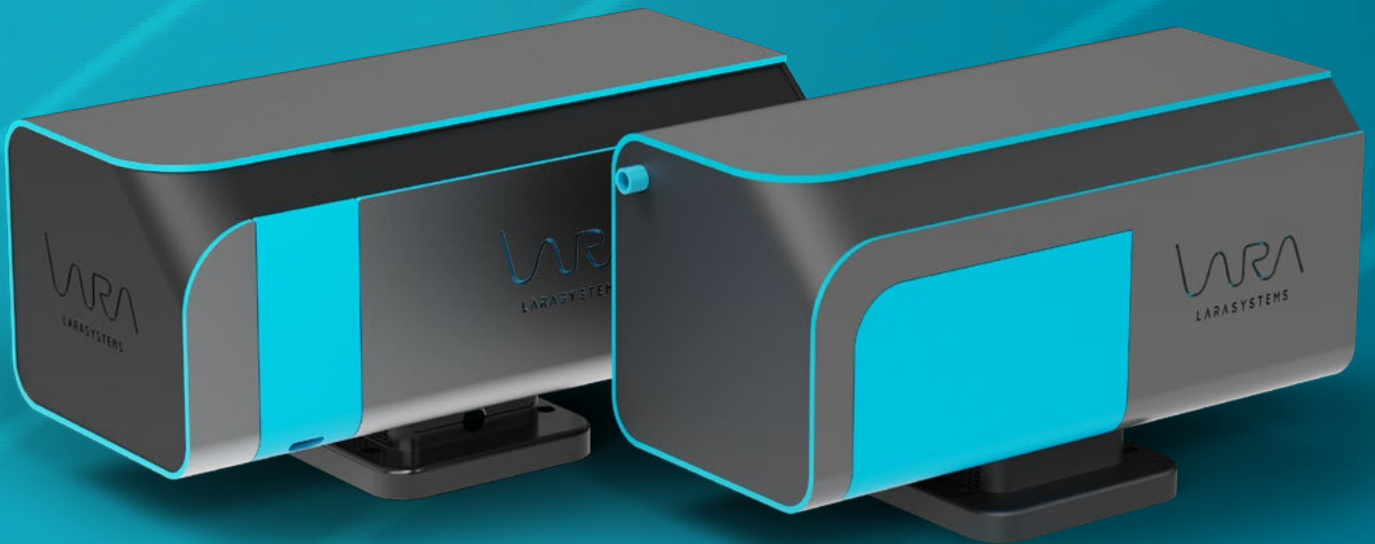




LARASYSTEMS



BREATHE SAFE. LIVE BETTER.

Innovative disinfection.
The smart disinfection system of the 21st century.

LARA TECHNOLOGIES

I am Zsolt Levente Pap, the **creator** and **founder** of LaraSystems.

What is **LaraSystems**?

LaraSystems is the 21st century's intelligent, automated air-duct disinfection system — the world's first uniquely designed solution, built on patent-pending technology.

I have been working in ventilation-system disinfection since 1999. The idea of automating this process first came to me in 2010. In 2021, I began development on my own, under a different name at the time. In 2023, my daughter Lara was born, and from that point on it became clear to me that the product would be named LaraSystems. I proudly gave it this name because **I believe this product — which is under worldwide patent protection — will help the health of millions of people. According to the patent office's assessment, it is a world innovation!**

Our mission

Establishing a new global standard for continuous indoor hygiene.

We are building a world where a healthy, reliable indoor environment is a natural expectation.

Lara Technologies' goal is for indoor air-quality technologies to become, in the future, just as essential an infrastructure as clean drinking water.

Our automated ventilation-hygiene solutions improve and protect people's health — and even the air quality required for manufacturing processes.

Sit back, **manage the devices of the Lara product family through our app on your phone**, and enjoy virus-, mold-, and bacteria-free air!



Where does contaminated indoor air come from - Invisible risks

In today's world, our lives are interwoven with mechanical ventilation. Air handling systems supply a significant portion of indoor air. More than 100 billion cubic meters of air worldwide may pass through air handling systems every hour. Air reaches our living spaces through a closed system. The outside fresh air is already contaminated to begin with, and once it enters the air handlers, the technology itself further contaminates the duct systems — allowing bacteria, mold, and other pathogens to continuously endanger our health.

