

Manual

Version 20.03.2023

Transmitter Model C1 **Inline Sensor Model LAS** Absorption- Turbidity Meter

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Some countries do not allow the limitation of liability, so that this exclusion is possibly not valid for you.

Warranty conditions

The warranty for this product takes place according to the legal provisions. As place of warranty we explicitly name Chemtronic Waltemode GmbH, Monheim am Rhein, Germany. Chemtronic will charge the additional expenses e.g. travel expenses, overnight cost, etc., in case of warranty service at the customer site.

Consumable parts as well as wearing parts e.g. lamps, gaskets, etc. are not covered by warranty.

Improper use, gross negligence, use of the system outside of the technical specifications, missing or improper maintenance will cause a loss of the warranty claim. Please pay attention to our general terms of contract.

Storage

Please inspect the instrument immediately after receiving for potential shipping damages.

If the instrument has already been unpacked for inspection or testing, or if the instrument has been removed from the process and it is not to be installed or reinstalled for more than 1 day, the following procedure should be observed:

1. If the instrument has been in service, the wetted portion should be thoroughly cleaned (typically with clean water) and then thoroughly dried.
2. In case the original packing material is not available, place the instrument in a sealed heavy plastic bag with a desiccant added to assure clean dry storage.
3. The instrument should then be stored in a protected area until time of installation.

Safety instructions

Take notice to the following general safety instructions during use and operation of the system. Ignoring these instructions or special warnings inside of this manual can damage the sensor, cause inaccurate measurements, and possibly result in unsafe installations. Chemtronic Waltemode GmbH will not take any responsibility for consequences arising from ignoring the safety instructions and warnings.

For ALL chemical liquids

Reagents, standards or the measured product may be toxic or otherwise harmful to human health. Observe appropriate precautions when handling and disposing the reagents. Review the appropriate published material safety data sheets regarding the safe handling and disposal of all these products.

Electrical installation

Qualified technical personnel must perform the electrical installation of the system.

Hazardous area

DO NOT INSTALL the system in hazardous.



Do not install the system in hazardous areas (Ex Zone 0, Ex Zone I, Ex Zone II)



Maintenance

Always disconnect the instrument from power during maintenance, replacement of components, installation of additional components or any other operations at the open instrument.

Only qualified technical personnel must perform this work.

Operating the instrument with open enclosure

Only qualified technical personnel should operate the instrument when the enclosure is open (e.g. during repair or calibration procedure). Be careful that no moisture enters the enclosure.



Some components inside the instrument are energized with voltages, which can cause lethal shocks in case of contact. Be careful during installation, handling and operation of the instrument.



Improper installation / operation of the system

Warranty is void if the system is / was installed improperly, handled improperly, used outside of the technical specifications or damaged by gross negligence.

Package Content

- 1.) Transmitter model C1/ Sensor Model LAS (according to users specification)
- 2.) USB Stick with TURBIsmart-F Config- / Calibration Software / Manuals and Certs
- 3.) USB cable type A male, to USB Type A female.
- 4.) Printed Manual and Documentation



Please contact us immediately in case of an incomplete delivery or in case of a damage on one of the components.



Installation Guidelines



Make sure that Instrument is disconnected from the mains, during wiring procedure.



The measuring system model LAS/C1 is delivered with a factory calibration according to user's specification. The device is ready for use without further calibration / configuration.



Transmitter Model C1

- Transmitter and Sensor are sensitive components, do not drop and handle with care.
- Please do not use the system in case of any visible mechanical damages!
- Do not operate with open enclosure. Exposed electronics will promote the risk of electrical shock and might cause damage to the unit.
- The enclosures of sensor and transmitter fit IP65 / Nema 4x protection class.
- Follow the wiring diagram in this manual.
- Supply voltage: 24VDC+/-10% (optional 100-240VAC, 50-60Hz), observe type plate!
- Proper instrument grounding: The instrument must be grounded to avoid electrical shock hazards to personnel and damages to the unit.
- The power consumption of the Instrument is less than 15W.
- Relay ratings for alarms and control of external devices are 1 A at 24VDC.
- Analog output: 0/4-20mA, max. 500Ohm (isolated)
- The ambient temperature for the Transmitter must be in a range of -10°C to 60°C (use dry purge air above 40°C approx. 10 l/h).

Sensor Model LAS

- The instrument is factory pre- calibrated according to customers specification (considering the nominal diameter of the installed TH-Variline housing)
- The location / installation of the sensor should be in a vertical standpipe.
- If installation occurs in a horizontal pipe, make sure that eventual gas bubbles will escape with the product flow.
- Avoid air and gas bubbles inside the sensor, they cause disturbances. Air and gas bubbles will cause noise and drift of the measurement signal. (The air bubbles are not expected at pressures upwards of 2bar in aqueous solutions).
- The process pressure should never exceed the specification of the sensor.
- The process temperature should never exceed 140°C
- In case the process temperature should fall under the dew point or rise above 120°C purge the sensor optic housings with dry instrument air (approx. 10 l/h). Condensed water and excessive temperatures can damage the sensor and cause inaccurate measurements.

Exceeding the specified maximum pressure and/or the specified maximum temperature represents a high safety risk.



Pressure ratings TH- Variline flow cells Type F

DN 40 – DN 50, ISO 17,2 - 48,3 und 1³/₄" - 2" 25 bar

DN 65 - DN 80 ISO 60,3 - 76,1 und 2¹/₂" - 3" 16 bar

DN 100 - DN 150, ISO 88,9 - 114,3 und 4" - 6" 10 bar



Principle of Operation

The absorption photometer model LAS/C1 is used to measure the turbidity of liquid products. The light absorption is measured at a specific wavelength, typically in the near infrared (NIR) at about 700nm to 850nm. The absorbance values are used to calculate the turbidity in an application specific measuring unit.

What does Turbidity mean?

Turbidity is an optical impression, which describes the characteristic of a transparent product, to scatter and absorb light. A focused light beam will be attenuated and scattered in hazy products, so that this product can become practically opaque in bigger layers.

What Causes Turbidity?

Turbidity is caused by particles in transparent products. A particle is defined as something with a different refractive index as the carrier product. Some examples of particles are minerals, yeast cells, metals, oil drops in water, milk in water, gas bubbles and aerosol's.

Measurement of Turbidity

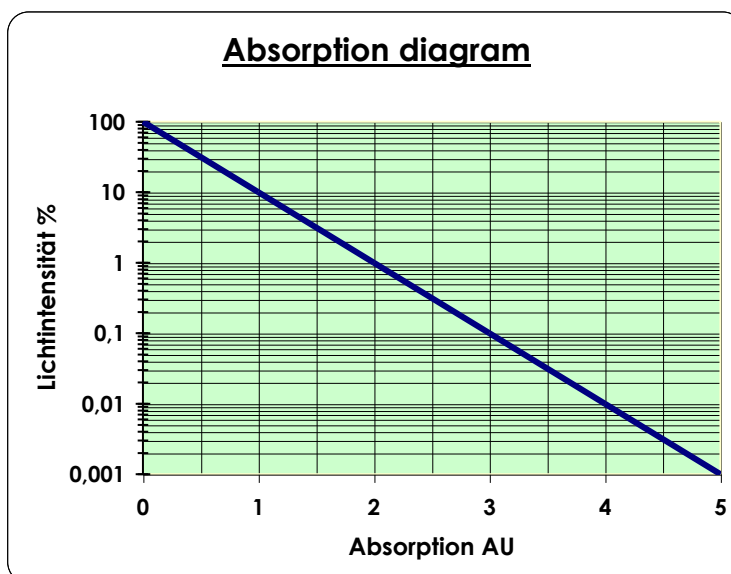
Turbidity is not a clearly defined magnitude like e.g. temperature or pressure. Turbidity is a subjective impression. For this reason turbidity measurement systems will be typically calibrated by using a comparison's standard such as Formazin or Diatomaceous Earth.

