Senser™

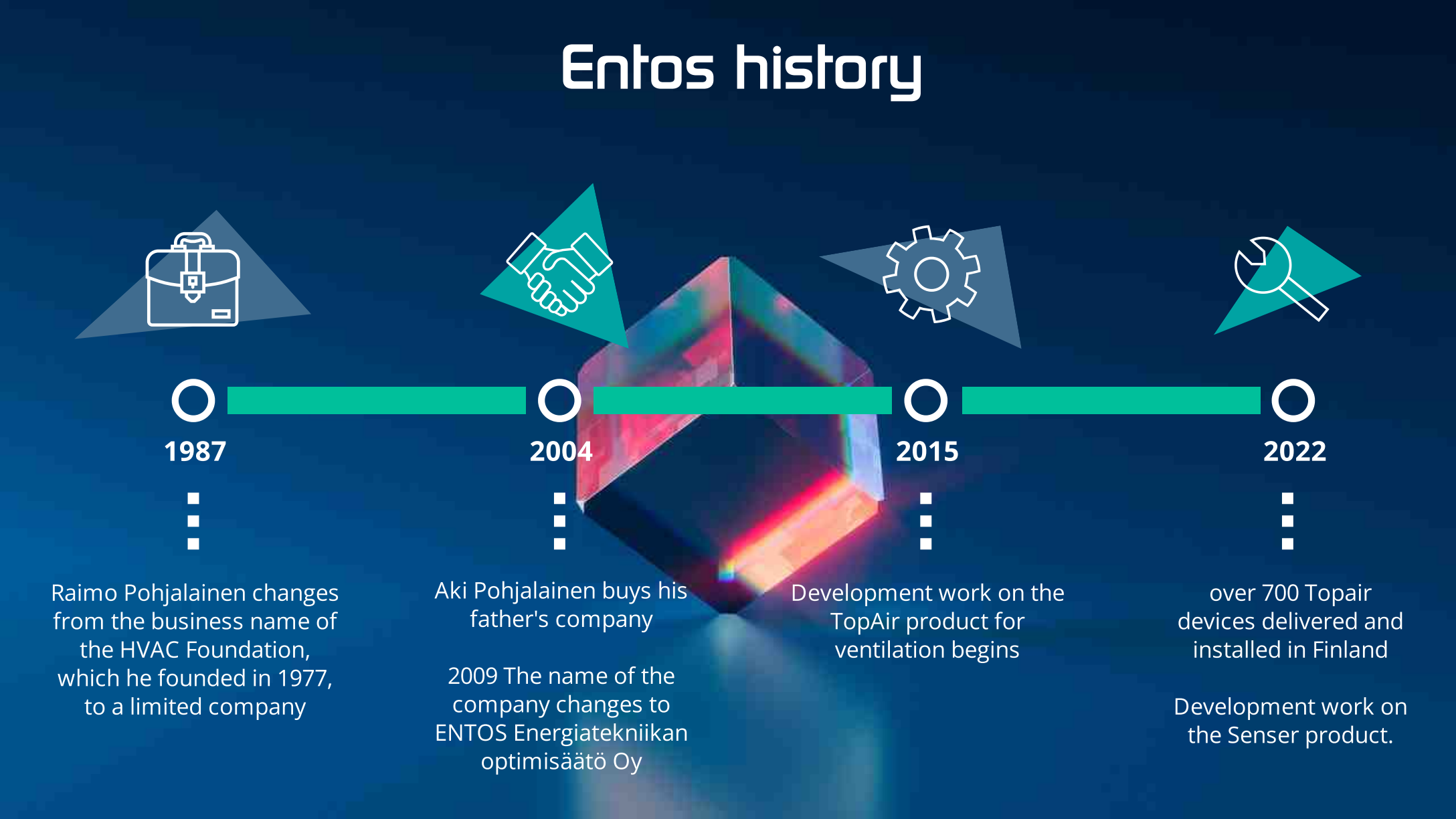
MAKING BUILDINGS BREATHE

Senser

ver. 1.2

Intelligence by entos

Entos history



1987

Raimo Pohjalainen changes from the business name of the HVAC Foundation, which he founded in 1977, to a limited company

2004

Aki Pohjalainen buys his father's company

2009 The name of the company changes to ENTOS Energiatekniikan optimisäätö Oy

2015

Development work on the TopAir product for ventilation begins

2022

over 700 Topair devices delivered and installed in Finland

Development work on the Senser product.

