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

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Water Quality OnLine Drinking Water

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

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A warm welcome to s::can

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

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.

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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, N03, N02, 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-N03-NH4-N02-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, N03-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.

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“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.

Conventional solutions

COD

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.

COD dissolved

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

TOC

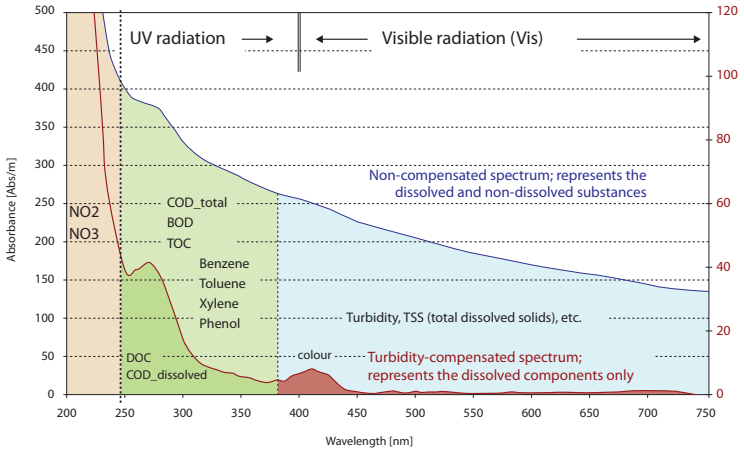
The disadvantages of TOC analysers occur in a similar area. In addition, depending on the method used, there is only ever a certain proportion of the organic carbon compounds that is oxidised and, as a result of the method, that fraction may well also detected by the spectral probe as is the case with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

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.

BOD

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.



s::can measuring method – "Fingerprint"

The s::can solution

NO_3-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.

Conventional solutions

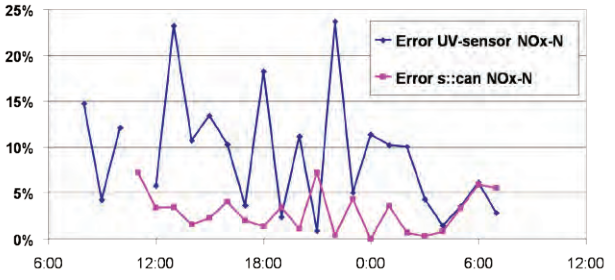
Nitrate is hardly ever measured these days with cabinet analysers since these also create disadvantages (hydraulic sampling, reagent consumption, maintenance effort etc.) and, in any case, recognised alternative methods exist.

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.

Comparison of various methods for monitoring NO_3-N

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



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.

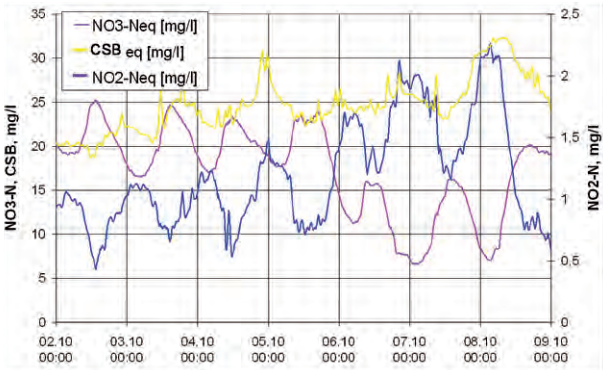
This opens up fundamentally new prospects both for treatment plant operators in their control and monitoring of nutrient removal, and for ecologists in their monitoring of the emissionion situation - NO2-N is a poison dangerous to fish. The presence and fluctuation of nitrite concentration are always 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.

Conventional solutions

NO_2-N

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..



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.

Ammonium is today still often measured with conventional cabinet analysers.

NH_4-N

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.

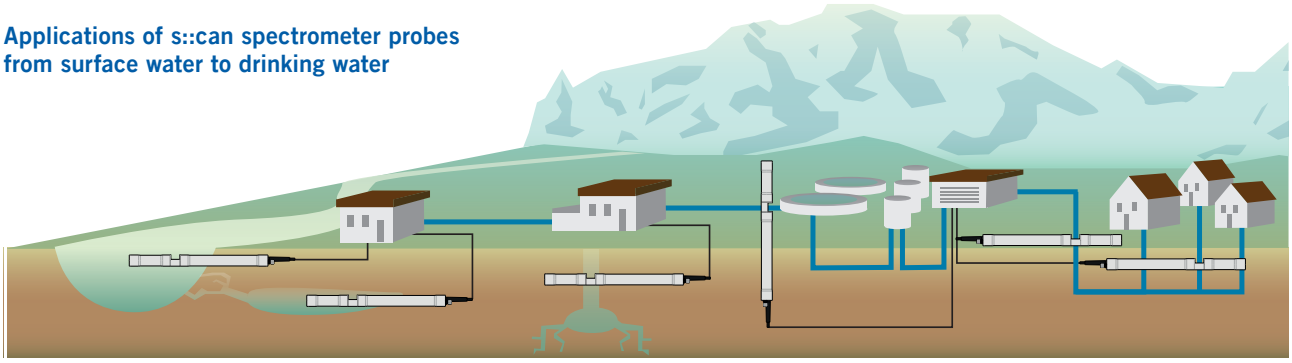
In both cases the conversion to the gaseous phase is achieved with effort, expense, uncertainty and some environmental pollution.

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

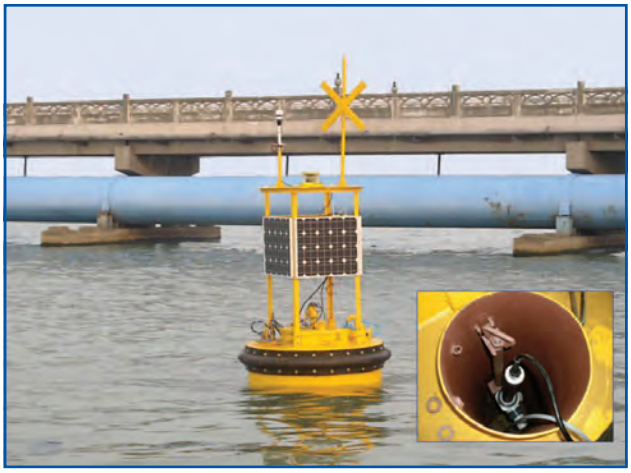
Monitoring of distribution network

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

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::larm 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.

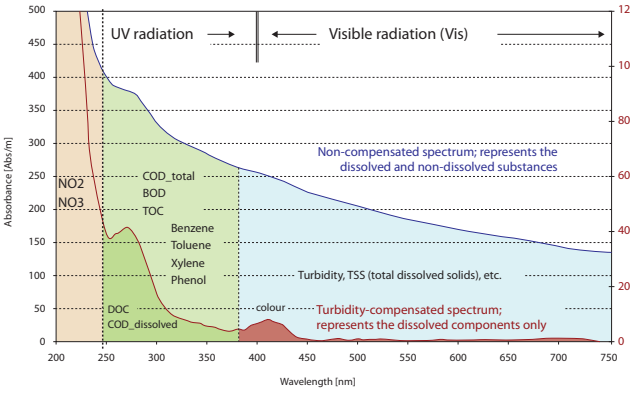


fig. 1 : "fingerprint" absorption spectra

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)

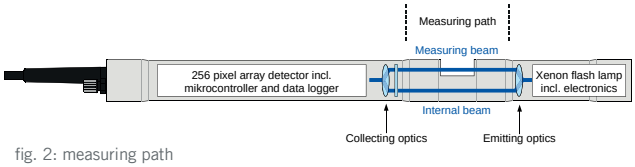


fig. 2: measuring path

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.

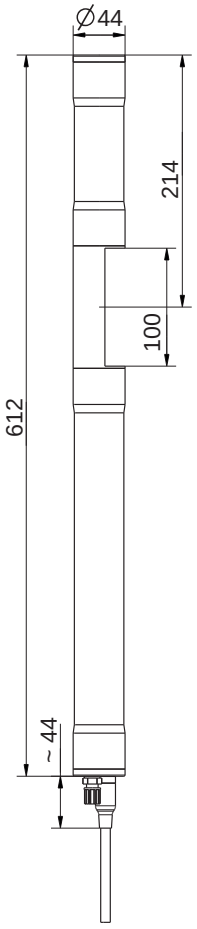
s::can spectrometer probes use no replaceable parts or consumables. Therefore, when operated properly there will be no costs for spare parts at all.

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) NO_3-N, COD, BOD, TOC, UV254, NO_2-N, BTX, fingerprints and spectral alarms, temperature and pressure

spectro::lyser™ UV-Vis monitors depending on the application an individual selection of: TSS, turbidity, NO_3-N, COD, BOD, TOC, DOC, UV254, color, BTX, O_3, 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 B-44-2	cleaning valve
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											
		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_2S [mg/l]	part number
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										
		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]	part number
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	

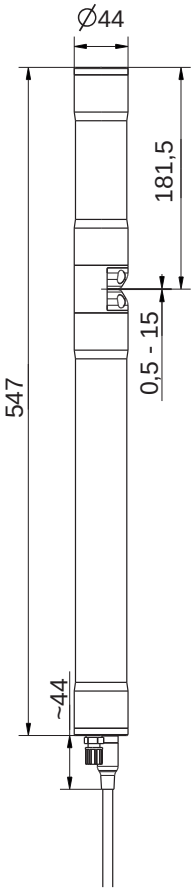
drinking water

		parameter												
		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]	part number
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, NO_3-N, COD, BOD, TOC, DOC, UV254, NO_2-N, color, BTX, O_3, 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

wiederstandsfähiges
Titan Grad 2

recommended accessories	
part number	**article name**
B-32-xxx	s::can compressor
B-44 B-44-2	cleaning valve
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
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
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	titanium grade 2 (3.7035)
window material	optical path length 5 ... 0.5 mm: sapphire optical path length 35 mm: fused silica (UV-grade)
weight (min.)	2.8 kg (incl. cable)
dimensions (Ø x l)	44 mm x 547 mm / 591 mm
operating temperature	0 ... 50 °C
storage temperature	-10 ... 50 °C
operating pressure	0 ... 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
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

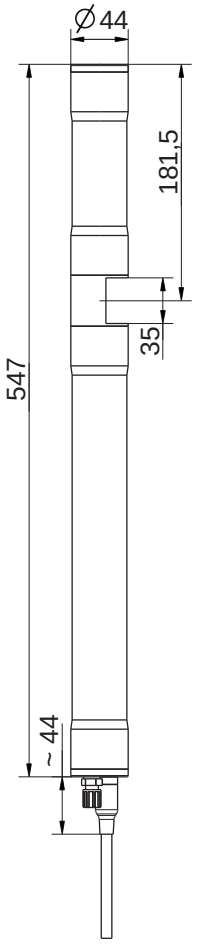
		parameter						
		turbidity [NTU/FTU]	NO_3-N [mg/l]	TOC [mg/l]	DOC [mg/l]	UV254 [Abs/m]	UV254 f [Abs/m]	part number
spectro::lyser™ UV-Vis (Turbidity, TOC, DOC, NO_3-N)	min.	0	0	0	0	0	0	SP-1-015-p0-s-TI-010 / -075 (incl. Global Calibration o1)
	max.	400	45	60	45	165	140	
spectro::lyser™ UV-Vis (Turbidity, 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 B-44-2	cleaning valve
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
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]	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-NO-010 / -075
	max.	1400				400	
carbo::lyser™ II (turbidity, DOC)	min.	0		0			C2-r-005-p0-s-NO-010 / -075
	max.	1400		140			
carbo::lyser™ II (turbidity, TOC)	min.	0	0				C2-r-005-p0-s-NO-010 / -075
	max.	1400	180				
carbo::lyser™ II (turbidity, UV254)	min.	0			0		C2-r-005-p0-s-NO-010 / -075
	max.	1400			500		
carbo::lyser™ II (turbidity, UV254f)	min.	0				0	C2-r-005-p0-s-NO-010 / -075
	max.	1400				400	
carbo::lyser™ III (turbidity, TOC, DOC)	min.	0	0	0			C3-r-005-p0-s-NO-010 / -075
	max.	1400	180	140			
carbo::lyser™ III (turbidity, UV254, UV254f)	min.	0			0	0	C3-r-005-p0-s-NO-010 / -075
	max.	1400			500	400	

drinking water

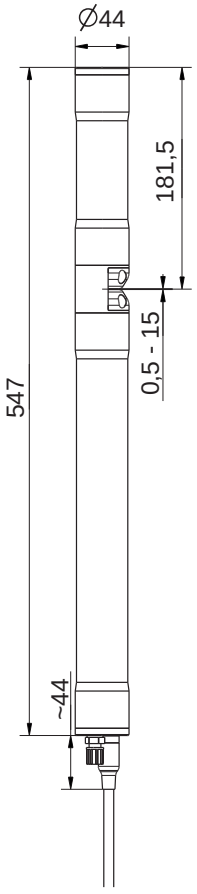
		parameter					
		turbidity [NTU/FTU]	TOC [mg/l]	DOC [mg/l]	UV254 [Abs/m]	UV254 f [Abs/m]	part number
carbo::lyser™ II (turbidity, DOC)	min.	0		0			C2-d-035-p0-s-NO-010 / -075
	max.	170		15			
carbo::lyser™ II (turbidity, TOC)	min.	0	0				C2-d-035-p0-s-NO-010 / -075
	max.	170	20				
carbo::lyser™ II (turbidity, UV254)	min.	0			0		C2-d-035-p0-s-NO-010 / -075
	max.	170			70		
carbo::lyser™ II (turbidity, UV254f)	min.	0				0	C2-d-035-p0-s-NO-010 / -075
	max.	170				55	
carbo::lyser™ III (turbidity, TOC, DOC)	min.	0	0	0			C3-d-035-p0-s-NO-010 / -075
	max.	170	20	15			
carbo::lyser™ III (turbidity, UV254, UV254f)	min.	0			0	0	C3-d-035-p0-s-NO-010 / -075
	max.	170			70	55	

multi::lyser

multi::lyser™ II monitors NO_3-N & one organic parameter (COD, BOD, TOC, DOC or UV254)

multi::lyser™ III montiors turbidity / TSS & NO_3-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 B-44-2	cleaning valve
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]	TOC [mg/l]	DOC [mg/l]	UV254 [Abs/m]	UV254 f [Abs/m]	part number
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	