LaraSystems' innovative solutions support a significant long-term reduction in the viral and pathogen load of indoor air, creating cleaner living spaces, improving people's health and quality of life, and helping prevent the development and spread of infections..

CONTAMINANT	EXAMPLE	POTENTIAL EFFECT
Bacterium	Escherichia coli (E.coli)	Typically found in the intestinal tract, but certain strains can cause pneumonia in the lower respiratory tract.
Bacterium	Staphylococcus aureus	Can accumulate on surfaces and cause sore throat, nasal congestion, and coughing in sensitive individuals.
Bacterium	Legionella pneumophila	Spreads through inhalation of infected water droplets; therefore frequently monitored in water- and aerosol-generating systems due to its health significance.
Mold	Aspergillus spp.	One of the best-known mold groups. Can trigger nasal congestion, sneezing, eye irritation, coughing, or asthma in sensitive individuals.
Mold	Penicillium spp.	A common indoor mold that can cause odors, irritation, and fatigue.
Viruses	Enveloped virus groups	Can enter the indoor environment through human presence and activity. Includes: COVID-19, Influenza, Herpes viruses.
Viruses	Non-enveloped virus groups	Classified among the more resistant virus groups in disinfectant efficacy tests.
Yeasts	Environmental yeasts	The most common fungi found in ventilation systems.



IF WE DON'T DRINK DIRTY WATER, WHY WOULD WE BREATHE DIRTY AIR?



Where might you encounter contaminated air?

42% of indoor air contamination originates from ventilation systems. Comprehensive, credible studies conducted in 2024 found that disinfecting ventilation systems reduced both bacteria and mold concentrations by 94.0–97.5%.

Where does LaraSystems create value?

Application areas and key customer benefits

TARGET GROUP	EXAMPLES	KEY VALUE
Healthcare and high-hygiene facilities	Hospitals and healthcare institutions, laboratories, research institutes, social care institutions	Reducing hygiene risks, complementing infection control and high hygiene requirements.
Industrial companies, data centers	Pharmaceutical industry, food industry, electronics industry, automotive industry, agriculture, specialized manufacturing environments, server centers	Reducing contamination risk, supporting a controlled manufacturing environment and maintenance of high hygiene requirements.
High-traffic facility operators and owners	Hotels, office buildings, shopping centers, educational and training institutions, wellness and spa centers, transport facilities, cultural and event venues	Higher hygiene standards, strengthening user and guest trust, and improving comfort and experience.
Real estate owners and developers	Real estate developers, office, hotel, and commercial property owners, WELL/LEED/BREEAM/DGNB-oriented projects	Raising the technical standard, differentiation, and future-proofing of the building.
Facility operators	Facility management companies, facility and building operators	Unified, automated, and scalable ventilation-hygiene operations across multiple buildings and air handlers.
Designers and professional decision-influencers	Building services engineers, engineering firms, consultants	Innovative, automated solution integrable into new and existing ventilation systems.
Contractor and service partners	General contractors, ventilation contractors, maintenance and service companies	New, high-value-added solution and service opportunity, differentiation, and new business potential

We recommend it equally for new and existing buildings, since LaraSystems represents an innovative, automated engineering value-add that can already be integrated at the design stage of new developments, as well as into existing ventilation systems.

How does LaraSystems provide a solution to this?

Regular disinfection prevents re-contamination, which otherwise restarts within days.

550 CFU/m³
Before applying
LaraSystems

10 CFU/m³
After applying
LaraSystems

90 CFU/m³
12 days later, without
LaraSystems

CFU (Coloni Forming Unit)