Senser™ | Air Management for Smarter Environments

Making to Buildings Breathe ... when it needs

Uses **smart** algorithms to adapt the ventilation by learning from data collected by Senser™

- Senser™ CLOUD PLATFORM
- Senser™ FOR ROOFTOP FANS
- Senser™ FOR AIR HANDLING UNIT

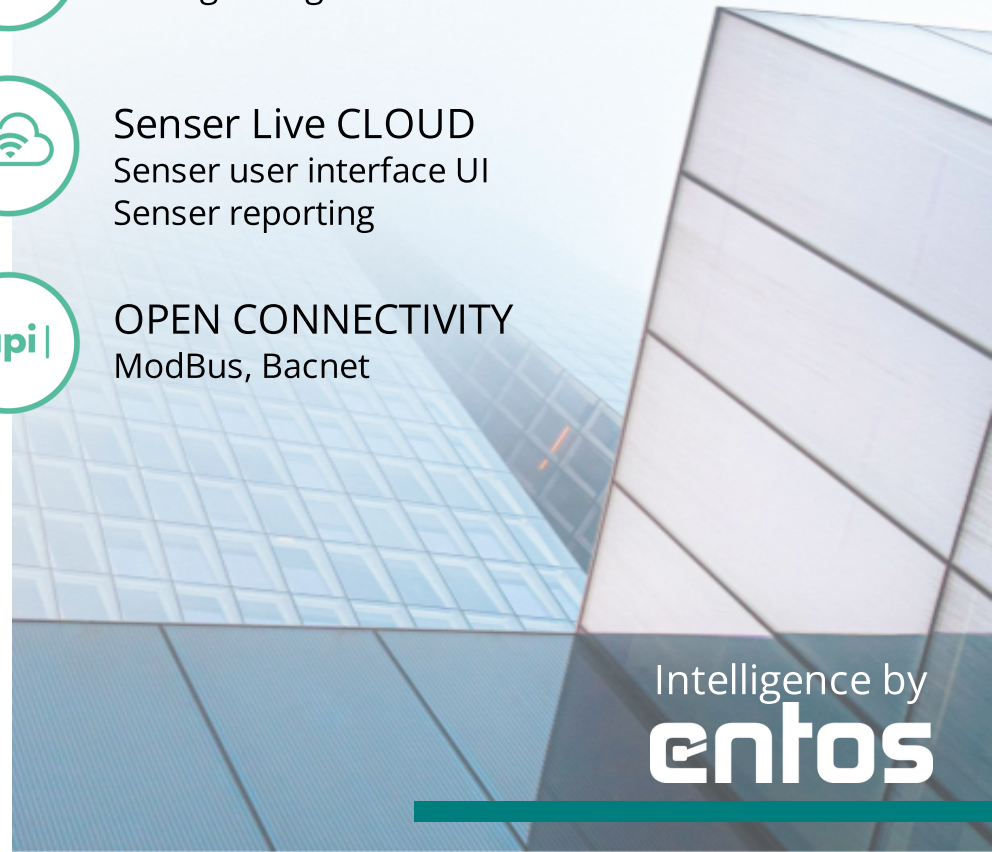
for detailed information please contact us
www.senserinnovations.com I sales@entos.fi

Senser AHU / BASE
CO2, VOCs, °C, RH, P
Fire detector

Senser OPTIMIZING
Intelligent algorithms

Senser Live CLOUD
Senser user interface UI
Senser reporting

OPEN CONNECTIVITY
ModBus, Bacnet



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Optimise Buildings Breathe **... when it needs**

- A safe way to make automated ventilation
- Create living comfort:
  - adapts to the rhythm of life
  - avoids the feeling of cold in the winter
  - ventilates in night time cooling during summer

- Changes the the energy economy
  - return on investment 12-18 months
  - saves heating energy 8-17%
  - saves cooling energy 20-39%