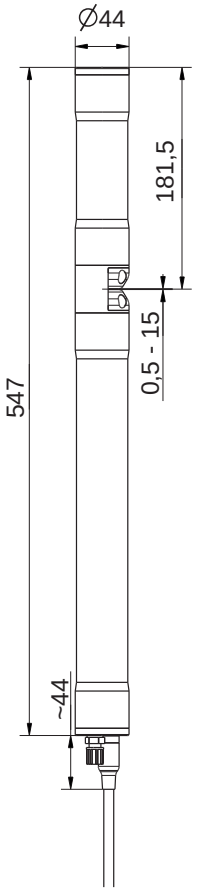
drinking water

		parameter						
		turbidity [NTU/FTU]	NO_3-N [mg/l]	TOC [mg/l]	DOC [mg/l]	UV254 [Abs/m]	UV254 f [Abs/m]	part number
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 & NO_3-N or turbidity & NO_3-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 B-44-2	cleaning valve
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	

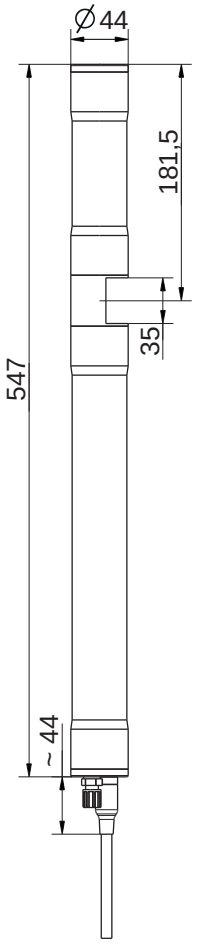
drinking water

		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 B-44-2	cleaning valve
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

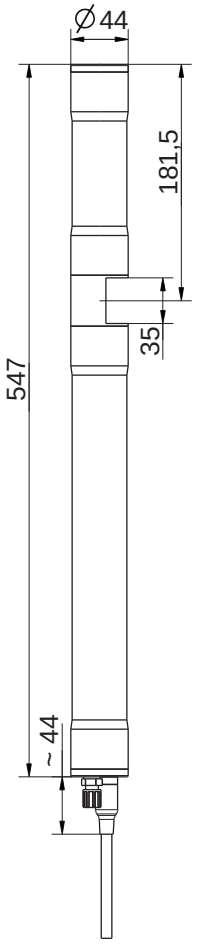
drinking water

		parameter		
		turbidity [NTU/FTU]	O_3 [mg/l]	part number
ozo::lyser II (turbidity, O_3)	min.	0	0	O2-d-100-p0-s-NO-010 / -075
	max.	60	9	

uv::lyser II

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

- 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 B-44-2	cleaning valve
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		

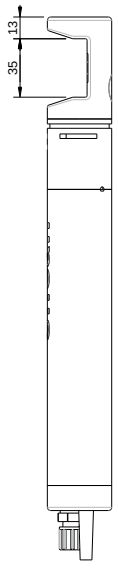
s::can
Intelligent. Optical. Online.

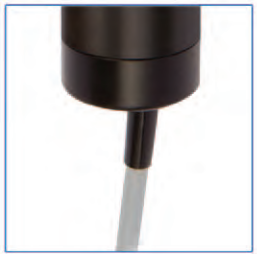
i::scan

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

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
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
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)
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

power supply	10 ... 18 VDC
power consumption (typical)	20 mA @ 12V
power consumption (max.)	200 mA @ 12V
interface to s::can terminals	RS485, MODBUS
cable length	7.5 m fixed cable (-075) or plug connection (-000)
housing material	PEEK, POM-C
weight (min.)	approx. 330 g
dimensions (Ø x l)	35 mm path length: 38.5 x 325 mm 5 mm path length: 38.5 x 295 mm
operating temperature	0 ... 45 °C
storage temperature	-20 ... 60 °C
operating pressure	0 ... 8 bar
installation / mounting	submersed or in a flow cell
flow velocity	3 m/s (max.)
automatic cleaning	with autobrush or compressed air (only possible for version (-075) with fixed cable) permissible pressure: 3 ... 6 bar
conformity - EMC	EN 61326-1 EN 61326-2-3
conformity - safety	EN 61010-1
protection class (-000)	IP67
protection class (-075)	IP68

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	

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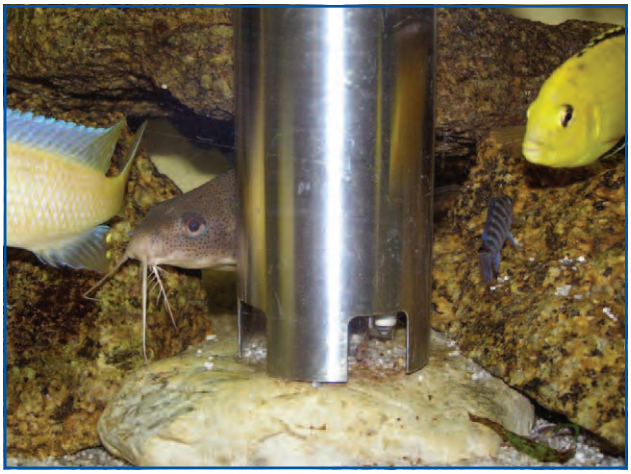
Ionselective Probes

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.

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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 NH_4-N and temperature

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

ammo::lyser™ III eco+NO_3-N additionally monitors NO_3-N

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

ammo::lyser™ IV eco+pH+NO_3-N additionally monitors pH and NO_3-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 NH_4-N), resp. 1 to 2 years (for applications >1mg/l NH_4-N)
- plug connection or fixed cable

recommended accessories	
part number	**article name**
B-44 B-44-2	cleaning valve
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™

technical specification

measuring principle	ISE
measuring principle detail	NH4-N: ionophore membrane pH: non-porous reference electrode NO3-N: ionophore membrane Cl-: ionophore membrane
resolution	NH4-N, K, NO3-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
accuracy (standard solution)	NH4-N: +/-3% of measuring range or +/-0.5mg/l* (*whichever is greater)
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
precalibrated ex-works	all parameters
response time (T90)	0 ... 60 sec.
integration via	con::cube con::lyte con::nect

power supply	10 ... 30 VDC
power consumption (typical)	0.72 W
interface to s::can terminals	sys plug (IP67), RS485
cable length	7.5 m fixed cable (-075) or plug connection (-000)
cable type	PU jacket
housing material	stainless steel 1.4571, POM-C
weight (min.)	2.7 kg
dimensions (Ø x l)	60 x 326 mm
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					
		NH_4-N [mg/l]	NO_3-N [mg/l]	pH [pH]	Cl- [mg/l]	temperature [°C]	part number
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	

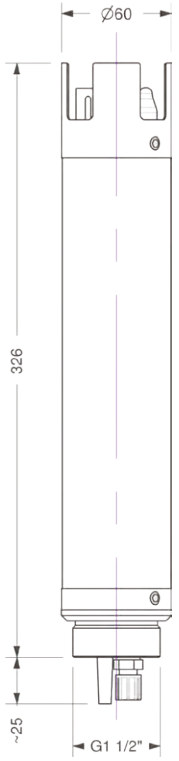
ammo::lyser™ pro

ammo::lyser™ III pro monitors NH_4-N and temperature

ammo::lyser™ IV pro+pH monitors NH_4-N, temperature and pH

ammo::lyser™ IV pro+NO_3-N monitors NH_4-N, temperature und NO_3-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 <1mg/l NH_4-N), resp. 1 to 2 years (for applications >1mg/l NH_4-N)
- plug connection or fixed cable



recommended accessories	
part number	**article name**
B-44 B-44-2	cleaning valve
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

technical specification

measuring principle	ISE
measuring principle detail	NH4-N: ionophore membrane K: ionophore membrane pH: non-porous reference electrode NO3-N: ionophore membrane
resolution	NH4-N, K, NO3-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
accuracy (standard solution)	NH4-N: +/-3% of measuring range or +/-0.1mg/l* (*whichever is greater)
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
precalibrated ex-works	all parameters
response time (T90)	60 ... 0 sec.
integration via	con::cube con::nect con::lyte
power supply	10 ... 30 VDC
power consumption (typical)	0.72 W
interface to s::can terminals	sys plug (IP67), RS485

cable length	7.5 m fixed cable (-075) or plug connection (-000)
cable type	PU jacket
housing material	stainless steel 1.4571, POM-C
weight (min.)	2.7 kg
dimensions (Ø x l)	60 x 326 mm
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					
		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 B-44-2	cleaning valve
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

technical specification

measuring principle	ISE
measuring principle detail	F: ionophore membrane reference electrode
automatic compensation instrument	temperature
potential interfering ions	OH- (at >pH8), Al3+, Ca2+, Fe3+, Si4+
precalibrated ex-works	all parameters
integration via	con::cube con::lyte con::nect
power supply	10 ... 30 VDC
power consumption (typical)	0.72 W
interface to s::can terminals	sys plug (IP67), RS485
cable length	7.5 m fixed cable (-075) or plug connection (-000)
cable type	PU jacket
housing material	stainless steel 1.4571, POM-C
weight (min.)	2.7 kg
dimensions (Ø x l)	60 x 326 mm

operating temperature	0 ... 60 °C
storage temperature	0 ... 60 °C
installation / mounting	submersed or in a flow cell
process connection	G 1 1/2" outside
flow velocity	0.01 m/s (min.) 3 m/s (max.)
pH range	4.5 ... 7.5
ingress protection class	IP68
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		
		F [mg/l]	temperature [°C]	part number
fluor::lyser II	min.	0.1	0	E-542-000 / -075
	max.	1000	60	

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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

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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.

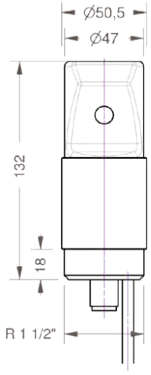
chlori::lyser
chlori::lyser monitors free or total chlorine - mounted in a flow cell setup. Due to the membrane covered amperometric measuring principle, flow and pH fluctuations of the water do not influence the measurement result. Additionally, the integrated temperature compensation and the special, 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 disolved 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 B-44-2	cleaning valve
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
resolution	0.01 mg/l O_2
accuracy (standard solution)	O_2: +/- 0.02 mg/l or +/- 1 %* (*whichever is greater)
response time (T90)	60 ... 0 sec.
reference standard	saturated sodium sulfite solution
integrated temperature sensor	0 ... 50 °C
resolution temperature sensor	0.2 °C
integration via	con::cube con::lyte con::nect
power supply	6 ... 16 VDC
power consumption (max.)	0.32 W
interface to s::can terminals	sys plug (IP67), RS485
cable length	10 m

housing material	CPVC, stainless steel, epoxy
weight (min.)	540 g
dimensions (Ø x l)	50.5 mm x 132 mm
operating temperature	0 ... 60 °C
storage temperature	0 ... 60 °C
operating pressure	0 ... 7 bar
installation / mounting	submersed or in a flow cell
process connection	R 1 1/2"
pH range	2 ... 10
ingress protection class	IP68
automatic cleaning	media: compressed air permissible pressure: 2 ... 4.5 bar
conformity - EMC	EN 50081-2, EN55011
conformity - safety	EN 61000-4, EN61010-1
extended warranty (optional)	3 years

measuring range

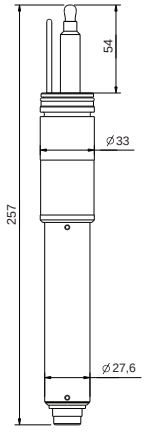
		parameter		
		O_2 [mg/l]	temperature [°C]	part number
oxi::lyser (O_2, temp)	min.	0	0	E-501-075
	max.	25	50	

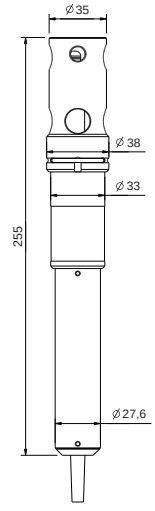
pH::lyser

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

technical specification

measuring principle	potentiometric
measuring principle detail	combined, non-porous reference electrode
resolution	0.01 pH
accuracy (standard solution)	0.1 pH
automatic compensation instrument	temperature
response time (T90)	30 ... 0 sec.
integrated temperature sensor	0 ... 90 °C
integration via	con::cube con::lyte con::nect
power supply	9 ... 18 VDC
power consumption (typical)	0.8 W
power consumption (max.)	1 W
interface to s::can terminals	sys plug (IP67), RS485
cable length	7.5 m fixed cable (-075) or plug connection (-000)
cable type	PU jacket

housing material	stainless steel 1.4404/1.4401, POM-C
weight (min.)	400 g
dimensions (Ø x l)	33 x 257 mm
operating pressure	0 ... 10 bar
installation / mounting	submersed or in a flow cell
process connection	quick connect
flow velocity	3 m/s (max.) 0.01 m/s (min.)
automatic cleaning	media: compressed air permissible pressure: 3 ... 6 bar
conformity - EMC	EN 61326-1
conformity - safety	EN 61010-1
operating temperature (eco)	0 ... 70 °C
operating temperature (pro)	0 ... 90 °C
storage temperature (electrode)	-5 ... 30 °C
storage temperature (sensor)	-10 ... 60 °C
protection class (-000)	IP67
protection class (-075)	IP68

measuring range

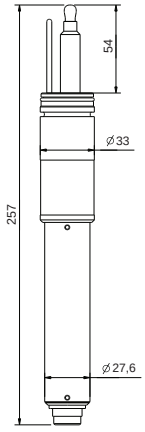
		parameter		
		pH [pH]	temperature [°C]	part number
pH::lyser eco (pH, temp)	min.	2	0	E-514-2-000 / -075
	max.	12	70	
pH::lyser pro (pH, temp)	min.	0	0	E-514-3-000 / -075
	max.	13	90	

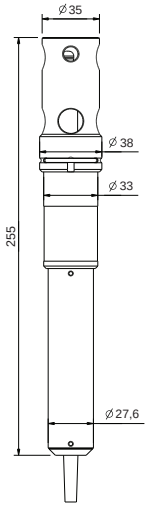
redo::lyser

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

technical specification

measuring principle	potentiometric
measuring principle detail	combined, non-porous reference electrode
resolution	1 mV
accuracy (standard solution)	+/- 10 mV
response time (T90)	30 ... 0 sec.
integrated temperature sensor	0 ... 90 °C
integration via	con::cube con::lyte con::nect
power supply	9 ... 18 VDC
power consumption (typical)	0.8 W
power consumption (max.)	1 W
interface to s::can terminals	sys plug (IP67), RS485
cable length	7.5 m fixed cable (-075) or plug connection (-000)
housing material	stainless steel 1.4404/1.4401, POM-C

weight (min.)	400 g
dimensions (Ø x l)	33 x 257 mm
operating pressure	0 ... 10 bar
installation / mounting	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: 3 ... 6 bar
conformity - EMC	EN 61326-1
conformity - safety	EN 61010-1
operating temperature (eco)	0 ... 70 °C
operating temperature (pro)	0 ... 90 °C
storage temperature (electrode)	-5 ... 30 °C
storage temperature (sensor)	-10 ... 60 °C
protection class (-000)	IP67
protection class (-075)	IP68

measuring range

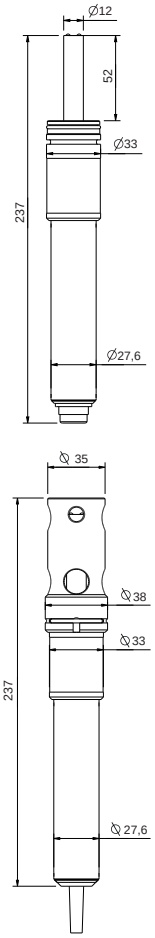
		parameter		
		redox [mV]	temperature [°C]	part number
redo::lyser eco (ORP, temp)	min.	-2000	0	E-513-2-000 / -075
	max.	2000	70	
redo::lyser pro (ORP, temp)	min.	-2000	0	E-513-3-000 / -075
	max.	2000	90	