Principle of Absorbance Measurement

A light source and a detector are located parallel over against. The changing of light intensity, caused by the product between lamp and detector, will be detected and displayed as measuring result. The application is the measurement of concentrations (color or solids) in a liquid. The basic measurement unit of an absorption photometer is called AU (Absorption - Unit).

Definition of AU:

- 1 AU = 90 % loss of light intensity
- 2 AU = 99 % loss of light intensity
- 3 AU = 99,9 % loss of light intensity
- 4 AU = 99,99 % loss of light intensity
- 5 AU = 99,999 % loss of light intensity



Typical Measuring units

ppm:	Parts per million	FNU ¹ :	Formazin Nephelometric Unit
FTU:	Formazin Turbidity Unit	mg/l:	Milligram per liter
TEF:	Trübungseinheiten Formazin (German for FTU)	gr/l:	Gram per liter
EBC:	European Brewery Convention	% TS:	Percent total solids
NTU ¹ :	Nephelometric Turbidity Unit		

The dependencies on the different measuring units

1 FTU = 1 TEF = 1 NTU¹ = 1 FNU¹ = 0,25 EBC

¹ Nephelometry describes the method of side scatter turbidity measurements, these units are used at 90° side scatter turbidity meters only.

Based on comparisons measurements, by using a 12° forward measurement system we have found the following dependencies.

1 FTU = 1 TEF = 0,25 EBC = 2,05ppm = 2,05 mg/l = 0,00205 g/l = 0,00000205 % TS

* At a specific particle weight of 1 kg/dm, 1mg/l particles in 1 kg of water will correspond to 1ppm.

Typical ranges

The original design of scatter light turbidity meter was used for the detection of low turbidities. The resolution of these instruments is suited easily in ranges lower as 0.1ppm (approx. 0.05 TEF / FTU / FNU / NTU or approx. 0.01EBC) and better. The maximum range is in ideal case lower than 200ppm, but there are as well systems available with a range of more than 8000ppm.

Please take notice:

There are turbidity meters with several different methods of measurement available!

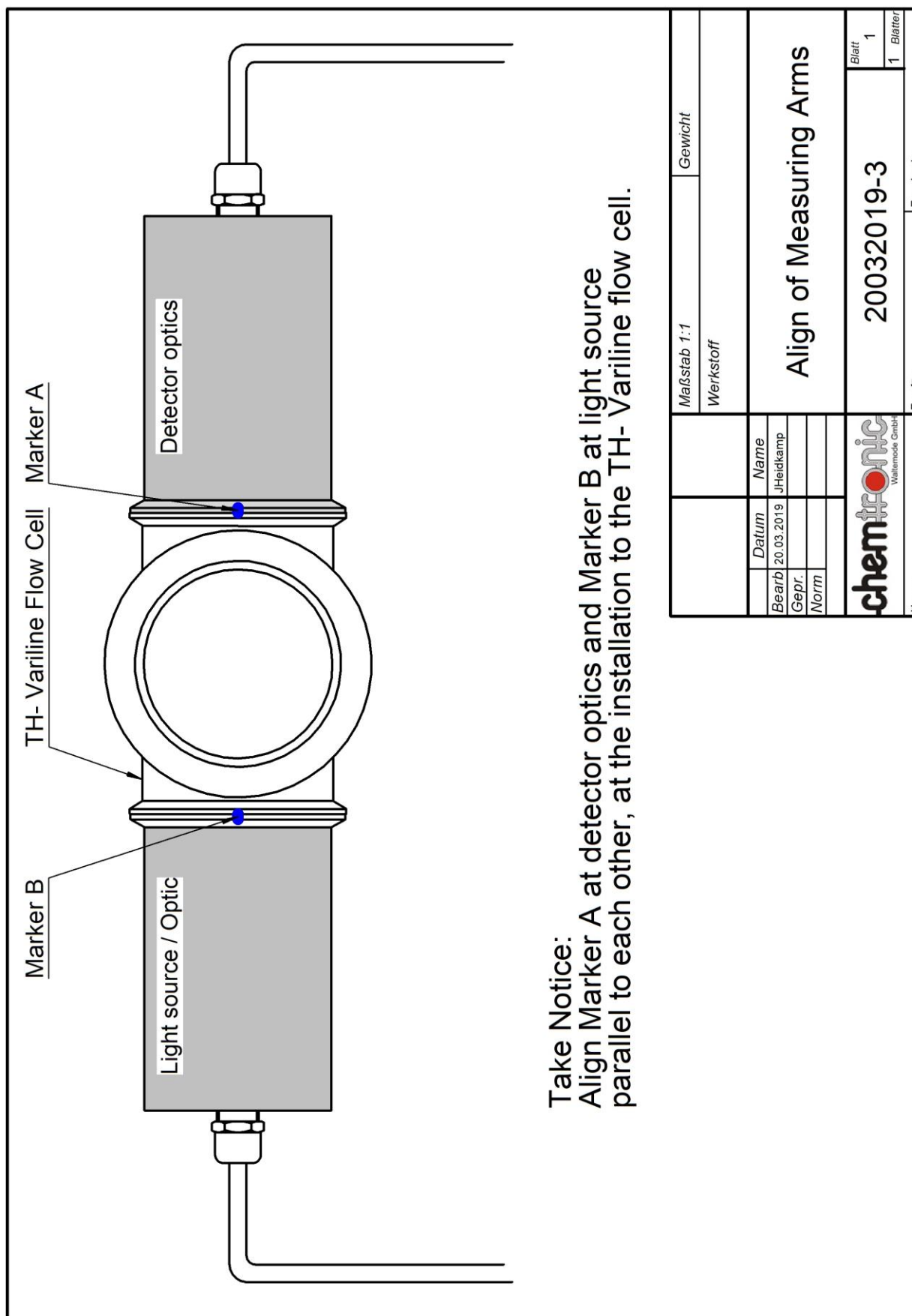
Make sure that your turbidity meters operate according to the same principle of measurement, if you compare measurement results.

For example:

you can compare 90° vs. 90° scattered light turbidity meters, or 12° vs. 12° scattered light turbidity meters.

Never compare turbidity meters with different methods of measurement!

Installation and align of the System



Software Installation (C1-Config Software)

System Requirements

Supported Operating Systems	Microsoft Windows 7, 8, 10
Requirements	Microsoft.NET Framework 4.72 (x86 & x64)
RAM	2GB
Hard Disk Space	< 1MB

Installation Procedure C1-Config Software

- I. Close any open programs that are running on your computer before starting the installation.
- II. Double click on setup.exe.
- III. Software installs automatically

Connect C1 Transmitter to a PC- or Laptop

Connect the device according to the connection diagram and switch on the device. Then connect the PC/laptop to the C1 measuring amplifier using the USB cable (not vice versa).

To perform a restart, always disconnect the USB plug as well.



Take Notice:

The USB- connector of the C1 is located under the cover cap at the outside of transmitter enclosure.

C1-Config Software

Start Software per click/double click on the C1-Config icon.

