



Anton Paar

Instruction Manual and Safety Information

L-Rix 2100 Transmitter

L-Rix 3100 Transmitter

Inline Refractometer

Find out more



www.anton-paar.com

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1 Safety instructions

1.1 Safety instructions

General

- Read the documentation before using the product.
- Follow all hints and instructions in the documentation to ensure the correct use and safe functioning of the product.
- The documentation is a part of the product. Keep it for the complete working life of the product and make it easily accessible to all persons involved with the product. If you receive any additions or revisions from Anton Paar, these must be treated as part of the documentation.

Liability

- This document does not claim to address all safety issues associated with the use of the product and samples. It is your responsibility to establish health and safety practices and to determine the applicability of regulatory limitations.
- Anton Paar only warrants the safe and proper functioning of the product if no modifications are made to mechanics, electronics, or software.
- Use the product only for the purpose described in the documentation. Anton Paar is not liable for damages caused by incorrect use of the product.
- The proper function of the instrument's protective devices is only guaranteed when operated correctly within the specified scope of applications.

General precautions

- Observe and adhere to your national safety regulations regarding the handling of all substances associated with your measurements (e.g. use safety goggles, gloves, respiratory protection, etc.).
- Substances used must be labeled. The corresponding material safety data sheets must be observed and made available near the measuring setup.
- Samples and cleaning liquids that have been used in the measuring system are not suited for human consumption after use.
- Check the wetted parts of the product for chemical resistance to all samples and cleaning liquids.
- Take care that samples, cleaning liquids and gases are chemically compatible when they come into contact with each other. They must not react exothermally or produce hazardous substances.

Installation

- The installation procedure shall only be carried out by authorized personnel who are familiar with the installation instructions.
- Never use the product outside the specified ambient conditions and specifications.
- Use only accessories, consumables, or spare parts supplied or approved by Anton Paar.

Using the product

- Ensure that all operators have been trained beforehand to use the product safely and correctly.
- In case of damage or malfunction, stop operating the product. Do not operate the product under conditions that could result in damage to goods or injuries or loss of life.

Precautions for flammable samples and cleaning agents

- Do not spill sample/cleaning liquids or leave their containers uncovered. Immediately remove spilled sample/cleaning liquids.
- Ensure that the setup location is sufficiently ventilated. The environment of the product must be kept free from flammable gases and vapors.
- Provide fire-extinguishing equipment.

Operation in areas with risk of explosion

- The product is **not** explosion-proof and therefore must not be operated in areas with risk of explosion.

Service and repairs

- Service and repair procedures may be carried out only by authorized persons or by Anton Paar.

Disposal

- Concerning the disposal of the product, observe the legal requirements in your country.

1.2 Conventions of safety messages

The following conventions for safety messages are used in this document:



DANGER

Description of risk

Danger indicates a hazardous situation which, if not avoided, **will** result in death or serious injury.



WARNING

Description of risk

Warning indicates a hazardous situation which, if not avoided, **could** result in death or serious injury.



CAUTION

Description of risk

Caution indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Description of risk

Notice indicates a situation which, if not avoided, could result in damage to property.

TIP: *Tip gives extra information about the situation at hand.*

1.3 Safety signs on the instrument

NOTICE

It is imperative that the warning signs remain clearly legible.

2 Overview

The L-Rix 2100 and L-Rix 3100 transmitters are inline refractometers designed to measure the concentration of metalworking fluids and other viscous substances. While the L-Rix 2100 offers basic performance, the L-Rix 3100 stands out with its broader measuring range, higher accuracy, and compliance with EHEDG and 3-A certifications when paired with suitable adapters.

	L-Rix 2100	L-Rix 3100
Range	1.3268 to 1.3830 nD (0 to 30 °Brix)	1.3268 to 1.4215 nD (0 to 50 °Brix)
Accuracy	±0.20 °Brix	±0.15 °Brix
Repeat-ability	± 0.10 °Brix	± 0.075 °Brix

3 Supplied parts


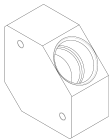
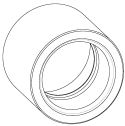
The product was tested and packed carefully before shipment. However, damage may occur during transport.