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



technical specification

measuring principle	4-electrode, direct-contact
resolution	1 µS/cm
accuracy (standard solution)	1% of reading
automatic compensation instrument	temperature
integrated temperature sensor	-20 ... 130 °C
integration via	con::cube con::lyte con::nect
power supply	7 ... 30 VDC
power consumption (typical)	0.06 W
power consumption (max.)	0.15 W
interface to s::can terminals	sys plug (IP67), RS485
cable length	7.5 m fixed cable (-075) or plug connection (-000)
housing material	Stainless steel 1.4435, FDA-approved PEEK, POM-C

weight (min.)	240 g
dimensions (Ø x l)	33 x 237 mm
operating temperature	0 ... 70 °C
storage temperature	0 ... 60 °C
operating pressure	0 ... 20 bar
installation / mounting	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

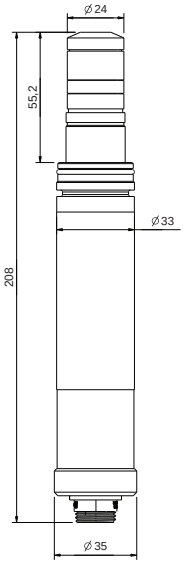
		parameter			
		conductivity [µS/cm]	temperature [°C]	salinity* [PSU]	part number
condu::lyser	min.	0	0	2	E-511-2-000 / -075
	max.	500000	70	42	

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

chlori::lyser

chlori::lyser monitors free chlorine (Cl2 + HOCl + 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 FCl; pH range from 4 to 12 TCl
- 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
measuring principle detail	potentiostatic 3-electrode system
resolution	E-520-1 and E-525-1: 0.001 mg/l E-520-2 and E-525-2: 0.01 mg/l)
automatic compensation instrument	temperature
automatic compensation cross sensitivities	pH
response time (T90)	2 min.
integration via	con::cube con::lyte con::nect
power supply	9 ... 30 VDC
power consumption (typical)	0.5 W
power consumption (max.)	0.6 W

interface to s::can terminals	sys plug (IP67), RS485
housing material	PVC Stainless steel 1.4571
weight (min.)	150 g
dimensions (Ø x l)	35 x 208 mm
operating temperature	0 ... 45 °C
storage temperature	0 ... 45 °C
operating pressure	0 ... 3 bar
installation / mounting	flow cell
process connection	quick connect
recomended flow	15 ... 30 l/h (in s::can flow cell)
pH range FCl	4 ... 9
pH range TCl	4 ... 12
conformity - EMC	EN 61326-1

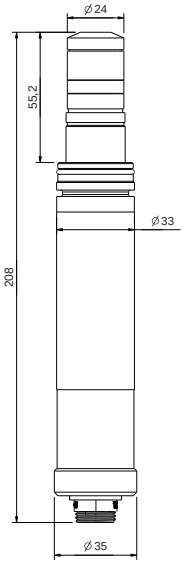
measuring range

		parameter			
		free chlorine [mg/l]	total chlorine [mg/l]	temperature [°C]	part number
chlori::lyser (FCl)	min.	0		0	E-520-1-000
	max.	2		45	
chlori::lyser (FCl)	min.	0		0	E-520-2-000
	max.	20		45	
chlori::lyser (TCl)	min.		0	0	E-525-1-000
	max.		2	45	
chlori::lyser (TCl)	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
measuring principle detail	potentiostatic 2-electrode system, membrane covered
resolution	0.1 mg/l for 0 - 200 mg/l
automatic compensation instrument	temperature
response time (T90)	1 min.
integration via	con::cube con::lyte con::nect
power supply	9 ... 30 VDC
power consumption (typical)	0.5 W
power consumption (max.)	0.6 W
interface to s::can terminals	sys plug (IP67), RS485

housing material	PVC Stainless steel 1.4571
weight (min.)	150 g
dimensions (Ø x l)	35 x 208 mm
operating temperature	0 ... 50 °C
storage temperature	0 ... 45 °C
operating pressure	0 ... 1 bar
installation / mounting	flow cell
process connection	quick connect
recomended flow	15 ... 30 l/h (in s::can flow cell)
pH range	2 ... 11
conformity - EMC	EN 61326-1
protection class (-000)	IP67

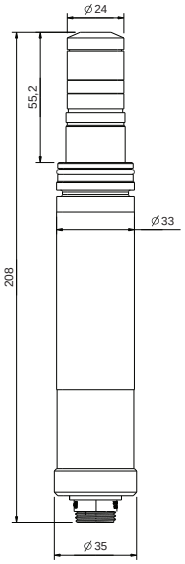
measuring range

		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
measuring principle detail	potentiostatic 2-electrode system, membrane covered
resolution	0.1 mg/l for 0 - 200 mg/l 1 mg/l for 0 - 2000 mg/l
automatic compensation instrument	temperature
response time (T90)	5 ... 10 min.
integration via	con::cube con::lyte con::nect
power supply	9 ... 30 VDC
power consumption (typical)	0.5 W
power consumption (max.)	0.6 W
interface to s::can terminals	sys plug (IP67), RS485

housing material	PVC Stainless steel 1.4571
weight (min.)	150 g
dimensions (Ø x l)	35 x 208 mm
operating temperature	0 ... 45 °C
storage temperature	0 ... 45 °C
operating pressure	0 ... 1 bar
installation / mounting	flow cell
process connection	quick connect
recomended flow	15 ... 30 l/h (in s::can flow cell)
pH range	2 ... 11
conformity - EMC	EN 61326-1
protection class (-000)	IP67

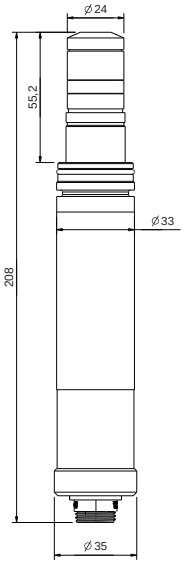
measuring range

		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
measuring principle detail	potentiostatic 2-electrode system, membrane covered
resolution	0.1 mg/l for 0 - 200 mg/l 1 mg/l for 0 - 2000 mg/l
automatic compensation instrument	temperature
response time (T90)	1.5 ... 5 min.
integration via	con::cube con::lyte con::nect
power supply	9 ... 30 VDC
power consumption (typical)	0.5 W
power consumption (max.)	0.6 W
interface to s::can terminals	sys plug (IP67), RS485

housing material	PVC Stainless steel 1.4571
weight (min.)	150 g
dimensions (Ø x l)	35 x 208 mm
operating temperature	0 ... 45 °C
storage temperature	0 ... 45 °C
operating pressure	0 ... 1 bar
installation / mounting	flow cell
process connection	quick connect
recomended 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		
		PAA [mg/l]	temperature [°C]	part number
peroxy::lyser	min.	0	0	E-515-1-000
	max.	200	45	
peroxy::lyser	min.	0	0	E-515-2-000
	max.	2000	45	

s::can
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Terminals

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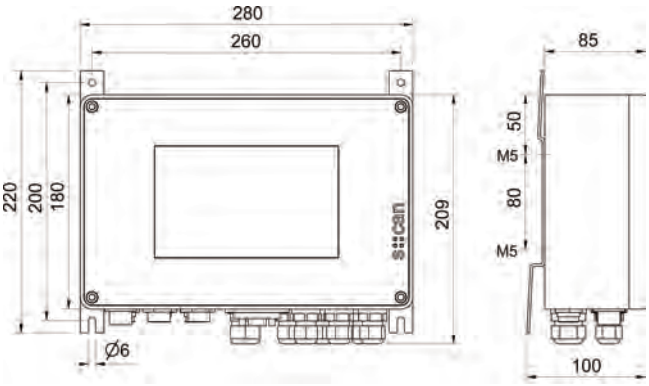


- s::can high-end IoT (Internet of Things) terminal based on an industrial PC, IP65
- widescreen color graphical display (7") and touch screen
- highly intuitive use, informative visualization & easy operation: time series, optical spectra and all events in clear text
- sensor and station management 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
display	VGA color-display 7" TFT (optional)
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)
operating system	Linux
main memory	1 GB RAM
onboard memory	4 GB
interface to s::can spectrometric probes	1 x MIL, RS485
interface to s::can sensors	4 x sys plug, RS485
interface to third party sensors	Modbus RTU/TCP, analog inputs
network connection	802.11n a/b/g WIFI 300Mb/s Ethernet LAN worldwide 3G HSPA
interface to SCADA	Modbus RTU/TCP, Profibus DP (optional), SDI-12 (optional), analog outputs
data transfer	via SSH, FTP, TML (XML) and USB stick
remote control	via http

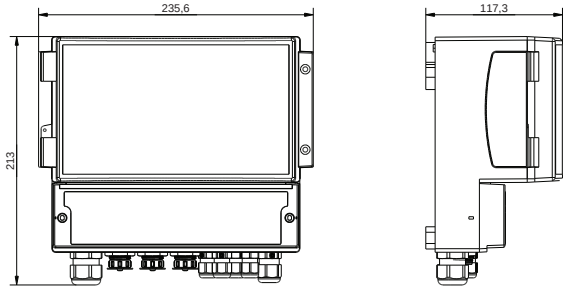
power supply	D-315-230: 100 ... 240 VAC D-315-024: 10 ... 36 VDC
power consumption (typical)	1.5 W (in sleep mode) 10 W (no analogue ports) 30 W (fully equipped)
power consumption (max.)	20 W (no analogue ports) 60 W (fully equipped)
grounding	<0.5 Ohm to process media
analog outputs	up to 8x2 x 0/4-20 mA
analog inputs	up to 8x2 x 0/4-20 mA
outputs for automatic cleaning	2
digital inputs	up to 7x2 x 14 VDC
relay outputs	4 x 2A (500 VAC)
system error relay	1 x 2A (500 VAC)
dimensions (width x height x depth)	280 x 209 x 85 mm
housing material	aluminium alloy, powder coated
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+GI1 (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-Profibus	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-antenna-pro	External, high range antenna option for con::cube, incl. 10 m extension cable
D-315-antenna-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



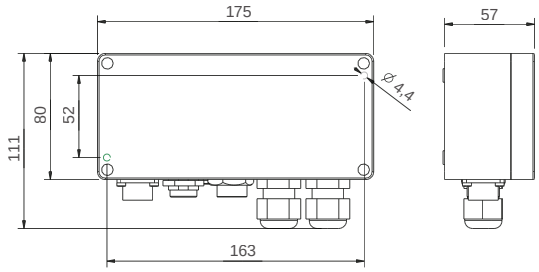
technical specification	
display	LCD
function indicator	2 x LED
operation via	keypad
onboard memory	512 MB
interface to SCADA	Modbus RTU (optional), Profibus DP (optional), analog outputs
data transfer	USB stick
power supply	100-240 VAC (50-60 Hz)
power consumption (max.)	25 W
analog inputs	1 x 0/4-20 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

s::can
Intelligent. Optical. Online.

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.

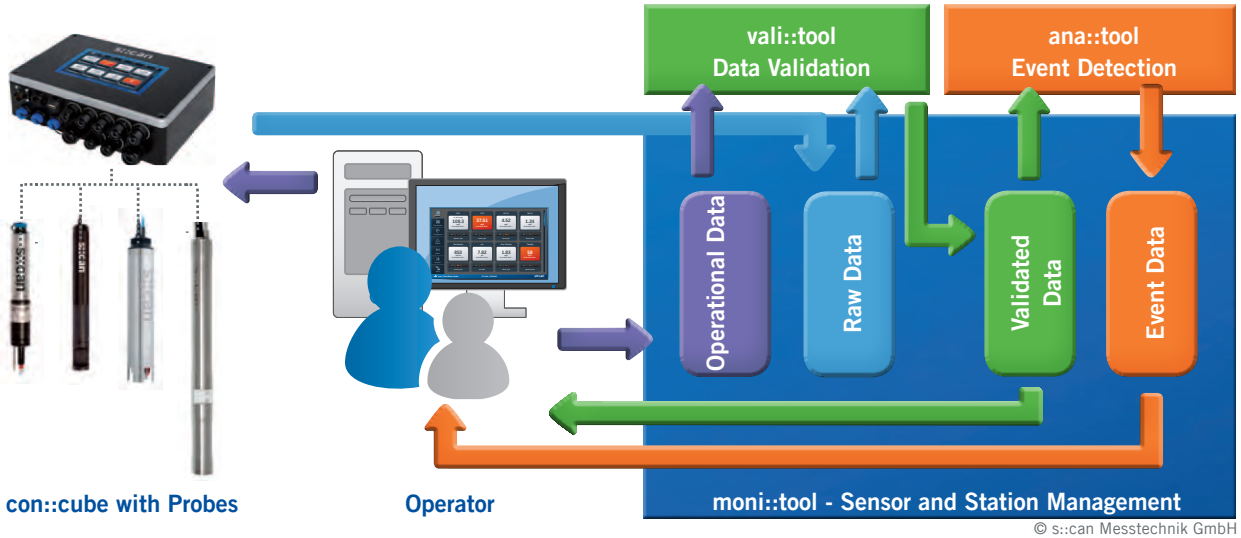
What is special about moni::tool?

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 enveloping 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:

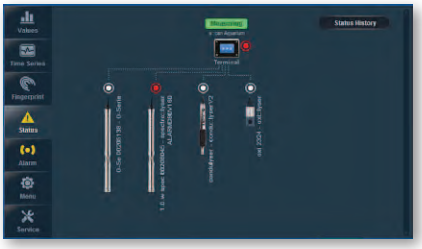
- moni::tool™ - Sensor and Station Management
  Provides management of probes and stations. It documents critical manipulations, from user login to maintenance and logbook keeping. It also has intuitive visualization tools to display all information in a clear and easy to understand format.
- vali:.tool - 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!