Select Language

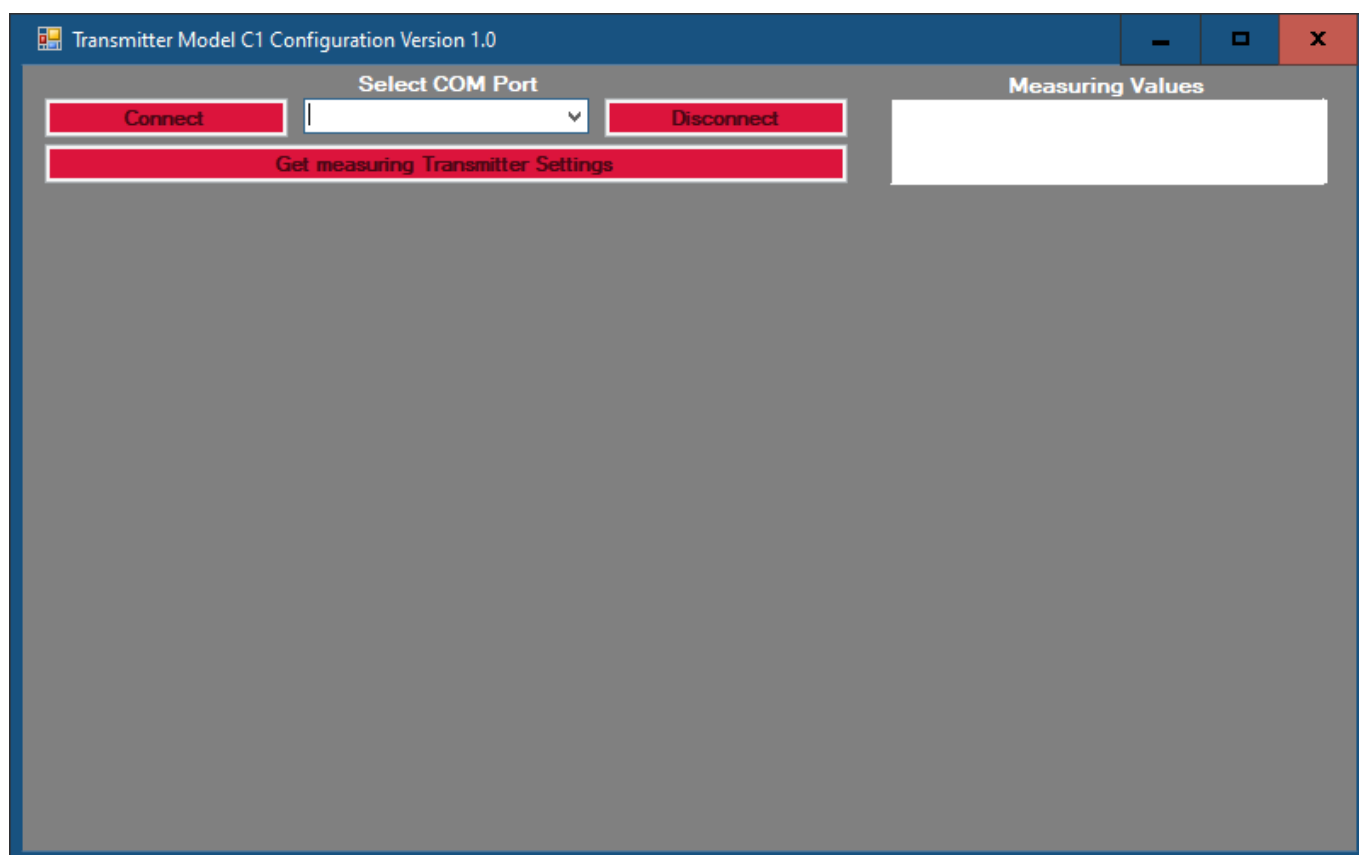


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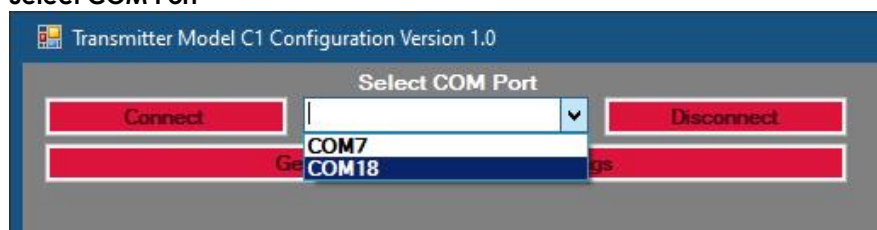
C1- Configuration Software



Select your language and proceed!



Select COM Port



Select the COM port of your turbidity meter, click “connect” button and then the “Get Settings” button.



Finding the correct COM Port:

Shut down C1-Config software. Disconnect USB cable.

Restart software, go to “Select COM Port”, look to the list of active Ports.

Shut down C1-Config software again. Reconnect USB cable.

Restart software; go to “Select COM Port”, Com Port list shows now the additional Port of the instrument. Select these COM port and click “Connect Button”.

A click to the “Get measuring Transmitter Settings” button will transfer the current transmitter settings and measuring values to the screen.

Set measuring Range

Adjust or enter your measuring range.



Take Notice:

The maximum possible measuring range depends by the settings in calibration menu!

Enter measuring Unit

Allows entering an application specific measuring unit like ppm, mg/l, EBC, FTU, ...
The measuring unit is limited to four characters (ASC II).

Set Damping

The Damping function averages the last measuring results of the instrument.
The instrument displays always the average of the last 6 results, in case the Damping is set to "6",
This makes readings more stable and protects for measuring outliers.
Damping can be set between "1" and "25".

Adjust Zero Offset

Adjust Zero Offset allows to set the instrument readings to "0".
Zero offset procedure requires clear almost turbidity free liquid inside of sensors flow cell.



Take Notice:

Use ultra pure liquids without bubbles / particles only in case you like to shift "0" reading of the instrument.

Adjust Gain

Adjust Gain allows a correction of the instrument reading at a known turbidity.

Example:

Instrument reading: "0.95"

Turbidity inside the flow cell : "1.00"

Gain must be set to "1.05" to result a reading of "1.00" ($0.95 \times 1.05 = 1$)

Set Relay Setpoint

The "Relay Setpoint" defines the switching point of the alarm relay.

Set Relay Hysteresis

The hysteresis affects the relay setpoint.

Following settings: setpoint "2.00" and hysteresis "0.1"

Alarm will be switched at "2.1" and reset will be switched at "1.9"

So alarm switching point will be (setpoint + hysteresis)

and reset will be (setpoint – hysteresis).



Take Notice:

All Settings you change (Range, Damping, Zero, Gain, etc.) will be immediately transferred via USB to instrument's measuring electronic! But they are not in the permanent memory. So a reset or power on off will restore the old settings.

Apply Settings to Transmitter

Stores new settings (Range, Damping, Zero, Gain , etc.) to the permanent memory of the measuring electronic!

Save Settings to File

Store a backup of your instrument settings onto the hard disc of your computer / laptop. The backup files are in txt format and located at C:/Chemtronic_C1.



Take Notice:

We strictly recommend to backup the factory settings of the instrument before you do any changes at the instrument settings.

Read Settings from File

Read a backup file from the hard disc of your computer (data recovery).

Calibration of Model LAS/C1

Preparations:



The sensor model LAS, is equipped with a built-in calibration filter*. This calibration filter simulates a fixed product turbidity. The turbidity value of the Filter can be found on a sticker on the outside of the lamp arm.



Make sure that the measuring flow cell is filled with clear almost turbidity-free liquid during calibration.

*In some cases the LAS model has two calibration filters installed. In this case the filter with highest turbidity value is used for calibration.