- Keep the packaging material (box, foam piece, transport protection) for possible returns and further questions from the transport and insurance company.
- Check the delivery for completeness by comparing the supplied parts to those noted in the table(s) below.
- If a part is missing, contact your Anton Paar representative.
- If a part is damaged, contact the transport company and your Anton Paar representative.

Table 1: Supplied parts

	Qty.	Description	Mat. No.
	1	L-Rix 2100 Transmitter	322864
	or		
	1	L-Rix 3100 Transmitter	323515
	1	O-Ring 25x2 FVMQ 70 BU	324463
	1	O-Ring 25x2 EPDM 70 FDA (L-Rix 3100 only)	320290
	1	Instruction manual	

Table 2: Optional parts

	Qty.	Description	Mat. No.
	1	Sensor cable, M12, 5-pin, coupling > socket, 5 m	322846
	1	L-Rix 2X00 Connection adapter G 1/4"	318347
	1	L-Rix 3X00 Adapter VARIVENT® N	318348
	1	L-Rix 2X00 Weld-in adapter G 1"	319892

	Qty.	Description	Mat. No.
	1	L-Rix 2100 Transmitter set	343286
	1	L-Rix 3100 Transmitter set	343287
	1	Companion Kit	384026

4 Installation

NOTICE

Risk of damage

Make sure the prism surface is clean before installation.

4.1 Mechanical installation

1. Use the enclosed gasket - O-Ring 25x2 FVMQ 70 BU (Mat. no. 324463) or 25x2 EPDM 70 (Mat. no. 320290) - when installing the L-Rix Transmitter in an adapter as depicted in Fig. 2 [► 13]. Further information regarding the different adapters is given in Section 4.1.4 [► 18].
2. The fastening torque of the transmitter accounts for 10 Nm. The transmitter must not be screwed in via the housing.
3. Make sure that the transmitter is not tilted when screwing it in.

4. The thread shall be clean. Otherwise the thread could rub.
5. Check the gap (see red marking in the picture below: there shall be no visible gap between the transmitter and the adapter) after the transmitter has been installed in the adapter:

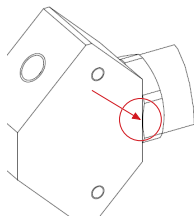


Fig. 1: Example for the installation of an L-Rix 2100 transmitter in an adapter

TIP: If you do not use an adapter delivered by Anton Paar for this purpose, it shall comply with the specifications of G1" ISO 228 in the area of the internal thread. The thread must be additionally sealed using a PTFE tape or similar.

The pressure of the cleaning media on the prism surface shall be < 10 bar.

If there are any uncertainties regarding the design of the spray jet (i.e. max. flow velocity or max. pressure of the cleaning agent), contact Anton Paar customer support.

NOTICE

Do not overtighten

The fastening torque of 10 Nm must not be exceeded, otherwise the L-Rix Transmitter may be damaged.

Remove the connecting cable before mounting or dismantling the L-Rix Transmitter.

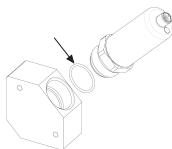


Fig. 2: Example for the installation of an L-Rix 2100 refractometer with the O-ring 25x2 FVMQ 70 BU

NOTICE

O-ring

Replace the O-ring 25x2 FVMQ 70 BU or the O-ring 25x2 EPDM 70 used in the installation of the L-Rix Transmitter if there are visible surface changes, such as embrittlement, cracks, or deformation.

4.1.1 Installation orientation

The following figure shows the installation orientation of L-Rix 2100 transmitters in a connection adapter G1/4"

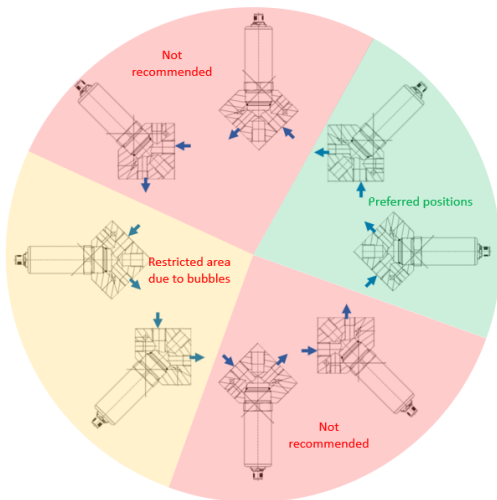


Fig. 3: Installation orientation for L-Rix 2100 with connection adapter G1/4"