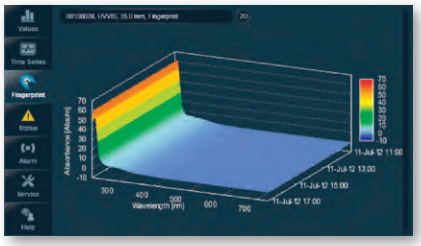


moni::tool™

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)

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

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

- 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

- 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

- 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

- 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

- Protected by a user-configurable firewall

- Automatic probe cleaning

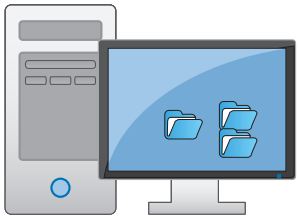
- Any parameter input of any type of probe can be fed in - managed and analyzed in real time
- Multi sample function to calibrate all installed probes with minimal effort

moni::tool™ - Additional Features

Automatic File Transfer

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

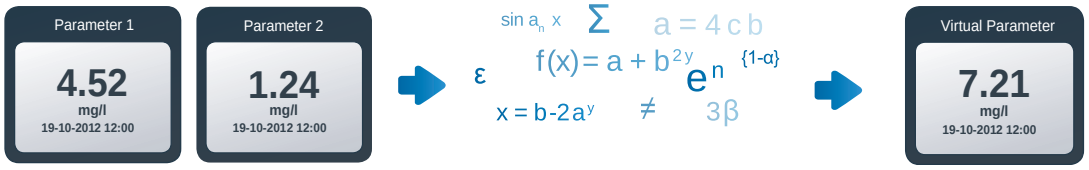
- Customizable ASCII format (csv supported)
- Import to any spreadsheet application or database (e. g. Excel)
- SSH-Transfer, FTP-Transfer and TML-Interface (XML-Based).



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-lenghts 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)

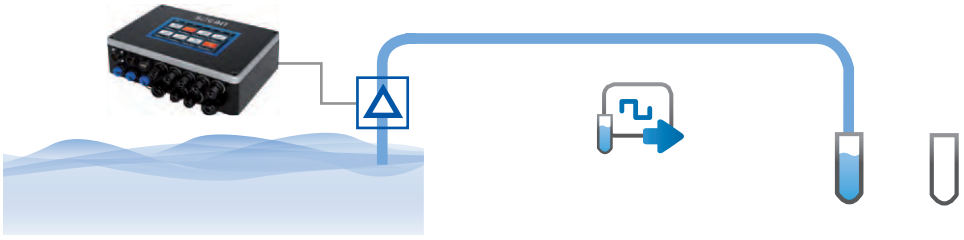
- **Every digital output function can be used to trigger a SMS notification**
- **Example conditions: parameter reading over limit, event detected, failure with installation or sensor detected, etc.**
- **Customizable SMS message text**

moni::tool™ - Additional Features

Auto Sampler

Create your own Auto-Sampler!

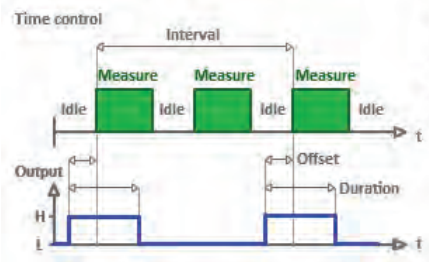
- Complete and flexible sample system
- Configure the conditions for taking samples
- Combine different conditions and program delays
- Control sample capacity either by a fill level detector or by a timer



PLC Tools

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

- Time Control
- Value Hysteresis downwards
- Pulsing

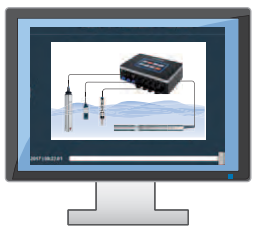


The output is time controlled by the the measurement cycle. Interval defines how often, Offset defines the relative position to the start of measurement and Duration defines how long the output is 'HIGH'.

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



vali::tool

Data Validation

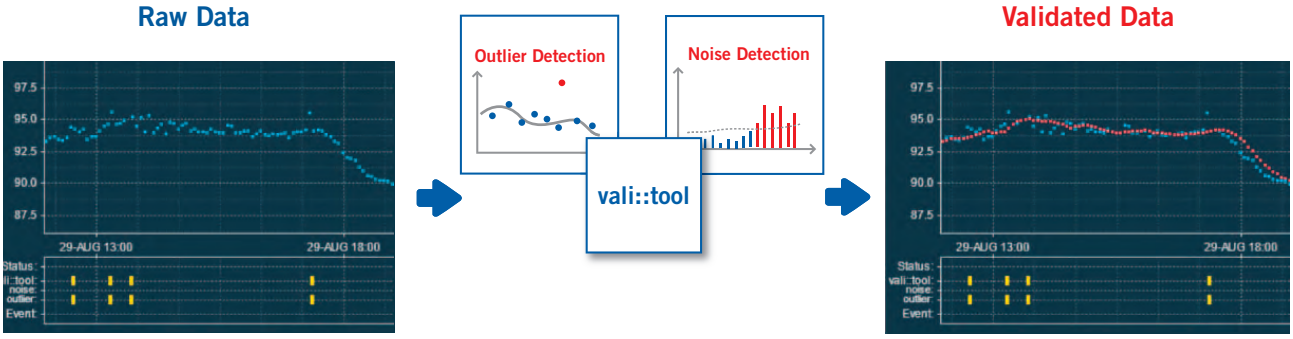
Automatic data validation makes sure that only unmarked, "clean" data are used for further analysis, training and alarms. Any non-event-related deviating data must be identified and marked before feeding them into the following event detection module.

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**

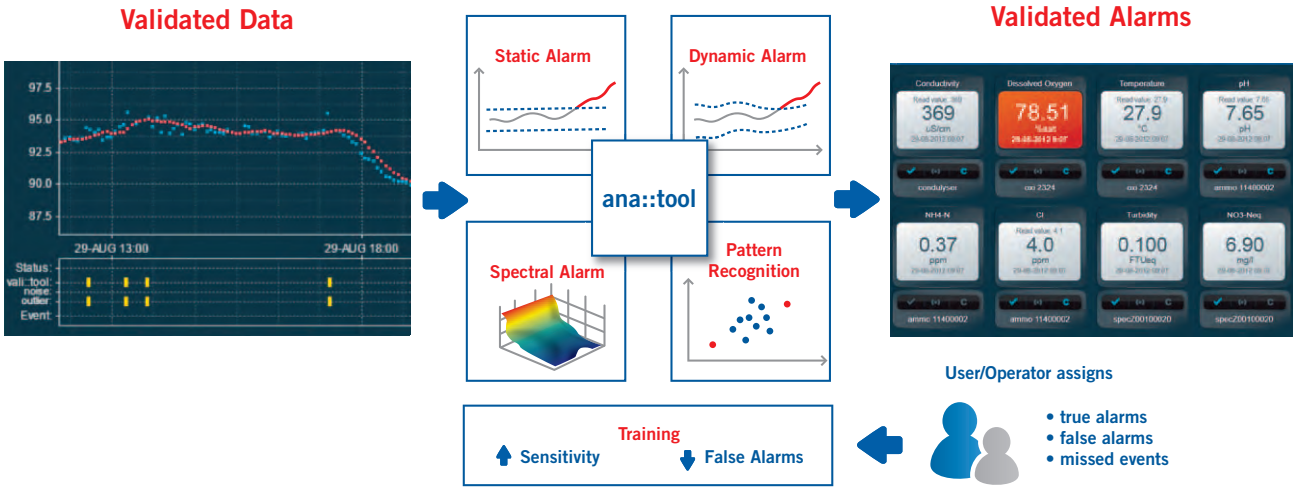
ana::tool turns your monitoring station into an Event Detection System!

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

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

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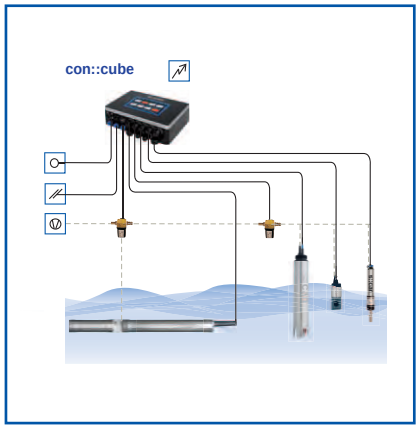
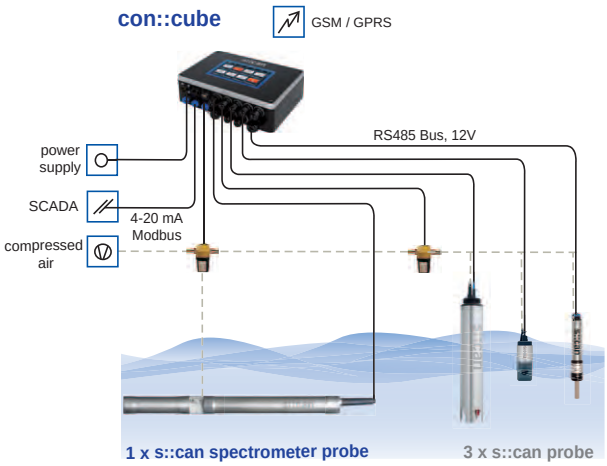
System Configuration



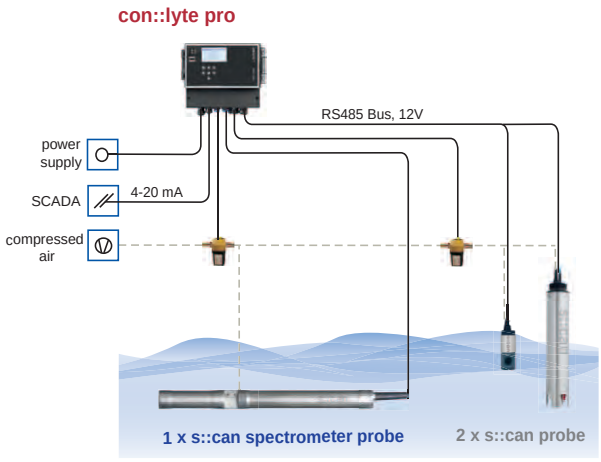
plug & measure - system configuration for con::cube

- 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



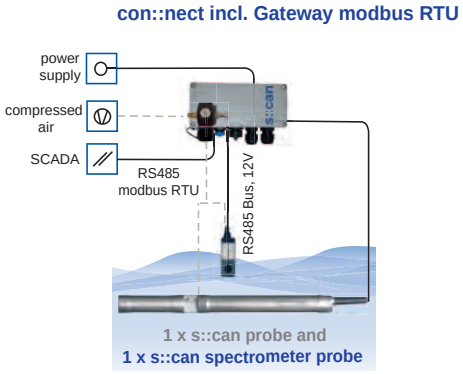
plug & measure - system configuration for con::lyte pro

- 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/)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



s::can
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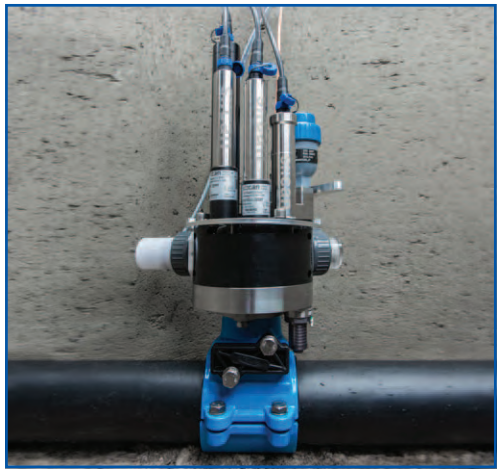
pipe::scan

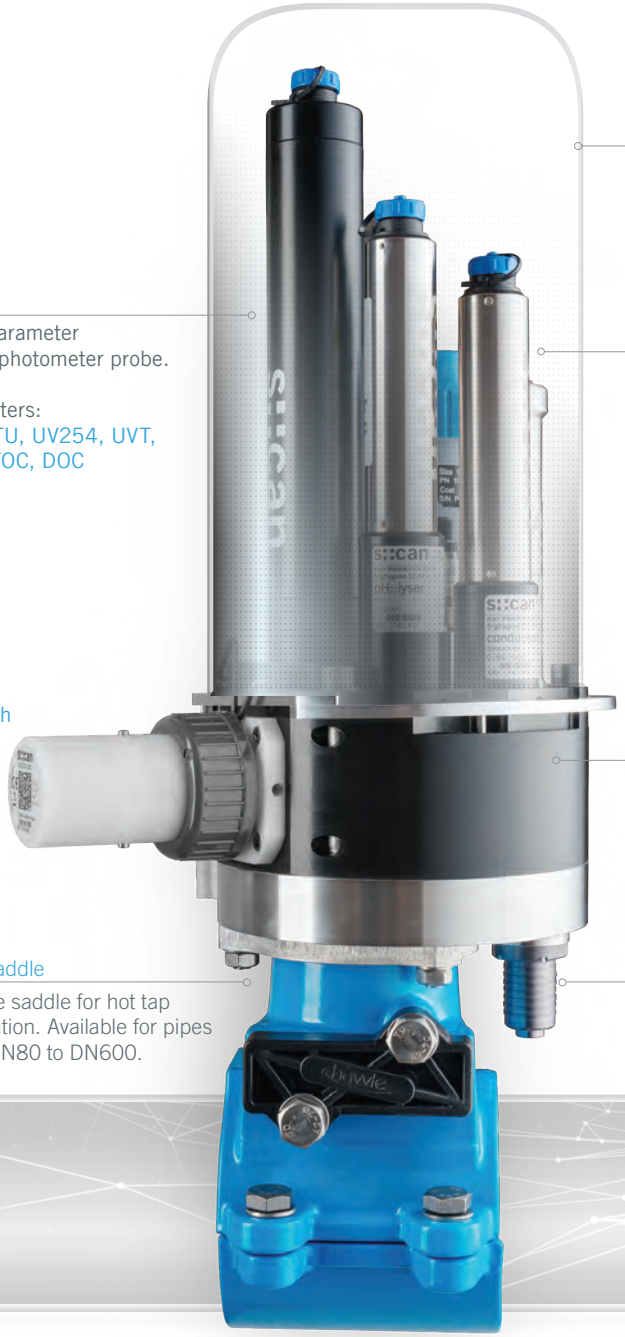


pipe::scan

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

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

Optional autobrush for i::scan
Provides automatic brush cleaning for the i::scan.

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).