Notice:

- Qualified technical personnel must perform repair and maintenance.
- Before beginning any work the sensor must be cleaned and flushed thoroughly. Depending on customers' application product residues can be very dangerous (aggressive, poisonous). Please handle the system very carefully due to possible leakage etc.
- Avoid pulling and twisting of the lamp cable.
- Avoid applying excessive force during assembling and disassembling of the sensor.
- Screw in all bolts and cable glands stalwart only.
- Please be sure that no dust or other particles penetrates into the optical assembly.
- In case of any dirty component please clean carefully by using fresh water and a cloth (lint-free), dry all components by using instrument air.
- Use suitable tools only.

Required tools:

- Flat blade screwdriver - 2 mm
- Hexagonal spanner – 2.5 mm
- Phillips screwdriver – medium size
- Small bowl to drop components
- Please loosen the upper hexagonal nut of the cable gland.
Assure that you do not twist the lamp cable.

Take notice, the lamp cable is marked every 30cm.



- Loosen both retaining screws of the lamp arm..

- Pull back the protective housing carefully until the calibration drawer is freely accessible.



Connect your laptop/PC via USB cable to the transmitter and start the C1-Config software.
(See page 10 and following).

Calibration:



- Make sure that the measuring flow cell is filled with clear, almost turbidity-free liquid during calibration.
- Set calibration drawer to center position.
- Set measuring value to „0“ by using "Adjust Zero Offset".

- Slide the calibration filter into the measuring path using the drawer.
- Use "Adjust Gain" to set the *turbidity value of the calibration filter.

*The turbidity value of the filter is found on a sticker at the outside of the lamp arm.



Take Notice:

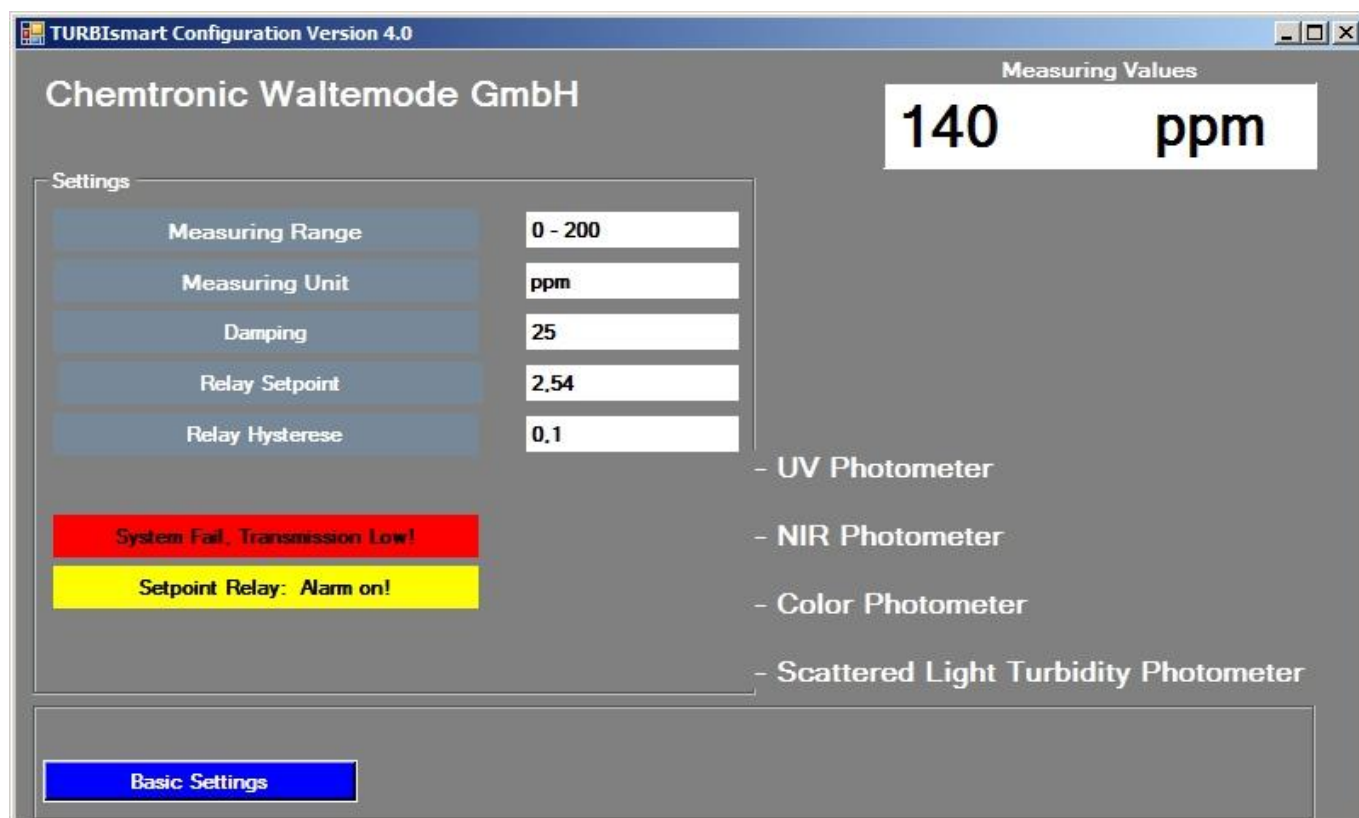
Push button "Transfer Settings to Transmitter" in menu "Basic Settings" to finalize your calibration otherwise you will get the previous calibration after reset or power on/off. Transfer Settings to Transmitter will store the new calibration into the permanent memory of the instrument!

Set calibration drawer to center position.



- Slide the lamp arm back to the initial position and carefully reinsert both retaining screws.
- Tighten the cable gland.

Measuring Screen



The measuring screen is the standard menu if the system is used with a PC / Panel PC. The menu displays the some general settings, system health information and measuring values.

Maintenance Work

The measuring transmitter model C1 is free of maintenance!

The sensor model LAS has a low maintenance requirement which is limited on cleaning of the measuring windows and the replacement of the measuring lamp.

Depending by application, coatings may form on the Metaglass- windows.

This may make it necessary to clean the measuring windows in fixed intervals.

The interval of the cleaning is determined by the operator depending on the application.

The measuring flow cell must be pressureless and empty during cleaning procedure.

For cleaning, open the clamps at the measuring windows and pull off the measuring arms.

Clean the windows with a suitable cleaning agent, a cloth or a soft brush.

In case of mineral / lime deposits it is recommend clean the windows using diluted acetic acid.

When reinstalling the sensor, make sure that the markers A and B on the measuring cell are aligned (see drawing at page 8).



Please take notice:

In case of measuring hazardous substances (corrosive / toxic substances).

Appropriate protective measures must be taken before cleaning.

(Protective clothing, safety goggles, gloves, if necessary breathing mask).

Make absolutely sure that the measuring cell is emptied and depressurized before starting the cleaning procedure.

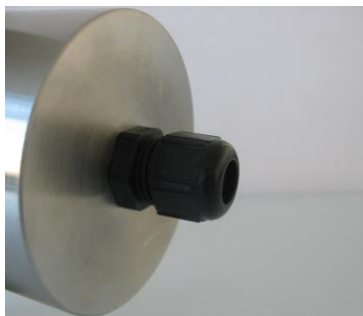
Replacement of measuring lamp

Notice:

- Qualified technical personnel must perform repair and maintenance.
- Before beginning any work the sensor must be cleaned and flushed thoroughly. Depending on customers' application product residues can be very dangerous (aggressive, poisonous). Please handle the system very carefully due to possible leakage etc.
- Avoid pulling and twisting of the lamp cable.
- Avoid applying excessive force during assembling and disassembling of the sensor.
- Screw in all bolts and cable glands stalwart only.
- Please be sure that no dust or other particles penetrates into the optical assembly.
- In case of any dirty component please clean carefully by using fresh water and a cloth (lint-free), dry all components by using instrument air.
- Use suitable tools only.