The following picture shows the installation orientation of the L-Rix Transmitter mounted in other adapters than connection adapter G1/4":

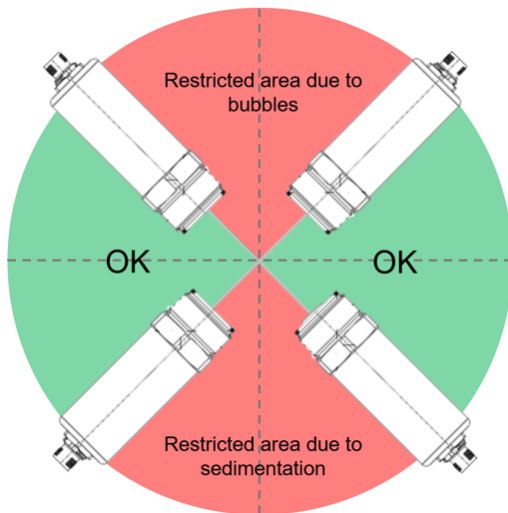


Fig. 4: Installation orientation for L-Rix Transmitter

The following picture shows the installation of the L-Rix Transmitter mounted in a pipe. For food applications installation in an upward flow (i.e. the position marked in the picture below) is required.

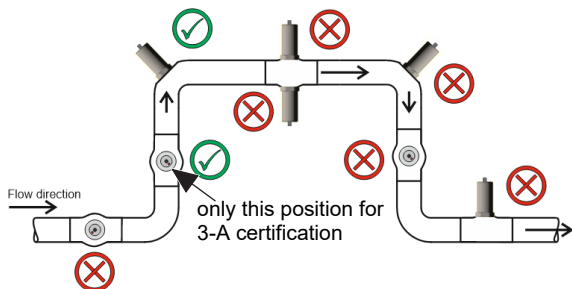


Fig. 5: L-Rix 2100/3100 mounted in a pipe

4.1.2 Installation for food applications

NOTICE

Certifications

The 3-A compliance is only applicable for L-Rix 3100 transmitters paired with an L-Rix 3100 adapter VARIVENT® N. Additionally, the installation must be self-drainable.

Connection in a pipeline

The length of the dead end must be smaller than the inside diameter of the pipe.

When protrusions or sensors are located within the dead end, the diameter of the protrusions shall be subtracted from the overall diameter when calculating the maximum length of the dead end.

$L \leq 2 (D - d)$ as shown in Fig. 6 [► 17] below.

If the calculation of L results in a dimension which is too small for fixing the connection, these sizes are excluded.

The orientation must allow self-draining of liquids and should not allow air bubbles to accumulate.

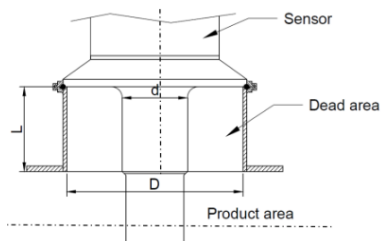


Fig. 6: L-Rix in a pipe installation

Connection in a tank

An L-Rix Transmitter mounted in a tank should be flush with the inside of the tank wall. If a dead end exists for technical reasons, it must be assured that the cleaning device can reach the surface. The above criteria for L still apply.

4.1.3 Dimensions of the transmitter

The standard connection of the transmitters is a G 1" male thread according to DIN/ISO 228 (Fig. 7 [► 17]).

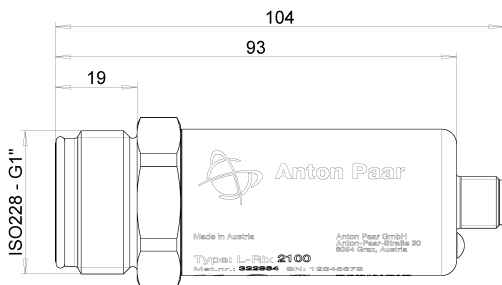


Fig. 7: Dimensions of L-Rix 2100/3100

4.1.4 Technical drawings and types of adapters

For the installation of L-Rix 2100 two types of adapters are available:

- Connection adapter G 1/4"
- Weld-in adapter G 1"

For the installation of L-Rix 3100 one adapter is available:

- Adapter VARIVENT® N

Connection adapter G 1/4"

The connection adapter G 1/4" has two holes with an M6 thread on each side (depth of 10 mm) to mount the adapter at the desired location with M5 or M6 screws.