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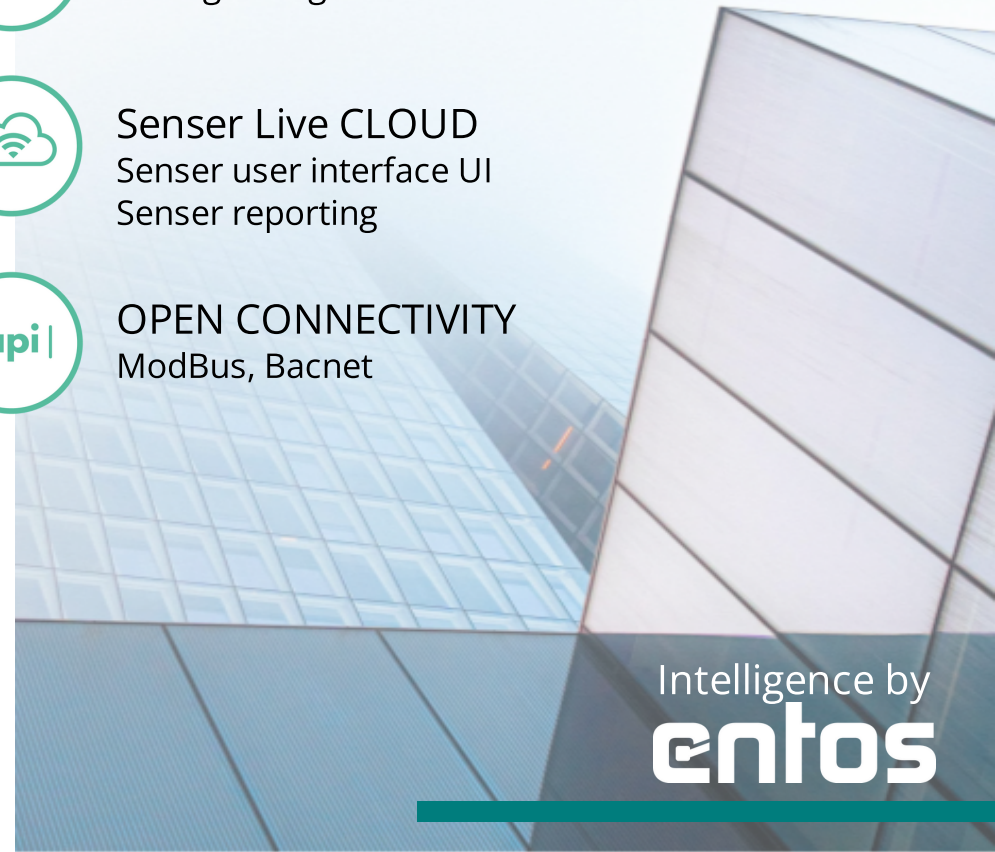

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Setting up to Buildings Breathe **... when it needs**

- Easy to add learning to the building
  - fast and straight installation
  - features immediately available
  - learning within 2 weeks from installation

- To comply to future demand
  - suitable for all energy repairs
  - can be connected to all building automation systems
  - hybrid renovation: heating, ventilation renovation

- How to get started
  - Information: location, ventilation documents, indoor volume

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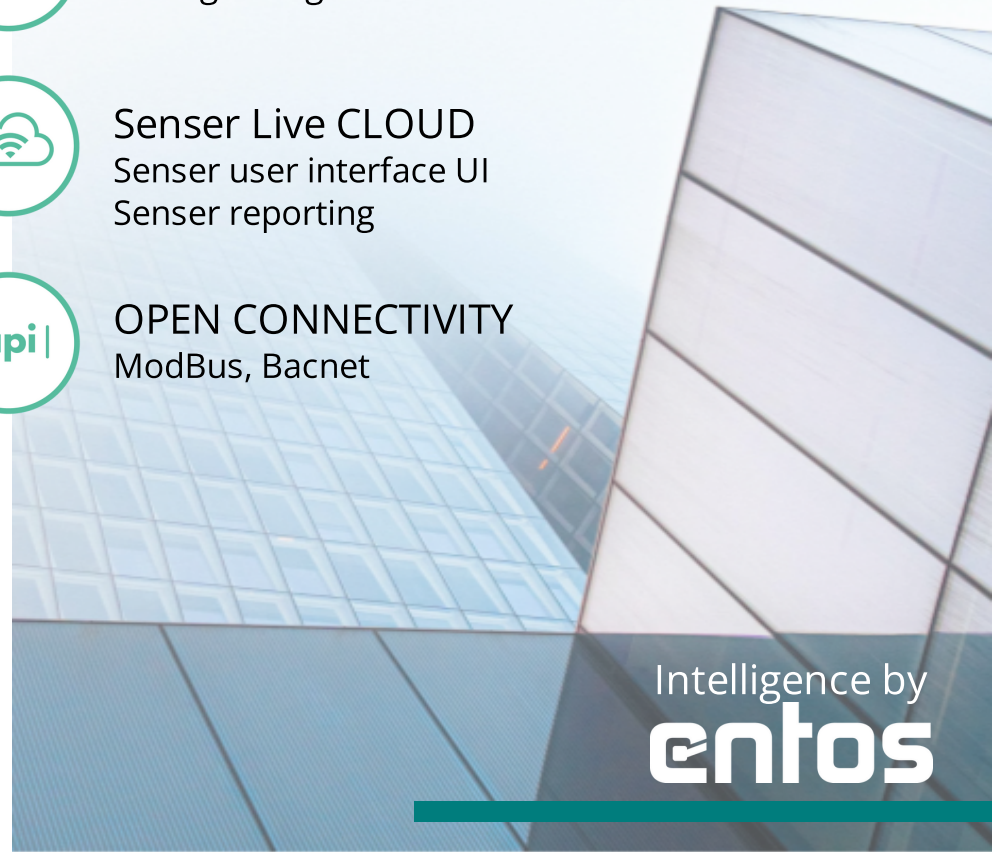

