabinet analysers.

The disadvantages already mentioned (mechanical sampling, reagent consumption, maintenance effort, environmental pollution, costs etc.) in principle also apply to ammonium analysers.

Here the potentiometric measurement principle is mostly used i.e. conversion into the gaseous phase as ammonia and measurement with a gas-sensitive NH₃ electrode. Lately, ammonium was also measured in the gaseous phase by the spectrometric method.

In both cases the conversion to the gaseous phase is achieved with effort, expense, uncertainty and some environmental pollution.

Following the great success of the s::can ammo::lyser™, users worldwide have once more found confidence in ISE technology. For example, in 2007 more than 100 sewage works were fitted out in England alone. As a result, other manufacturers have recently produced other ISE probes which show similarities with the s::can ammo::lyser™ in some cases.

However you should test and compare the original s::can ammo::lyser™ so that you can judge its superiority for yourself. Contact your s::can sales partner to arrange a test!

The s::can solution

Factory calibration?

With the introduction of innovative calibration methods and new chemometric models as well as with the storage of all data and models “on board” the ammo::lyser™, previously unattainable precise and accurate measurements ex factory have become possible without initialising calibration.

Precise and accurate enough, even for compliance monitoring and fresh waters ?

The measurement performance of the ammo::lyser™ is unbeaten in all areas of applications, but in particular in applications with both low ammonium concentrations and high relative salt content with its potential for interference: this applies from nutrient removal control on WWTPs, compliance monitoring in WWTP effluents through to the monitoring of fresh water bodies . The s::can ammo::lyser™ has been able to come out ahead in all comparison tests to date – ask us for the details!

Cleaning/rinsing integrated?

Connect to the local compressed air source and it's done. The proven automatic compressed air cleaning is always integrated ex works.

Lowest operating costs?

The suggested infrequent exchange of individual membranes is easily possible with the s::can ammo::lyser™. In the aeration tank you normally only need to change the NH4 membrane once or twice a year. In WWTP effluents – for compliance monitoring - and in fresh waters the exchange might be wanted slightly more frequently.

The operating costs for the ammo::lyser™ are a fraction of those of other manufacturers since you can always exchange a single membrane and only when really needed

Conventional solutions

Most other ISE instruments on the market must be calibrated for initialisation or “adjusted to the medium” and this procedure has to be repeated significantly more often in operation than with the ammo::lyser™.

ISE instruments other than the ammo::lyser™ have to date not been successful in the difficult concentration range below 0.3 mg/l. Apart from probably the best membranes on the market we also offer you the experience with applications that is required to deal with this low concentration range, and to keep it stable over long periods of time.

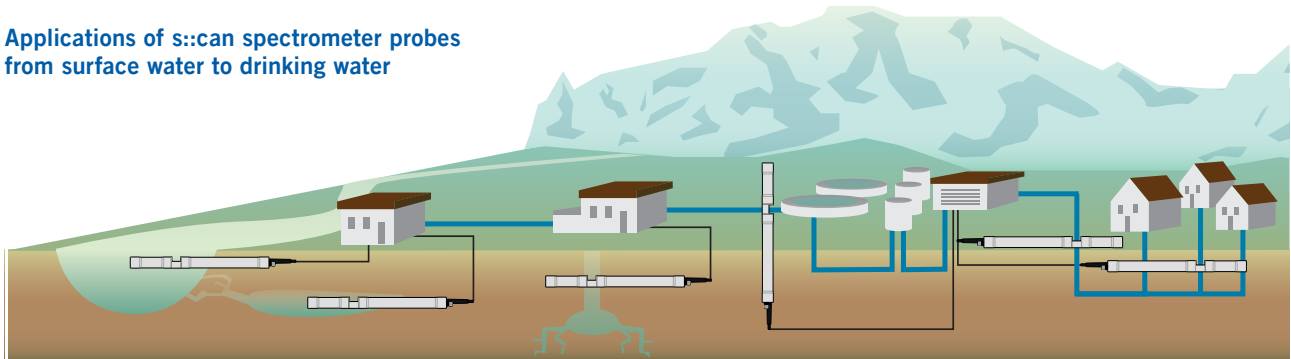
Either an automatic cleaning device is not available at all or you have to pay extra for this important feature.

With other instruments on the market, once you have discovered that the membrane is worn out you have to replace the entire electrode each time or possibly even a cartridge containing all the electrodes. As a result the annual costs are several times those of the ammo::lyser™.

Our tip:

Ask your manufacturer to give you a guarantee for the operating costs over extended periods of time !

Applications of s::can spectrometer probes from surface water to drinking water



River monitoring

- Alarm systems
- Early warning system
- Turbidity
- UV254 (280, 436 etc.)
- TOC
- DOC
- NO3-N
- Hydrocarbons
- NH4-N
- pH
- EC
- ORP
- O2

Monitoring of bank filtration

- Filter efficiency
- Monitoring of turbidity incl. colloids
- Alarms at specific and non-specific exceedance
- Turbidity
- TOC
- DOC
- NO3-N
- Hydrocarbons
- NH4-N
- pH
- EC
- O2

Spring monitoring

- General suitability for drinking water
- Turbidity
- Alarms
- TOC
- DOC
- NO3-N
- Hydrocarbons
- NH4-N
- H2S
- pH
- EC
- O2
- BTX
- NO2-N

Monitoring, operation and control of the treatment plant

- Turbidity
- TOC
- DOC
- Ozone
- Change of OC at Oxidation
- Oxidation-products
- Filter efficiency
- Flocculants / turb. / OC
- NO3-N
- Various single substances
- Spectral tracing
- NH4-N
- F-
- Free Chlorine
- pH
- ORP

Monitoring of distribution network

- TOC
- DOC
- NO3
- Turbidity
- Hygienical risk
- Single substance alarm
- UV254
- Free Chlorine
- O2

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s::can
Intelligent. Optical. Online.

Spectrometer Probes



spectro::lyser



carbo::lyser installed in a buoy

Spectrometer probes

“Why do we measure”

To quantify the concentration of organic substances in drinking water and natural waters usually sum parameters such as TOC, DOC or SAC are used. These sum parameters can be used because the total organics is composed of a multitude of substances.

As organic substances are on the one hand a source of food for micro-organisms and on the other hand they can be harmful themselves, their removal is an essential step in water treatment. The s::can carbo::lyser™ is used to continuously monitor the individual processes, such as adsorption and flocculation, used for removal of natural organics. Furthermore, the instrument is used in online alarm systems to monitor the drinking water distribution network. Typically, in both applications the turbidity, also provided by the carbo::lyser™, is used as an additional principal indicator for water quality.

The spectro::lyser™, which can measure the entire absorption spectrum, is used by many drinking water utilities worldwide as a pivotal component in their raw water monitoring. The spectro::lyser™ its capability to measure and analyse the absorption spectrum in its entirety allows the detection of a multitude of organic substances, and provide the best possible drinking water security when used to control ground, source and surface waters.

The benefits of using a spectro::lyser™ or multi::lyser™ are even higher as the much greater information content of the data provided by these instruments: two different fractions of the organics can be distinguished (TOC, DOC) and simultaneously the levels of turbidity, nitrate and colour can be determined in a single measurement.

In ground water high nitrate concentrations are the primary source of public health risks. When producing drinking water from such sources it is necessary to reduce the nitrate concentration in the water. Here the nitro::lyser™ is used both in the control of such processes (for example mixing of water from different sources or insitu nitrate removal) and in the monitoring of the raw water quality.

The spectro::lyser™ can go one step further and resolve nitrate and nitrite concentrations separately. As nitrite is extremely toxic for most aquatic organisms, this feature of the spectro::lyser™ allows the real-time detection of conditions that endanger the ecosystems in surface waters.

The spectrum of applications of the spectro::lyser™ in drinking water and natural waters is completed by online measurements of ozone (disinfection of drinking water), hydrogen sulphide (anoxic raw waters), disinfection by-product formation (drinking water) and single substances (for example benzene, toluene, xylene) in customer specific applications (e.g. contaminated ground water).

The use of “delta spectroscopy”, the capability to determine many parameters simultaneously and the use of the spectral alarm software ana::alarm makes the spectro::lyser™ an ideal tool for drinking water protection. As pivotal monitoring instrument in water quality stations the spectro::lyser™ detects potential threats to drinking water quality and security in real time.

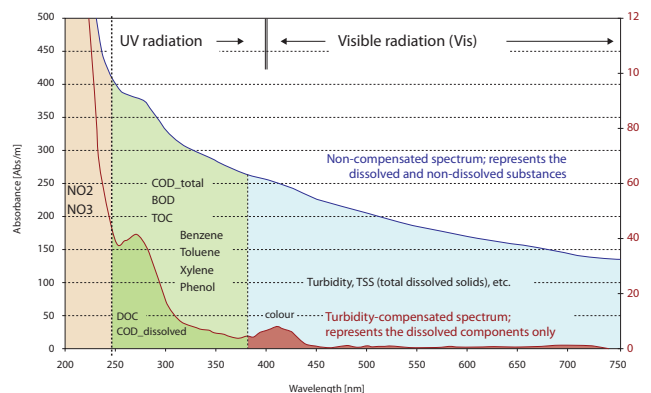


fig. 1 : “fingerprint” absorption spectra

Spectrometer probes

“How do we measure”

All s::can spectrometer probes are multi-parameter instruments that can measure multiple water quality parameters continuously (OnLine) and directly in the water without the need for complex and maintenance intensive sample pre-treatment.

The most important versions of the spectrometer probe are the nitro::lyser™ (nitrate and turbidity/solids), the uv::lyser (UV254 and turbidity/solids), the carbo::lyser™ (COD/TOC/UV254/DOC and turbidity/solids), the multi::lyser™ (nitrate and COD/TOC/UV254/DOC and turbidity/solids) and the versatile spectro::lyser™ (nitrate, solids/turbidity, total and dissolved organics).

As all s::can instruments the spectrometer probes can be operated according to the “plug & measure” principle. With a simple plug connection, which provides power supply and data communication, the s::can sensors are connected to an s::can terminal and are ready for use. All s::can spectrometer probes are pre-calibrated ex works - specific Global Calibrations are available for a large number of standardised applications. The “plug & measure” principle avoids complex installation procedures on site and thus does not only save time during initial operation, but also reduces avoidable errors.

The highly optimised design completely eliminates all moving parts in contact with the water as well as consumables. This reduces failures, spare part costs and maintenance dramatically. For s::can spectrometer probes we guarantee replacement of spare parts free of charge for the first three years after delivery (upon presenting the warranty card).

Using standardised mounting devices s::can spectrometer probes can be installed quickly and effortlessly, either submersed (InSitu) or in a flow through setup (Bypass, monitoring station).

s::can spectrometer probes utilise an automatic cleaning system that uses compressed air for removal of fouling. This system has proven highly efficient and reliable, even in untreated wastewater. Because of this, regular manual cleaning of the optical windows is not required, thus significantly reducing maintenance for the operator.

Like all other s::can instruments the s::can spectrometer probes are intelligent instruments - using software controlled procedures it is even possible to identify any fouling on the measuring windows.

The s::can spectrometer instruments are fully capable spectrometers in the shape of a probe. In the measuring section, which is positioned between emitting and receiving units, the emitted light passes through the medium to be analysed. Substances present in the medium located in between the measuring windows of the probe adsorb visible and UV light. Internally a second light beam is guided across a comparison pathway. This two beam setup (see figure 2) makes it possible to compensate, with each single measurement, any instrumental effects that could influence the quality of the measurement (e.g. ageing of the light source)

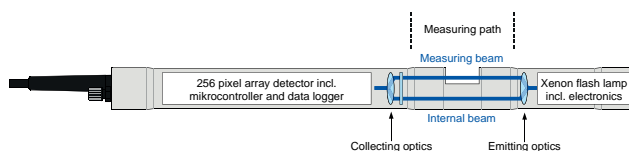


fig. 2: measuring path

s::can spectrometer probes record the complete absorbance spectrum between 190 and 720 nm (UV-Vis) or 190 - 390 nm (UV) resolving it into 256 wavelengths - the result is the “Fingerprint” (absorbance spectrum, see figure 1). Using the information contained in the fingerprint it is possible to monitor multiple parameters simultaneously and at the same time compensate these parameters for possible cross-sensitivities. The correlation with laboratory results reaches a quality that was unknown from the previously used simple optical instruments. Global Calibrations calculate the concentrations of multiple parameters from the Fingerprint and are available as application specific factory settings. Through the Global Calibrations each user benefits from many years of experience in applications similar to his own - in most cases no local calibration on site is required.

s::can spectrometer probes use no replaceable parts or consumables. Therefore, when operated properly there will be no costs for spare parts at all.

Its unrivalled measurement features in combination with the lowest possible total costs - initial cost and foreseeable operational costs - make the s::can spectrometer probe the most attractive solution available today.

spectro::lyser™

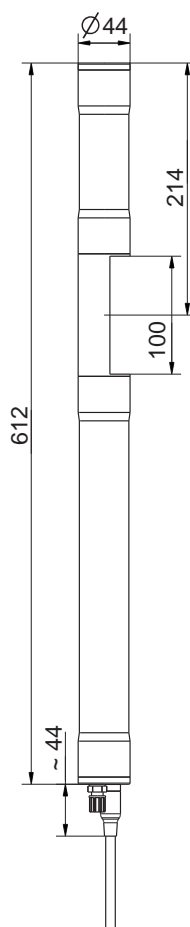
spectro::lyser™ UV monitors depending on the application an individual selection of: TSS (est), turbidity (est) NO₃-N, COD, BOD, TOC, UV254, NO₂-N, BTX, fingerprints and spectral alarms, temperature and pressure

spectro::lyser™ UV-Vis monitors depending on the application an individual selection of: TSS, turbidity, NO₃-N, COD, BOD, TOC, DOC, UV254, color, BTX, O₃, HS-, AOC, fingerprints and spectral alarms, temperature and pressure

- s::can plug & measure
- measuring principle: UV-Vis spectrometry over the total range (190-750 nm or 190-390 nm)
- multiparameter probe with adjustable open path length
- ideal for surface water, ground water, drinking water and waste water
- long term stable and maintenance free in operation
- factory precalibrated, local multi-point calibration possible
- automatic cleaning with compressed air or brush/ruck::sack
- mounting and measurement directly in the media (InSitu) or in a flow cell (monitoring station)
- operation via s::can terminals & s::can software
- robust and precise adaption of optical path lengths to 35 mm, 15 mm or 5 mm possible
- easy mounting without clogging

recommended accessories

| part number | article name |
|---------------|---|
| A-005-s | Inserts for optical pathlength 5 mm, stainless steel |
| A-015-s | Inserts for optical pathlength 15 mm, stainless steel |
| B-32-xxx | s::can compressor |
| B-44 | cleaning valve |
| B-44-2 | |
| D-315-xxx | con::cube |
| F-120-spectro | carrier s::can™ spectrometer probe |
| F-446-2 | flow cell autobrush - for spectro::lyser™ pathlength 100 mm |
| S-11-xx-moni | moni::tool Software |



technical specification

| | |
|--|---|
| measuring principle | UV-Vis spectrometry 190 - 750 nm UV spectrometry 190 - 390 nm |
| measuring principle detail | xenon flash lamp, 256 photo diodes |
| automatic compensation instrument | two beam measurement, complete spectrum |
| automatic compensation cross sensitivities | turbidity / solids / organic substances |
| precalibrated ex-works | all parameters |
| accuracy standard solution (>1 mg/l) | NO ₃ -N: +/- 2% +1/OPL[mg/l]* COD-KHP: +/-2% +10/OPL[mg/l]* (* OPL ... optical pathlength in mm) |
| access to raw signals | access to spectral information |
| reference standard | distilled water |
| onboard memory | 656 KB |
| integrated temperature sensor | -10 ... 50 °C |
| resolution temperature sensor | 0.1 °C |
| integrated pressure sensor (optional) | 0 ... 1,2/2/11 bar |
| resolution pressure sensor | 1:1000 of measuring range |
| integration via | con::cube con::lyte con::nect |
| power supply | 11 ... 15 VDC |
| power consumption (typical) | 4.2 W |
| power consumption (max.) | 20 W |
| interface to s::can terminals | MIL connector, RS485 |
| interface to third party terminals | con::nect incl. gateway modbusRTU |
| cable length | 7.5 m fixed cable (-075) or 1 m fixed cable (-010) |

| | |
|--|---|
| cable type | PU jacket |
| housing material | stainless steel 1.4404 |
| window material | optical path length 15 ... 0.5 mm: sapphire optional: optical path length 100 ... 5 mm: fused silica (UV-grade) |
| weight (min.) | 3.4 kg (incl. cable) |
| dimensions (Ø x l) | optical path length 100 mm: 44 x 612 mm / 656 mm optical path length 35 ... 0.5 mm: 44 x 547 mm / 591 mm |
| operating temperature | 0 ... 45 °C |
| storage temperature | -10 ... 50 °C |
| operating pressure | 0 ... 5 bar |
| high pressure specification (optional) | 10 bar |
| explosion proof specification (optional) | RL 2014/34/EU, TÜV-A16 ATEX 3001Q |
| installation / mounting | submersed or in a flow cell |
| flow velocity | 3 m/s (max.) |
| mechanical stability | 30 Nm |
| ingress protection class | IP68 |
| automatic cleaning | media: compressed air or autobrush permissible pressure: 3 ... 6 bar |
| conformity - EMC | EN 61326-1, EN 61326-2-3 |
| conformity - safety | EN 61010-1 |
| standard warranty | 2 years |
| extended warranty (optional) | 3 years |



ground water

| | | parameter | | | | | | | | | | | part number |
|---|------|------------------------|----------------------------|------------------------------|------------------------------|---------------|---------------|------------------|--------------------|---------------------------|---------------------------|----------------------------|--|
| | | turbidity [NTU/FTU] | turbidity est [NTU/FTU] | NO ₃ -N [mg/l] | NO ₂ -N [mg/l] | TOC [mg/l] | DOC [mg/l] | UV254 [Abs/m] | UV254 f [Abs/m] | color (app) [Hazen] | color (tru) [Hazen] | H ₂ S [mg/l] | |
| spectro::lyser™ UV (turbidity est, NO ₃ -N, TOC, UV254, NO ₂ -N) | min. | | 0 | 0 | 0 | 0 | | 0 | | | | | SP-2-035-p0-s-NO-010 / -075 (incl. Global Calibration g2) |
| | max. | | 85 | 20 | 5 | 20 | | 70 | | | | | |
| spectro::lyser™ UV-Vis (turbidity, NO ₃ -N, TOC, DOC, H2S) | min. | 0 | | 0 | | 0 | 0 | | | | | 0 | SP-1-035-p0-s-NO-010 / -075 (incl. Global Calibration g5) |
| | max. | 170 | | 20 | | 20 | 15 | | | | | 20 | |
| spectro::lyser™ UV-Vis (turbidity, NO ₃ -N, TOC, DOC, UV254, hazen) | min. | 0 | | 0 | | 0 | 0 | 0 | | 0 | 0 | | SP-1-035-p0-s-NO-010 / -075 (incl. Global Calibration g7) |
| | max. | 170 | | 20 | | 20 | 15 | 70 | | 300 | 200 | | |
| spectro::lyser™ UV-Vis (turbidity, NO ₃ -N, TOC, DOC, UV254, UV254f) | min. | 0 | | 0 | | 0 | 0 | 0 | 0 | | | | SP-1-035-p0-s-NO-010 / -075 (incl. Global Calibration g1) |
| | max. | 170 | | 20 | | 20 | 15 | 70 | 55 | | | | |

surface water

| | | parameter | | | | | | | | | | | part number |
|--|------|------------------------|----------------------------|------------------------------|------------------------------|---------------|---------------|------------------|--------------------|---------------------------|------------------------|--|--|
| | | turbidity [NTU/FTU] | turbidity est [NTU/FTU] | NO ₃ -N [mg/l] | NO ₂ -N [mg/l] | TOC [mg/l] | DOC [mg/l] | UV254 [Abs/m] | UV254 f [Abs/m] | color (app) [Hazen] | color (tru) [Hazen] | | |
| spectro::lyser™ UV (turbidity est, NO ₃ -N, TOC, UV254, NO ₂) | min. | | 0 | 0 | 0 | 0 | | 0 | | | | | SP-2-035-p0-s-NO-010 / -075 (incl. Global Calibration r2) |
| | max. | | 85 | 15 | 5 | 30 | | 70 | | | | | |
| spectro::lyser™ UV (turbidity est, NO ₃ -N, TOC, UV254, NO ₂) | min. | | 0 | 0 | 0 | 0 | | 0 | | | | | SP-2-015-p0-s-NO-010 / -075 (incl. Global Calibration r2) |
| | max. | | 200 | 35 | 15 | 60 | | 165 | | | | | |
| spectro::lyser™ UV (turbidity est, NO ₃ -N, TOC, UV254, NO ₂ -N) | min. | | 0 | 0 | 0 | 0 | | 0 | | | | | SP-2-005-p0-s-NO-010 / -075 (incl. Global Calibration r2) |
| | max. | | 600 | 100 | 40 | 180 | | 500 | | | | | |
| spectro::lyser™ UV-Vis (turbidity, NO ₃ -N, TOC, DOC, UV254, UV254f, hazen-f, hazen-t) | min. | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | | SP-1-035-p0-s-NO-010 / -075 (incl. Global Calibration r7) |
| | max. | 200 | | 15 | | 30 | 20 | 70 | 55 | 500 | 300 | | |
| spectro::lyser™ UV-Vis (turbidity, NO ₃ -N, TOC, DOC, UV254, UV254f, hazen-f, hazen-t) | min. | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | | SP-1-015-p0-s-NO-010 / -075 (incl. Global Calibration r7) |
| | max. | 465 | | 35 | | 60 | 45 | 165 | 135 | 1165 | 700 | | |
| spectro::lyser™ UV-Vis (turbidity, NO ₃ -N, TOC, DOC, UV254, UV254f, hazen-f, hazen-t) | min. | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | | SP-1-005-p0-s-NO-010 / -075 (incl. Global Calibration r7) |
| | max. | 1400 | | 100 | | 180 | 140 | 500 | 400 | 3500 | 2100 | | |

drinking water

| | | parameter | | | | | | | | | | | | part number |
|--|------|------------------------|----------------------------|------------------------------|------------------------------|---------------|---------------|------------------|--------------------|---------------|---------------------------|---------------------------|--------------------------|--|
| | | turbidity [NTU/FTU] | turbidity est [NTU/FTU] | NO ₃ -N [mg/l] | NO ₂ -N [mg/l] | TOC [mg/l] | DOC [mg/l] | UV254 [Abs/m] | UV254 f [Abs/m] | CLD [mg/l] | color (app) [Hazen] | color (tru) [Hazen] | O ₃ [mg/l] | |
| spectro::lyser™ UV (turbidity est, NO ₂ -N, NO ₃ -N, TOC, DOC, UV254) | min. | | 0 | 0 | 0 | 0 | | 0 | | | | | | SP-2-100-p0-sNO-010 / -075 (incl. Global Calibration d2) |
| | max. | | 30 | 7 | 2 | 8 | | 25 | | | | | | |
| spectro::lyser™ UV-Vis (turbidity, NO ₃ -N, TOC, DOC, UV254, UV254f, CLD) | min. | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | | | | SP-1-100-p0-s-NO-010 / -075 (incl. Global Calibration d3) |
| | max. | 60 | | 7 | | 8 | 6 | 25 | 20 | 8 | | | | |
| spectro::lyser™ UV-Vis (turbidity, NO ₃ -N, TOC, DOC, UV254, UV254f, O ₃) | min. | 0 | | 0 | | 0 | 0 | 0 | 0 | | | | 0 | SP-1-100-p0-s-NO-010 / -075 (incl. Global Calibration d5) |
| | max. | 60 | | 7 | | 8 | 6 | 25 | 20 | | | | 9 | |
| spectro::lyser™ UV-Vis (turbidity, NO ₃ -N, TOC, DOC, UV254, UV254f, hazen-f, hazen-t) | min. | 0 | | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | | SP-1-100-p0-s-NO-010 / -075 (incl. Global Calibration d7) |
| | max. | 60 | | 7 | | 8 | 6 | 25 | 20 | | 105 | 70 | | |

spectro::lyser™ titanium pro

spectro::lyser™ titanium pro monitors depending on the application an individual selection of: TSS, turbidity, NO₃-N, COD, BOD, TOC, DOC, UV254, NO₂-N, color, BTX, O₃, HS-, AOC, fingerprints, spectral alarms and temperature

- s::can plug & measure
- measuring principle: UV-Vis spectrometry over the total range (190-750 nm)
- ideal for desalination and sea water
- rugged design with titanium grade 2 housing
- factory precalibrated, with advanced calibration service included
- long term stable and maintenance free in operation
- automatic cleaning with compressed air or brush
- mounting and measurement directly in the media (InSitu) or in a flow cell (monitoring station)
- multiparameter probe with adjustable open path length
- adaption of optical path lengths to 35 mm, 5 mm, 2 mm or 0.5 mm possible