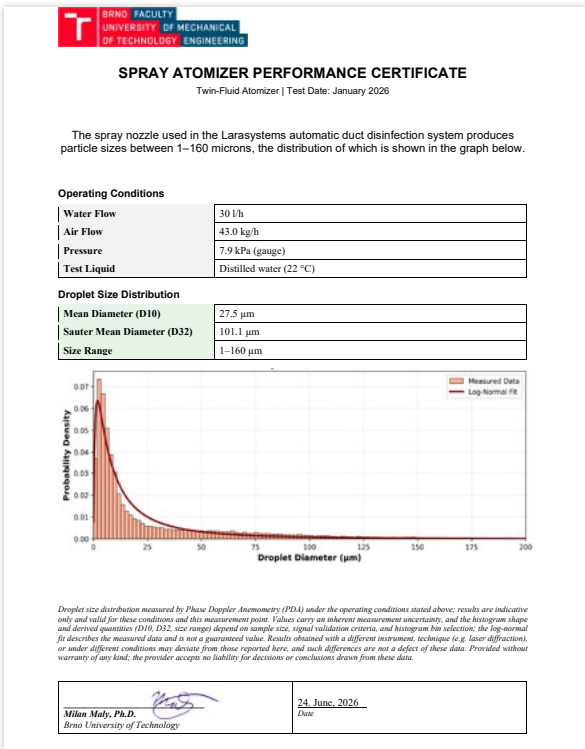
The special spray nozzle, whose key feature is that LaraSystems’ uniquely designed spray head produces a complete droplet spectrum between 0–160 µm — so a single spraying cycle can perform several functions at once.

Three processes occur simultaneously in the duct:

- the droplets are carried along with the airflow,
- the hydrogen peroxide evaporates,
- the droplets gradually settle on surfaces.

THAT IS WHY THERE IS NO SINGLE IDEAL DROPLET SIZE.

LaraSystems is not optimized for a single droplet size; instead it creates a polydisperse aerosol that exploits several disinfection mechanisms at once, using droplets of different sizes. This approach offers a genuine technical advantage, since it can be demonstrated through laboratory and validation measurements that the full droplet-size distribution produces a better disinfection outcome than a conventional, narrow droplet-size-range system. This is one of LaraSystems’ key technical characteristics.



Spray Atomizer Performance Certificate, Brno University of Technology — Twin-Fluid Atomizer, Test Date: January 2026. Droplet size range 1–160 microns; Mean Diameter (D10) 27.5 µm; Sauter Mean Diameter (D32) 101.1 µm. Signed: Milan Maly, Ph.D., Brno University of Technology, 24 June 2026.

VERY SMALL DROPLETS (0–20 µm)

- reach almost everywhere
- stay suspended for a long time
- disinfect the air effectively
- follow the airflow well

MEDIUM DROPLETS (20–80 µm)

- still carry well with the airflow
- already deliver an adequate amount of H2O2 to surfaces
- provide good coverage
- do not settle out too quickly

LARGE DROPLETS (80–160 µm)

- carry a large amount of active ingredient to the surface
- provide good wetting
- can be advantageous against bioilm (biofilm: a community of microorganisms adhering to a surface)