The notes on installation orientation must be considered.

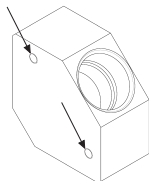
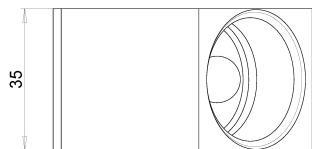
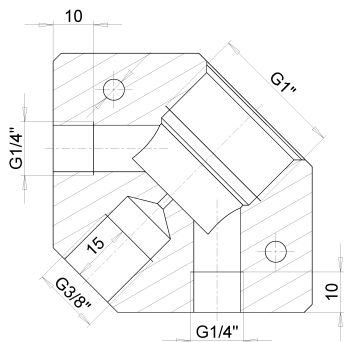


Fig. 8: Indication of threaded mounting holes M6 for the connection adapter G 1/4" (holes on both sides)

Depiction of the technical drawing and dimensions:

- Connection sensor: G 1" female thread
- Connection sample-in / sample-out: G 1/4" female thread
- Connection cleaning: G 3/8" female thread



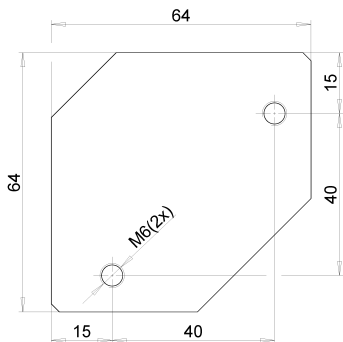


Fig. 9: Dimensions of the connection adapter G 1/4"

NOTICE

Make sure that the fittings of the hoses match the internal threads of the adapter.

Adapter VARIVENT® N

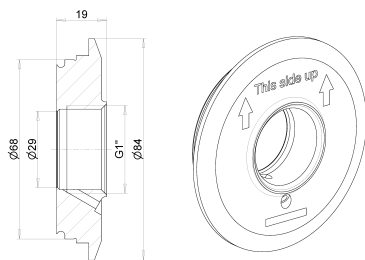


Fig. 10: Dimensions of adapter VARIVENT® N

Weld-in adapter G 1"

NOTICE

The following information shall be regarded as a recommendation. The relevant welding regulations shall always be observed. The welding process shall only be carried out by certified welders. When welding on pressure vessels, the specification from the respective AD-data sheets shall be considered. All relevant regulations shall be observed in any step of the welding procedure.

Preparations

It must be ensured that the welding process takes place in a clean environment. All parts to be welded must be free of residues such as grease, dirt or rust. To fix the parts in place, we recommend only tacking them in the first step. No spot welding!

During tacking and welding, it is essential to use a sufficient amount of forming gas. The best results can be achieved by using argon.

The weld-in adapter is supplied with a matching welding mandrel G 1" (male thread). Use this as an aid for the entire welding process, to prevent distortion.

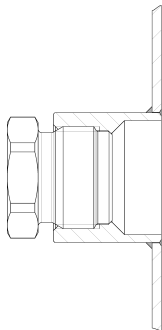


Fig. 11: Cross section weld-in adapter G 1"

It is generally recommended to divide the weld into several segments. After welding one segment, weld the opposite segment. After welding two segments, stop the welding process until the weld has cooled down or cool the weld carefully until you need to weld again.

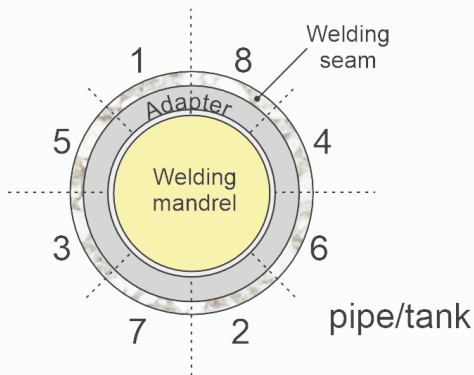


Fig. 12: Segment welding

The pressure resistance of the welded socket depends on the quality of the weld and the material of the welded socket. For threaded sockets, the full thread length must be used.