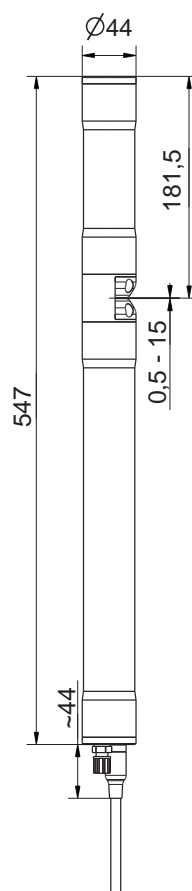
bis zu 10 bar
Betriebsdruck



bis zu 50 °C
Betriebstemperatur



widerstandsfähiges
Titan Grad 2



recommended accessories

| part number | article name |
|---------------|------------------------------------|
| B-32-xxx | s::can compressor |
| B-44 | cleaning valve |
| B-44-2 | |
| D-315-xxx | con::cube |
| F-120-spectro | carrier s::can™ spectrometer probe |
| S-11-xx-moni | moni::tool Software |

technical specification

| | | | |
|--|---|------------------------------------|--|
| measuring principle | UV-Vis spectrometry 190 - 750 nm UV spectrometry 190 - 390 nm | interface to third party terminals | con::nect incl. gateway modbusRTU |
| measuring principle detail | xenon flash lamp, 256 photo diodes | cable length | 7.5 m fixed cable (-075) or 1 m fixed cable (-010) |
| automatic compensation instrument | two beam measurement, complete spectrum | cable type | PU jacket |
| automatic compensation cross sensitivities | turbidity / solids / organic substances | housing material | titanium grade 2 (3.7035) |
| precalibrated ex-works | all parameters | window material | optical path length 5 ... 0.5 mm: sapphire optical path length 35 mm: fused silica (UV-grade) |
| accuracy standard solution (>1 mg/l) | NO ₃ -N: +/- 2% +1/OPL[mg/l]* COD-KHP: +/-2% +10/OPL[mg/l]* (* OPL ... optical pathlength in mm) | weight (min.) | 2.8 kg (incl. cable) |
| access to raw signals | access to spectral information | dimensions (Ø x l) | 44 mm x 547 mm / 591 mm |
| reference standard | distilled water | operating temperature | 0 ... 50 °C |
| onboard memory | 656 KB | storage temperature | -10 ... 50 °C |
| integrated temperature sensor | -10 ... 50 °C | operating pressure | 0 ... 10 bar |
| resolution temperature sensor | 0.1 °C | installation / mounting | submersed or in a flow cell |
| integration via | con::cube con::lyte con::nect | flow velocity | 3 m/s (max.) |
| power supply | 11 ... 15 VDC | mechanical stability | 30 Nm |
| power consumption (typical) | 4.2 W | ingress protection class | IP68 |
| power consumption (max.) | 20 W | automatic cleaning | media: compressed air or autobrush |
| interface to s::can terminals | MIL connector, RS485 | conformity - EMC | EN 61326-1, EN 61326-2-3 |
| | | conformity - safety | EN 61010-1 |
| | | standard warranty | 2 years |
| | | extended warranty (optional) | 3 years |

sea water

| | | parameter | | | | | | part number |
|---|------|------------------------|------------------------------|---------------|---------------|------------------|--------------------|--|
| | | turbidity [NTU/FTU] | NO ₃ -N [mg/l] | TOC [mg/l] | DOC [mg/l] | UV254 [Abs/m] | UV254 f [Abs/m] | |
| spectro::lyser™ UV-Vis (Turbidity, TOC, DOC, NO ₃ -N) | min. | 0 | 0 | 0 | 0 | 0 | 0 | SP-1-015-p0-s-TI-010 / -075 (incl. Global Calibration o1) |
| | max. | 400 | 45 | 60 | 45 | 165 | 140 | |
| spectro::lyser™ UV-Vis (Turbidity, TOC, DOC, NO ₃ -N) | min. | 0 | 0 | 0 | 0 | 0 | 0 | SP-1-035-p0-s-TI-010 / -075 (incl. Global Calibration o1) |
| | max. | 170 | 20 | 25 | 20 | 70 | 60 | |
| spectro::lyser™ UV-Vis (Turbidity, TOC, DOC, NO ₃ -N) | min. | 0 | 0 | 0 | 0 | 0 | 0 | SP-1-005-p0-s-TI-010 / -075 (incl. Global Calibration o1) |
| | max. | 1200 | 140 | 180 | 140 | 500 | 420 | |

carbo::lyser™ II / III

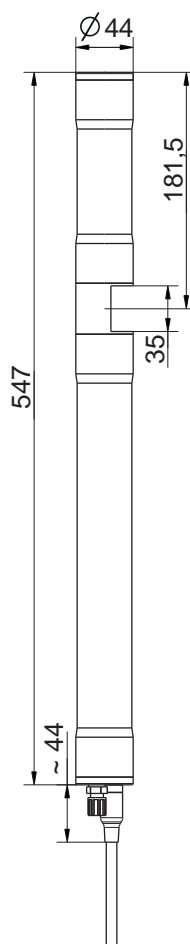
carbo::lyser™ II monitors Turbidity & one organic parameter (TOC, DOC, UV254 or UV254 f)

carbo::lyser™ III monitors Turbidity & TOC & DOC or Turbidity & UV254 & UV254 f

- s::can plug & measure
- measuring principle: UV-Vis spectrometry over the total range (190-720 nm)
- multiparameter probe with adjustable open path length
- ideal for surface water, ground water, drinking water and waste water
- long term stable and maintenance free in operation
- factory precalibrated, local multi-point calibration possible
- automatic cleaning with compressed air
- mounting and measurement directly in the media (InSitu) or in a flow cell (monitoring station)
- operation via s::can terminals & s::can software
- robust and precise adaption of optical path lengths to 35 mm, 15 mm or 5 mm possible
- easy mounting without clogging

recommended accessories

| part number | article name |
|---------------|--|
| A-005-s | Inserts for optical pathlength 5 mm, stainless steel |
| A-015-s | Inserts for optical pathlength 15 mm, stainless steel |
| B-32-xxx | s::can compressor |
| B-44 | cleaning valve |
| B-44-2 | |
| B-61-1 | cleaning agent |
| D-315-xxx | con::cube |
| D-320-xxx | con::lyte |
| F-110-spectro | carrier s::can™ spectrometer probe |
| F-120-spectro | carrier s::can™ spectrometer probe |
| F-445-1 | flow cell - for pathlengths from 0.5 mm to 35 mm |
| F-446-1 | flow cell autobrush - for spectro::lyser™ pathlength 35 mm |
| S-11-xx-moni | moni::tool Software |



| technical specification | | | |
|--|---|--|---|
| measuring principle | UV-Vis spectrometry 190 - 750 nm | cable length | 7.5 m fixed cable (-075) or 1 m fixed cable (-010) |
| measuring principle detail | xenon flash lamp, 256 photo diodes | cable type | PU jacket |
| automatic compensation instrument | two beam measurement, complete spectrum | housing material | stainless steel 1.4404 |
| automatic compensation cross sensitivities | turbidity / solids | window material | optical path length 15 ... 0.5 mm: sapphire optional: optical path length 100 ... 5 mm: fused silica (UV-grade) |
| precalibrated ex-works | all parameters | weight (min.) | 3.4 kg (incl. cable) |
| accuracy standard solution (>1 mg/l) | NO ₃ -N: +/- 3% +1/OPL[mg/l]* COD-KHP: +/-3% +10/OPL[mg/l]* (* OPL ... optical pathlength in mm) | dimensions (Ø x l) | 44 mm x 547 mm / 591 mm |
| access to raw signals | no | operating temperature | 0 ... 45 °C |
| reference standard | distilled water | storage temperature | -10 ... 50 °C |
| onboard memory | 656 KB | operating pressure | 0 ... 5 bar |
| integrated temperature sensor | -10 ... 50 °C | high pressure specification (optional) | 10 bar |
| resolution temperature sensor | 0.1 °C | installation / mounting | submersed or in a flow cell |
| integrated pressure sensor (optional) | 0 ... 1,2/2/11 bar | flow velocity | 3 m/s (max.) |
| resolution pressure sensor | 1:1000 of measuring range | mechanical stability | 30 Nm |
| integration via | con::cube con::lyte con::nect | ingress protection class | IP68 |
| power supply | 11 ... 15 VDC | automatic cleaning | media: compressed air or autobrush permissible pressure: 3 ... 6 bar |
| power consumption (typical) | 4.2 W | conformity - EMC | EN 61326-1, EN 61326-2-3 |
| power consumption (max.) | 20 W | conformity - safety | EN 61010-1 |
| interface to s::can terminals | MIL connector, RS485 | standard warranty | 2 years |
| interface to third party terminals | con::nect incl. gateway modbusRTU | extended warranty (optional) | 3 years |

| surface water | | | | | | | |
|--|------|---------------------|------------|------------|---------------|-----------------|-----------------------------|
| | | parameter | | | | | |
| | | turbidity [NTU/FTU] | TOC [mg/l] | DOC [mg/l] | UV254 [Abs/m] | UV254 f [Abs/m] | part number |
| carbo::lyser™ II (TSS, COD) | min. | 0 | | | | 0 | C2-r-005-p0-s-N0-010 / -075 |
| | max. | 1400 | | | | 400 | |
| carbo::lyser™ II (turbidity, DOC) | min. | 0 | | 0 | | | C2-r-005-p0-s-N0-010 / -075 |
| | max. | 1400 | | 140 | | | |
| carbo::lyser™ II (turbidity, TOC) | min. | 0 | 0 | | | | C2-r-005-p0-s-N0-010 / -075 |
| | max. | 1400 | 180 | | | | |
| carbo::lyser™ II (turbidity, UV254) | min. | 0 | | | 0 | | C2-r-005-p0-s-N0-010 / -075 |
| | max. | 1400 | | | 500 | | |
| carbo::lyser™ II (turbidity, UV254f) | min. | 0 | | | | 0 | C2-r-005-p0-s-N0-010 / -075 |
| | max. | 1400 | | | | 400 | |
| carbo::lyser™ III (turbidity, TOC, DOC) | min. | 0 | 0 | 0 | | | C3-r-005-p0-s-N0-010 / -075 |
| | max. | 1400 | 180 | 140 | | | |
| carbo::lyser™ III (turbidity, UV254, UV254f) | min. | 0 | | | 0 | 0 | C3-r-005-p0-s-N0-010 / -075 |
| | max. | 1400 | | | 500 | 400 | |

| drinking water | | | | | | | |
|--|------|---------------------|------------|------------|---------------|-----------------|-----------------------------|
| | | parameter | | | | | |
| | | turbidity [NTU/FTU] | TOC [mg/l] | DOC [mg/l] | UV254 [Abs/m] | UV254 f [Abs/m] | part number |
| carbo::lyser™ II (turbidity, DOC) | min. | 0 | | 0 | | | C2-d-035-p0-s-N0-010 / -075 |
| | max. | 170 | | 15 | | | |
| carbo::lyser™ II (turbidity, TOC) | min. | 0 | 0 | | | | C2-d-035-p0-s-N0-010 / -075 |
| | max. | 170 | 20 | | | | |
| carbo::lyser™ II (turbidity, UV254) | min. | 0 | | | 0 | | C2-d-035-p0-s-N0-010 / -075 |
| | max. | 170 | | | 70 | | |
| carbo::lyser™ II (turbidity, UV254f) | min. | 0 | | | | 0 | C2-d-035-p0-s-N0-010 / -075 |
| | max. | 170 | | | | 55 | |
| carbo::lyser™ III (turbidity, TOC, DOC) | min. | 0 | 0 | 0 | | | C3-d-035-p0-s-N0-010 / -075 |
| | max. | 170 | 20 | 15 | | | |
| carbo::lyser™ III (turbidity, UV254, UV254f) | min. | 0 | | | 0 | 0 | C3-d-035-p0-s-N0-010 / -075 |
| | max. | 170 | | | 70 | 55 | |

multi::lyser

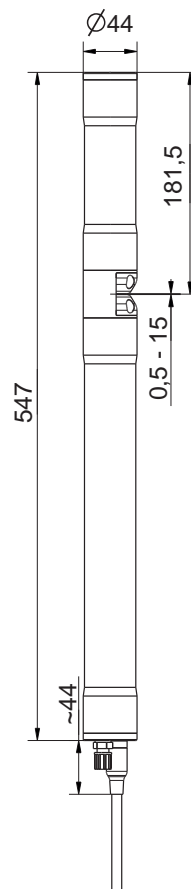
multi::lyser™ II monitors NO₃-N & one organic parameter (COD, BOD, TOC, DOC or UV254)

multi::lyser™ III monitors turbidity / TSS & NO₃-N & one organic parameter (COD, BOD, TOC, DOC or UV254)

- s::can plug & measure
- measuring principle: UV-Vis spectrometry over the total range (190-720 nm)
- multiparameter probe with adjustable open path length
- ideal for surface water, ground water, drinking water and waste water
- long term stable and maintenance free in operation
- factory precalibrated, local multi-point calibration possible
- automatic cleaning with compressed air
- mounting and measurement directly in the media (InSitu) or in a flow cell (monitoring station)
- operation via s::can terminals & s::can software
- robust and precise adaption of optical path lengths to 35 mm, 15 mm or 5 mm possible
- easy mounting without clogging

recommended accessories

| part number | article name |
|---------------|--|
| A-005-s | Inserts for optical pathlength 5 mm, stainless steel |
| A-015-s | Inserts for optical pathlength 15 mm, stainless steel |
| B-32-xxx | s::can compressor |
| B-44 | cleaning valve |
| B-44-2 | |
| B-61-1 | cleaning agent |
| D-315-xxx | con::cube |
| F-110-spectro | carrier s::can™ spectrometer probe |
| F-120-spectro | carrier s::can™ spectrometer probe |
| F-445-1 | flow cell - for pathlengths from 0.5 mm to 35 mm |
| F-446-1 | flow cell autobrush - for spectro::lyser™ pathlength 35 mm |
| S-11-xx-moni | moni::tool Software |



technical specification

| | | | |
|---|---|---|---|
| measuring principle | UV-Vis spectrometry 190 - 750 nm | cable length | 7.5 m fixed cable (-075) or 1 m fixed cable (-010) |
| measuring principle detail | xenon flash lamp, 256 photo diodes | cable type | PU jacket |
| automatic compensation instrument | two beam measurement, complete spectrum | housing material | stainless steel 1.4404 |
| automatic compensation cross sensitivities | turbidity / solids / organic substances | window material | optical path length 15 ... 0.5 mm: sapphire optional: optical path length 100 ... 5 mm: fused silica (UV-grade) |
| precalibrated ex-works | all parameters | weight (min.) | 3.4 kg (incl. cable) |
| accuracy standard solution (>1 mg/l) | NO ₃ -N: +/- 3% +1/OPL[mg/l]* COD-KHP: +/-3% +10/OPL[mg/l]* (* OPL ... optical pathlength in mm) | dimensions (Ø x l) | 44 mm x 547 mm / 591 mm |
| access to raw signals | no | operating temperature | 0 ... 45 °C |
| reference standard | distilled water | storage temperature | -10 ... 50 °C |
| onboard memory | 656 KB | operating pressure | 0 ... 5 bar |
| integrated temperature sensor | -10 ... 50 °C | high pressure specification (optional) | 10 bar |
| resolution temperature sensor | 0.1 °C | installation / mounting | submersed or in a flow cell |
| integrated pressure sensor (optional) | 0 ... 1,2/2/11 bar | flow velocity | 3 m/s (max.) |
| resolution pressure sensor | 1:1000 of measuring range | mechanical stability | 30 Nm |
| integration via | con::cube con::lyte con::nect | ingress protection class | IP68 |
| power supply | 11 ... 15 VDC | automatic cleaning | media: compressed air or autobrush permissible pressure: 3 ... 6 bar |
| power consumption (typical) | 4.2 W | conformity - EMC | EN 61326-1, EN 61326-2-3 |
| power consumption (max.) | 20 W | conformity - safety | EN 61010-1 |
| interface to s::can terminals | MIL connector, RS485 | standard warranty | 2 years |
| interface to third party terminals | con::nect incl. gateway modbusRTU | extended warranty (optional) | 3 years |

surface water

| | | parameter | | | | | | part number |
|--|------|------------------------|------------------------------|---------------|---------------|------------------|--------------------|-----------------------------|
| | | turbidity [NTU/FTU] | NO ₃ -N [mg/l] | TOC [mg/l] | DOC [mg/l] | UV254 [Abs/m] | UV254 f [Abs/m] | |
| multi::lyser™ II (NO ₃ -N, DOC) | min. | 0 | 0 | | 0 | | | M2-r-005-p0-s-NO-010 / -075 |
| | max. | 1400 | 100 | | 140 | | | |
| multi::lyser™ II (NO ₃ -N, TOC) | min. | 0 | 0 | 0 | | | | M2-r-005-p0-s-NO-010 / -075 |
| | max. | 1400 | 100 | 180 | | | | |
| multi::lyser™ II (NO ₃ -N, UV254) | min. | 0 | 0 | | | 0 | | M2-r-005-p0-s-NO-010 / -075 |
| | max. | 1400 | 100 | | | 500 | | |
| multi::lyser™ II (NO ₃ -N, UV254f) | min. | 0 | 0 | | | | 0 | M2-r-005-p0-s-NO-010 / -075 |
| | max. | 1400 | 100 | | | | 400 | |
| multi::lyser™ III (turbidity, NO ₃ -N, TOC) | min. | 0 | 0 | 0 | | | | M3-r-005-p0-s-NO-010 / -075 |
| | max. | 1400 | 100 | 180 | | | | |
| multi::lyser™ III (turbidity, NO ₃ -N, UV254) | min. | 0 | 0 | | | 0 | | M3-r-005-p0-s-NO-010 / -075 |
| | max. | 1400 | 100 | | | 500 | | |
| multi::lyser™ III (turbidity, NO ₃ -N, UV254f) | min. | 0 | 0 | | | | 0 | M3-r-005-p0-s-NO-010 / -075 |
| | max. | 1400 | 100 | | | | 400 | |

drinking water

| | | parameter | | | | | | part number |
|--|------|------------------------|------------------------------|---------------|---------------|------------------|--------------------|-----------------------------|
| | | turbidity [NTU/FTU] | NO ₃ -N [mg/l] | TOC [mg/l] | DOC [mg/l] | UV254 [Abs/m] | UV254 f [Abs/m] | |
| multi::lyser™ II (NO ₃ -N, DOC) | min. | 0 | 0 | | 0 | | | M2-d-035-p0-s-NO-010 / -075 |
| | max. | 170 | 20 | | 15 | | | |
| multi::lyser™ II (NO ₃ -N, TOC) | min. | 0 | 0 | 0 | | | | M2-d-035-p0-s-NO-010 / -075 |
| | max. | 170 | 20 | 20 | | | | |
| multi::lyser™ II (NO ₃ -N, UV254) | min. | 0 | 0 | | | 0 | | M2-d-035-p0-s-NO-010 / -075 |
| | max. | 170 | 20 | | | 70 | | |
| multi::lyser™ II (NO ₃ -N, UV254f) | min. | 0 | 0 | | | | 0 | M2-d-035-p0-s-NO-010 / -075 |
| | max. | 170 | 20 | | | | 55 | |
| multi::lyser™ III (turbidity, NO ₃ -N, DOC) | min. | 0 | 0 | | 0 | | | M3-d-035-p0-s-NO-010 / -075 |
| | max. | 170 | 20 | | 15 | | | |
| multi::lyser™ III (turbidity, NO ₃ -N, TOC) | min. | 0 | 0 | 0 | | | | M3-d-035-p0-s-NO-010 / -075 |
| | max. | 170 | 20 | 20 | | | | |
| multi::lyser™ III (turbidity, NO ₃ -N, UV254) | min. | 0 | 0 | | | 0 | | M3-d-035-p0-s-NO-010 / -075 |
| | max. | 170 | 20 | | | 70 | | |
| multi::lyser™ III (turbidity, NO ₃ -N, UV254f) | min. | 0 | 0 | | | | 0 | M3-d-035-p0-s-NO-010 / -075 |
| | max. | 170 | 20 | | | | 55 | |

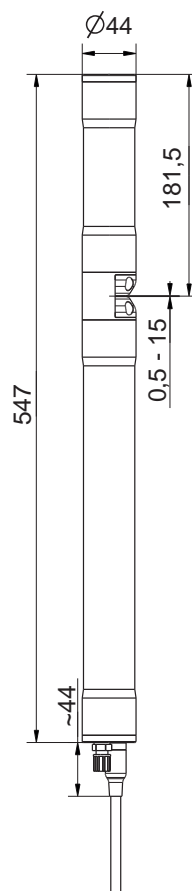
nitro::lyser™ II

nitro::lyser™ II monitors TSS & NO₃-N or turbidity & NO₃-N

- s::can plug & measure
- measuring principle: UV-Vis spectrometry over the total range (190-720 nm)
- multiparameter probe with adjustable open path length
- ideal for surface water, ground water, drinking water and waste water
- long term stable and maintenance free in operation
- factory precalibrated, local multi-point calibration possible
- automatic cleaning with compressed air
- mounting and measurement directly in the media (InSitu) or in a flow cell (monitoring station)
- operation via s::can terminals & s::can software
- robust and precise adaption of optical path lengths to 35 mm, 15 mm or 5 mm possible
- easy mounting without clogging

recommended accessories

| part number | article name |
|---------------|--|
| A-005-s | Inserts for optical pathlength 5 mm, stainless steel |
| A-015-s | Inserts for optical pathlength 15 mm, stainless steel |
| B-32-xxx | s::can compressor |
| B-44 | cleaning valve |
| B-44-2 | |
| B-61-1 | cleaning agent |
| D-315-xxx | con::cube |
| F-110-spectro | carrier s::can™ spectrometer probe |
| F-120-spectro | carrier s::can™ spectrometer probe |
| F-445-1 | flow cell - for pathlengths from 0.5 mm to 35 mm |
| F-446-1 | flow cell autobrush - for spectro::lyser™ pathlength 35 mm |
| S-11-xx-moni | moni::tool Software |



technical specification

| | |
|--|---|
| measuring principle | UV-Vis spectrometry 190 - 750 nm |
| measuring principle detail | xenon flash lamp, 256 photo diodes |
| automatic compensation instrument | two beam measurement, complete spectrum |
| automatic compensation cross sensitivities | turbidity / solids / organic substances |
| precalibrated ex-works | all parameters |
| accuracy standard solution (>1 mg/l) | NO ₃ -N: +/- 3% +1/OPL[mg/l]* COD-KHP: +/-3% +10/OPL[mg/l]* (* OPL ... optical pathlength in mm) |
| access to raw signals | no |
| reference standard | distilled water |
| onboard memory | 656 KB |
| integrated temperature sensor | -10 ... 50 °C |
| resolution temperature sensor | 0.1 °C |
| integrated pressure sensor (optional) | 0 ... 1,2/2/11 bar |
| resolution pressure sensor | 1:1000 of measuring range |
| integration via | con::cube con::lyte con::nect |
| power supply | 11 ... 15 VDC |
| power consumption (typical) | 4.2 W |
| power consumption (max.) | 20 W |
| interface to s::can terminals | MIL connector, RS485 |
| interface to third party terminals | con::nect incl. gateway modbusRTU |

| | |
|--|---|
| cable length | 7.5 m fixed cable (-075) or 1 m fixed cable (-010) |
| cable type | PU jacket |
| housing material | stainless steel 1.4404 |
| window material | optical path length 15 ... 0.5 mm: sapphire optional: optical path length 100 ... 5 mm: fused silica (UV-grade) |
| weight (min.) | 3.4 kg (incl. cable) |
| dimensions (Ø x l) | 44 mm x 547 mm / 591 mm |
| operating temperature | 0 ... 45 °C |
| storage temperature | -10 ... 50 °C |
| operating pressure | 0 ... 5 bar |
| high pressure specification (optional) | 10 bar |
| installation / mounting | submersed or in a flow cell |
| flow velocity | 3 m/s (max.) |
| mechanical stability | 30 Nm |
| ingress protection class | IP68 |
| automatic cleaning | media: compressed air or autobrush permissible pressure: 3 ... 6 bar |
| conformity - EMC | EN 61326-1, EN 61326-2-3 |
| conformity - safety | EN 61010-1 |
| standard warranty | 2 years |
| extended warranty (optional) | 3 years |

surface water

| | | parameter | | |
|---|------|---------------------|---------------------------|-----------------------------|
| | | turbidity [NTU/FTU] | NO ₃ -N [mg/l] | part number |
| nitro::lyser™ II (turbidity, NO ₃ -N) | min. | 0 | 0 | N2-r-005-p0-s-NO-010 / -075 |
| | max. | 1400 | 100 | |

drinking water

| | | parameter | | |
|---|------|---------------------|---------------------------|-----------------------------|
| | | turbidity [NTU/FTU] | NO ₃ -N [mg/l] | part number |
| nitro::lyser™ II (turbidity, NO ₃ -N) | min. | 0 | 0 | N2-d-035-p0-s-NO-010 / -075 |
| | max. | 170 | 20 | |

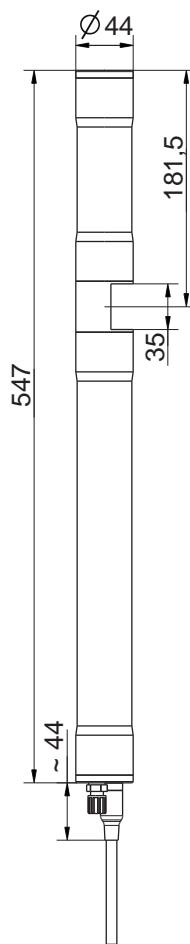
ozo::lyser II

ozo::lyser II monitors turbidity & ozone

- s::can plug & measure
- measuring principle: UV-Vis spectrometry over the total range (190-720 nm)
- multiparameter probe with adjustable open path length
- ideal for surface water, ground water, drinking water and waste water
- long term stable and maintenance free in operation
- factory precalibrated, local multi-point calibration possible
- automatic cleaning with compressed air
- mounting and measurement directly in the media (InSitu) or in a flow cell (monitoring station)
- operation via s::can terminals & s::can software
- robust and precise adaption of optical path lengths to 35 mm, 15 mm or 5 mm possible
- easy mounting without clogging

recommended accessories

| part number | article name |
|---------------|--|
| A-005-s | Inserts for optical pathlength 5 mm, stainless steel |
| A-015-s | Inserts for optical pathlength 15 mm, stainless steel |
| B-32-xxx | s::can compressor |
| B-44 | cleaning valve |
| B-44-2 | |
| B-61-1 | cleaning agent |
| D-315-xxx | con::cube |
| F-110-spectro | carrier s::can™ spectrometer probe |
| F-120-spectro | carrier s::can™ spectrometer probe |
| F-445-1 | flow cell - for pathlengths from 0.5 mm to 35 mm |
| F-446-1 | flow cell autobrush - for spectro::lyser™ pathlength 35 mm |
| S-11-xx-moni | moni::tool Software |



technical specification

| | |
|--|---|
| measuring principle | UV-Vis spectrometry 190 - 750 nm |
| measuring principle detail | xenon flash lamp, 256 photo diodes |
| automatic compensation instrument | two beam measurement, complete spectrum |
| automatic compensation cross sensitivities | turbidity / solids / organic substances |
| precalibrated ex-works | all parameters |
| accuracy standard solution (>1 mg/l) | NO ₃ -N: +/- 3% +1/OPL[mg/l]* COD-KHP: +/-3% +10/OPL[mg/l]* (* OPL ... optical pathlength in mm) |
| access to raw signals | no |
| reference standard | distilled water |
| onboard memory | 656 KB |
| integrated temperature sensor | -10 ... 50 °C |
| resolution temperature sensor | 0.1 °C |
| integrated pressure sensor (optional) | 0 ... 1,2/2/11 bar |
| resolution pressure sensor | 1:1000 of measuring range |
| integration via | con::cube con::lyte con::nect |
| power supply | 11 ... 15 VDC |
| power consumption (typical) | 4.2 W |
| power consumption (max.) | 20 W |
| interface to s::can terminals | MIL connector, RS485 |
| interface to third party terminals | con::nect incl. gateway modbusRTU |

| | |
|--|---|
| cable length | 7.5 m fixed cable (-075) or 1 m fixed cable (-010) |
| cable type | PU jacket |
| housing material | stainless steel 1.4404 |
| window material | optical path length 15 ... 0.5 mm: sapphire optional: optical path length 100 ... 5 mm: fused silica (UV-grade) |
| weight (min.) | 3.4 kg (incl. cable) |
| dimensions (Ø x l) | 44 mm x 547 mm / 591 mm |
| operating temperature | 0 ... 45 °C |
| storage temperature | -10 ... 50 °C |
| operating pressure | 0 ... 5 bar |
| high pressure specification (optional) | 10 bar |
| installation / mounting | submersed or in a flow cell |
| flow velocity | 3 m/s (max.) |
| mechanical stability | 30 Nm |
| ingress protection class | IP68 |
| automatic cleaning | media: compressed air or autobrush permissible pressure: 3 ... 6 bar |
| conformity - EMC | EN 61326-1, EN 61326-2-3 |
| conformity - safety | EN 61010-1 |
| standard warranty | 2 years |
| extended warranty (optional) | 3 years |

drinking water

| | | parameter | | part number |
|---|------|------------------------|--------------------------|-----------------------------|
| | | turbidity [NTU/FTU] | O ₃ [mg/l] | |
| ozo::lyser II (turbidity, O ₃) | min. | 0 | 0 | 02-d-100-p0-s-N0-010 / -075 |
| | max. | 60 | 9 | |