Required tools:

- Flat blade screwdriver - 2 mm
- Hexagonal spanner – 2.5 mm
- Phillips screwdriver – medium size
- Small bowl to drop components



- Please loosen the upper hexagonal nut of the cable gland by using a 22 mm open-end wrench. Please assure that you do not twist the lamp cable.

Attention!

The lamp cable is marked with "lamp"



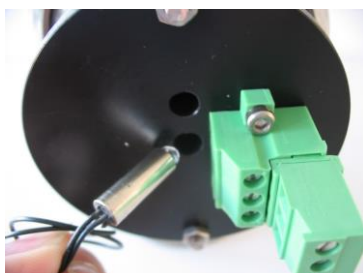
- Remove screws

- Shift the lamp arm until you have access to the electrical/cable connections.
- Remove lamp connector from its socket and put the measuring arm aside.



Loosen all wires of the lamp cable by using the 2 mm flat blade screwdriver.

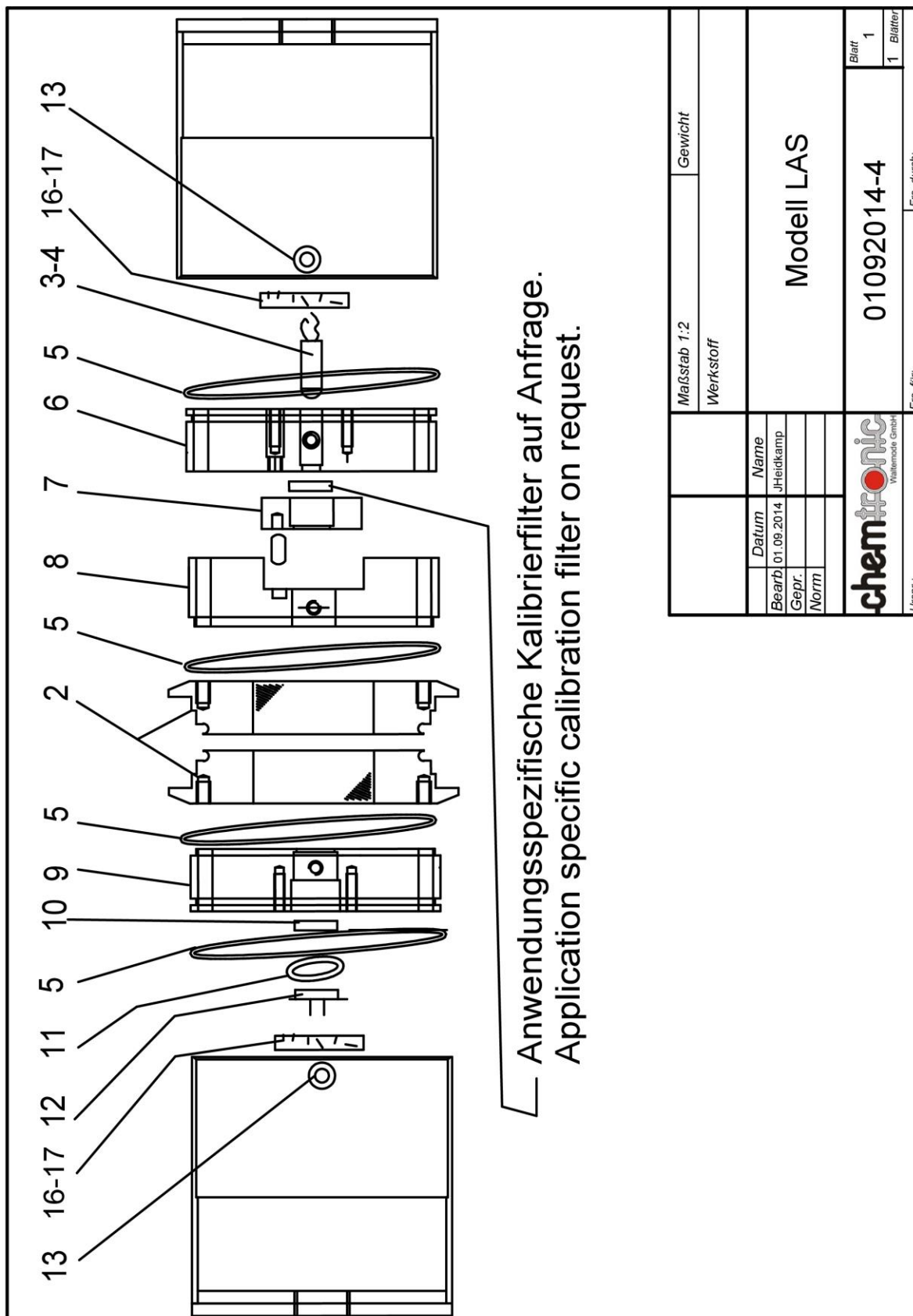
Remove lamp wires from terminal block and pull the lamp out of its socket.



- Replace measuring lamp.

Reassembly is in reverse order.

List of Spare Parts / Wearing Parts



Maßstab 1:2		Gewicht	
Werkstoff			
Name		Modell LAS	
Bearb.	01.09.2014	JHeldkamp	
Gepr.			
Norm			
chemtronic		01092014-4	
Waltemode GmbH		Blatt 1	
Urspr.:		Ers. durch:	
		1 Blätter	

Ersatzteilliste / Spare-parts-list

02.12.2020

Pos.	Qty required	Article-No.	Article-Description
	1	S-0000-0011-00	Stückliste LAS
	2	D800-0001-00	Messfenster Metaglas / Metaglas window (PyVA Varivent) - (LAS, plan)
	1	C402-0047-00	Messlampe / measuring lamp - (22S..., 22SLC, LAS)
	1	0900-6001-00	IR-LED / IR-LED - (22 , 22S-Bio / LAS)
	4	C208-5013-VI	O-Ring (LAS • VITON • 68x2)
	1	D800-0004-00	Lampenbaugruppe Teil3 / lamp assy. Part3 - (LAS)
	1	D800-0003-00	Lampenbaugruppe Teil2 / lamp assy. Part2 - (LAS)
	1	D800-0002-00	Lampenbaugruppe Teil1 / lamp assy. Part1 - (LAS)
	1	D800-0005-00	Detektorbaugruppe Teil4 / detector assy. Part4 - (LAS)
	1	C410-0085-00	Filter IR 850nm / 12,4mm (1/2")
	3	C208-2012-00	O-Ring (450 • VI • 9,25x1,78)
	4	C208-2007-00	Flachdichtung mit U-Scheibe/ Flat gasket (LAS)
	1	C604-1001-00	Detektorkabel / detector cable - (MT, MS) per 1m
	1	C604-1002-00	Lampenkabel / lamp cable - (MT , MS) per 1m
	2	D800-0008-00	Steckverbinder Phoenix 3pol (m)/socket connect. (m) 3pin / LAS
	2	D800-0009-00	Steckverbinder Phoenix (w) 3pol/Connect. (f) 3pin Phoenix
	1	C407-5051-00	Detektor / Detector - VTP5051

Trouble Shooting

Complete failure: - Display and LEDs completely without function.

Remedy:

Check whether the supply voltage is present.

Use the wiring diagram to check whether the supply voltage is connected correctly.

For 24V DC operation, check polarity.

Check fuse F1 and replace it if necessary.

Contact Service.