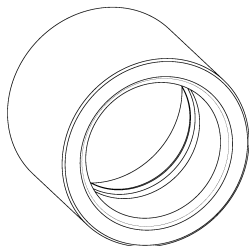
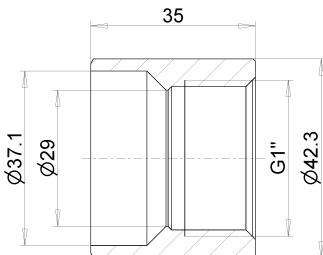


Fig. 13: Dimensions weld-in adapter G 1"

4.2 Electrical installation

4.2.1 Electrical connection

DC 24 V nominal

Range DC 20 V to DC 30 V

The sensor cable M12, 5-pin, coupling > socket, 5 m can be ordered separately.



Fig. 14: Sensor cable, M12, 5-pin, coupling socket, > 5 m

4.2.2 Connection and assignment of the analog outputs

- M 12 plug

Table 3: Pin assignment 5-pole plug

Pin	Signal	Color
1	+24V	Brown / BN
2	AO1 (Brix)	White / WH
3	GND	Blue / BU
4	Not used / Do not connect	Black / BK
5	AO2 (temperature)	Gray / GY

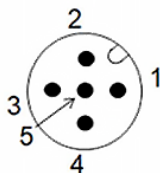


Fig. 15: Pin numbering AO interfaces

4.2.3 Scaling of the analog outputs

	L-Rix 2100	L-Rix 3100
Concentration	0 to 30 °Brix (4 to 20 mA)	0 to 50 °Brix (4 to 20 mA)
Temperature	0 to 60 °C (4 to 20 mA)	0 to 60 °C (4 to 20 mA)
Leakage alarm of media interface	no	yes

NOTICE

Galvanic isolation

Note that the analog outputs are **NOT** electrically isolated from the DC 24 V power supply of the L-Rix Transmitter .

4.2.4 Connection of the I/O link interface

- M 12 plug

Table 4: Pin assignment 5-pole plug

Pin	Signal	Color
1	+24 V	Brown / BN
2	Not used / Do not connect	White / WH
3	GND	Blue / BU
4	C/Q (communication line)	Black / BK
5	Not used / Do not connect	Gray / GY

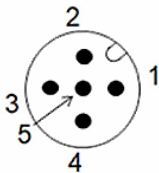


Fig. 16: Pin numbering I/O link interface (5-pole cable, 3-pole cable also possible)

4.2.5 Installation with M 12 sensor cable

The sealing features of M 12 connectors protect against dust, moisture and vibration, making them ideal for use in rugged industrial settings. The L-Rix Transmitter is delivered with a protective cap at the M 12-socket.

1. Remove the cap only just before installing the transmitter.
2. Connect the cable to the socket and ensure that the connectors are mated properly, as misalignment can trap debris.
3. Avoid doing this in a humid or dirty environment (refer to the data sheet of the cable for the required tightening torque).
4. M 12 connectors are typically rated IP 67 (Ingress protection rating). However, under extreme conditions, moisture can still enter the connector and may cause electrical problems or corrosion.
5. Inspect and clean the mating surfaces of the M 12 connector regularly.

5 Troubleshooting

5.1 Communication problems

If the sensor does not provide any measured values via the analog outputs or communication via the I/O-link interface is not possible, switch off the 24 V supply for 10 s and then switch it on again. After rebooting the sensor, it should work properly again.

6 Application Food

The L-Rix 3100 transmitter in combination with an L-Rix 3100 adapter VARIVENT® N is suitable for the contact with food (refer to the Confirmation of compliance).

Installation and instruction for use for application food:

In case of the application food use the enclosed gasket (O-Ring 25x2 EPDM) when installing the sensor L-Rix 3100 in the L-Rix 3X00 adapter VARIVENT® N.

Do not use any other combination of sensor, adapter or gasket.

All instruction in Section 4.1 [► 11] also apply to application food.

Cleaning

- Only use cleaning agents to which the wetted materials are resistant.
- Follow manufacturer's instructions for dosing and do not overdose for environmental reasons.
- Do not exceed manufacturer's recommendations for cleaning temperatures.
- Do not exceed the maximum process temperature of sensor (60 °C).

L-Rix 3100 is suitable for cleaning in place (CIP) with maximum temperature of 60 °C. The instrument is cleaned during the CIP procedure in the main line.