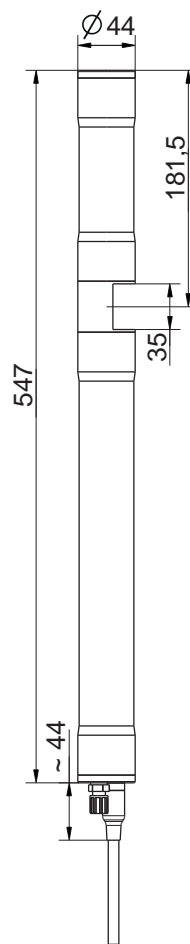
uv::lyser II

uv::lyser monitors turbidity or TSS and up to 4 freely chosen wavelengths

- s::can plug & measure
- measuring principle: UV-Vis spectrometry over the total range (190-720 nm)
- multiparameter probe with adjustable open path length
- ideal for surface water, ground water, drinking water and waste water
- long term stable and maintenance free in operation
- factory precalibrated, local multi-point calibration possible
- automatic cleaning with compressed air
- mounting and measurement directly in the media (InSitu) or in a flow cell (monitoring station)
- operation via s::can terminals & s::can software
- robust and precise adaption of optical path lengths to 35 mm, 15 mm or 5 mm possible
- easy mounting without clogging

recommended accessories

| part number | article name |
|---------------|--|
| A-005-s | Inserts for optical pathlength 5 mm, stainless steel |
| A-015-s | Inserts for optical pathlength 15 mm, stainless steel |
| B-32-xxx | s::can compressor |
| B-44 | cleaning valve |
| B-44-2 | |
| B-61-1 | cleaning agent |
| D-315-xxx | con::cube |
| F-110-spectro | carrier s::can™ spectrometer probe |
| F-120-spectro | carrier s::can™ spectrometer probe |
| F-445-1 | flow cell - for pathlengths from 0.5 mm to 35 mm |
| F-446-1 | flow cell autobrush - for spectro::lyser™ pathlength 35 mm |
| S-11-xx-moni | moni::tool Software |



technical specification

| | |
|--|---|
| measuring principle | UV-Vis spectrometry 190 - 750 nm |
| measuring principle detail | xenon flash lamp, 256 photo diodes |
| automatic compensation instrument | two beam measurement, complete spectrum |
| automatic compensation cross sensitivities | turbidity / solids |
| precalibrated ex-works | all parameters |
| accuracy standard solution (>1 mg/l) | NO ₃ -N: +/- 3% +1/OPL[mg/l]* COD-KHP: +/-3% +10/OPL[mg/l]* (* OPL ... optical pathlength in mm) |
| access to raw signals | no |
| reference standard | distilled water |
| onboard memory | 656 KB |
| integrated temperature sensor | -10 ... 50 °C |
| resolution temperature sensor | 0.1 °C |
| integrated pressure sensor (optional) | 0 ... 1,2/2/11 bar |
| resolution pressure sensor | 1:1000 of measuring range |
| integration via | con::cube con::lyte con::nect |
| power supply | 11 ... 15 VDC |
| power consumption (typical) | 4.2 W |
| power consumption (max.) | 20 W |
| interface to s::can terminals | MIL connector, RS485 |
| interface to third party terminals | con::nect incl. gateway modbusRTU |

| | |
|--|---|
| cable length | 7.5 m fixed cable (-075) or 1 m fixed cable (-010) |
| cable type | PU jacket |
| housing material | stainless steel 1.4404 |
| window material | optical path length 15 ... 0.5 mm: sapphire optional: optical path length 100 ... 5 mm: fused silica (UV-grade) |
| weight (min.) | 3.4 kg (incl. cable) |
| dimensions (Ø x l) | 44 mm x 547 mm / 591 mm |
| operating temperature | 0 ... 45 °C |
| storage temperature | -10 ... 50 °C |
| operating pressure | 0 ... 5 bar |
| high pressure specification (optional) | 10 bar |
| installation / mounting | submersed or in a flow cell |
| flow velocity | 3 m/s (max.) |
| mechanical stability | 30 Nm |
| ingress protection class | IP68 |
| automatic cleaning | media: compressed air or autobrush permissible pressure: 3 ... 6 bar |
| conformity - EMC | EN 61326-1, EN 61326-2-3 |
| conformity - safety | EN 61010-1 |
| standard warranty | 2 years |
| extended warranty (optional) | 3 years |

surface water

| | | parameter | | | |
|---------------------------------|------|---------------------|----------------|------------------|-----------------------------|
| | | turbidity [NTU/FTU] | UV-Vis [Abs/m] | UV-Vis f [Abs/m] | part number |
| uv::lyser (turbidity, UV-Vis f) | min. | 0 | | 0 | U2-r-005-p0-s-NO-010 / -075 |
| | max. | 1400 | | 400 | |
| uv::lyser (turbidity, UV-Vis) | min. | 0 | 0 | | U2-r-005-p0-s-NO-010 / -075 |
| | max. | 1400 | 500 | | |

drinking water

| | | parameter | | | |
|---------------------------------|------|---------------------|----------------|------------------|-----------------------------|
| | | turbidity [NTU/FTU] | UV-Vis [Abs/m] | UV-Vis f [Abs/m] | part number |
| uv::lyser (turbidity, UV-Vis f) | min. | 0 | | 0 | U2-d-035-p0-s-NO-010 / -075 |
| | max. | 170 | | 55 | |
| uv::lyser (turbidity, UV-Vis) | min. | 0 | 0 | | U2-d-035-p0-s-NO-010 / -075 |
| | max. | 170 | 70 | | |

i::scan



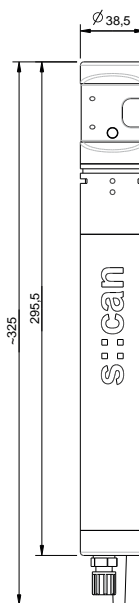
i::scan

i::scan monitors depending on the application an individual selection of: turbidity, TOC, DOC, UV254, UV254 f, color, UVT10, UVT10 f, UVT100 f and temperature

- s::can plug & measure
- turbidity: measurement according to EPA 180.1 and ISO 7027, 90° scattering (35 mm path length)
- new light emitting technology
- no consumables, no moving parts
- special, non-fouling optical window material
- low power consumption (less than 1 W typical)
- dual-beam compensated optics
- optional automatic cleaning compressed air (InSitu, only for version -075 with fixed cable) or autobrush
- long term stable, 100 % corrosion free
- plug connection or fixed cable
- 5000 hours maintenance free operation
- mounting and measurement directly in the media (InSitu) or in a flow cell (monitoring station)
- can be mounted directly in a mains pipe / pressure pipe
- operation via s::can terminals & s::can software

recommended accessories

| part number | article name |
|---------------|---|
| B-32-xxx | s::can compressor |
| D-315-xxx | con::cube |
| F-110-iscan | carrier i::scan, for easy horizontal attachment |
| F-446-m-iscan | Brush unit AutoBrush, Pom-C (for i::scan) |
| S-11-xx-moni | moni::tool Software |



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| technical specification | | | |
|-----------------------------------|---|---|--|
| measuring principle | 35 mm optical path length: spectrometry combined 180° absorption and 90° scattering turbidity: according to EPA 180.1 and ISO 7027 5 mm optical path length: absorption | power supply power consumption (typical) power consumption (max.) interface to s::can terminals cable length housing material weight (min.) dimensions (Ø x l) | 10 ... 18 VDC 20 mA @ 12V 200 mA @ 12V RS485, MODBUS 7.5 m fixed cable (-075) or plug connection (-000) PEEK, POM-C approx. 330 g 35 mm path length: 38.5 x 325 mm 5 mm path length: 38.5 x 295 mm |
| resolution | turbidity (35 mm): 0.001 NTU/FTU turbidity (5 mm): 0.01 NTU/FTU (0.1 above 1000 NTU/FTU) color: 0.01 Hazen UV254: 0.015 Abs/m TOC: 0.01 mg/l | operating temperature storage temperature operating pressure installation / mounting flow velocity automatic cleaning | 0 ... 45 °C -20 ... 60 °C 0 ... 8 bar submersed or in a flow cell 3 m/s (max.) with autobrush or compressed air (only possible for version (-075) with fixed cable) permissible pressure: 3 ... 6 bar |
| accuracy (standard solution) | turbidity submersed (5 mm): 2 NTU/FTU or +/- 5 %* turbidity in flow cell (35 mm): 0.02 NTU/FTU or +/- 2.5 %* color: 1 Hazen or +/- 2.5 %* TOC: 0.1 mg/l or +/- 2.5 %* UV254: 0.1 Abs/m or +/- 2.5 %* (*whichever is greater) | conformity - EMC conformity - safety protection class (-000) protection class (-075) | EN 61326-1 EN 61326-2-3 EN 61010-1 IP67 IP68 |
| automatic compensation instrument | dual-beam and 180° path | | |
| precalibrated ex-works | all parameters | | |
| reference standard | distilled water | | |
| onboard memory | 512 MB | | |
| integrated temperature sensor | -20 ... 70 °C | | |
| resolution temperature sensor | 0.06 °C | | |
| integration via | con::cube con::lyte con::nect | | |

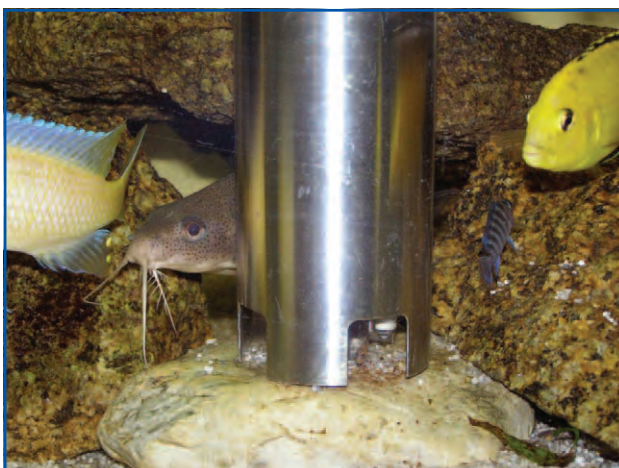
| surface water | | | | | | | | | | |
|------------------------------------|------|---------------------|------------|------------|---------------|-----------------|-----------|---------------------|---------------------|--------------------|
| | | parameter | | | | | | | | |
| | | turbidity [NTU/FTU] | TOC [mg/l] | DOC [mg/l] | UV254 [Abs/m] | UV254 f [Abs/m] | UVT10 [%] | color (app) [Hazen] | color (tru) [Hazen] | part number |
| i::scan_NTU/FTU | min. | 0 | | | | | | | | Y01-1-r-000 / -075 |
| | max. | 800 | | | | | | | | |
| i::scan_NTU/FTU+Color | min. | 0 | | | | | | 0 | 0 | Y02-1-r-000 / -075 |
| | max. | 800 | | | | | | 500 | 500 | |
| i::scan_NTU/FTU+UV254 | min. | 0 | | | 0 | 0 | 25 | | | Y03-2-r-000 / -075 |
| | max. | 800 | | | 70 | 70 | 100 | | | |
| i::scan_NTU/FTU+UV254+Color | min. | 0 | | | 0 | 0 | 25 | 0 | 0 | Y04-2-r-000 / -075 |
| | max. | 800 | | | 70 | 70 | 100 | 500 | 500 | |
| i::scan_NTU/FTU+TOC_eq+UV254 | min. | 0 | 0 | 0 | 0 | | | | | Y05-3-r-000 / -075 |
| | max. | 800 | 25 | 25 | 70 | | | | | |
| i::scan_NTU/FTU+TOC_eq+UV254+Color | min. | 0 | 0 | 0 | 0 | | | 0 | 0 | Y06-3-r-000 / -075 |
| | max. | 800 | 25 | 25 | 70 | | | 500 | 500 | |
| i::scan_NTU/FTU (5 mm path length) | min. | 0 | | | | | | | | Y13-1-c-075 |
| | max. | 3000 | | | | | | | | |

| drinking water | | | | | | | | | | |
|------------------------------------|------|---------------------|------------|------------|---------------|-----------------|-----------|---------------------|---------------------|--------------------|
| | | parameter | | | | | | | | |
| | | turbidity [NTU/FTU] | TOC [mg/l] | DOC [mg/l] | UV254 [Abs/m] | UV254 f [Abs/m] | UVT10 [%] | color (app) [Hazen] | color (tru) [Hazen] | part number |
| i::scan_NTU/FTU | min. | 0 | | | | | | | | Y01-1-d-000 / -075 |
| | max. | 800 | | | | | | | | |
| i::scan_NTU/FTU+Color | min. | 0 | | | | | | 0 | 0 | Y02-1-d-000 / -075 |
| | max. | 800 | | | | | | 500 | 500 | |
| i::scan_NTU/FTU+UV254 | min. | 0 | | | 0 | 0 | 25 | | | Y03-2-d-000 / -075 |
| | max. | 800 | | | 70 | 70 | 100 | | | |
| i::scan_NTU/FTU+UV254+Color | min. | 0 | | | 0 | 0 | | 0 | 0 | Y04-2-d-000 / -075 |
| | max. | 800 | | | 70 | 70 | | 500 | 500 | |
| i::scan_NTU/FTU+TOC_eq+UV254 | min. | 0 | 0 | 0 | 0 | | | | | Y05-3-d-000 / -075 |
| | max. | 800 | 25 | 25 | 70 | | | | | |
| i::scan_NTU/FTU+TOC_eq+UV254+Color | min. | 0 | 0 | 0 | 0 | | | 0 | 0 | Y06-3-d-000 / -075 |
| | max. | 800 | 25 | 25 | 70 | | | 500 | 500 | |

Ionselective Probes



ammo::lyser electrodes



ammo::lyser in aquarium

ISE-Probes



fig.1: ammo::lyser™ - electrodes

“Why do we measure”

ammo::lyser™

Due to human activities (primarily agriculture, industry and insufficient waste water treatment) many natural waters suffer from a surplus of nutrients which severely impairs water quality and ecology. Using the ammo::lyser™ the essential nutrient ammonium can be measured continuously and accurately down to the low concentrations encountered in natural waters.

Ammonium is always present in water in equilibrium with ammonia, the latter being especially toxic to fish even at very low concentrations. The equilibrium between ammonium and ammonia is pH driven. As the ammo::lyser™ provides pH together with ammonium it is used in natural waters as well as in fish farms to detect harmful conditions in real time.

When drinking water is disinfected with chloramines, formed In-Situ by reaction of chlorine with ammonium, a continuous ammonium measurement is critical for efficient control of the disinfection process - the ammo::lyser™ is capable to succeed also this application.

In addition, the ammo::lyser can be equipped with a ISE-nitrate electrode in order to be able to monitor the most common nitrogen parameters NO₃-N and NH₄-N simultaneously. Drinking water suppliers (source water quality) and also environmental agencies have already been using ammo::lysers for years now.

fluor::lyser

The fluor::lyser is a version of the s::can ion selective probe that can be used for the online measurement of fluoride. It is used for continuous monitoring and online process control by water utilities that fluoridate their drinking water.

s::can
Intelligent. Optical. Online.

ISE-Probes

“How do we measure”

All s::can ISE probes are ion selective multiparameter probes that can measure multiple water quality parameters continuously (On-Line) and directly in the water without the need for complex and maintenance intensive sample pre-treatment.

All s::can ISE probes can be operated according to the “plug & measure” principle. With a simple plug connection, which provides power supply and data communication. The s::can sensors are connected to an s::can terminal and are ready for use. All s::can ISE probes are pre-calibrated ex works. The “plug & measure” principle avoids complex installation procedures on site and thus does not only save time during initial operation, but also reduces avoidable errors to a minimum.

The highly optimised design completely eliminates all moving parts in contact with the water. This reduces failures, spare part costs and maintenance dramatically.

Using standardised mounting devices, s::can ISE probes can be installed quickly and effortlessly, either submersed (InSitu) or in a flow through setup (Bypass, monitoring station).

s::can ISE probes utilise an automatic cleaning system that uses compressed air for removal of fouling. This system has proven highly efficient and reliable, even in untreated wastewater. Because of this, regular manual cleaning is not required, thus significantly reducing maintenance for the operator.

Like all other s::can instruments, s::can ISE probes are intelligent instruments and recognise and communicate all measurement related and technical issues as soon as they occur.

Although typically not or not often required, it is possible to adjust the calibration of the ammo::lyser™ to the actual matrix in which it is operated, in case deviations between online readings and reference analyses should be observed. Even the validation of the accuracy of the local calibration can be performed without taking the instrument out of the water.

The robust ion selective membrane has a typical lifetime of 6 months in applications with low NH₄-N concentrations, e.g. in river water. In applications with higher ammonium loads, as in waste water influent, the typical lifetime of the membrane increases to as much as 1 to 2 years.

In order to compensate possible interferences online and automatically the ammo::lyser™ can measure potassium, pH and temperature all together with ammonium. In some applications substantial changes in these parameters can be observed, which interfere with the ammonium measurement. Thus online measurements are used to eliminate this influence and allow an ammonium measurement with the highest possible accuracy. The results of these additional sensors (see figure 1: ammo::lyser™ electrodes) can be displayed as well. When applying the ammo::lyser™ in waters of stable compositions or high concentrations of ammonium, the need to perform such compensations is much reduced. Under such circumstances the unique selectivity of the ammonium membrane is sufficient to achieve reliable measurement results.

Using the combination of innovative algorithms that model the Nernst equation and extensive compensation of possible interferences makes it possible to apply the ammo::lyser™ also in low concentration ranges (below 0.5 mg/L), throughout applications where ion selective sensors of other manufacturers do not function satisfactory.

The durable membranes of the ammo::lyser™ can be exchanged individually when necessary - without the need to replace expensive electrodes or even complete cartridges. The unique non-porous, solid-state reference electrode ensures long lifetime in this way the regular costs for spare parts are reduced to a minimum.

Its unrivalled measurement features in combination with the lowest possible total costs - initial cost and foreseeable operational costs - make the s::can ISE probe the most attractive solution available today.

ammo::lyser™ eco

ammo::lyser™ II eco: monitors $\text{NH}_4\text{-N}$ and temperature

ammo::lyser™ III eco+pH additionally monitors pH

ammo::lyser™ III eco+ $\text{NO}_3\text{-N}$ additionally monitors $\text{NO}_3\text{-N}$

ammo::lyser™ III eco+Cl⁻ additionally monitors chloride

ammo::lyser™ IV eco+pH+ $\text{NO}_3\text{-N}$ additionally monitors pH and $\text{NO}_3\text{-N}$

ammo::lyser™ VI eco+pH+Cl⁻ additionally monitors pH and chloride

- s::can plug & measure
- measuring principle: ISE (ionselective electrodes) - without potassium compensation
- multiparameter probe
- long term stable, factory precalibrated
- minimal maintenance, automatic cleaning with compressed air
- unique, non-porous / non-leaking reference electrode for technically unrivalled and consistent performance
- ISE refurbishment - the easy way to minimise maintenance
- easy & quick mounting and measurement directly in the media (InSitu) or in a flow cell (monitoring station)
- automatic temperature compensation and pH compensation possible
- ideal for surface water, ground water, drinking water and waste water
- life time of ISE: typically 6 month (for applications <1mg/l $\text{NH}_4\text{-N}$), resp. 1 to 2 years (for applications >1mg/l $\text{NH}_4\text{-N}$)
- plug connection or fixed cable

recommended accessories

| part number | article name |
|----------------|---|
| B-44 | cleaning valve |
| B-44-2 | |
| C-1-010-sensor | 1 m connection cable for s::can physical and ISE probes |
| F-11-oxi-ammo | carrier oxi::lyser / soli::lyser / s::can ISE probes |
| F-45-ammo | flow cell for ammo::lyser™ |



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| technical specification | | | |
|--|---|---------------------------------|--|
| measuring principle | ISE | power supply | 10 ... 30 VDC |
| measuring principle detail | NH ₄ -N: ionophore membrane pH: non-porous reference electrode NO ₃ -N: ionophore membrane Cl ⁻ : ionophore membrane | power consumption (typical) | 0.72 W |
| | | interface to s::can terminals | sys plug (IP67), RS485 |
| resolution | NH ₄ -N, K, NO ₃ -N, Cl, F: 0.01 at 0.02 ... 19.99 mg/l 0.1 at 20.0 ... 99.9 mg/l 1 at 100 ... 1000 mg/l T: 0.1 °C | cable length | 7.5 m fixed cable (-075) or plug connection (-000) |
| accuracy (standard solution) | NH ₄ -N: +/- 3% of measuring range or +/- 0.5mg/l* (*whichever is greater) | cable type | PU jacket |
| automatic compensation cross sensitivities | E-532-eco-xxx: temp E-532-eco-pH-xxx: temp, pH E-532-eco-NO ₃ -N-xxx: temp E-532-eco-NO ₃ -N-pH-xxx: temp, pH E-532-eco-CL-xxx: temp E-532-eco-CL-pH-xxx: temp, pH | housing material | stainless steel 1.4571, POM-C |
| precalibrated ex-works | all parameters | weight (min.) | 2.7 kg |
| response time (T90) | 0 ... 60 sec. | dimensions (Ø x l) | 60 x 326 mm |
| integration via | con::cube con::lyte con::nect | operating temperature | 0 ... 60 °C |
| | | operating pressure | 0 ... 1 bar |
| | | installation / mounting | submersed or in a flow cell |
| | | process connection | bayonet |
| | | flow velocity | 0.01 m/s (min.), 3 m/s (max.) |
| | | automatic cleaning | media: compressed air permissible pressure: 2 ... 4 bar |
| | | conformity - EMC | EN 50081-1, EN 50082-1, EN 60555-2, EN 60555-3 |
| | | conformity - safety | EN 61010-1 |
| | | storage temperature (electrode) | 2 ... 40 °C |
| | | storage temperature (sensor) | 2 ... 40 °C |
| | | protection class (-000) | IP67 |
| | | protection class (-075) | IP68 |

| measuring range | | | | | | | |
|---|------|------------------------------|------------------------------|------------|---------------------------|-------------|--|
| | | parameter | | | | temperature | part number |
| | | NH ₄ -N [mg/l] | NO ₃ -N [mg/l] | pH [pH] | Cl ⁻ [mg/l] | [°C] | |
| ammo::lyser™ II eco (NH ₄ -N, temp) | min. | 0.1 | | | | 0 | E-532-eco-000 / -075 |
| | max. | 1000 | | | | 60 | |
| ammo::lyser™ III eco+Cl- (NH ₄ -N, temp, Cl-) | min. | 0.1 | | | 1 | 0 | E-532-eco-CL-000 / -075 |
| | max. | 1000 | | | 1000 | 60 | |
| ammo::lyser™ III eco+NO ₃ -N (NH ₄ -N, temp, NO ₃ -N) | min. | 0.1 | 0.3 | | | 0 | E-532-eco-NO ₃ -N-000 / -075 |
| | max. | 1000 | 1000 | | | 60 | |
| ammo::lyser™ III eco+pH (NH ₄ -N, temp, pH) | min. | 0.1 | | 2 | | 0 | E-532-eco-pH-000 / -075 |
| | max. | 1000 | | 12 | | 60 | |
| ammo::lyser™ IV eco+Cl- (NH ₄ -N, temp, Cl-, pH) | min. | 0.1 | | 2 | 1 | 0 | E-532-eco-CL-pH-000 / -075 |
| | max. | 1000 | | 12 | 1000 | 60 | |
| ammo::lyser™ IV eco+NO ₃ -N+pH (NH ₄ -N, temp, NO ₃ -N, pH) | min. | 0.1 | 0.3 | 2 | | 0 | E-532-eco-NO ₃ -N-pH-000 / -075 |
| | max. | 1000 | 1000 | 12 | | 60 | |

ammo::lyser™ pro

ammo::lyser™ III pro monitors $\text{NH}_4\text{-N}$ and temperature

ammo::lyser™ IV pro+pH monitors $\text{NH}_4\text{-N}$, temperature and pH

ammo::lyser™ IV pro+ $\text{NO}_3\text{-N}$ monitors $\text{NH}_4\text{-N}$, temperature und $\text{NO}_3\text{-N}$

- s::can plug & measure
- measuring principle: ISE (ionselective electrodes) - with potassium compensation
- multiparameter probe
- long term stable, factory precalibrated
- automatic cleaning with compressed air
- easy & quick mounting and measurement directly in the media (InSitu) or in a flow cell (monitoring station)
- ISE refurbishment - the easy way to minimise maintenance
- unique, non-porous / non-leaking reference electrode for technically unrivalled and consistent performance
- operation via s::can terminals & s::can software
- automatic temperature and potassium compensation, pH compensation possible
- ideal for surface water, ground water, drinking water and waste water
- minimal maintenance
- life time of ISE: typically 6 month (for applications $<1\text{mg/l}$ $\text{NH}_4\text{-N}$), resp. 1 to 2 years (for applications $>1\text{mg/l}$ $\text{NH}_4\text{-N}$)
- plug connection or fixed cable

recommended accessories

| part number | article name |
|----------------|---|
| B-44 | cleaning valve |
| B-44-2 | |
| C-1-010-sensor | 1 m connection cable for s::can physical and ISE probes |
| F-11-oxi-ammo | carrier oxi::lyser / soli::lyser / s::can ISE probes |
| F-45-ammo | flow cell for ammo::lyser™ |
| F-45-process | process connection 1/4" G |



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| technical specification | | | |
|--|--|---------------------------------|--|
| measuring principle | ISE | cable length | 7.5 m fixed cable (-075) or plug connection (-000) |
| measuring principle detail | NH ₄ -N: ionophore membrane K: ionophore membrane pH: non-porous reference electrode NO ₃ -N: ionophore membrane | cable type | PU jacket |
| resolution | NH ₄ -N, K, NO ₃ -N, Cl, F: 0.01 at 0.02 ... 19.99 mg/l 0.1 at 20.0 ... 99.9 mg/l 1 at 100 ... 1000 mg/l T: 0.1 °C | housing material | stainless steel 1.4571, POM-C |
| accuracy (standard solution) | NH ₄ -N: +/- 3% of measuring range or +/- 0.1mg/l* (*whichever is greater) | weight (min.) | 2.7 kg |
| automatic compensation cross sensitivities | E-532-pro-xxx: temp, K E-532-pro-pH-xxx: temp, pH, K E-532-pro-NO ₃ -N-xxx: temp, K | dimensions (Ø x l) | 60 x 326 mm |
| precalibrated ex-works | all parameters | operating temperature | 0 ... 60 °C |
| response time (T90) | 60 ... 0 sec. | operating pressure | 0 ... 1 bar |
| integration via | con::cube con::nect con::lyte | installation / mounting | submersed or in a flow cell |
| power supply | 10 ... 30 VDC | process connection | bayonet |
| power consumption (typical) | 0.72 W | flow velocity | 0.01 m/s (min.) 3 m/s (max.) |
| interface to s::can terminals | sys plug (IP67), RS485 | automatic cleaning | media: compressed air permissible pressure: 2 ... 4 bar |
| | | conformity - EMC | EN 50081-1 EN 50082-1 EN 60555-2 EN 60555-3 |
| | | conformity - safety | EN 61010-1 |
| | | storage temperature (electrode) | 2 ... 40 °C |
| | | storage temperature (sensor) | 2 ... 40 °C |
| | | protection class (-000) | IP67 |
| | | protection class (-075) | IP68 |

| measuring range | | | | | | | |
|---|------|------------------------------|------------------------------|-------------|------------|---------------------|---|
| | | parameter | | | | | |
| | | NH ₄ -N [mg/l] | NO ₃ -N [mg/l] | K [mg/l] | pH [pH] | temperature [°C] | part number |
| ammo::lyser™ III pro (NH ₄ -N, K, temp) | min. | 0.1 | | 1 | | 0 | E-532-pro-000 / -075 |
| | max. | 1000 | | 1000 | | 60 | |
| ammo::lyser™ IV pro+NO ₃ -N (NH ₄ -N, NO ₃ -N, K, temp) | min. | 0.1 | 0.3 | 1 | | 0 | E-532-pro+NO ₃ -N-000 / -075 |
| | max. | 1000 | 1000 | 1000 | | 60 | |
| ammo::lyser™ IV pro+pH (NH ₄ -N, pH, K, temp) | min. | 0.1 | | 1 | 2 | 0 | E-532-pro+pH-000 / -075 |
| | max. | 1000 | | 1000 | 12 | 60 | |

fluor::lyser II

fluor::lyser II monitors fluoride and temperature

- s::can plug & measure
- measuring principle: ISE (ionselective electrodes)
- no cross sensitivities in typical drinking water applications
- multiparameter probe
- long term stable, factory precalibrated
- automatic cleaning with compressed air
- easy and quick mounting and measurement directly in the media (InSitu) or in a flow cell (monitoring station)
- operation via s::can terminals & s::can software
- ideal for drinking water
- minimal maintenance
- plug connection or fixed cable

recommended accessories

| part number | article name |
|----------------|---|
| B-44 | cleaning valve |
| B-44-2 | |
| C-1-010-sensor | 1 m connection cable for s::can physical and ISE probes |
| F-11-oxi-ammo | carrier oxi::lyser / soli::lyser / s::can ISE probes |
| F-45-ammo | flow cell for ammo::lyser™ |
| F-45-process | process connection 1/4" G |



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| technical specification | | | |
|-----------------------------------|---|---------------------------------|--|
| measuring principle | ISE | operating temperature | 0 ... 60 °C |
| measuring principle detail | F: ionophore membrane reference electrode | storage temperature | 0 ... 60 °C |
| automatic compensation instrument | temperature | installation / mounting | submersed or in a flow cell |
| potential interfering ions | OH- (at >pH8), Al3+, Ca2+, Fe3+, Si4+ | process connection | G 1 1/2" outside |
| precalibrated ex-works | all parameters | flow velocity | 0.01 m/s (min.) 3 m/s (max.) |
| integration via | con::cube con::lyte con::nect | pH range | 4.5 ... 7.5 |
| power supply | 10 ... 30 VDC | ingress protection class | IP68 |
| power consumption (typical) | 0.72 W | automatic cleaning | media: compressed air permissible pressure: 2 ... 4 bar |
| interface to s::can terminals | sys plug (IP67), RS485 | conformity - EMC | EN 50081-1 EN 50082-1 EN 60555-2 EN 60555-3 |
| cable length | 7.5 m fixed cable (-075) or plug connection (-000) | conformity - safety | EN 61010-1 |
| cable type | PU jacket | storage temperature (electrode) | 2 ... 40 °C |
| housing material | stainless steel 1.4571, POM-C | storage temperature (sensor) | 2 ... 40 °C |
| weight (min.) | 2.7 kg | protection class (-000) | IP67 |
| dimensions (Ø x l) | 60 x 326 mm | protection class (-075) | IP68 |

| measuring range | | | | |
|-----------------|------|-------------|---------------------|------------------|
| | | parameter | | |
| | | F [mg/l] | temperature [°C] | part number |
| fluor::lyser II | min. | 0.1 | 0 | E-542-000 / -075 |
| | max. | 1000 | 60 | |

Physical Probes



flow cell with probe



oxi::lyser

Physical Probes

“Why do we measure”

oxi::lyser™

In drinking water applications the oxi::lyser™ is mainly used in early warning systems detecting problems in raw water quality: Reduced dissolved oxygen concentrations are often an indicator for harmful microbial or chemical contaminations of the water. Applied in natural waters or on fish farms the oxi::lyser™ can detect anaerobic conditions, which are life threatening aquatic organisms, and thus it helps to prevent ecological as well as economic damage.

pH::lyser

Drinking water suppliers use the pH::lyser for the continuous process monitoring and control of chemical and physical treatment steps that are characterised by changes in pH, such as neutralisation, flocculation or mixing of source waters. Furthermore, the pH::lyser is applied in early warning systems that monitor source water quality, both in ground and surface water.

redo::lyser

In drinking water treatment the redo::lyser is used mainly for process monitoring and control of treatment steps that result in significant changes of the oxidation-reduction potential. Besides this, the redo::lyser is also applied as a component in early warning systems that monitor source water quality, both in ground and surface water.

condu::lyser

The condu::lyser is used for quality control in drinking water production and distribution. From source to tap the electrical conductivity of the drinking water is an essential parameter indicating the level of salts dissolved and thus the purity of the water.

chlori::lyser

When drinking water is disinfected through chlorination it is necessary to continuously control the actual free chlorine level. This is crucial in the first place to ensure efficient disinfection and secondly to prevent regrowth of microorganisms in the finished water. For these two tasks it is necessary to carefully process control the level of free chlorine, also in order to prevent the concentration of harmful disinfection byproducts that can be formed in the presence of chlorine.



fig.1: oxi::lyser™



fig.2: condu::lyser



fig.3: pH::lyser

s::can
Intelligent. Optical. Online.