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

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
minimal measurement interval	1 min
wetted materials	POM stainless steel fine brass EN12165 and EN12164
other material	depends on sensors
precalibrated ex-works	all parameters
reference standard	distilled water
integration via	con::cube
power supply	via con::cube
power consumption (typical)	14W
power consumption (max.)	35W
weight (min.)	approx. 8 kg
dimensions (w x h x l)	220 x 450 x 340 mm
operating temperature	0 (non-freezing) ... +40°C
operating pressure	1 ... 10 bar

installation / mounting	on 2“ Hawle pipe saddle (to be ordered separately)
manual sampling option	ball valve for manual sampling IG1/4“ EN10206-1
other operating limits	pipeline must be vented installation must be on top of pipe no direct sunlight
operating pH range	4 - 12 pH
operating free chlorine range	0 - 2 mg/l
storage temperature limit	base unit -20 ... +60°C sensors 0 ... +45°C
storage humidity limit	0 ... 95%
automatic cleaning	autobrush (for i::scan)
drinking water safety certificate	ACS (Attestation de conformité Sanitaire)
conformity - EMC	EN 61326-1
conformity - safety	EN 61010-1 RoHS
protection class	IP67

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	

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

		concentration ranges and sensor/probe type for this application		
		free chlorine [mg/l]	temperature [°C]	part number
chlori::lyser (FCl, temp)	min.	0	0	E-520-1-s-000
	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 (pH, temp)	min.	4	0	E-514-2-000
	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 (conductivity, temp)	min.	0	0	E-511-2-000
	max.	5000	40	

redo::lyser for drinking water

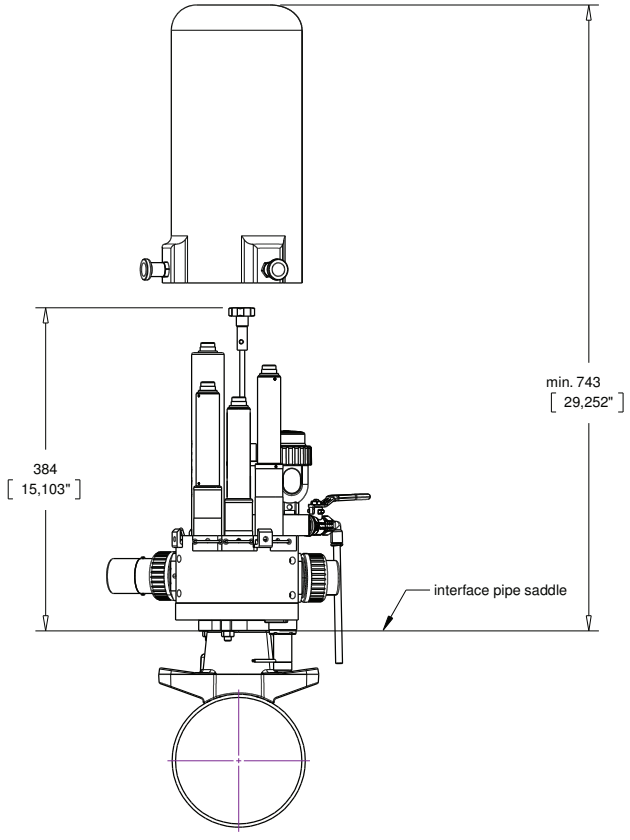
		concentration ranges and sensor/probe type for this application		
		redox [mV]	temperature [°C]	part number
redo::lyser (ORP, temp)	min.	-500	0	E-513-2-000
	max.	500	40	

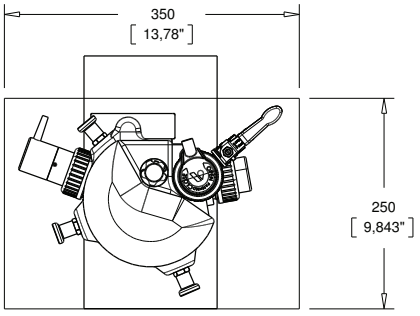
pipe::scan versions

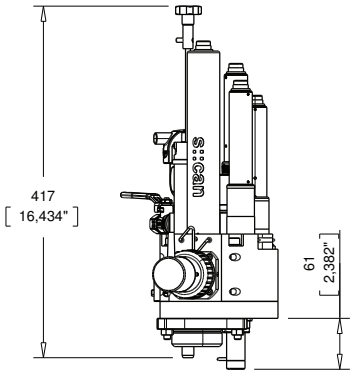
part number	article description
P-103-PIPESCAN	pipe::scan system: base unit + FCl, P, Temp
P-104-PIPESCAN	pipe::scan system: base unit + FTU, FCl, pH, P, Temp
P-105-PIPESCAN	pipe::scan system: base unit + FCl, pH, EC, P, Temp
P-106-PIPESCAN	pipe::scan system: base unit + FTU, FCl, pH, EC, P, Temp, autobrush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

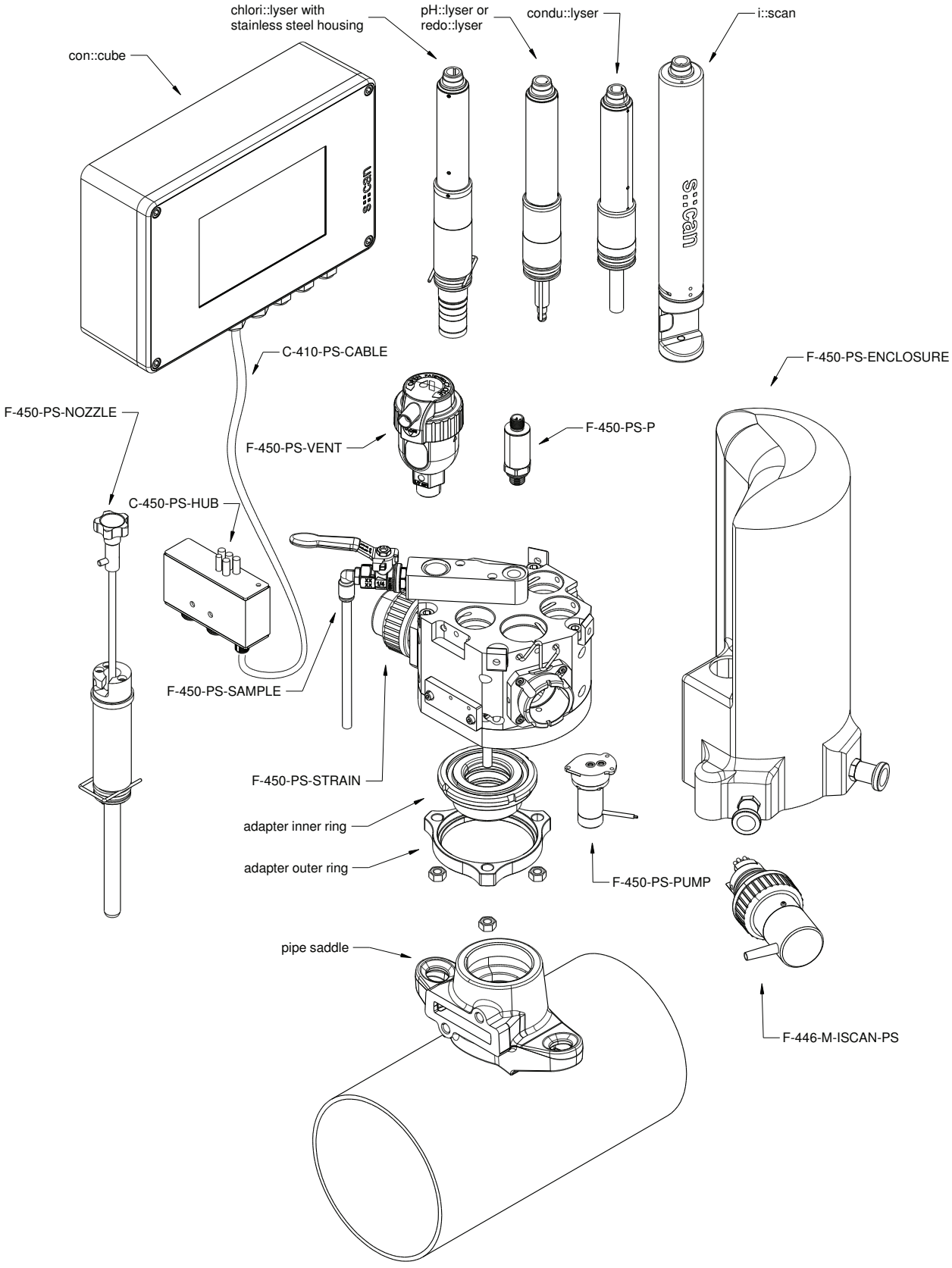
recommended accessories

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-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
S-14-08-vali S-14-24-vali	vali::tool - s::can data validation software
D-315-antenna-pro	External, high range antenna option for con::cube, incl. 10 m extension cable
D-315-antenna-plug	Internal antenna adapter cable and connector, option for con::cube









s::can
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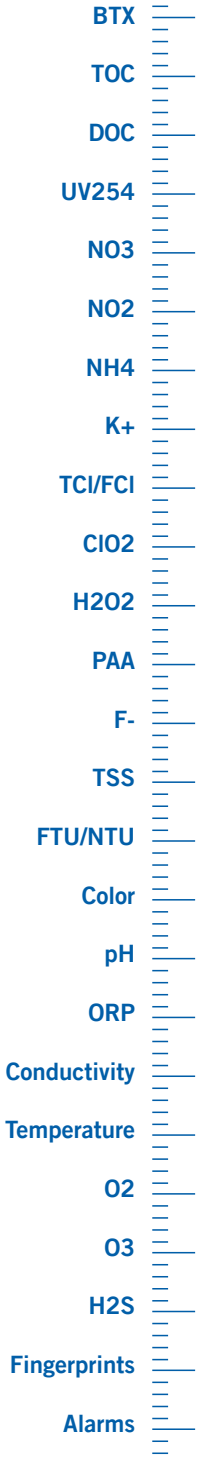
Monitoring Stations

Monitoring station

Monitoring station

micro::station



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, H_2S, NO_2-N, NO_3-N, O_3, 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

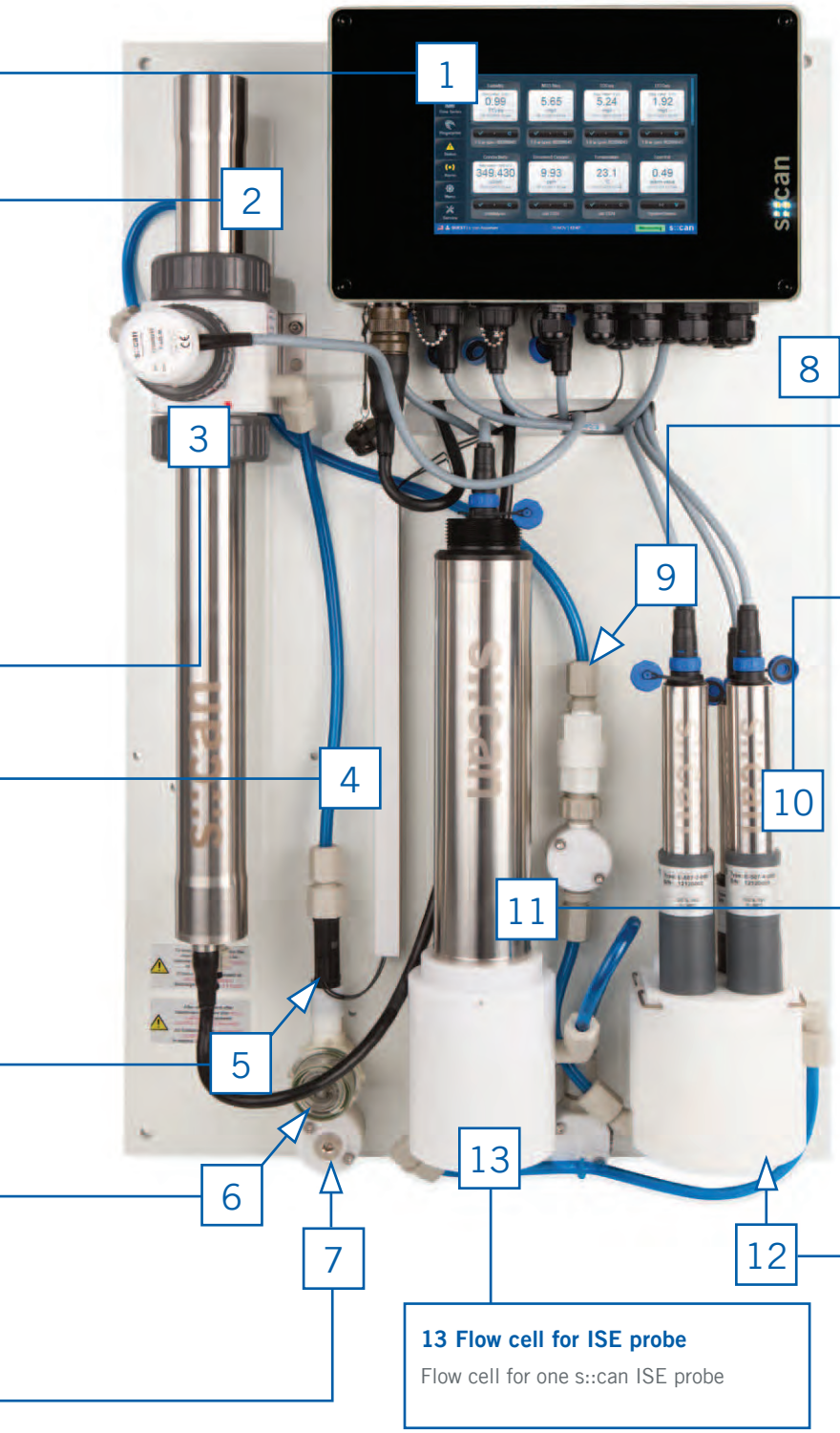
The flow detector is set to give an alarm if the flow rate decreases below a critical value

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, FCl/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+, NH_4-N, NO_3-N, O_2, 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