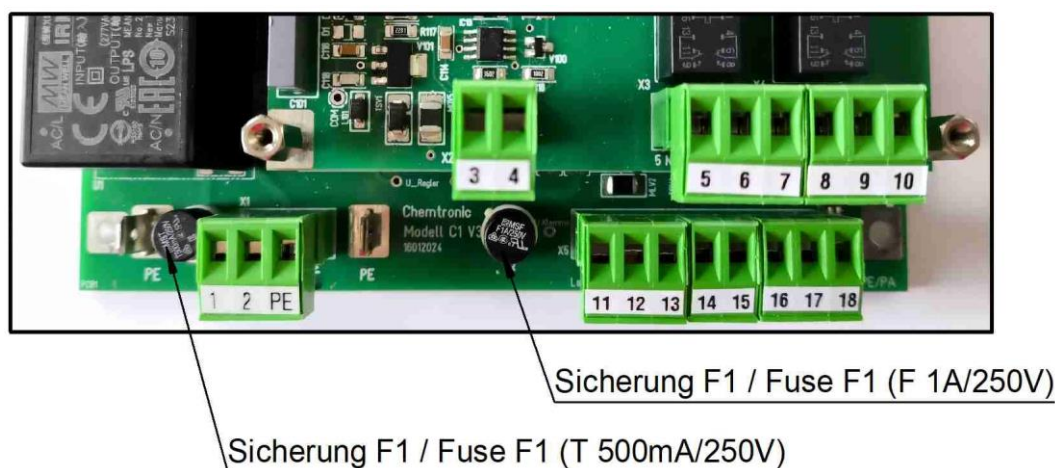
Error: Check fuse - Fuse F2 for the measuring lamp defective.

Remedy:

Check that there is no short circuit in the lamp or the supply line to the lamp.

Check fuse F2 and replace it if necessary.

Contact service.



Error: Sensor LED - LED in the connected sensor is defective.

Error: Sensor lamp - Measuring lamp in the connected sensor is defective.

Remedy:

Use the wiring diagram to check whether the LED/measuring lamp is connected correctly.

Pay attention to polarity in case a LED- light source is connected.

Replace the LED/Lamp. (If necessary, follow the instructions in the relevant manual).

Contact service.

Error: Transmission Low - Sensor outside the physical measuring range, the light from the Led / measuring lamp in the sensor is completely absorbed.

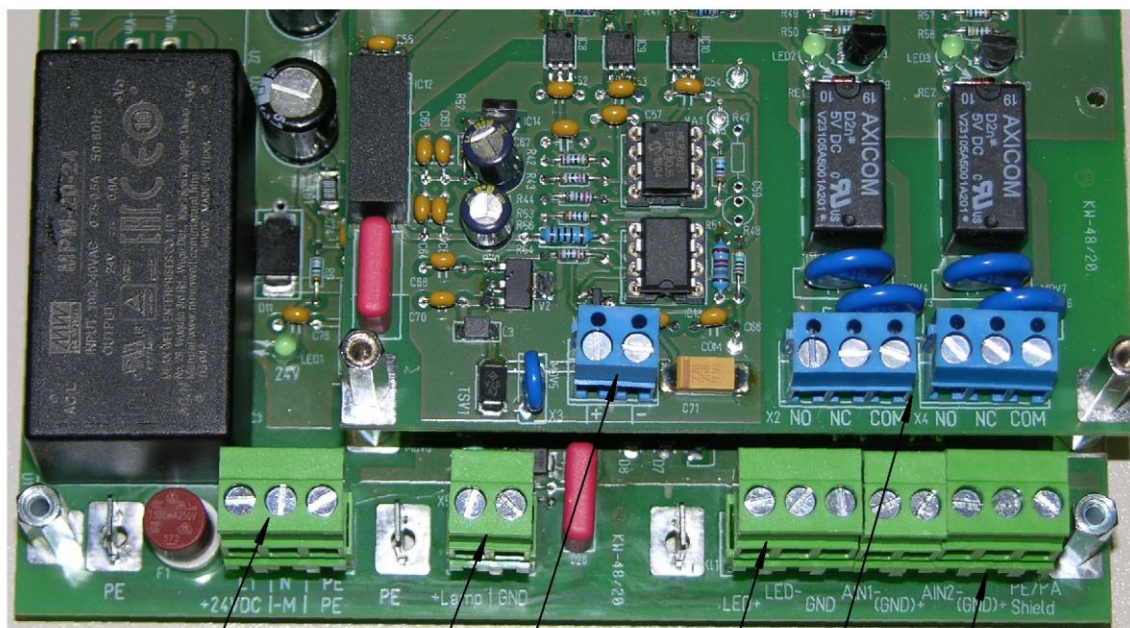
Remedy: Abnormal process condition, solid concentration in the measured product extremely high.

Critical Absorption - Light absorption exceeds application-specific limit value.

Remedy:

Abnormal process condition, extremely high color/solids concentration in the sensor.

Terminal PC-Board Model C1



Supply Voltage
Versorgungsspannung

Measuring Lamp
Messlampe

Analog output (0/4-20mA)
Analogausgang (0/4-20mA)

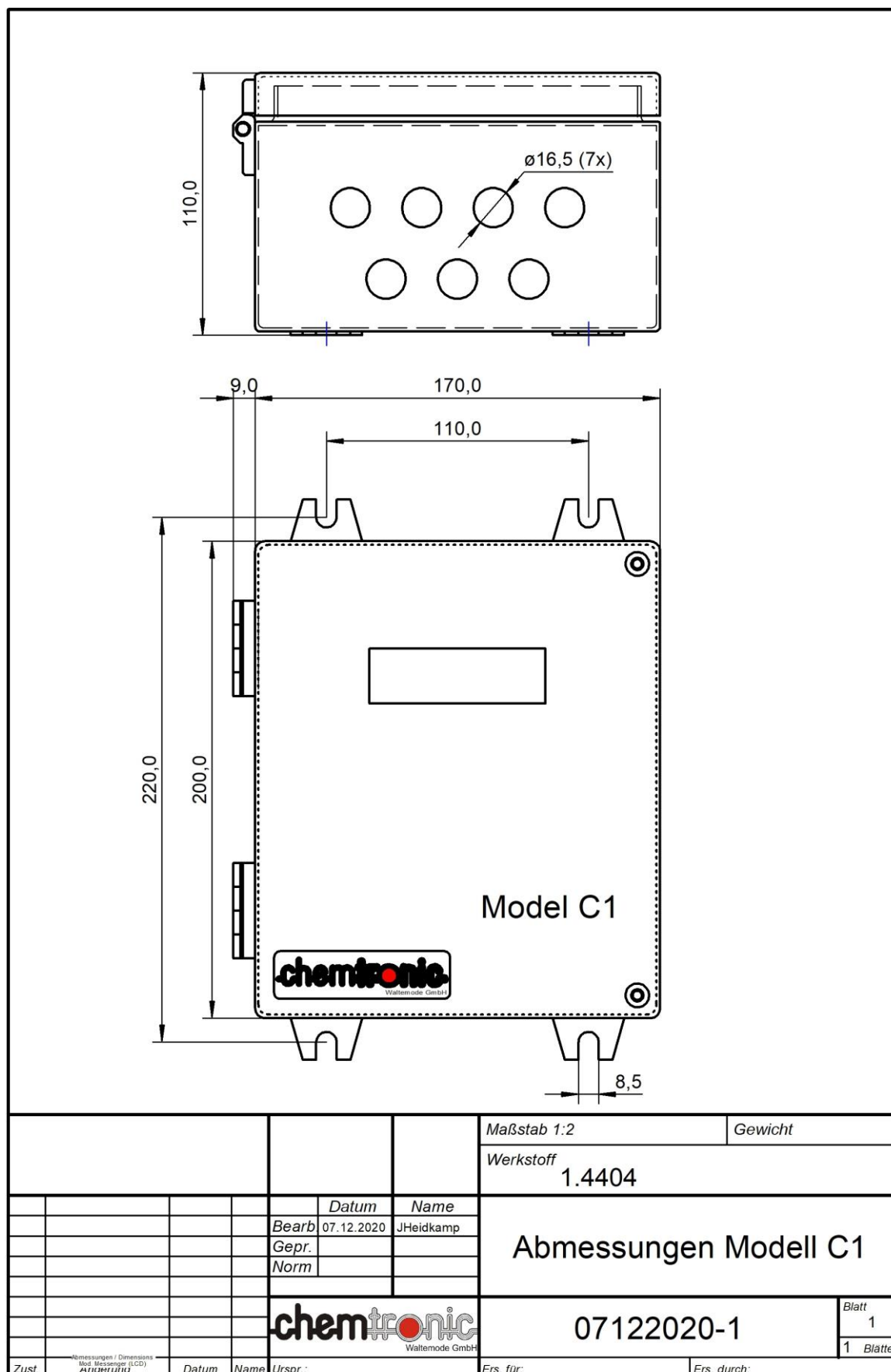
Alternative LED- Light Source
Alternative LED- Lichtquelle