Lara Disinfectant

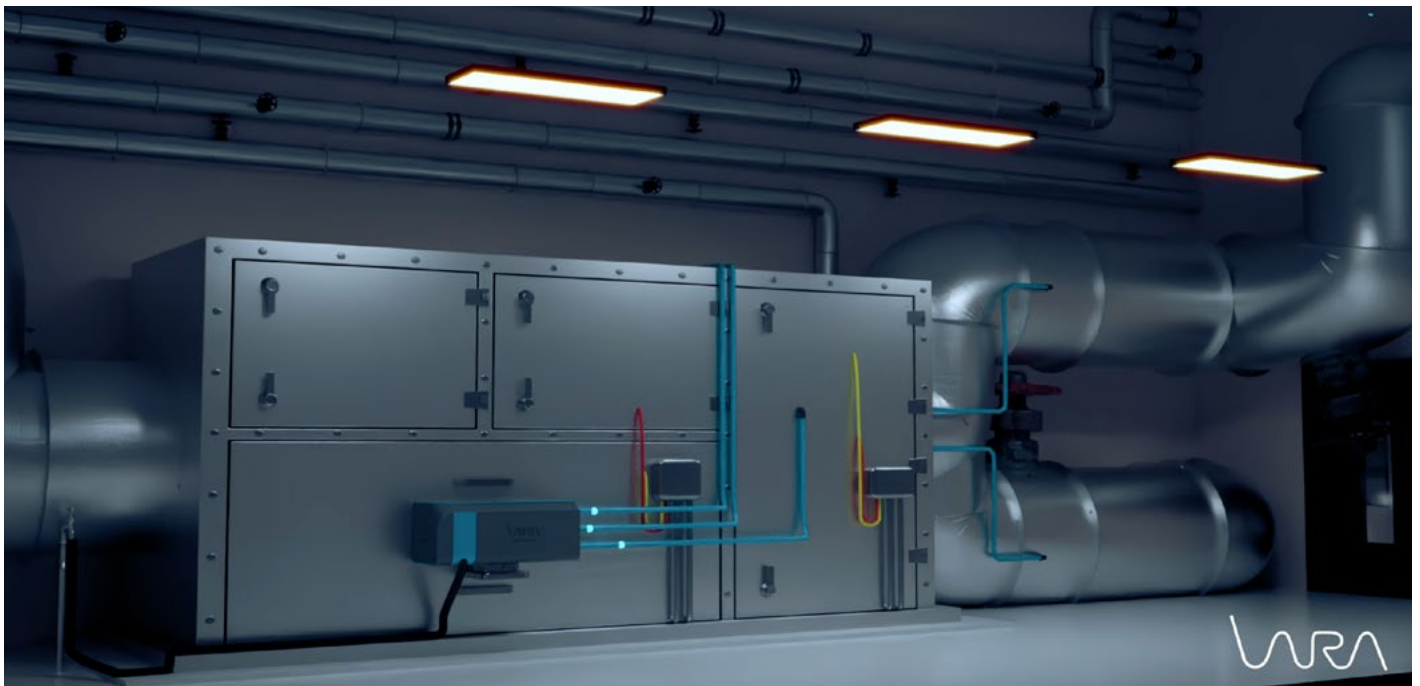
Our disinfectant is a concentrate of the H₂O₂-based Swiss Sanosil product family, which — once diluted — is introduced as a specially prepared solution into the air handler and into the air duct system.

The expert opinion available via the link below confirms that the sprayed solution neither damages the air duct nor poses any harmful effect to people.

<https://larasystems.com/hu/letoltheto-dokumentumok.html>



How does the Lara System work?



The Lara System must be placed next to/on the air handler. It is connected to the specified water quality supply, powered on, then its special blue hoses are assembled with the supplied fittings, after which it is connected to the air duct and/or the air handler. As the final step, the disinfectant container is connected, and commissioning can begin.

What are LaraSystems' values?

- Disinfection of the air handling unit as well as the entire duct network
- Can be integrated into building management systems
- A large area can be treated from a single injection point
- Handles complex geometries
- Reaches shadowed surfaces
- Treatment against biofilm
- The entire system can be accessed and controlled from anywhere in the world via the app
- Independent validation-company certification (IQ, OQ, PQ) available after installation (optional)
- Communicates via GSM, Wi-Fi, Ethernet (LAN), or building management system (BMS) using RS-485 (Modbus RTU)

The disinfectant sprayed by LaraSystems moves together with the airflow, and thereby reaches hard-to-access surfaces — the same surfaces previously reached by viruses, bacteria, and mold. This is confirmed by measurements from the heads of the Budapest University of Technology Department of Fluid Mechanics (certified), as well as by validated results from our installed machines.