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Datasheet

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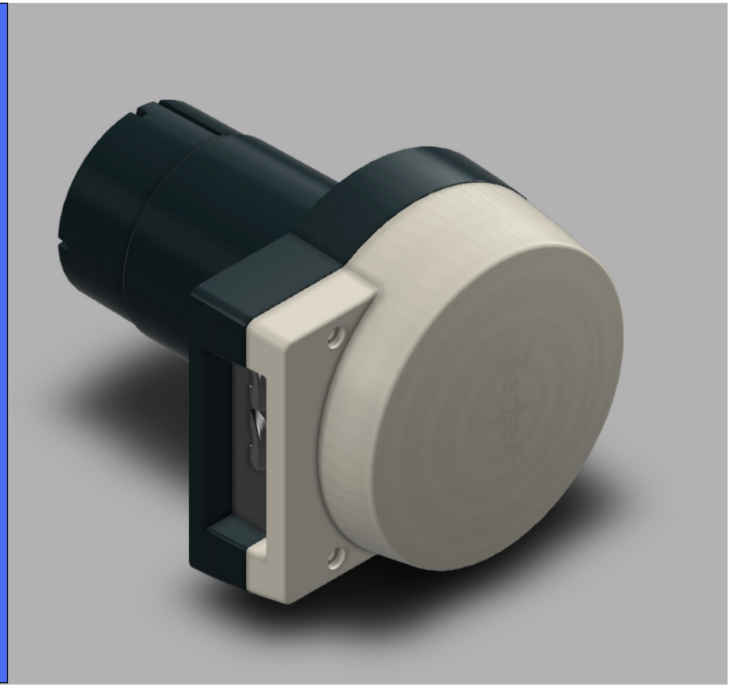

MAIN SPECS

Voltage / Power /Hz	90 - 264 Vac / 8W / Hz47-63Hz
IP class	4x
Dimension (d) (w) (h)	d=230mm w=170mm h=200mm
Weight	0,5 Kg
Working temp.	-34 ... +85 c
Working humidity	20 ... 95% RH
Operating conditions of humidity compensation	-10c...+50c / 0...90% RH
Storage Temp. / humidity	-40c...+90c / 10...95% RH
Varastointi lämp. / kost.	-40c...+90c / 10...95% RH

DATA / MODEM

RAT	LTE Cat M1/Cat NB1/EGPRS
Frequency (MHz)	LTE-FDD: B1/2/3/4/5/8/12/13/18/19/20/26*/28; EGPRS: 850/900/1800/1900MHz
Sertificates	Vodafone/Deutsche Telekom/Telefónica/ Verizon/AT&T/ T-Mobile/Telus/Rogers/ SKT/ LGU+/NTT DOCOMO/SoftBank/ KDDI/ Telstra/ GCF/CE/FCC/PTCRB/IC/IFETEL /CCC/KC/ NCC/JATE/ TELEC/RCM/NBTC/IMDA/ ICASA/U.S._Cellular