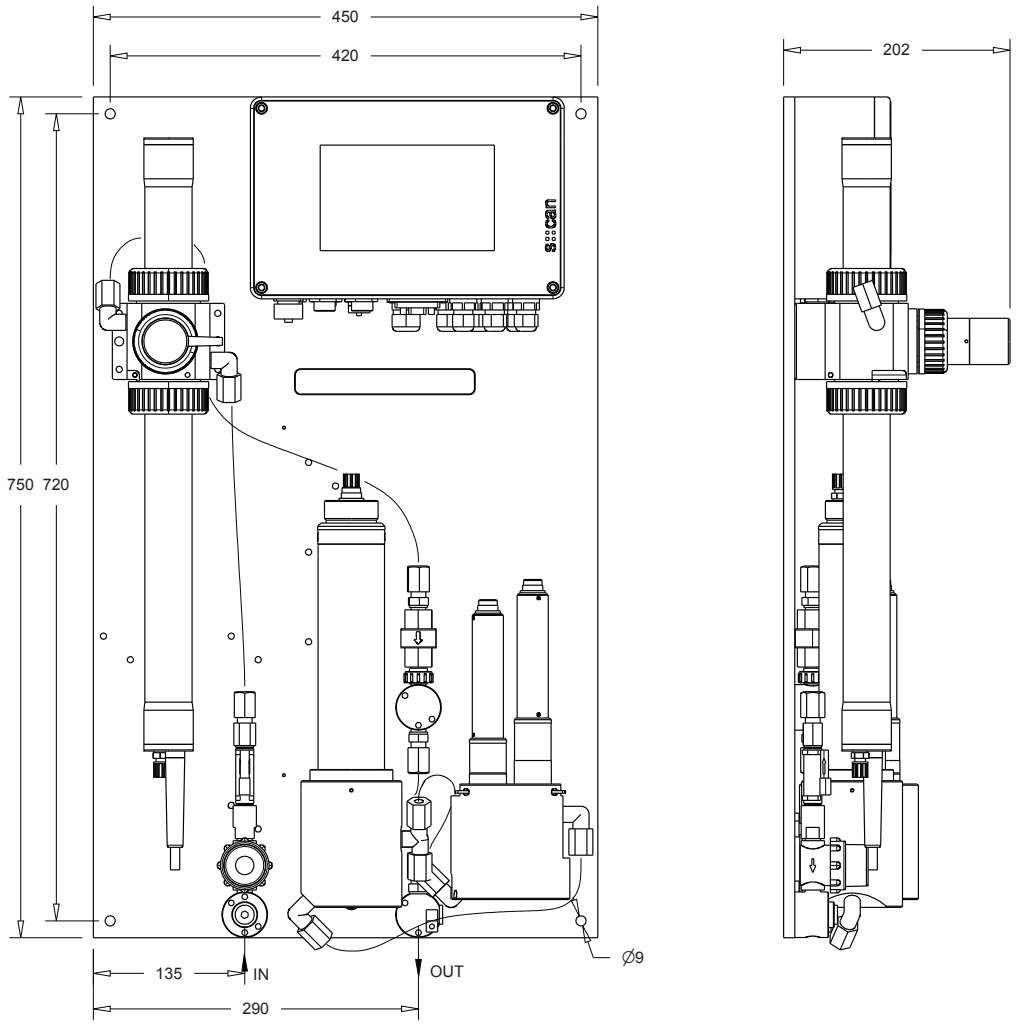
13 Flow cell for ISE probe

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
ClO2
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::stationwill 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

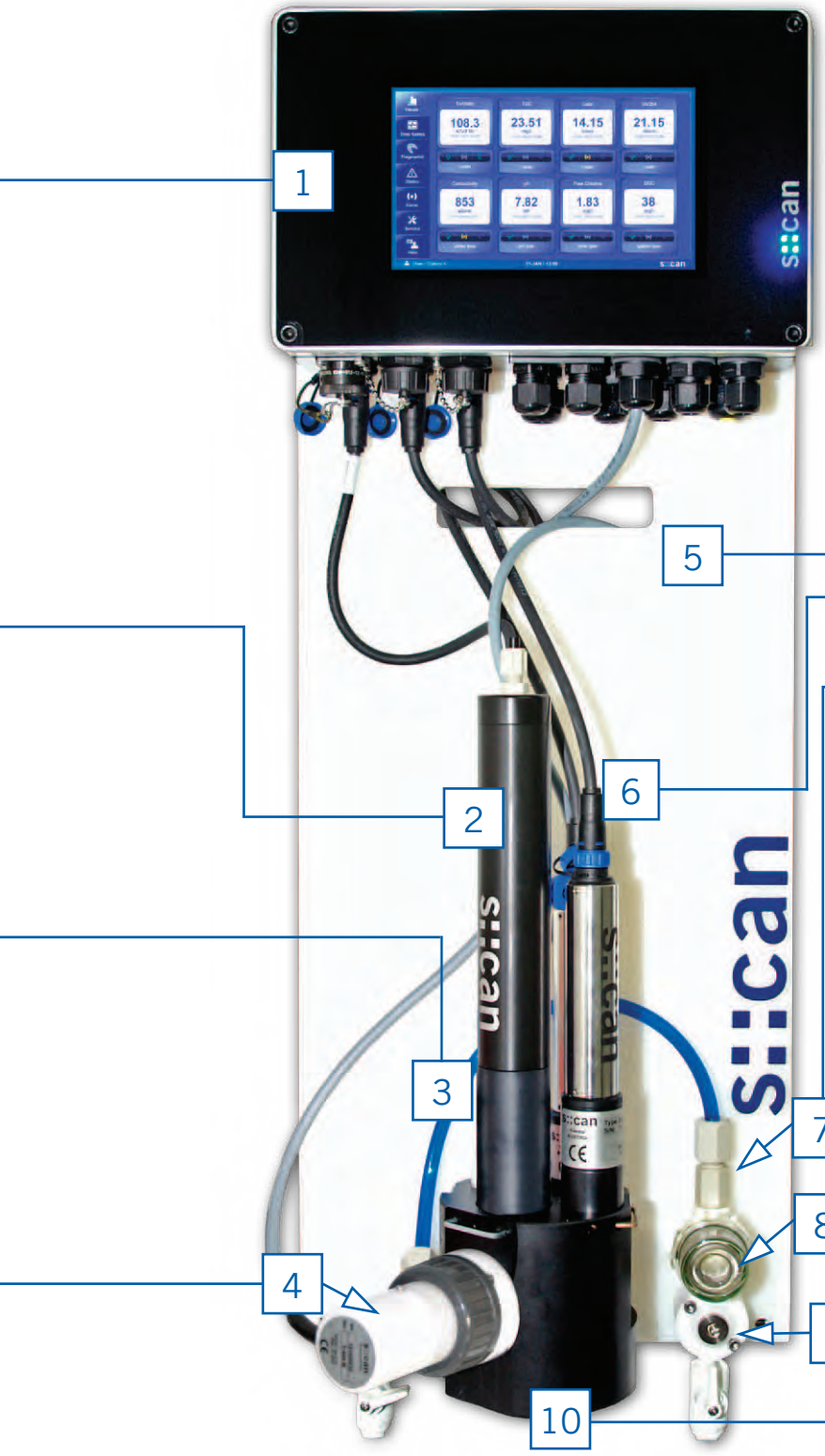
Possible parameters:
Color, FTU/NTU, UV254, TOC, DOC, Transmission

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



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. condu::lyser, pH::lyser or chlori::lyser)

Possible parameters:
Conductivity, FCl, 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

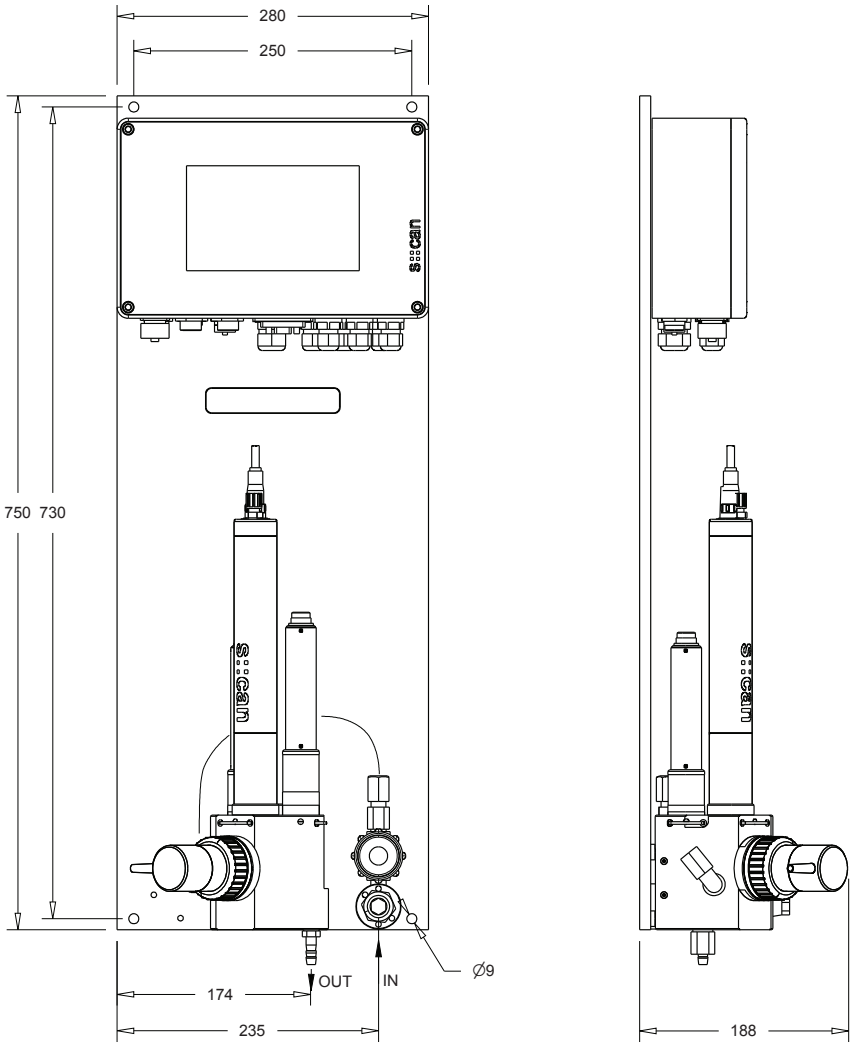
10 Flow cell for i::scan and physical probes

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, chlori::lyser, chlodi::lyser, hyper::lyser, peroxi::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



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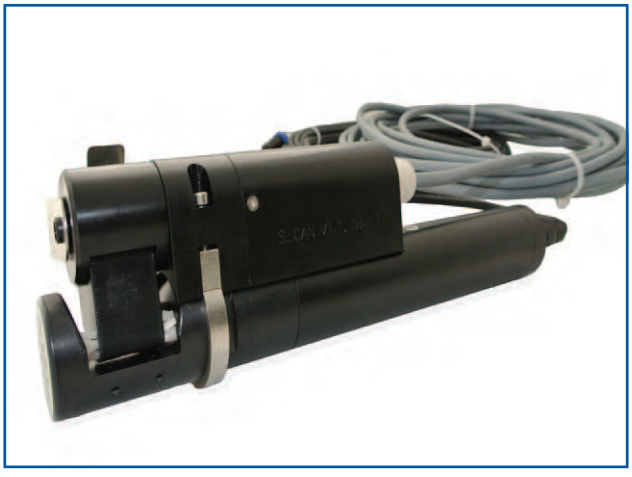
Spare Parts & Accessories

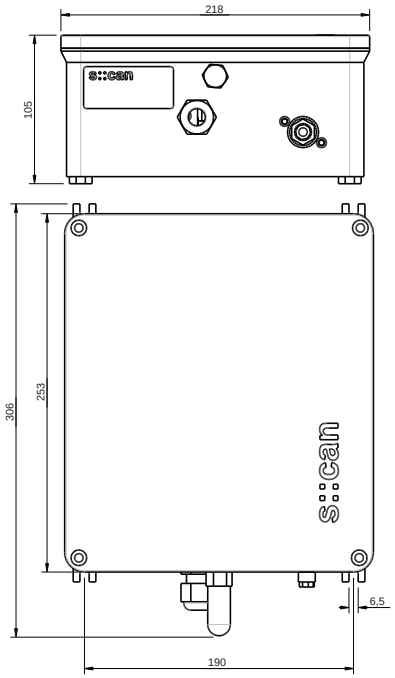
Reference electrode and ammonium electrode for ammo::lyser



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

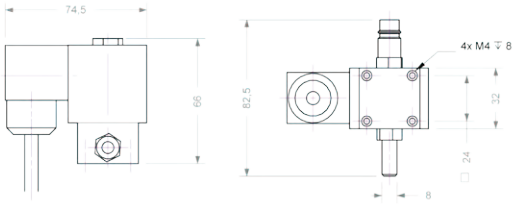
to be used for
ammo::lyser™ pro
ammo::lyser™ eco
oxi::lyser™
spectro::lyser™
carbo::lyser™ II / III
multi::lyser
nitro::lyser™ II
ozo::lyser II
uv::lyser II

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

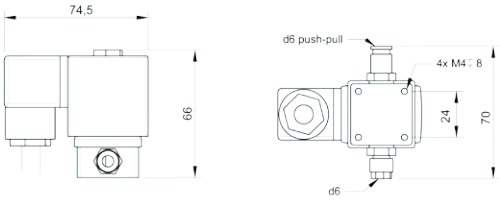
cleaning valve

- 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 comination 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



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

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

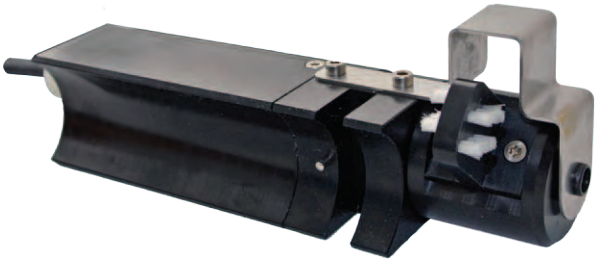
- for proper and easy in-pipe installation of one i::scan (for PE, PVC and PP pipes)

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 s::can spectrometer probes
- for applications with frequent, automatic cleaning
- cleaning of optical windows with rotating brush without demounting of spectrometer 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 s::can physical probes

- for proper and easy flow-through installation of condu::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::scan 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)

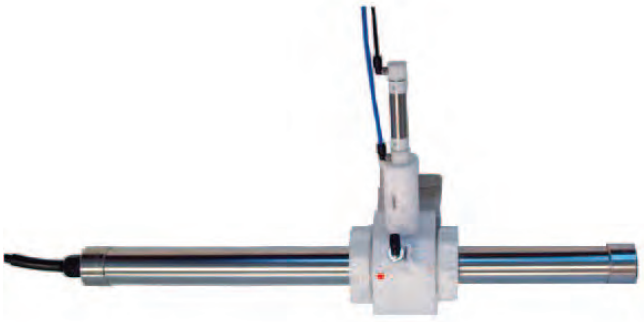
- side-by-side stackable flow cells for waste water applications (add-on dimension 177 mm)
- cleaning with pressurized air possible

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
recomended 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 con::nect
housing material	stainless steel POM-C
installation / mounting	flow cell
integration via	con::cube con::nect
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 quarz windows
A-015-q	Inserts for optical pathlength 15 mm, stainless steel, special quarz 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-NO3	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-NO3	500 ml Nitrate standard solution 1000 mg/l NO3-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-NO3	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-NO3	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-NO3	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 B-32-110 B-32-012	s::can compressor
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 B-44-2	cleaning valve
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

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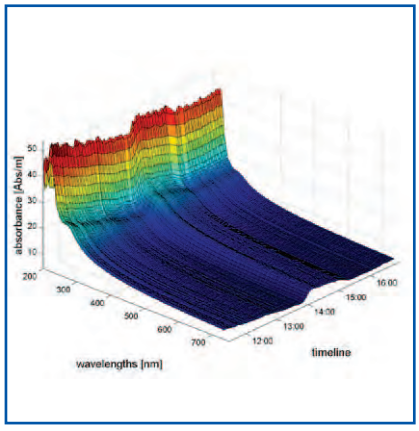

contamispec - detection limits of contaminants

- individual analysis of contaminants by s::can Support
- prediction of substance-specific range & precision in individual water matrix
- considering possible background of solids and disolved 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?