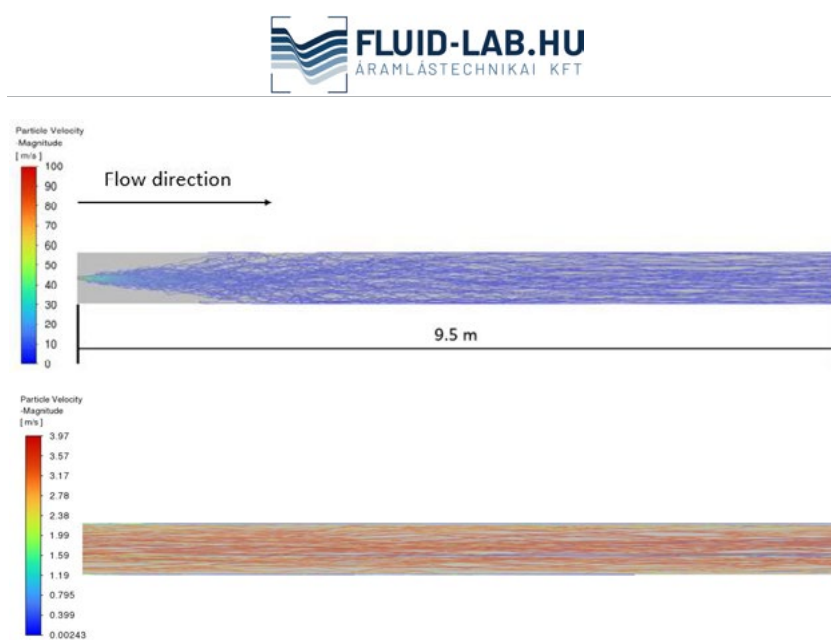


Figure 1. Particle trajectories of the disinfectant-carrying droplets (top) and particles representing various pathogens (bottom) for a particle diameter of $1\ \mu\text{m}$, a duct cross-section of $600 \times 600\ \text{mm}$, and an air duct flow velocity of $3\ \text{m/s}$.

Table 3. Fraction of $1\ \mu\text{m}$ pathogen particles and disinfectant droplets deposited on the air duct walls.

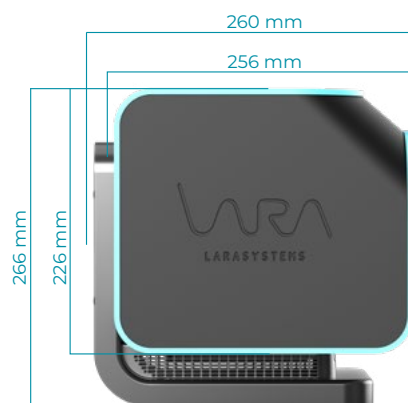
Air duct cross section and air flow velocity	Total fraction of deposited particles along the first 100 m of the air duct (pathogens / disinfectant)	Total fraction of deposited particles along the entire 200 m of the air duct (pathogens / disinfectant)
600×600 mm 3 m/s	22.4%/23.4%	30.9%/31.0%
600×600 mm 5 m/s	21.2%/20.5%	29.3%/28.5%
1000×1000 mm 3 m/s	16.1%/15.8%	24.5%/22.9%
1000×1000 mm 5 m/s	15.4%/13.6%	22.9%/21.1%

This summary is based on the technical report entitled *Numerical CFD Simulation for the Identification of Surfaces Contaminated by Airborne Pathogens and Wetted by Disinfectant in Air Ducts of Various Sizes*, prepared by FLUID-LAB.HU Kft. and issued on 22 July 2026.

Budapest, 30 July 2026

FLUID-LAB.HU
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H-1114 Budapest, Fehérvári u. 20. 1. em./1.
Cégjegyzékszám: 01-09-079754
Adószám: 13917054-2-43
KSH Bank, SWIFT/BIC: CIBKMH33
(HUSZ) 10400126-50484852-48511016


Dr. Jenő Miklós SUDA, managing director
M.Sc. Mechanical Engineer, PhD
FLUID-LAB.HU Kft.



WEIGHT

With packaging: **15 kg**
Unit weight: **13,6 kg**



POWER CONSUMPTION

Standby: **6W**
During disinfection: **870W**
Annual standby consumption: **52.5 Kwh**
Annual consumption of a 2-channel unit with weekly disinfection: **55.5 Kwh**



WATER CONSUMPTION

During disinfection: **1 liter / channel / 2 minutes**
Weekly, per use: **52 liters / year**
Deep disinfection: **4 liters / channel / 8 minutes**



NOISE LEVEL

77 dB



OPERATING TEMPERATURE

5-40 °C



ATOMIZATION PARTICLE SIZE

1-160 µm



FREQUENCY

50Hz, single-phase



MAINTENANCE

Upon replacement of the 5-liter disinfectant container, or within one year of commissioning



MAINTENANCE TASKS

- Air filter replacement
- Water filter replacement
- Disinfectant replacement
- Inspection of connections (water and power)
- Spray-head function check
- Visual inspection of the unit's outer housing with photo documentation