MEASUREMENT

Voc	0...1000ppm
Co2	0...1000ppm
Me humidity element	0...100 %RH
Te temperature element	-40...+70c
Nox	0...500ppm
Pe Pressure element	0...2500Pa (250/500/1000/2500)
Te Outside temperature	-40...+80c (Acc.+-0.5c /res.0.1c)
Me Outside humidity	0...99.9%RH (Acc. +-3 / res.o.1)
NO2	Optional
O3	Optional

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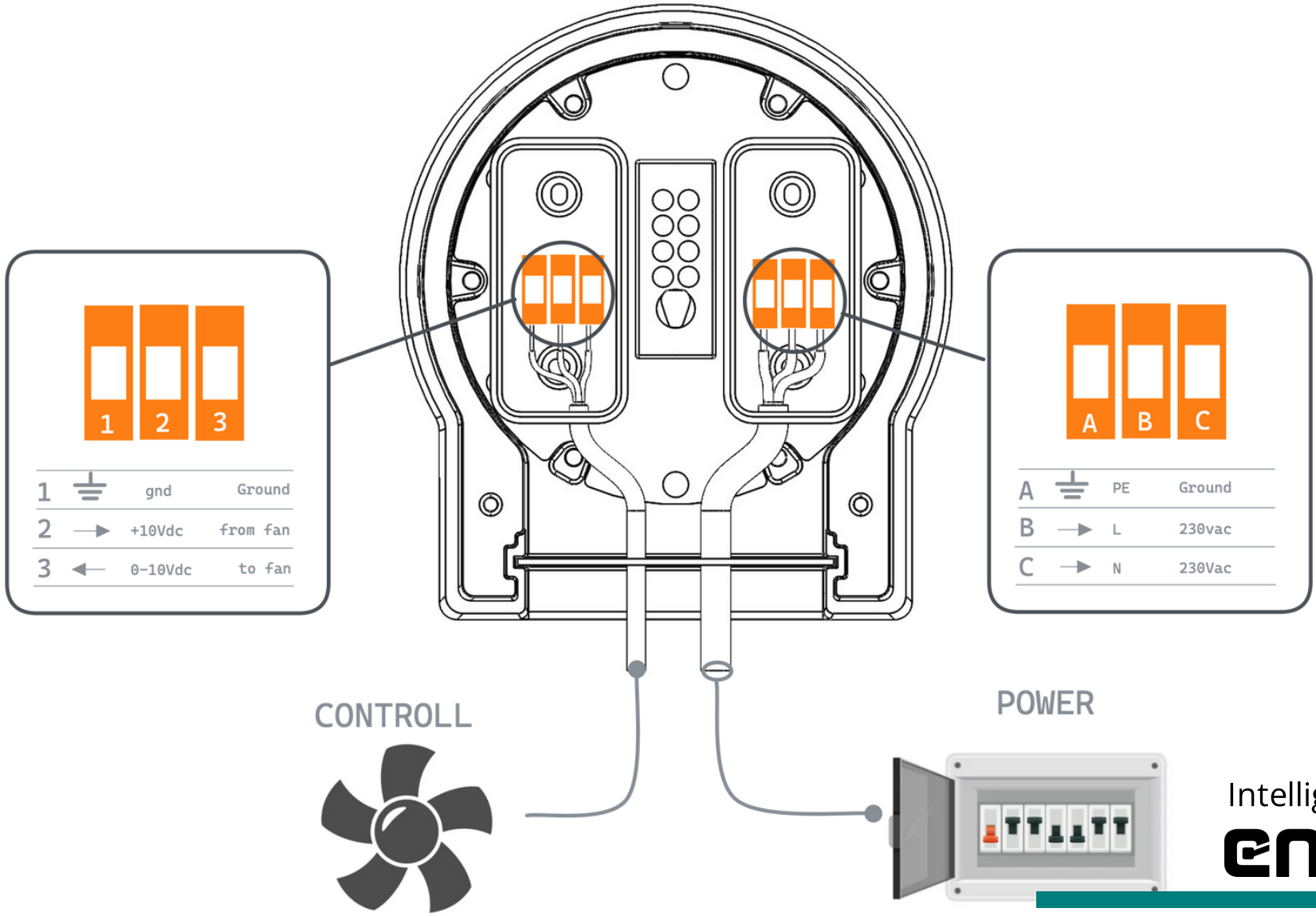