7 Upkeep and cleaning

Depending on the application and the process media, the measurement may be distorted by fouling of the measurement surface which builds up after a certain time.

L-Rix 2100/3100 provides a *Quality Index* via I/O-Link interface (see Chapter Appendix B [▶ 37] (Indexed Service Data Unit) parameter list), which describes the overall quality of the measurement result. With this index an indication of fouling on the prism is possible. Nevertheless, we recommend performing regular comparison of the measured results with reference values.

A build-up of fouling is dependent on many factors as type of medium, contaminations or flow rate, to name a few. A general prediction of build-up time and hence cleaning interval is therefore not possible.

We recommend demand-orientated cleaning to ensure reliable operation. Use the *Quality Index* and compare the measurement result regularly with reference values to establish a cleaning routine for the individual application.

NOTICE

Incorrect measurement value

If you suspect that the measured value output is incorrect (e.g., due to deposit formation), clean the measuring surface. If the value remains unchanged after cleaning, check the sensor. If the problem persists, review the sensor mounting position and adjust if necessary.

7.1 Cleaning L-Rix 3100 with adapter VARIVENT N

Refer to Section [▶ 27] for cleaning the L-Rix Transmitter used in food applications.

7.2 Adapters and interfaces

L-Rix 2100 connection adapter G1/4"

The connection adapter G 1/4" has an integrated cleaning interface. Therefore, the transmitter can be cleaned without demounting it from the line. The following restrictions are to be considered:

- maximum cleaning pressure: 10 bar
- maximum cleaning temperature: 60 °C

NOTICE

Cleaning interfaces of the adapter

When using the cleaning interfaces of the adapter, ensure that the cleaning medium supply line is not blocked. This can be verified, for example, by monitoring the flow of the cleaning medium.

NOTICE

Lubricants for cooling

The sensor has been tested with a selection of water-based cooling lubricants. It is the customer's responsibility to verify its suitability for specific cooling lubricants.

All other adapters

For the adapter VARIVENT® N and the weld-in adapter G 1", the transmitter has to be demounted for cleaning. When demounting, consider the following points:

- unpressurized demounting only
- tubing shall be free of medium

- turning on the recirculation of the medium during cleaning and maintenance is not allowed

After ensuring the above points, the sensor can be removed by a technician using appropriate tooling. Make an optical inspection of the gasket every time the L-Rix transmitter is removed. At any indication of ageing of the material, it is recommended to replace the gasket.

The sensor front can be cleaned with a clean soft tissue with the help of either hand warm tap water or mild cleaning agent. Under no circumstances a scratching sponge shall be used as damage of the transmitter may occur.

Before remounting the transmitter, special care shall be taken that the thread of the adapter is clean and dry. Any residues shall be removed with a soft clean tissue.

For remounting the L-Rix transmitter, refer to Section 4.1 [► 11].

8 Maintenance and repair

8.1 Maintenance performed by an authorized Anton Paar representative

The product does not require a periodic maintenance by an authorized Anton Paar representative to retain warranty coverage.

To fulfill requirements of regulatory authorities e.g. FDA 21 CFR 211.67, PIC/S 023-2 (5.5), Anton Paar offers services for compliant preventive maintenance and requalification for qualified Anton Paar products in case of software update, repair, and location change.¹

¹ For detailed information, please refer to general terms of delivery (GTD) on the Anton Paar website (<https://www.anton-paar.com>).

Following part is generally excluded from the warranty (wear and tear part)

- O-ring 25x2 FVMQ 70 BU
- O-ring 25x2 EPDM 70 FDA

NOTICE

The L-Rix 2100/3100 is maintenance free. However, to ensure optimal performance and prevent leaks, it is advisable to inspect the O-ring between the sensor and the pipe every six months and replace it if needed.

8.2 Repair performed by an authorized Anton Paar representative

In case your product needs repair, contact your local Anton Paar representative, who will take care of the necessary steps. If your product needs to be returned, request an RMA (Return Material Authorization Number). It must not be sent without the RMA and the filled "Safety Declaration for Instrument Repairs". Please make sure it is cleaned before return.

Do not return products that are contaminated by radioactive materials, infectious agents or other substances that cause health hazards.

TIP: Find the contact data of your local Anton Paar representative on the Anton Paar website (<https://www.anton-paar.com>) under "Contact".