feasibilty 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 contamispec 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
- verfication of electrodes
- verfication 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
- verfication 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 verfication 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)
- verfication 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

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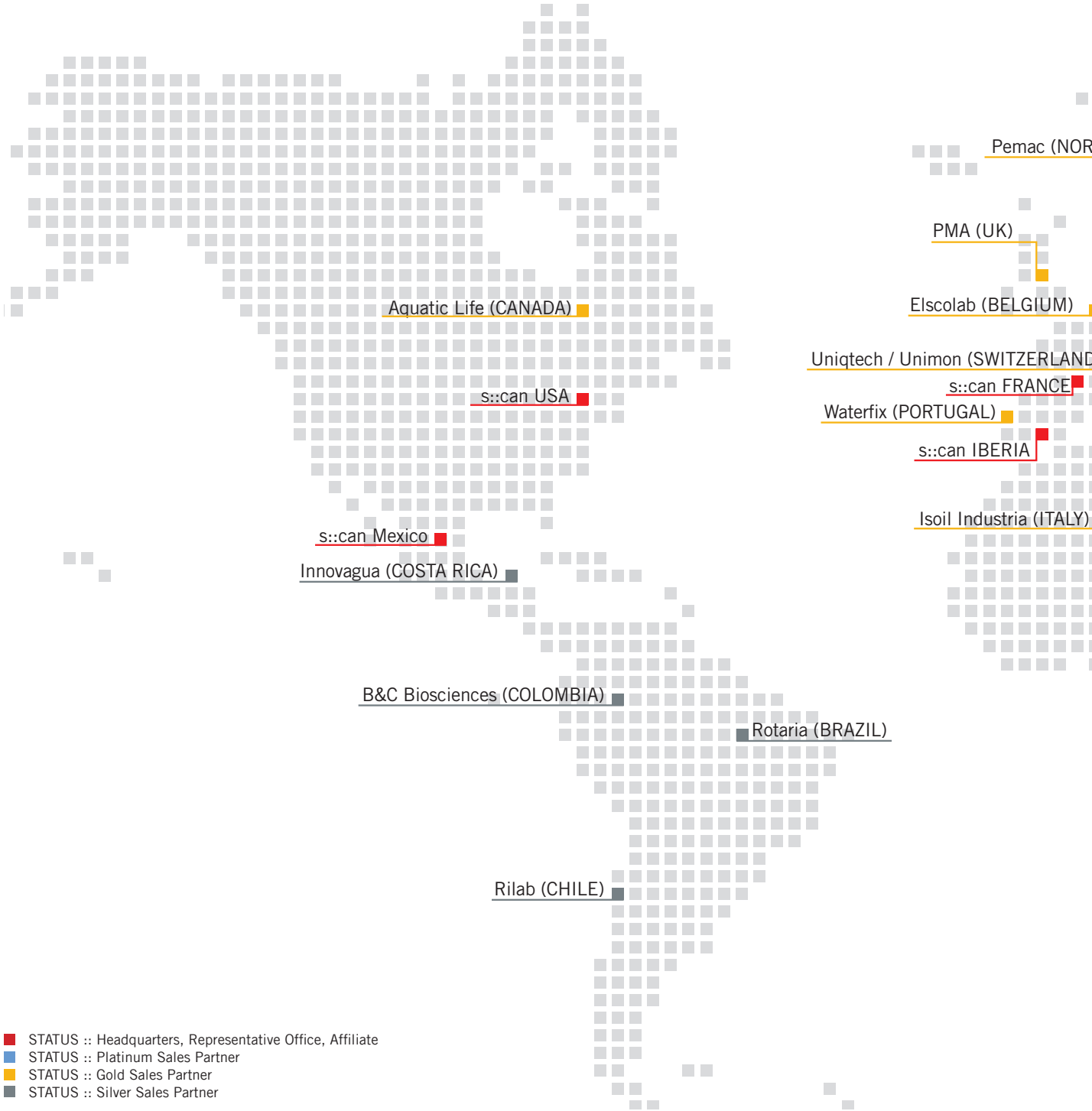
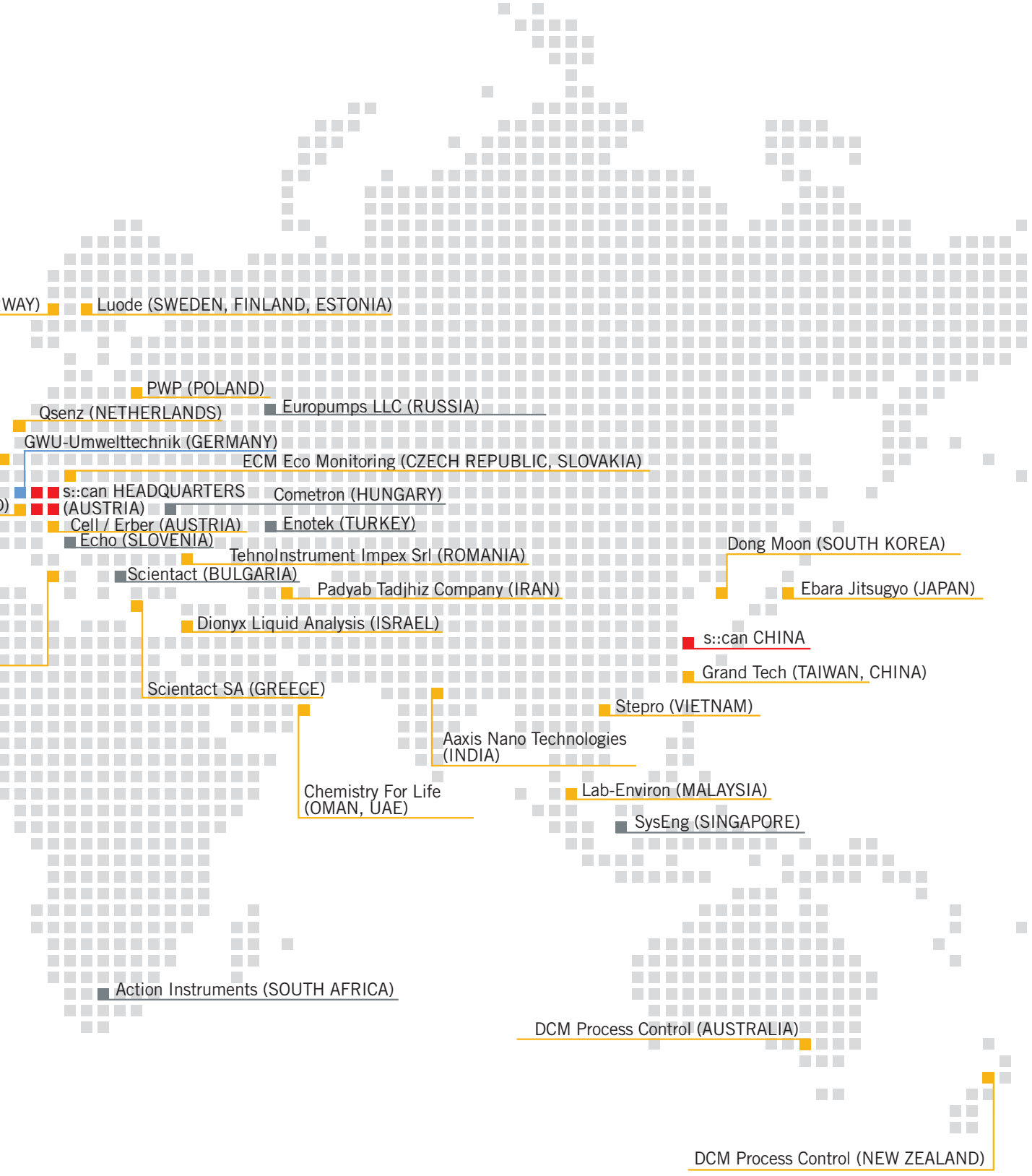


STATUS :: Headquarters, Representative Office, Affiliate
STATUS :: Platinum Sales Partner
STATUS :: Gold Sales Partner
STATUS :: Silver Sales Partner


WAY)
Luode (SWEDEN, FINLAND, ESTONIA)
PWP (POLAND)
Europumps LLC (RUSSIA)
Qsenz (NETHERLANDS)
GWU-Umwelttechnik (GERMANY)
ECM Eco Monitoring (CZECH REPUBLIC, SLOVAKIA)
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Padyab Tadjhiz Company (IRAN)
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(INDIA)
Chemistry For Life
(OMAN, UAE)
Lab-Environ (MALAYSIA)
SysEng (SINGAPORE)
Action Instruments (SOUTH AFRICA)
DCM Process Control (AUSTRALIA)
DCM Process Control (NEW ZEALAND)

s::can Sales Partners

AT	**HEADQUARTERS**	**s::can Messtechnik GmbH**
	ADDRESS	**Brigittagasse 22-24**
		1200 Vienna, AUSTRIA
	CONTACT	**Mr. Robert Wurm**
	PHONE	**+43 / 1 / 219 73 93**
	FAX	**+43 / 1 / 219 73 93-12**
	EMAIL	**sales@s-can.at**
	WEB	**www.s-can.at**

CN	**CHINA**	**s::can China Representative Office**
	ADDRESS	**Rm D/17F Building B, 1118 Changshou Rd.**
		200042 Shanghai
	CONTACT	**Mr. Li Xiao**
	PHONE	**(+86-21) 34060311**
	FAX	**(+86-21) 34060311-811**
	EMAIL	**lxiao@s-can.cn**
	WEB	**www.s-can.cn**
	STATUS	**Representative Office**

ES	**SPAIN**	**s::can Iberia Sistemas de Medición S.L.U.**
	ADDRESS	**Ciutat de Granda 28 bis, 1a planta**
		08005 Barcelona
	CONTACT	**Mr. Jordi Raich**
	PHONE	**+ 34 930 218 447**
	EMAIL	**jraich@s-can.es**
	WEB	**www.s-can.at**
	STATUS	**Affiliate**

FR	**FRANCE**	**s::can France SARL**
	ADDRESS	**370 route de Saint Canadet**
		13100 Aix en Provence
	CONTACT	**Mr. Philippe Marinot**
	PHONE	**+ 33 (0) 4 42 20 35 01**
	FAX	**+ 33 (0) 9 82 25 35 01**
	EMAIL	**sales@s-can.fr**
	WEB	**www.s-can.fr**
	STATUS	**Affiliate**

IT	ITALY	**s::can in Italy**
	CONTACT	**Mr. Alessandro Morra**
	PHONE	**+39 333 983 5634**
	EMAIL	**amorra@s-can.at**
	WEB	**www.s-can.at**
	STATUS	**Regional Sales Manager**

PT	PORTUGAL	s::can in Portugal
	CONTACT	**Mr. Vincenzo Rocca**
	PHONE	**+351 91 569 4663**
	EMAIL	**vrocca@s-can.at**
	WEB	**www.s-can.at**
	STATUS	**Regional Sales Manager**

US	**USA**	**s::can Measuring Systems LLC**
	ADDRESS	**38C George Leven Drive**
		North Attleboro, MA 02760
	PHONE	**+1 (888) 694-3230**
	FAX	**+1 (888) 469-5402**
	EMAIL	**sales@s-can.us**
	WEB	**www.s-can.us**
	STATUS	**Affiliate**

::	**REST OF THE WORLD**	**s::can Messtechnik GmbH**
	ADDRESS	**Brigittagasse 22-24**
		1200 Vienna
	CONTACT	**Mr. Robert Wurm**
	PHONE	**+43 / 1 / 219 73 93**
	FAX	**+43 / 1 / 219 73 93-12**
	EMAIL	**sales@s-can.at**
	WEB	**www.s-can.at**
	STATUS	**Headquarter**

- STATUS :: Headquarters, Representative Office Affiliate
- STATUS :: Platinum Sales Partner
- STATUS :: Gold Sales Partner
- STATUS :: Silver Sales Partner

AT	AUSTRIA	Erber Handel
	ADDRESS	Linzer Straße 62, 3382 Loosdorf
	CONTACT	Mr. Raimund Erber
	PHONE	+43 / 664 / 416 12 14
	FAX	+43 / 2754 / 21 26
	EMAIL	office@erber.co.at
	WEB	www.erber.co.at
	STATUS	Gold Sales Partner

AT	AUSTRIA	Cell GmbH
	ADDRESS	Rummerweg 1, 5600 St. Johann im Pongau
	PHONE	+43 / 6412 / 212 45
	EMAIL	office@cell.cc
	WEB	www.cell.cc
	STATUS	Gold Sales Partner

AU	AUSTRALIA	DCM Process Control Ltd
	ADDRESS	422A Brunswick Street
		3065 Fitzroy, Victoria
	CONTACT	Mr. Rob Dexter
	PHONE	+61 / 3 / 94 17 02 54
	FAX	+61 / 3 / 94 17 02 94
	EMAIL	ausoffice@dcmprocesscontrol.com
	WEB	www.dcmprocesscontrol.com
	STATUS	Gold Sales Partner

BE	BELGIUM	Elscolab n.V.
	ADDRESS	Hogenakkerhoekstraat 14, 9150 Kruibeke
	CONTACT	Mr. Dirk Vleminckx
	PHONE	+32 / 3 / 250 15 70
	FAX	+32 / 3 / 252 87 83
	EMAIL	elscolab@elscolab.com
	WEB	www.elscolab.com
	STATUS	Gold Sales Partner

BG	BULGARIA	Scientact BG LTD
	ADDRESS	46, Prof. Kiril Popov Str, 1734
		Sofia, Studentski Grad
	CONTACT	Mr. Dimitris Kouvas
	PHONE	+359 24 68 48 67
	MOBILE	+359 89 36 15 770 - 71
	EMAIL	bg@scientact.com
	WEB	www.scientact.com
	STATUS	Silver Sales Partner

BR	BRAZIL	Rotária do Brasil
	ADDRESS	Rua Teodoro Manoel Dias, 421,
		Santo Antônio de Lisboa
		88050-540 Florianópolis - SC
	CONTACT	Mr. Sebastian Rosenfeldt
	PHONE	+55 / 48 / 3234 / 31 64
	MOBILE	+55 / 48 / 3234 / 31 64
	EMAIL	info.br@rotaria.net
	WEB	brasil.rotaria.net
	STATUS	Silver Sales Partner

CA	CANADA	Aquatic Life Ltd.
	ADDRESS	34 Alexander Avenue
		R0E 1L0 Pinawa, MB
	CONTACT	Mr. Jeff Simpson
	PHONE	+1 / 204 / 753 52 70
	FAX	+1 / 204 / 753 20 82
	EMAIL	aquatic@aquaticlife.ca
	WEB	www.aquaticlife.ca
	STATUS	Gold Sales Partner