DISINFECTION TIME

Duct length	AHU output	Operating time	Deep disinfection
20 - 100 m	10.000m³/h — 20.000m³/h	2 min	3 min
100 - 500 m	20.000m³/h - 50.000m³/h	3 min	6 min
over 500 m	50.000m³/h	4 min	8 min



PACKAGE CONTENTS

Unit, base, air filter, power cable, water filter



ACCESSORY KIT

Spray head, spray head spacer, duct mounting fitting, Lara hose



SYSTEM REQUIREMENTS

Minimum 2 bar drinking-water-quality water, pH requirement 6.5–8.5, 230V.



DUST, SPLASH, WATER RESISTANCE

IP54



INSTALLATION

Indoors and inside the air handling unit



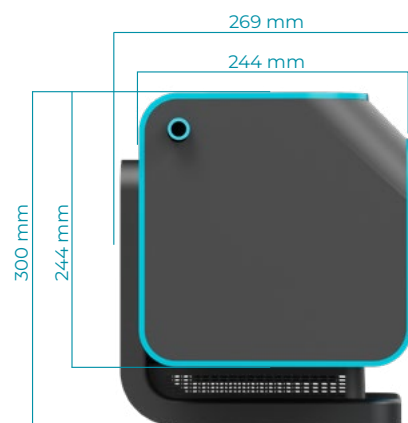
MAXIMUM INSTALLATION DISTANCE FROM THE DUCT

12 m



RECOMMENDED VENTILATION SYSTEM

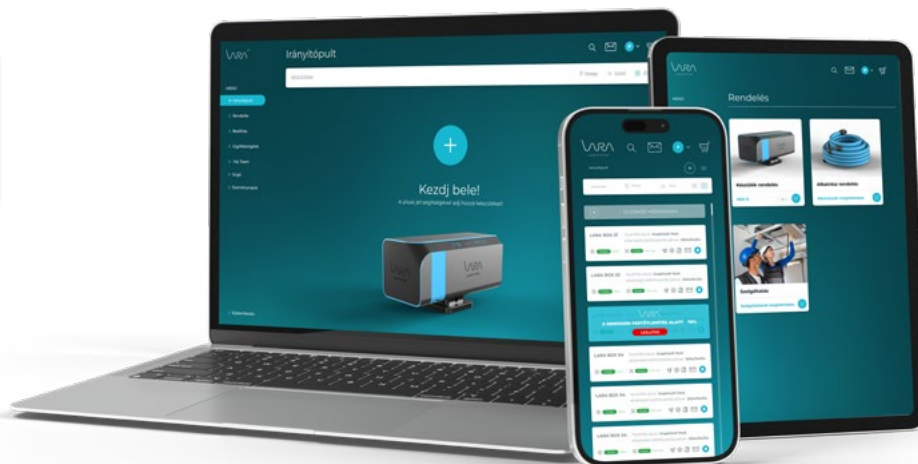
From 10.000 m³/h



	WEIGHT	With packaging: 13,3 kg Unit weight: 11,9 kg			
	POWER CONSUMPTION	Standby: 6W During disinfection: 300W Annual standby consumption: 52.5 Kwh Annual consumption of a 2-channel unit with weekly disinfection: 53 kWh/year			
	WATER CONSUMPTION	During disinfection: 0.5 liter / channel / 1 minute Weekly, per use: 26 liters / year Deep disinfection: 1,5 liters / channel / 3 minutes.			
	NOISE LEVEL	65 dB - 80 dB			
	OPERATING TEMPERATURE	1-50 °C			
	ATOMIZATION PARTICLE SIZE	1-40 µm			
	FREQUENCY	50Hz, single-phase			
	MAINTENANCE	Upon replacement of the 5-liter disinfectant container, or within one year of commissioning			
	MAINTENANCE TASKS	• Water filter replacement • Spray nozzle inspection • Nozzle holder inspection • Inspection of connections (water and power) • Compressor maintenance, oil level check			
	DISINFECTION TIME	Duct length 10 - 50 m over 50 m	AHU output 1.000m³/h — 4.000m³/h 4.000m³/h - 10.000m³/h	Operating time 2 min 3 min	Deep disinfection 3 min 5 min
	PACKAGE CONTENTS	Spray nozzle heads, nozzle holder, oil drain screw, duct mounting fitting, connecting hose			
	ACCESSORY KIT	Connection to additional units, up to 3 units			
	SYSTEM REQUIREMENTS	Minimum 2 bar drinking-water-quality water, pH requirement 6.5–8.5, 230V			
	DUST, SPLASH, WATER RESISTANCE	IP54			
	INSTALLATION	Indoors			
	MAXIMUM INSTALLATION DISTANCE FROM THE DUCT	15 m (linear)			
	RECOMMENDED VENTILATION SYSTEM	1.000 m³/h — 10.000 m³/h			