Appendix A Technical data

Table 5: Technical data L-Rix 2100/3100

	L-Rix 2100	L-Rix 3100
Measuring range		
RI	1.3268 to 1.3830	1.3268 to 1.4215
Concentration	0 to 30 °Brix	0 to 50 °Brix
Accuracy	±0.20 °Brix	±0.15 °Brix
Repeatability	±0.1 °Brix	±0.075 °Brix
Process temperature range	0 °C to 60 °C	
Temperature measurement accuracy	±1 °C	
Process pressure	10 bar	
Ambient temperature range ^a	-5 °C to 55 °C	
Ambient humidity	5 % to 95 % RH (non-condensing)	

Outputs

Output signal	Analog or IO-Link
Number of analog outputs	2
Analog current output [mA]	4 to 20 (fixed)
Short circuit protection	Yes
Analog output load [Ohm]	240 to 500

L-Rix 2100

L-Rix 3100

Measuring settings concentration [°Brix]

Analog start point [4 mA]	0	
Analog end point [20 mA]	30	50

Measuring settings process temperature [°C]

Analog start point [4 mA]	0	
Analog end point [20 mA]	60	

IO-Link interface

Transfer rate	COM3 (230,4 kBaud)	
IO-Link revision	1.1	
SDCI standard	IEC 61131-9	

Mechanical data

Housing material	Stainless steel 1.4305 and plastic material	
Materials (wetted parts)	Sapphire (Al ₂ O ₃ - 99.997 %), Stainless steel 1.4305, VIC-TREX FG 200 (PEEK)	Sapphire (Al ₂ O ₃ - 99.997 %), Stainless steel 1.4404, VIC-TREX FG 200 (PEEK)
Dimensions	Ø 34 / L = 104	
Weight [g]	350	
Process connection	G 1" male, according to DIN/ISO 228	
Fastening torque	10 Nm	

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Type of status display	LED	
Protection class	IP 65, IP 67	
Power supply	DC 24 V (range 20 to 30) SELV/PELV (Class 2 circuits)	
Cleaning (using AP adapter with cleaning connection)	Water or approved cleaning agents - up to 60 °C, 5 bara max.	
Storage conditions ambient temperature and relative humidity ^b	-40 to 70 °C; 10 to 100 %	

Tests, certifications, approvals

EMC	<p>Tested according to following standards and directives:</p> <ul style="list-style-type: none"> – EN IEC 61326-1 : 2020 "Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements" – NAMUR NE 21 : table 3.4 "Tolerance of power supply" – NAMUR NE 21 : table 3.5 "Voltage fluctuations" – OIML D11 : table 19 "Ripple on DC mains power"
Shock resistance	EN IEC 60068-2-27: 227 m/s ² (11 ms)
Vibration resistance	EN IEC 60721-3-4: 4M12
FCC	The device fulfills the FCC part 15 subpart B and ICES-003 2020, issue 7 requirements

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Country-specific certification	<p>1. Europe: The device meets the legal requirements of the applicable EU Directives.</p> <p>2. USA and Canada: The device complies with the applicable requirements of the following standards:</p> <ul style="list-style-type: none"> – Electrical Equipment for Measurement, Control, and Laboratory Use; Part 1: General Requirements [UL 61010-1:2012 Ed.3+R:06Jun2023]" – Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 1: General Requirements [CSA C22.2#61010-1-12:2012 Ed.3+U1;U2;A1;U3] 	
3-A		The L-Rix 3100 Transmitter in combination with the L-Rix 3X00 Adapter VARIVENT® N complies with the appropriate criteria of the covering 3-A Sanitary Standards.
IO-Link	IEC 61131-9	

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Electrical connection

General	M12 Sealed connector with single cable for power supply and 2x Analog output / IO-Link
Connector	Connector: 1 x M12; coding: A; Contacts: gold-plated

- ^a *L-Rix 2100/3100 is designed for continuous operation under a wide range of environmental conditions. The maximum permissible ambient temperature and relative humidity for continuous operation are:*
Max. ambient temp.: 55 °C
Max. relative humidity of air: 95 % (non-condensing)
While the device is designed to operate reliably under these conditions, continuous operation at the highest specified temperature and humidity levels may accelerate component wear and reduce overall device lifespan. To ensure optimum performance and longevity, it is recommended the device to be operated in moderate environmental conditions whenever possible.
- ^b *Always store the sensor in its original packaging. If stored in high temperatures combined with high humidity (> 40 °C / > 85 % RH), additionally wrap the packaging in a water vapor-impermeable film to protect the sensor.*

Appendix B IO-Link specification

NOTICE

The L-Rix 2100/3100 sensors are IO-Link Class A devices. In case of operation with IO Link Master ports class B, a 3-pole cable must be used.