Physical Probes

“How do we measure”

Just as all other s::can instruments the s::can physical probes can be operated according to the “plug & measure” principle. With a simple plug connection, which provides power supply and data communication, the s::can probes are connected to an s::can terminal and are ready for use. All s::can probes are pre-calibrated ex works and do not require any conditioning before they can be used - all can be used continuously (OnLine) and directly in the water (InSitu). The “plug & measure” principle avoids complex installation procedures on site and thus does not only save time during initial operation, but also reduces avoidable errors.

The highly optimised design completely eliminates all moving parts in contact with the water. This reduces failures and maintenance dramatically.

Using standardised mounting devices s::can physical probes can be installed quickly and effortlessly, either submersed (InSitu) or in a flow through setup (by-pass, monitoring station).

Like all other s::can instruments s::can physical probes are intelligent instruments - amongst others local calibrations are stored on the probes and auto-diagnosis procedures are used to ensure best possible operation.

oxi::lyser™ (see fig.1)

is an optical multi-parameter probe that measures the concentration of dissolved oxygen and the temperature directly in the water. The oxi::lyser™ does not need a minimum flow to produce accurate readings and integrates the temperature measurement for On-Line correction. The sensing element, which uses the principle of fluorescence for the oxygen measurement, is neither affected nor damaged by direct exposure to sunlight. Under normal conditions, fouling of the sensing element will not affect the results. However, to be sure that fouling is kept to a minimum, the oxi::lyser™ can be cleaned automatically with compressed air. The oxi::lyser uses no replaceable parts or consumables. Therefore, when operated properly there will be no costs for spare parts at all. For the oxi::lyser™ we guarantee replacement of spare parts free of charge for the first three years after delivery (upon presenting the warranty card).

condu::lyser (see fig.2)

is a multi-parameter probe that measures conductivity and temperature directly in the water. The condu::lyser does not require a minimum flow to produce accurate readings and uses the temperature to correct the conductivity measurement online. The 4-electrode measurement of the electrical conductivity produces results that are practically independent of possible fouling. The condu::lyser uses no replaceable parts or consumables. Therefore, when operated properly there will be no costs for spare parts at all.

pH::lyser (see fig.3)

is a multi-parameter probe that measures the pH value and temperature directly in the water. The pH::lyser uses the temperature to correct the result of the pH measurement online. The non-porous, solid-state reference electrode ensures excellent pH readings and a long lifetime of the electrode.

redo::lyser

is a probe that measures the oxidation-reduction potential (also known as redox potential) and temperature directly in the water. The non-porous, solid state reference electrode ensures excellent ORP readings and a long lifetime of the electrode.

chlori::lyser

chlori::lyser monitors free or total chlorine - mounted in a flow cell setup. Due to the membrane covered amperometric measuring principle, flow and pH fluctuations of the water do not influence the measurement result. Additionally, the integrated temperature compensation and the special, third electrode completely eliminates potential interferences.

Their unrivalled measurement features in combination with the lowest possible total costs - initial cost and foreseeable operational costs - make s::can sensors the most attractive solution available today.

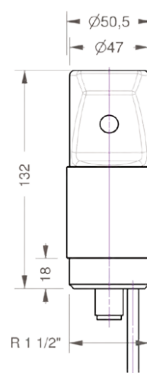
oxi::lyser™

oxi::lyser™ monitors dissolved oxygen & temperature

- s::can plug & measure
- measuring principle: optical / fluorescence
- multiparameter sensor
- ideal for surface water, ground water, drinking water and waste water
- long term stable and maintenance free in operation
- factory precalibrated
- automatic cleaning with compressed air
- mounting and measurement directly in the media (InSitu) or in a flow cell
- no flow necessary
- operation via s::can terminals & s::can software
- minimal maintenance (no consumables)

recommended accessories

| part number | article name |
|----------------|---|
| B-44 | cleaning valve |
| B-44-2 | |
| C-1-010-sensor | 1 m connection cable for s::can physical and ISE probes |
| D-315-xxx | con::cube |
| D-320-xxx | con::lyte |
| F-45-oxi | flow cell for oxi::lyser™ and soli::lyser |



| technical specification | | | |
|-------------------------------|---|------------------------------|--|
| measuring principle | fluorescence | housing material | CPVC, stainless steel, epoxy |
| resolution | 0.01 mg/l O ₂ | weight (min.) | 540 g |
| accuracy (standard solution) | O ₂ : +/- 0.02 mg/l or +/- 1 %* (*whichever is greater) | dimensions (Ø x l) | 50.5 mm x 132 mm |
| response time (T90) | 60 ... 0 sec. | operating temperature | 0 ... 60 °C |
| reference standard | saturated sodium sulfite solution | storage temperature | 0 ... 60 °C |
| integrated temperature sensor | 0 ... 50 °C | operating pressure | 0 ... 7 bar |
| resolution temperature sensor | 0.2 °C | installation / mounting | submersed or in a flow cell |
| integration via | con::cube con::lyte con::nect | process connection | R 1 1/2" |
| power supply | 6 ... 16 VDC | pH range | 2 ... 10 |
| power consumption (max.) | 0.32 W | ingress protection class | IP68 |
| interface to s::can terminals | sys plug (IP67), RS485 | automatic cleaning | media: compressed air permissible pressure: 2 ... 4.5 bar |
| cable length | 10 m | conformity - EMC | EN 50081-2, EN55011 |
| | | conformity - safety | EN 61000-4, EN61010-1 |
| | | extended warranty (optional) | 3 years |

| measuring range | | | | |
|---------------------------------------|------|--------------------------|-------------|-------------|
| | | parameter | temperature | part number |
| | | O ₂ [mg/l] | [°C] | |
| oxi::lyser (O ₂ , temp) | min. | 0 | 0 | E-501-075 |
| | max. | 25 | 50 | |

pH::lyser

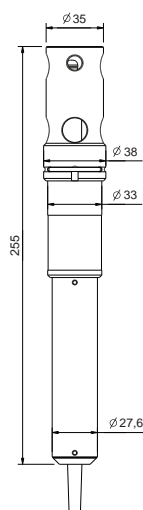
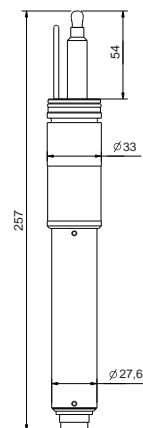
pH::lyser eco monitors pH & temperature

pH::lyser pro: high temperature range

- s::can plug & measure
- measuring principle: unique, non-porous / non-leaking combined reference electrode for technically unrivalled and consistent pH performance
- multiparameter sensor
- ideal for surface water, ground water, drinking water and waste water
- long term stable and maintenance free in operation
- factory precalibrated
- mounting and measurement directly in the media (InSitu) or in a flow cell
- operation via s::can terminals & s::can software
- optional: automatic cleaning with compressed air
- plug connection or fixed cable

recommended accessories

| part number | article name |
|-----------------|---|
| C-1-010-sensor | 1 m connection cable for s::can physical and ISE probes |
| D-315-xxx | con::cube |
| D-320-xxx | con::lyte |
| F-12-sensor | carrier s::can physical probes |
| F-45-four | flow cell for four s::can physical probes |
| F-46-four-iscan | i::scan flow cell for up to 3 additional s::can probes |
| F-45-sensor | flow cell for s::can sensor |
| S-11-xx-moni | moni::tool Software |



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| technical specification | | | |
|-----------------------------------|---|---------------------------------|--|
| measuring principle | potentiometric | housing material | stainless steel 1.4404/1.4401, POM-C |
| measuring principle detail | combined, non-porous reference electrode | weight (min.) | 400 g |
| resolution | 0.01 pH | dimensions (Ø x l) | 33 x 257 mm |
| accuracy (standard solution) | 0.1 pH | operating pressure | 0 ... 10 bar |
| automatic compensation instrument | temperature | installation / mounting | submersed or in a flow cell |
| response time (T90) | 30 ... 0 sec. | process connection | quick connect |
| integrated temperature sensor | 0 ... 90 °C | flow velocity | 3 m/s (max.) 0.01 m/s (min.) |
| integration via | con::cube con::lyte con::nect | automatic cleaning | media: compressed air permissible pressure: 3 ... 6 bar |
| power supply | 9 ... 18 VDC | conformity - EMC | EN 61326-1 |
| power consumption (typical) | 0.8 W | conformity - safety | EN 61010-1 |
| power consumption (max.) | 1 W | operating temperature (eco) | 0 ... 70 °C |
| interface to s::can terminals | sys plug (IP67), RS485 | operating temperature (pro) | 0 ... 90 °C |
| cable length | 7.5 m fixed cable (-075) or plug connection (-000) | storage temperature (electrode) | -5 ... 30 °C |
| cable type | PU jacket | storage temperature (sensor) | -10 ... 60 °C |
| | | protection class (-000) | IP67 |
| | | protection class (-075) | IP68 |

| measuring range | | | | |
|-----------------------------|------|------------|---------------------|--------------------|
| | | parameter | | part number |
| | | pH [pH] | temperature [°C] | |
| pH::lyser eco (pH, temp) | min. | 2 | 0 | E-514-2-000 / -075 |
| | max. | 12 | 70 | |
| pH::lyser pro (pH, temp) | min. | 0 | 0 | E-514-3-000 / -075 |
| | max. | 13 | 90 | |

redo::lyser

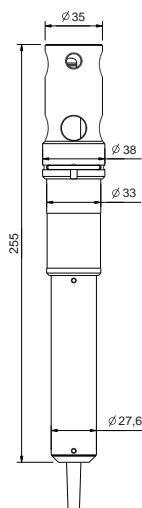
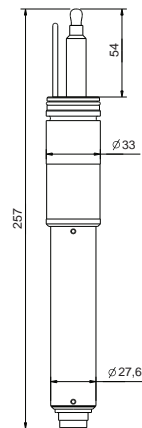
redo::lyser monitors ORP and temperature

redo::lyser pro: high temperature range

- s::can plug & measure
- measuring principle: unique, non-porous / non-leaking combined reference electrode for technically unrivalled and consistend ORP performance
- multiparameter sensor
- ideal for surface water, ground water and drinking water, also waste water
- long term stable and maintenance free in operation
- factory precalibrated
- mounting and measurement directly in the media (InSitu) or in flow cell
- operation via s::can terminals & s::can software
- plug connection or fixed cable

recommended accessories

| part number | article name |
|-----------------|---|
| C-1-010-sensor | 1 m connection cable for s::can physical and ISE probes |
| D-315-xxx | con::cube |
| D-320-xxx | con::lyte |
| F-12-sensor | carrier s::can physical probes |
| F-45-four | flow cell for four s::can physical probes |
| F-46-four-iscan | i::scan flow cell for up to 3 additional s::can probes |
| F-45-sensor | flow cell for s::can sensor |
| S-11-xx-moni | moni::tool Software |



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| technical specification | | | |
|-------------------------------|---|---------------------------------|--|
| measuring principle | potentiometric | weight (min.) | 400 g |
| measuring principle detail | combined, non-porous reference electrode | dimensions (Ø x l) | 33 x 257 mm |
| resolution | 1 mV | operating pressure | 0 ... 10 bar |
| accuracy (standard solution) | +/- 10 mV | installation / mounting | submersed or in a flow cell |
| response time (T90) | 30 ... 0 sec. | process connection | quick connect |
| integrated temperature sensor | 0 ... 90 °C | flow velocity | 0.01 m/s (min.) 3 m/s (max.) |
| integration via | con::cube con::lyte con::nect | automatic cleaning | media: compressed air permissible pressure: 3 ... 6 bar |
| power supply | 9 ... 18 VDC | conformity - EMC | EN 61326-1 |
| power consumption (typical) | 0.8 W | conformity - safety | EN 61010-1 |
| power consumption (max.) | 1 W | operating temperature (eco) | 0 ... 70 °C |
| interface to s::can terminals | sys plug (IP67), RS485 | operating temperature (pro) | 0 ... 90 °C |
| cable length | 7.5 m fixed cable (-075) or plug connection (-000) | storage temperature (electrode) | -5 ... 30 °C |
| housing material | stainless steel 1.4404/1.4401, POM-C | storage temperature (sensor) | -10 ... 60 °C |
| | | protection class (-000) | IP67 |
| | | protection class (-075) | IP68 |

| measuring range | | | | |
|--------------------------------|------|---------------|---------------------|--------------------|
| | | parameter | | part number |
| | | redox [mV] | temperature [°C] | |
| redo::lyser eco (ORP, temp) | min. | -2000 | 0 | E-513-2-000 / -075 |
| | max. | 2000 | 70 | |
| redo::lyser pro (ORP, temp) | min. | -2000 | 0 | E-513-3-000 / -075 |
| | max. | 2000 | 90 | |

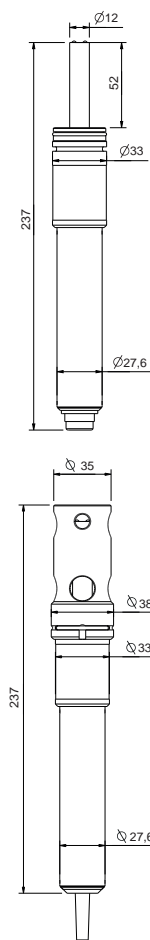
condu::lyser

condu::lyser monitors conductivity, temperature & salinity*

- s::can plug & measure
- measuring principle condu::lyser: 4-electrode, direct-contact measurement
- multiparameter sensor
- ideal for surface water, ground water, drinking water and waste water
- long term stable and maintenance free in operation
- factory precalibrated
- mounting and measurement directly in the media (InSitu) or in a flow cell
- operation via s::can terminals & s::can software
- plug connection or fixed cable

recommended accessories

| part number | article name |
|-----------------|---|
| C-1-010-sensor | 1 m connection cable for s::can physical and ISE probes |
| D-315-xxx | con::cube |
| D-320-xxx | con::lyte |
| F-12-sensor | carrier s::can physical probes |
| F-45-four | flow cell for four s::can physical probes |
| F-46-four-iscan | i::scan flow cell for up to 3 additional s::can probes |
| F-45-sensor | flow cell for s::can sensor |
| S-11-xx-moni | moni::tool Software |



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| technical specification | | | |
|-----------------------------------|---|--|-----------------------------------|
| measuring principle | 4-electrode, direct-contact | | weight (min.) |
| resolution | 1 µS/cm | | 240 g |
| accuracy (standard solution) | 1% of reading | | dimensions (Ø x l) |
| automatic compensation instrument | temperature | | 33 x 237 mm |
| integrated temperature sensor | -20 ... 130 °C | | operating temperature |
| integration via | con::cube con::lyte con::nect | | 0 ... 70 °C |
| power supply | 7 ... 30 VDC | | storage temperature |
| power consumption (typical) | 0.06 W | | 0 ... 60 °C |
| power consumption (max.) | 0.15 W | | operating pressure |
| interface to s::can terminals | sys plug (IP67), RS485 | | 0 ... 20 bar |
| cable length | 7.5 m fixed cable (-075) or plug connection (-000) | | installation / mounting |
| housing material | Stainless steel 1.4435, FDA-approved PEEK, POM-C | | submersed or in a flow cell |
| | | | process connection |
| | | | quick connect |
| | | | flow velocity |
| | | | 0.01 m/s (min.) |
| | | | 3 m/s (max.) |
| | | | automatic cleaning |
| | | | media: compressed air |
| | | | permissible pressure: 2 ... 6 bar |
| | | | conformity - EMC |
| | | | EN 61326-1 |
| | | | protection class (-000) |
| | | | IP67 |
| | | | protection class (-075) |
| | | | IP68 |

| measuring range | | | | | |
|-----------------|------|-------------------------|---------------------|--------------------|--------------------|
| | | parameter | | | |
| | | conductivity [µS/cm] | temperature [°C] | salinity* [PSU] | part number |
| condu::lyser | min. | 0 | 0 | 2 | E-511-2-000 / -075 |
| | max. | 500000 | 70 | 42 | |

* Salinity measurement is only possible in combination with con::cube terminal

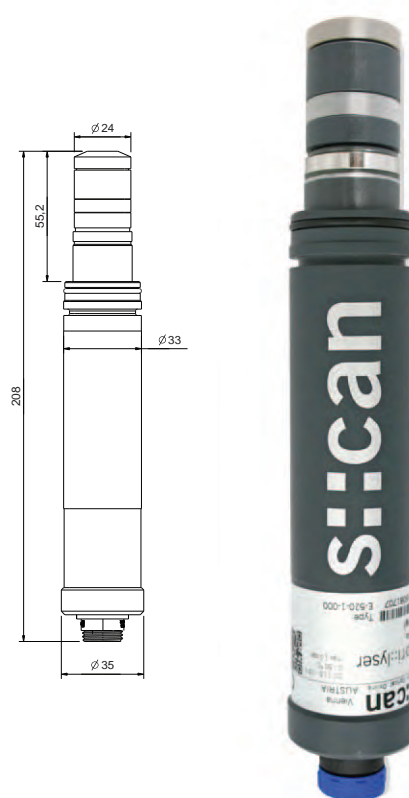
chlori::lyser

chlori::lyser monitors free chlorine ($\text{Cl}_2 + \text{HOCl} + \text{OCl}^-$)
or total chlorine (free chlorine + combined chlorine)

- s::can plug & measure
- measuring principle: amperometric (membrane covered)
- ideal for drinking and pool
- long term stable and lowest maintenance in operation
- replacement of membrane only once a year
- readings stable even at high fluctuations of pH, temperature and flow
- compensates fluctuations of pH in an unmatched way
pH range from 4 to 9 FCI; pH range from 4 to 12 TCI
- low cross sensitivity to many surfactants
- factory precalibrated
- mounting and measurement in a flow cell
- operation via s::can terminals & s::can software
- additionally also measures temperature

recommended accessories

| part number | article name |
|----------------|---|
| D-315-xxx | con::cube |
| S-11-xx-moni | moni::tool Software |
| F-45-four | flow cell for four s::can physical probes |
| C-1-010-sensor | 1 m connection cable for s::can physical and ISE probes |
| E-525-1/2-KIT | Total Chlorine electrolyte and membrane cap (spare parts) |
| E-520-1/2-KIT | Free Chlorine electrolyte and membrane cap (spare parts) |



| technical specification | | | |
|--|--|-------------------------------|-------------------------------------|
| measuring principle | amperometric | interface to s::can terminals | sys plug (IP67), RS485 |
| measuring principle detail | potentiostatic 3-electrode system | housing material | PVC |
| resolution | E-520-1 and E-525-1: 0.001 mg/l E-520-2 and E-525-2: 0.01 mg/l) | | Stainless steel 1.4571 |
| automatic compensation instrument | temperature | weight (min.) | 150 g |
| automatic compensation cross sensitivities | pH | dimensions (Ø x l) | 35 x 208 mm |
| response time (T90) | 2 min. | operating temperature | 0 ... 45 °C |
| integration via | con::cube con::lyte con::nect | storage temperature | 0 ... 45 °C |
| power supply | 9 ... 30 VDC | operating pressure | 0 ... 3 bar |
| power consumption (typical) | 0.5 W | installation / mounting | flow cell |
| power consumption (max.) | 0.6 W | process connection | quick connect |
| | | recommended flow | 15 ... 30 l/h (in s::can flow cell) |
| | | pH range FCI | 4 ... 9 |
| | | pH range TCI | 4 ... 12 |
| | | conformity - EMC | EN 61326-1 |

| measuring range | | | | | |
|------------------------|------|-------------------------|--------------------------|---------------------|-------------|
| | | parameter | | | |
| | | free chlorine [mg/l] | total chlorine [mg/l] | temperature [°C] | part number |
| chlori::lyser (FCI) | min. | 0 | | 0 | E-520-1-000 |
| | max. | 2 | | 45 | |
| chlori::lyser (FCI) | min. | 0 | | 0 | E-520-2-000 |
| | max. | 20 | | 45 | |
| chlori::lyser (TCI) | min. | | 0 | 0 | E-525-1-000 |
| | max. | | 2 | 45 | |
| chlori::lyser (TCI) | min. | | 0 | 0 | E-525-2-000 |
| | max. | | 20 | 45 | |

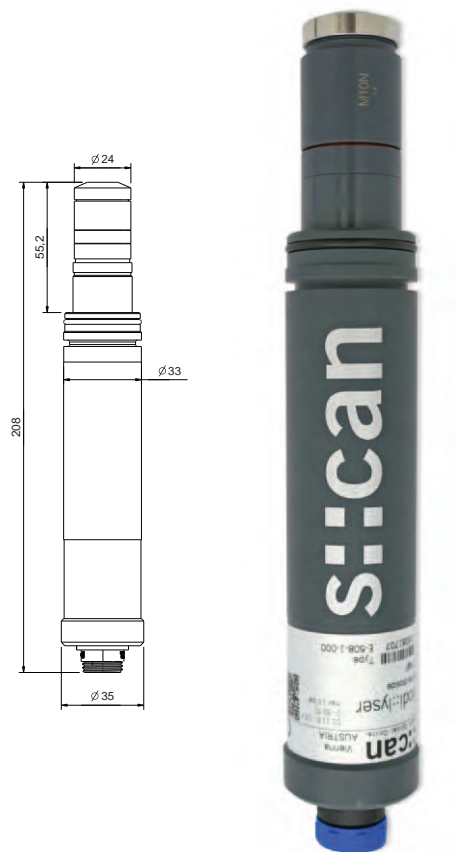
chlodi::lyser

chlodi::lyser monitors chlorine dioxide (CLD)

- s::can plug & measure
- measuring principle: amperometric (membrane covered)
- ideal for all kinds of water treatment
- long term stable and lowest maintenance in operation
- replacement of membrane only once a year
- readings stable even at high fluctuations of pH, temperature and flow
- strong surfactants are tolerated
- not cross sensitive to chlorine
- factory precalibrated
- mounting and measurement in a flow cell
- operation via s::can terminals & s::can software
- additionally also measures temperature

recommended accessories

| part number | article name |
|----------------|---|
| C-1-010-sensor | 1 m connection cable for s::can physical and ISE probes |
| E-508-1/2-EL | Chlorine Dioxide electrolyte (spare part) |
| E-508-1/2-SET | Chlorine Dioxide membrane cap (spare part) |
| D-315-xxx | con::cube |
| F-45-four | flow cell for four s::can physical probes |
| F-45-sensor | flow cell for s::can sensor |
| S-11-xx-moni | moni::tool Software |



| technical specification | | | |
|-----------------------------------|---|-------------------------|-------------------------------------|
| measuring principle | amperometric | housing material | PVC |
| measuring principle detail | potentiostatic 2-electrode system, membrane covered | | Stainless steel 1.4571 |
| resolution | 0.1 mg/l for 0 - 200 mg/l | weight (min.) | 150 g |
| automatic compensation instrument | temperature | dimensions (Ø x l) | 35 x 208 mm |
| response time (T90) | 1 min. | operating temperature | 0 ... 50 °C |
| integration via | con::cube con::lyte con::nect | storage temperature | 0 ... 45 °C |
| power supply | 9 ... 30 VDC | operating pressure | 0 ... 1 bar |
| power consumption (typical) | 0.5 W | installation / mounting | flow cell |
| power consumption (max.) | 0.6 W | process connection | quick connect |
| interface to s::can terminals | sys plug (IP67), RS485 | recommended flow | 15 ... 30 l/h (in s::can flow cell) |
| | | pH range | 2 ... 11 |
| | | conformity - EMC | EN 61326-1 |
| | | protection class (-000) | IP67 |

| measuring range | | | | |
|-----------------|------|-------------------------|------------------|-------------|
| | | parameter | | |
| | | chlorine dioxide [mg/l] | temperature [°C] | part number |
| chlodi::lyser | min. | 0 | 0 | E-508-1-000 |
| | max. | 2 | 50 | |
| chlodi::lyser | min. | 0 | 0 | E-508-2-000 |
| | max. | 20 | 50 | |

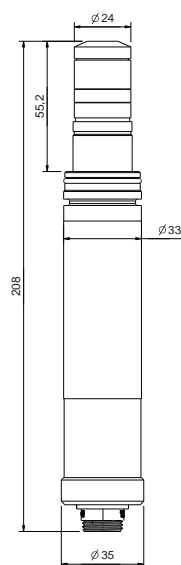
hyper::lyser

hyper::lyser monitors hydrogen peroxide (H₂O₂)