Relay Contacts

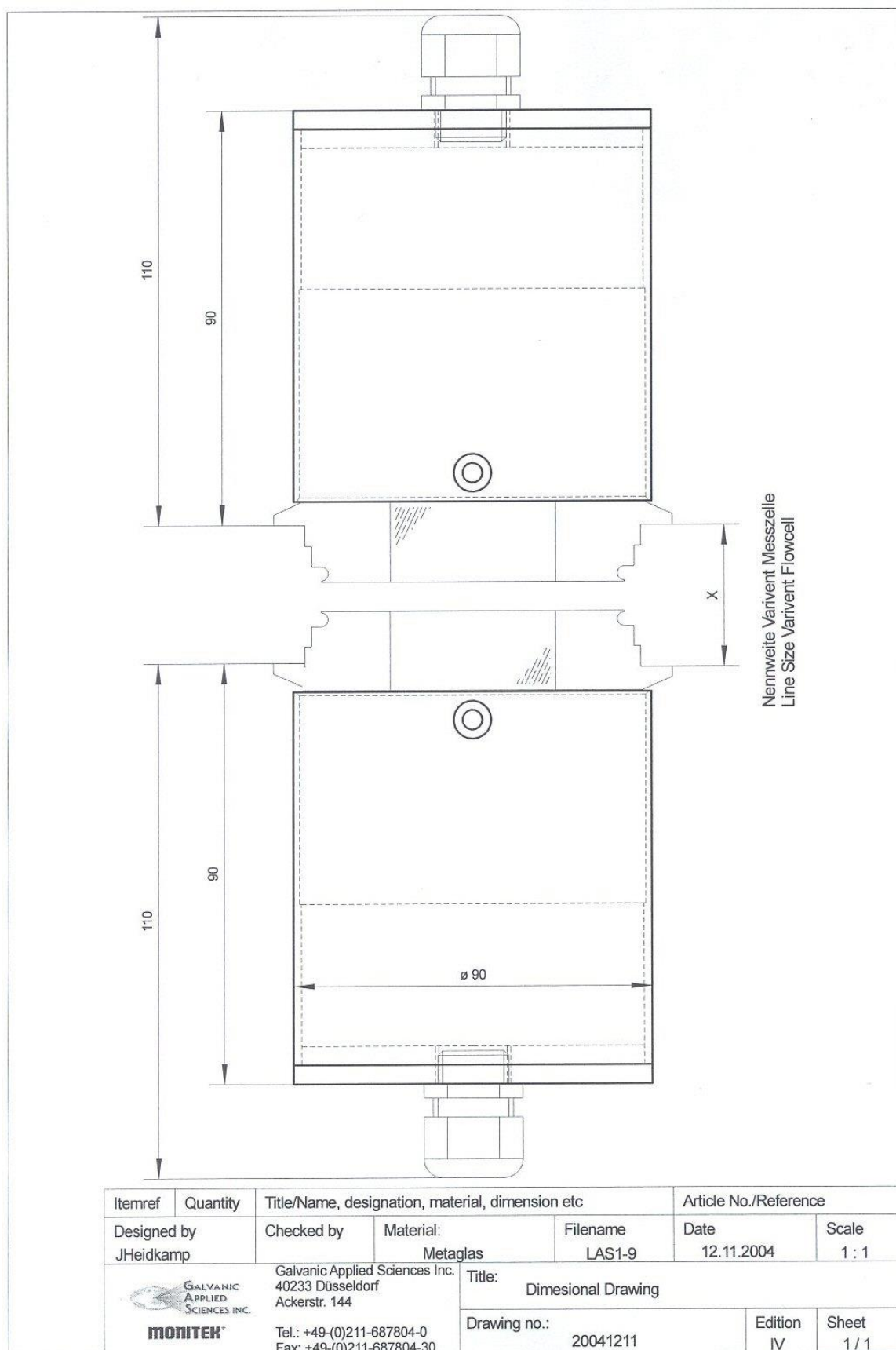
Relaiskontakte

Signal inputs (Detector)
Signaleingänge (Detektor)

Dimensional Drawing Model C1

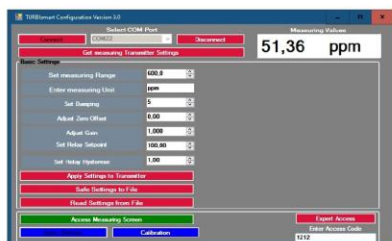
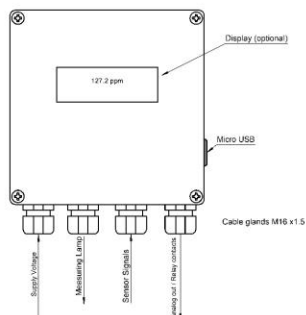


Dimensional Drawing Model LAS



Data Sheet Transmitter Model C1

Transmitter Model C1



- Configuration via PC, Laptop
- Menu - based, intuitive User Interface
- Serial Interface: USB
- Optional backlit LCD
- Outputs: 4-20mA, Setpoint Relay, System fail Relay
- Multiple sample curve-fit
- Programmable Measuring Units: EBC, FTU, TEF, ppm
- Full backup of Configuration & Calibration

- Stainless Steel Enclosure (304SS / 1.4301)
- Optional Hazardous area Zone II (Ex nA IIA T3 Gc)*
- Optional Hazardous area Zone I alu enclosure (Ex d IIC T5/6)
- Protection class Enclosures: Nema 4x / IP65
- Stable and reliable excellent process control
- Suitable for all potable, waste and process waters

* Transmitter for hazardous area Zone II without Relays and external USB (non sparking device).

Description:

The transmitter model C1 can be used with all optical sensors of the Monitek / Chemtronic series. The programming/calibration of the system is done via a PC or notebook using the menu-driven software. Calibration is done with multiple samples. All settings and calibration values can be backed up, extern, at your PC's hard disc.