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Connections

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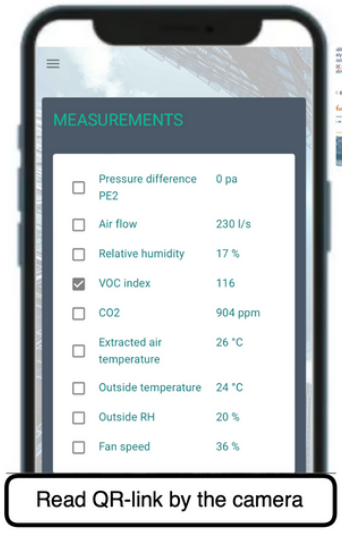
Senser user interface and Senser-IAQ | Senser live and opportunities | Building management and automations systems

SenserIAQ certification



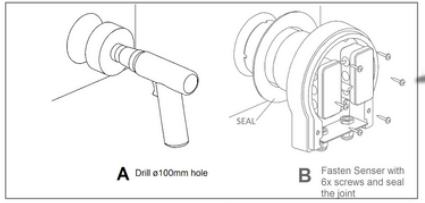
Read QR-link by the camera

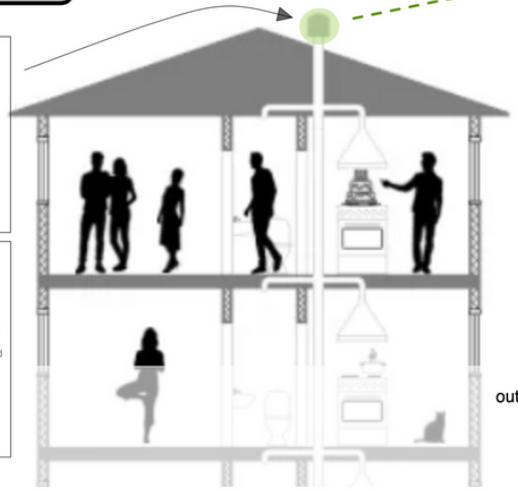
Senser Live

Platform for:
1. Product service and maintain
2. Software update services
3. List of device connections
4. Product management tools

Senser™ Live

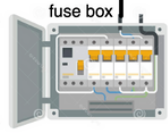
QL QR-link tool
RA rest API
other Cloud service
LR LoRaWan (optional)
4G Data network
LTE LTE network
BAS / BMS
External Communication Line
18 Programs
QR-link QR
MB Modbus
FAN control (optional)
LR LoRa (local network)
90-230v
0-10vdc
fuse box
damper control
single fan control
air handling unit fan control

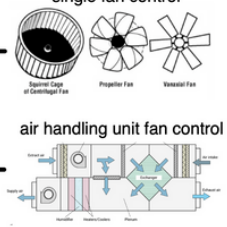




temperature (c) TE
relative humidity (%) RH
pressure (Pa) PE
VOC (ppm) VO
Co2 (ppm) CO
NOx (ppm) NO
outside temperature (c) TE
outside relative humidity (%) RH

AO 4 x analog out
DO 4 x digital out
AI 2 x analog in
DI 4 x digital in





8 | 14 | 60

Senser installation instructions | building | Measuring elements | I/O-connections | Controlled unit (examp) | Wireless unit (examp)

product features

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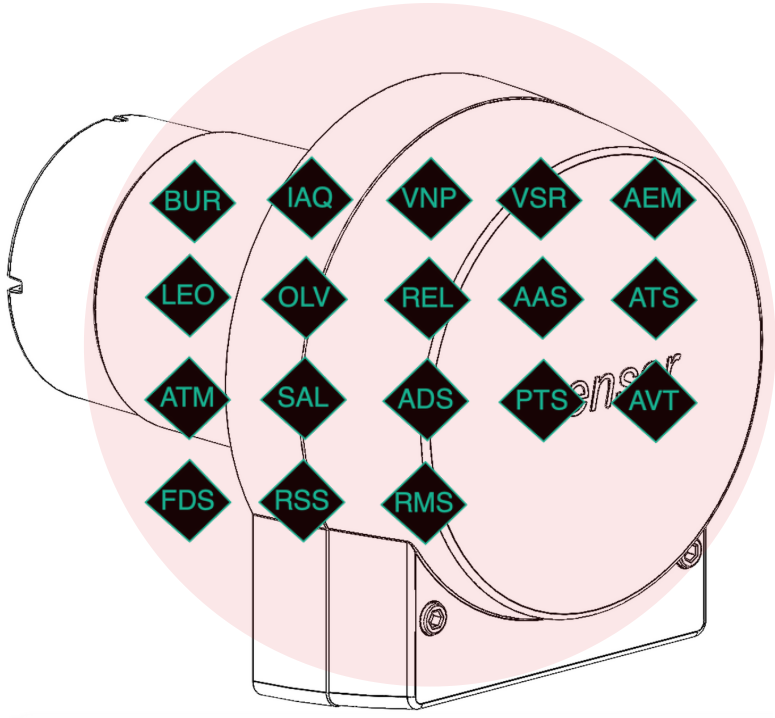
18 programmed functions is already to made in device