- s::can plug & measure
- measuring principle: amperometric (membrane covered)
- ideal for all kinds of water treatment
- long term stable and lowest maintenance in operation
- replacement of membrane only once a year
- readings stable even at high fluctuations of pH, temperature and flow
- strong surfactants are tolerated
- factory precalibrated
- mounting and measurement in a flow cell
- operation via s::can terminals & s::can software
- additionally also measures temperature

recommended accessories

| part number | article name |
|----------------|---|
| C-1-010-sensor | 1 m connection cable for s::can physical and ISE probes |
| D-315-xxx | con::cube |
| E-509-1/2-EL | Hydrogen Peroxide electrolyte (spare part) |
| E-509-1/2-SET | Hydrogen Peroxide membrane cap (spare part) |
| F-45-four | flow cell for four s::can physical probes |
| F-45-sensor | flow cell for s::can sensor |
| S-11-xx-moni | moni::tool Software |



| technical specification | | | |
|-----------------------------------|---|-------------------------|-------------------------------------|
| measuring principle | amperometric | housing material | PVC |
| measuring principle detail | potentiostatic 2-electrode system, membrane covered | | Stainless steel 1.4571 |
| resolution | 0.1 mg/l for 0 - 200 mg/l 1 mg/l for 0 - 2000 mg/l | weight (min.) | 150 g |
| automatic compensation instrument | temperature | dimensions (Ø x l) | 35 x 208 mm |
| response time (T90) | 5 ... 10 min. | operating temperature | 0 ... 45 °C |
| integration via | con::cube con::lyte con::nect | storage temperature | 0 ... 45 °C |
| power supply | 9 ... 30 VDC | operating pressure | 0 ... 1 bar |
| power consumption (typical) | 0.5 W | installation / mounting | flow cell |
| power consumption (max.) | 0.6 W | process connection | quick connect |
| interface to s::can terminals | sys plug (IP67), RS485 | recommended flow | 15 ... 30 l/h (in s::can flow cell) |
| | | pH range | 2 ... 11 |
| | | conformity - EMC | EN 61326-1 |
| | | protection class (-000) | IP67 |

| measuring range | | | | |
|-----------------|------|--------------------------|------------------|-------------|
| | | parameter | | |
| | | hydrogen peroxide [mg/l] | temperature [°C] | part number |
| hyper::lyser | min. | 0 | 0 | E-509-1-000 |
| | max. | 200 | 45 | |
| hyper::lyser | min. | 0 | 0 | E-509-2-000 |
| | max. | 2000 | 45 | |

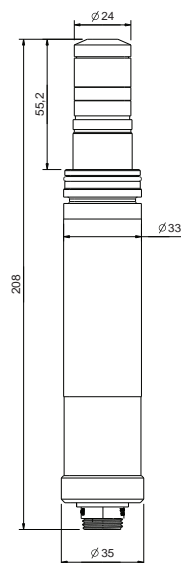
peroxy::lyser

peroxy::lyser monitors peracetic acid (PAA)

- s::can plug & measure
- measuring principle: amperometric (membrane covered)
- ideal for all kinds of water treatment
- long term stable and lowest maintenance in operation
- replacement of membrane only once a year
- readings stable even at high fluctuations of pH, temperature and flow
- strong surfactants are tolerated
- not cross sensitive to high concentrations of hydrogen peroxide
- factory precalibrated
- mounting and measurement in a flow cell
- operation via s::can terminals & s::can software
- additionally also measures temperature

recommended accessories

| part number | article name |
|----------------|---|
| C-1-010-sensor | 1 m connection cable for s::can physical and ISE probes |
| D-315-xxx | con::cube |
| F-45-four | flow cell for four s::can physical probes |
| F-45-sensor | flow cell for s::can sensor |
| S-11-xx-moni | moni::tool Software |
| E-515-1/2-SET | Peracetic Acid membrane cap (spare part) |
| E-515-1/2-EL | Peracetic Acid electrolyte (spare part) |



| technical specification | | | |
|-----------------------------------|---|-------------------------|-------------------------------------|
| measuring principle | amperometric | housing material | PVC |
| measuring principle detail | potentiostatic 2-electrode system, membrane covered | | Stainless steel 1.4571 |
| resolution | 0.1 mg/l for 0 - 200 mg/l 1 mg/l for 0 - 2000 mg/l | weight (min.) | 150 g |
| automatic compensation instrument | temperature | dimensions (Ø x l) | 35 x 208 mm |
| response time (T90) | 1.5 ... 5 min. | operating temperature | 0 ... 45 °C |
| integration via | con::cube con::lyte con::nect | storage temperature | 0 ... 45 °C |
| power supply | 9 ... 30 VDC | operating pressure | 0 ... 1 bar |
| power consumption (typical) | 0.5 W | installation / mounting | flow cell |
| power consumption (max.) | 0.6 W | process connection | quick connect |
| interface to s::can terminals | sys plug (IP67), RS485 | recommended flow | 15 ... 30 l/h (in s::can flow cell) |
| | | pH range | 1 ... 6 |
| | | conformity - EMC | EN 61326-1 |
| | | protection class (-000) | IP67 |

| measuring range | | | | |
|-----------------|------|---------------|-------------|-------------|
| | | parameter | temperature | part number |
| | | PAA [mg/l] | [°C] | |
| peroxy::lyser | min. | 0 | 0 | E-515-1-000 |
| | max. | 200 | 45 | |
| peroxy::lyser | min. | 0 | 0 | E-515-2-000 |
| | max. | 2000 | 45 | |

Terminals



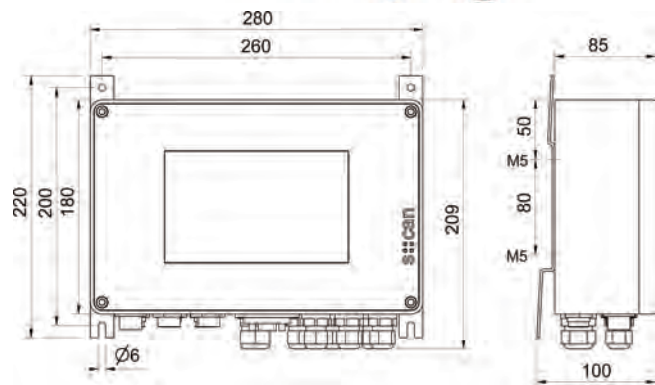
con::cube



con::lyte

con::cube

- s::can high-end IoT (Internet of Things) terminal based on an industrial PC, IP65
- widescreen color graphical display (7") and touch screen
- highly intuitive use, informative visualization & easy operation: time series, optical spectra and all events in clear text
- sensor and station management of up to 64 parameters: automatic cleaning, data logging, sample & calibration including history and multipoint calibration, sensor function check, user management and easy data transfer via USB-stick
- low power operation with less than 3 watts (@ 15 min. measuring interval): wide range AC and DC variants available, both variants can be battery powered with 12 VDC, for example charged by solar panels (12 V/60 Ah battery => 10 days)
- IoT (Internet of Things) and M2M (Machine to Machine) connectivity: 100 Mb/s Ethernet, 300 Mb/s Wi-Fi and optional worldwide WCDMA 3G interface, remote control (http) and data transfer into "Cloud" via FTP, SSH and TML
- process interface to SCADA via Modbus RTU/TCP, SDI-12, Profibus DP, analog 0/4-20 mA and relay outputs (state)
- integration of third-party sensors via analog 0/4-20 mA and digital (solid state) inputs, Modbus RTU/TCP
- easily extendable & all moni::tool features available: 8 slots to customize I/Os, moni::tool software pre-installed, additional software features like online data validation and event detection optional



standard accessories

| part number | article name |
|-----------------|--|
| S-11-04-moni | moni::tool - Basic s::can monitoring station software for 4 parameters |
| D-315-out-relay | 4 digital outputs (output module), provides 4 configurable relay contacts 1A |
| D-303-LX | Linux Application Licence (obligatory to D-315) |

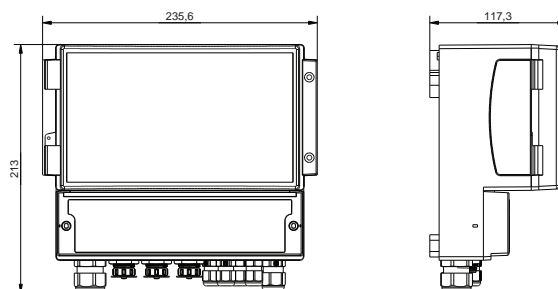
| technical specification | | | |
|--|--|-------------------------------------|---|
| integration of | 1 x s::can spectrometer probe and 4 x s::can sensors or ISE probes | power supply | D-315-230: 100 ... 240 VAC D-315-024: 10 ... 36 VDC |
| display | VGA color-display 7" TFT (optional) | power consumption (typical) | 1.5 W (in sleep mode) 10 W (no analogue ports) 30 W (fully equipped) |
| function indicator | 4 x LED | | |
| operation via | integrated touch-screen (optional) Ethernet - Browser or VNC WIFI - Browser or VNC USB (keyboard, mouse) 3G modem (optional) | power consumption (max.) | 20 W (no analogue ports) 60 W (fully equipped) |
| operating system | Linux | grounding | <0.5 Ohm to process media |
| main memory | 1 GB RAM | analog outputs | up to 8x2 x 0/4-20 mA |
| onboard memory | 4 GB | analog inputs | up to 8x2 x 0/4-20 mA |
| interface to s::can spectrometric probes | 1 x MIL, RS485 | outputs for automatic cleaning | 2 |
| interface to s::can sensors | 4 x sys plug, RS485 | digital inputs | up to 7x2 x 14 VDC |
| interface to third party sensors | Modbus RTU/TCP, analog inputs | relay outputs | 4 x 2A (500 VAC) |
| network connection | 802.11n a/b/g WIFI 300Mb/s Ethernet LAN worldwide 3G HSPA | system error relay | 1 x 2A (500 VAC) |
| interface to SCADA | Modbus RTU/TCP, Profibus DP (optional), SDI-12 (optional), analog outputs | dimensions (width x height x depth) | 280 x 209 x 85 mm |
| data transfer | via SSH, FTP, TML (XML) and USB stick | housing material | aluminium alloy, powder coated |
| remote control | via http | weight (min.) | 4 kg |
| | | operating temperature | -20 ... 50 °C |
| | | storage temperature | -20 ... 60 °C |
| | | storage humidity | 5 ... 90 % |
| | | ingress protection class | IP65 |
| | | conformity - EMC | EN 61326-1 |
| | | conformity - safety | EN 61010-1 UL 61010-1:2004 R10.08 CAN/CSA-C22.2 NO. 61010-1-04+G11 (R2009) |
| | | part number 24V | D-315-024 |
| | | part number 230V | D-315-230 |

recommended accessories

| part number | article name |
|---------------------|---|
| C-31-eu | Optional 2 m power cable |
| D-315-3GLX | worldwide 3D internet connection via Quad-band HSPA (up to 5.7 Mbps/21 Mbps) |
| C-31-us | Optional 2 m power cable |
| D-315-in-mA | 2 analogue inputs (input module), provides 2 analogue inputs (4-20mA) for integration of 3rd party readings |
| D-315-in-relay | 2 digital inputs (input module), provides 2 digital IN (5-24V) for integration of 3rd party readings |
| D-315-out-mA | 2 analogue outputs (output module), provides data transfer to PLC systems |
| D-315-out-Pro-fibus | provides Profibus DPV0 for data transfer to PLC systems |
| D-315-out-SDI12 | SDI 12 (output module), provides SDI 12 for data transfer to PLC systems |
| F-51 | weather shield for s::can terminals |
| D-315-anten-na-pro | External, high range antenna option for con::cube, incl. 10 m extension cable |
| D-315-anten-na-plug | Internal antenna adapter cable and connector, option for con::cube |
| S-14-vali | vali::tool - s::can data validation software |
| S-15-ana | ana::tool - s::can event detection software |
| S-20-MVA | Complete license of all moni::tool modules, vali::tool and ana::tool |
| C-41-hub | Distribution box for additional sensors such as i::scan, sensors & ISE probes (3 x IP67 sys plug connections, RS485, 12 VDC) incl. C-1-010-sensor |

con::lyte

- s::can low-cost terminal designed for control applications
- power efficient LCD display and ergonomic user interface
- sensor and station management of up to 2 (eco) or 6 (pro) parameters
- control of automatic cleaning, data logging, sample & calibration, sensor function check and easy data transfer via USB-stick
- process interface to SCADA or con::cube via Modbus RTU, Profibus DP, analog (0/4-20 mA and relay outputs (state/PWM/Pulse)
- integration of third-party sensors via analog 0/4-20 mA input and digital (solid state/count) inputs
- outstanding control features: easy threshold and alarm limits with hysteresis, 3 optional PID or 2-point controllers
- certifications: CE, UL, CSA and RCM



technical specification

| | |
|-------------------------------------|---|
| display | LCD |
| function indicator | 2 x LED |
| operation via | keypad |
| onboard memory | 512 MB |
| interface to SCADA | Modbus RTU (optional), Profibus DP (optional), analog outputs |
| data transfer | USB stick |
| power supply | 100-240 VAC (50-60 Hz) |
| power consumption (max.) | 25 W |
| analog inputs | 1 x 0/4-20 mA |
| outputs for automatic cleaning | 1 (2nd cleaning device via relay output) |
| digital inputs | 2 |
| digital input flow detector | 1 |
| relay outputs | 2 x 6A (600 VAC) |
| system error relay | 1 x 6A (600 VAC) |
| dimensions (width x height x depth) | 235.6 x 213 x 117.3 mm |
| housing material | PC |
| weight (min.) | 1300 g |
| operating humidity | 5 ... 90 % |
| storage temperature | -20 ... 50 °C |
| storage humidity | 5 ... 90 % |
| ingress protection class | IP65 |
| conformity - EMC | EN 61326-1 |
| conformity - safety | EN 61010-1 |
| conformity - RoHS 2 | EN 50581 |

con::lyte eco (2 parameters)

| | |
|-----------------------------|--|
| integration of | 1 x i::scan, s::can sensor or s::can ISE probe |
| interface to s::can sensors | 1 x sys plug, RS485 |
| analog outputs | 2 x 4-20 mA |
| operating temperature (eco) | -20 ... 45 °C |
| part number 230V | D-320-eco-230 |

con::lyte pro (6 parameters)

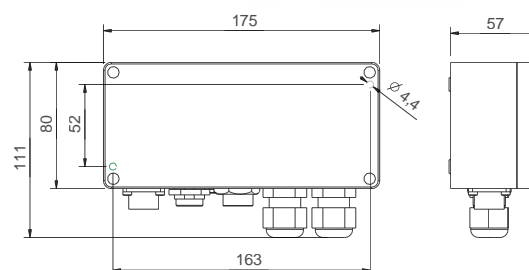
| | |
|--|--|
| integration of | D-320-pro1: i::scan, s::can sensors, s::can ISE probes D-320-pro2: s::can G::series, i::scan, s::can sensors, s::can ISE probes |
| interface to s::can spectrometric probes | D320-pro2: 1 x MIL, RS485 |
| interface to s::can sensors | D-320-pro1: 3 x sys plug, RS485 D-320-pro2: 2 x sys plug, RS485 |
| analog outputs (optional license) | 3 x 4-20 mA |
| analog outputs (optional module) | 2 x 0/4-20 mA / 4 x 0/4-20 mA |
| operating temperature (pro1) | -20 ... 45 °C |
| operating temperature (pro2) | -20 ... 50 °C |
| part number 230V | D-320-pro1-230 D-320-pro2-230 |

recommended accessories

| part number | article name |
|--------------------|--|
| C-31-eu | Optional 2 m power cable |
| D-319-logger | Datalogger option for con::lyte |
| D-319-out-profibus | Profibus (output module for con::lyte) |
| D-319-out-mA | 2 x 0/4 - 20 mA (output module for con::lyte) |
| D-319-out-modbus | Modbus/RTU (output module for con::lyte) |
| D-320-PID | 3 x PID control output for con::lyte D-320 |
| D-320-out-mA | license for 3 analog outputs (4-20 mA) for con::lyte pro |

con::nect

- s::can sensor power supply IP65 with sensor interface (Modbus RTU) and USB interface
- expand con::cube/con::lyte sensors networks (longer distances and higher number of sensors)
- stand-alone operation of spectrometer probe in logger-mode
- operation of one s::can spectrometer probe and s::can sensor / ISE probe
- directly implement s::can sensors into SCADA (one way)
- control of automatic cleaning (only for spectrometer probe)
- wide range AC and DC variants available, both variants can be powered with 12 VDC (battery)



technical specification

| | |
|--|---|
| integration of | 1 x s::can spectrometer probe and 1 x s::can ISE probe or physical probe |
| function indicator | 2 x LED |
| operation via | via PC / notebook |
| interface to s::can spectrometric probes | 1 x MIL, RS485 |
| interface to s::can sensors | 1 x sys plug, RS485 |
| interface to PC | USB 2.0 |
| interface to SCADA | RS485 |
| data transfer | via PC |
| power supply | DC: 10 ... 36 V AC: 85-265 V (47-63Hz) |

| | |
|-------------------------------------|--------------------------------------|
| power consumption (max.) | 14.5 W |
| outputs for automatic cleaning | 1 |
| dimensions (width x height x depth) | 80 x 175 x 57 mm (w/o cable bushing) |
| housing material | aluminium alloy, powder coated |
| weight (min.) | 600 g |
| operating temperature | -20 ... 50 °C |
| storage temperature | -20 ... 50 °C |
| ingress protection class | IP65 |
| conformity - EMC | EN 61326-1 |
| conformity - safety | EN 61010-1 |
| part number 24V | B-23-024 |
| part number 230V | B-23-230 |

recommended accessories

| part number | article name |
|-------------|---|
| C-14 | field case |
| S-04-CD | ana::pro - Advanced Process Software CD-ROM |
| C-41-hub | Distribution box for additional sensors such as i::scan, sensors & ISE probes (3 x IP67 sys plug connections, RS485, 12 VDC) incl. C-1-010-sensor |
| C-31-eu | Optional 2 m power cable |
| C-31-us | Optional 2 m power cable |

Software



moni::tool™

vali::tool ana::tool

A true software revolution that changes the face of water quality monitoring, data validation and event detection!

Why use Monitoring Station Software?

The rising popularity of online sensors means that ever increasing amounts of data are collected. Online results increase the understanding of water quality, but the amount of data can be so enormous that it is impossible to manually verify and interpret the data. Automatic validation and event detection is therefore crucial to exploit the potential of online monitoring.

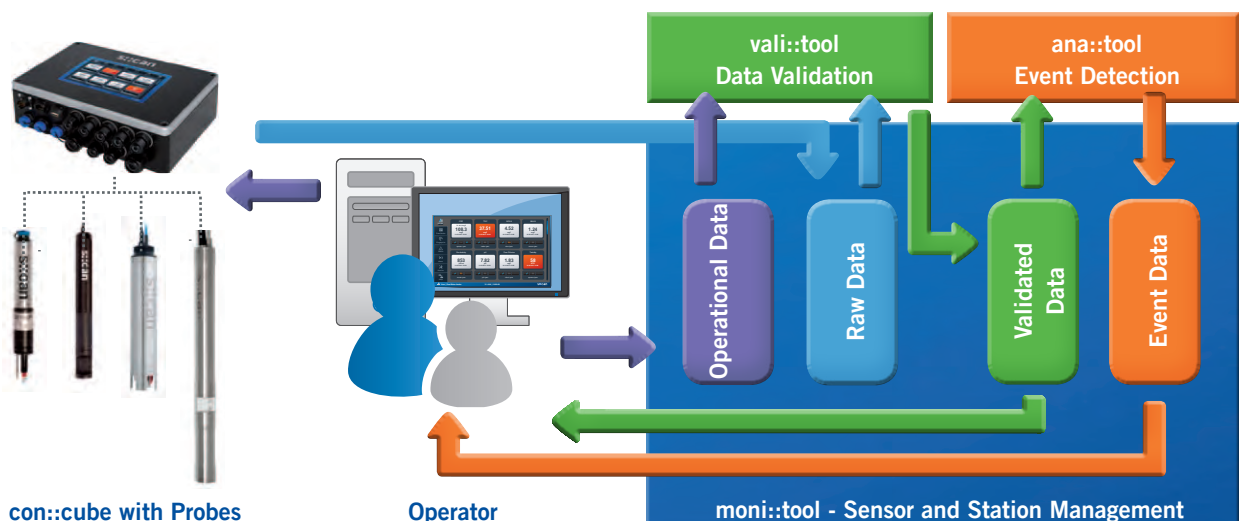
What is special about moni::tool?

s::can has developed a modular software package to improve data availability and quality. The concept looks at the whole system: hardware, software and operator. Only this all encompassing approach can guarantee that operational control and / or event detection work reliably. Using raw, unvalidated information for control or event detection will result in a high false alarm rate or in poor sensitivity.

The Modular Approach:

The s::can software package for water quality monitoring is split into three modules:

- **moni::tool™ - Sensor and Station Management**
Provides management of probes and stations. It documents critical manipulations, from user login to maintenance and logbook keeping. It also has intuitive visualization tools to display all information in a clear and easy to understand format.
- **vali::tool - Data Validation**
Automatically detects, marks and (optionally) corrects untrustworthy data. It ensures only high quality data are fed into the event detection module. It also provides the user with indications on sensor maintenance requirements, as well as automatic detection of malfunctions.
- **ana::tool - Event Detection**
With ana::tool your existing simple water quality monitoring station morphs into a fail-safe EDS-system!

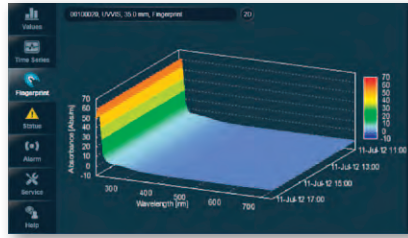


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moni::tool™

Sensor and Station Management

moni::tool™ is a revolutionary new platform for the management of an almost unlimited number of stations, online probes, analyzers and parameters. Intuitive operation - on site or remote - and reams of valuable features make moni::tool™ essential for state of the art sensor and station management.



Want to try moni::tool?
... visit monitool.s-can.at!

moni::tool™ - Basic Features



- Management for an almost unlimited number of stations, sensors and parameters
- Automatic installation of all s::can sensors
- Open platform talks to any sensor type (analog 0/4-20 mA, MODBUS RTU/TCP, solid state)



- Smart-phone-style, easy to use touch interface allows intuitive operation by non-expert staff
- Minimal user input necessary, Few input options = few input mistakes
- User management: Basic / Advanced / Expert user level



- Data Integration into any modern data exchange system
- Probes and stations can be accessed from any suitable device
- Can be run from any standard web browser e.g. via PC, Tablet, Notebook or Smart Phone



- Impressive real-time zoomable, scrollable graphical visualization of all historical data including 3D-optical spectra
- Optimal display readability with Classic-, Day- and Night-Mode



- Quality controlled and documented status management of probes and stations eliminates the need for paper log books
- Station and probe management for 100% transparent documentation



- Protected by a user-configurable firewall



- Automatic probe cleaning



- Easy customization of tools, devices and protocols
- Clear text help messages
- Available languages: German, English, Chinese, Japanese, Spanish, France and Turkish



- Can be used in a small monitoring station as well as in the heart of a large central data collection system
- Large local database for collection and management of all incoming data



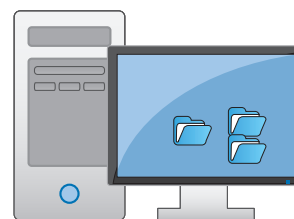
- Any parameter input of any type of probe can be fed in - managed and analyzed in real time
- Multi sample function to calibrate all installed probes with minimal effort

moni::tool™ - Additional Features

Automatic File Transfer

Automatic transfer of all relevant information from con::cube to your cloud and servers

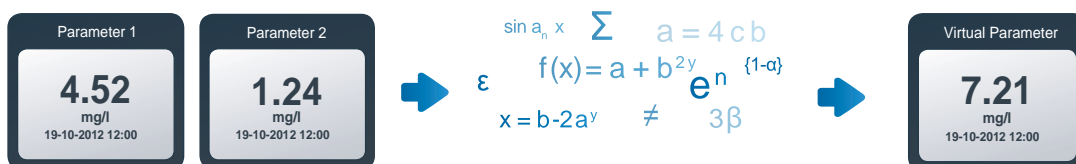
- Customizable ASCII format (csv supported)
- Import to any spreadsheet application or database (e. g. Excel)
- SSH-Transfer, FTP-Transfer and TML-Interface (XML-Based).



Free Formula

Offers to use virtual parameters based on online measurement results using a custom “free formula” (FF)

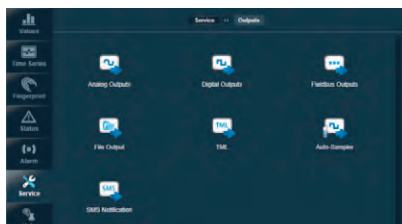
- Converts parameters/units, example: NO3-N can be converted to NO3
- Combines monitored parameters, example: COD and flow can be used to calculate load
- Long list of supported functions, example: multiple parameters including single wave-lengths from a spectro::lyser fingerprint can be combined to create a custom Water Quality Index



SMS Notification

Sends a SMS in case a configurable condition occurs (this function uses the optional con::cube internal modem)

- Every digital output function can be used to trigger a SMS notification
- Example conditions: parameter reading over limit, event detected, failure with installation or sensor detected, etc.
- Customizable SMS message text



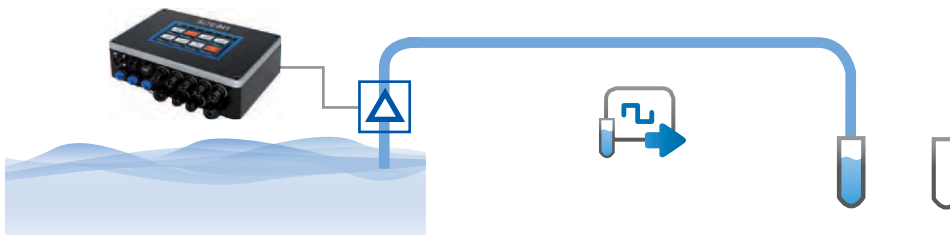
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moni::tool™ - Additional Features

Auto Sampler

Create your own Auto-Sampler!

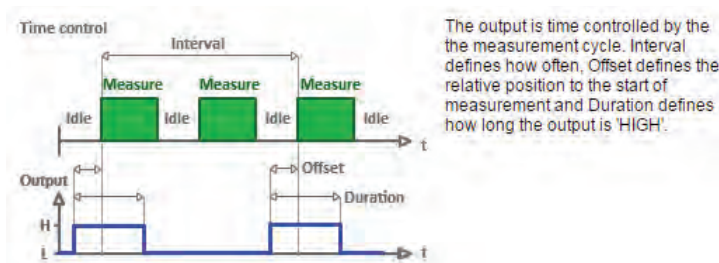
- Complete and flexible sample system
- Configure the conditions for taking samples
- Combine different conditions and program delays
- Control sample capacity either by a fill level detector or by a timer



PLC Tools

Enhance the process control functionality for the con::cube digital outputs

- Time Control
- Value Hysteresis downwards
- Pulsing



Camera Integration

Automatically collect snapshots and watch live video stream

- Effective surveillance against vandalism
- Choose the interval of snapshots freely
- Review stored snapshots in a gallery
- Can be used with INSTAR and AXIS cameras



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vali::tool

Data Validation

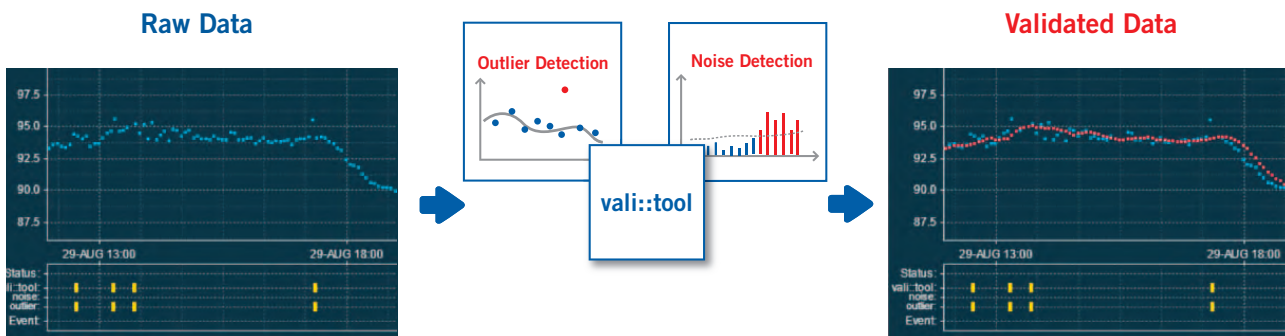
Automatic data validation makes sure that only unmarked, “clean” data are used for further analysis, training and alarms. Any non-event-related deviating data must be identified and marked before feeding them into the following event detection module.

Why is Data Validation before Event Detection important?

vali::tool automatically detects, marks and (optionally) corrects untrustworthy data, not by using mean average - it detects outliers, noise and checks for discontinuous data. It ensures only high quality data are fed into the event detection module (ana::tool). It also provides the user with indications on sensor maintenance requirements, as well as automatic detection of malfunctions.