	WEIGHT	With packaging: 95 kg Unit weight: 83 kg			
	POWER CONSUMPTION	Standby: 9W During disinfection: 1070W Annual standby consumption: 78.8 Kwh Annual consumption of a 2-channel unit with weekly disinfection: Highly dependent on local weather.			
	WATER CONSUMPTION	During disinfection: 1 liter / channel / 2 minutes Weekly, per use: 52 liter / year Deep disinfection: 4 liters / channel / 8 minutes.			
	NOISE LEVEL	64 dB - 75 dB			
	OPERATING TEMPERATURE	5-40 °C			
	ATOMIZATION PARTICLE SIZE	1-160 µm			
	FREQUENCY	50Hz, single-phase			
	MAINTENANCE	Upon replacement of the 5-liter disinfectant container, or within one year of commissioning. The AC unit every six months			
	MAINTENANCE TASKS	• Air filter replacement • Water filter replacement • Disinfectant replacement • Inspection of connections (water and power) • Spray-head function check • Visual inspection of the unit's outer housing with photo documentation			
	DISINFECTION TIME	Duct length 20 - 100 m 100 - 500 m over 500 m	AHU output 10.000m³/h — 20.000m³/h 20.000m³/h - 50.000m³/h 50.000m³/h	Operating time 2 min 3 min 4 min	Deep disinfection 3 min 6 min 8 min
	PACKAGE CONTENTS	Unit, base, air filter, power cable, water filter			
	ACCESSORY KIT	Spray head, spray head spacer, duct mounting fitting, Lara hose			
	SYSTEM REQUIREMENTS	Minimum 2 bar drinking-water-quality water, pH requirement 6.5–8.5, 230V			
	DUST, SPLASH, WATER RESISTANCE	IP67			
	INSTALLATION	Outdoors			
	MAXIMUM INSTALLATION DISTANCE FROM THE DUCT	12 m (linear)			
	RECOMMENDED VENTILATION SYSTEM	From 10.000 m³/h			



LARA APP

The custom-developed application monitors the status of all purchased devices, from commissioning through disinfectant usage, and can retrieve the complete log. It also issues a separate disinfection log for every disinfection cycle performed. It monitors the presence of water and power, reports which property, plant room, and unit is operating, and the software sends notifications if an unexpected problem arises. Notifications can be pre-configured so that each level of user receives the appropriate type of alert (owner, operator, mid-level manager, maintenance technician).

- Control of Lara units
- Adding a new unit
- Live status monitoring and notifications
- Scheduling automatic disinfection cycles
- Starting an immediate disinfection
- Starting a deep disinfection
- Setting a one-time, scheduled disinfection
- Inviting users
- Organizing teams

Downloadable documents

(<https://larasystems.com/hu/letoltheto-dokumentumok.html>)