Rakennuksen Käyttöaste BUR Building Usage rate
Sisäilman laatu IAQ Indoor air quality
yö tuuletus VNP ventilation night power
ilmanvaihdon äänen vaimennus VSR ventilation sound reduction
Energia mittarointi(AEM) Active Energy Monitoring
Oppiva ilmanvaihto(LEO) Learning Optimization
Toiminta raja-arvot(OLV) Operating Limit Values
Reagoinnin liukuma (REL) Reaction Lag
Aktiivinen ennakoiva huolto (AAS) Active Anticipatory Service
Aktiivinen seuranta (ATS) Active Tracking System
Aktiivinen valvonta (ATM) Active Tracking Management System
Hälytysrajat (SAL) Safety Alarm Limits
Ennakoiva huolto (ADS) Advance Service Support
Paine valvonta (PTS) Pressure Tracking System
Ilmamäärän valvonta (AVT) Air Value Tracking System
Tulipalon valvonta (FDS) Fire Dedector System
Etähuollettavuus (RSS) Remote Service System
Etäseuranta (RMS) Remote Management System

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User interface

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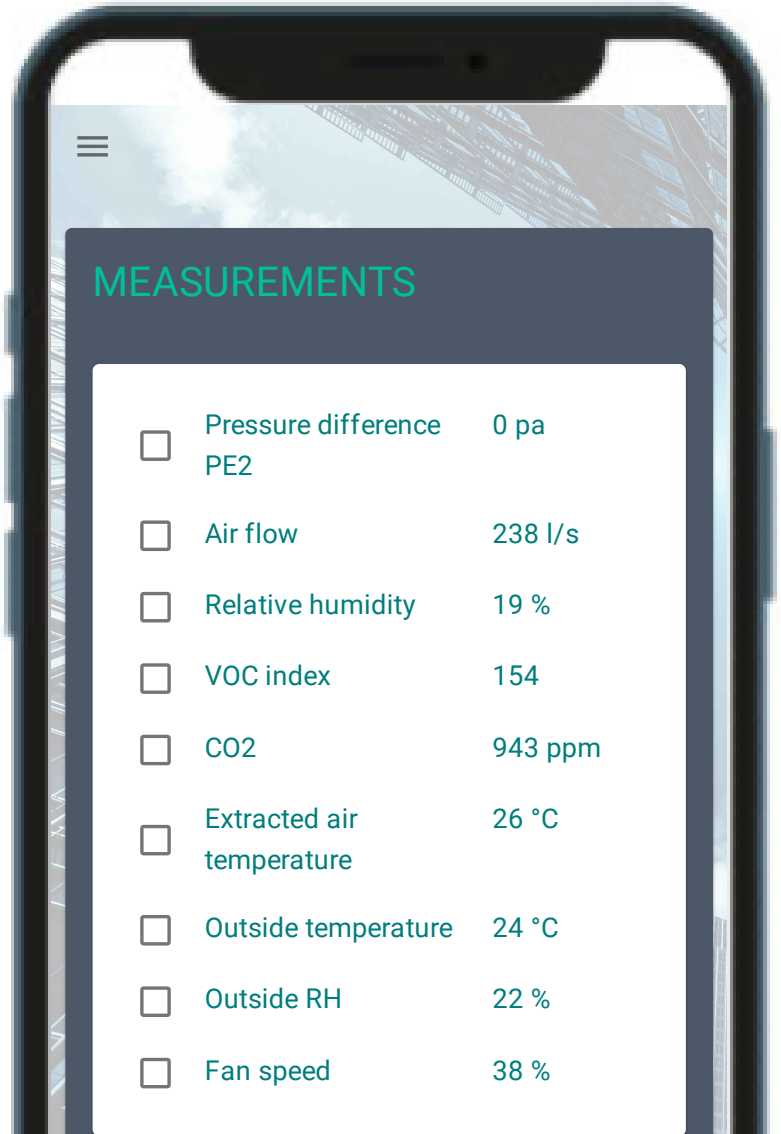