How does vali::tool work?

The basic steps in the data validation are: outlier detection, noise detection and check for discontinuous data. The results of the data validation are presented as status information with the respective parameter and sensor. A station status symbol as well as a change in background color in the parameter display indicate that data quality is sub-optimal. Detailed notifications, including suggestions to remedy the issue or for maintenance, can be called up.



vali::tool - Highlights

- Provides self-adaptive, self-controlled data validation in real time
- Ensures both sensitive and reliable alarm limits respectively setpoints for process control
- Analyzes noise, outliers and other combinations in real time to reliably detect any malfunction at an early stage
- Considers user interventions in real-time
- Application-specific training period considers normal fluctuations of individual water matrix and typical process dynamics
- Helps to dramatically reduce false alarm rates
- Configurable auto-correction of data based on threshold, outlier and noise analysis

ana::tool

Event Detection for everyone

- Affordable for everyone
- Best available EDS
- Simple, easy to use and automatic

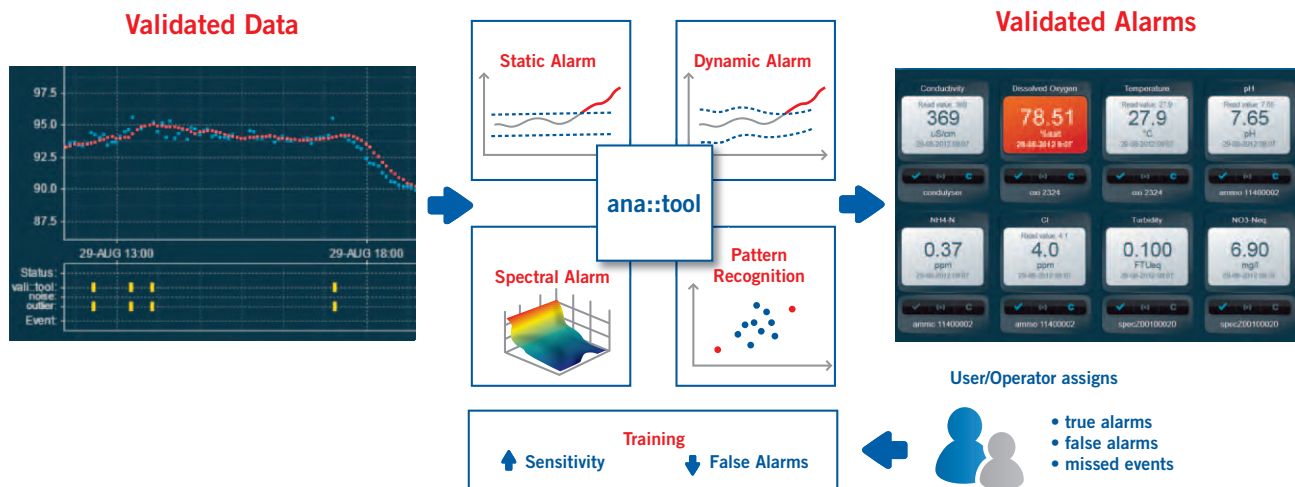
ana::tool turns your monitoring station into an Event Detection System!

ana::tool identifies unknown and unusual conditions and enables operators to react timely to faults in the monitored system, determines normality of these data and triggers an alarm when a significant deviation from normality is detected.

How does ana::tool work?

ana::tool evaluates measurement data that have been cleaned by the validation module. It identifies unknown and unusual conditions and enables operators to react timely to faults in the monitored system, determines normality of these data and triggers an alarm when a significant deviation from normality is detected. It combines Static Alarms, Dynamic Alarms, Pattern Recognition and Spectral Alarms.

Once an alarm is detected, the user has to provide feedback, so the system can learn what alarms are real and which ones represented normal changes in water quality. This will increase system performance over time. Gradual composition changes (e.g. seasonal variations) are accounted for by automatic training on a moving time window.



ana::tool - Highlights

- Unmatched event detection tools based on proven algorithms for real-time event detection that use data streams from all connected probes separately and in combination
- The only software developed by the market leader to be specifically capable of exploiting the enormous information contained in UV spectra which provide the most sensitive and stable data source for event detection
- ana::tool is optimized for use of multi-dimensional spectral data, but will also work with single or multiple one-dimensional inputs
- So far the only one commercial software package that was tested and found suitable by US-EPA water security division
- All event information is automatically aggregated into a “traffic light” output and a “% deviation from normal” output. Furthermore, analogue and digital outputs as well as text notifications can be triggered
- Trains itself on any type of data streams coming in, and will learn automatically which data are useful for event detection, and which ones not

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moni::tool License Options

| | free* | one time license fee | | | | | | | | | | | |
|--|--------------|----------------------|--------------|--------------|------------------|-------------------|----------|------------------|----------------|-------------|-----------|----------|----------|
| | S-11-04-moni | S-11-08-moni | S-11-24-moni | S-11-64-moni | S-11-data-export | S-11-free-formula | S-11-SMS | S-11-autosampler | S-11-basic-PLC | S-11-camera | S-14-vali | S-15-ana | S-20-MVA |
| Basic Features | ● | ● | ● | ● | | | | | | | | | |
| 4 Parameters | ● | | | | | | | | | | | | |
| 8 Parameters | | ● | | | | | | | | | | | |
| 24 Parameters | | | ● | | | | | | | | | | |
| 64 Parameters | | | | ● | | | | | | | | | ● |
| Automatic data transfer (via SSH, FTP, TML) | | | | | ● | | | | | | | | ● |
| Configurable mathematical formula | | | | | | ● | | | | | | | ● |
| SMS notification | | | | | | | ● | | | | | | ● |
| Auto sampler feature | | | | | | | | ● | | | | | ● |
| Basic PLC functionality (time control, pulsing, custom bits) | | | | | | | | | ● | | | | ● |
| Camera input | | | | | | | | | | ● | | | ● |
| vali::tool | | | | | | | | | | | ● | ● | ● |
| ana::tool (includes vali::tool) | | | | | | | | | | | | ● | ● |
| Affordable license for all moni::tool features, vali::tool and ana::tool | | | | | | | | | | | | | ● |

* The basic features for 4 parameters come free of cost with every con::cube terminal

Upgrade

| | |
|---------------------------|--|
| S-19-subscription | s::can annual upgrade package for moni::tool |
| S-19-premium-subscription | s::can annual premium upgrade package for moni::tool; remote updates and yearly upgrade, logfile analysis and basic report by s::can Support included (online access required, for end-users only) |

Services

data::care packages

| | |
|------------------|--|
| S-18-data-4 | data::care - quarterly data check and basic report (annual fee, online access required) |
| S-18-data-12 | data::care - monthly data check and basic report (annual fee, online access required) |
| S-18-data-52 | data::care - weekly data check and basic report (annual fee, online access required) |
| S-VPN-hosting | vpn::host - one year secure remote access from customer PC to con::cube via s::can VPN server |
| S-VPN-hosting-36 | vpn::host - 36 months secure remote access from customer PC to con::cube via s::can VPN server |

custom packages

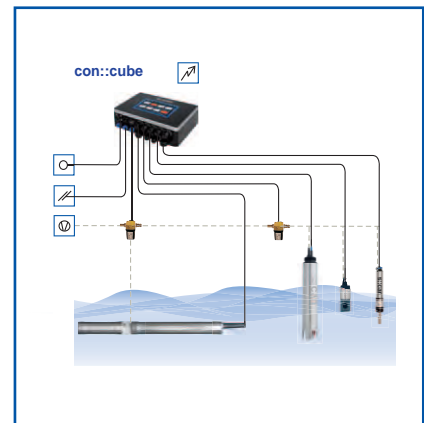
| | |
|---------------------|---|
| S-12-custom-tab | Custom moni::tool TAB, individual screen within moni::tool, completely adapted to customers requirements and applications, price on request after exact specification |
| S-12-custom-formula | Custom formula, individual sophisticated mathematical formulas and algorithms, price on request after exact specification |

setup+training packages

| | |
|-------|-----------------------------------|
| A-vf? | vali::tool - setup & evaluation |
| A-af? | ana::tool - training & evaluation |

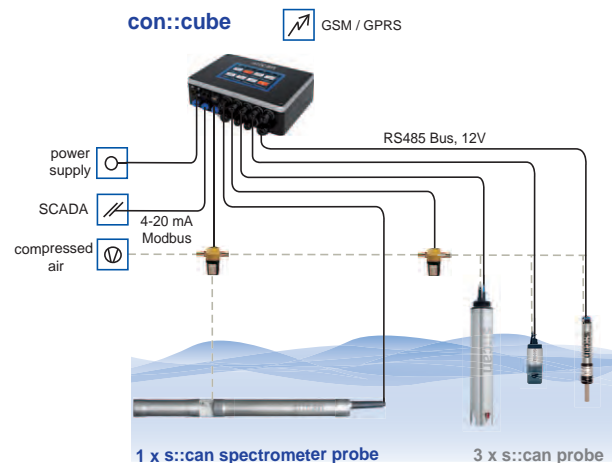
System Configuration

s::can
Intelligent. Optical. Online.



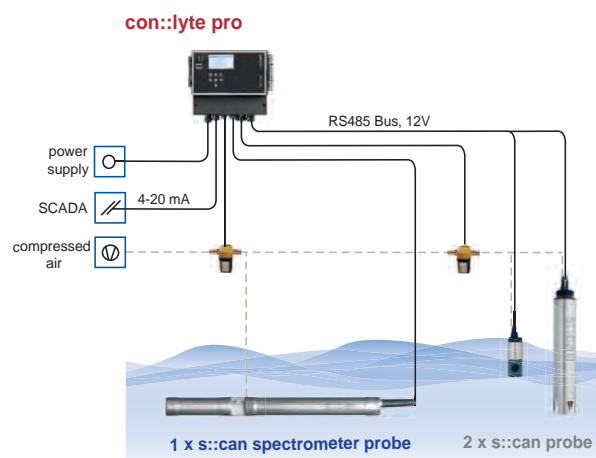
plug & measure - system configuration for con::cube

- s::can high-end IoT (Internet of Things) terminal based on an industrial PC, IP65
- wide screen color graphical display (7") and touch screen
- highly intuitive use, informative visualization & easy operation: time series, optical spectra and all events in clear text
- sensor and station management of up to 64 parameters: automatic cleaning, data logging, sample & calibration including history and multipoint calibration, sensor function check, user management and easy data transfer via USB-stick
- low power operation with less than 3 watt (@ 15 minutes measuring interval) for solar panel applications
- worldwide network connectivity thanks to quad-band WCDMA and dual-band EV-DO network connection technology
- WIFI interface integrated for remote control and data transfer
- highspeed 100 Mb/s ethernet interface for integration into larger networks
- easy data transfer via USB-stick
- process interface to SCADA via relay outputs, 4-20 mA, SDI-12, Modbus RTU/TCP and Profibus DP
- integration of third party sensors via 4-20 mA inputs, SDI-12 and Modbus RTU/TCP
- easily extendable with additional analog and digital I/Os utilizing eight available extension slots
- process software moni::tool pre-installed; additional software tools (e.g. data validation or event detection) optional
- display of concentration values, historians, optical spectra and all events in clear text
- easy configuration, calibration and administration of full s::can monitoring stations and networks
- optional: operation in flow cell



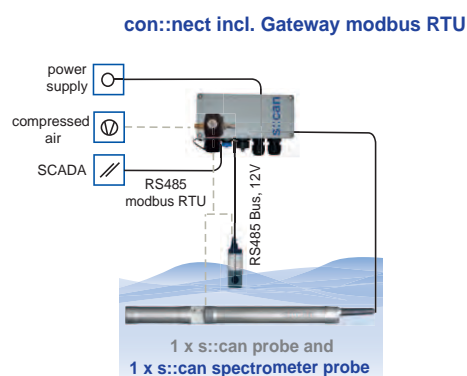
plug & measure - system configuration for con::lyte pro

- cost efficient, stationary operation with con::lyte pro
- for connection of one s::can spectrometer probe and two s::can sensors or s::can ISE probes
- unrivalled value for money, fixed price for complete system
- display up to 6 parameters
- on-site operation
- process interface to SCADA or con::cube via Modbus RTU, Profibus DP, analog (0/1)4-20 mA and relay outputs (state/PWM/Pulse)
- control of automatic cleaning, data logging, sample & calibration, sensor function check and easy data transfer via USB-stick
- outstanding control features: easy threshold and alarm limits with hysteresis, 3 optional PID or 2-point controllers
- OnLine & InSitu measurement
- optional: operation in flow cell
- optional: water quality monitoring station ex works



plug & measure - system configuration for con::nect PLC

- direct interface to SCADA (upon request)
- for connection of one s::can spectrometer probe and one s::can physical probe or one s::can ISE probe
- no further terminals necessary
- control of automatic cleaning valve (only spectrometer probe)
- power supply 12 VDC, 24 VDC or 230 VAC
- on-site operation via notebook (USB)
- optional: modular extensions available (gateway profibus DP, gateway 4-20 mA)
- OnLine & InSitu measurement
- optional: operation in flow cell
- optional: water quality monitoring station ex works



pipe::scan



pipe::scan

The pipe::scan is a sensor system for monitoring drinking water quality in pipes under pressure. It measures up to 10 parameters in one device: TOC, DOC, UV254, Turbidity, Color, UVT, Chlorine, pH/Redox, Conductivity, Temperature and Pressure. The water quality data can be sent to any central database via almost any protocol. Multiple pipe::scans are the ideal solution to monitor drinking water at any point in the network.



Certificate of Sanitary Conformity

- TOC
- DOC
- UV254
- Turbidity
- Color
- Chlorine
- pH/Redox
- Conductivity
- Temperature
- Pressure

i::scan

Multi-parameter spectrophotometer probe.

Parameters:
FTU/NTU, UV254, UVT,
Color, TOC, DOC

Optional autobrush for i::scan

Provides automatic brush cleaning for the i::scan.

Pipe saddle

2" pipe saddle for hot tap installation. Available for pipes from DN80 to DN600.

Enclosure

Additional security for sensors and operator.

Physical sensors

One chlori::lyser and two additional sensors (condu::lyser, pH::lyser or redo::lyser) can be installed.

Parameters:

Conductivity, Free Chlorine, pH, Redox and Temperature

Base unit

Flow cell for up to 4 sensors with retractable insertion nozzle, filter, sample valve, automatic bleeder valve, pressure sensor and flow sensor (optional).

Nano-pump

For water flow even during periods of stagnation.



technical specification

| | | | |
|----------------------------------|--|-----------------------------------|--|
| available measurement parameters | turbidity (NTU/FTU), TOC, DOC, UV254, UVT, Colour, pH or ORP, conductivity, free chlorine, pressure, temperature | installation / mounting | on 2" Hawle pipe saddle (to be ordered separately) |
| minimal measurement interval | 1 min | manual sampling option | ball valve for manual sampling IG1/4" EN10206-1 |
| wetted materials | POM stainless steel fine brass EN12165 and EN12164 | other operating limits | pipeline must be vented installation must be on top of pipe no direct sunlight |
| other material | depends on sensors | operating pH range | 4 - 12 pH |
| precalfibrated ex-works | all parameters | operating free chlorine range | 0 - 2 mg/l |
| reference standard | distilled water | storage temperature limit | base unit -20 ... +60°C sensors 0 ... +45°C |
| integration via | con::cube | storage humidity limit | 0 ... 95% |
| power supply | via con::cube | automatic cleaning | autobrush (for i::scan) |
| power consumption (typical) | 14W | drinking water safety certificate | ACS (Attestation de conformité Sanitaire) |
| power consumption (max.) | 35W | conformity - EMC | EN 61326-1 |
| weight (min.) | approx. 8 kg | conformity - safety | EN 61010-1 RoHS |
| dimensions (w x h x l) | 220 x 450 x 340 mm | protection class | IP67 |
| operating temperature | 0 (non-freezing) ... +40°C | | |
| operating pressure | 1 ... 10 bar | | |

i::scan for drinking water

| | | concentration ranges and sensor/probe type for this application | | | | | | | | |
|------------------------------------|------|---|---------------|---------------|------------------|--------------------|--------------|------------------------|------------------------|--------------------|
| | | turbidity [NTU/FTU] | TOC [mg/l] | DOC [mg/l] | UV254 [Abs/m] | UV254 f [Abs/m] | UVT10 [%] | color (app) [Hazen] | color (tru) [Hazen] | part number |
| i::scan_NTU/FTU | min. | 0 | | | | | | | | Y01-1-d-000 / -075 |
| | max. | 800 | | | | | | | | |
| i::scan_NTU/FTU+Color | min. | 0 | | | | | | 0 | 0 | Y02-1-d-000 / -075 |
| | max. | 800 | | | | | | 300 | 200 | |
| i::scan_NTU/FTU+UV254 | min. | 0 | | | 0 | 0 | 25 | | | Y03-2-d-000 / -075 |
| | max. | 800 | | | 70 | 55 | 100 | | | |
| i::scan_NTU/FTU+UV254+Color | min. | 0 | | | 0 | 0 | | 0 | 0 | Y04-2-d-000 / -075 |
| | max. | 800 | | | 70 | 55 | | 300 | 200 | |
| i::scan_NTU/FTU+TOC_eq+UV254 | min. | 0 | 0 | 0 | 0 | | | | | Y05-3-d-000 / -075 |
| | max. | 800 | 25 | 12 | 70 | | | | | |
| i::scan_NTU/FTU+TOC_eq+UV254+Color | min. | 0 | 0 | 0 | 0 | | | 0 | 0 | Y06-3-d-000 / -075 |
| | max. | 800 | 25 | 12 | 70 | | | 300 | 200 | |

chlори::lyser (stainless steel version) for drinking water

| | | concentration ranges and sensor/probe type for this application | | |
|---------------|------|---|---------------------|---------------|
| | | free chlorine [mg/l] | temperature [°C] | part number |
| chlори::lyser | min. | 0 | 0 | E-520-1-s-000 |
| (FCl, temp) | max. | 2 | 40 | |

pH::lyser for drinking water

| | | concentration ranges and sensor/probe type for this application | | |
|------------|------|---|---------------------|-------------|
| | | pH [pH] | temperature [°C] | part number |
| pH::lyser | min. | 4 | 0 | E-514-2-000 |
| (pH, temp) | max. | 10 | 40 | |

condu::lyser for drinking water

| | | concentration ranges and sensor/probe type for this application | | |
|----------------------|------|---|---------------------|-------------|
| | | conductivity [µS/cm] | temperature [°C] | part number |
| condu::lyser | min. | 0 | 0 | E-511-2-000 |
| (conductivity, temp) | max. | 5000 | 40 | |

redo::lyser for drinking water

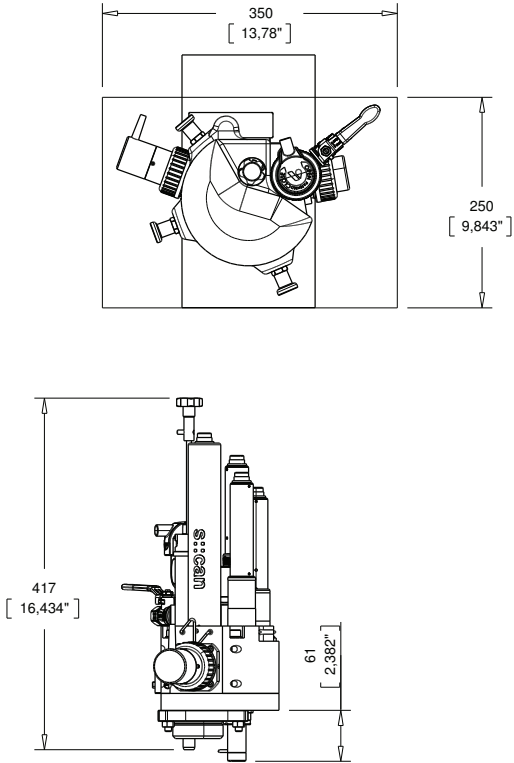
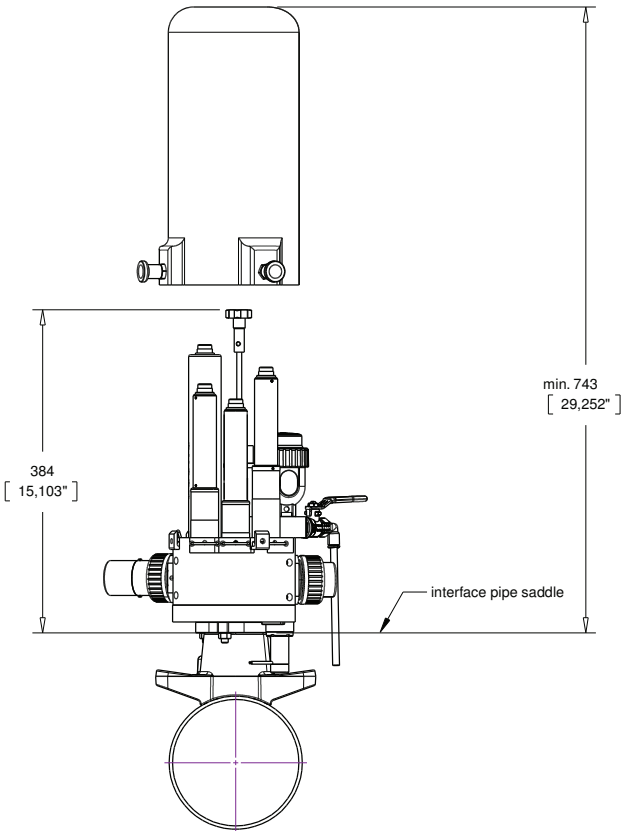
| | | concentration ranges and sensor/probe type for this application | | |
|-------------|------|---|---------------------|-------------|
| | | redox [mV] | temperature [°C] | part number |
| redo::lyser | min. | -500 | 0 | E-513-2-000 |
| (ORP, temp) | max. | 500 | 40 | |

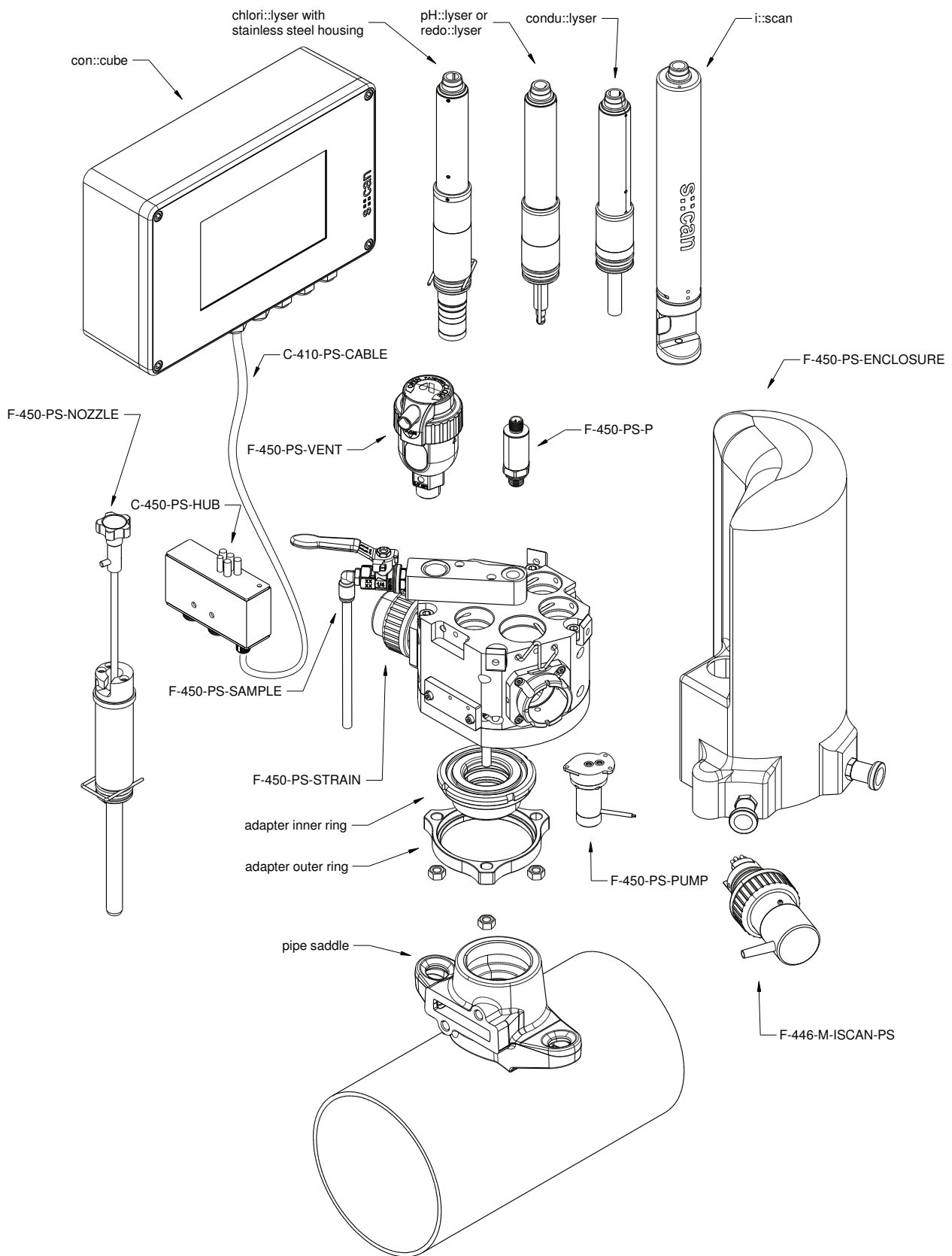
pipe::scan versions

| part number | article description |
|----------------|--|
| P-103-PIPESCAN | pipe::scan system: base unit + FCI, P, Temp |
| P-104-PIPESCAN | pipe::scan system: base unit + FTU, FCI, pH, P, Temp |
| P-105-PIPESCAN | pipe::scan system: base unit + FCI, pH, EC, P, Temp |
| P-106-PIPESCAN | pipe::scan system: base unit + FTU, FCI, pH, EC, P, Temp, autobrush |
| P-107-PIPESCAN | pipe::scan system: base unit + UV254, FTU, FCI, pH, EC, P, Temp, autobrush |
| P-108-PIPESCAN | pipe::scan system: base unit + TOC, UV254, FTU, FCI, pH, EC, P, Temp, autobrush |
| P-109-PIPESCAN | pipe::scan system: base unit + Farbe, TOC, UV254, FTU, FCI, pH, EC, P, Temp, autobrush |

recommended accessories

| part number | article name |
|---------------------|---|
| D-315-xxx | con::cube |
| S-11-xx-moni | moni::tool Software |
| F-160-SPSET-DKxxx | Hawle shut off pipe saddle DK75 - DK315, incl. saddle blade |
| F-160-SPSET-DNxxx | Hawle shut off pipe saddle DN80 - DK600, incl. saddle blade |
| D-315-in-mA | 2 analogue inputs (input module), provides 2 analogue inputs (4-20mA) for integration of 3rd party readings |
| D-315-in-relay | 2 digital inputs (input module), provides 2 digital IN (5-24V) for integration of 3rd party readings |
| D-315-out-mA | 2 analogue outputs (output module), provides data transfer to PLC systems |
| D-315-out-Pro-fibus | provides Profibus DPV0 for data transfer to PLC systems |
| D-315-out-relay | 4 digital outputs (output module), provides 4 configurable relay contacts 1A |
| S-14-08-vali | vali::tool - s::can data validation software |
| S-14-24-vali | |
| D-315-anten-na-pro | External, high range antenna option for con::cube, incl. 10 m extension cable |
| D-315-anten-na-plug | Internal antenna adapter cable and connector, option for con::cube |





Monitoring Stations



Monitoring station



Monitoring station

micro::station

BTX
TOC
DOC
UV254
NO3
NO2
NH4
K+
TCI/FCI
ClO2
H2O2
PAA
F-
TSS
FTU/NTU
Color
pH
ORP
Conductivity
Temperature
O2
O3
H2S
Fingerprints
Alarms

The fully modular micro::station combines s::can instruments to a compact and versatile system. It presents a complete solution, as the user only has to connect water supply and -discharge ("plug & measure") in order to receive a previously unheard variety of immediately available information and parameters at no extra cost.