Lara System
installation guide



Lara Compact
installation guide



Lara Outdoor
installation guide



Lara Disinfectant
installation/replacement guide



Maintenance
process



Lara App overview



Professional
movie



Image movie

		EU DECLARATION OF CONFORMITY													
1.6. The manufacturer: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Name of the manufacturer:</td> <td style="width: 50%;">Lara Technologies AG,</td> </tr> <tr> <td>Address of the manufacturer:</td> <td>3624 Rüschlikon, Villingenstr. 17,</td> </tr> </table>						Name of the manufacturer:	Lara Technologies AG,	Address of the manufacturer:	3624 Rüschlikon, Villingenstr. 17,						
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1.7. Importer declaration: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Name of importer:</td> <td style="width: 50%;">Euro Asst Distribution GmbH</td> </tr> <tr> <td>Address of importer:</td> <td>Luxemburg</td> </tr> </table>						Name of importer:	Euro Asst Distribution GmbH	Address of importer:	Luxemburg						
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The equipment described below complies with the requirements and conforms to the following:															
1. Electromagnetic compatibility: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">EN 61010-1:2012</td> <td style="width: 50%;">EN 61010-2-1:2012</td> </tr> <tr> <td>EN 61010-2-2:2012</td> <td>EN 61010-2-3:2012</td> </tr> <tr> <td>EN 61326-1:2012</td> <td>EN 61326-2:2012</td> </tr> </table>						EN 61010-1:2012	EN 61010-2-1:2012	EN 61010-2-2:2012	EN 61010-2-3:2012	EN 61326-1:2012	EN 61326-2:2012				
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EN 61010-2-2:2012	EN 61010-2-3:2012														
EN 61326-1:2012	EN 61326-2:2012														
2. Radio equipment: The above mentioned equipment, including the parts of the specification, is intended for use in the other harmonized countries, including the parts of the specifications, of the following radio equipment: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">EN 61010-1:2012 + A1:2014</td> <td style="width: 50%;">EN 61010-2-1:2012</td> </tr> <tr> <td>EN 61010-2-2:2012</td> <td>EN 61010-2-3:2012</td> </tr> <tr> <td>EN 61326-1:2012 + A1:2014</td> <td>EN 61326-2:2012</td> </tr> <tr> <td>EN 61326-3:2012 + A1:2014</td> <td>EN 61326-4:2012</td> </tr> <tr> <td>EN 61326-5:2012</td> <td>EN 61326-6:2012</td> </tr> </table>						EN 61010-1:2012 + A1:2014	EN 61010-2-1:2012	EN 61010-2-2:2012	EN 61010-2-3:2012	EN 61326-1:2012 + A1:2014	EN 61326-2:2012	EN 61326-3:2012 + A1:2014	EN 61326-4:2012	EN 61326-5:2012	EN 61326-6:2012
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EN 61326-3:2012 + A1:2014	EN 61326-4:2012														
EN 61326-5:2012	EN 61326-6:2012														
3. Place of issue:		Issued on:													
4. Signature of the person authorized by the manufacturer:		Authorized person:													
5. Signature of the person authorized by the importer:		Authorized person:													

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HIGH QUALITY CERTIFICATION KFT.

112 Budapest, Árpád út 11.
1126 Budapest, Hungary
Tel: +36 1 440 0000
E: info@hqcert.hu
www.hqcert.hu

CERTIFICATE

HQCERT
HIGH QUALITY CERTIFICATION KFT.
2012-2016

The HIGH QUALITY CERTIFICATION CERTIFICATE
GRANT CERTIFICATE

Lara Technologies Ltd.

112, Széchenyi utca Budapest, 1126 Hungary

has been awarded to compliance to documented system according to
MSZ EN ISO 14001:2015

This certificate is valid for the following scope of activity:
Manufacturing and trade of industrial air flow measurement device

For information on quality system
2016-01-01

Signature of the responsible person
2016-01-01

2016-01-01



HIGH QUALITY CERTIFICATION KFT.

1000 Budapest, Mátyás utca 10.
 Tel.: +36 (0)1 266 1000
 E-mail: info@hqcert.hu

CERTIFICATE

HQCERT
 ISO 9001

THE HUNGARIAN QUALITY CERTIFICATION CERTIFICATE
 OF THE COMPANY: **Lara Technologies Ltd.**

1000 Budapest, Rákóczi utca 100/B-1008

FOR THE ISO 9001:2015 STANDARD OF MANAGEMENT SYSTEMS OF THE
MSZ ISO 45001:2018

THE CERTIFICATE IS BASED ON THE FOLLOWING SCOPE OF
 Manufacture and trade of semiconductor and other electronic
 devices

THE CERTIFICATE IS VALID UNTIL
 2024-06-30

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 2024-06-30

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 2024-06-30

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HUNGARY

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