Table 6: IO-Link process data

Bit offset	95 ... 64	63 ... 32	31 ... 0
Data	Concentration	Temperature	Status
Unit	°Brix	°Celsius (default) or °Fahrenheit	-
Data Type	32 bit floating point	32 bit floating point	32 bit field

Table 7: IO Link ISDU (Indexed Service Data Unit) parameter

Name	Index	Size (bytes)	Data type	Permission (read/write)	Default value	Value range	Description
Refractive Index	66	4	floating point	r			Currently measured refractive index (nD)
Supply Voltage	67	4	floating point	r			Currently measured supply voltage (Volts)
Quality Index	68	1	unsigned integer	r		0 ... 100	100 ... good measurement signal quality 0... poor measurement quality. Cleaning recommended (ref.to Section 7 [► 28])
Concentration Damping	80	1	unsigned integer	rw	1	1 ... 60	Damping of value in seconds

Name	Index	Size (bytes)	Data type	Permission (read/write)	Default value	Value range	Description
Temperature Damping	81	1	unsigned integer	rw	1	1 ... 60	Damping of value in seconds
Temperature Unit	82	1	unsigned integer	rw	0	0 ... 1	Displayed temperature in process data. 0 ... Celsius 1 ... Fahrenheit
AO1 Forced	83	4	floating point	rw	-1	-1 ... 22.5	Forces the analog output current to the desired value. Set to -1 to disable forcing.
AO2 Forced	84	4	floating point	rw	-1	-1 ... 22.5	Forces the analog output current to the desired value. Set to -1 to disable forcing.

Appendix C Status light indication mapping

Status	Prio	Condition	Mode
Error	1	<p>A hardware failure makes measurement impossible</p> <ul style="list-style-type: none"> – The resistance of the medium temperature sensor is zero or infinite – The pixel values of the line sensor make no sense – Exceeding of the humidity level due to leakage on the front (L-Rix 3100 only) 	Flashing red
Warning	2	<p>The measurement is basically possible but might not be within specification. Possible reasons:</p> <ul style="list-style-type: none"> – Refractive index cannot be determined – Brix value is out of range or scaling – Temperature is out of range or scaling – Supply voltage is out of range – Condensation warning^a 	Flashing yellow
Measuring – IO-Link communication active	3	No error or warning, IO Link is connected	Blinking green
Measuring – Measur-	4	No error or warning, IO Link is not connected	Pulsating green

Status	Prio	Condition	Mode
ing values provided via analog outputs			

- ^a *Moisture level exceeds safe limits, approaching the dew point and increasing the risk of internal condensation*

Appendix D Certificates

DocuSign Envelope ID: 17000C83-703D-404D-AB51-F42894D3D287

EU Declaration of Conformity (original)



The Manufacturer **Anton Paar GmbH**, Anton-Paar-Str. 20, 8054 Graz, Austria – Europe hereby declares that the product listed below

Product designation: **L-RIX 2100 TRANSMITTER INLINE-REFRAKTOMETER,
L-RIX 3100 TRANSMITTER INLINE-REFRAKTOMETER**

Model: **L-Rix 2100 Transmitter,
L-Rix 3100 Transmitter**

Material number: **322864, 323515**

are in conformity with the relevant European Union harmonisation legislation. This declaration of conformity is issued under the sole responsibility of the manufacturer.

Low Voltage Directive (2014/35/EU, OJ L 96/357 of 29.3.2014)

Applied harmonised standard:

- EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019

Electromagnetic Compatibility (2014/30/EU, OJ L 96/79 of 29.3.2014)

Applied harmonised standard:

- EN 61326-1:2013

RoHS Directive (2011/65/EU, OJ L 174/88 of 1.7.2011)

Place and date of issue: Graz, 21.02.2025

DocuSigned by:

Dr. Christopher Fradler, MBA
Executive Director
Business Unit Solutions

DocuSigned von:

Andreas Fuchs
Department Manager Development
Business Unit Solutions

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