The s::can micro::station is designed for OnLine monitoring of water quality parameters in clean media, such as drinking water. The required components - spectro::lyser, s::can probes and controller - are factory assembled with all required flow cells, mounting fittings and pipework on a compact panel.

micro::station - the s::can solution for water analysis - compact and easy like never before.

1 Terminal

con::cube terminal with moni::tool software for data acquisition, data display and station control

2 Spectrometer probe

All s::can spectrometer probes are multi-parameter instruments that can measure a variety of water quality parameters

Possible parameters:

AOC, BOD, BTX, COD, color, DOC, FTU/NTU, H₂S, NO₂-N, NO₃-N, O₃, TOC, TSS, UV254, Fingerprints and Spectral Alarms, Temperature and Pressure

3 Flow cell for spectrometer probe

Including auto brush cleaning device to provide cleaning of the optical measuring windows

4 System tubing

Included in panel assembly; Material PU, inside diameter 6 mm, outside diameter 8 mm

5 Flow detector

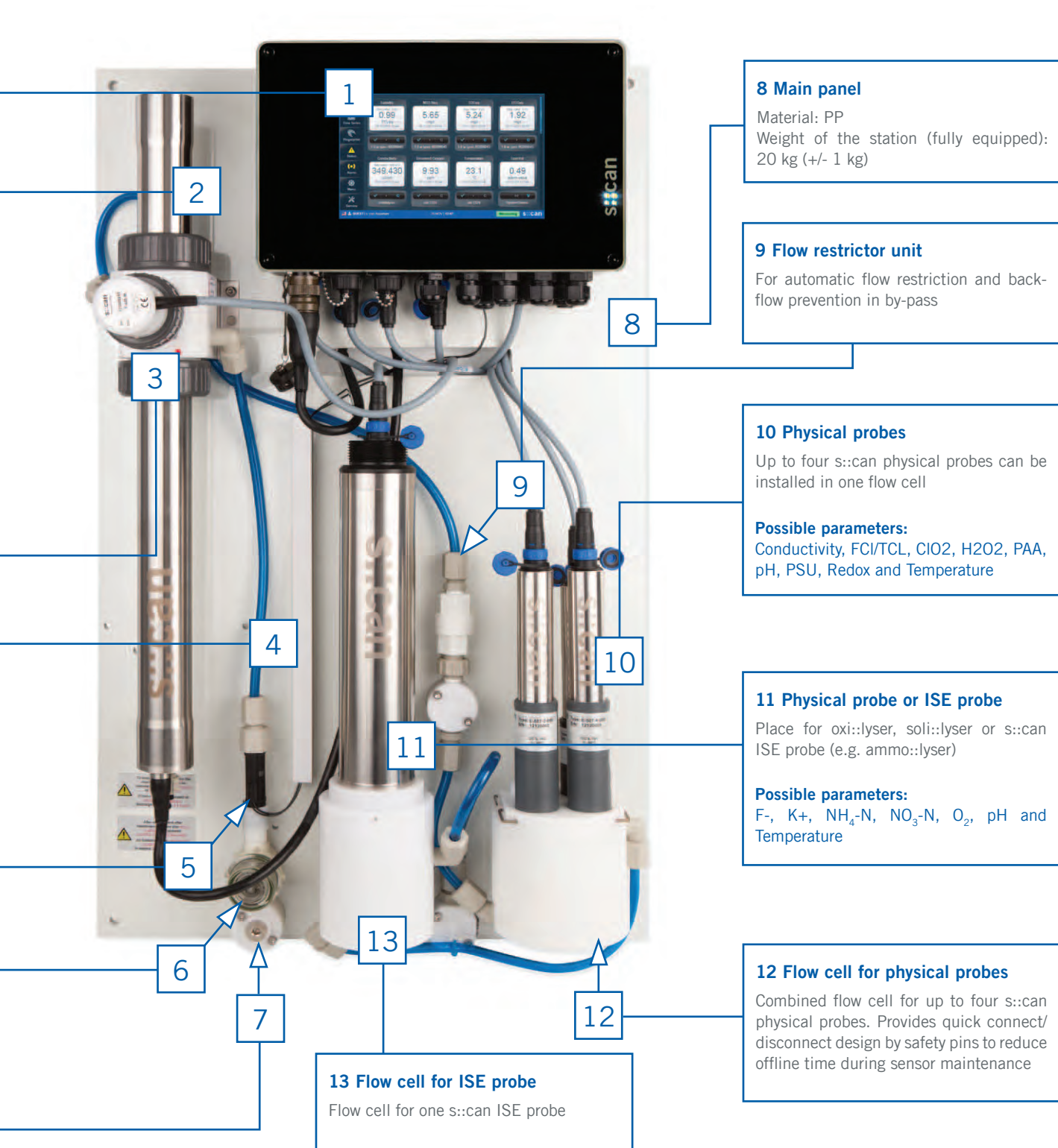
The flow detector is set to give an alarm if the flow rate decreases below a critical value

6 Inlet strainer

The inlet strainer ascertains that no coarse material enters the micro::station. With screw cap for sieve removal/cleaning

7 Pressure transmitter (optional)

Mounting position for pressure transmitter



8 Main panel

Material: PP
Weight of the station (fully equipped):
20 kg (+/- 1 kg)

9 Flow restrictor unit

For automatic flow restriction and back-flow prevention in by-pass

10 Physical probes

Up to four s::can physical probes can be installed in one flow cell

Possible parameters:

Conductivity, FCI/TCL, ClO₂, H₂O₂, PAA, pH, PSU, Redox and Temperature

11 Physical probe or ISE probe

Place for oxi::lyser, soli::lyser or s::can ISE probe (e.g. ammo::lyser)

Possible parameters:

F-, K+, NH₄-N, NO₃-N, O₂, pH and Temperature

12 Flow cell for physical probes

Combined flow cell for up to four s::can physical probes. Provides quick connect/disconnect design by safety pins to reduce offline time during sensor maintenance

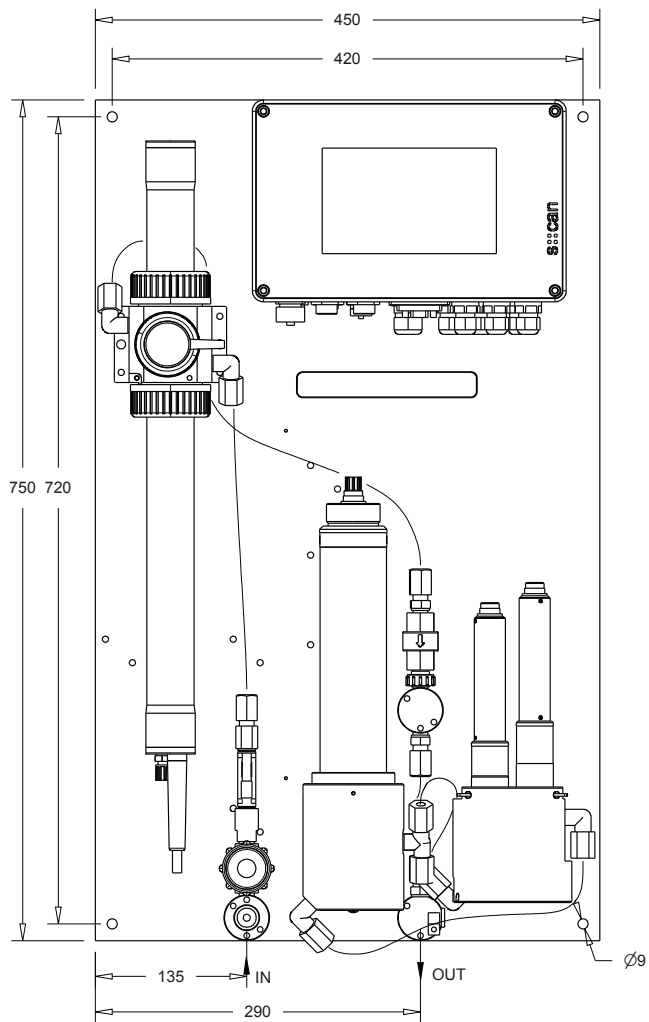
13 Flow cell for ISE probe

Flow cell for one s::can ISE probe

micro::station

Options for s::can micro::station

| | |
|--|--|
| 1 Terminal | con::cube con::lyte |
| 2 Spectrometer probe | spectro::lyser carbo::lyser multi::lyser nitro::lyser ozo::lyser uv::lyser |
| 3 Flow cell for spectrometer probe | flow-cell (by-pass fitting), POM-C (for pathlengths from 1 mm to 35 mm) flow-cell (by-pass fitting), POM-C (for pathlength 100 mm) flow-cell (by-pass fitting) autobrush, POM-C (for pathlength 35 mm) flow-cell (by-pass fitting) autobrush, POM-C (for pathlength 100 mm) |
| 4 System tubing | inside diameter 6 mm, outside diameter 8 mm |
| 5 Flow detector | flow detector |
| 6 Inlet strainer | inlet strainer |
| 7 Pressure transmitter | pressure transmitter for micro::station (optional) |
| 8 Main panel | system panel micro::station US system panel micro::station EU system panel micro::station add-on module EU system panel micro::station add-on module US |
| 9 Flow restrictor unit | automatic flow restrictor unit flow adjustment valve |
| 10 Physical probes | pH::lyser redo::lyser condu::lyser chlori::lyser chlodi::lyser hyper::lyser peroxi::lyser |
| 11 Physical probe or ISE probe | ammo::lyser eco ammo::lyser pro fluor::lyser oxi::lyser soli::lyser |
| 12 Flow cell for physical probes | flow-cell for up to 4 s::can physical probes, POM-C s::can physical probe flow-cell (by-pass setup), POM-C |
| 13 Flow cell for ISE probe or physical probe | ammo::lyser flow-cell (by-pass setup), POM-C oxi::lyser flow-cell |



nano::station

TOC
SAC
UV254
Color
TCI
FCI
FTU/NTU
Transmission
CIO2
H2O2
PAA
Conductivity
pH
ORP
Temperature
Alarms

The fully modular nano::station combines s::can instruments to a super-compact and versatile system. It presents a complete solution, as the user only has to connect water supply and -discharge ("plug & measure") in order to receive at no extra cost a previously unheard variety of immediately available information and parameters.

The s::can nano::station will revolutionize OnLine water quality monitoring: From very cost sensitive applications down to highly resolved "Smart Water Grids", in small unmanned plants, or even in single building protection.

The required components - i::scan, s::can probes and s::can controller - are factory assembled with required flow cells, mounting fittings and pipework on a super-compact panel.

The s::can nano::station - compact, precise and affordable!



nano::station with con::lyte

1 Terminal

With con::cube or con::lyte terminal. con::cube is equipped with moni::tool software for data acquisition, data display and station control

2 i::scan

One i::scan can be installed on every nano::station

Possible parameters:

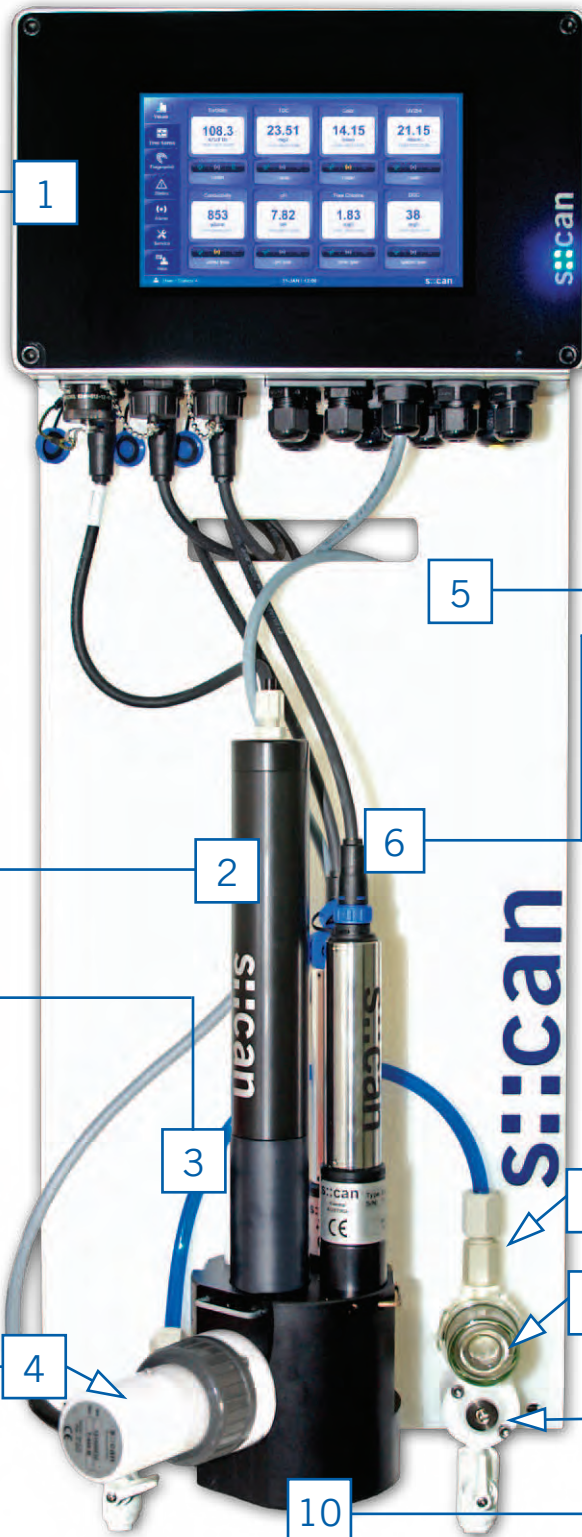
Color, FTU/NTU, UV254, TOC, DOC, Transmission

3 System tubing

Included in panel assembly; Material PU, inside diameter 6 mm, outside diameter 8 mm

4 Autobrush for i::scan

Provides automatic cleaning for i::scan



1

2

3

4

5

6

7

8

9

10

5 Main panel

Material: PE

Weight of the station (fully equipped):
11 kg (+/- 1 kg)

6 Physical probes

Up to three s::can physical probes can be installed additionally to the i::scan in one flow cell (e.g. conductivity, pH, Redox or Chloride)

Possible parameters:

Conductivity, FCI, TCL, ClO₂, H₂O₂, PAA, pH, Redox and Temperature

7 Flow detector (optional)

8 Inlet strainer

The inlet strainer ascertains that no coarse material enters the nano::station. With screw cap for sieve removal/cleaning

9 Pressure sensor (optional)

Mounting position for pressure transmitter

10 Flow cell for i::scan and physical probes

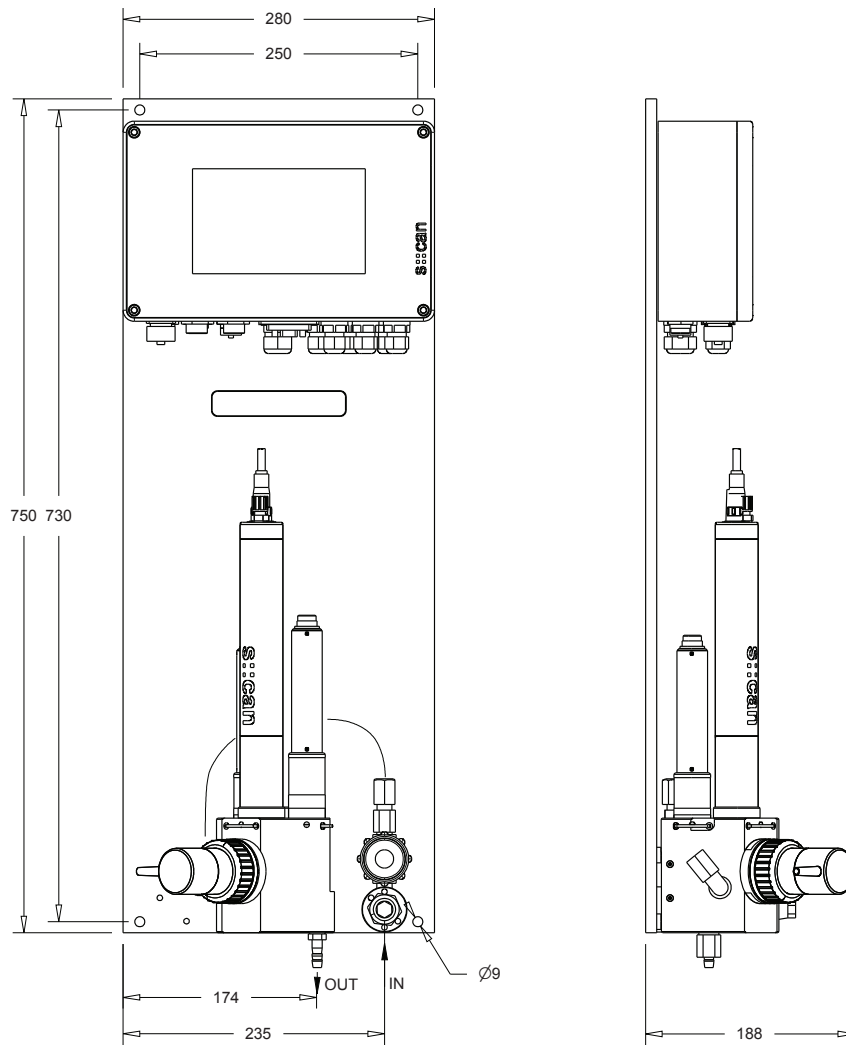
Combined flow cell for one i::scan and up to three s::can physical probes. Provides quick connect/disconnect design by safety pins to reduce offline time during maintenance.

A flow restrictor (optional) can be installed in the flow cell.

nano::station

Options for s::can nano::station

| | |
|--|---|
| 1 Terminal | con::cube, con::lyte |
| 2 i::scan | i::scan |
| 3 System tubing | inside diameter 6 mm, outside diameter 8 mm |
| 4 Autobrush | autobrush for i::scan |
| 5 Main panel | system panel nano::station US or system panel nano::station EU |
| 6 Physical probes | pH::lyser, redo::lyser, condu::lyser, chlo::lyser, chlodi::lyser, hyper::lyser, pero::lyser |
| 7 Inlet strainer | flow detector (optional) |
| 8 Inlet strainer | inlet strainer |
| 9 Pressure transmitter | pressure transmitter for nano::station (optional) |
| 10 Flow cell for physical probes and i::scan | flow-cell for i::scan and up to 3 s::can physical probes, POM-C |



Spare Parts & Accessories



Reference electrode and ammonium electrode for ammonia



ruck::sack - brush for submersed installation

s::can compressor

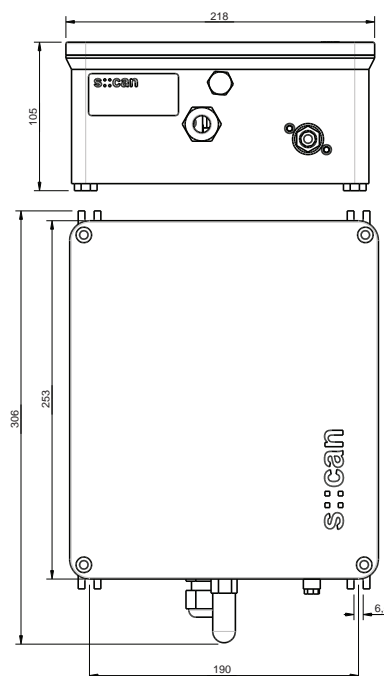
- provides compressed air for s::can spectrometer probes, oxi::lyser, soli::lyser and ammo::lyser™
- removal of fouling using compressed air
- aluminium housing IP65 for wall mounting
- optional 12 VDC or 230/110 VAC version available
- railing-mounting set available

technical specification

| | |
|-------------------------------------|--|
| power supply | type B32-230: 230 VAC type B32-110: 110 VAC type B32-012: 12 VDC |
| power consumption (typical) | AC 100 W DC 60 W (5.2A @ 12V) |
| power consumption (max.) | AC 100 W DC 180 W (15A @ 12V) |
| assembling | ex works |
| housing material | aluminium |
| dimensions (width x height x depth) | 218 x 253 x 105 mm |
| weight (min.) | 4.9 kg |
| process connection | 1/4" |
| installation / mounting | Mounting bracket d6 / 0.25 dia |
| operating temperature | -10 ... 40 °C |
| operating pressure | 0 ... 6 bar |
| ingress protection class | IP65 |
| tank volume | 0.4 l |
| charging time | typ. 25 sec |
| sound emission | 60dB(A) |
| maintenance interval | 1500 operating hours |
| storage temperature | -10 ... 60 °C |
| storage humidity | 0 ... 95 % |
| conformity - EMC | EN 61326-1:2006 |
| conformity - safety | EN 61010-1:2001 |
| part number | B-32-230 B-32-110 B-32-012 |

to be used for

| |
|------------------------|
| ammo::lyser™ pro |
| ammo::lyser™ eco |
| oxi::lyser™ |
| spectro::lyser™ |
| carbo::lyser™ II / III |
| multi::lyser |
| nitro::lyser™ II |
| ozo::lyser II |
| uv::lyser II |



recommended accessories

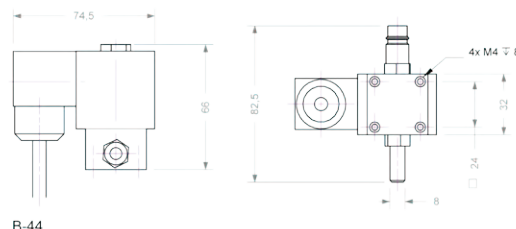
| part number | article name |
|-------------|--------------------------|
| B-44 | cleaning valve |
| B-44-2 | |
| C-31-eu | Optional 2 m power cable |
| C-31-us | Optional 2 m power cable |

cleaning valve

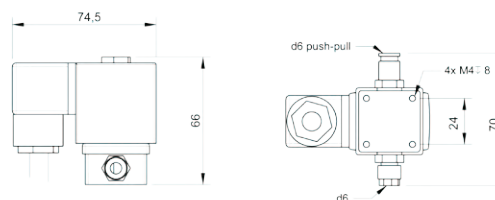
- supports automatic cleaning of measuring elements of von s::can spectrometer probes, oxi::lyser, soli::lyser and ammo::lyser™
- removal of fouling, sediments and clogging using compressed air or -water
- version B-44-2 specially for use in combination with the s::can compressor

| technical specification | |
|-------------------------------------|--|
| cable length | 2.4 m (B-44) 1 m (B-44-2) |
| assembling | ex works |
| dimensions (width x height x depth) | 85 x 75 x 70 mm |
| weight (min.) | 500 g |
| process connection | B-44: pressure side DIN 7.2 coupling, at sensor direction ID 3/8" B-44-2: pressure side quick coupling d6x4, at sensor direction push-pull d6x4 |
| ingress protection class | IP65 |
| part number | B-44 B-44-2 |

| recommended accessories | |
|-------------------------|---|
| part number | article name |
| B-41 | s::can pressure connection set for V2 spectro::lyser and s::can sensors |



B-44



B-44-2

carrier s::can™ spectrometer probe

- for easy horizontal attachment of s::can spectrometer probes
- probe cable and pressure hose compatible
- mounting with pipe (AD 50 mm)

| technical specification | |
|-------------------------|---------------|
| housing material | PVC and POM-C |
| dimensions (Ø x l) | 63 x 403 mm |
| weight (min.) | 900 g |
| process connection | ID 50 mm |
| installation / mounting | submersed |
| part number | F-110-spectro |

| to be used for | |
|---------------------|--|
| Spectrometer Probes | |



| recommended accessories | |
|-------------------------|----------------------------------|
| part number | article name |
| F-15 | fixing adapter - stainless steel |

Simple mounting for i::scan in-pipe installation

- for proper and easy in-pipe installation of one i::scan (for PE, PVC and PP pipes)

| technical specification | |
|-------------------------------------|------------------------------|
| housing material | POM and PP (saddle clamp) |
| dimensions (width x height x depth) | 156 x 175 x 98 mm |
| weight (min.) | 600 g |
| process connection | pipe outside diameter 110 mm |
| part number | F-140-iscan |

to be used for
i::scan



ruck::sack

- submersible Autobrush for spectrometer probes and i::scan
- exchangeable brushes for spectrometer probe with path length 35, 15, 5 mm and i::scan 35 and 5 mm
- one basis module (motor unit) for all versions
- shelter protects the brush from clogging

| technical specification | |
|-------------------------------------|---|
| power supply | 12 VDC |
| power consumption (typical) | 150 mA (average) |
| power consumption (max.) | 300 mA |
| cable length | 8 m |
| housing material | POM-C |
| dimensions (width x height x depth) | 182 x 46 x 36.5 mm |
| weight (min.) | 750 g (incl. cable) |
| installation / mounting | submersed |
| operating pressure | 0 ... 0.5 bar |
| ingress protection class | IP68 |
| storage temperature | -20 ... 80 °C |
| storage humidity | 0 ... 95 % |
| part number | F-146-rs-35, F-146-rs-15, F-146-rs-05, F-146-rs-iscan-35, F-146-rs-iscan-05 |

to be used for
Spectrometer Probes
i::scan



recommended accessories

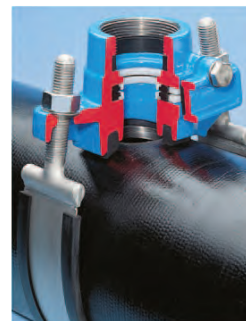
| part number | article name |
|-------------------|---|
| F-146-brush-35 | brush for ruck::sack 35 mm (spare part) |
| F-146-brush-15 | brush for ruck::sack 15 mm (spare part) |
| F-146-brush-05 | brush for ruck::sack 5 mm (spare part) |
| F-146-brush-iscan | brush for ruck::sack 35 mm i::scan (spare part) |

Pressure mounting for i::scan in-pipe installation (i::scan removal under pressure)

- for proper and easy installation of one i::scan in a pressure pipe
- under pressure drilling of pipes possible (for PE, PVC, DCI, steel and AC pipes)
- the i::scan can be mounted and demounted under pressure without interruption of the water flow

| technical specification | |
|-------------------------|--|
| housing material | stainless steel |
| dimensions (height) | 550 mm (max.) |
| weight (min.) | 5 kg |
| process connection | for DCI, steel and AC pipes: DN80 ... DN600 (others on request) |
| | for PE- and PVC-pipes: pipe outside diameter 75 ... 315 mm |
| operating pressure | 0 ... 12 bar |
| part number | F-160-iscan |

| to be used for |
|----------------|
| i::scan |



| recommended accessories | |
|-------------------------|---|
| part number | article name |
| F-160-SP-SET-DKxxx | Hawle shut off pipe saddle DK75 - DK315, incl. saddle blade |
| F-160-SP-SET-DNxxx | Hawle shut off pipe saddle DN80 - DK600, incl. saddle blade |

flow cell autobrush - for spectro::lyser™ pathlength 35 mm

- for proper and easy flow-through installation of s::can spectrometer probes
- for applications with frequent, automatic cleaning
- cleaning of optical windows with rotating brush without demounting of spectrometer probe

| technical specification | |
|-------------------------------------|-------------------|
| power supply | 12 VDC |
| assembling | ex works |
| housing material | POM-C |
| dimensions (width x height x depth) | 74 x 132 x 153 mm |
| weight (min.) | 1 kg |
| process connection | G 1/4" |
| installation / mounting | flow cell |
| operating temperature | 0 ... 40 °C |
| operating pressure | 0 ... 6 bar |
| ingress protection class | IP66 |
| part number | F-446-1 |

| to be used for |
|---------------------|
| Spectrometer Probes |



| recommended accessories | |
|-------------------------|--------------------------------|
| part number | article name |
| F-501-eco-us | System Panel micro::station US |
| F-501-eco-eu | System Panel micro::station EU |
| F-45-process | process connection 1/4" G |

flow cell autobrush - for spectro::lyser™ pathlength 100 mm

- for proper and easy flow-through installation of spectro::lyser probes
- for applications with frequent, automatic cleaning
- cleaning of optical windows with rotating brush without demounting of spectro::lyser probes

technical specification

| | |
|-------------------------------------|-------------------|
| power supply | 12 VDC |
| assembling | ex works |
| housing material | POM-C |
| dimensions (width x height x depth) | 74 x 196 x 153 mm |
| weight (min.) | 1.7 kg |
| process connection | G 1/4" |
| installation / mounting | flow cell |
| operating temperature | 0 ... 40 °C |
| operating pressure | 0 ... 6 bar |
| ingress protection class | IP66 |
| part number | F-446-2 |

to be used for

Spectrometer Probes



recommended accessories

| part number | article name |
|--------------|--------------------------------|
| F-501-eco-us | System Panel micro::station US |
| F-501-eco-eu | System Panel micro::station EU |
| F-45-process | process connection 1/4" G |

flow cell for four spectro::lyser physical probes

- for proper and easy flow-through installation of spectro::lyser, chlori::lyser, redo::lyser and pH::lyser
- for applications without automatic cleaning in drinking water

technical specification

| | |
|-------------------------|-------------------------|
| housing material | POM-C |
| dimensions (Ø x l) | 106 x 103 |
| weight (min.) | 1.05 kg |
| process connection | G 1/4", hose nozzle 7mm |
| installation / mounting | flow cell |
| operating temperature | 0 ... 50 °C |
| operating pressure | 0 ... 6 bar |
| part number | F-45-four |

to be used for

condu::lyser
redo::lyser
pH::lyser
chlori::lyser (analog)



i::scan flow cell for up to 3 additional s::can probes

- for proper and easy flow-through installation of one i::scan and up to three s::can physical probes
- automatic cleaning with autobrush for i::scan available (optional)

technical specification

| | |
|-------------------------|--------------------------|
| housing material | POM-C |
| dimensions (Ø x l) | 106 x 103 |
| weight (min.) | 1 kg (without autobrush) |
| process connection | G 1/4", hose nozzle 7mm |
| installation / mounting | flow cell |
| operating temperature | 0 ... 50 °C |
| operating pressure | 0 ... 6 bar |
| part number | F-46-four-iscan |



to be used for

| |
|------------------------|
| condu::lyser |
| redo::lyser |
| pH::lyser |
| chlori::lyser (analog) |
| i::scan |

recommended accessories

| part number | article name |
|---------------|---------------------------------------|
| F-501-eco-us | System Panel micro::station US |
| F-501-eco-eu | System Panel micro::station EU |
| F-45-process | process connection 1/4" G |
| F-45-strain | Inlet strainer |
| F-446-m-iscan | i::scan autobrush for F-46-flow cells |

s::can flow-cell (by-pass setup), PVC (wastewater)