CH	SWITZERLAND	Uniqtech /Unimon GmbH
	ADDRESS	Vorbühlstrasse 21, CH-8962 Bergdietikon
	CONTACT	Ms. Martina Hofer
	PHONE	+ 41 43 444 95 56
	FAX	+ 41 43 444 95 86
	EMAIL	info@unimon.ch
	WEB	www.unimon.ch
	STATUS	Gold Sales Partner

CL	CHILE	Carlos Rivas Padilla y Cia. Ltda
	ADDRESS	Escanilla 1176, Independencia, Santiago de Chile
	CONTACT	Mr. Carlos Rivas
	PHONE	+56 / 2 / 2688 2010
	FAX	+56 / 2 / 2688 2010
	EMAIL	info@rilab.cl
	WEB	www.rilab.cl
	STATUS	Silver Sales Partner
CO	COLOMBIA	B&C Biosciences Ldta.
	ADDRESS	Cra. 19 No. 58A, 75 Bogota
	CONTACT	Mr. Jaime Wilson Velandia
	PHONE	+57 / 1 / 349 04 75
	FAX	+57 / 1 / 349 04 78
	EMAIL	byc@bycenlinea.com
	WEB	www.bycenlinea.com
	STATUS	Gold Sales Partner
CZ	CZECH REPUBLIK	ECM ECO Monitoring, s. r. o
	ADDRESS	Dobrá 240 73951 Dobrá
	CONTACT	Mr. Peter Smitek
	PHONE	+420 / 558 / 60 17 27
	FAX	+420 / 558 / 60 17 20
	EMAIL	ecmdobra@ecomonitoring.cz
	WEB	www.ecomonitoring.cz
	STATUS	Gold Sales Partner
DE	GERMANY	GWU-Umwelttechnik GmbH
	ADDRESS	Bonner Ring 9 50374 Erftstadt
	CONTACT	Günter Warmbier
	PHONE	+49 / 2235 / 955 22-0
	FAX	+49 / 2235 / 955 22-99
	EMAIL	wasser@gwu-group.de
	WEB	www.gwu-group.de
	STATUS	Platinum Sales Partner
FI	FINLAND	Luode Consulting
	ADDRESS	Sinimaentie 10 B 02630 Espoo
	CONTACT	Mr. Mikko Kiirikki
	PHONE	+358 / 40 / 867 83 66
	FAX	-
	EMAIL	mikko.kiirikki@luode.net
	WEB	www.luode.net
	STATUS	Gold Sales Partner
GB	UNITED KINGDOM	PMA, Process Measurement & Analysis Ltd.
	ADDRESS:	Brook Mills House, Carr Lane, Slaithwaite, Huddersfield, West Yorkshire HD7 5BQ
	CONTACT	Mr. Chris Bristow
	PHONE	+44 / 1484 / 84 37 08
	FAX	+44 / 1483 / 84 36 89
	EMAIL	sales@processmeasurement.uk.com
	WEB	www.processmeasurement.uk.com
	STATUS	Gold Sales Partner
GR	GREECE	Scientact SA
	ADDRESS	16 Kanari St. 55644 Thessaloniki
	CONTACT	Mr. Dimitris Kouvas
	PHONE	+30 / 2310 / 946 126
	FAX	+30 / 2310 / 947 005
	EMAIL	dgk@scientact.com.gr
	WEB	http://www.scientact.com.gr
	STATUS	Gold Sales Partner
HU	HUNGARY	Cometron Kft.
	ADDRESS	Bocskai út 31 1113 Budapest
	CONTACT	Mr. Attila Tamas
	PHONE	+36 / 1 / 361 11 30
	FAX	+36 / 1 / 209 47 18
	EMAIL	info@cometron.hu
	WEB	www.cometron.hu
	STATUS	Gold Sales Partner
IN	INDIA	Aaxis Nano Technologies
	ADDRESS:	SCF 78, 2nd Floor, Phase 2, SAS Nagar District Mohali, State Punjab, 160055
	CONTACT	Mr. Sanjeev Gogia
	PHONE	+91 / 172 / 5098279
	FAX	+91 / 9216745369
	EMAIL	info@aaxisnano.com
	WEB	www.aaxisnano.com
	STATUS	Gold Sales Partner
IR	IRAN	Padyab Tadjhiz Company
	ADDRESS:	No 14, North Ararat St,Seoul,Vanak Sq, Tehran
	CONTACT	Mr. Karim Darvishi
	PHONE	+98 / 21 / 880 312 69
	FAX	+98 / 21 / 880 451 76
	EMAIL	info@padyab.com
	WEB	www.padyab.com
	STATUS	Gold Sales Partner
IL	ISRAEL	Dionyx Liquid Analysis Ltd.
	ADDRESS:	Hasadna 13 Street 4365006 Ra'anana
	CONTACT	Mr. Leon Foror
	PHONE	+972 9 886 6052
	EMAIL	leon@dionyx.co.il
	WEB	www.dionyx.co.il
	STATUS	Gold Sales Partner
IT	ITALY	Isoil Industria spa
	ADDRESS:	Via F.lli Gracchi, 27 20092 Cinisello Balsamo MI
	CONTACT	Mr. Roberto Vesprini
	PHONE	+39 02 660 272 38
	FAX	+39 02 660 272 88
	EMAIL	vendite@isoil.it
	WEB	www.isoil.it
	STATUS	Gold Sales Partner
JP	JAPAN	Ebara Jitsugyo Co. Ltd.
	ADDRESS:	Environmental Measuring Instrument Technology Center 2-3-12 Kurigi, Asao-ku, Kawasaki-shi, 215-0033 Kanagawa
	CONTACT	Mr. Masahiro Kanai
	PHONE	+81 / 44 / 981 05 60
	FAX	+81 / 44 / 981 05 61
	EMAIL	kanai@ejk.co.jp
	WEB	www.ejk.co.jp
	STATUS	Gold Sales Partner
KR	KOREA	Dong Moon ENT Co., Ltd
	ADDRESS	#501, #503~#505, Woolim e-Biz Center II, 12, Digital-ro 33-gil , Guro-gu, Seoul, 08377
	CONTACT	Mr. Song Yo III
	PHONE	+82 / 2 / 890 35 91
	FAX	+82 / 2 / 890 35 90
	EMAIL	dongmoonent@naver.com
	WEB	http://www.dongmoonent.co.kr
	STATUS	Gold Sales Partner
MY	MALAYSIA	Lab-Environ Instruments Sdn Bhd
	ADDRESS	C-3A-6, Kuchai Exchange, No. 43 Jalan Kuchai Maju 13 58200 Kuala Lumpur
	CONTACT	Mr. Range Lee Kwong Leng
	PHONE	+60 / 3 / 798 434 58
	FAX	+60 / 3 / 798 317 44
	EMAIL	sales@lab-environ.com
	WEB	www.lab-environ.com
	STATUS	Gold Sales Partner
NL	NETHERLANDS	Qsenz B.V.
	ADDRESS	Maricoweg 15A 1791 MD - Den Burg - Texel
	CONTACT	Mr. Ewout Riteco
	PHONE	+31 / 222 76 00 16
	EMAIL	ewout.riteco@qsenz.nl
	WEB	www.qsenz.nl
	STATUS	Gold Sales Partner

NO

NORWAY	Pemac AS
ADDRESS:	Barstølveien 50F, P.O. Box 9038 4696 Kristiansand
CONTACT	Mr. Hallgeir Hallsteinsen
PHONE	+47 / 38 / 05 61 00
FAX	+47 / 38 / 05 61 00
EMAIL	hallgeir@pemac.no
WEB	www.pemac.no
STATUS	Silver Sales Partner

NZ

NEW ZEALAND	DCM Process Control Ltd
ADDRESS:	PO Box 10092, 35D Normanby Road, Mt Eden, Auckland 1024
CONTACT	Mr. Rob Dexter
PHONE	+64 / 9 / 365 27 74
FAX	+64 / 9 / 365 27 76
EMAIL	info@dcmprocesscontrol.com
WEB	www.dcmprocesscontrol.com
STATUS	Gold Sales Partner

OM

OMAN	Chemistry For Life Co. LLC
ADDRESS:	Ghala Industrial Area, P.O BOX 1393 133 Muscat
CONTACT	Mr. Xavier Craysac
PHONE	+968 / 990 / 423 70
EMAIL	xavierc@chemistry-for-life.com
WEB	http://www.chemistry-for-life.com
STATUS	Gold Sales Partner

PL

POLAND	Przedstawicielstwa w Polsce PwP Sp. z o.o.
ADDRESS:	ul. Płocka 17 01-231 Warszawa
CONTACT	Mr. Krzysztof Rudnik
PHONE	+48 22 862 75 30
FAX	+48 22 862 10 16
EMAIL	biuropwp@pwp.com.pl
WEB	http://www.pwp.com.pl
STATUS	Gold Sales Partner

PT

PORTUGAL	Waterfix Unipessoal, Lda.
ADDRESS:	Rua Cidade Rabat 37-I 1500-159 Lisbon
CONTACT	Mr. Diogo Sevinate Pontes
PHONE	+351 / 91 / 721 10 71
FAX	+351 / 21 / 133 35 27
EMAIL	geral@waterfix.pt
WEB	www.waterfix.pt
STATUS	Gold Sales Partner

RO

ROMANIA	TehnoInstrument Impex Srl
ADDRESS	Laboratorului Street, no. 31B 100301 Ploiesti jud. Prahova
CONTACT	Mr. Sebastian Codescu
PHONE	+40 722 559 754
EMAIL	office@tehnoinstrument.ro
WEB	www.tehnoinstrument.ro
STATUS	Gold Sales Partner

RU

RUSSIA	Europumps LLC
ADDRESS	Naya st., 70, BC Zhulebino, 9f 09431 Moscow
CONTACT	Mr. Leonid Prokhorenko
PHONE	+7 495 782-3083, add. 133
EMAIL	l.prokhorenko@europumps.ru
WEB	www.europumps.ru/
STATUS	Silver Sales Partner

SE

SWEDEN	Luode Consulting
ADDRESS	Ronnebyvägen 2 12152 Johanneshov
CONTACT	Mr. Niklas Strömbeck
PHONE	+46 / 70 / 850 96 69
EMAIL	niklas.strombeck@luode.net
WEB	www.luode.net
STATUS	Gold Sales Partner

SG

SINGAPORE	SysEng PTE Ltd.
ADDRESS	2,Kaki Bukit Place, #05-00 Tritech Building Singapore 416180
CONTACT	Mr. Choon Lim
PHONE	+65 62 87 57 10
FAX	+65 62 87 08 93
EMAIL	choonlim@syseng.com.sg
WEB	www.syseng.com.sg
STATUS	Silver Sales Partner

SI

SLOVENIA	Echo, d.o.o.
ADDRESS	Stari trg 37 3210 Slovenske Konjice
CONTACT	Mr. Andrej Holobar
PHONE	+386 / 3 / 759 23 80
FAX	+386 / 3 / 759 23 81
EMAIL	andrej.holobar@guest.arnes.si
WEB	www.echo.si
STATUS	Silver Sales Partner

SK

SLOVAKIA	ECM ECO Monitoring, a. s.
ADDRESS:	Nevädzová 5 82101 Bratislava
CONTACT	Mr. Michal Ruzicka
PHONE	+421 / 2 / 43 42 94 17
FAX	+421 / 2 / 43 42 74 65
EMAIL	ecm@ecm.sk
WEB	www.ecomonitoring.com
STATUS	Gold Sales Partner

TR

TURKEY	Enotek Müh. ve Danismanlik Hiz. Ltd. Sti.
ADDRESS	Gayrettepe Is Merkezi C Blok No:12 4 Gayrettepe / Istanbul / Turkey
CONTACT	Su Atıksu Takımı
PHONE	+90 / 212 28 812 58
FAX	+90 / 212 27 558 93
EMAIL	suatiksu@enotek.com.tr
WEB	www.enotek.com.tr
STATUS	Silver Sales Partner

TW

TAIWAN, CHINA	Grand Tech (T.F.) Co., Ltd.
ADDRESS:	18F.-2, No. 157, Section 2, Wenhua 2nd Road, Linkou District, New Taipei City 244
CONTACT	Mr. Kuan-Yi Ke
PHONE	+886 / 2 / 86 01 36 63
FAX	+886 / 2 / 86 01 36 65
EMAIL	grand-tech@grand-tech.com.tw
WEB	www.grand-tech.com.tw
STATUS	Gold Sales Partner

VN

VIETNAM	Stepro Co. Ltd.
ADDRESS:	2/8 Tay Son Str. Hanoi
CONTACT	Mr. Nguyen Quoc Tuan
PHONE	+84 4 385 137 31
FAX	+84 4 351 183 91
EMAIL	info@stepro.com.vn
WEB	www.stepro.com.vn
STATUS	Gold Sales Partner

ZA

SOUTH AFRICA	Action Instruments SA CC
ADDRESS	7th Floor Everite House, 20 de Korte Street, Braamfontein 2001 Johannesburg
CONTACT	Mr. Peter Fleming
PHONE	+27 / 11 / 403 22 47
FAX	+27 / 11 / 403 02 87
EMAIL	info@aisa.co.za
WEB	www.aisa.co.za
STATUS	Silver Sales Partner

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

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HEADQUARTERS

s::can Messtechnik GmbH
Brigittagasse 22-24
1200 Vienna, AUSTRIA
T: +43 / 1 / 219 73 93
F: +43 / 1 / 219 73 93-12
sales@s-can.at
www.s-can.at

CHINA

Rm D /17F Building B
1118 Changshou Rd.
200042 Shanghai
T: (+86-21) 34 06 03 11
F: (+86-21) 34 06 03 11
lxiao@s-can.cn
www.s-can.cn
Status: Representative Office

FRANCE

s::can France SARL
370 route de Saint Canadet
13100 Aix en Provence
P: + 33 4 42 20 35 01
F: + 33 9 82 25 35 01
sales@s-can.fr
www.s-can.fr
Status: Affiliate

ITALY

s::can Kontakt Italien
Alessandro Morra
T: +39 333 983 5634
amorra@s-can.at
Status: Regional Sales Manager

MEXICO

s::can Mexico Sistemas de Medición S. de R.L. de C.V
sales@s-can.mx
www.s-can.mx
Status: Affiliate

PORTUGAL

s::can Kontakt Portugal
Vincenzo Rocca
T: +351 91 569 4663
vrocca@s-can.at
Status: Regional Sales Manager

SPAIN

s::can Iberia Sistemas de Medición S.L.U.
Ciutat de Granada 28 bis,
1a Planta, 08005 Barcelona
P: +34 930 218 447
sales@s-can.es
www.s-can.es
Status: Affiliate

USA

s::can Measuring Systems LLC
38C George Leven Drive
North Attleboro, MA 02760
T: +1 (888) 694-3230
F: +1 (888) 469-5402
sales@s-can.us
www.s-can.us
Status: Affiliate