Applications:

- Scatter light turbidity measurement
- Absorption turbidity measurement
- Single channel color measurement
- Dual channel color measurement

Operational areas:

- Chemical industry
- Petrochemical industry
- Pulp & Paper
- Beer and beverages

Technical Data:

Temperature range: maximal 45°C

Enclosure material: 1.4301

Measuring range: Sensor specific (programmable)

Interface: USB

Software: Configuration/Calibration via Windows PC

Reproducibility: $\pm 1 \%$

Protection class: IP65 / NEMA 4X

Supply: 18-27 VDC optional 90-260VAC / 50/60Hz

Analog output: 4-20mA, 500 Ohm (isolated)

Relay outputs: Contact ratings 24VDC/1A

Data Sheet Transmitter Sensor Model LAS

Model LAS



- Low maintenance
- Extended calibration interval: Typical 12 month
- Measuring windows directly melted to the Steel
- No additional window gaskets required
- No overreaching components inside the flow cell
- Perfect hygienic design
- Cleaning in place (CIP)
- Build in calibration filters
- Process installation via TH- Varivent plates

Description:

The sensor model LAS uses the principle of light absorption to detect dissolved or suspended particles in liquids. The transmitter model Messenger or CCAB is required to use this sensor. The system has been designed for continuous operation with long life time. The use of metal melted measurement windows without any additional gaskets guarantee for a perfect hygienic design. The installation by using TH-Varivent plates offers a cost saving process installation via standardized flow cells. The implemented calibration filters allow the calibration of the system without using liquid calibration standards. The absorption caused by turbidity will be detected at a wavelength of 850nm. Therefore the measurement results are not affected by product colour.

Applications:

- Product concentration
- Turbidity measurement
- Suspension
- Product separation

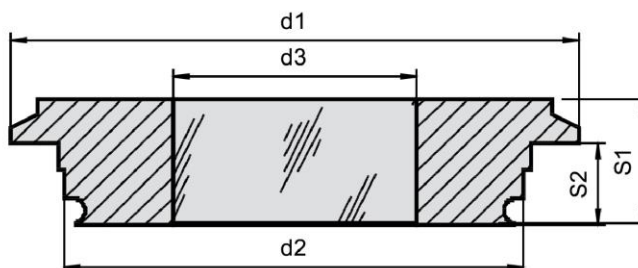
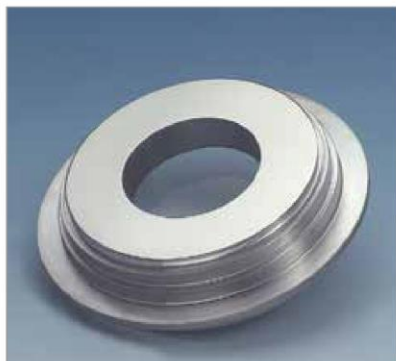
Operational areas:

- Breweries
- Beverages
- Dairies

Technical Data:

Line size:	DN 40 – DN 125 (TH- flow cells)	Measurement ranges:	typical 0–50EBC, 0–500EBC
Process pressure:	PN10 / ANSI class 150	Reproducibility:	± 1 %
Process temperature:	maximum 140°C	Detector:	Silica diode
Sensor material:	1.4404 / 316L	Measurement wavelength:	typical 830nm
Sight glass material:	Metaglas	Protection:	IP65 / NEMA4X
Gasket material:	No window gaskets required	Sterilization:	CIP

METAGLAS® Sight Glass with Luminaire for VARIVENT®-In-Line Fittings



Applications

- VARIVENT® In-Line flanges
- VARIVENT® In-Line housings

Advantages

- Housing free of dead zones, no domes or pools
- Pre-determined distortion of O-Ring by metal contact faces
- Suitable for CIP and SIP treatment
- Security against total failure
- Long operating life
- Crevice free seal

Technical data

Manufactured and tested to:

- Directive for pressure equipment 2014/68/EU, Module H (DIN/EN/ISO 9001)
- AD2000 Standards W0/TRD 100
- Sight glass fused to metal conforming to DIN 7079
- Materials to VdTÜV specifications and the DIN/EN designated standards
- Glass: Borosilicate to DIN 7080 / DIN 7079

Material certificates

- Certificate of Conformity EN 10204-3.1 (or 3.2 for extra costs)

Operating conditions

- Pressure: 25 bar
- Temperature: see table

Ring materials	Operating temperature
1.4462	-30°C to +280°C
2.4602	-60°C to +300°C
2.4605	-60°C to +300°C
2.4610	-60°C to +300°C

Process connections		d1	d2	d3	S1	S2	O-Ring
F	VARIVENT DN 25, 1" OD and 25 ISO	66	49,90	25	19	12,2	42 x 3,0
N	VARIVENT 32 ISO 6" IPS	84	67,95	35	17	12,3	60 x 3,0
G	VARIVENT DN100 and DN 125	142	122,90	65	21	21	113 x 4,0

FDA Conformity Metaglas

Declaration of Conformity (FDA)

Herberts Industrieglas GmbH & Co. KG

We hereby certify that all our sight glasses METAGLAS made from duplex stainless steel or Hastelloy C and borosilicate glass are manufactured and tested according to DIN 7079. Borosilicate glass Suprax 8488 (Schott) as used for METAGLAS sight glasses complies with the requirements of the US Food and Drug Administration Regulations for materials used in contact with food.

The chemical durability of borosilicate glass Suprax 8488 (Schott) complies with European Pharmacopoeia 7.8 Glass Type I

United States Pharmacopoeia USP 36-NF 31 Glass Type I

METAGLAS sight glasses with borosilicate glass – concave both faces are suitable for food applications according to Regulation (EC) No 1935/2004.

METAGLAS sight glasses are in conformity with the requirements of REACH 1907/2006/EC and RoHS2011/65/EC.

METAGLAS sight glasses do not contain the following elements and / or their oxides and chemical compounds:

Cadmium (Cd)
Lead (Pb)
Mercury (Hg)
Hexavalent Chromium (Cr 6+)
Polybrominated Biphenyls (PBB)
Polybrominated Diphenyl Ethers (PBDE)
Polychlorinated Biphenyls (PCB)
Polychlorinated Diphenyl Ethers (PCDE)
Bis(2-Ethylhexyl)phthalate (DEHP)
Benzyl Butyl Phthalate (BBP)
Dibutyl Phthalate (DBT)
Diisobutyl Phthalate (DIPT)
Polychlorinated Naphthalene
Organic Tin Compounds
Asbestos
AZO Compounds

METAGLAS sight glasses do not contain particles of Human or Animal origin.

Herberts Industrieglas GmbH & Co.KG hereby certifies that METAGLAS sight glasses are TSE free.

October 2019
Karl Schuller (CEO)



Certificate of Conformity (CE)

EU-Konformitätserklärung EU Declaration of Conformity

Der Hersteller:
The Manufacturer:
Chemtronic Waltemode GmbH
Niederstraße 14
40789 Monheim am Rhein



erklärt hiermit das das Prozess Fotometer
herewith declares that the process photometer:

Messverstärker / Transmitter Mod.:	C1 in Verbindung mit / with
Sensoren Modelle / Sensors & Probes Mod.:	AP2, CSW, LAS, MTC., MSC., TBM,

folgenden europäischen Richtlinien entspricht:
complies with the following European directives:

2014/30/EU	Richtlinie über die elektromagnetische Verträglichkeit Electromagnetic compatibility
2014/35/EU	Niederspannungsrichtlinie Electrical equipment designed for use within certain voltage limits

Angewandte harmonisierte Normen:
Applied harmonized standards:

EN61010-1 /2020	Sicherheitsbestimmungen für Mess-, Steuer-, Regel- und Laborgeräte Safety requirements for equipment for measurement, control, & laboratory use
EN61000-6,2 /2019	Störfestigkeit für Industriebereiche Immunity standard for industrial environments
EN61000-6,4 /2011	Elektromagnetische Verträglichkeit (Störaussendung) Emission standard for industrial environments

Monheim den 16.06. 2020

Gunnar Waltemode
Geschäftsführer / General Manager