- side-by-side stackable flow cells for waste water applications (add-on dimension 177 mm)
- cleaning with pressurized air possible

technical specification

| | |
|-------------------------------------|---|
| housing material | PVC |
| dimensions (width x height x depth) | ammo::lyser: 117 x 83 x 108 mm i::scan: 177 x 83 x 90 mm oxi::lyser: 177 x 117 x 141 mm physical probe: 177 x 95 x 111 mm spectrometer probe: 177 x 98 x 126 mm |
| process connection | G 1" inner thread |
| recommended flow | < 40 l/min |
| part number | F-48-ammo F-48-iscan F-48-oxi F-48-sensor F-48-spectro |



recommended accessories

| part number | article name |
|--------------|----------------------------|
| F-48-process | process connection 1", PVC |

pad::cleaner

- eliminates drift in applications where window fouling occurs even with auto air cleaning
- pneumatically operated piston and cleaning blade system for s::can spectrometer probes combined with a bypass mounting block
- cleaning blade utilises a chemically resistant non-absorbent soft urethane material
- cleaning blade has 5 separate cleaning edges and effectively creates 10 window wiping actions for every forward/backward motion
- air driven piston
- available for 0.5, 1, 2 and 5 mm path lengths
- easy to install, low maintenance and simple operation
- typical blade lifetime: 6 months

| technical specification | |
|-------------------------|--|
| power supply | 12V DC from s::can terminal or connect |
| housing material | stainless steel POM-C |
| installation / mounting | flow cell |
| integration via | connect connect |
| automatic cleaning | compressed air supply: typically 6 bar with regulator to adjust to required pressure air volume required: 0.25 litres per clean input signal: 12V DC via s::can relay with a 1 second on time |
| part number | F-546-pad-500 F-546-pad-001 F-546-pad-002 F-546-pad-005 |

| to be used for | |
|---------------------|--|
| Spectrometer Probes | |



| recommended accessories | |
|----------------------------------|---|
| part number | article name |
| F-546-pad-500-WIP | 4 cleaning wipers for pad::cleaner pathlength 0.5 mm (spare part) |
| F-546-pad-001-WIP | 4 cleaning wipers for pad::cleaner pathlength 1 mm (spare part) |
| F-546-pad-002-WIP | 4 cleaning wipers for pad::cleaner pathlength 2 mm (spare part) |
| F-546-pad-005-WIP | 4 cleaning wipers for pad::cleaner pathlength 5 mm (spare part) |
| B-32-230 B-32-110 B-32-012 | s::can compressor |

| Spectrometer infrastructure | |
|-----------------------------|---|
| part number | article name |
| A-001-s | Inserts for optical pathlength 1 mm, stainless steel |
| A-002-s | Inserts for optical pathlength 2 mm, stainless steel |
| A-005-s | Inserts for optical pathlength 5 mm, stainless steel |
| A-015-s | Inserts for optical pathlength 15 mm, stainless steel |
| A-500-s | Inserts for optical pathlength 0.5 mm, stainless steel |
| A-005-q | Inserts for optical pathlength 5 mm, stainless steel, special quartz windows |
| A-015-q | Inserts for optical pathlength 15 mm, stainless steel, special quartz windows |
| A-035-s | Cleaning insert for optical pathlength 35 mm, stainless steel |
| E-412-035 | Cell holder insert for 35 mm optical path length, V2 spectro::lyser |
| E-412-100 | Cell holder insert for 100 mm optical path length, V2 spectro::lyser |
| E-421-1 | multifunctional slide for pathlengths from 0.5 mm to 35 mm |
| E-421-2 | multifunctional slide for pathlength 100 mm |
| E-431-1-iscan | multifunctional slide i::scan 35 mm |
| E-431-2-iscan | multifunctional slide i::scan 5 mm |

| Sensors infrastructure | |
|------------------------|--|
| part number | article name |
| E-507-1/2-EL | Free Chlorine electrolyte (spare part) |
| E-507-1/2-SET | Free Chlorine membrane cap (spare part) |
| E-507-3/4-EL | Total Chlorine electrolyte (spare part) |
| E-507-3/4-SET | Total Chlorine membrane cap (spare part) |
| E-507-3-SET | Total Chlorine membrane cap (spare part) |
| E-507-4-SET | Total Chlorine membrane cap (spare part) |
| E-508-1/2-EL | Chlorine Dioxide electrolyte (spare part) |
| E-508-1/2-SET | Chlorine Dioxide membrane cap (spare part) |
| E-509-1/2-EL | Hydrogen Peroxide electrolyte (spare part) |
| E-509-1/2-SET | Hydrogen Peroxide membrane cap (spare part) |
| E-510-guard | Electrode protection shelter (spare part) |
| E-511-STD-500 | 500 ml Electrical Conductivity standard solution 500 µS/cm |
| E-513-200 | 500 ml Redox standard solution 456 mV |
| E-513-ORP | ORP & reference electrode for redo::lyser (spare part) |
| E-514-pH | pH & reference electrode for pH::lyser (spare part) |
| E-514-std | 30 x 30 ml pH standard solutions 4,01 / 7,00 / 9,00 pH according to PTB and NIST |
| E-515-1/2-EL | Peracetic Acid electrolyte (spare part) |
| E-515-1/2-SET | Peracetic Acid membrane cap (spare part) |
| E-520-1/2-KIT | Free Chlorine electrolyte and membrane cap (spare parts) |
| E-525-1/2-KIT | Total Chlorine electrolyte and membrane cap (spare parts) |
| E-532-ise-K | potassium electrode for ammo::lyser™ (spare part, new) |
| E-534-ise-NH4 | ammonium electrode for ammo::lyser™ (spare part, new) |
| E-532-ise-N03 | Nitrate electrode for ammo::lyser V1 (spare part, new) |
| E-532-ise-pH | pH electrode for ammo::lyser V1 (spare part, new) |
| E-532-ise-ref | reference electrode for ammo::lyser V1 (spare part, new) |
| E-532-STD-K | 500 ml Potassium standard solution 1000 mg/l K |
| E-532-STD-NH4 | 500 ml Ammonium standard solution 1000 mg/l NH4-N |
| E-532-STD-N03 | 500 ml Nitrate standard solution 1000 mg/l N03-N |
| E-532-tool | Tool for s::can ISE probes (spare part) |
| E-533-ise-Cl | Chloride electrode for ammo::lyser V2 (spare part, new) |
| E-533-ise-K | Potassium electrode for ammo::lyser V2 (spare part, new) |
| E-535-ise-NH4 | Ammonium electrode for ammo::lyser V2 (spare part, new) |
| E-533-ise-N03 | Nitrate electrode for ammo::lyser V2 (spare part, new) |
| E-533-ise-pH | pH electrode for ammo::lyser V2 (spare part, new) |
| E-533-ise-ref | reference electrode for ammo::lyser V2 (spare part, new) |
| E-542-ise-F | Fluoride electrode for fluor::lyser V1 (spare part, new) |
| E-543-ise-F | Fluoride electrode for fluor::lyser V2 (spare part, new) |
| E-632-ise | Refurbishment of ionselective electrodes for s::can ISE probes |
| E-632-ise-K | Refurbished Potassium electrode for ammo::lyser V1 (spare part, refurbished) |
| E-634-ise-NH4 | Refurbished Ammonium electrode for ammo::lyser V1 (spare part, refurbished) |
| E-632-ise-N03 | Refurbished Nitrate electrode for ammo::lyser V1 (spare part, refurbished) |
| E-633-ise-K | Refurbished Potassium electrode for ammo::lyser V2 (spare part, refurbished) |
| E-635-ise-NH4 | Refurbished Ammonium electrode for ammo::lyser V2 (spare part, refurbished) |
| E-633-ise-N03 | Refurbished Nitrate electrode for ammo::lyser V2 (spare part, refurbished) |
| E-642-ise-F | Refurbished Fluoride electrode for fluor::lyser V1 (spare part, refurbished) |
| E-643-ise-F | Refurbished Fluoride electrode for fluor::lyser V2 (spare part, refurbished) |

Cleaning & Pressure Devices

| part number | article name |
|--------------|---|
| B-32-230 | s::can compressor |
| B-32-110 | |
| B-32-012 | |
| B-32-m-012 | motor unit for compressor (12 VDC) |
| B-32-m-110 | motor unit for compressor (110 VAC) |
| B-32-m-230 | motor unit for compressor |
| B-32-service | Service kit for s::can compressed air supply |
| B-32-upgrade | Upgrade package for s::can compressor, possible at s::can factory only |
| B-41 | s::can pressure connection set for V2 spectro::lyser and s::can sensors |
| B-43-2 | 10 x desiccant |
| B-44 | cleaning valve |
| B-44-2 | |
| B-45-V2 | PVC clips (spare part for V2 spectro::lyser), set of 2 |
| B-60-1 | cleaning brush for pathlength < 15 mm |
| B-60-2 | cleaning brush for pathlength < 2 mm |
| B-61-1 | cleaning agent |

Cables & Power Supply

| part number | article name |
|----------------|---|
| C-1-010-sensor | 1 m connection cable for s::can physical and ISE probes |
| C-14 | field case |
| C-15 | electronic battery charger (only 230 V AC) |
| C-210-sensor | 10 m extension cable for s::can physical probes and s::can ISE probes |
| C-210-spectro | 10 m extension cable for s::can™ spectrometer probes |
| C-220-sensor | 20 m extension cable for s::can physical probes and s::can ISE probes |
| C-220-spectro | 20 m extension cable for s::can™ spectrometer probes |
| C-230-sensor | 30 m extension cable for s::can physical probes and s::can ISE probes |
| C-230-spectro | 30 m extension cable for s::can™ spectrometer probes |
| C-31-eu | Optional 2 m power cable |
| C-31-us | Optional 2 m power cable |
| C-41-hub | Distribution box for additional sensors such as i::scan, sensors & ISE probes (3 x IP67 sys plug connections, RS485, 12 VDC) incl. C-1-010-sensor |

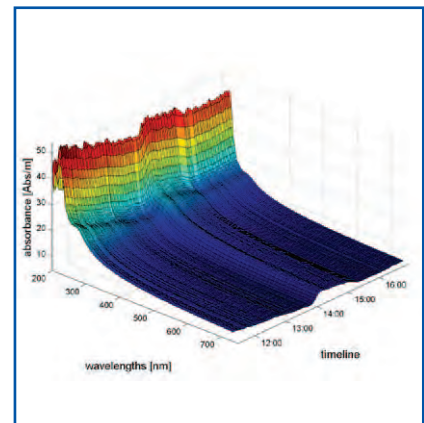
Operation, Visualisation and Additional Interfaces

| part number | article name |
|--------------------|---|
| D-315-3GLX | worldwide 3D internet connection via Quad-band HSPA (up to 5.7 Mbps/21 Mbps) |
| D-303-LX | Linux Application Licence (obligatory to D-315) |
| D-315-antenna-plug | Internal antenna adapter cable and connector, option for con::cube |
| D-315-antenna-pro | External, high range antenna option for con::cube, incl. 10 m extension cable |
| D-315-in-mA | 2 analogue inputs (input module), provides 2 analogue inputs (4-20mA) for integration of 3rd party readings |
| D-315-in-relay | 2 digital inputs (input module), provides 2 digital IN (5-24V) for integration of 3rd party readings |
| D-315-in-SDI12 | SDI 12 (input module), provides SDI 12 for integration of 3rd party readings |
| D-315-out-mA | 2 analogue outputs (output module), provides data transfer to PLC systems |
| D-315-out-Profibus | provides Profibus DPV0 for data transfer to PLC systems |
| D-315-out-relay | 4 digital outputs (output module), provides 4 configurable relay contacts 1A |
| D-315-out-SDI12 | SDI 12 (output module), provides SDI 12 for data transfer to PLC systems |
| D-319-logger | Datalogger option for con::lyte |
| D-319-out-mA | 2 x 0/4 - 20 mA (output module for con::lyte) |
| D-319-out-profibus | Profibus (output module for con::lyte) |
| D-319-out-modbus | Modbus/RTU (output module for con::lyte) |
| D-320-out-mA | license for 3 analog outputs (4-20 mA) for con::lyte pro |
| D-320-PID | 3 x PID control output for con::lyte D-320 |
| D-320-out-modbus | Modbus (software license for con::lyte D-320) |

| Installation | |
|--|---|
| part number | article name |
| F-51 | weather shield for s::can terminals |
| F-110-iscan | carrier i::scan, for easy horizontal attachment |
| F-110-spectro | carrier s::can™ spectrometer probe |
| F-11-oxi-ammo | carrier oxi::lyser / soli::lyser / s::can ISE probes |
| F-120-iscan | carrier i::scan, for easy vertical attachment |
| F-120-spectro | carrier s::can™ spectrometer probe |
| F-12-sensor | carrier s::can physical probes |
| F-130-iscan | carrier i::scan, for easy 45° attachment |
| F-140-iscan | Simple mounting for i::scan in-pipe installation |
| F-146-brush-05 | brush for ruck::sack 5 mm (spare part) |
| F-146-brush-15 | brush for ruck::sack 15 mm (spare part) |
| F-146-brush-35 | brush for ruck::sack 35 mm (spare part) |
| F-146-brush-iscan | brush for ruck::sack 35 mm i::scan (spare part) |
| F-146-retro-05 | ruck::sack retrofitting set to 5 mm OPL |
| F-146-retro-15 | ruck::sack retrofitting set to 15 mm OPL |
| F-146-retro-35 | ruck::sack retrofitting set to 35 mm OPL |
| F-146-rs-35, F-146-rs-15, F-146-rs-05, F-146-rs-iscan | ruck::sack |
| F-15 | fixing adapter - stainless steel |
| F-150-iscan | Pressure mounting for i::scan in-pipe installation |
| F-160-iscan | Pressure mounting for i::scan in-pipe installation (i::scan removal under pressure) |
| F-445-1 | flow cell - for pathlengths from 0.5 mm to 35 mm |
| F-445-2 | flow cell - for pathlength 100 mm |
| F-446-1 | flow cell autobrush - for spectro::lyser™ pathlength 35 mm |
| F-446-2 | flow cell autobrush - for spectro::lyser™ pathlength 100 mm |
| F-446-brush | brush for flow-cell AutoBrush (spare part) |
| F-446-brush-iscan | brush for flow-cell AutoBrush i::scan (spare part) |
| F-446-m-iscan | Brush unit AutoBrush, Pom-C (for i::scan) |
| F-446-m | brush unit for flow-cell AutoBrush (spare part) |
| F-446-m-iscan | i::scan autobrush for F-46-flow cells |
| F-45-alarm | Flow detector unit |
| F-45-ammo | flow cell for ammo::lyser™ |
| F-45-flow-1 | Automatic flow control unit |
| F-45-four | flow cell for four s::can physical probes |
| F-45-oxi | flow cell for oxi::lyser™ and soli::lyser |
| F-45-process | process connection 1/4" G |
| F-45-sensor | flow cell for s::can sensor |
| F-45-strain | Inlet strainer |
| F-45-valve | Flow adjustment valve |
| F-46-four-iscan | i::scan flow cell for up to 3 additional s::can probes |
| F-46-iscan | i::scan flow-cell (by-pass setup), Pom-C, without cleaning |
| F-48-ammo | ammo::lyser flow-cell (by-pass setup), PVC |
| F-48-iscan | flow cell for i::scan (waste water), PVC |
| F-48-oxi | oxi::lyser or soli::lyser flow-cell (by-pass setup), PVC |
| F-48-process | process connection 1", PVC |
| F-48-sensor | s::can Sensor flow-cell (by-pass setup), PVC |
| F-48-spectro | s::can spectrometer flow-cell (by-pass setup), PVC |
| F-500-p | Pressure Sensor for micro::station |
| F-500-pump | Drinking water pump for micro::station |
| F-500-service-set | Service set for micro::station |
| F-501-eco-eu | System Panel micro::station EU |
| F-501-eco-us | System Panel micro::station US |
| F-502-eco-eu | System Panel micro::station add-on module EU |
| F-502-eco-us | System Panel micro::station add-on module US |
| F-506-panel-eu | System panel nano::station EU |
| F-506-panel-us | System panel nano::station US |
| F-508-panel | System panel waste water micro::station |
| F-546-pad-500-WIP | 4 cleaning wipers for pad::cleaner pathlength 0.5 mm (spare part) |
| F-546-pad-005-WIP | 4 cleaning wipers for pad::cleaner pathlength 5 mm (spare part) |
| F-546-pad-001-WIP | 4 cleaning wipers for pad::cleaner pathlength 1 mm (spare part) |
| F-546-pad-002-WIP | 4 cleaning wipers for pad::cleaner pathlength 2 mm (spare part) |
| F-160-SPSET-DKxxx | Hawle shut off pipe saddle DK75 - DK315, incl. saddle blade |
| F-160-SPSET-DNxxx | Hawle shut off pipe saddle DN80 - DK600, incl. saddle blade |

Services & Solutions

s::can
Intelligent. Optical. Online.



contamispec - detection limits of contaminants

- individual analysis of contaminants by s::can Support
- prediction of substance-specific range & precision in individual water matrix
- considering possible background of solids and dissolved substances, incl. scientific report
- no on-site sampling necessary
- structural relationship & chemical formula of substance required
- ana::tool - training & evaluation, feasibility study necessary

technical specification

| | |
|-------------|-------|
| part number | A-ax? |
|-------------|-------|

parameter X1

- individual local calibration by s::can Support
- based on chemometric methods (PCA/PLS), incl. statement of statistical quality
- s::can feasibility study A-xf? and validated laboratory results are precondition
- individual quotation from s::can Sales & individual clarification by s::can Support precondition

technical specification

| | |
|-------------|-------|
| part number | A-x1? |
|-------------|-------|

parameter X2

- individual local calibration by s::can Support
- based on chemometric methods (PCA/PLS), incl. statement of statistical quality
- s::can feasibility study A-xf? and validated laboratory results are precondition
- individual quotation from s::can Sales & individual clarification by s::can Support precondition

technical specification

| | |
|-------------|-------|
| part number | A-x2? |
|-------------|-------|

parameter OIW - oil in water

- individual local calibration by s::can Support
- based on chemometric methods (PCA/PLS), incl. statement of statistical quality
- individual quotation from s::can Sales & individual clarification by s::can Support precondition
- individual quotation from s::can Sales & individual clarification by s::can Support precondition

technical specification

| | |
|-------------|-------|
| part number | A-x3? |
|-------------|-------|

feasibility study

- individual, substance specific spectral analysis by s::can Support
- prediction of substance-specific range & precision in distilled water
- considering possible background of solids
- recommendation of optical pathlength & possible standard applications, incl. scientific report
- no on-site sampling necessary
- background of solids required
- precondition for contamiscan validation & parameter X

technical specification

| | |
|-------------|-------|
| part number | A-xf? |
|-------------|-------|

1 hour consulting, data handling

- 1 hour consulting, data handling

technical specification

| | |
|-------------|-----|
| part number | I-C |
|-------------|-----|

start up Deployment of one s::can monitoring system on site

- start up Deployment of one s::can monitoring system on site

technical specification

| | |
|-------------|-----|
| part number | I-I |
|-------------|-----|

1 hour service

- 1 hour service

technical specification

| | |
|-------------|-----|
| part number | I-S |
|-------------|-----|

1 hour engineer, service on site

- 1 hour engineer, service on site

technical specification

| | |
|-------------|-----|
| part number | I-T |
|-------------|-----|

complete instrumental check ammo::lyser™

- planned, preventative check of technical performance of s::can ammo::lyser™ by s::can Service
- visual check, verification of communication and of configuration
- verification of electrodes
- verification of accuracy
- stability test
- replacement of membranes (ammonium & potassium)
- incl. test certificate and quotation if required

technical specification

| | |
|-------------|-----------|
| part number | X-01-ammo |
|-------------|-----------|

complete instrumental check s::can terminal

- planned, preventative check of technical performance of con::cube or con::lyte by s::can Service
- visual check and verification of configuration
- performance check of all analog and digital interfaces
- verification of accuracy analog interfaces
- UpDate configuration & OS (if required)
- incl. test certificate and quotation if required

technical specification

| | |
|-------------|----------|
| part number | X-01-con |
|-------------|----------|

complete instrumental check s::can spectrometer probe

- planned, preventative check of technical performance of s::can spectrometer probes by s::can Service
- visual check and verification of optical windows
- verification of communication and of configuration
- new reference measurement and stability test
- comparison to status of initial delivery (incl. light source & detektor)
- verification of linearity (nitrate standard solution) and accuracy
- UpDate default calibration, configuration & OS (if required)
- incl. test certificate and quotation if required

technical specification

| | |
|-------------|--------------|
| part number | X-01-spectro |
|-------------|--------------|

3 years service package - Europe only

- free maintainance
- 1 full instrument check/year
- 14 days exchange service
- please ask for an individual service agreement

technical specification

| | |
|-------------|------|
| part number | X-03 |
|-------------|------|

5 years full service package - Europe only

- free maintainance and free software upgrades
- 1 full instrument check/year
- 48 h exchange service
- please ask for an individual service agreement

technical specification

| | |
|-------------|------|
| part number | X-05 |
|-------------|------|

Yearly maintainance contract

- free maintainance and free software upgrades
- 1 full instrument check/year
- 48 h exchange service
- please ask for an individual service agreement

technical specification

| | |
|-------------|------|
| part number | X-10 |
|-------------|------|

assembly of s::can systems

- mounting of flow-cells on system panel
- mounting of terminals and additional components on system panel / weather shield
- wiring of autobrush / cleaning valve / pressure sensor / flow detector
- obligatory for s::can micro::station

technical specification

| | |
|-------------|-----------|
| part number | X-sys-ass |
|-------------|-----------|

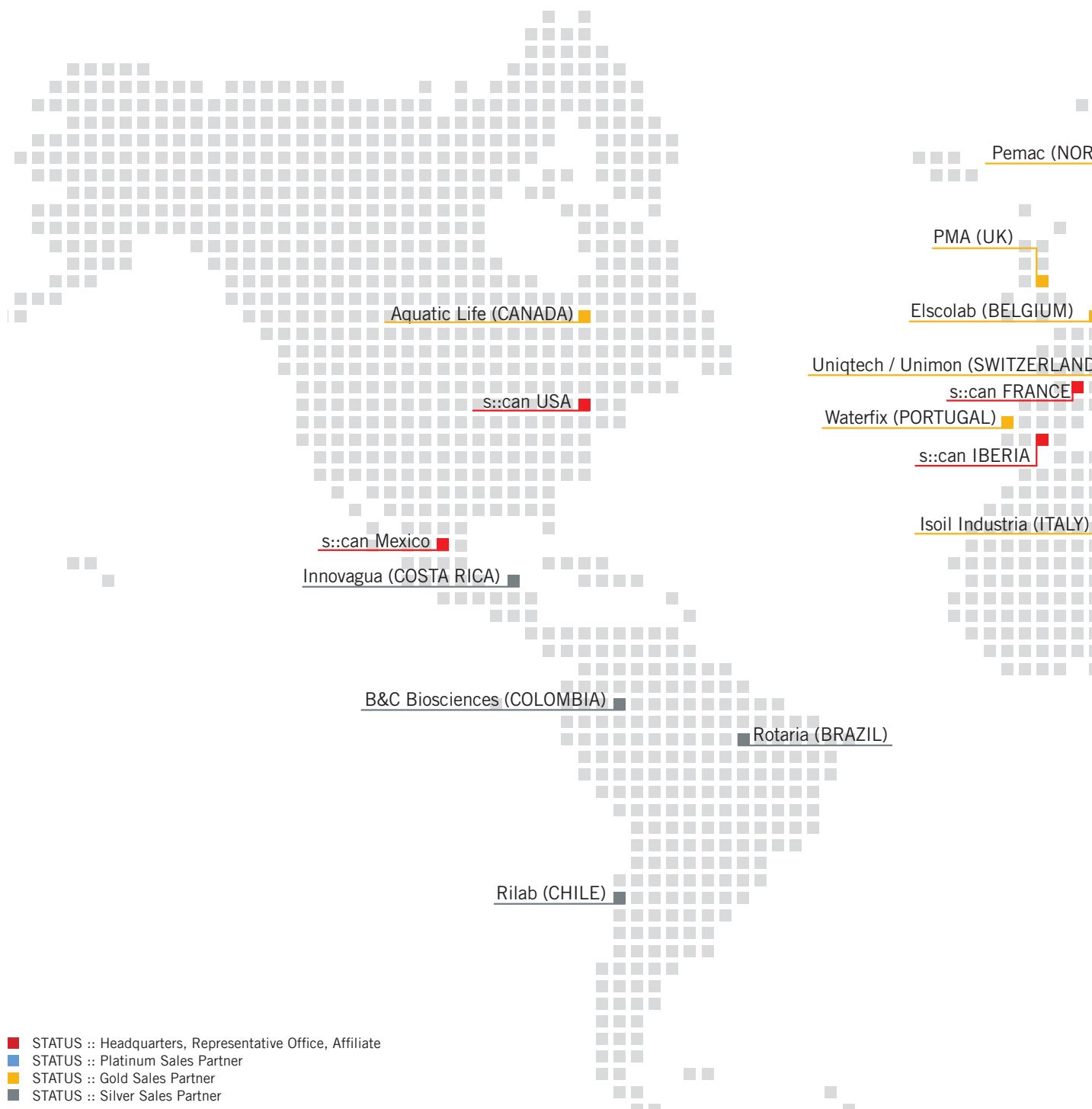
configuration of s::can systems

- initialisation of all s::can probes and initialisation of all parameters
- initialisation of autobrush / cleaning valve / pressure sensor / flow detector
- check of system configuration and test certificate

technical specification

| | |
|-------------|--------------|
| part number | X-sys-config |
|-------------|--------------|

Sales Partners





s::can Sales Partners

| | | |
|-----------|----------------------------------|--|
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| abbreviation list | |
|-------------------|-----------------------|
| est | estimated |
| f | filtered |
| eq | equivalent |
| color app | color apparent |
| color tru | color true (filtered) |



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