Senser Live

User interface

- scan QR-code by phone
- ready to use
- safe https-connection
- setup values is protected with password

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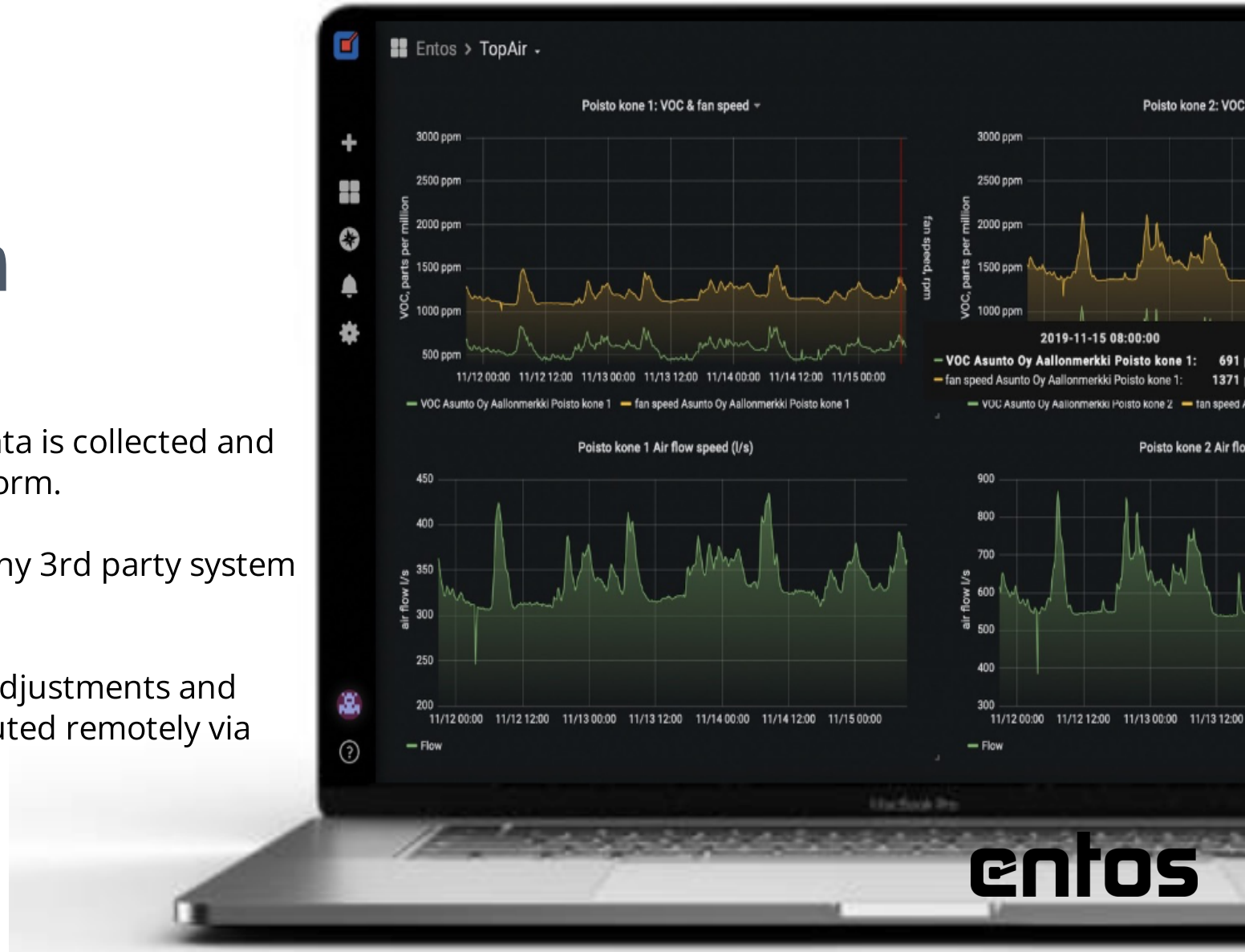
Sharing Information

All measured and control data is collected and visualized in our cloud platform.

The data can be shared to any 3rd party system via REST-API.

Firmware updates, system adjustments and service operations are executed remotely via cloud interface.



Thank you!

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